PY3 Series Inductive Proximity Sensors

Miniature Ø3 (3mm) Stainless Steel – DC

- Smooth barrel (no threads)
- Complete overload protection
- IP67 rated
- Stainless steel construction
- LED status indicator
- Lifetime warranty

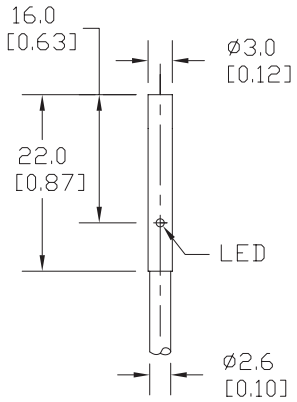
PY Series Ø3 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range mm [in]	Mounting	Output State	Logic	Connection	Dimensions
Standard Distance							
PY3-AN-1A	$-09pi:	0.6 [0.024]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Figure 1
PY3-AP-1A	$09pk:	0.6 [0.024]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Figure 1
Extended Distance							
PY3-AN-3A	$-009pj:	1 [0.039]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Figure 1
PY3-AP-3A	$-009pl:	1 [0.039]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Figure 1

Dimensions

mm [inches]

Figure 1



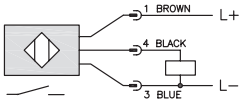
PY Series Specifications

Specification	Standard Distance	Extended Distance
Mounting Type	Flush	
Nominal Sensing Distance	0.6 mm [0.024 in]	1mm [0.039 in]
Operating Distance	NA	NA
Material Correction Factors	See the Material Influence table	
Output Type	NPN or PNP, N.O. only, 3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤ 10µA	≤ 0.1mA
Voltage Drop	≤ 2.0 V	
Switching Frequency	5kHz	3kHz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	≤ 5%	
Ripple	≤ 20%	
Time Delay Before Availability (tv)	10ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158 F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	Yellow (output energized)	
Housing Material	Stainless steel	
Sensing Face Material	Polyester	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	NA	
Weight	23g [0.81 oz]	22g [0.78 oz]
Connection	2 [6.5 ft] meter PVC cable	
Agency Approvals	UL file E328811	

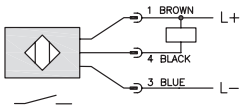
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

PNP Output



NPN Output



PY4 Series Inductive Proximity Sensors

Miniature M4 (4mm) Stainless Steel – DC

- Complete overload protection
- IP67 rated
- Stainless steel construction
- LED status indicator
- Lifetime warranty

PY Series M4 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range mm [in]	Mounting	Output State	Logic	Connection	Dimensions
Standard Distance							
PY4-AN-1A	$09pn:	0.6 [0.024]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Figure 1
PY4-AP-1A	$09pp:	0.6 [0.024]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Figure 1
Extended Distance							
PY4-AN-3A	$009po:	1 [0.039]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Figure 1
PY4-AP-3A	$009pq:	1 [0.039]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Figure 1

PY Series Specifications

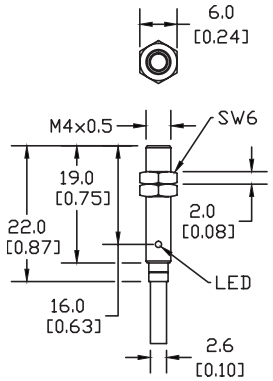
Specification	Standard Distance	Extended Distance
Mounting Type	Flush	
Nominal Sensing Distance	0.6 mm [0.024 in]	1mm [0.039 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. only/3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤ 10µA	≤ 0.1mA
Voltage Drop	≤ 2.0 V	
Switching Frequency	5kHz	3kHz
Differential Travel (% of Nominal Distance)	≤10%	
Repeat Accuracy	≤ 5%	
Ripple	≤ 20%	
Time Delay Before Availability (tv)	10ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes [switch auto-resets after overload is removed]	
Operating Temperature	-25 to +70°C [-13 to 158° F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	Yellow [output energized]	
Housing Material	Stainless steel	
Sensing Face Material	Polyester	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	0.8 N•m [7.08 lb•in]	
Weight	23g [0.81 oz]	26g [0.92 oz]
Connection	2m [6.5 ft] PVC cable	
Agency Approvals	UL file E328811	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

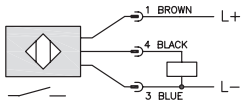
mm [inches]

Figure 1

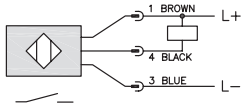


Wiring Diagrams

PNP Output



NPN Output



AC1 Series Inductive Proximity Sensors

Miniature Ø4 mm Stainless Steel

- Smooth barrel
- NPN or PNP, N.O. or N.C.
- Complete overload protection
- IP67 rated
- Stainless steel construction
- Yellow output LED 360 degree visible
- Lifetime warranty

AC1 Series Ø4 mm Inductive Proximity Selection Chart

Part Number	Price	Sensing Range mm [in]	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
AC1-AN-1A	$10_g:	0.8 [0.03]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AC1-AP-1A	$10_h:	0.8 [0.03]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AC1-AN-1F	$-10_i:	0.8 [0.03]	Flush	N.O.	NPN	M8 connector	Diagram 3	PDF
AC1-AP-1F	$-10_j:	0.8 [0.03]	Flush	N.O.	PNP	M8 connector	Diagram 4	PDF
AC1-CN-1A	$10_p:	0.8 [0.03]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AC1-CP-1A	$10_q:	0.8 [0.03]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AC1-CN-1F	$10_s:	0.8 [0.03]	Flush	N.C.	NPN	M8 connector	Diagram 3	PDF
AC1-CP-1F	$;10_t:	0.8 [0.03]	Flush	N.C.	PNP	M8 connector	Diagram 4	PDF
Extended Distance								
AC1-AN-3A	$10_k:	1.5 [0.06]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AC1-AP-3A	$-10_l:	1.5 [0.06]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AC1-AN-3F	$10_n:	1.5 [0.06]	Flush	N.O.	NPN	M8 connector	Diagram 3	PDF
AC1-AP-3F	$10_o:	1.5 [0.06]	Flush	N.O.	PNP	M8 connector	Diagram 4	PDF
AC1-CN-3A	$10_u:	1.5 [0.06]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AC1-CP-3A	$10_v:	1.5 [0.06]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AC1-CN-3F	$10_x:	1.5 [0.06]	Flush	N.C.	NPN	M8 connector	Diagram 3	PDF
AC1-CP-3F	$10_y:	1.5 [0.06]	Flush	N.C.	PNP	M8 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1
NPN Cable

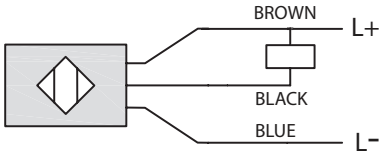
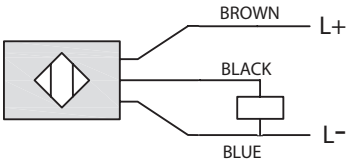


Diagram 2
PNP Cable



Connector
M8 connector

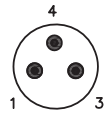


Diagram 3
NPN M8 Connector

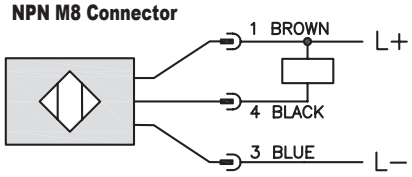
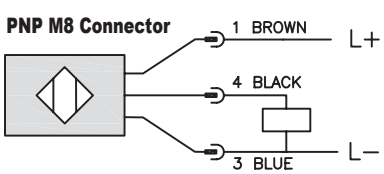


Diagram 4
PNP M8 Connector



**smooth barrel (no threads)*

AC1 Series Inductive Proximity Sensors

AC1 Series Specifications		
Specification	***Standard Distance***	***Extended Distance***
Mounting Type	Flush	
Nominal Sensing Distance	0.8 mm [0.031 in]	1.5 mm [0.06 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤10 µA	
Voltage Drop	≤ 1.5 V	
Switching Frequency	7kHz	
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	≤ 5%	
Ripple	≤10%	
Time Delay Before Availability (tv)	≤ 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-resets)	
Operating Temperature	-25 to 70°C [-13 to 158° F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow output (on energized)	
Housing Material	Stainless Steel	
Sensing Face Material	Polybutylene Terephthalate	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	NA	
Weight	30g [1.06 oz] (cable version) 4g [0.14 oz] [M8 connector]	
Connection	2m [6.5 ft] PUR Cable or M8 Connector	
Agency Approvals	CE cULus E187310	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

PD Series Inductive Proximity Sensors

Miniature M5 (5mm) Stainless Steel – DC

- Stainless steel construction
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- IP67 rated
- Smallest self-contained inductive proximity sensor available on the U.S. market
- LED status indicator
- Lifetime warranty

PD Series M5 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range mm [in]	Mounting	Output State	Logic	Connection	Dimensions
Standard Distance							
PD1-AN-1A	$09pa:	0.8 [0.03]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Figure 1
PD1-AP-1A	$09pe:	0.8 [0.03]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Figure 1
PD1-AN-1F	$09pb:	0.8 [0.03]	Flush	N.O.	NPN	M8 [8mm] connector	Figure 2
PD1-AP-1F	$;09pf:	0.8 [0.03]	Flush	N.O.	PNP	M8 [8mm] connector	Figure 2
Extended Distance							
PD1-AN-3A	$09pc:	1.5 [0.06]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Figure 1
PD1-AP-3A	$09pg:	1.5 [0.06]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Figure 1
PD1-AN-3F	$09pd:	1.5 [0.06]	Flush	N.O.	NPN	M8 [8mm] connector	Figure 2
PD1-AP-3F	$09ph:	1.5 [0.06]	Flush	N.O.	PNP	M8 [8mm] connector	Figure 2

PD Series Specifications

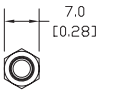
Mounting Type	Standard Distance	Extended Distance
	Flush	
Nominal Sensing Distance	0.8 mm [0.03 in]	1.5 mm [0.06 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. only/3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤10mA	
Operating (Load) Current	≤ 200mA	
Off-state (Leakage) Current	≤ 10µA	≤ 0.1mA
Voltage Drop	≤ 2.0 V	
Switching Frequency	5kHz	3kHz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	≤ 1.5%	
Ripple	≤ 20%	
Time Delay Before Availability (tv)	10ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25° to +70°C [-13° to 158°F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	Yellow (output energized)	
Housing Material	Stainless steel	
Sensing Face Material	Polybutylene Terephthalate [PBT]	Polyester
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	1.5 Nm (13.3 lb./in.)	
Weight	43g [1.52 oz]/10g [0.36 oz]	34g [1.20 oz]/4g [0.14 oz]
Connection	2 meter [6.5 ft] PVC axial cable / M8 connector	
Agency Approvals	UL file E328811	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1



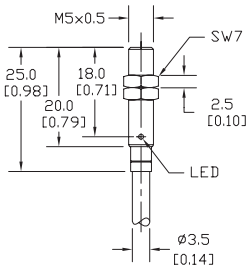
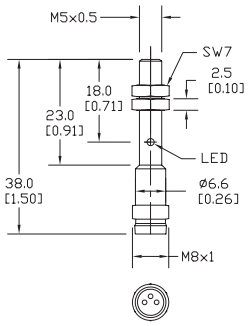
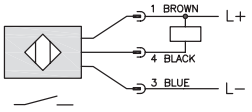


Figure 2

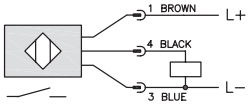


Wiring Diagrams

NPN Output

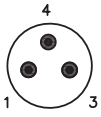


PNP Output



Connector

M8 connector



AHS Series Inductive Proximity Sensors

Miniature Ø6.5 mm Stainless Steel – DC

- Smooth barrel
- NPN or PNP, N.O. or N.C.
- Complete overload protection
- IP67-rated
- Stainless steel construction
- Yellow output LED 360 degree visible
- Lifetime warranty

AHS Series Ø6.5 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range mm [in]	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
AHS-AN-1A	$10_z:	1.5 [0.06]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AHS-AP-1A	$;10_]:	1.5 [0.06]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AHS-AN-1F	$;10_[:	1.5 [0.06]	Flush	N.O.	NPN	M8 connector	Diagram 3	PDF
AHS-AP-1F	$10__:	1.5 [0.06]	Flush	N.O.	PNP	M8 connector	Diagram 4	PDF
AHS-CP-1A	$10#1:	1.5 [0.06]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AHS-CP-1F	$10#3:	1.5 [0.06]	Flush	N.C.	PNP	M8 connector	Diagram 4	PDF
Extended Distance								
AHS-AN-3A	$10_#:	2 [0.08]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AHS-AP-3A	$;10_!:	2 [0.08]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AHS-AN-3F	$10_?:	2 [0.08]	Flush	N.O.	NPN	M8 connector	Diagram 3	PDF
AHS-AP-3F	$;10_,:	2 [0.08]	Flush	N.O.	PNP	M8 connector	Diagram 4	PDF
AHS-CP-3A	$10#5:	2 [0.08]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AHS-CP-3F	$10#7:	2 [0.08]	Flush	N.C.	PNP	M8 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1
NPN Cable

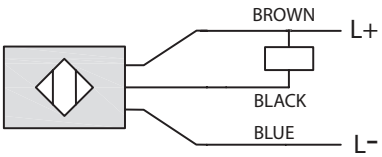
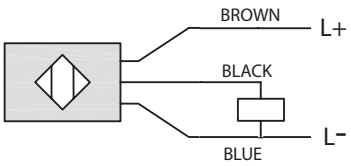


Diagram 2
PNP Cable



Connector
M8 connector

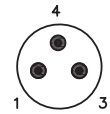


Diagram 3
NPN M8 Connector

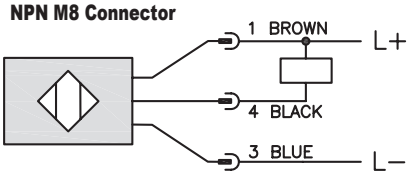
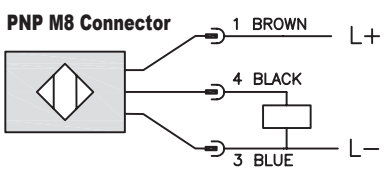


Diagram 4
PNP M8 Connector



AHS Series Inductive Proximity Sensors

AHS Series Specifications		
Specification	***Standard Distance***	***Extended Distance***
Mounting Type	Flush	
Nominal Sensing Distance	1.5 mm [0.06 in]	2mm [0.078 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤ 10 µA	
Voltage Drop	≤ 1.5 V	
Switching Frequency	7kHz	
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	≤ 5%	
Ripple	≤ 10%	
Time Delay Before Availability (tv)	≤ 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25 to 70°C [-13 to 158° F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow output (on energized)	
Housing Material	Stainless Steel	
Sensing Face Material	Polybutylene Terephthalate	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	NA	
Weight	30g [1.06 oz] (cable version) 4g [0.14 oz] (M8 connector)	
Connection	2m [6.5 ft] PUR Cable or M8 Connector	
Agency Approvals	CE cULus E187310	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

AES Series Inductive Proximity Sensors

Miniature M8 (8mm) Stainless Steel – DC

- NPN or PNP, N.O. or N.C.
- Complete overload protection
- IP67 rated
- Stainless steel construction
- Yellow output LED 360 degree visible
- Lifetime warranty

AES Series M8 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range mm [in]	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
AES-AN-1A	$10#8:	1.5 [0.06]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AES-AP-1A	$10#9:				PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AES-AN-1F	$10#a:				NPN	M8 connector	Diagram 3	PDF
AES-AP-1F	$10#b:				PNP	M8 connector	Diagram 4	PDF
AES-CN-1A	$10#g:			N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AES-CP-1A	$10#h:				PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AES-CN-1F	$-10#i:				NPN	M8 connector	Diagram 3	PDF
AES-CP-1F	$-10#j:				PNP	M8 connector	Diagram 4	PDF
Extended Distance								
AES-AN-3A	$10#c:	2 [0.08]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AES-AP-3A	$10#d:				PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AES-AN-3F	$10#e:				NPN	M8 connector	Diagram 3	PDF
AES-AP-3F	$;10#f:				PNP	M8 connector	Diagram 4	PDF
AES-CN-3A	$10#k:			N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
AES-CP-3A	$-10#l:				PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
AES-CN-3F	$10#n:				NPN	M8 connector	Diagram 3	PDF
AES-CP-3F	$10#o:				PNP	M8 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1

NPN Cable

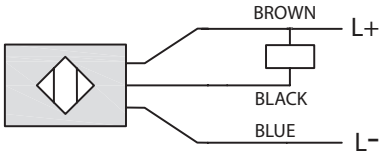
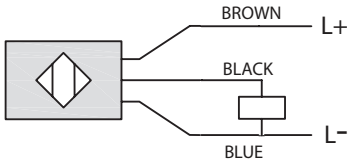


Diagram 2

PNP Cable



Connector

M8 connector

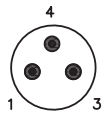


Diagram 3

NPN M8 Connector

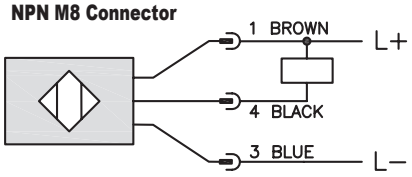
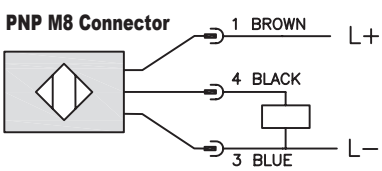


Diagram 4

PNP M8 Connector



AES Series Inductive Proximity Sensors

AES Series Specifications		
Specification	***Standard Distance***	***Extended Distance***
Mounting Type	Flush	
Nominal Sensing Distance	1.5 mm [0.06 in]	2mm [0.078 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤ 10 µA	
Voltage Drop	≤1.5 V	
Switching Frequency	7kHz	
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	≤ 5%	
Ripple	≤ 10%	
Time Delay Before Availability (tv)	≤ 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25 to 70°C [-13 to 158° F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow output (on energized)	
Housing Material	Stainless Steel	
Sensing Face Material	Polybutylene Terephthalate	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	4Nm (2.95 lb-ft)	
Weight	30g [1.06 oz] (cable version) 4g [0.14 oz] (M8 connector)	
Connection	2m [6.5 ft] PUR Cable or M8 Connector	
Agency Approvals	CE cULus E187310	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

AE1/AE6 Series Inductive Proximity Sensors

M8 (8mm) Metal – DC

- Compact metal housing
- Axial cable, M8 or M12 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicators are visible 360° around the cylinder
- Lifetime warranty

AE1 Series Standard Length M8 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
AE1-AN-1A	$-09lc:	0-1.5 mm [0-0.06 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AE1-AP-1A	$09p4:		Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AE1-AN-1H	$-09le:		Flush	N.O.	NPN	M12 [12mm] connector	Diagram 3	Figure 2
AE1-AP-1H	$09p6:		Flush	N.O.	PNP	M12 [12mm] connector	Diagram 4	Figure 2
AE1-AN-1F	$-09ld:		Flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 3
AE1-AP-1F	$09p5:		Flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 3
AE1-AN-2A	$;-09lf:	0-2.5 mm [0-0.098 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AE1-AP-2A	$09p7:		Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AE1-AN-2H	$-09lh:		Non-flush	N.O.	NPN	M12 [12mm] connector	Diagram 3	Figure 2
AE1-AP-2H	$09p9:		Non-flush	N.O.	PNP	M12 [12mm] connector	Diagram 4	Figure 2
AE1-AN-2F	$-09lg:		Non-flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 3
AE1-AP-2F	$09p8:		Non-flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 3
Extended Distance								
AE1-AN-3A	$09kz:	0-2 mm [0-0.08 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AE1-AP-3A	$09k#:		Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AE1-AN-3F	$;09k]:		Flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 3
AE1-AP-3F	$;09k!:		Flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 3
AE1-AN-4A	$;09k[:	0-4 mm [0-0.157 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AE1-AP-4A	$09k?:		Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AE1-AN-4F	$09k_:		Non-flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 3
AE1-AP-4F	$;09k,:		Non-flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 3
Triple Distance								
AE1-AN-5A	$--09li:	0-3 mm [0-0.118 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AE1-AP-5A	$-09lk:		Semi-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AE1-AN-5F	$--09lj:		Semi-flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 4
AE1-AP-5F	$--09ll:		Semi-flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 4

AE6 Series Short Body M8 DC Inductive Prox Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Extended Distance								
AE6-AN-3A	$-09l0:	0-2 mm [0-0.08 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 5
AE6-AP-3A	$-09l4:		Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 5
AE6-AN-3F	$-09l1:		Flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 6
AE6-AP-3F	$-09l5:		Flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 6
AE6-AN-4A	$-09l2:	0-4 mm [0-0.157 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 5
AE6-AP-4A	$-09l6:		Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 5
AE6-AN-4F	$-09l3:		Non-flush	N.O.	NPN	M8 [8mm] connector	Diagram 3	Figure 6
AE6-AP-4F	$-09l7:		Non-flush	N.O.	PNP	M8 [8mm] connector	Diagram 4	Figure 6

AE1/AE6 Series Inductive Proximity Sensors

AE Series Specifications					
Specification	***Standard Distance Models***		***Extended Distance Models***		***Triple Distance Models***
Mounting Type	Flush	Non-flush	Flush	Non-flush	Semi-flush
Nominal Sensing Distance	1.5 mm [0.06 in]	2.5 mm [0.098 in]	2mm [0.08 in]	4mm [0.157 in]	3mm [0.118 in]
Operating Distance	NA				
Material Correction Factors	See the Material influence table				
Output Type	NPN or PNP/N.O. only/3-wire				
Operating Voltage	10 to 30 VDC				
No-load Supply Current	≤ 20 mA		≤ 10 mA		
Operating (Load) Current	≤ 200 mA				
Off-state (Leakage) Current	≤ 10µA		≤120µA		
Voltage Drop	≤1.2 V				≤ 2.0 V
Switching Frequency	3kHz	2.5 kHz	3kHz		1kHz
Differential Travel (% of Nominal Distance)	2 to 10%		1 to 20%		m 10%
Repeat Accuracy	≤ 2%		≤ 5 %		
Ripple	≤ 10%				≤ 20%
Time Delay Before Availability (tv)	100ms (5 ms for AE6 short body models)				50ms
Reverse Polarity Protection	Yes				
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)				
Operating Temperature	-25 to +70°C [-13 to 158°F]				
Protection Degree (DIN 40050)	IEC IP67				
Indication/Switch Status	Yellow (output energized)				
Housing Material	Nickel-plated brass				Chrome-plated brass
Sensing Face Material	Polybutylene Terephthalate (PBT)				
Shock/Vibration	See Proximity Sensor Terminology				
Tightening Torque	4 Nm (2.95 lb-ft)				
Weight (cable/M8 connector/M12 connector)	43g [1.52 oz]/16g [0.56 oz]/20g [0.71 oz]				54g [1.90 oz]/26g [0.92 oz]/(NA)
Connection	2 meter [6.5 ft] PVC axial cable / M8 connector / M12 connector				
Agency Approvals	NA				UL file E328811

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1

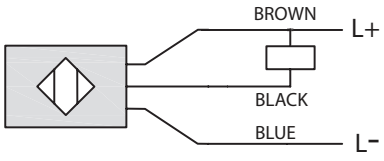
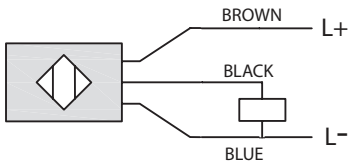
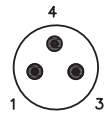


Diagram 2



Connectors

M8 connector



M12 connector

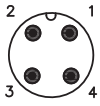


Diagram 3

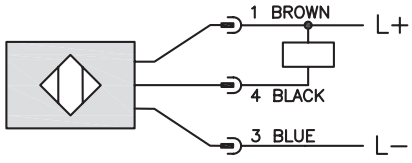
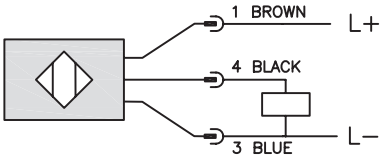


Diagram 4



AE1/AE6 Series Inductive Proximity Sensors

Dimensions

mm [inch]

Figure 1

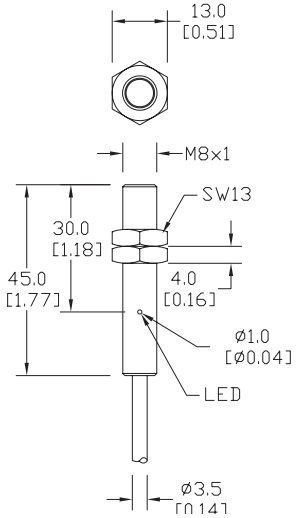


Figure 2

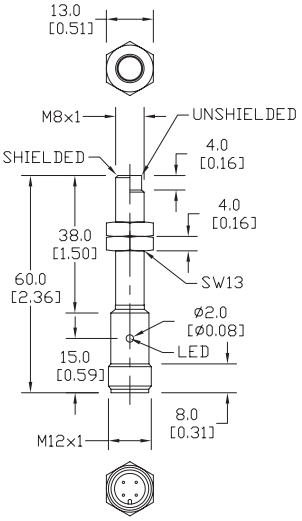


Figure 3

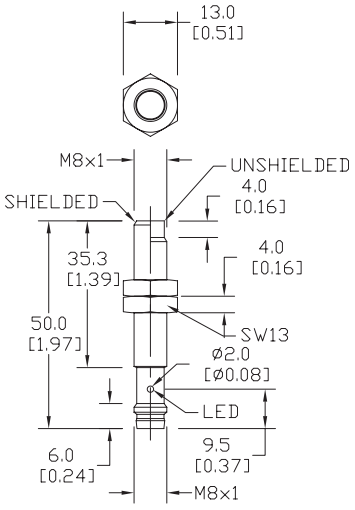


Figure 4

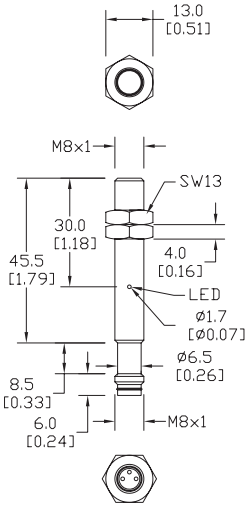


Figure 5

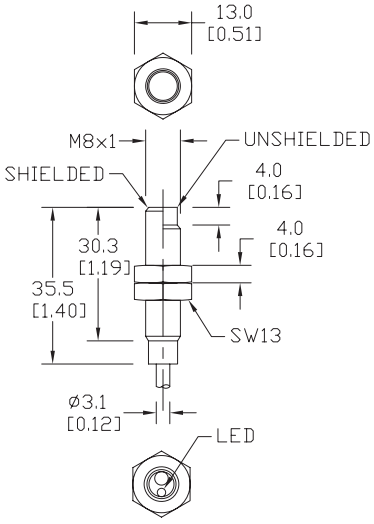
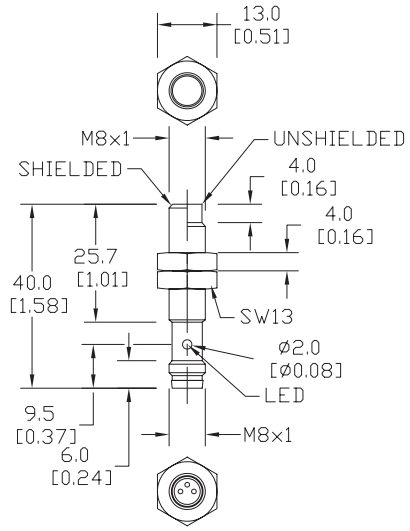


Figure 6



See our website: www.AutomationDirect.com for complete Engineering Drawings.

DW Series Analog Inductive Proximity Sensors

M8 (8mm) Metal – Analog Output

- Compact metal housing
- Axial cable or M8 quick-disconnect models
- IP67 rated
- Purchase cables separately (for quick-disconnect model)
- Lifetime warranty

DW Series M8 Analog Inductive Proximity Selection Chart							
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output*	*Connection*	*Wiring*	*Dimensions*
DW-AD-509-M8	$04b25:	0-4 mm [0-0.157 in]	Semi-flush	0-5 VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-M8-001	$04b26:		Semi-flush	0-5 VDC	M8 [8mm] quick-disconnect	Diagram 1	Figure 2
DW-AD-509-M8-390	$04b27:		Semi-flush	0-10 VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-M8-390	$04b28:		Semi-flush	0-10 VDC	M8 [8mm] quick-disconnect	Diagram 1	Figure 2

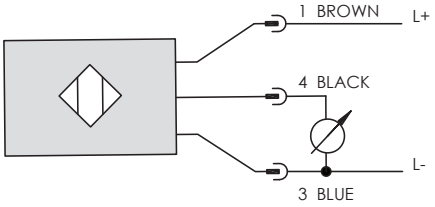
DW Series M8 Analog Inductive Proximity Specifications		
Specification	*DW-Ax-509-M8*	*DW-Ax-509-M8-390*
Mounting Type	Semi-flush	
Nominal Distance	0-4 mm [0-0.157 in]	
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	0-5 VDC	0-10 VDC
Operating Voltage	10-30 VDC	15-30 VDC
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 10mA	
Off-state (Leakage) Current	NA	
Voltage Drop	≤ 2.0 V	
Switching Frequency	NA	
Differential Travel (% of Nominal Distance)	NA	
Repeat Accuracy	±0.01 mm	
Ripple	≤ 20%	
Response Time	0.6 ms	
Time Delay Before Availability (tv)	≤ 50ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	NA	
Housing Material	Chrome-plated brass	
Sensing Face Material	Polybutylene Terephthalate (PBT)	
Shock/Vibration	IEC 60947-5-2	
Tightening Torque	4 N•m (2.95 lb•ft)	
Weight (cable/M8 connector)	50g [1.76 oz] / 20g [0.71 oz]	
Connection	2m [6.5 ft] axial cable or 3-pin M8 (8mm) connector	
Agency Approvals	UL file E239373	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

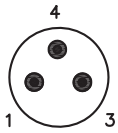
DW Series Analog Inductive Proximity Sensors

Wiring Diagram

Diagram 1

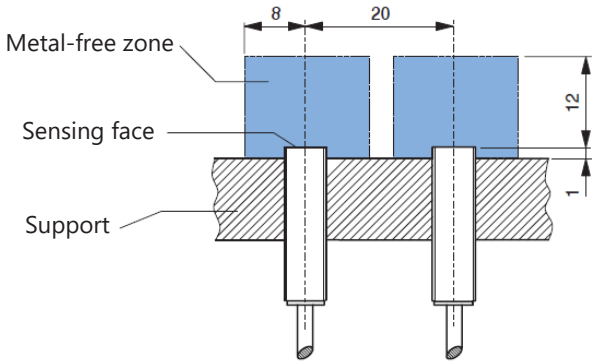


Connector



M8

Installation



Dimensions

mm [inches]

Figure 1

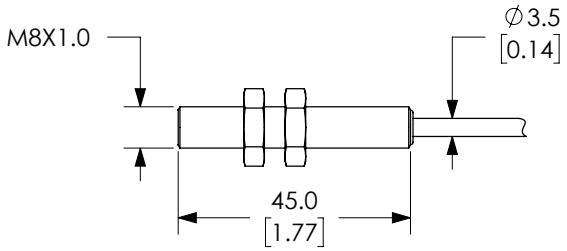
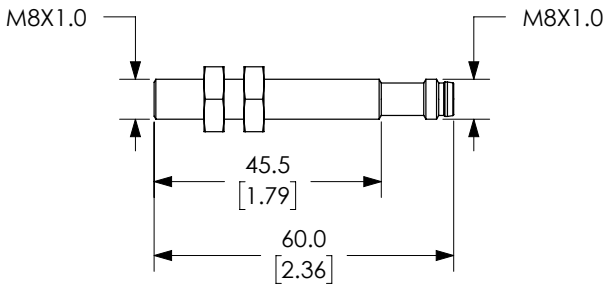


Figure 2



DW Series Analog Inductive Proximity Sensors

M12 (12mm) Metal – Analog Output

- Voltage or current analog output
- Metal housing
- Axial cable or M12 quick-disconnect models
- IP67 rated
- Purchase cable separately (for quick-disconnect model)
- Lifetime warranty

DW Series M12 Analog Inductive Proximity Selection Chart							
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output*	*Connection*	*Wiring*	*Dimensions*
DW-AD-509-M12	$04b29:	0-6 mm [0.236 in]	Semi-flush	0-5 VDC / 1-5 mA	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-M12	$04b20:		Semi-flush	0-5 VDC / 1-5 mA	M12 [12mm] quick-disconnect	Diagram 1	Figure 2
DW-AD-509-M12-390	$04b21:		Semi-flush	0-10 VDC / 4-20 mA	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-M12-390	$04b22:		Semi-flush	0-10 VDC / 4-20 mA	M12 [12mm] quick-disconnect	Diagram 1	Figure 2

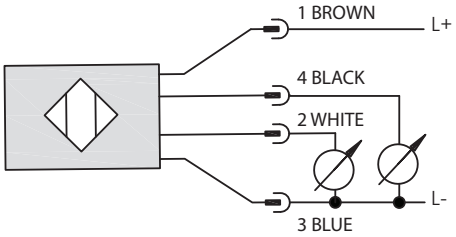
DW Series M12 Analog Inductive Proximity Specifications		
Specification	*DW-Ax-509-M12*	*DW-Ax-509-M12-390*
Mounting Type	Semi-flush	
Nominal Distance	0-6 mm [0.236 in]	
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	0-5 VDC / 1-5 mA	0-10 VDC / 4-20 mA
Current Output Max. Load / Power Supply	1kΩ / 10VDC; 5 kΩ / 30VDC	0.5kΩ / 15VDC; 1 kΩ / 30VDC
Voltage Output Min. Load	500Ω	1kΩ
Operating Voltage	10-30 VDC	15-30 VDC
No-load Supply Current	≤ 10mA	≤ 12mA
Operating (Load) Current	≤ 10mA	
Off-state (Leakage) Current	NA	
Voltage Drop	≤ 2.0 V	
Switching Frequency	NA	
Differential Travel (% of Nominal Distance)	NA	
Repeat Accuracy	± 0.01 mm	
Ripple	≤ 20%	
Response Time	1ms	
Time Delay Before Availability (tv)	≤ 50ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	NA	
Housing Material	Chrome-plated brass	
Sensing Face Material	Polybutylene Terephthalate (PBT)	
Shock/Vibration	IEC 60947-5-2	
Tightening Torque	10 N•m [7.37 lb•ft]	
Weight (cable/M12 connector)	95g [3.35 oz] / 33g [1.16 oz]	
Connection	2m [6.5 f]) axial cable or M12 [12mm] connector	
Agency Approvals	UL file E239373	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series Analog Inductive Proximity Sensors

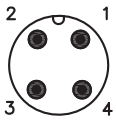
Wiring Diagram

Diagram 1



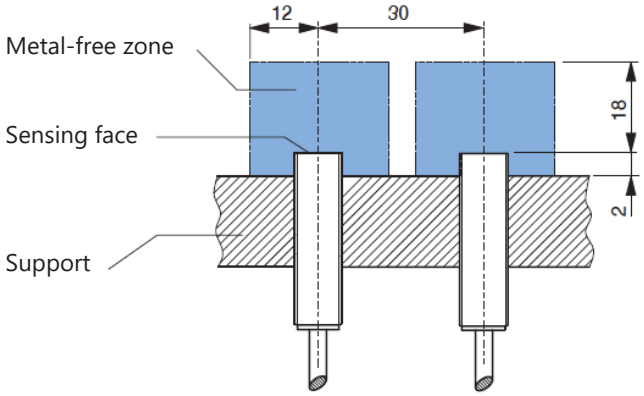
2: Current
4: Voltage

Connector



M12

Installation



Dimensions

mm [inches]

Figure 1

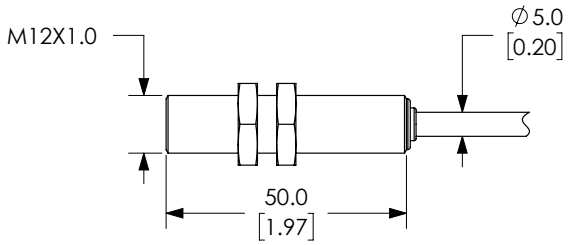
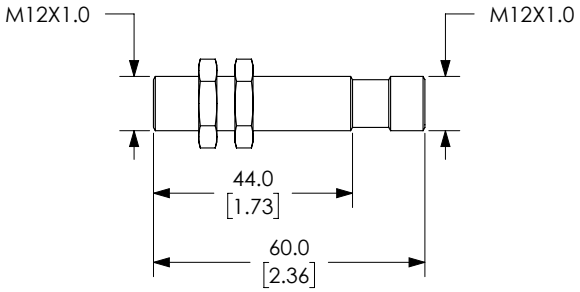


Figure 2



DW Series Analog Inductive Proximity Sensors

M18 (18mm) Metal – Analog Output

- Voltage or current analog output
- Metal housing
- Axial cable or M12 quick-disconnect model
- IP67 rated
- Purchase cable separately (for quick-disconnect model)
- Lifetime warranty

DW Series M18 Analog Inductive Proximity Selection Chart							
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output*	*Connection*	*Wiring*	*Dimensions*
DW-AD-509-M18-120	$04b23:	0-10 mm [0-0.393 in]	Semi-flush	0-5 VDC / 1-5 mA	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-M18-120	$04b24:	0-10 mm [0-0.393 in]	Semi-flush	0-5 VDC / 1-5 mA	M12 [12mm] quick-disconnect	Diagram 1	Figure 2
DW-AD-509-M18-320	$04b2b:	0-10 mm [0-0.393 in]	Semi-flush	0-10 VDC / 4-20 mA	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-M18-320	$04b2c:	0-10 mm [0-0.393 in]	Semi-flush	0-10 VDC / 4-20 mA	M12 [12mm] quick-disconnect	Diagram 1	Figure 2

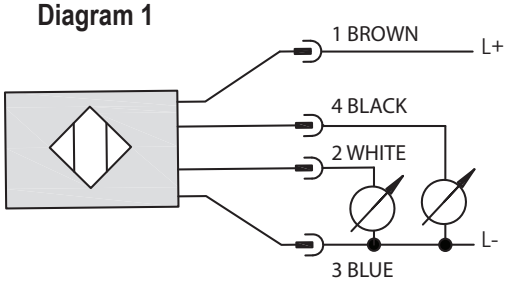
DW Series M18 Analog Inductive Proximity Specifications		
Specification	*DW-Ax-509-M18-120*	*DW-Ax-509-M18-320*
Mounting Type	Semi-flush	
Nominal Distance	0-10 mm [0-0.393 in]	
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	0-5 VDC or 1-5 mA	0-10 VDC or 4-20mA
Current Output Max. Load / Power Supply	1kΩ / 10VDC; 5kΩ / 30VDC	0.5kΩ / 15VDC; 1 kΩ / 30VDC
Voltage Output Min. Load	500Ω	1kΩ
Operating Voltage	10-30 VDC	15-30 VDC
No-load Supply Current	≤ 10mA	≤ 12mA
Operating (Load) Current	≤ 10mA	
Off-state (Leakage) Current	NA	
Voltage Drop	≤ 2.0 V	
Switching Frequency	NA	
Differential Travel (% of Nominal Distance)	NA	
Repeat Accuracy	± 0.02 mm	
Ripple	≤ 20%	
Response Time	2ms	
Time Delay Before Availability (tv)	≤ 50ms	
Input Voltage Transient Protection	Up to 30VDC	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	NA	
Housing Material	Chrome-plated brass	
Sensing Face Material	Polybutylene Terephthalate [PBT]	
Shock/Vibration	IEC 60947-5-2	
Tightening Torque	30 N•m (22 lb•ft)	
Weight (cable/M12 connector)	110g [3.88 oz] / 50g [1.76 oz]	
Connection	2m [6.5 ft] axial cable or M12 [12mm] connector	
Agency Approvals	UL file E239373	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series Analog Inductive Proximity Sensors

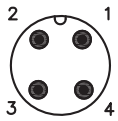
Wiring Diagram

Diagram 1



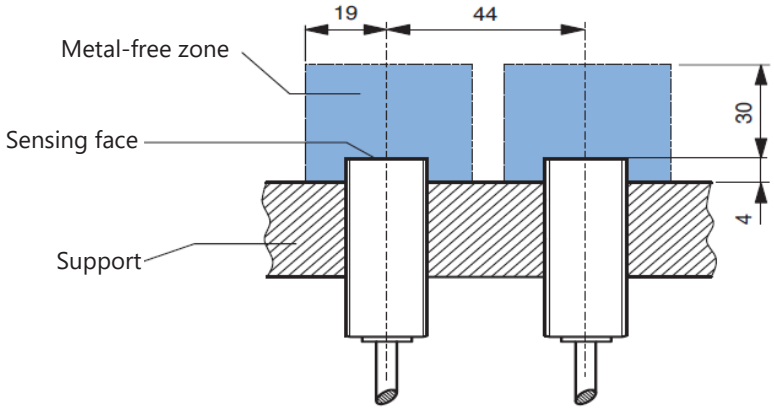
2: Current
4: Voltage

Connector



M12

Installation



Dimensions

mm [inches]

Figure 1

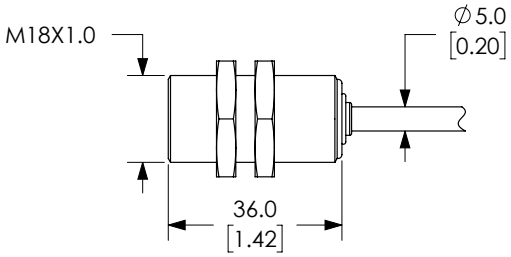
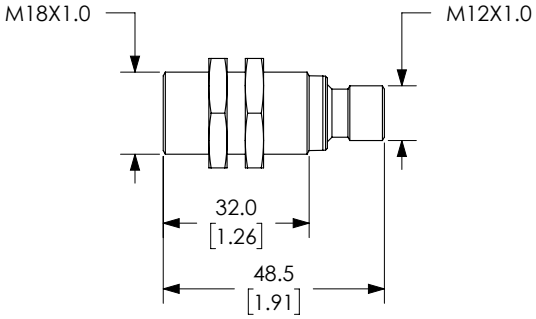


Figure 2



DW Series Analog Inductive Proximity Sensors

M30 (30mm) Metal – Analog Output

- Voltage or current analog output
- Metal housing
- M12 quick-disconnect model
- IP67 rated
- Purchase cable separately (for quick-disconnect model)
- Lifetime warranty

DW Series M30 Analog Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output	Connection	Wiring	Dimensions
DW-AS-509-M30-120	$04b2d:	0-20 mm [0-0.787 in]	Semi-flush	0-5 VDC or 1-5 mA	M12 [12mm] quick-disconnect	Diagram 1	Figure 1
DW-AS-509-M30-320	$04b2e:	0-20 mm [0-0.787 in]	Semi-flush	0-10 VDC or 4-20 mA	M12 [12mm] quick-disconnect	Diagram 1	Figure 1

DW Series M30 Analog Inductive Proximity Specifications

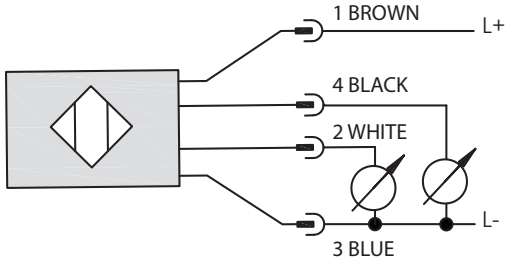
Specification	DW-AS-509-M30-120	DW-AS-509-M30-320
Mounting Type	Semi-flush	Semi-flush
Nominal Distance	0-20 mm [0-0.79 in]	0-20 mm [0-0.79 in]
Operating Distance	NA	NA
Material Correction Factors	See the Material influence table	See the Material influence table
Output Type	0-5 VDC or 1-5 mA	0-10 VDC or 4-20 mA
Current Output Max. Load / Power Supply	1 kΩ / 10VDC; 5 k / 30VDC	0.5 kΩ / 15VDC; 1 kΩ / 30VDC
Voltage Output Min. Load	500Ω	1kΩ
Operating Voltage	10 to 30 VDC	15 to 30 VDC
No-load Supply Current	≤10mA	≤12mA
Operating (Load) Current	≤ 10mA	≤10mA
Off-state (Leakage) Current	NA	NA
Voltage Drop	≤ 2.0 V	≤ 2.0 V
Switching Frequency	NA	NA
Differential Travel (% of Nominal Distance)	NA	NA
Repeat Accuracy	± 0.05 mm	± 0.05 mm
Ripple	≤ 20%	≤ 20%
Response Time	5ms	5ms
Time Delay Before Availability (tv)	≤ 50ms	≤50ms
Reverse Polarity Protection	Yes	Yes
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	Yes (switch auto-resets after overload is removed)
Operating Temperature	-25 to +70°C [-13 to 158°F]	-25 to +70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IEC IP67	IEC IP67
Indication/Switch Status	NA	NA
Housing Material	Chrome-plated brass	Chrome-plated brass
Sensing Face Material	Polybutylene Terephthalate [PBT]	Polybutylene Terephthalate [PBT]
Shock/Vibration	IEC 60947-5-2	IEC 60947-5-2
Tightening Torque	60 N•m [44 lb•ft]	60 N•m (44 lb•ft)
Weight (M12 connector)	135g [4.76 oz]	135g [4.76 oz]
Connection	M12 [12mm] connector	M12 [12mm] connector
Agency Approvals	UL file E239373	UL file E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series Analog Inductive Proximity Sensors

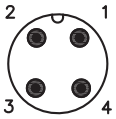
Wiring Diagram

Diagram 1



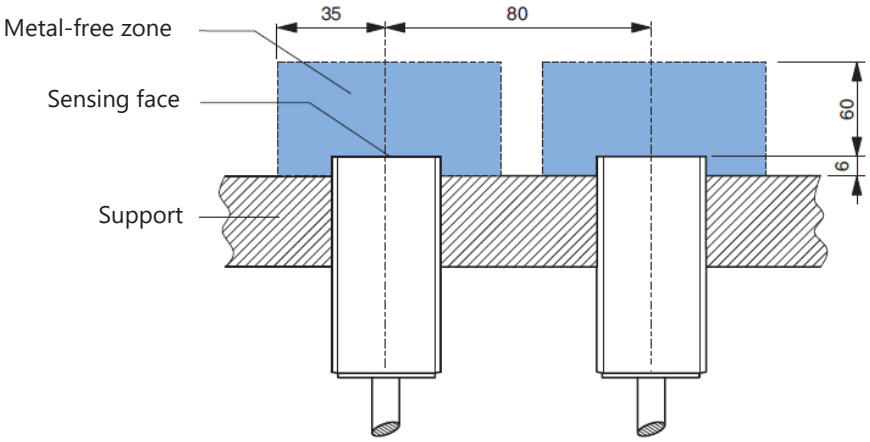
2: Current
4: Voltage

Connector



M12

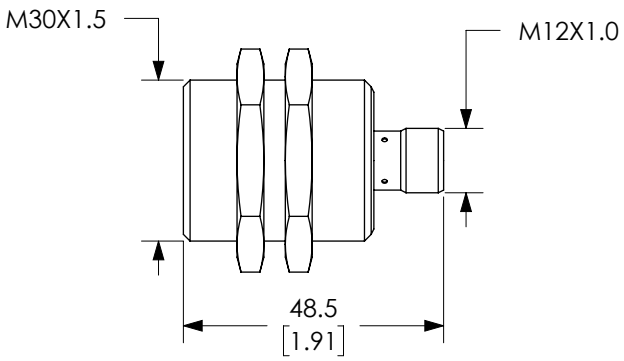
Installation



Dimensions

mm [inches]

Figure 1



DW Series Analog Inductive Proximity Sensors

8x8mm Rectangular Metal – Analog Output

- Compact 8mm x 8mm [0.31 in x 0.31 in] metal housing
- Axial cable or M8 quick-disconnect models
- IP67 rated
- Purchase cables separately (for quick-disconnect model)
- Lifetime warranty

DW Series C8 Analog Inductive Proximity Selection Chart							
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output*	*Connection*	*Wiring*	*Dimensions*
DW-AD-509-C8-390	$04b2a:	0-4 mm [0-0.157 in]	Semi-flush	0-10 VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AS-509-C8-390	$;04b2f:	0-4 mm [0-0.157 in]	Semi-flush	0-10 VDC	M8 [8mm] quick-disconnect	Diagram 1	Figure 2

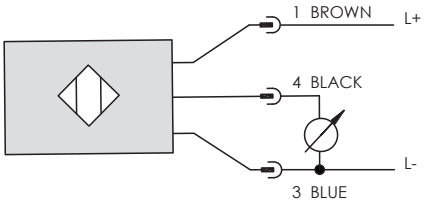
DW Series C8 Analog Inductive Proximity Specifications		
Specification	*DW-AD-509-C8-390*	*DW-AS-509-C8-390*
Mounting Type	Semi-flush	Semi-flush
Nominal Distance	0-4 mm [0-0.157 in]	0-4 mm [0-0.157 in]
Operating Distance	NA	NA
Material Correction Factors	See the Material influence table	See the Material influence table
Output Type	0-10 VDC	0-10 VDC
Operating Voltage	15-30 VDC	15-30 VDC
No-load Supply Current	≤ 10mA	≤ 10mA
Operating (Load) Current	≤10mA	≤ 10mA
Off-state (Leakage) Current	NA	NA
Voltage Drop	≤ 2.0 V	≤ 2.0 V
Switching Frequency	NA	NA
Differential Travel (% of Nominal Distance)	NA	NA
Repeat Accuracy	± 0.01 mm	± 0.01 mm
Ripple	≤ 20%	≤ 20%
Response Time	0.6 ms	0.6 ms
Time Delay Before Availability (tv)	≤ 50ms	≤ 50ms
Reverse Polarity Protection	Yes	Yes
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	Yes (switch auto-resets after overload is removed)
Operating Temperature	-25 to +70°C [-13 to 158°F]	-25 to +70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IEC IP67	IEC IP67
Indication/Switch Status	NA	NA
Housing Material	Chrome-plated brass	Chrome-plated brass
Sensing Face Material	Polybutylene Terephthalate [PBT]	Polybutylene Terephthalate [PBT]
Shock/Vibration	IEC 60947-5-2	IEC 60947-5-2
Tightening Torque	4 N•m [2.95 lb•ft]	4 N•m [2.95 lb•ft]
Weight (cable/M8 connector)	50g [1.76 oz] / 20g [0.71 oz]	50g [1.76 oz] / 20g [0.71 oz]
Connection	2m [6.5 ft] axial cable	M8 [8mm] connector
Agency Approvals	UL file E239373	UL file E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

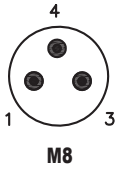
DW Series Analog Inductive Proximity Sensors

Wiring Diagram

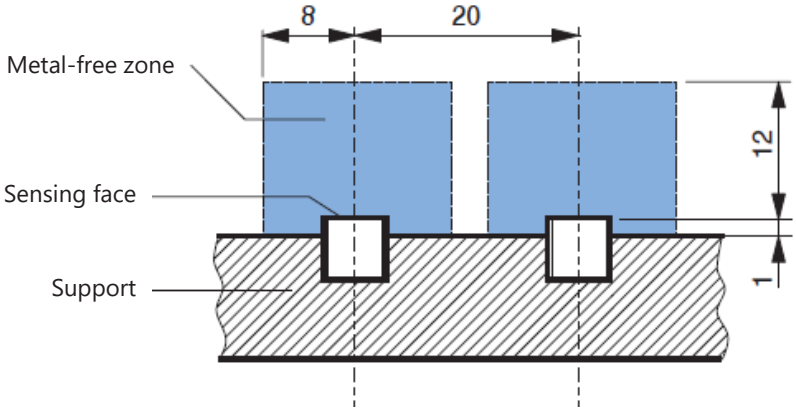
Diagram 1



Connector



Installation



Dimensions

mm [inches]

Figure 1

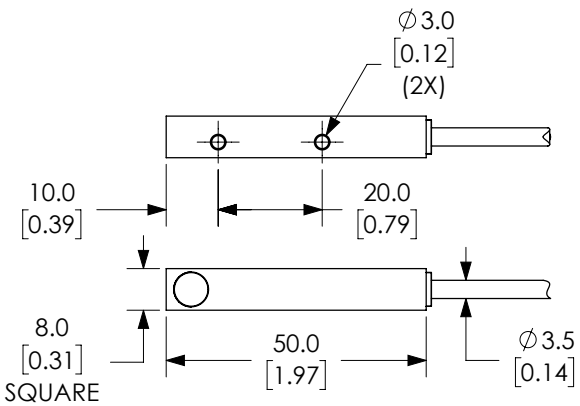
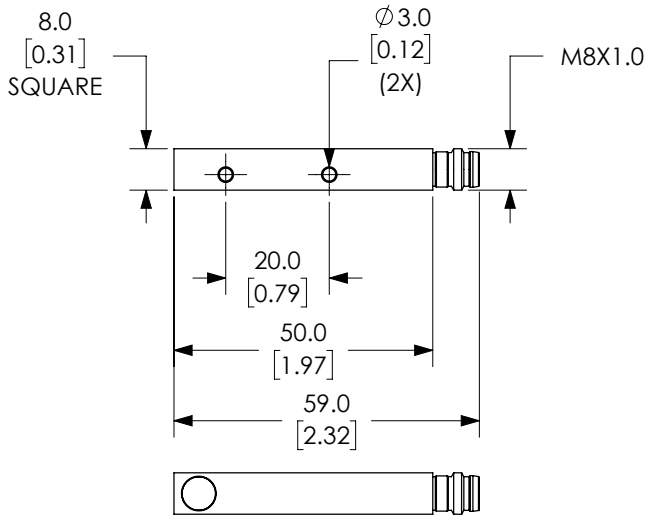


Figure 2



CONTRINEX

DW Series 3mm Inductive Proximity Sensors

Miniature Ø3 (3mm) – DC

- Complete overload protection
- IP67 rated
- Stainless steel construction
- LED status indicator
- Lifetime warranty

DW Series Ø3 (3mm) DC Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Extended Distance									
DW-AD-621-03-960	$1196:	Ø3 (Smooth barrel)	1mm [0.039 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
DW-AD-623-03-960*	$1197:					PNP		Diagram 2	PDF
DW-AD-622-03	$1198:				N.C.	NPN		Diagram 1	PDF
DW-AD-624-03	$1199:					PNP		Diagram 2	PDF

*IO-Link model

Wiring Diagrams

Diagram 1

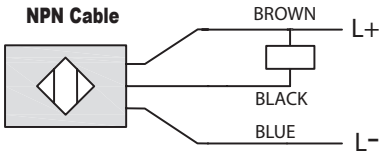
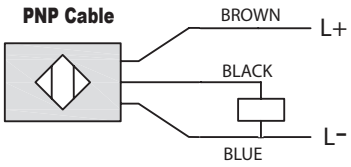


Diagram 2



DW Series 3mm Inductive Proximity Sensors

DW Series Ø3 (3mm) DC Inductive Proximity Specifications		
Specification	***DW-Ax-62x-03-96x***	***DW-Ax-62x-03***
Mounting Type	Flush	
Nominal Sensing Distance	1mm [0.039 in]	
Operating Distance	–	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP, N.O. or N.C.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤ 0.1 mA	
Voltage Drop	≤ 2 V	
Switching Frequency	≤ 8kHz	≤ 3kHz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	0.02 mm	
Ripple	≤ 20%	
Time Delay Before Availability (tv)	≤10ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow LED	
Housing Material	Stainless steel	
Sensing Face Material	POM [polyoxymethylene]	
Shock/Vibration	IEC 60947-5-2/7.4	
Tightening Torque	–	
Weight	18g [0.625 oz]	
Connection	2m [6.5 ft] cable	
IO-Link	PNP N.O. Version Only	
Agency Approvals	cULus E239373	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CONTRINEX

DW Series 4mm Inductive Proximity Sensors

Miniature M4 (4mm) Stainless Steel – DC

- Complete overload protection
- IP67 rated
- Two M4 lock nuts included
- Stainless steel construction
- LED status indicator
- Lifetime warranty

DW Series M4 DC Inductive Proximity Selection Chart									
Part Number	***Price***	***Size***	***Sensing Range***	***Mounting***	***Output State***	***Logic***	***Connection***	***Wiring***	***Drawing Link***
Extended Distance									
DW-AD-621-M4-960	$119a:	M4	1mm [0.039 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
DW-AD-623-M4-960*	$119b:					PNP		Diagram 2	PDF
DW-AD-622-M4	$119c:				N.C.	NPN		Diagram 1	PDF
DW-AD-624-M4	$119d:					PNP		Diagram 2	PDF

*** IO-Link model**

Wiring Diagrams

Diagram 1

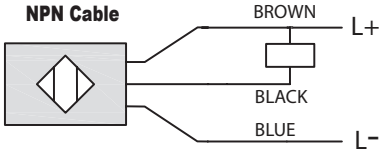
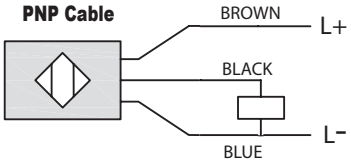


Diagram 2



CONTRINEX

DW Series 4mm Inductive Proximity Sensors

Miniature M4 (4mm) Nickel Silver – DC

- 4mm smooth triple distance proximity sensor
- Complete overload protection
- IP67 rated
- Nickel silver construction
- LED status indicator
- Lifetime warranty

DW Series 4mm Smooth Triple Distance Inductive Proximity Selection Chart									
Part Number	*Price*	*Size*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
Triple Distance									
DW-AD-501-04	$;0119f:	Ø4 (Smooth barrel)	2.5 mm [0.098 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	PDF
DW-AD-503-04	$0119e:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF
DW-AS-501-04	$0119h:				N.O.	NPN	M8 quick-disconnect	Diagram 3	PDF
DW-AS-503-04	$0119g:				N.O.	PNP	M8 quick-disconnect	Diagram 4	PDF
DW-AD-504-04	$-0119i:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	PDF

Wiring Diagrams

Diagram 1

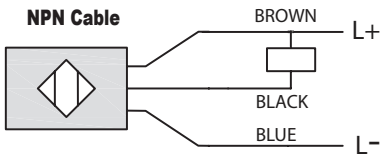
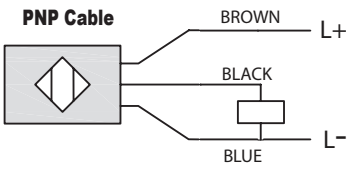


Diagram 2



Connectors

M8 connector

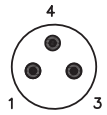


Diagram 3

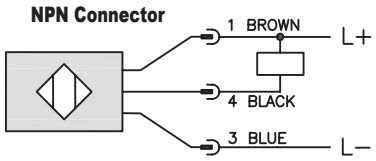
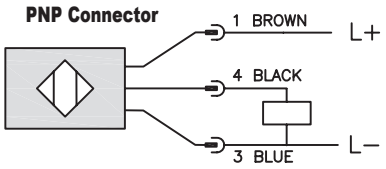


Diagram 4



DW Series 4mm Inductive Proximity Sensors

DW Series 4mm Inductive Proximity Specifications			
Specifications	***DW-Ax-62x-M4-96x***	***DW-Ax-62x-M4***	***DW-Ax-50x-04***
Mounting Type	Flush	Flush	Semi-flush
Nominal Sensing Distance	1mm		2.5 mm
Operating Distance	–		
Material Correction Factors	See the Material influence table		
Output Type	NPN or PNP, N.O. or N.C.		
Operating Voltage	10 to 30 VDC		
No-load Supply Current	≤10mA		
Operating (Load) Current	≤100mA		≤200mA
Off-state (Leakage) Current	≤ 0.1 mA		
Voltage Drop	≤ 2V		
Switching Frequency	≤ 8kHz	≤ 3kHz	≤ 800Hz
Differential Travel (% of Nominal Distance)	≤10%		
Repeat Accuracy	0.02 mm		
Ripple	≤ 20%		
Time Delay Before Availability (tv)	≤ 10ms		≤30ms
Reverse Polarity Protection	Yes		
Short-Circuit Protection	Yes		
Operating Temperature	-25 to 70°C [-13 to 158°F]		
Protection Degree (DIN 40050)	IP67		
Indication/Switch Status	Yellow LED		
Housing Material	Stainless steel		Nickel silver
Sensing Face Material	PET [Polyester]		
Shock/Vibration	IEC 60947-5-2/7.4		
Tightening Torque	–		
Weight	20g [0.71 oz] or 6g [0.211 oz]		31g [1.09 oz] or 3g [0.11 oz]
Connection	2m [6.6 ft] cable		2m [6.5 ft] cable or M8 connection
IO-Link	PNP/N.O. only	–	
Agency Approvals	CE, cULus E239373		

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CONTRINEX

DW Series 4mm Stainless Steel Proximity Sensors

Miniature (4mm) Stainless Steel – DC

- Complete overload protection
- Factor 1 on steel and aluminum
- IP67 rated
- Stainless steel construction
- Full metal housing
- LED status indicator
- IO-Link versions available
- Lifetime warranty

DW Series 4mm DC Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Extended Distance									
DW-AD-711-04	$;03,0h:	4mm	3mm [0.118 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AV-711-04-276	$;-03,0i:					NPN	M8 with 0.2 m cable	Diagram 3	Figure 2
DW-AD-713-04*	$;-03,0j:					PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AV-713-04-276*	$;03,0k:					PNP	M8 with 0.2 m cable	Diagram 4	Figure 2

* IO-Link model

Wiring Diagrams

Diagram 1

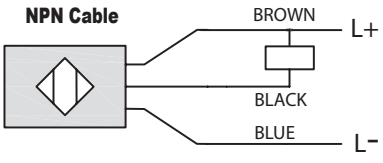
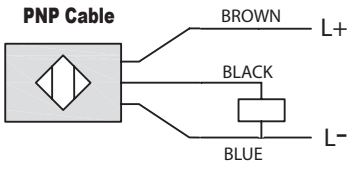


Diagram 2



Connectors

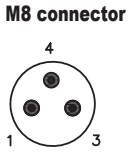


Diagram 3

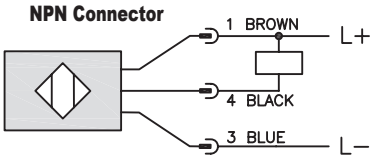
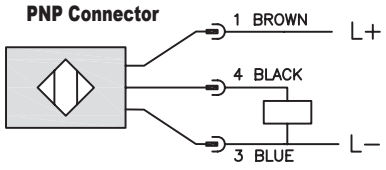


Diagram 4



DW Series 4mm Stainless Steel Proximity Sensors

DW Series 4mm DC Inductive Proximity Specifications	
Specifications	***DW-Ax-71x-04***
Mounting Type	Non-flush
Nominal Sensing Distance	3mm [0.118 in]
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2V
Switching Frequency	≤ 1200Hz
Differential Travel (% of Nominal Distance)	≤ 10%
Repeat Accuracy	0.15 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 10ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP67
Indication/Switch Status	Yellow LED [LED on continuously - secured operating zone]
Housing Material	Stainless steel V2A
Sensing Face Material	Stainless steel V2A
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	25 N•m [221.27 lb•in]
Weight	29g [1.02 oz] with cable, 9g [0.32 oz] without cable
Connection	2m [6.5 ft] cable (PUR [polyurethane] 3 x 0.14mm^2 ≈ 26 AWG) or 0.2 m cable (PUR [polyurethane]) with M8 connection
Minimum Mounting Distance (center to center)	40.0 mm [1.57 in]
IO-Link	PNP/N.O. version only
Agency Approvals	CE, cULus E239373

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series 4mm Stainless Steel Proximity Sensors

Dimensions

mm [inches]

Figure 1

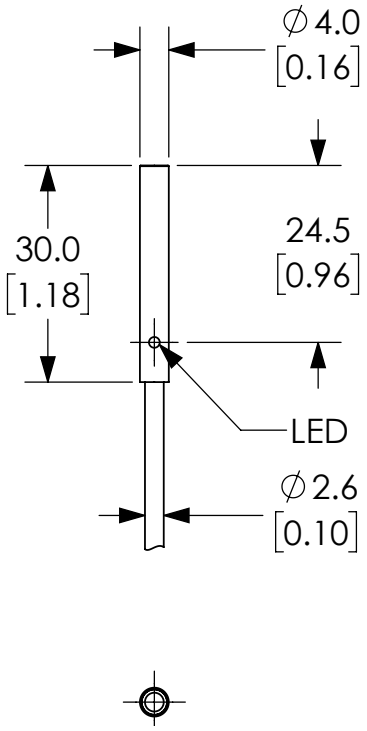
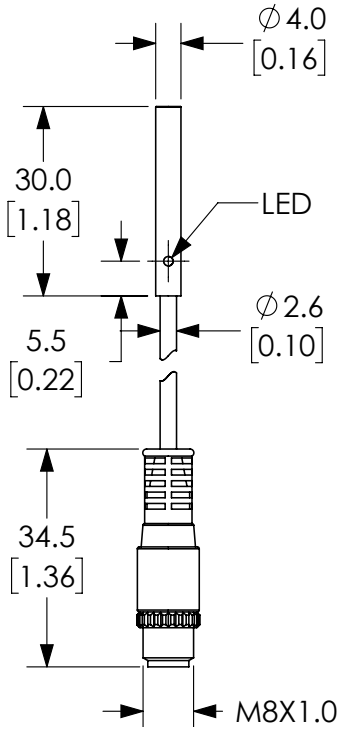


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 5mm Triple Sensing Proximity Sensors

Miniature M5 (5mm) Nickel Silver– DC

- 5mm triple distance proximity sensor
- Complete overload protection
- IP67 rated
- Two M5 lock nuts included
- Nickel silver construction
- LED status indicator
- Lifetime warranty

DW Series 5mm Triple Distance Inductive Proximity Selection Chart									
Part Number	*Price*	*Size*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Triple Distance									
DW-AD-501-M5	$119o:	M5	2.5 mm [0.098 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-503-M5	$119n:	M5	2.5 mm [0.098 in]	Semi-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-501-M5	$119q:	M5	2.5 mm [0.098 in]	Semi-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-503-M5	$119p:	M5	2.5 mm [0.098 in]	Semi-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AD-502-M5	$;119t:	M5	2.5 mm [0.098 in]	Semi-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-504-M5	$119s:	M5	2.5 mm [0.098 in]	Semi-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-502-M5	$119v:	M5	2.5 mm [0.098 in]	Semi-flush	N.C.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-504-M5	$119u:	M5	2.5 mm [0.098 in]	Semi-flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	Figure 2

DW Series 5mm Triple Distance Inductive Proximity Specifications	
Specifications	*DW-Ax-50x-M5*
Mounting Type	Semi-flush
Nominal Sensing Distance	2.5 mm
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2V
Switching Frequency	≤ 800Hz
Differential Travel (% of Nominal Distance)	≤10%
Repeat Accuracy	0.03 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 30ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP67
Indication/Switch Status	Yellow LED
Housing Material	Nickel silver
Sensing Face Material	PPE [Noryl]
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	–
Weight	33g [1.16 oz], 5g [0.18 oz]
Connection	2m [6.5 ft] cable, M8 connection
IO-Link	–
Agency Approvals	CE, cULus E239373

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series 5mm Triple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 1

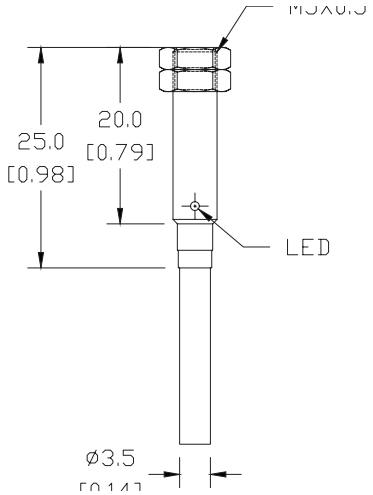
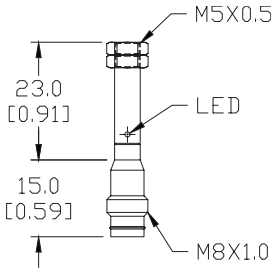


Figure 2



Wiring Diagrams

Diagram 1

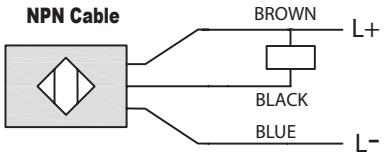
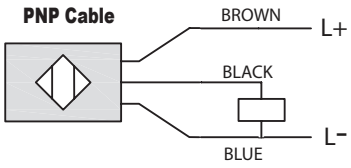


Diagram 2



Connectors

M8 connector

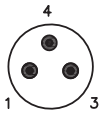


Diagram 3

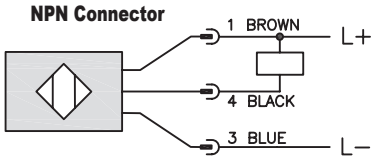
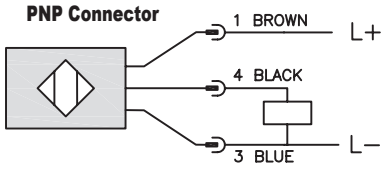


Diagram 4



CONTRINEX

DW Series M5 Stainless Steel Proximity Sensors

Miniature M5 (5mm) Stainless Steel – DC

- Complete overload protection
- Factor 1 on steel and aluminum
- IP67 rated
- Stainless steel construction
- Full metal housing
- LED status indicator
- IO-Link versions available
- Lifetime warranty

DW Series 5mm Extended Distance Inductive Proximity Selection Chart									
Part Number	*Price*	*Size*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Extended Distance									
DW-AD-711-M5	$;-03,0l:	M5	3mm [0.118 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AV-711-M5-276 *	$;03,0n:						M8 with 0.2 m cable	Diagram 3	Figure 2
DW-AD-713-M5	$;03,0o:					PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AV-713-M5-276 *	$;03,0p:						M8 with 0.2 m cable	Diagram 4	Figure 2

*** IO-Link model**

Wiring Diagrams

Diagram 1

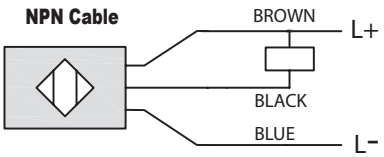
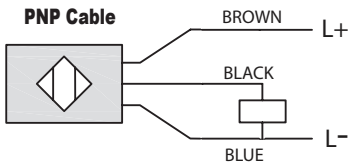


Diagram 2



Connectors

M8 connector

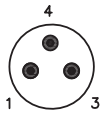


Diagram 3

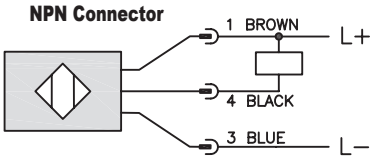
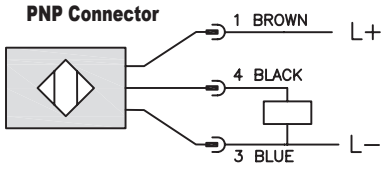


Diagram 4



CONTRINEX

DW Series M5 Stainless Steel Proximity Sensors

DW Series 5mm Extended Distance Inductive Proximity Specifications	
Specification	***DW-Ax-71x-M5***
Mounting Type	Non-flush
Nominal Sensing Distance	3mm [0.118 in]
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2V
Switching Frequency	≤ 1200Hz
Differential Travel (% of Nominal Distance)	≤ 15%
Repeat Accuracy	0.15 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 30ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP67
Indication/Switch Status	Yellow LED [LED on continuously - secured operating zone]
Housing Material	Stainless steel V2A
Sensing Face Material	Stainless steel V2A
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	1.5 N•m [13.3 lb•in]
Weight	30g [1.06 oz] with cable, 10g [0.35 oz] without cable
Connection	2m [6.5 ft] cable (PVC [polyvinyl chloride] 3 x 0.14mm^2 ≈ 26 AWG) or 0.2 m cable (PVC [polyvinyl chloride]) with M8 connection
Minimum Mounting Distance (center to center)	40.0 mm [1.57 in]
IO-Link	PNP/N.O. version only
Agency Approvals	CE, cULus E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CONTRINEX

DW Series M5 Stainless Steel Proximity Sensors

Dimensions

mm [inches]

Figure 1

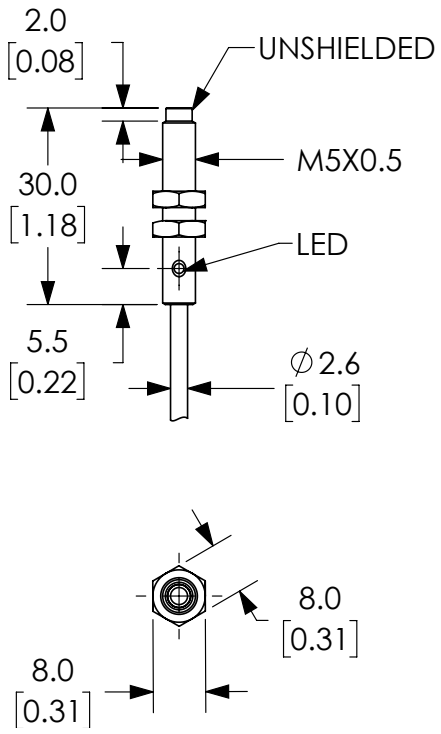
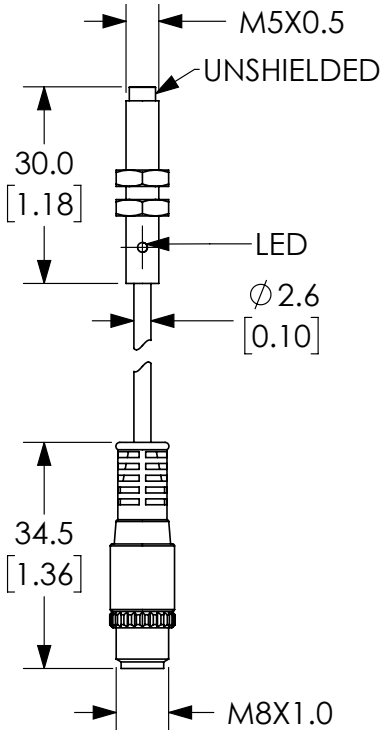


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 8mm Triple Sensing Proximity Sensors

Miniature M8 (8mm) Chrome Plate Nickel Silver or Chrome Plated Brass – DC

- 8mm threaded Triple Distance proximity sensor
- Complete overload protection
- IP67 rated
- Two M8 lock nuts included
- Chrome plate nickel silver or chrome plated brass construction
- LED status indicator
- Lifetime warranty

DW Series M8 Triple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Triple Distance Semi-flush									
DW-AD-501-M8	$119z:	M8	3mm [0.118 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-503-M8	$;119]:	M8	3mm [0.118 in]	Semi-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-501-M8-001	$119x:	M8	3mm [0.118 in]	Semi-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-503-M8-001	$119y:	M8	3mm [0.118 in]	Semi-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AS-501-M8	$;119[:	M8	3mm [0.118 in]	Semi-flush	N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-503-M8	$119_:	M8	3mm [0.118 in]	Semi-flush	N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
DW-AD-502-M8	$119?:	M8	3mm [0.118 in]	Semi-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-504-M8	$;119,:	M8	3mm [0.118 in]	Semi-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-502-M8-001	$119#:	M8	3mm [0.118 in]	Semi-flush	N.C.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-504-M8-001	$;119!:	M8	3mm [0.118 in]	Semi-flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AS-502-M8	$11a0:	M8	3mm [0.118 in]	Semi-flush	N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-504-M8	$11a1:	M8	3mm [0.118 in]	Semi-flush	N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
Triple Distance Non-flush									
DW-AD-511-M8	$11a3:	M8	6mm [0.236 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-513-M8	$11a2:	M8	6mm [0.236 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-511-M8-001	$11a5:	M8	6mm [0.236 in]	Non-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-513-M8-001	$11a4:	M8	6mm [0.236 in]	Non-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AS-511-M8	$11a7:	M8	6mm [0.236 in]	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-513-M8	$11a6:	M8	6mm [0.236 in]	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
DW-AD-514-M8	$11a8:	M8	6mm [0.236 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-512-M8-001	$11ab:	M8	6mm [0.236 in]	Non-flush	N.C.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-514-M8-001	$11aa:	M8	6mm [0.236 in]	Non-flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AS-512-M8	$11ad:	M8	6mm [0.236 in]	Non-flush	N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-514-M8	$11ac:	M8	6mm [0.236 in]	Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 3

DW Series 8mm Triple Sensing Proximity Sensors

DW Series M8 Triple Distance Inductive Proximity Specifications		
Sensor	***DW-Ax-50x-M8***	***DW-Ax-51x-M8***
Mounting Type	Semi-flush	Non-flush
Nominal Sensing Distance	3mm	6mm
Operating Distance	–	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP, N.O. or N.C.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 100mA	
Off-state (Leakage) Current	≤ 0.1 mA	
Voltage Drop	≤ 2 V	
Switching Frequency	≤ 1kHz	≤ 500Hz
Differential Travel (% of Nominal Distance)	≤ 15%	
Repeat Accuracy	0.15 mm	0.30 mm
Ripple	≤ 20%	
Time Delay Before Availability (tv)	≤ 50ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow LED	
Housing Material	Nickel silver	Chrome plated brass
Sensing Face Material	PPS [Polyphenylene sulfide]	
Shock/Vibration	IEC 60947-5-2/7.4	
Tightening Torque	–	
Weight	45g [1.59 oz], 20g [0.71 oz], 17g [0.60 oz]	44g [1.55 oz], 19g [0.67 oz],16g [0.56 oz]
Connection	2m [6.5 ft] cable, M12 connection, M8 connection	
IO-Link	–	
Agency Approvals	CE, cULus E239373	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1

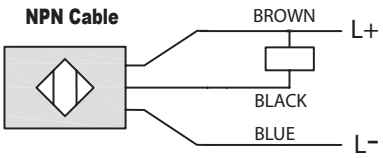
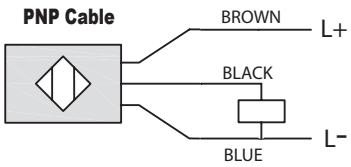
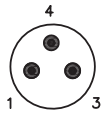


Diagram 2



Connectors

M8 connector



M12 connector

Diagram 3

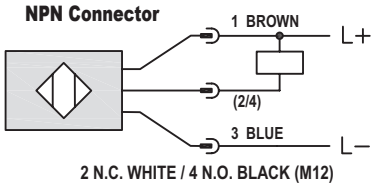
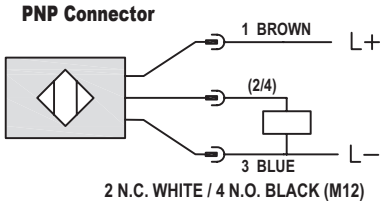


Diagram 4



DW Series 8mm Triple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 1

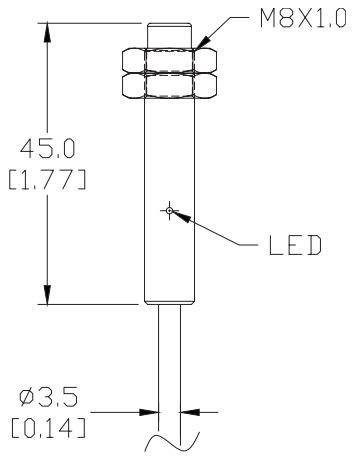


Figure 2

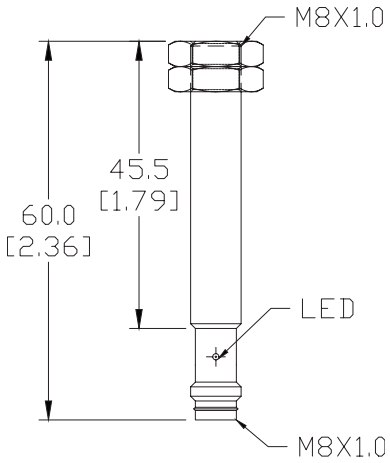
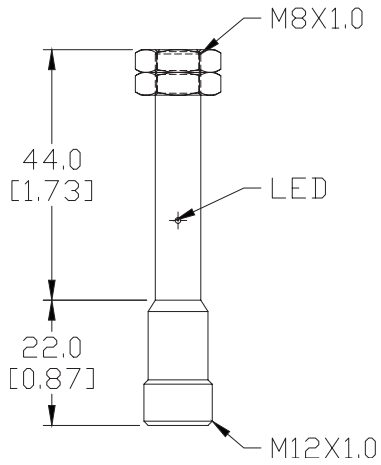


Figure 3



See our website www.AutomationDirect.com for complete engineering drawings.

PNE6 Series 8mm Triple Sensing Proximity Sensors

M8 (8mm) Stainless Steel – DC

- 8mm threaded triple distance proximity sensor
- Complete overload protection
- IP65, IP66, IP67, IP68, IP69K rated
- Two M8 lock nuts included
- 316L Stainless Steel body
- LED Status indicator
- Lifetime warranty

PNE6 Series M8 Triple Distance Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Triple Distance Flush								
PNE6-AP-5F	$4z7g:	3mm [0.118 in]	Flush	N.O.	PNP	3-pin M8 quick-disconnect	Diagram 1	PDF
PNE6-AN-5F	$4z7h:	3mm [0.118 in]	Flush	N.O.	NPN	3-pin M8 quick-disconnect	Diagram 2	PDF
PNE6-CP-5F	$-4z7i:	3mm [0.118 in]	Flush	N.C.	PNP	3-pin M8 quick-disconnect	Diagram 1	PDF
Triple Distance Non-Flush								
PNE6-AP-6F	$-4z7j:	6mm [0.236 in]	Non-flush	N.O.	PNP	3-pin M8 quick-disconnect	Diagram 1	PDF
PNE6-AN-6F	$4z7k:	6mm [0.236 in]	Non-flush	N.O.	NPN	3-pin M8 quick-disconnect	Diagram 2	PDF
PNE6-CP-6F	$-4z7l:	6mm [0.236 in]	Non-flush	N.C.	PNP	3-pin M8 quick-disconnect	Diagram 1	PDF

Wiring Diagrams

Diagram 1

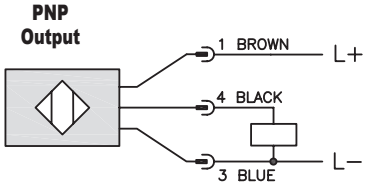
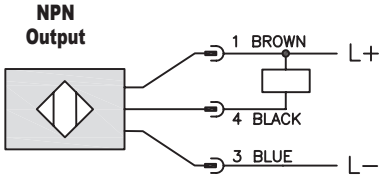
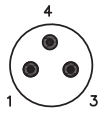


Diagram 2



Connector

M8 connector



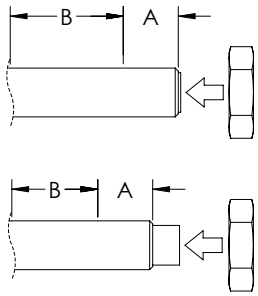
Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

PNE6 Series 8mm Triple Sensing Proximity Sensors Specifications

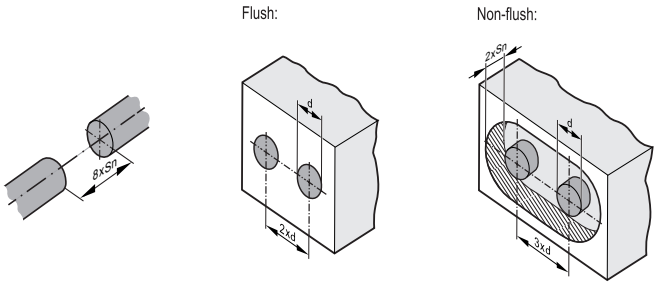
PNE6 Series M8 Triple Distance Inductive Proximity Specifications		
Sensor	***PNE6-xx-5F***	***PNE6-xx-6F***
Mounting Type	Flush	Non-flush
Sensing Range	3mm	6mm
Real Sensing Range (Sr)	3 ± 10%	6 ± 10%
Material Correction Factors	See Material Influence Table	
Output Type	PNP N.O. or N.C., NPN N.O.	
Operating Voltage	10 – 30 VDC	
No-load Supply Current	≤ 20 mA	
Operating (Load) Current	≤ 100 mA	
Off-state (Leakage) Current	≤ 0.1 mA	
Voltage Drop	2.5 V	
Switching Frequency	1500Hz	800Hz
Hysteresis (% of Sr)	1 to15	
Switch-point Drift (% of Sr)	-10 to 10	
Protection Class	III	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature (UL)	-25 to +80°C [-13 to +180°F]	
Protection Degree (DIN 40050)	IP67, IP66, IP67, IP68, IP69K [With IP69K Cable]	
Indication/Switch Status	Yellow LED, Switching Status, 4 x 90°	
Housing Material	316L Stainless Steel	
Sensing Face Material	Active Face, LCP [Liquid Crystal Polymer]	
Shock/Vibration	Shock EN 60068-2-27, Vibration EN 60068-2-6	
Tightening Torque	See Figure 1	
Weight	17.2 g [0.61 oz]	16.4 g [0.58 oz]
Connection	M8 quick-disconnect	
IO-Link	NA	
Agency Approvals	CE, cULus E328811	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Figure 1



Tightening Torque	
A	5mm: 2 N•m
B	5 N•m



Minimum clearance for installing units of the same type (side-by-side installation). Applies to cylindrical and rectangular sensors.
The minimum distance between units may only be disregarded for units with different oscillator frequencies or different sensing principles.

Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

CONTRINEX

DW Series 8mm Stainless Steel Triple Sensing Proximity Sensors

Miniature M8 (8mm) – DC

- 8mm threaded triple distance proximity sensor
- Complete overload protection
- IP67 and IP68-rated
- Two M8 lock nuts included
- Stainless steel construction
- LED status indicator
- One-piece for Harsh duty applications
- Lifetime warranty

DW Series M8 Triple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
DW-AD-711-M8	$011bo:	M8	6mm [0.236 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-713-M8	$011bn:			Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-711-M8-001	$011bq:			Non-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	Figure 2
DW-AS-713-M8-001	$011bp:			Non-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AS-711-M8	$;011bt:			Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-713-M8	$011bs:			Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
DW-AD-712-M8	$011bv:			Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-714-M8	$011bu:			Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-714-M8-001	$011bx:			Non-flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	Figure 2
DW-AS-714-M8	$011bz:			Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 3

Dimensions

mm [inch]

Figure 1

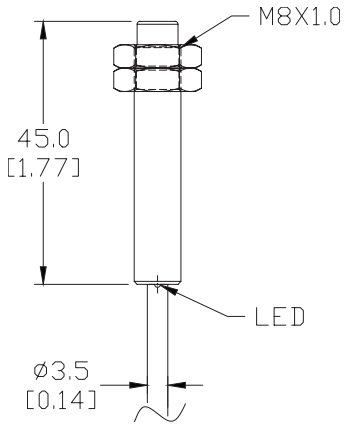


Figure 2

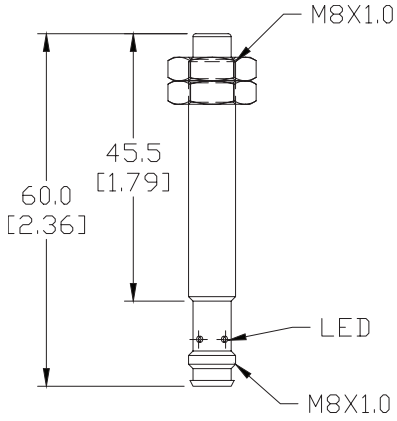
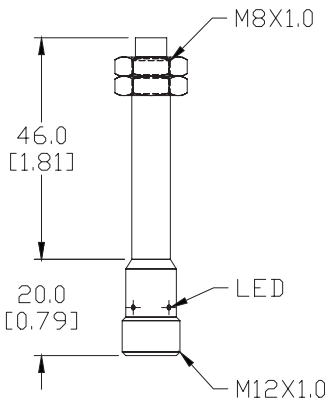


Figure 3



See our website www.AutomationDirect.com for complete engineering drawings.

DW Series 8mm Stainless Steel Triple Sensing Proximity Sensors

DW Series M8 Triple Distance Inductive Proximity Specifications	
Sensor	***DW-Ax-71x-M8-x***
Mounting Type	Non-flush
Nominal Sensing Distance	6mm
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 100mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2 V
Switching Frequency	≤ 700Hz
Differential Travel (% of Nominal Distance)	≤ 15%
Repeat Accuracy	0.30 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 70ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP67, IP68
Indication/Switch Status	Yellow LED
Housing Material	Stainless steel
Sensing Face Material	Stainless steel
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	–
Weight	50g [1.73 oz], 18g [0.63 oz]
Connection	2m [6.5 ft] cable, M8 connection, M12 connection
IO-Link	–
Agency Approvals	CE, cULus E239373

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1

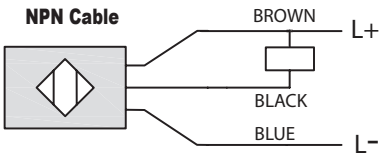


Diagram 2

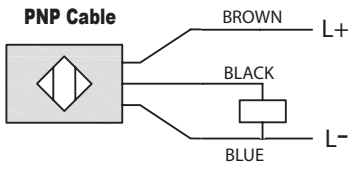
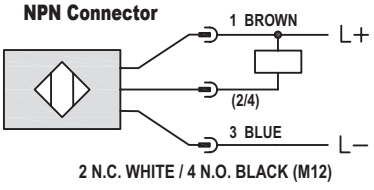
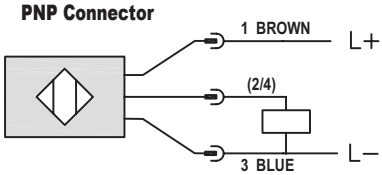


Diagram 3



2 N.C. WHITE / 4 N.O. BLACK (M12)

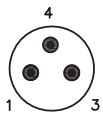
Diagram 4



2 N.C. WHITE / 4 N.O. BLACK (M12)

Connectors

M8 connector



M12 connector

CONTRINEX

DW Series 8mm Quadruple Sensing Proximity Sensors

M8 (8mm) Chrome Plated Nickel Silver – DC

- 8mm threaded Quadruple Distance proximity sensor
- Complete overload protection
- IP67 rated
- Chrome plated nickel silver construction
- LED status indicator
- Lifetime warranty

DW Series M8 Quadruple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
DW-AD-521-M8	$;03,01:	M8	4mm [0.158 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-523-M8	$;03,02:			Semi-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-521-M8	$;;03?,[:			Semi-flush	N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-521-M8-001	$;03?,_:			Semi-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	Figure 3
DW-AS-523-M8	$;;03?,!:			Semi-flush	N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 2
DW-AS-523-M8-001	$;03?,?:			Semi-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	Figure 3
DW-AD-524-M8	$;03,03:			Semi-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-522-M8-001	$;03?,#:			Semi-flush	N.C.	NPN	M8 quick-disconnect	Diagram 3	Figure 3
DW-AS-524-M8	$;03,04:			Semi-flush	N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 2
DW-AS-524-M8-001	$;03,05:			Semi-flush	N.C.	PNP	M8 quick-disconnect	Diagram 3	Figure 3

Wiring Diagrams

Diagram 1

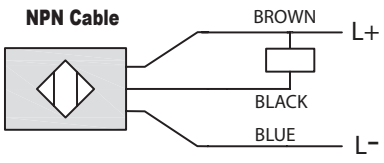
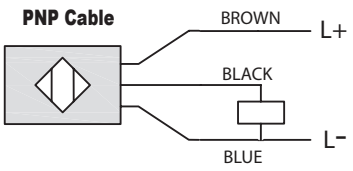
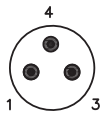


Diagram 2



Connectors

M8 connector



M12 connector

Diagram 3

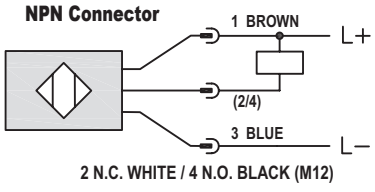
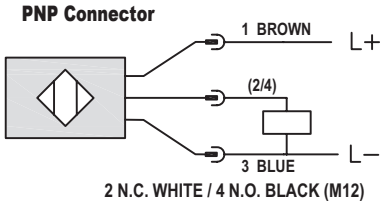


Diagram 4



DW Series 8mm Quadruple Sensing Proximity Sensors

DW Series M8 Quadruple Distance Inductive Proximity Specifications	
Specifications	***DW-Ax-52x-M8***
Mounting Type	Semi-flush
Nominal Sensing Distance	4mm [0.158 in]
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2 V
Switching Frequency	≤ 500Hz
Differential Travel (% of Nominal Distance)	≤ 15%
Repeat Accuracy	0.2 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	50ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP67
Indication/Switch Status	Yellow LED [LED on continuously - secured operating zone]
Housing Material	Chrome plated nickel silver
Sensing Face Material	Polybutylene terephthalate
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	7 N•m [61.96 lb•in]
Weight	45g [1.59 oz] with cable, 20g [0.71 oz] with M12 connector, 17g [0.60 oz] with M8 connector
Connection	2m [6.5 ft] cable (PVC [polyvinyl chloride] 3 x 0.14mm^2 ≈ 26 AWG) with M12 connection or M8 connection
Minimum Mounting Distance (center to center)	24.0 mm [0.94 in]
IO-Link	–
Agency Approvals	CE, cULus E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series 8mm Quadruple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 1

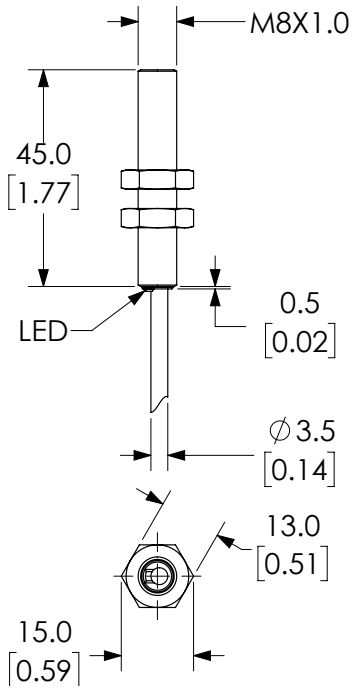


Figure 2

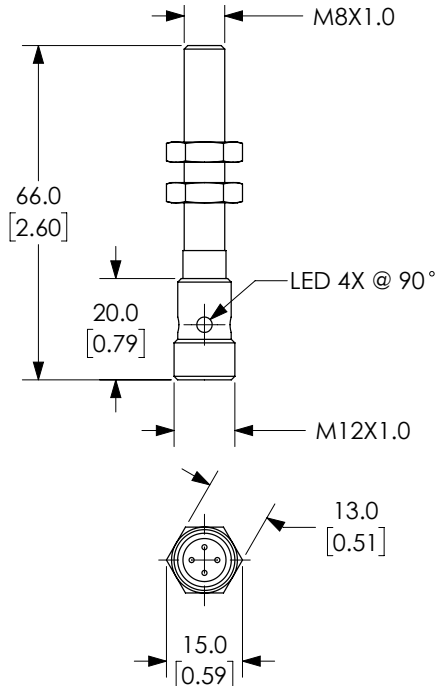
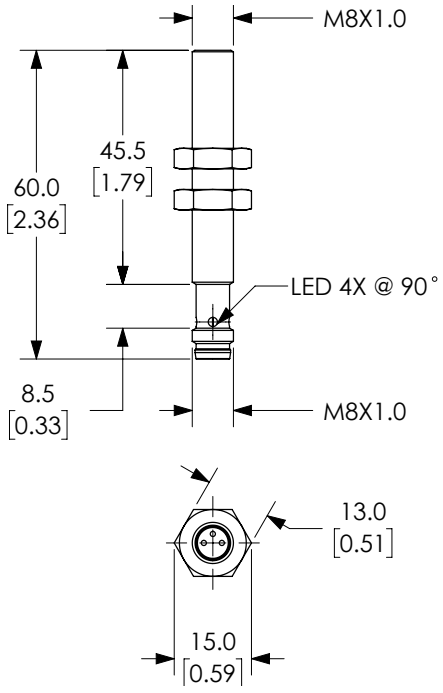


Figure 3



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 12mm Triple Sensing Proximity Sensors

M12 Chrome Plated Brass – DC

- 12mm threaded triple distance proximity sensor
- 6mm and 10mm sensing
- Complete overload protection
- IP67 rated
- Two M12 lock nuts included
- Chrome plated brass construction
- LED status indicator
- Lifetime warranty

DW Series M12 Triple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Triple Distance Semi-flush									
DW-AD-501-M12	$11ah:	M12	6mm [0.236 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-503-M12	$11ag:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-501-M12	$;11af:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-503-M12	$11ae:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
DW-AS-502-M12	$-11aj:				N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-504-M12	$-11ai:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
Triple Distance Non-flush									
DW-AD-511-M12	$11ao:	M12	10mm [0.393 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 2
DW-AD-513-M12	$11an:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
DW-AS-511-M12	$;-11j[:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 4
DW-AS-513-M12	$;-11j]:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 4
DW-AD-514-M12	$11as:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
DW-AS-512-M12	$11av:				N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 4
DW-AS-514-M12	$11au:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 4

Wiring Diagrams

Diagram 1

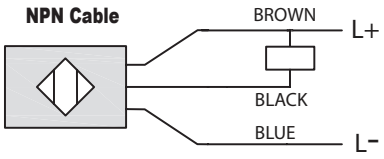
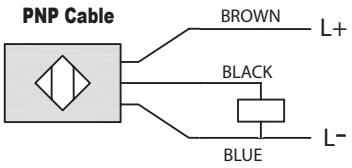


Diagram 2



Connectors

M12 connector

Diagram 3

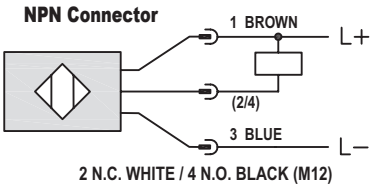
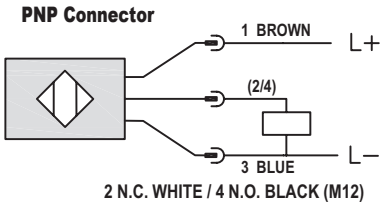


Diagram 4



DW Series 12mm Triple Sensing Proximity Sensors

DW Series M12 Triple Distance Inductive Proximity Specifications		
Specifications	***DW-Ax-50x-M12***	***DW-Ax-51x-M12***
Mounting Type	Semi-flush	Non-flush
Nominal Sensing Distance	6mm	10mm
Operating Distance	–	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP, N.O. or N.C.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 200mA	
Off-state (Leakage) Current	≤ 0.1 mA	
Voltage Drop	≤ 2 V	
Switching Frequency	≤ 800Hz	≤ 400Hz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	0.15 mm	0.30 mm
Ripple	≤ 20%	
Time Delay Before Availability (tv)	≤ 50ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow LED	
Housing Material	Chrome-plated brass	
Sensing Face Material	PPS [Polyphenylene sulfide]	
Shock/Vibration	IEC 60947-5-2/7.4	
Tightening Torque	–	
Weight	92g [3.25 oz], 26g [0.92 oz]	90g [3.17 oz], 25g [0.88 oz]
Connection	2m [6.5 ft] cable, M12 connection	
IO-Link	–	
Agency Approvals	CE, cULus E239373	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

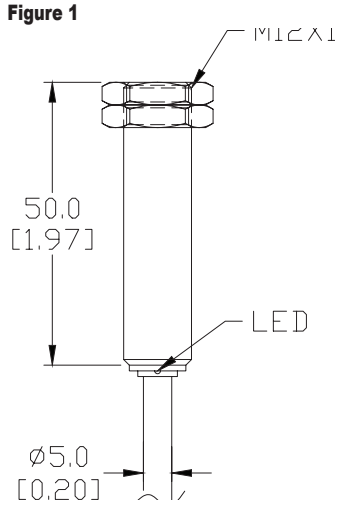
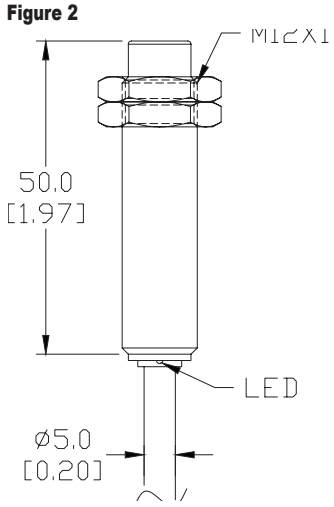


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

DW Series 12mm Triple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 3

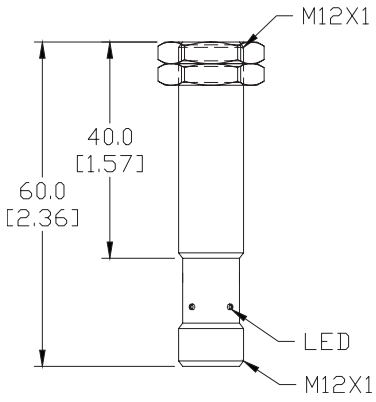
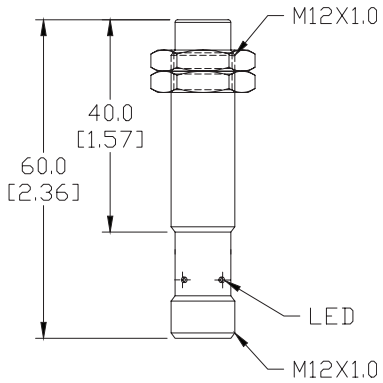


Figure 4



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 12mm Stainless Steel Triple Sensing Proximity Sensors

M12 Stainless Steel – DC

- 10mm sensing
- Complete overload protection
- IP68, IP69k rated
- Two M12 lock nuts included
- Stainless steel construction
- One-piece for harsh duty applications
- LED status indicator
- Lifetime warranty

DW Series 12mm Triple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
DW-AD-711-M12	$;011b[:	M12	10mm [0.393 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-713-M12 *	$011b_:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-711-M12	$011b#:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-713-M12 *	$;011b!:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 2
DW-AD-712-M12	$011b?:				N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-714-M12	$;011b,:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-712-M12	$011c0:				N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-714-M12	$011c1:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 2

*IO-Link model

Wiring Diagrams

Diagram 1

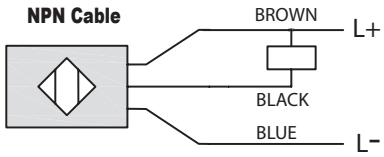
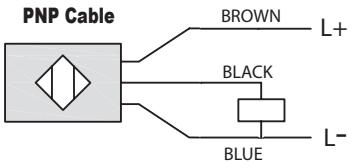


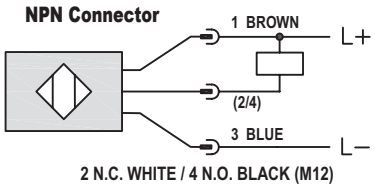
Diagram 2



Connectors

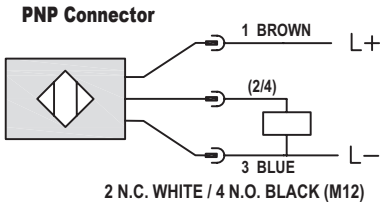
M12 connector

Diagram 3



2 N.C. WHITE / 4 N.O. BLACK (M12)

Diagram 4



2 N.C. WHITE / 4 N.O. BLACK (M12)

DW Series 12mm Stainless Steel Triple Sensing Proximity Sensors

DW Series 12mm Triple Distance Inductive Proximity Specifications	
Specifications	***DW-Ax-71x-M12***
Mounting Type	Non-flush
Nominal Sensing Distance	10mm
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2 V
Switching Frequency	≤ 400Hz
Differential Travel (% of Nominal Distance)	≤ 10%
Repeat Accuracy	0.30 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 70ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP68, IP69K
Indication/Switch Status	Yellow LED
Housing Material	Stainless steel
Sensing Face Material	Stainless steel
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	–
Weight	80g [2.82 oz], 23g [0.81 oz]
Connection	2m [6.5 ft] cable, M12 connection
IO-Link	PNP/N.O. only
Agency Approvals	CE, cULus E239373

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

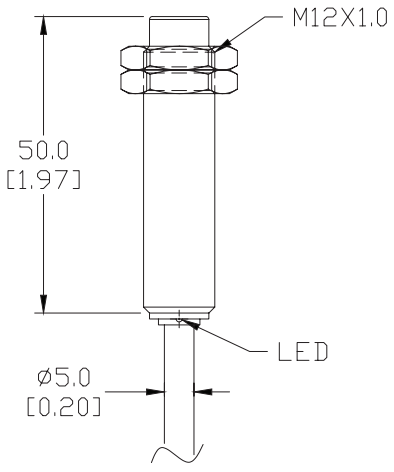
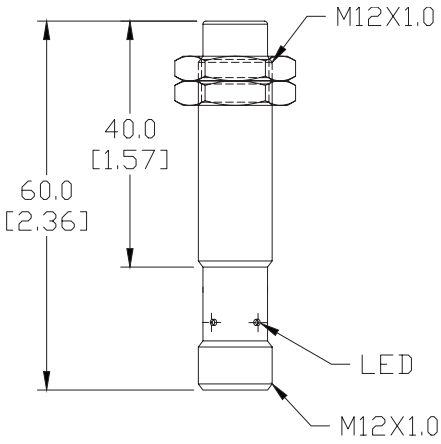


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 12mm Quadruple Sensing Proximity Sensors

M12 (12mm) Chrome Plated Brass – DC

- 12mm threaded Quadruple Distance proximity sensor
- 8mm sensing
- Complete overload protection
- IP67 rated
- Chrome plated brass construction
- LED status indicator
- Lifetime warranty

DW Series M12 Quadruple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
DW-AD-521-M12	$;3,06:	M12	8mm [0.315 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-523-M12	$;3,07:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-521-M12	$;3,09:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-523-M12	$;3,0b:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 2
DW-AD-524-M12	$;3,08:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-522-M12	$;3,0a:				N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-524-M12	$;3,0c:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 2

Wiring Diagrams

Diagram 1

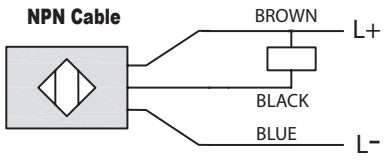
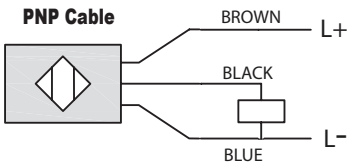


Diagram 2



Connectors

M12 connector

Diagram 3

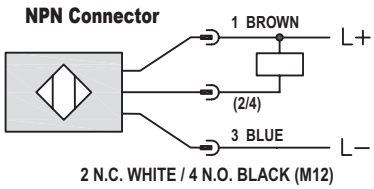
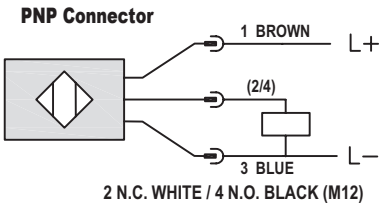


Diagram 4



DW Series 12mm Quadruple Sensing Proximity Sensors

DW Series M12 Quadruple Distance Inductive Proximity Specifications	
	DW-Ax-52x-M12
Mounting Type	Semi-flush
Nominal Sensing Distance	8mm [0.315 in]
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2 V
Switching Frequency	≤ 400Hz
Differential Travel (% of Nominal Distance)	≤ 10%
Repeat Accuracy	0.15 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	50ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP67
Indication/Switch Status	Yellow LED [LED on continuously - secured operating zone]
Housing Material	Chrome-plated brass
Sensing Face Material	Polybutylene terephthalate
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	20 N•m [177.02 lb•in] [5 N•m (44.25 lb•in) on 0.8 mm from head]
Weight	92g [3.25 oz] with cable, 26g [0.92 oz] without cable
Connection	2m [6.5 ft] cable (PVC [polyvinyl chloride] 3 x 0.14mm^2 ≈ approx 26 AWG) with M12 connection
Minimum Mounting Distance (center to center)	46.0 mm [1.81 in]
IO-Link	–
Agency Approvals	CE, cULus E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series 12mm Quadruple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 1

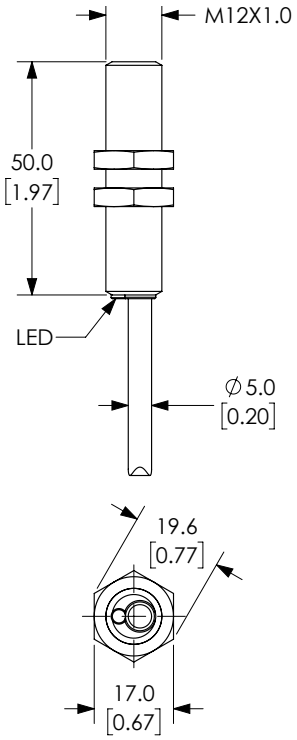
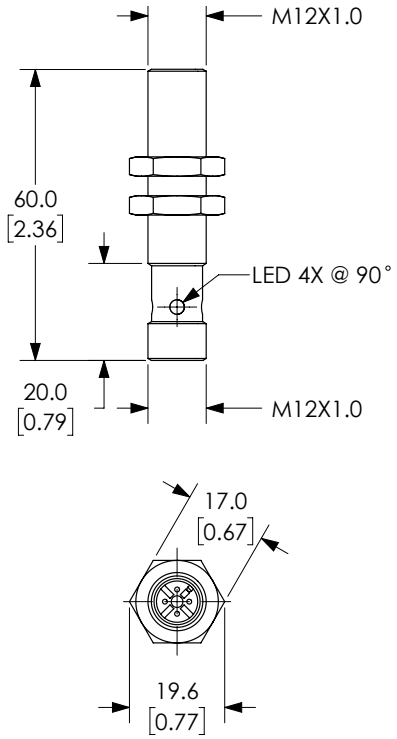


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 18mm Triple Sensing Proximity Sensors

M18 (18mm) Chrome Plated Brass – DC

- 18mm threaded triple distance proximity sensor
- 12mm and 20mm sensing
- Complete overload protection
- IP67 rated
- Two M18 lock nuts included
- Chrome plated brass construction
- LED status indicator
- Lifetime warranty

DW Series 18mm Triple Distance Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Triple Distance Semi-flush									
DW-AD-501-M18	$11ay:	M18	12mm [0.472 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-503-M18	$11ax:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-501-M18-002	$;11a]:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-503-M18-002	$11az:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
DW-AD-504-M18	$;11a[:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-502-M18-002	$;11a!:				N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-504-M18-002	$11a#:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
Triple Distance Non-flush									
DW-AD-511-M18	$;11a,:	M18	20mm [0.787 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 2
DW-AD-513-M18	$11a?:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
DW-AS-511-M18-002	$11b1:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 4
DW-AS-513-M18-002	$11b0:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 4
DW-AD-514-M18	$11b2:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
DW-AS-512-M18-002	$11b5:				N.C.	NPN	M12 quick-disconnect	Diagram 3	Figure 4
DW-AS-514-M18-002	$11b4:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 4

Wiring Diagrams

Diagram 1

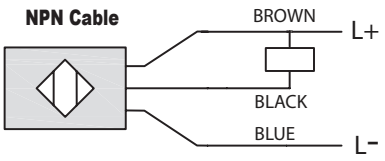
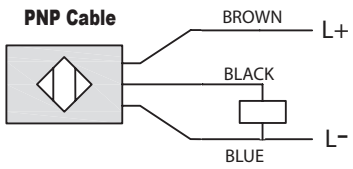


Diagram 2



Connectors

M12 connector

Diagram 3

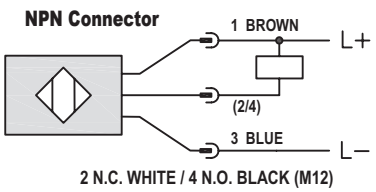
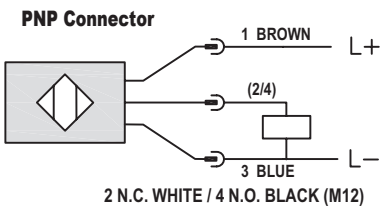


Diagram 4



DW Series 18mm Triple Sensing Proximity Sensors

DW Series 18mm Triple Distance Inductive Proximity Specifications		
Specification	***DW-Ax-50x-M18***	***DW-Ax-51x-M18***
Mounting Type	Semi-flush	Non-flush
Nominal Sensing Distance	12mm [0.472 in]	20mm [0.787 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP, N.O. or N.C.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 200mA	
Off-state (Leakage) Current	≤ 0.1 mA	
Voltage Drop	≤ 2 V	
Switching Frequency	≤ 600Hz	≤ 500Hz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	0.60 mm	1.0 mm
Ripple	≤ 20%	
Time Delay Before Availability (tv)	≤ 40ms	≤ 50ms
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow LED	
Housing Material	Chrome plated brass	
Sensing Face Material	PBT [Polybutylene terephthalate]	
Shock/Vibration	IEC 60947-5-2/7.4	
Tightening Torque	–	
Weight	130g [4.59 oz], 56g [1.98 oz]	95.2 g [3.36 oz], 31.8 g [1.12 oz]
Connection	2m [6.5 ft] cable, M12 connection	
IO-Link	–	
Agency Approvals	CE, cULus E239373	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series 18mm Triple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 1

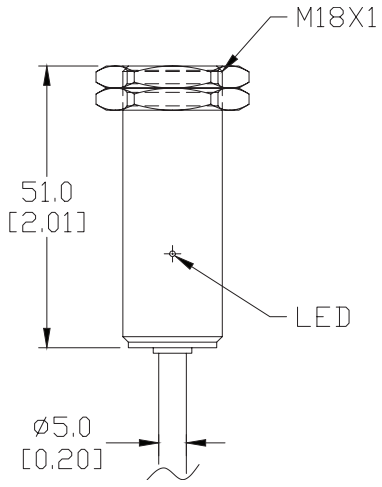


Figure 2

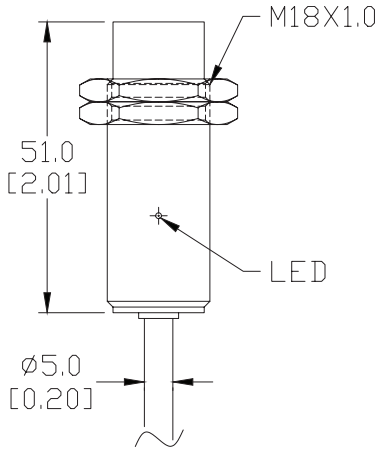


Figure 3

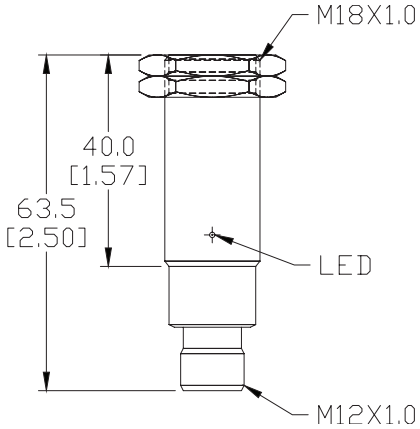
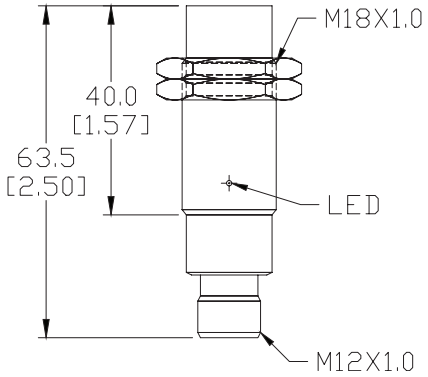


Figure 4



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 18mm Stainless Steel Triple Sensing Proximity Sensors

M18 (18mm) Stainless Steel – DC

- 18mm threaded triple distance proximity sensor
- 20mm sensing
- Complete overload protection
- IP68/IP69k rated
- Two M18 lock nuts included
- Stainless steel construction
- One-piece for harsh duty applications
- LED status indicator
- Lifetime warranty

DW Series 18mm Stainless Steel Triple Distance Inductive Proximity Selection Chart									
Part Number	*Price*	*Size*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Triple Distance									
DW-AD-711-M18	$011c2:	M18	20mm [0.787 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-713-M18 *	$011c3:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-711-M18-002	$011c4:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-713-M18-002 *	$011c5:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 2
DW-AD-712-M18	$011c6:				N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-714-M18	$011c7:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-714-M18-002	$011c9:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 2

*IO-Link model

Wiring Diagrams

Diagram 1

NPN Cable

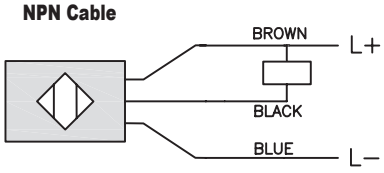
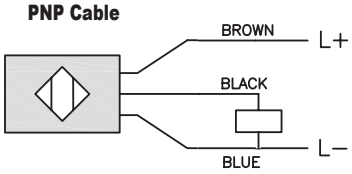


Diagram 2

PNP Cable

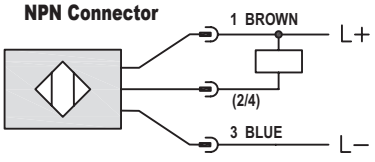


Connectors

M12 connector

Diagram 3

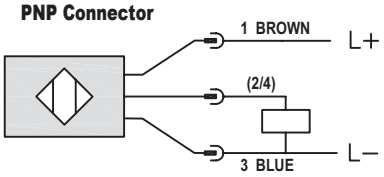
NPN Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

Diagram 4

PNP Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

DW Series 18mm Stainless Steel Triple Sensing Proximity Sensors

DW Series 18mm Stainless Steel Triple Distance Inductive Proximity Specifications	
Specifications	***DW-Ax-71x-M18***
Mounting Type	Non-flush
Nominal Sensing Distance	20mm [0.787 in]
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2 V
Switching Frequency	≤ 200 Hz
Differential Travel (% of Nominal Distance)	≤ 10%
Repeat Accuracy	0.60 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 15ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP68, IP69K
Indication/Switch Status	Yellow LED
Housing Material	Stainless steel
Sensing Face Material	Stainless steel
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	–
Weight	112g [3.95 oz], 51g [1.80 oz]
Connection	2m [6.5 ft] cable, M12 connection
IO-Link	PNP/N.O. version only
Agency Approvals	CE, cULus E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page

Dimensions

mm [inches]

Figure 1

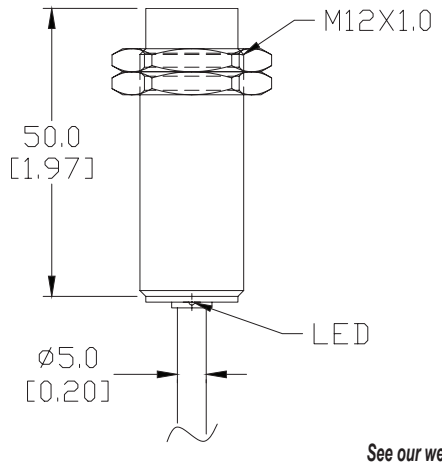
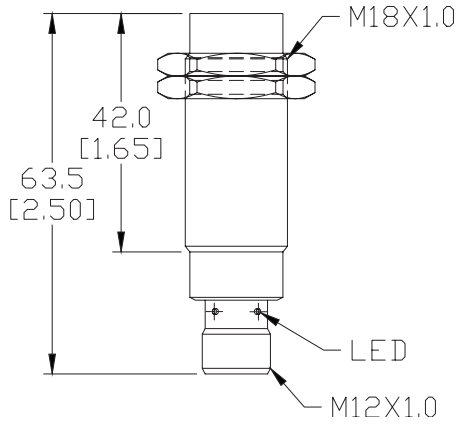


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 30mm Triple Sensing Proximity Sensors

M30 (30mm) Chrome Plated Brass – DC

- 30mm threaded triple distance proximity sensor
- 22mm and 40mm sensing
- Complete overload protection
- IP67 rated
- Two M30 lock nuts included
- Chrome plated brass construction
- LED status indicator
- Lifetime warranty

DW Series 30mm Triple Distance Inductive Proximity Selection Chart									
Part Number	*Price*	*Size*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Triple Distance Semi-flush									
DW-AD-501-M30	$11b7:	M30	22mm [0.866 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-503-M30	$11b6:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-501-M30-002	$11b9:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 3
DW-AS-503-M30-002	$11b8:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
DW-AS-504-M30-002	$11bc:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 3
Triple Distance Non-flush									
DW-AD-511-M30	$;11bf:	M30	40mm [1.574 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 2
DW-AD-513-M30	$11be:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
DW-AS-511-M30-002	$11bh:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 4
DW-AS-513-M30-002	$11bg:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 4
DW-AS-514-M30-002	$11bk:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 4

Wiring Diagrams

Diagram 1

NPN Cable

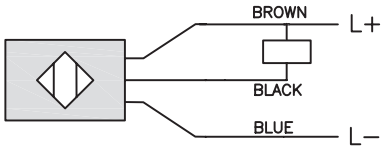
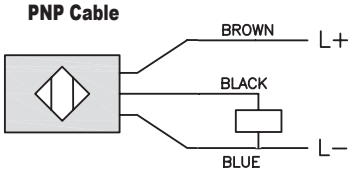


Diagram 2

PNP Cable



Connectors

M12 connector

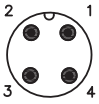
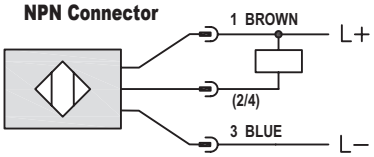


Diagram 3

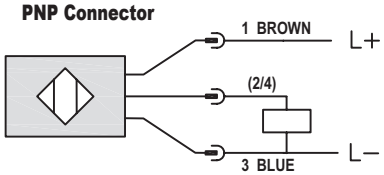
NPN Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

Diagram 4

PNP Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

DW Series 30mm Triple Sensing Proximity Sensors

DW Series 30mm Triple Distance Inductive Proximity Specifications		
Specifications	***DW-Ax-50x-M30***	***DW-Ax-51x-M30***
Mounting Type	Semi-flush	Non-flush
Nominal Sensing Distance	22mm [0.866 in]	40mm [1.574 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP, N.O. or N.C.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 200mA	
Off-state (Leakage) Current	≤ 0.1 mA	
Voltage Drop	≤ 2 V	
Switching Frequency	≤ 200Hz	≤ 100Hz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	1.1 mm	2.0 mm
Ripple	≤ 20%	
Time Delay Before Availability (tv)	≤ 200ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow LED	
Housing Material	Chrome plated brass	
Sensing Face Material	PBT [Polybutylene terephthalate]	
Shock/Vibration	IEC 60947-5-2/7.4	
Tightening Torque	--	
Weight	215g [7.58 oz], 155g [5.47 oz]	212g [7.48 oz], 143g [5.04 oz]
Connection	2m [6.5 ft] cable, M12 connection	
IO-Link	NA	
Agency Approvals	CE, cULus E239373	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page

DW Series 30mm Triple Sensing Proximity Sensors

Dimensions

mm [inches]

Figure 1

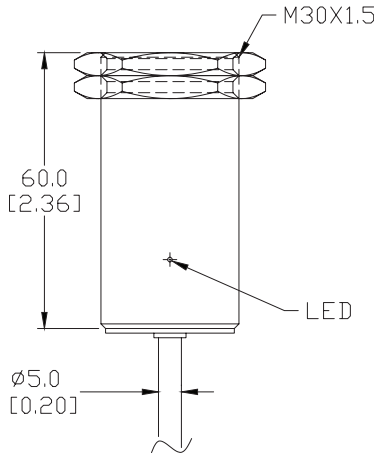


Figure 2

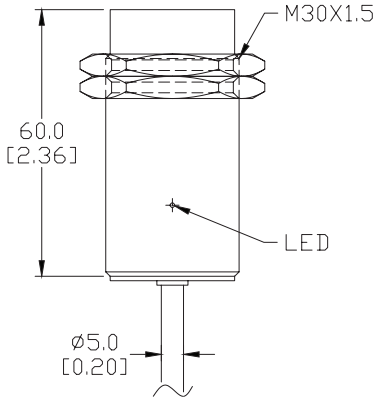


Figure 3

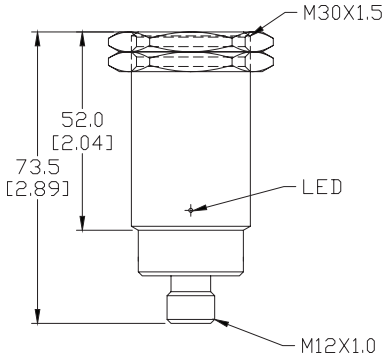
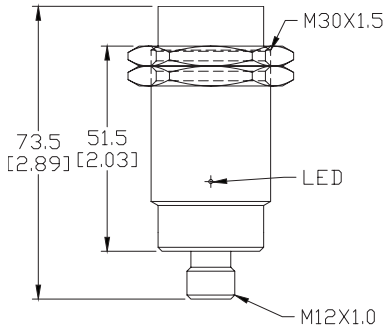


Figure 4



See our website: www.AutomationDirect.com for complete Engineering drawings.

CONTRINEX

DW Series 30mm Stainless Steel Triple Sensing Proximity Sensors

M30 (30mm) Stainless Steel – DC

- 30mm threaded triple distance proximity sensor
- 40mm sensing
- Complete overload protection
- IP68/IP69k rated
- Two M30 lock nuts included
- Stainless steel construction
- One-piece for harsh duty applications
- LED status indicator
- Lifetime warranty

DW Series 30mm Stainless Steel Triple Sensing Inductive Proximity Selection Chart									
Part Number	*Price*	*Size*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Triple Distance (Non-flush)									
DW-AD-711-M30	$011ca:	M30	40mm [1.574 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-713-M30*	$011cb:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AS-711-M30-002	$011cc:				N.O.	NPN	M12 quick-disconnect	Diagram 3	Figure 2
DW-AS-713-M30-002*	$011cd:				N.O.	PNP	M12 quick-disconnect	Diagram 4	Figure 2
DW-AS-714-M30-002	$011ch:				N.C.	PNP	M12 quick-disconnect	Diagram 4	Figure 2

*IO-Link Model

Wiring Diagrams

Diagram 1

NPN Cable

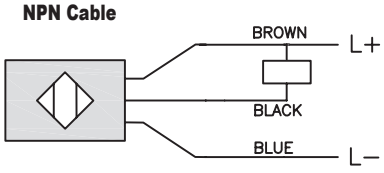
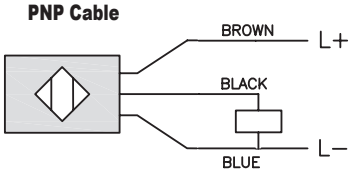


Diagram 2

PNP Cable

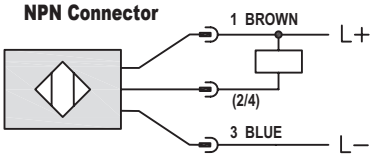


Connectors

M12 connector

Diagram 3

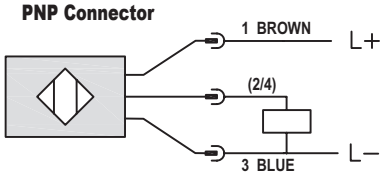
NPN Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

Diagram 4

PNP Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

DW Series 30mm Stainless Steel Triple Sensing Proximity Sensors

DW Series 30mm Stainless Steel Triple Sensing Inductive Proximity Specifications	
Mounting Type	***Non-flush***
Nominal Sensing Distance	40mm [1.574 in]
Operating Distance	NA
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2V
Switching Frequency	≤ 90 Hz
Differential Travel (% of Nominal Distance)	≤ 10%
Repeat Accuracy	2.0 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 40ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP68/IP69K
Indication/Switch Status	Yellow LED
Housing Material	Stainless steel
Sensing Face Material	Stainless steel
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	--
Weight	196g [6.91 oz], 144g [5.08 oz]
Connection	2m [6.5 ft] cable, M12 connection
IO-Link	PNP/N.O. Version Only
Agency Approvals	CE, cULus E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

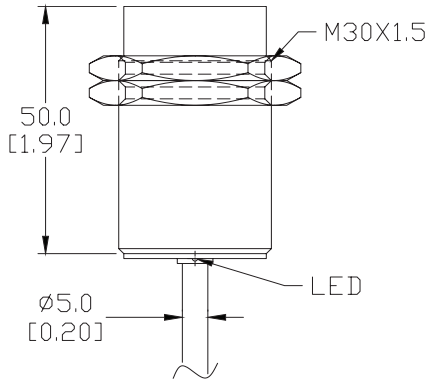
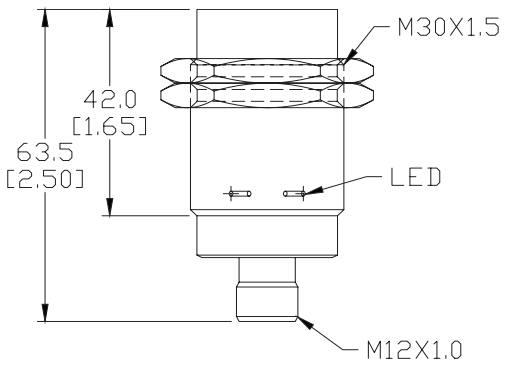


Figure 2



See our website: www.AutomationDirect.com for complete Engineering drawings.

CONTRINEX

DW Series 20 x 32mm Stainless Steel Proximity Sensors

Miniature 20 x 32mm Stainless Steel – DC

- Miniature 20mm x 32mm proximity sensor
- Complete overload protection
- IP68/IP69K rated
- Stainless steel construction
- One-piece for harsh duty applications
- LED status indicator
- Lifetime warranty
- IO-Link models available

DW Series 20 x 32mm Inductive Proximity Selection Chart

Part Number	Price	Size	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Extended Distance									
DW-AD-701-C23	$-11cj:	20 x 32 x 8 mm [0.79 x 1.26 x 0.31 in]	7mm [0.276 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-703-C23*	$-11ci:				N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AV-701-C23-276	$-11cl:				N.O.	NPN	M8 with 0.2 m (0.66 ft) cable	Diagram 3	Figure 2
DW-AV-703-C23-276*	$11ck:				N.O.	PNP	M8 with 0.2 m (0.66 ft) cable	Diagram 4	Figure 2
DW-AD-702-C23	$;3,0d:				N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DW-AD-704-C23	$;3,0e:				N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DW-AV-702-C23-276	$;;3,0f:				N.C.	NPN	M8 with 0.2 m (0.66 ft) cable	Diagram 3	Figure 2
DW-AV-704-C23-276	$;3,0g:				N.C.	PNP	M8 with 0.2 m (0.66 ft) cable	Diagram 4	Figure 2

* IO-Link model

Wiring Diagrams

Diagram 1

NPN Cable

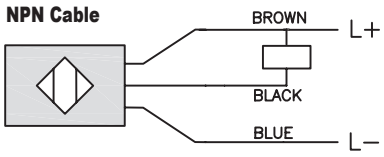
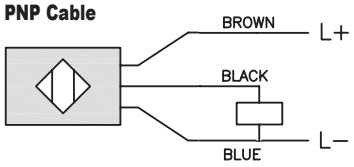


Diagram 2

PNP Cable



Connectors

M8 connector

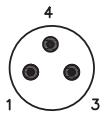


Diagram 3

NPN Connector

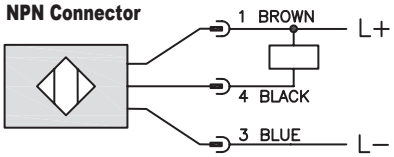
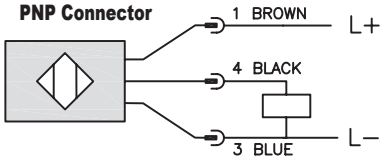


Diagram 4

PNP Connector



DW Series 20 x 32mm Stainless Steel Proximity Sensors

DW Series 20 x 32mm Inductive Proximity Specifications	
	DW-Ax-70x-C23
Mounting Type	Flush
Nominal Sensing Distance	7mm [0.276 in]
Operating Distance	–
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O., N.C.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2 V
Switching Frequency	≤ 180 Hz
Differential Travel (% of Nominal Distance)	≤ 10%
Repeat Accuracy	0.3 mm
Ripple	≤ 20%
Time Delay Before Availability (tv)	≤ 20ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP68 & IP69K
Indication/Switch Status	The LED is located where the cable enters the sensor body. Indicator LED, Yellow, Solid: Indicates target is between 0 and 80% of Range Indicator LED, Yellow, Blinking: Indicates target is between 80 and 100% of Range and nearing max range
Housing Material	Stainless steel V4A
Sensing Face Material	Stainless steel V4A
Shock/Vibration	IEC 60947-5-2/7.4
Tightening Torque	–
Weight	47g [1.66 oz] with cable, 25g [0.88 oz] without cable
Connection	2m [6.5 ft] cable (PVC [polyvinyl chloride] 3 x 0.14mm^2 ≈ 26 AWG) or 0.2 m [0.66 ft] cable (PVC [polyvinyl chloride]) with M8 connection
Minimum Mounting Distance (center to center)	60.0 mm [2.36 in]
IO-Link	PNP N.O. version only
Agency Approvals	CE, cULus E239373

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

DW Series 20 x 32mm Stainless Steel Proximity Sensors

Dimensions

mm [inches]

Figure 1

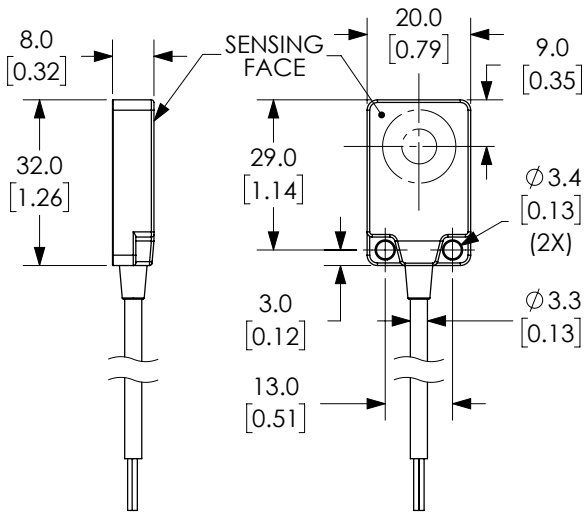
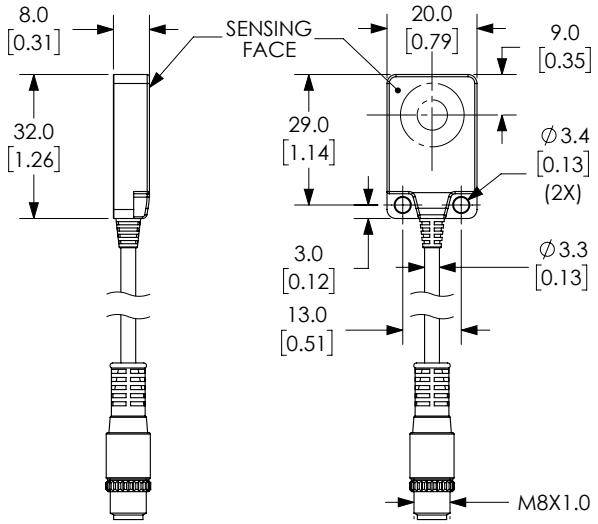


Figure 2



See our website www.AutomationDirect.com for complete engineering drawings.

CONTRINEX

DW Series 8mm Inductive Proximity Sensors

M8 (8mm) Stainless Steel – DC

- Flush and non-flush models
- Complete overload protection
- IP67 rated
- I/O Link (PNP N.O. models only)
- Two M* nuts included
- 304 stainless steel housing
- LED status indicator
- Lifetime warranty

DW Series M8 Inductive Proximity Selection Chart

Part Number	Price	Frequency	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Weight (g)	Drawing Link
Standard Sensing Distance										
DW-AD-601-M8-121	$;-4tla:	5000Hz	1.5mm	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	40.2	PDF
DW-AS-601-M8-001	$;-4tlb:	5000Hz	1.5mm	Flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	13	PDF
DW-AD-603-M8-121	$;-4tlc:	5000Hz	1.5mm	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	40.2	PDF
DW-AS-603-M8-001	$;-4tld:	5000Hz	1.5mm	Flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	13	PDF
DW-AS-604-M8-001	$;-4tle:	5000Hz	1.5mm	Flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	13	PDF
DW-AD-611-M8-121	$;;-4tlf:	4500Hz	2.5mm	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	39.8	PDF
DW-AS-611-M8-001	$;-4tlg:	4500Hz	2.5mm	Non-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	12.5	PDF
DW-AD-613-M8-121	$;-4tlh:	4500Hz	2.5mm	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	39.8	PDF
DW-AS-613-M8-001	$;--4tli:	4500Hz	2.5mm	Non-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	12.5	PDF
DW-AS-614-M8-001	$;--4tlj:	4500Hz	2.5mm	Non-flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	12.5	PDF
Extended Sensing Distance										
DW-AD-621-M8	$;-4tlk:	5000Hz	2mm	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	41.5	PDF
DW-AS-621-M8-001	$;--4tll:	5000Hz	2mm	Flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	13	PDF
DW-AD-623-M8	$;-4tln:	5000Hz	2mm	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	41.5	PDF
DW-AS-623-M8-001	$;-4tlo:	5000Hz	2mm	Flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	13	PDF
DW-AS-624-M8-001	$;-4tlp:	5000Hz	2mm	Flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	13	PDF
DW-AD-631-M8	$;-4tlq:	3500Hz	4mm	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	69	PDF
DW-AS-631-M8-001	$;-4tls:	3500Hz	4mm	Non-flush	N.O.	NPN	M8 quick-disconnect	Diagram 3	12.3	PDF
DW-AD-633-M8	$;;-4tlt:	3500Hz	4mm	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	69	PDF
DW-AS-633-M8-001	$;-4tlu:	3500Hz	4mm	Non-flush	N.O.	PNP	M8 quick-disconnect	Diagram 4	12.3	PDF
DW-AS-634-M8-001	$;-4tlv:	3500Hz	4mm	Non-flush	N.C.	PNP	M8 quick-disconnect	Diagram 4	12.3	PDF

Wiring Diagrams

Diagram 1

NPN Cable

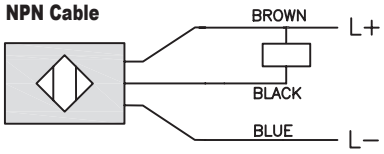
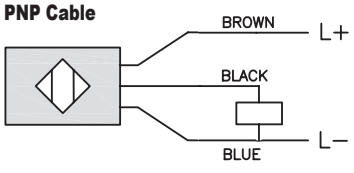


Diagram 2

PNP Cable



Connectors

M8 connector

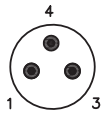


Diagram 3

NPN Connector

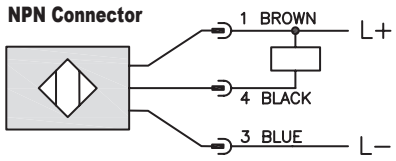
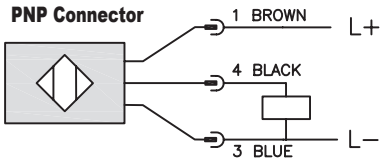


Diagram 4

PNP Connector



DW Series 8mm Inductive Proximity Sensors

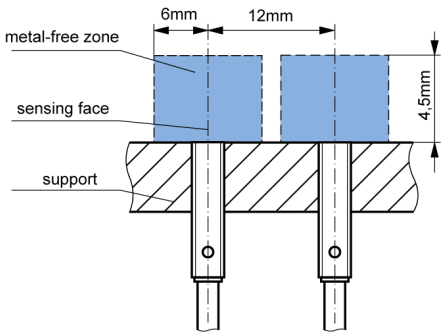
DW Series M8 Inductive Proximity Specifications				
Sensor	***DW-Ax-60x-M8***	***DW-Ax-62x-M8***	***DW-Ax-61x-M8***	***DW-Ax-63x-M8***
Mounting Type	Flush		Non-flush	
Nominal Sensing Distance	1.5mm	2mm	2.5mm	4mm
Operating Distance	–			
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP, N.O. or N.C.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 10mA			
Operating (Load) Current	≤ 200mA			
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	≤ 2 V @ 200mA			
Switching Frequency	5000Hz		4500Hz	3500Hz
Differential Travel (% of Nominal Distance)	< 20%	< 10%	< 20%	
Repeat Accuracy	0.07 mm	0.10 mm	0.12 mm	0.20 mm
Ripple	≤ 20%			
Time Delay Before Availability (tv)	≤32ms		≤60ms	≤80ms
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Operating Temperature	-25 to 70°C [-13 to 158°F]			
Protection Degree (DIN 40050)	IP67			
Indication/Switch Status	Indicator LED, Yellow, Solid (When the target is between 0-80% of Range, the LED will be solid) Indicator LED, Yellow, Blinking (When the target is between 80-100% of Range, the LED will blink to let you know it is nearing max range)			
Housing Material	304 Stainless Steel			
Sensing Face Material	PA66 [Nylon]	PA12 [Nylon]	PBTP [Crastin]	
Shock/Vibration	IEC 60947-5-2/7.4			
Tightening Torque	8 Nm			
Connection	2m [6.5 ft] cable [PVC, 3C, 26 AWG], or 3-Pole M8 connection			
IO-Link	IO-Link [PNP, N.O. version only]			
Agency Approvals	CE, cULus E239373			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

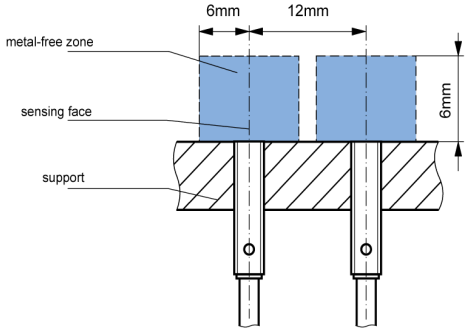
DW Series 8mm Inductive Proximity Sensors

Installation

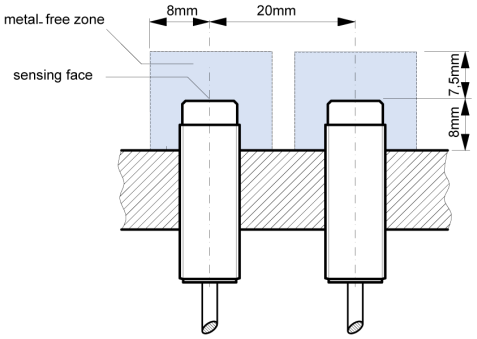
DW-Ax-60x-M8



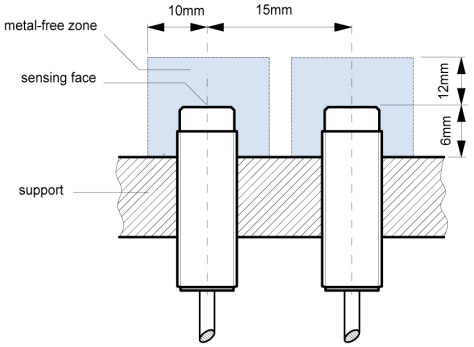
DW-Ax-62x-M8



DW-Ax-61x-M8

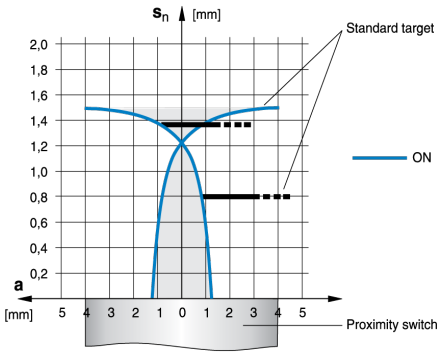


DW-Ax-63x-M8

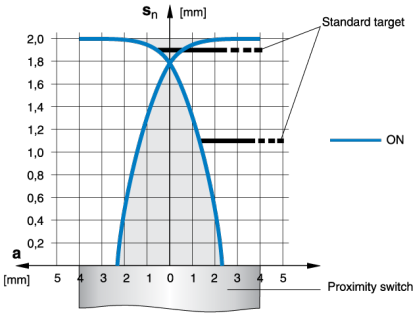


Response Diagram

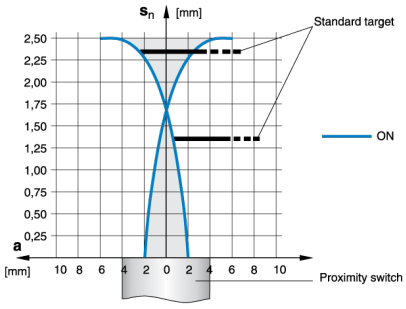
DW-Ax-60x-M8



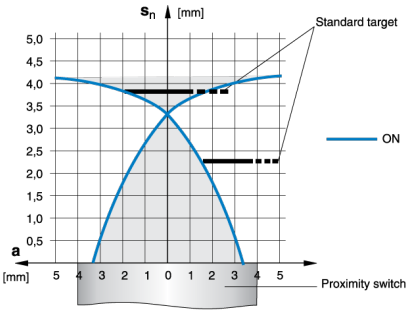
DW-Ax-62x-M8



DW-Ax-61x-M8



DW-Ax-63x-M8



CONTRINEX

DW Series 12mm Inductive Proximity Sensors

M12 (12mm)

- LED status indicator
- IP67 rated
- IO Link (PNP N.O. models only)
- Two M12 lock nuts included
- Complete overload protection
- Lifetime warranty
- Flush and non-flush models

DW Series M12 Inductive Proximity Selection Chart

Part Number	Price	Frequency	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Weight (g)	Drawing Link
Standard Sensing Distance										
DW-AD-601-M12-120	$;-4tlx:	3000Hz	2mm	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 2	90.5	PDF
DW-AS-601-M12	$;-4tly:	3000Hz	2mm	Flush	N.O.	NPN	M12 quick-disconnect	Diagram 4	23.5	PDF
DW-AD-603-M12-120	$;-4tlz:	3000Hz	2mm	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 1	90.5	PDF
DW-AS-603-M12	$;;-4tl]:	3000Hz	2mm	Flush	N.O.	PNP	M12 quick-disconnect	Diagram 3	28.5	PDF
DW-AS-604-M12	$;;-4tl[:	3000Hz	2mm	Flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	28.5	PDF
DW-AD-611-M12-120	$;-4tl_:	2000Hz	4mm	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 2	91.5	PDF
DW-AS-611-M12	$;-4tl#:	2000Hz	4mm	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 4	26.7	PDF
DW-AD-613-M12-120	$;;-4tl!:	2000Hz	4mm	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 1	91.4	PDF
DW-AS-613-M12	$;-4tl?:	2000Hz	4mm	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 3	26.7	PDF
DW-AS-614-M12	$;;-4tl,:	2000Hz	4mm	Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	26.7	PDF
Extended Sensing Distance										
DW-AD-621-M12-120	$;4tn0:	2500Hz	4mm	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 2	91	PDF
DW-AS-621-M12	$;4tn1:	2500Hz	4mm	Flush	N.O.	NPN	M12 quick-disconnect	Diagram 4	25	PDF
DW-AD-623-M12-120	$;4tn2:	2500Hz	4mm	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 1	91	PDF
DW-AS-623-M12	$;4tn3:	2500Hz	4mm	Flush	N.O.	PNP	M12 quick-disconnect	Diagram 3	25	PDF
DW-AS-624-M12	$;4tn4:	2500Hz	4mm	Flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	25	PDF
DW-AD-631-M12-120	$;4tn5:	1400Hz	8mm	Non-flush	N.O.	NPN	2m [6.5 ft] axial cablee	Diagram 2	89	PDF
DW-AS-631-M12	$;4tn6:	1400Hz	8mm	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 4	29	PDF
DW-AD-633-M12-120	$;4tn7:	1400Hz	8mm	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 1	89	PDF
DW-AS-633-M12	$;4tn8:	1400Hz	8mm	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 3	29	PDF
DW-AS-634-M12	$;4tn9:	1400Hz	8mm	Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	29	PDF

Wiring Diagrams

Diagram 1

PNP Cable

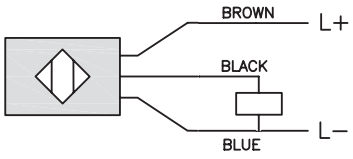
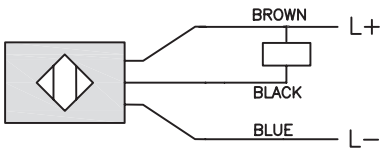


Diagram 2

NPN Cable

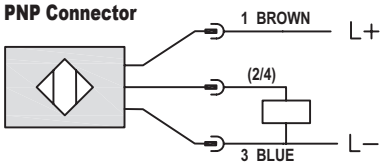


Connectors

M12 connector

Diagram 3

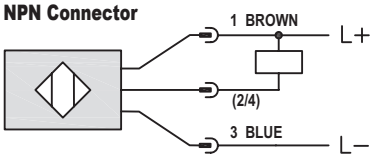
PNP Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

Diagram 4

NPN Connector



2 N.C. WHITE / 4 N.O. BLACK (M12)

DW Series 12mm Inductive Proximity Sensors

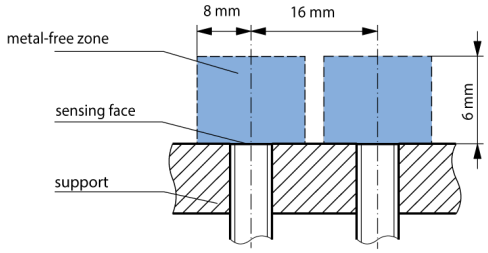
DW Series M12 Inductive Proximity Specifications				
Sensor	***DW-Ax-60x-M12***	***DW-Ax-62x-M12***	***DW-Ax-61x-M12***	***DW-Ax-63x-M12***
Mounting Type	Flush		Non-flush	
Nominal Sensing Distance	2mm	4mm	4mm	8mm
Operating Distance	–			
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP, N.O. or N.C.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 10mA			
Operating (Load) Current	≤ 200mA			
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	≤ 2 V @ 200mA			
Switching Frequency	3000Hz	2500Hz	2000Hz	1400Hz
Differential Travel (% of Nominal Distance)	< 20%			
Repeat Accuracy	0.10 mm	0.20 mm		0.40 mm
Ripple	≤ 20%			
Time Delay Before Availability (tv)	≤80ms	≤60ms	≤80ms	≤50ms
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Operating Temperature	-25 to 70°C [-13 to 158°F]			
Protection Degree (DIN 40050)	IP67			
Indication/Switch Status	Indicator LED, Yellow, Solid (When the target is between 0-80% of Range, the LED will be solid) Indicator LED, Yellow, Blinking (When the target is between 80-100% of Range, the LED will blink to let you know it is nearing max range)			
Housing Material	Nickel Plated Brass			
Sensing Face Material	PBTP [Crastin]			
Shock/Vibration	IEC 60947-5-2/7.4			
Tightening Torque	10 Nm			
Connection	2m [6.5 ft] cable [PVC, 4C, 26 AWG], or 4-Pole M12 connection			
IO-Link	IO-Link (PNP, N.O. version only)			
Agency Approvals	CE, cULus E239373			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

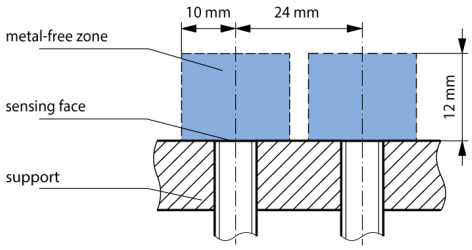
DW Series 12mm Inductive Proximity Sensors

Installation

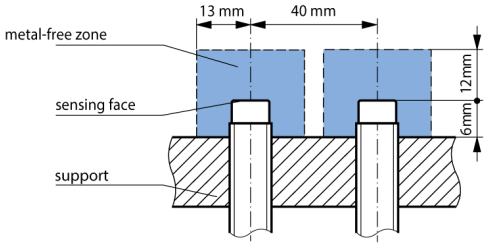
DW-Ax-60x-M12



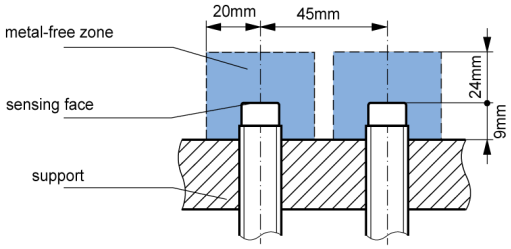
DW-Ax-62x-M12



DW-Ax-61x-M12

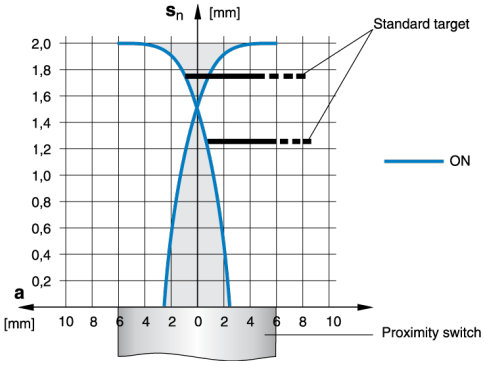


DW-Ax-63x-M12

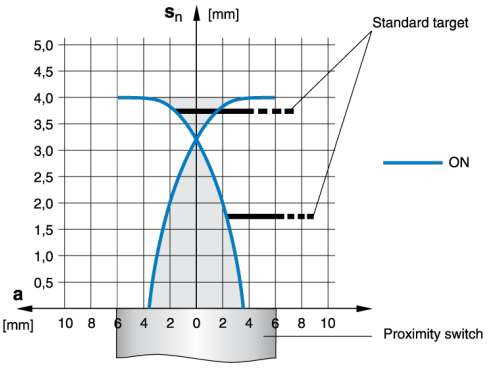


Response Diagrams

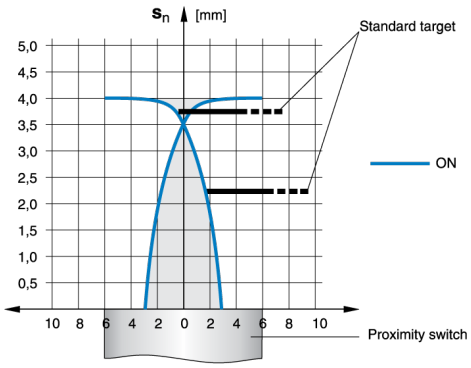
DW-Ax-60x-M12



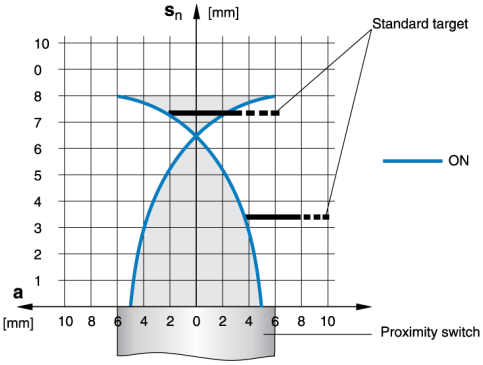
DW-Ax-62x-M12



DW-Ax-61x-M12



DW-Ax-63x-M12



CONTRINEX

DW Series 18mm Inductive Proximity Sensors

M18 (18mm)

- Flush and non-flush models
- LED status indicator
- IP67 rated
- Two M18 lock nuts included
- Complete overload protection
- Lifetime warranty
- IO Link (PNP N.O. models only)

DW Series M18 Inductive Proximity Selection Chart

Part Number	Price	Frequency	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Weight (g)	Drawing Link
Standard Sensing Distance										
DW-AS-601-M18-002	$;4tna:	2000Hz	5mm	Flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	43	PDF
DW-AS-603-M18-002	$;4tnb:	2000Hz	5mm	Flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	43	PDF
DW-AS-604-M18-002	$;4tnc:	2000Hz	5mm	Flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	43	PDF
DW-AS-611-M18-002	$;4tnd:	2000Hz	8mm	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	49	PDF
DW-AS-613-M18-002	$;4tne:	2000Hz	8mm	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	49	PDF
DW-AS-614-M18-002	$;;4tnf:	2000Hz	8mm	Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	49	PDF
Extended Sensing Distance										
DW-AS-621-M18-002	$;4tng:	1500Hz	8mm	Flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	51	PDF
DW-AS-623-M18-002	$;4tnh:	1500Hz	8mm	Flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	51	PDF
DW-AS-624-M18-002	$;-4tni:	1500Hz	8mm	Flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	51	PDF
DW-AS-631-M18-002	$;-4tnj:	500Hz	12mm	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	105	PDF
DW-AS-633-M18-002	$;4tnk:	500Hz	12mm	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	105	PDF
DW-AS-634-M18-002	$;-4tnl:	500Hz	12mm	Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	105	PDF

Wiring Diagrams

Diagram 1

NPN Connector

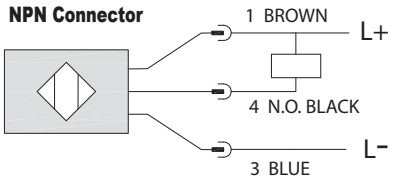
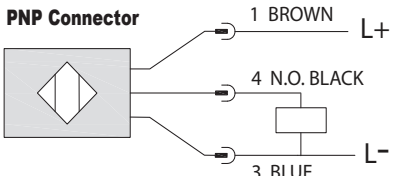


Diagram 2

PNP Connector

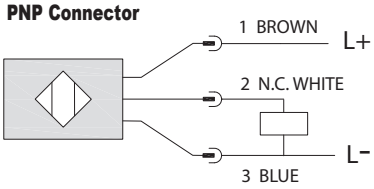


Connectors

M12 connector

Diagram 3

PNP Connector



DW Series 18mm Inductive Proximity Sensors

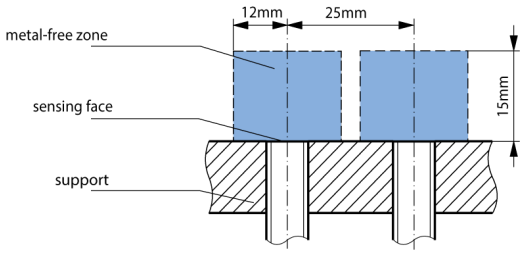
DW Series M18 Inductive Proximity Specifications				
Sensor	***DW-Ax-60x-M18***	***DW-Ax-62x-M18***	***DW-Ax-61x-M18***	***DW-Ax-63x-M18***
Mounting Type	Flush		Non-flush	
Nominal Sensing Distance	5mm	8mm	8mm	12mm
Operating Distance	–			
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP, N.O. or N.C.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 10mA			
Operating (Load) Current	≤ 200mA			
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	≤ 2 V @ 200mA			
Switching Frequency	3000Hz	2500Hz	2000Hz	1400Hz
Differential Travel (% of Nominal Distance)	< 20%			
Repeat Accuracy	0.10 mm	0.20 mm		0.40 mm
Ripple	≤ 20%			
Time Delay Before Availability (tv)	≤ 80ms	≤ 60ms	≤ 80ms	≤ 50ms
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Operating Temperature	-25 to 70°C [-13 to 158°F]			
Protection Degree (DIN 40050)	IP67			
Indication/Switch Status	Indicator LED, Yellow, Solid (When the target is between 0-80% of Range, the LED will be solid) Indicator LED, Yellow, Blinking (When the target is between 80-100% of Range, the LED will blink to let you know it is nearing max range)			
Housing Material	Nickel Plated Brass			
Sensing Face Material	PBTP [Crastin]			
Shock/Vibration	IEC 60947-5-2/7.4			
Tightening Torque	25 Nm			
Connection	4-Pole M12 connection			
IO-Link	IO-Link [PNP, N.O. version only]			
Agency Approvals	CE, cULus E239373			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

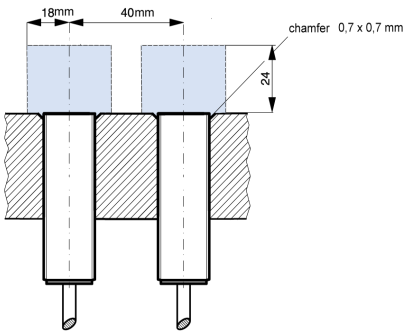
DW Series 18mm Inductive Proximity Sensors

Installation

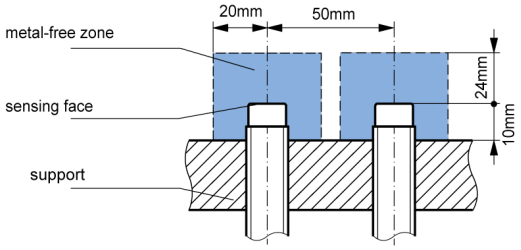
DW-Ax-60x-M18



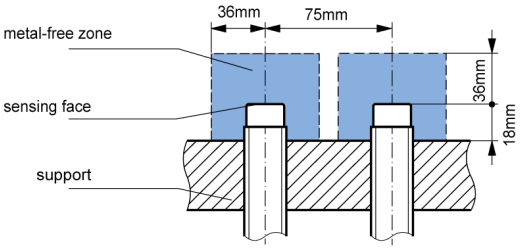
DW-Ax-62x-M18



DW-Ax-61x-M18

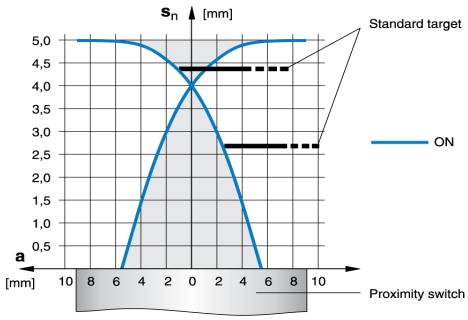


DW-Ax-63x-M18

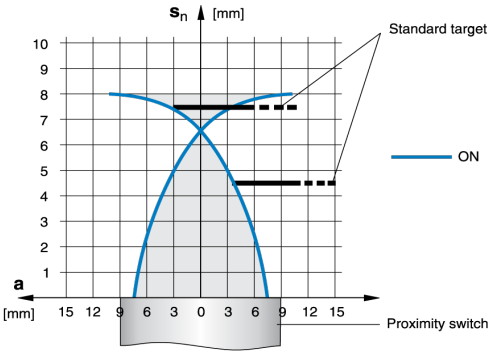


Response Diagrams

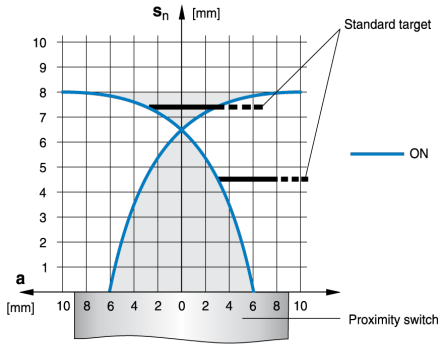
DW-Ax-60x-M18



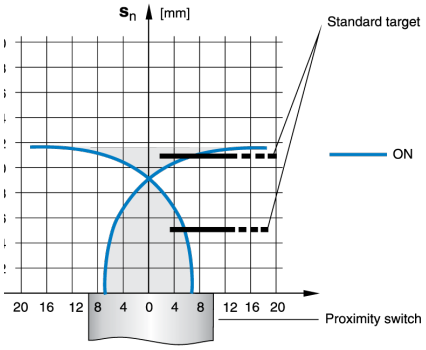
DW-Ax-62x-M18



DW-Ax-61x-M18



DW-Ax-63x-M18



CONTRINEX

DW Series 30mm Inductive Proximity Sensors

M30 (30mm)

- Flush and non-flush models
- LED status indicator
- IP67 rated
- Two M30 lock nuts included
- Complete overload protection
- Lifetime warranty
- IO Link (PNP N.O. models only)

DW Series M30 Inductive Proximity Sensor Selection Chart

Part Number	Price	Frequency	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Weight (g)	Drawing LInk
Standard Sensing Distance										
DW-AS-601-M30-002	$;4tnn:	1200Hz	10mm	Flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	130	PDF
DW-AS-603-M30-002	$;4tno:	1200Hz	10mm	Flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	130	PDF
DW-AS-604-M30-002	$;4tnp:	1200Hz	10mm	Flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	130	PDF
DW-AS-611-M30-002	$;4tnq:	700Hz	15mm	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	125	PDF
DW-AS-613-M30-002	$;4tns:	700Hz	15mm	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	125	PDF
DW-AS-614-M30-002	$;;4tnt:	700Hz	15mm	Non-flush	N.C.	PNP	M12 quick-disconnect	Diagram 3	125	PDF
Extended Sensing Distance										
DW-AS-631-M30-002	$;4tnu:	200Hz	25mm	Non-flush	N.O.	NPN	M12 quick-disconnect	Diagram 1	125	PDF
DW-AS-633-M30-002	$;4tnv:	200Hz	25mm	Non-flush	N.O.	PNP	M12 quick-disconnect	Diagram 2	125	PDF

Wiring Diagrams

Diagram 1

NPN Connector

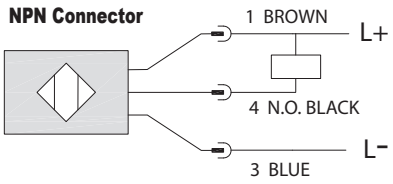
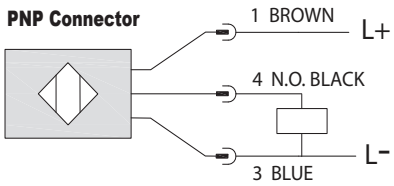


Diagram 2

PNP Connector

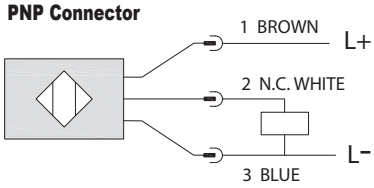


Connectors

M12 connector

Diagram 3

PNP Connector



DW Series 30mm Inductive Proximity Sensors

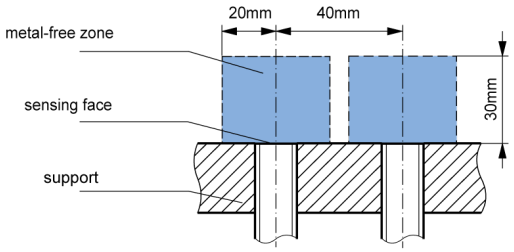
DW Series M30 Specifications			
Sensor	***DW-Ax-60x-M30***	***DW-Ax-61x-M30***	***DW-Ax-63x-M30***
Mounting Type	Flush	Non-flush	
Nominal Sensing Distance	10mm	15mm	25mm
Operating Distance	–		
Material Correction Factors	See the Material influence table		
Output Type	NPN or PNP, N.O. or N.C.		
Operating Voltage	10 to 30 VDC		
No-load Supply Current	≤ 10mA		
Operating (Load) Current	≤ 200mA		
Off-state (Leakage) Current	≤ 0.1 mA		
Voltage Drop	≤ 2 V @ 200mA		
Switching Frequency	1200Hz	700Hz	200Hz
Differential Travel (% of Nominal Distance)	< 20%		
Repeat Accuracy	0.50 mm	0.75 mm	
Ripple	≤ 20%		
Time Delay Before Availability (tv)	≤ 70ms	≤ 60ms	
Reverse Polarity Protection	Yes		
Short-Circuit Protection	Yes		
Operating Temperature	-25 to 70°C [-13 to 158°F]		
Protection Degree (DIN 40050)	IP67		
Indication/Switch Status	Indicator LED, Yellow, Solid (When the target is between 0-80% of Range, the LED will be solid) Indicator LED, Yellow, Blinking (When the target is between 80-100% of Range, the LED will blink to let you know it is nearing max range)		
Housing Material	Chrome Plated Brass	Nickel Plated Brass	
Sensing Face Material	PBTP (Crastin)		
Shock/Vibration	IEC 60947-5-2/7.4		
Tightening Torque	70 Nm		
Connection	4-Pole M12 connection		
IO-Link	IO-Link [PNP, N.O. version only]		
Agency Approvals	CE, cULus E239373		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

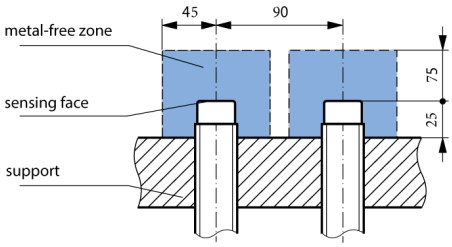
DW Series 30mm Inductive Proximity Sensors

Installation

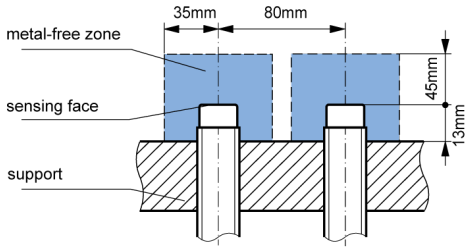
DW-Ax-60x-M30



DW-Ax-63x-M30

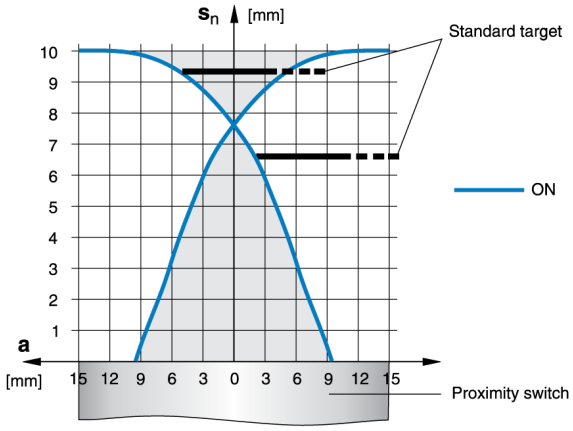


DW-Ax-61x-M30

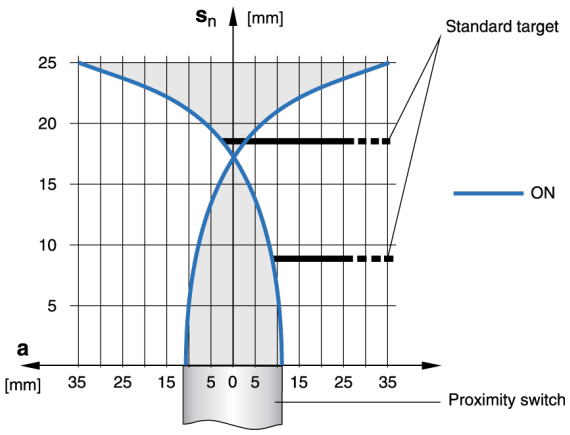


Response Diagram

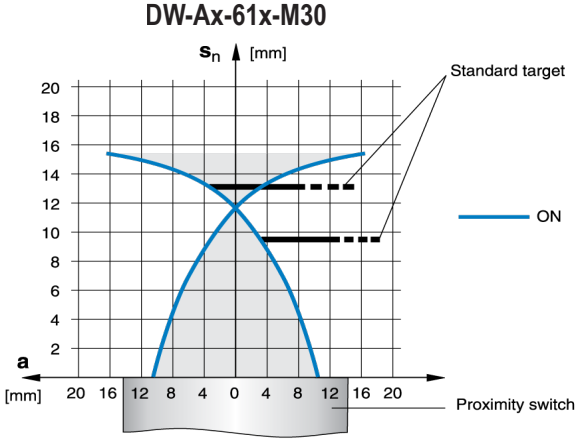
DW-Ax-60x-M30



DW-Ax-63x-M30



DW-Ax-61x-M30



KSE Series Factor 1 Inductive Proximity Sensors

M8 (8mm)

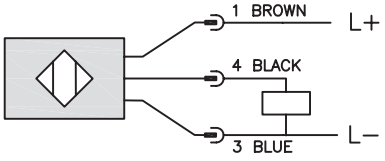
- Correction Factor (K-Factor) = 1
- Low cost/high performance
- 40mm housing length
- Inductive sensor
- Metal thread M8 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush and Non-flush mounting
- Lifetime warranty

KSE Series M8 Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Voltage	Connection	Wiring	Dimensions
KSE-AP-3F	$2a8k:	3mm [0.11 in]	Flush	N.O.	PNP	10-30 VDC	3-pin M8 quick-disconnect	Diagram 1	Figure 1
KSE-AP-4F	$-2a8l:	6mm [0.24 in]	Non-flush						

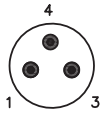
Wiring Diagrams

Diagram 1



Connector

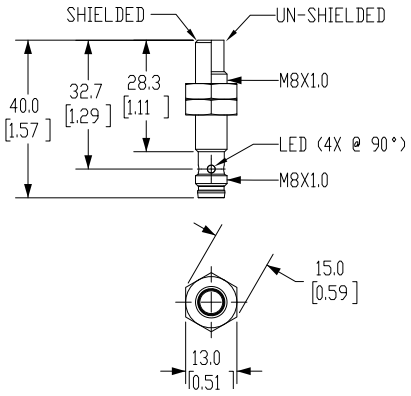
M8 connector



Dimensions

mm [inches]

Figure 1



KSE Series Factor 1 Inductive Proximity Sensors

KSE Series M8 Inductive Proximity Specifications		
Model	***KSE-AP-3F***	***KSE-AP-4F***
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	3mm [0.12 in]	6mm [0.24 in]
Operating Distance	0 - 2.43 mm	0 - 4.86 mm
Material Correction Factors	Correction Factor (K-Factor) = 1	
Output Type	N.O.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	< 20 mA	
Operating (Load) Current	100 mA	
Off-state Leakage Current	NA	
Voltage Drop	< 2.5 V	
Switching Frequency	2000Hz	
Differential Travel (% of Nominal Distance)	3 - 15	
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	NA	
Short Circuit Protection	Yes	
Operating Temperature	-40 to 85°C [-40 to 185°F]	
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K	
LED Indicators	Illuminated when energized	
Housing Material	Stainless steel [316L]; LED window: Polyetherimide [PEI]	
Sensing Face Material	Active face: Liquid Crystal Polymer [LCP] white	
Shock/Vibration	See Proximity Sensor Terminology	
Weight	0.017 kg	
Connection	3-pin M8 quick-disconnect	
Agency Approvals	cULus E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

KSM Series Factor 1 Inductive Proximity Sensors

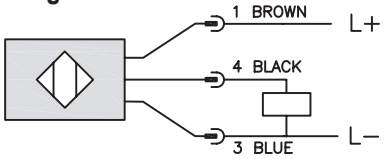
M12 (12mm)

- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Inductive sensor
- Metal thread M12 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush and Non-flush mounting
- Lifetime warranty

KSM Series M12 Inductive Proximity Selection Chart									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Voltage*	*Connection*	*Wiring*	*Dimensions*
KSM6-AP-3H	$2a8n:	4mm [0.16in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
KSM6-AP-4H	$2a8o:	10mm [0.39in]	Non-flush						
KSM-AP-3H	$2a8p:	4mm [0.16in]	Flush						Figure 2
KSM-AP-4H	$2a8q:	10mm [0.39in]	Non-flush						

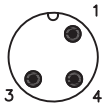
Wiring Diagrams

Diagram 1



Connector

4-pin M12 connector



Dimensions

mm [inches]

Figure 1

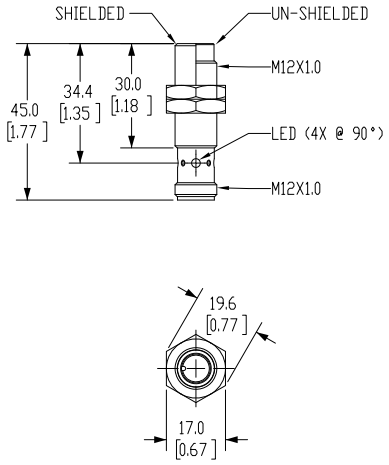
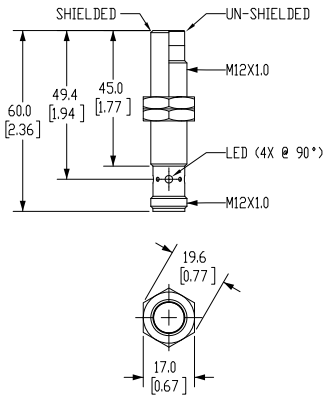


Figure 2



KSM Series Factor 1 Inductive Proximity Sensors

KSM Series M12 Inductive Proximity Specifications				
Models	***KSM6-AP-3H***	***KSM6-AP-4H***	***KSM-AP-3H***	***KSM-AP-4H***
Mounting Type	Flush	Non-flush	Flush	Non-flush
Nominal Sensing Distance	4mm [0.16 in]	10mm [0.39 in]	4mm [0.16 in]	10mm [0.39 in]
Operating Distance	0 - 3.24 mm	0 - 8.10 mm	0 - 3.24 mm	0 - 8.10 mm
Material Correction Factors	Correction Factor (K-Factor) = 1			
Output Type	N.O.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	< 20 mA			
Operating (Load) Current	100 mA			
Off-state Leakage Current	NA			
Voltage Drop	< 2.5 V			
Switching Frequency	2000Hz			
Differential Travel (% of Nominal Distance)	3 - 15			
Repeat Accuracy	NA			
Ripple	NA			
Time Delay Before Availability (tv)	NA			
Short Circuit Protection	Yes			
Operating Temperature	-40 to 85°C [-40 to 185°F]			
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K			
LED Indicators	Illuminated when energized			
Housing Material	stainless steel [316L]; LED window: Polyetherimide [PEI]			
Sensing Face Material	active face: Liquid Crystal Polymer (LCP) white			
Shock/Vibration	See Proximity Sensor Terminology			
Weight	0.026 kg	0.024 kg	0.029 kg	0.027 kg
Connection	4-pin M12 quick-disconnect			
Agency Approvals	cULus E328811, CE			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

KSK Series Factor 1 Inductive Proximity Sensors

M18 (18mm)

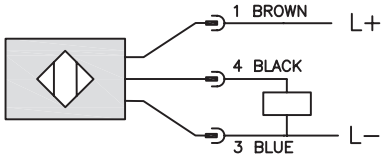
- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Inductive sensor
- Metal thread M12 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush and Non-flush mounting
- Lifetime warranty

KSK Series M18 Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Voltage	Connection	Wiring	Dimensions
KSK6-AP-3H	$2a8s:	8mm [0.31 in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
KSK6-AP-4H	$;2a8t:	12mm [0.47 in]	Non-flush						
KSK-AP-3H	$2a8u:	8mm [0.31 in]	Flush						Figure 2
KSK-AP-4H	$2a8v:	15mm [0.59 in]	Non-flush						

Wiring Diagrams

Diagram 1



Connector

Dimensions

mm [inches]

Figure 1

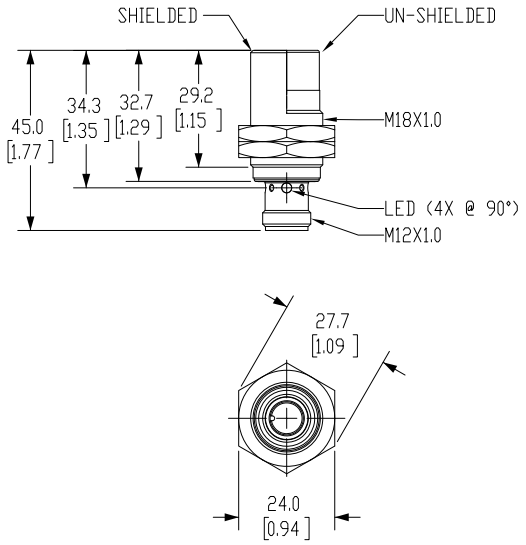
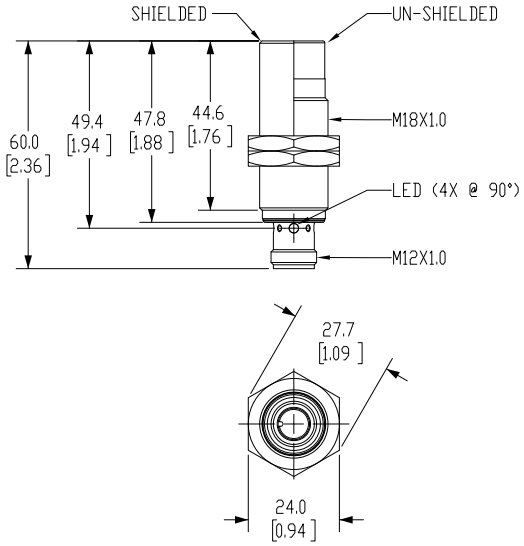


Figure 2



KSK Series Factor 1 Inductive Proximity Sensors

KSK Series M18 Inductive Proximity Specifications				
Model	***KSK6-AP-3H***	***KSK6-AP-4H***	***KSK-AP-3H***	***KSK-AP-4H***
Mounting Type	Flush	Non-flush	Flush	Non-flush
Nominal Sensing Distance	8mm [0.31in]	12mm [0.47 in]	8mm [0.31in]	15mm [0.59 in]
Operating Distance	0 - 6.48 mm	0 - 9.72 mm	0 - 6.48 mm	0 - 12.15 mm
Material Correction Factors	Correction Factor (K-Factor) = 1			
Output Type	N.O.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	< 20mA			
Operating (Load) Current	100mA			
Off-state Leakage Current	NA			
Voltage Drop	< 2.5 V			
Switching Frequency	2000Hz			
Differential Travel (% of Nominal Distance)	3 - 15			
Repeat Accuracy	NA			
Ripple	NA			
Time Delay Before Availability (tv)	NA			
Short Circuit Protection	Yes			
Operating Temperature	-40 to 85°C [-40 to 185°F]			
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K			
LED Indicators	Illuminated when energized			
Housing Material	stainless steel [316L]; LED window: Polyetherimide [PEI]			
Sensing Face Material	active face: Liquid Crystal Polymer [LCP] white			
Shock/Vibration	See Proximity Sensor Terminology			
Weight	0.04 kg	0.035 kg	0.046 kg	0.042 kg
Connection	4-pin M12 quick-disconnect			
Agency Approvals	cULus E328811, CE			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

KST Series Factor 1 Inductive Proximity Sensors

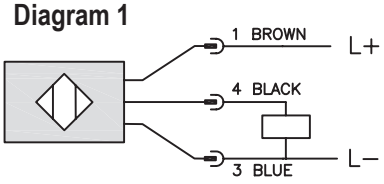
M30 (30mm)

- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Inductive sensor
- Metal thread M12 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush and Non-flush mounting
- Lifetime warranty

KST Series M30 Inductive Proximity Selection Chart									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Voltage*	*Connection*	*Wiring*	*Dimensions*
KST6-AP-3H	$2a8x:	15mm [0.59 in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
KST-AP-3H	$2a8y:	15mm [0.59 in]	Flush						Figure 2
KST-AP-4H	$2a8z:	30mm [1.18 in]	Non-flush						

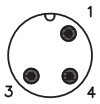
Wiring Diagrams

Diagram 1



Connector

4-pin M12 connector



Dimensions

mm [inches]

Figure 1

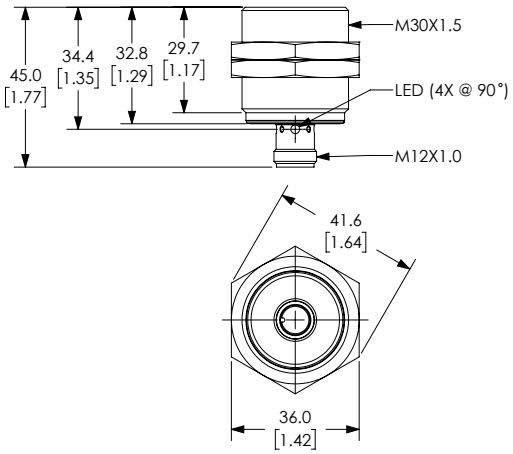
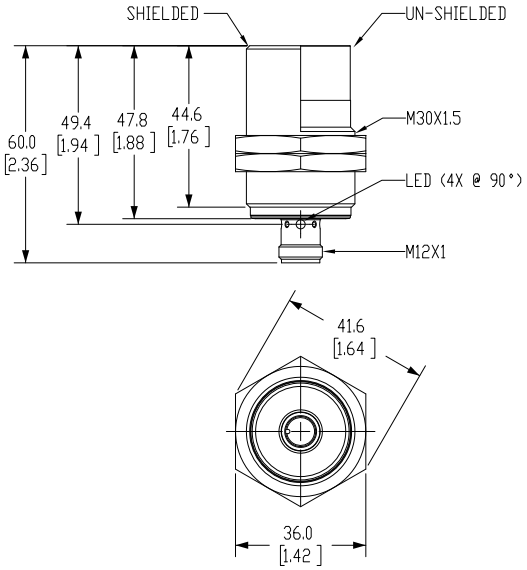


Figure 2



KST Series Factor 1 Inductive Proximity Sensors

KST Series M30 Inductive Proximity Specifications			
Models	***KST6-AP-3H***	***KST-AP-3H***	***KST-AP-4H***
Mounting Type	Flush		Non-flush
Nominal Sensing Distance	15mm [0.59 in]		30mm [1.18 in]
Operating Distance	0 - 12.15 mm		0 - 24.30 mm
Material Correction Factors	Correction Factor (K-Factor) = 1		
Output Type	N.O.		
Operating Voltage	10 to 30 VDC		
No-load Supply Current	< 20mA		
Operating (Load) Current	100mA		
Off-state Leakage Current	NA		
Voltage Drop	< 2.5 V		
Switching Frequency	2000Hz		
Differential Travel (% of Nominal Distance)	3 - 15		
Repeat Accuracy	NA		
Ripple	NA		
Time Delay Before Availability (tv)	NA		
Short Circuit Protection	Yes		
Operating Temperature	-40 to 85°C [-40 to 185°F]		
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K		
LED Indicators	Illuminated when energized		
Housing Material	stainless steel [316L]; LED window: Polyetherimide [PEI]		
Sensing Face Material	active face: Liquid Crystal Polymer [LCP] white		
Shock/Vibration	See Proximity Sensor Terminology		
Weight	0.077 kg	0.093 kg	0.08 kg
Connection	4-pin M12 quick-disconnect		
Agency Approvals	cULus E328811, CE		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CONTRINEX

DW Series Chip Immune Proximity Sensors

DW-AS-711-M18-967

Overview

The Contrinex DW series Chip Immune proximity sensors are immune to the following metal chips:

- Steel
- Aluminum
- Copper
- Stainless steel
- Brass
- Titanium

M12, M18 and M30 – DC

- Chip immune (will not switch due to the presence of metallic chips on the face)
- IP68 and IP69K-rated
- Includes mounting hardware
- 304 stainless steel construction
- 10-30 VDC
- LED status indicator
- One-piece housing for harsh duty applications
- Lifetime warranty
- IO-Link v1.1 PNP models
- Purchase cable separately

DW Series Chip Immune Proximity Sensors									
Part Number	*Price*	*Size*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
DW-AS-711-M12-967	$05uy4:	M12	3mm [0.11 in]	Non-flush	N.O.	NPN	3-wire, 4-pin M12 quick-disconnect	Diagram 1	PDF
DW-AS-713-M12-967	$05uya:			Non-flush	N.O.	PNP	3-wire, 4-pin M12 quick-disconnect	Diagram 2	PDF
DW-AS-711-M18-967	$05uyg:	M18	5mm [0.19 in]	Non-flush	N.O.	NPN	3-wire, 4-pin M12 quick-disconnect	Diagram 1	PDF
DW-AS-713-M18-967	$05uyn:			Non-flush	N.O.	PNP	3-wire, 4-pin M12 quick-disconnect	Diagram 2	PDF
DW-AS-713-M30-967	$05uys:	M30	12mm [0.47 in]	Non-flush	N.O.	PNP	3-wire, 4-pin M12 quick-disconnect	Diagram 2	PDF

Wiring Diagrams

Diagram 1

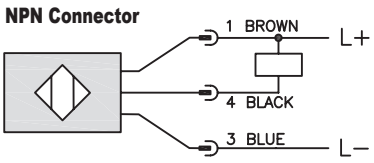
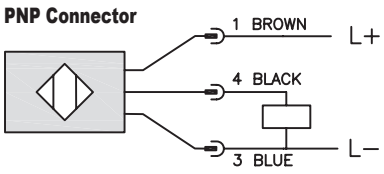
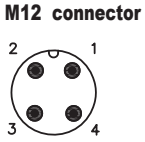


Diagram 2



Connector



CONTRINEX

DW Series Chip Immune Proximity Sensors Specifications

DW Series Chip Immune Proximity Sensors Specifications			
Sensor	***DW-AS-71x-M12-967***	***DW-AS-71x-M18-967***	***DW-AS-713-M30-967***
Assured Operating Distance	2.43 mm [0.09 in]	4.05 mm [0.15 in]	9.72 mm [0.38 in]
Rated Operating Distance	3mm [0.11 in]	5mm [0.19 in]	12mm [0.47 in]
Material Correction Factors	See the Material influence table		
Output Type	NPN or PNP, N.O.		PNP, N.O.
Operating Voltage	10 to 30 VDC		
No-load Supply Current	≤ 10mA		
Operating (Load) Current	≤ 200mA		
Off-state (Leakage) Current	≤ 0.1 mA		
Voltage Drop	≤ 2.0 VDC		
Switching Frequency	≤ 400Hz	≤ 200Hz	≤ 90Hz
Differential Travel (% of Nominal Distance)	3% Sr ≤ Hyst ≤ 15% Sr		
Repeat Accuracy	≤ 0.2 mm	≤ 0.35 mm	≤ 0.8 mm
Ripple	≤ 20%		
Reverse Polarity Protection	Yes		
Short-Circuit Protection	Yes		
Operating Temperature	-25 to 85°C [-13 to 185°F]		
Protection Degree (DIN 40050)	IP68, IP69K		
Indication/Switch Status	Yellow LED		
Housing Material	304 Stainless steel		
Sensing Face Material	304 Stainless steel		
Shock/Vibration	IEC 60947-5-2/7.4		
Tightening Torque	20 N•m max	50 N•m max	150 N•m max
Weight	25g [0.88 oz]	53g [1.86 oz]	137g [4.83 oz]
Connection	3-wire, 4-pin M12 quick-disconnect		
IO-Link	v1.1 PNP models		
Agency Approvals	CE, cULus E239373		

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

CONTRINEX

DW Series High Pressure Proximity Sensors

M3, M8 and M12 – DC

- High pressure resistant up to 500 bar
- IP68 rated
- Stainless steel construction with ceramic sensing face
- 10-30 VDC
- LED status indicator
- Lifetime warranty
- IO-Link v1.1 PNP models

DW-AD-621-03E-961
DW-AS-503-P12-624

IO-Link

DW Series High Pressure Proximity Sensors									
Part Number	*Price*	*Size*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
DW-AD-621-03E-961	$;05ux,:	M3	0.8 mm [0.03 in]	Flush	N.O.	NPN	3-wire, pigtail, 6.5 ft [2m]	Diagram 1	PDF
DW-AD-623-03E-961	$05uy0:			Flush	N.O.	PNP	3-wire, pigtail, 6.5 ft [2m]	Diagram 2	PDF
DW-AD-503-P8	$05uy1:	M8	1.5 mm [0.05 in]	Flush	N.O.	PNP	3-wire, pigtail, 6.5 ft [2m]	Diagram 2	PDF
DW-AS-503-P12-630 *	$05uy2:	M12		Flush	N.O.	PNP	3-wire, 4-pin M12 quick-disconnect	Diagram 3	PDF
DW-AS-503-P12-624 *	$05uy3:			Flush	N.O.	PNP	3-wire, 4-pin M12 quick-disconnect	Diagram 3	PDF
DW-LS-703-P12G	$05uy5:			Flush	N.O.	PNP	3-wire, 4-pin M12 quick-disconnect	Diagram 3	PDF

*** Mounting hardware included.**

Wiring Diagrams

Diagram 1

NPN Cable

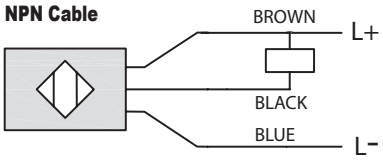


Diagram 2

PNP Cable

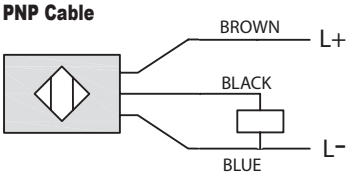
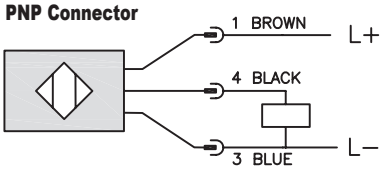


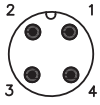
Diagram 3

PNP Connector



Connector

M12 connector



CONTRINEX

DW Series High Pressure Proximity Sensors Specifications

DW Series High Pressure Proximity Sensors Specifications				
Sensor	***DW-AD-62x-03E-961***	***DW-AD-503-P8***	***DW-Ax-50x-P12***	***DW-LS-703-P12G***
Assured Operating Distance	0.65 mm [0.02 in]	1.22 mm [0.04 in]		
Rated Operating Distance	0.8 mm [0.03 in]	1.5 mm [0.05 in]		
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP, N.O.	PNP, N.O.		
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 10mA			
Operating (Load) Current	100mA	≤ 200mA		
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	≤ 2.0 VDC @100mA	≤ 2.0 VDC		
Switching Frequency	≤ 8,000Hz	800Hz	600Hz	850Hz
Differential Travel (% of Nominal Distance)	≤ 10% s_r	3% S_r ≤ Hyst ≤ 15% S_r		
Repeat Accuracy	0.2 mm	≤ 0.075 mm	≤ 0.1 mm	≤ 0.06 mm
Ripple	≤ 20%			
Operating Pressure / Peak Pressure	≤ 200 bar	≤ 500 bar / ≤1000 bar		≤ 500 bar / ≤ 800 bar
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Operating Temperature	-25 to 70°C [-13 to 158°F]	-25 to 100°C [-13 to 212°F]		-25 to 85°C [-13 to 185°F]
Protection Degree (DIN 40050)	IP68, IP69K	IP68		IP68, IP69K
Indication/Switch Status	Yellow LED			
Housing Material	Stainless steel V2A	Stainless steel V4A	Stainless-steel DIN 1.4305 / AISI 303	Stainless steel V4A / 1.4435 / AISI 316L
Sensing Face Material	Ceramic	ZrO_2 [Zirconium dioxide]	ZrO_2 [Zirconium dioxide]	Stainless steel V4A / 1.4435 / AISI 316L
Shock/Vibration	IEC 60947-5-2 / 7.4			
Tightening Torque	N/A	12 N•m	40 N•m	50 N•m max
Weight	18g [0.63 oz]	40g [1.41 oz]	27g [0.95 oz]	137g [4.83 oz]
Connection	PUR, 3-wire, pigtail, 6.5 ft [2m]		3-wire, 4-pin M12 quick-disconnect	
IO-Link	v1.1 PNP models			
Agency Approvals	CE, cULus E239373			

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

CONTRINEX

DW Series High Temperature Proximity Sensors

DW-HD-613-M30-411
DW-HD-603-M12-200

M8, M12, M18, M30 and M50 – DC

- High temperature up to 230°C [446°F]
- IP67
- Stainless steel construction with ceramic sensing face
- Mounting hardware included
- 10-30 VDC
- One-piece for harsh duty applications
- Lifetime warranty

CE

LIMITED LIFETIME WARRANTY

DW Series High Temperature Proximity Sensors										
Part Number	*Price*	*Size*	*Sensing Distance*	*Temperature Rating*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
DW-HD-621-M8-100	$05uy6:	M8	2mm [0.07 in]	0 to 140°C [32 to 284°F]	Flush	N.O.	NPN	3-wire, pigtail, 6.5 ft [2m]	Diagram 1	PDF
DW-HD-623-M8-100	$05uy7:				Flush	N.O.	PNP	3-wire, pigtail, 6.5 ft [2m]	Diagram 2	PDF
DW-HD-601-M12-200	$05uy8:	M12	3mm [0.11 in]	0 to 150°C [32 to 302°F]	Flush	N.O.	NPN	3-wire, pigtail, 6.5 ft [2m]	Diagram 1	PDF
DW-HD-603-M12-200	$05uy9:				Flush	N.O.	PNP	3-wire, pigtail, 6.5 ft [2m]	Diagram 2	PDF
DW-HD-601-M18-310	$05uyb:	M18	5mm [0.19 in]	0 to 180°C [32 to 356°F]	Flush	N.O.	NPN	3-wire, pigtail, 6.5 ft [2m]	Diagram 1	PDF
DW-HD-603-M18-310	$05uyc:				Flush	N.O.	PNP	3-wire, pigtail, 6.5 ft [2m]	Diagram 2	PDF
DW-HD-601-M18-411	$05uyd:			0 to 230°C [32 to 446°F]	Flush	N.O.	NPN	3-wire, pigtail, 16.4 ft [5m]	Diagram 1	PDF
DW-HD-603-M18-411	$05uye:				Flush	N.O.	PNP	3-wire, pigtail, 16.4 ft [5m]	Diagram 2	PDF
DW-HD-601-M30-310	$;05uyf:	M30	10mm [0.39 in]	0 to 180°C [32 to 356°F]	Flush	N.O.	NPN	3-wire, pigtail, 6.5 ft [2m]	Diagram 1	PDF
DW-HD-603-M30-310	$05uyh:				Flush	N.O.	PNP	3-wire, pigtail, 6.5 ft [2m]	Diagram 2	PDF
DW-HD-601-M30-411	$-05uyi:			0 to 230°C [32 to 446°F]	Flush	N.O.	NPN	3-wire, pigtail, 16.4 ft [5m]	Diagram 1	PDF
DW-HD-603-M30-411	$-05uyj:				Flush	N.O.	PNP	3-wire, pigtail, 16.4 ft [5m]	Diagram 2	PDF
DW-HD-611-M30-411	$05uyk:		15mm [0.59 in]		Non-flush	N.O.	NPN	3-wire, pigtail, 16.4 ft [5m]	Diagram 1	PDF
DW-HD-613-M30-411	$-05uyl:				Non-flush	N.O.	PNP	3-wire, pigtail, 16.4 ft [5m]	Diagram 2	PDF
DW-HD-613-M50-517	$05uyo:	M50	25mm [0.98 in]	-25 to 230°C [-13 to 446°F]	Non-flush	N.O.	PNP	3-wire, pigtail, 39.3 ft [12m]	Diagram 2	PDF

Wiring Diagrams

Diagram 1

NPN Cable

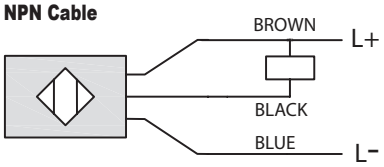
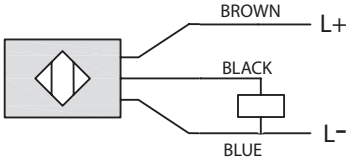


Diagram 2

PNP Cable



Connector

M12 connector

CONTRINEX

DW Series High Temperature Proximity Sensors Specifications

DW Series High Temperature Proximity Sensors Specifications				
Sensor	***DW-HD-62x-M8-100***	***DW-HD-60x-M12-200***	***DW-HD-60x-M18-310***	***DW-HD-60x-M18-411***
Assured Operating Distance	2mm [0.07 in]	3mm [0.11in]	5mm [0.19 in]	
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP, N.O.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 10mA			
Operating (Load) Current	120mA (≤ 100°C) 80mA (> 100°C)	120mA (≤ 100 °C) 70mA (> 100 °C)	150mA	≤ 200mA
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	≤ 2.0 VDC @120mA		≤ 2.0 VDC @150mA	
Switching Frequency	≤ 600Hz	500Hz	400Hz	300Hz
Differential Travel (% of Nominal Distance)	3 to 15% s_r		2 to 20% s_r	3 to 15% s_r
Repeat Accuracy	≤ 0.02 mm			
Ripple	≤ 15%			≤ 20 %
Time Delay Before Availability (tv)	250 msec			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Operating Temperature (according to UL 70°C)	0 to 140°C [32 to 284°F]	0 to 150°C [32 to 302°F]	0 to 180°C [32 to 356°F]	0 to 230°C [32 to 446°F]
Protection Degree (DIN 40050)	IP67			
Indication/Switch Status	—			Yellow LED
Housing Material	304 Stainless steel			
Sensing Face Material	LCP (Liquid Crystal Polymer)			
Shock/Vibration	IEC 60947-5-2 / 7.4			
Tightening Torque	10 N•m	20 N•m	20 N•m	20 N•m
Weight	75g [2.64 oz]	95g [3.35 oz]	105g [3.70 oz]	200g [7.05 oz]
Connection	3-wire, pigtail, 6.5 ft [2m], Silicone		3-wire, pigtail, 6.5 ft [2m], Teflon	3-wire, pigtail, 16.4 ft [5m], Teflon/PUR
IO-Link	No			
Agency Approvals	CE			

Continued on following page

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

CONTRINEX

DW Series High Temperature Proximity Sensors Specifications

DW Series High Temperature Proximity Sensors Specifications (continued)				
Sensor	***DW-HD-60x-M30-310***	***DW-HD-60x-M30-411***	***DW-HD-61x-M30-411***	***DW-HD-613-M50-517***
Assured Operating Distance	10mm [0.39 in]		15mm [0.59 in]	25mm [0.98 in]
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP, N.O.			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 10mA	≤ 5mA		
Operating (Load) Current	150mA	≤ 200mA		
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	≤ 2.0 VDC @150mA	≤ 2.0 VDC @200mA		
Switching Frequency	≤ 200Hz		≤ 150Hz	
Differential Travel (% of Nominal Distance)	3 to 15% s_r			
Repeat Accuracy	≤ 0.02mm			
Ripple	≤ 15%	≤ 20 %		
Time Delay Before Availability (tv)	250 msec			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Operating Temperature (according to UL 70°C)	0 to 180°C [32 to 356°F]	0 to 230°C [32 to 446°F]		-25 to 230°C [-13 to 446°F]
Protection Degree (DIN 40050)	IP67			
Indication/Switch Status	—	Yellow LED		
Housing Material	304 Stainless steel			
Sensing Face Material	LCP (Liquid Crystal Polymer)			
Shock/Vibration	IEC 60947-5-2 / 7.4			
Tightening Torque	20 N•m	20 N•m	20 N•m	20 N•m
Weight	200g [7.05 oz]	210g [7.40 oz]	200g [7.05 oz]	480g [16.93 oz]
Connection	3-wire, pigtail, 6.5 ft [2m], Teflon	3-wire, pigtail,16.4 ft [5m], Teflon/PUR		3-wire, pigtail, 39.3 ft [12m], Teflon/PUR
IO-Link	No			
Agency Approvals	CE			

Continued from previous page

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

CONTRINEX

DW Series Maritime Proximity Sensors

DW-AD-603-M10E-620

M10 – DC

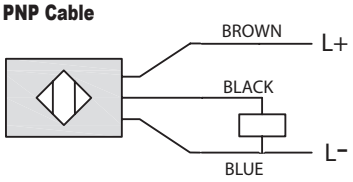
- Maritime approved
- IP68
- 304 stainless steel construction
- 10-30 VDC
- LED status indicator
- IO-Link v1.0
- Lifetime warranty

DW Series Maritime Proximity Sensors									
Part Number	*Price*	*Size*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
DW-AD-603-M10E-620	$05uyp:	M10	0.6mm [0.02 in]	Flush	N.O.	PNP	3-wire, pigtail, 9.25 in [235mm]	Diagram 1	PDF
DW-AD-603-M10E-637	$05uyq:			Flush	N.O.	PNP	3-wire, pigtail, 5.5 in [140mm]	Diagram 1	PDF

Wiring Diagram

Diagram 1

PNP Cable



Connector

M12 connector

CONTRINEX

DW Series Maritime Proximity Sensors Specifications

DW Series Maritime Proximity Sensors Specifications	
Sensor	***DW-AD-603-M10E-xxx***
Assured Operating Distance	≤ (0.81 x S_n) mm
Rated Operating Distance	0.6 mm [0.02 in]
Material Correction Factors	See the Material influence table
Output Type	PNP, N.O.
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2.0 VDC @200mA
Switching Frequency	≤ 2.0 kHz
Differential Travel (% of Nominal Distance)	≤ 15% S_r
Repeat Accuracy	0.03 mm
Ripple	≤ 20%
Operating Pressure	≤ 200 bar
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature (according to UL 70°C)	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP68
Indication/Switch Status	Yellow LED
Housing Material	304 Stainless steel
Sensing Face Material	Al_2O_3 (Aluminum oxide)
Shock/Vibration	IEC 60947-5-2 / 7.4
Tightening Torque	20 N•m
Weight	28g [0.98 oz]
Connection	PUR, 3-wire, pigtail
IO-Link	v1.0
Agency Approvals	CE, cULus E239373, DNVGL-CG-0339: 2016

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

WKE Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

M8 (8mm)

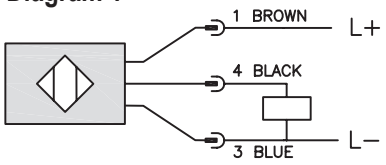
- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Weld slag resistant coating
- Inductive sensor
- Metal thread M8 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush and Non-flush mounting
- Lifetime warranty

WKE Series M8 Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Voltage	Connection	Wiring	Dimensions
WKE-AP-3F	$;2a8]:	3mm [0.12 in]	Flush	N.O.	PNP	10 - 30 VDC	3-pin M8 quick-disconnect	Diagram 1	Figure 1
WKE-AP-4F	$;2a8[:	6mm [0.24 in]	Non-flush						

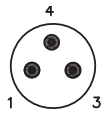
Wiring Diagrams

Diagram 1



Connector

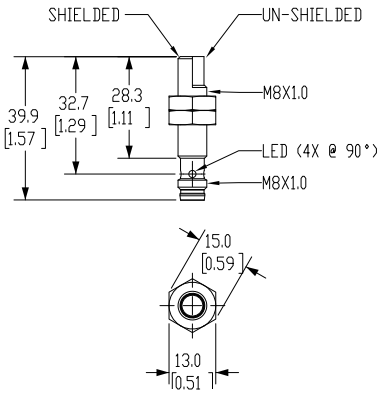
3-pin M8 connector



Dimensions

mm [inches]

Figure 1



WKE Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

WKE Series M8 Inductive Proximity Specifications		
Models	***WKE-AP-3F***	***WKE-AP-4F***
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	3mm [0.12 in]	6mm [0.24 in]
Operating Distance	0 - 2.43 mm	0 - 4.86 mm
Material Correction Factors	Correction Factor (K-Factor) = 1	
Output Type	N.O.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	< 20mA	
Operating (Load) Current	100mA	
Off-state Leakage Current	NA	
Voltage Drop	< 2.5 V	
Switching Frequency	2000Hz	
Differential Travel (% of Nominal Distance)	3 - 15	
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	NA	
Short Circuit Protection	Yes	
Operating Temperature	-40 to 85°C [-40 to 185°F]	
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K	
LED Indicators	Illuminated when energized	
Housing Material	Stainless steel with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating; LED window: Polyetherimide [PEI]	
Sensing Face Material	active face: Liquid Crystal Polymer [LCP] black	
Shock/Vibration	See Proximity Sensor Terminology	
Weight	0.017 kg	0.016 kg
Connection	3-pin M8 quick-disconnect	
Agency Approvals	cULus E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

WKM Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

M12 (12mm)

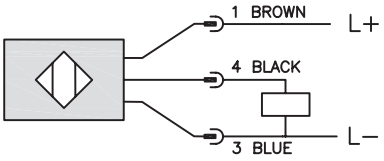
- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Weld slag resistant coating
- Inductive sensor
- Metal thread M12 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush and Non-flush mounting
- Lifetime warranty

WKM Series M12 Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Voltage	Connection	Wiring	Dimensions
WKM-AP-3H	$2a8_:	4mm [0.16 in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
WKM-AP-4H	$2a8#:	8mm [0.31 in]	Non-flush						

Wiring Diagrams

Diagram 1



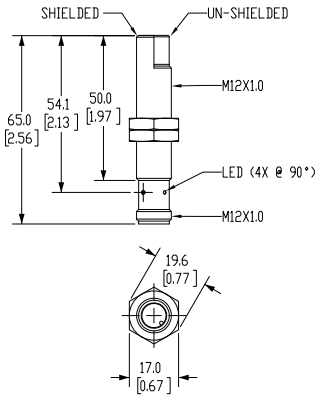
Connector

4-pin M12 connector

Dimensions

mm [inches]

Figure 1



WKM Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

WKM Series M12 Inductive Proximity Specifications		
Model	***WKM-AP-3H***	***WKM-AP-4H***
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	4mm [0.16 in]	8mm [0.31 in]
Operating Distance	0 - 3.24 mm	0 - 6.5 mm
Material Correction Factors	Correction Factor (K-Factor) = 1	
Output Type	N.O.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	< 20mA	
Operating (Load) Current	100mA	
Off-state Leakage Current	NA	
Voltage Drop	2.5 V	
Switching Frequency	2000Hz	
Differential Travel (% of Nominal Distance)	3 - 15	
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	NA	
Short Circuit Protection	Yes	
Operating Temperature	-40 to 85°C [-40 to 185°F]	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K	IP67
LED Indicators	Illuminated when energized	
Housing Material	Brass with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating; LED window: Polyetherimide [PEI]	
Sensing Face Material	active face: Liquid Crystal Polymer [LCP] white	
Shock/Vibration	See Proximity Sensor Terminology	
Weight	0.029 kg	0.036 kg
Connection	4-pin M12 quick-disconnect	
Agency Approvals	cULus E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

WKK Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

M18 (18mm)

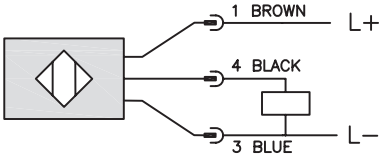
- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Weld slag resistant coating
- Inductive sensor
- Metal thread M12 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush or Non-flush mounting
- Lifetime warranty

WKK Series M18 Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Voltage	Connection	Wiring	Dimensions
WKK-AP-3H	$;2a8!:	8mm [0.31 in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
WKK-AP-4H	$2a8?:	12mm [0.47 in]	Non-flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1

Wiring Diagrams

Diagram 1



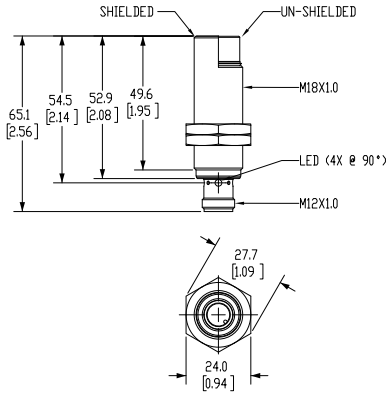
Connector

4-pin M12 connector

Dimensions

mm [inches]

Figure 1

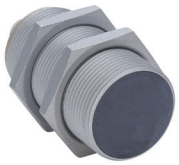


WKK Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

WKK Series M18 Inductive Proximity Specifications		
Model	***WKK-AP-3H***	***WKK-AP-4H***
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	8mm [0.31 in]	12mm [0.47 in]
Operating Distance	0 - 6.48 mm	0 - 9.7 mm
Material Correction Factors	Correction Factor (K-Factor) = 1	
Output Type	N.O.	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	< 20mA	
Operating (Load) Current	100mA	
Off-state Leakage Current	NA	
Voltage Drop	< 2.5 V	
Switching Frequency	2000Hz	
Differential Travel (% of Nominal Distance)	3 - 15	
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	NA	
Short Circuit Protection	Yes	
Operating Temperature	-40 to 85°C [-40 to 185°F]	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K	IP67
LED Indicators	Illuminated when energized	
Housing Material	Brass with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating; LED window: Polyetherimide [PEI]	
Sensing Face Material	active face: Liquid Crystal Polymer [LCP] black	
Shock/Vibration	See Proximity Sensor Terminology	
Weight	0.05 kg	0.057 kg
Connection	4-pin M12 quick-disconnect	
Agency Approvals	cULus E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

WKT Series Factor 1 Weld-Field Immune Inductive Proximity Sensors



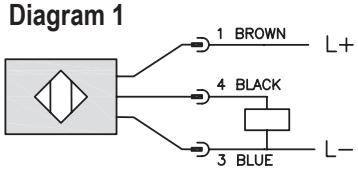
M30 (30mm)

- Correction Factor (K-Factor) = 1
- Low cost/high performance
- Weld slag resistant coating
- Inductive sensor
- Metal thread M12 x 1 Connector
- Increased sensing range
- Gold-plated contacts
- Electromagnetic field immune
- Flush mounting
- Lifetime warranty

WKT Series M30 Inductive Proximity Selection Chart									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Voltage*	*Connection*	*Wiring*	*Dimensions*
WKT-AP-3H	$;2a8,:	15 mm [0.59 mm]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1

Wiring Diagrams

Diagram 1



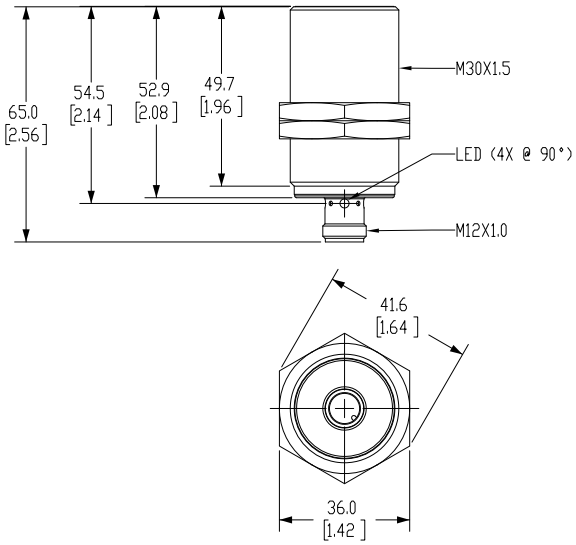
Connector

4-pin M12 connector

Dimensions

mm [inches]

Figure 1



WKT Series Factor 1 Weld-Field Immune Inductive Proximity Sensors

WKT Series M30 Inductive Proximity Specifications	
Model	***WKT-AP-3H***
Mounting Type	Flush
Nominal Sensing Distance	15mm [0.59 in]
Operating Distance	0-12.15 mm [0-0.49 in]
Material Correction Factors	Correction Factor (K-Factor) = 1
Output Type	N.O.
Operating Voltage	10 to 30 VDC
No-load Supply Current	< 20mA
Operating (Load) Current	100mA
Off-state Leakage Current	NA
Voltage Drop	< 2.5 V
Switching Frequency	2000Hz
Differential Travel (% of Nominal Distance)	3 - 15
Repeat Accuracy	NA
Ripple	NA
Time Delay Before Availability (tv)	NA
Short Circuit Protection	Yes
Operating Temperature	-40 to 85 °C [-40 to 185 °F]
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K
LED Indicators	Illuminated when energized
Housing Material	Brass with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating; LED window: Polyetherimide [PEI]
Sensing Face Material	active face: Liquid Crystal Polymer [LCP] black
Shock/Vibration	See Proximity Sensor Terminology
Weight	0.112 kg [0.247 lb]
Connection	4-pin M12 quick-disconnect
Agency Approvals	cULus E328811, CE

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

WSE Series Weld Slag Resistant Inductive Proximity Sensors

M8 (8mm)

- Low cost/high performance
- Weld slag resistant coating
- Inductive sensor
- Full metal housing
- Increased sensing range
- Gold-plated contacts
- Flush mounting
- Lifetime warranty

WSE Series M8 Inductive Proximity Selection Chart									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Voltage*	*Connection*	*Wiring*	*Dimensions*
WSE-AP-3H	$2a91:	2mm [0.08 in]	Flush	N.O.	PNP	10 - 36 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
WSE-AN-3H	$2a92:				NPN			Diagram 2	Figure 1
WSE-A0-3E	$2a93:				PNP/NPN		4-pin M12 with 0.3 m cable	Diagram 3	Figure 2
WSE-A0-3A	$2a94:						3m axial cable	Diagram 4	

Wiring Diagrams

Diagram 1

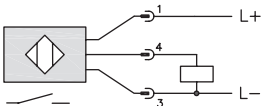


Diagram 2

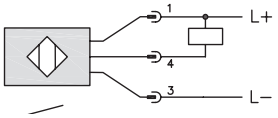


Diagram 3

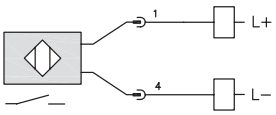
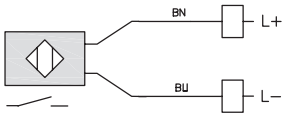


Diagram 4



Connector

4-pin M12

4-pin M12 0.3m

Dimensions

mm [inches]

Figure 1

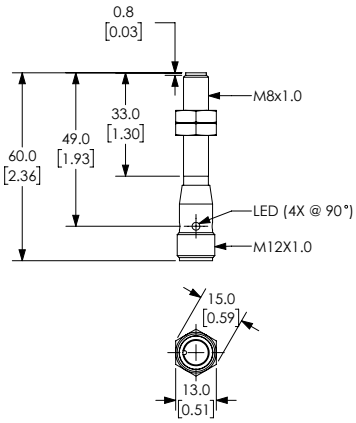
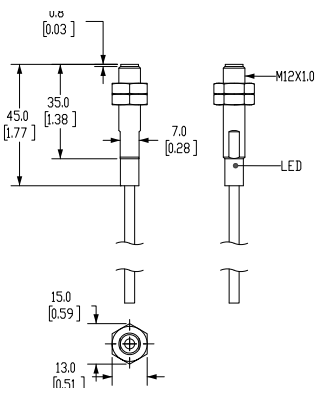


Figure 2



WSE Series Weld Slag Resistant Inductive Proximity Sensors

WSE Series M8 Inductive Proximity Specifications				
Model	***WSE-AP-3H***	***WSE-AN-3H***	***WSE-A0-3E***	***WSE-A0-3A***
Mounting Type	Flush			
Nominal Sensing Distance	2mm [0.08 in]			
Operating Distance	0 - 1.6 mm			
Material Correction Factors	See the Material Influence table			
Output Type	N.O.			
Operating Voltage	10 to 36 VDC			
No-load Supply Current	< 20 mA		NA	
Operating (Load) Current	100mA			
Off-state Leakage Current	NA		< 0.75 mA	
Voltage Drop	< 2.5 V			
Switching Frequency	100Hz		150Hz	
Differential Travel (% of Nominal Distance)	1-15	1-20		
Repeat Accuracy	NA			
Ripple	NA			
Time Delay Before Availability (tv)	NA			
Short Circuit Protection	Yes			
Operating Temperature	0 to 85°C [32 to 185°F]		-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67 / IP68		IP67	
LED Indicators	Illuminated when energized			
Housing Material	Stainless steel 316L / 1.4404 with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating			
Sensing Face Material	active face: stainless steel 316L 1.4404 anti-spatter			
Shock/Vibration	See Proximity Sensor Terminology			
Weight	0.021 kg	0.021 kg	0.035 kg	0.070 kg
Connection	4-pin M12 quick-disconnect		PUR cable / 0.3m; 2x0.5 mm²; with 4-pin M12 quick- disconnect	PUR cable / 3m; 2x0.5 mm²
Agency Approvals	cULus E328811, CE			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

WSM Series Weld Slag Resistant Inductive Proximity Sensors

M12 (12mm)

- Low cost/high performance
- Weld Slag resistant coating
- Inductive sensor
- Full metal housing
- Increased sensing range
- Gold-plated contacts
- Sensing range 4 mm
- Flush mounting
- Lifetime warranty

WSM Series M12 Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Voltage	Connection	Wiring	Dimensions
WSM-AP-3H	$2a95:	4mm [0.16 in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
WSM-A0-3E	$2a97:				PNP/NPN	10 - 36 VDC	4-pin M12 with 0.3 m cable	Diagram 2	Figure 3

Wiring Diagrams

Diagram 1

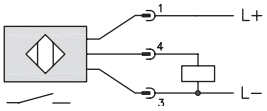


Diagram 2

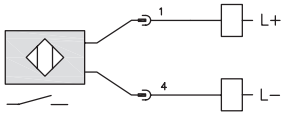
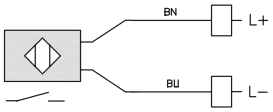


Diagram 3



Connectors

4-pin M12 NPN

4-pin M12 PNP

4-pin M12 0.3m

Dimensions

mm [inches]

Figure 1

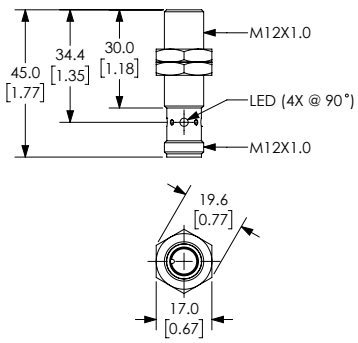


Figure 2

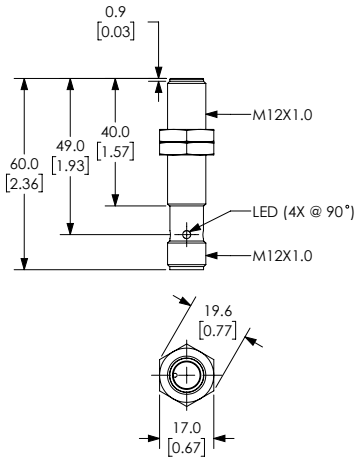
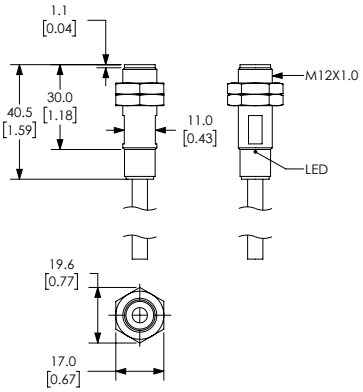


Figure 3



WSM Series Weld Slag Resistant Inductive Proximity Sensors

WSM Series M12 Inductive Proximity Specifications		
Model	***WSM-AP-3H***	***WSM-A0-3E***
Mounting Type	Flush	
Nominal Sensing Distance	4mm [0.16 in]	
Operating Distance	0 - 3.25 mm	
Material Correction Factors	See the Material Influence table	
Output Type	N.O.	
Operating Voltage	10 to 30 VDC	10 to 36 VDC
No-load Supply Current	< 10mA	NA
Operating (Load) Current	100mA	
Off-state Leakage Current	NA	< 0.6 mA
Voltage Drop	< 2.5 V	
Switching Frequency	2Hz	75Hz
Differential Travel (% of Nominal Distance)	3 - 15	1 - 20
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	NA	
Short Circuit Protection	Yes	Yes
Operating Temperature	-40 to 85°C [-40 to 185°F]	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K	IP67
LED Indicators	Illuminated when energized	
Housing Material	Stainless steel 316L / 1.4404 with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating)	
Sensing Face Material	active face: stainless steel 316L 1.4404 anti-spatter	
Shock/Vibration	See Proximity Sensor Terminology	
Weight	0. 28 kg	0.0489 kg
Connection	4-pin M12 quick-disconnect	PUR cable/0.3 m; 2 x 0.5 mm^2; with 4-pin M12 quick- disconnect
Agency Approvals	cULus E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

WSK Series Weld Slag Resistant Inductive Proximity Sensors

M18 (18mm)

- Low cost/high performance
- Weld slag resistant coating
- Inductive sensor
- Full metal housing
- Increased sensing range
- Gold-plated contacts
- Flush mounting
- Lifetime warranty

WSK Series M18 Inductive Proximity Selection Chart									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Voltage*	*Connection*	*Wiring*	*Dimensions*
WSK-AP-3H	$2a99:	8mm [0.31 in]	Flush	N.O.	PNP	10 - 30 VDC	4-pin M12 quick-disconnect	Diagram 1	Figure 1
WSK-A0-3E	Retired	6mm [0.24 in]			PNP/NPN	10 - 36 VDC	4-pin M12 with 0.3 m cable	Diagram 2	Figure 3

Wiring Diagrams

Diagram 1

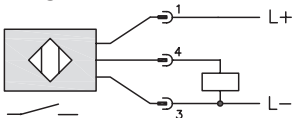
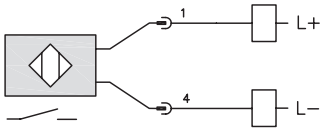


Diagram 2



Connectors

4-pin M12 PNP

4-pin M12 0.3m

Dimensions

mm [inches]

Figure 1

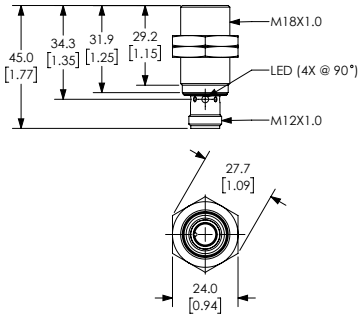


Figure 2

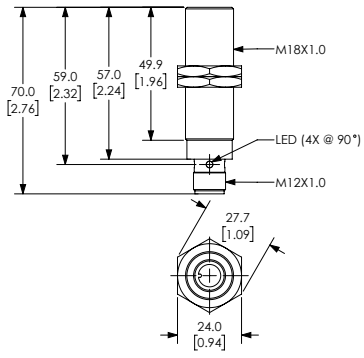
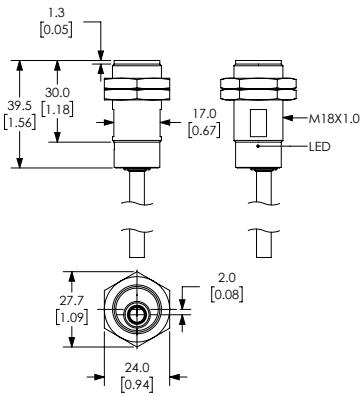


Figure 3



WSK Series Weld Slag Resistant Inductive Proximity Sensors

WSK Series M18 Inductive Proximity Specifications		
Model	***WSK-AP-3H***	***WSK-A0-3E***
Mounting Type	Flush	
Nominal Sensing Distance	8mm [0.31 in]	6mm [0.24 in]
Operating Distance	0 - 6.48 mm	0 - 4.0 mm
Material Correction Factors	See the Material Influence table	
Output Type	N.O.	
Operating Voltage	10 to 30 VDC	10 to 36 VDC
No-load Supply Current	< 10mA	NA
Operating (Load) Current	< 100mA	
Off-state Leakage Current	NA	< 0.6 mA
Voltage Drop	< 2.5 V	
Switching Frequency	2Hz	50Hz
Differential Travel (% of Nominal Distance)	3 - 15	1 - 20
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	NA	
Short Circuit Protection	Yes	Pulsed
Operating Temperature	-40 to 85°C [-40 to 185°F]	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP65 / IP66 / IP67 / IP68 / IP69K	IP67
LED Indicators	Illuminated when energized	
Housing Material	Stainless steel 316L / 1.4404 with anti-spatter ceramic (Polytetrafluoroethylene [PTFE]) coating	
Sensing Face Material	active face: stainless steel 316L 1.4404 anti-spatter	
Shock/Vibration	See Proximity Sensor Terminology	
Weight	0.046 kg	0.067 kg
Connection	4-pin M12 quick-disconnect	PUR cable / 0.3 m; 2 x 0.5 mm²; with M12 quick-disconnect
Agency Approvals	cULus E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

PNM Series Inductive Proximity Sensors

M12 (12mm) Bronze-plated Brass - DC

- Low cost/high performance
- Short and regular body styles
- IP65 / IP66 / IP67 / IP68 / IP69K rated
- Axial cable / M12 quick-disconnect; purchase cable separately
- Lifetime warranty

PNM Series Inductive Proximity Selection Chart (Short Body)								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
M12 Models (short body)								
PNM6-AN-3A	$;;;0t[!:	4mm [0.16 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
PNM6-AN-3H	$;;0t[?:	4mm [0.16 in]	Flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 2
PNM6-AN-4A	$;;;0t[,:	7mm [0.28 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
PNM6-AN-4H	$;0t_0:	7mm [0.28 in]	Non-flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 2
PNM6-AP-3A	$;0t_1:	4mm [0.16 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
PNM6-AP-3H	$;0t_2:	4mm [0.16 in]	Flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 2
PNM6-AP-4A	$;0t_3:	7mm [0.28 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
PNM6-AP-4H	$;0t_4:	7mm [0.28 in]	Non-flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 2
PNM6-CN-3A	$;0t_5:	4mm [0.16 in]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 1
PNM6-CN-3H	$;0t_6:	4mm [0.16 in]	Flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 2
PNM6-CN-4A	$;0t_7:	7mm [0.28 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 1
PNM6-CN-4H	$;0t_8:	7mm [0.28 in]	Non-flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 2
PNM6-CP-3A	$;0t_9:	4mm [0.16 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 1
PNM6-CP-3H	$;0t_a:	4mm [0.16 in]	Flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 2
PNM6-CP-4A	$;0t_b:	7mm [0.28 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 1
PNM6-CP-4H	$;0t_c:	7mm [0.28 in]	Non-flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 2

PNM Series Inductive Proximity Selection Chart (Regular Body)								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
M12 Models (regular body)								
PNM-AN-3A	$;0t#5:	4mm [0.16 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 3
PNM-AN-3H	$;0t#6:	4mm [0.16 in]	Flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 4
PNM-AN-4A	$;0t#7:	7mm [0.28 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 3
PNM-AN-4H	$;0t#8:	7mm [0.28 in]	Non-flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 4
PNM-AP-3A	$;0t#9:	4mm [0.16 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 3
PNM-AP-3H	$;0t#a:	4mm [0.16 in]	Flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 4
PNM-AP-4A	$;0t#b:	7mm [0.28 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 3
PNM-AP-4H	$;0t#c:	7mm [0.28 in]	Non-flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 4
PNM-CN-3A	$;0t#d:	4mm [0.16 in]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 3
PNM-CN-3H	$;0t#e:	4mm [0.16 in]	Flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 4
PNM-CN-4A	$;;0t#f:	7mm [0.28 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 3
PNM-CN-4H	Retired	7mm [0.28 in]	Non-flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 4
PNM-CP-3A	Retired	4mm [0.16 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 3
PNM-CP-3H	$;-0t#i:	4mm [0.16 in]	Flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 4
PNM-CP-4A	$;-0t#j:	7mm [0.28 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 3
PNM-CP-4H	$;0t#k:	7mm [0.28 in]	Non-flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 4

PNK Series Inductive Proximity Sensors

M18 (18mm) Bronze-plated Brass - DC

- Low cost/high performance
- Short and regular body styles
- IP65 / IP66 / IP67 / IP68 / IP69K rated
- Axial cable / M12 quick-disconnect; purchase cable separately
- Lifetime warranty

PNK Series Inductive Proximity Selection Chart (Short Body)								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
M18 Models (short body)								
PNK6-AN-3A	$;0t_d:	8mm [0.32 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 5
PNK6-AN-3H	$;0t_e:	8mm [0.32 in]	Flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 6
PNK6-AN-4A	$;;0t_f:	12mm [0.47 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 5
PNK6-AN-4H	$;0t_g:	12mm [0.47 in]	Non-flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 6
PNK6-AP-3A	$;0t_h:	8mm [0.32 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 5
PNK6-AP-3H	$;-0t_i:	8mm [0.32 in]	Flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 6
PNK6-AP-4A	$;-0t_j:	12mm [0.47 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 5
PNK6-AP-4H	$;0t_k:	12mm [0.47 in]	Non-flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 6
PNK6-CN-3A	$;-0t_l:	8mm [0.32 in]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 5
PNK6-CN-3H	$;0t_n:	8mm [0.32 in]	Flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 6
PNK6-CN-4A	$;0t_o:	12mm [0.47 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 5
PNK6-CN-4H	$;0t_p:	12mm [0.47 in]	Non-flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 6
PNK6-CP-3A	$;0t_q:	8mm [0.32 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 5
PNK6-CP-3H	$;0t_s:	8mm [0.32 in]	Flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 6
PNK6-CP-4A	$;;0t_t:	12mm [0.47 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 5
PNK6-CP-4H	$;0t_u:	12mm [0.47 in]	Non-flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 6

PNK Series Inductive Proximity Selection Chart (Regular Body)								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
M18 Models (regular body)								
PNK-AN-3A	$;-0t#l:	8mm [0.32 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 7
PNK-AN-3H	$;0t#n:	8mm [0.32 in]	Flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 8
PNK-AN-4A	$;0t#o:	12mm [0.47 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 7
PNK-AN-4H	$;0t#p:	12mm [0.47 in]	Non-flush	N.O.	NPN	M12 (12mm) connector	Diagram 1	Figure 8
PNK-AP-3A	$;0t#q:	8mm [0.32 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 7
PNK-AP-3H	$;0t#s:	8mm [0.32 in]	Flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 8
PNK-AP-4A	$;;0t#t:	12mm [0.47 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 7
PNK-AP-4H	$;0t#u:	12mm [0.47 in]	Non-flush	N.O.	PNP	M12 (12mm) connector	Diagram 2	Figure 8
PNK-CN-3H	$;0t#x:	8mm [0.32 in]	Flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 8
PNK-CN-4A	$;0t#y:	12mm [0.47 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 7
PNK-CN-4H	Retired	12mm [0.47 in]	Non-flush	N.C.	NPN	M12 (12mm) connector	Diagram 3	Figure 8
PNK-CP-3A	$;;0t#]:	8mm [0.32 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 7
PNK-CP-3H	Retired	8mm [0.32 in]	Flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 8
PNK-CP-4A	$;0t#_:	12mm [0.47 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 7
PNK-CP-4H	$;0t##:	12mm [0.47 in]	Non-flush	N.C.	PNP	M12 (12mm) connector	Diagram 4	Figure 8

PNT Series Inductive Proximity Sensors

M30 (30mm) Bronze-plated Brass - DC

- Low cost/high performance
- Short and regular body styles
- IP65 / IP66 / IP67 / IP68 / IP69K rated
- Axial cable / M12 quick-disconnect; purchase cable separately
- Lifetime warranty

PNT Series Inductive Proximity Selection Chart (Short Body)

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
M30 Models (short body)								
PNT6-AN-4A	$;0t_y:	22mm [0.87 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 9
PNT6-AN-4H	$;0t_z:	22mm [0.87 in]	Non-flush	N.O.	NPN	M12 [12mm] connector	Diagram 1	Figure 10
PNT6-AP-3A	$;;0t_]:	15mm [0.59in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 9
PNT6-AP-3H	$;;0t_[:	15mm [0.59in]	Flush	N.O.	PNP	M12 [12mm] connector	Diagram 2	Figure 10
PNT6-AP-4A	$;0t__:	22mm [0.87 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 9
PNT6-AP-4H	$;0t_#:	22mm [0.87 in]	Non-flush	N.O.	PNP	M12 [12mm] connector	Diagram 2	Figure 10
PNT6-CP-3A	$;0t#1:	15mm [0.59 in]	Flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 4	Figure 9
PNT6-CP-3H	$;0t#2:	15mm [0.59 in]	Flush	N.C.	PNP	M12 [12mm] connector	Diagram 4	Figure 10

PNT Series Inductive Proximity Selection Chart (Regular Body)

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
M30 Models (regular body)								
PNT-AN-3A	$;;0t#!:	15mm [0.59 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 11
PNT-AN-3H	$;0t#?:	15mm [0.59 in]	Flush	N.O.	NPN	M12 [12mm] connector	Diagram 1	Figure 12
PNT-AN-4A	$;;0t#,:	22mm [0.87 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 11
PNT-AP-3A	$;;0t!1:	15mm [0.59 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 11
PNT-AP-3H	$;;0t!2:	15mm [0.59 in]	Flush	N.O.	PNP	M12 [12mm] connector	Diagram 2	Figure 12
PNT-AP-4A	$;;0t!3:	22mm [0.87 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 11
PNT-AP-4H	$;;0t!4:	22mm [0.87 in]	Non-flush	N.O.	PNP	M12 [12mm] connector	Diagram 2	Figure 12
PNT-CN-3A	$;;0t!5:	15mm [0.59 in]	Flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 3	Figure 11
PNT-CN-3H	$;;0t!6:	15mm [0.59 in]	Flush	N.C.	NPN	M12 [12mm] connector	Diagram 3	Figure 12
PNT-CP-3H	$;;0t!a:	15mm [0.59 in]	Flush	N.C.	PNP	M12 [12mm] connector	Diagram 4	Figure 12

PN Series Inductive Proximity Sensors

PN Series Specifications			
Sensor	***M12 Models (PNM)***	***M18 Models (PNK)***	***M30 Models (PNT)***
Mounting Type	Flush or Non-flush		
Nominal Sensing Distance	Flush: 4mm [0.16 in] Non-flush: 7mm [0.28 in]	Flush: 8mm [0.31 in] Non-flush:12mm [0.47 in]	Flush: 15mm [0.6 in] Non-flush: 22mm [0.79 in]
Operating Distance	Flush: 0 to 3.24 mm Non-flush: 0 to 5.67 mm	Flush: 0 to 6.48 mm Non-flush: 0 to 9.72 mm	Flush: 0 to 12.15 mm Non-flush: 0 to 17.82 mm
Material Correction Factors	See the Material influence table		
Output Type	NPN or PNP, N.O. or N.C.		
Operating Voltage	10 to 30 VDC		
No-load Supply Current	<10 mA		
Operating (Load) Current	100mA		
Off-state (Leakage) Current	For 3-wire [< 50µ]		
Voltage Drop	<2.5 V		
Switching Frequency	700Hz	Flush 400Hz; Non-flush 300Hz	100Hz
Differential Travel (% of Nominal Distance)	3 - 15		
Repeat Accuracy	< 10%		
Ripple	NA		
Time Delay Before Availability (tv)	NA		
Reverse Polarity Protection	Yes		
Short-circuit Protection	Yes, pulsed		
Operating Temperature	-40 to 85°C [-40 to 185°F]		
Protection Degree (DIN 40050)	IP65, IP66, IP67, IP68, IP69K		
Indication/Switch Status	Yellow (output energized), 1 LED prewired/4 LEDs for quick disconnect		
Housing Material	Housing: brass, bronze-plated; PEI; Lock nuts: brass		
Sensing Face Material	Polybutylene Terephthalate [PBT]		
Shock/Vibration	See Proximity Sensor Terminology		
Tightening Torque	Connector type: 7Nm [1.57 lb-ft] Cable type: 12Nm [2.70 lb-ft]	25 Nm [5.62 lb-ft]	50Nm [11.21 lb-ft]
Weight	NA		
Connectors	M12 connector/2m [6.5 ft] axial cable. 2 lock nuts included		
Agency Approvals	M12 Connector versions cULus file E328811, CE, RoHS; Cable versions UL file E328811, CE, RoHS		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring diagrams

Diagram 1

NPN Output

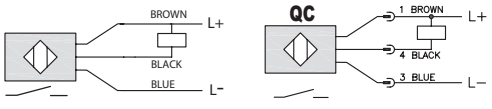


Diagram 2

PNP Output

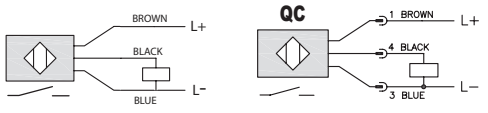


Diagram 3

NPN Output

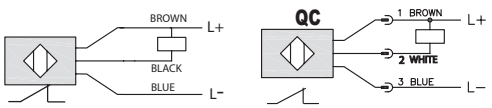
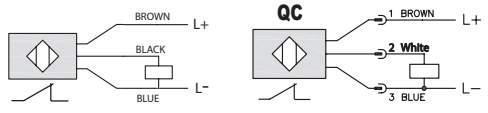


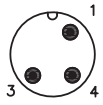
Diagram 4

PNP Output



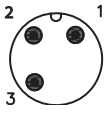
Connector

M12 connector



NO

M12 connector



N. C.

***Note: Use M12 4 connector cable. M12 3 connector cable will not work for normally closed units.**

PN Series Inductive Proximity Sensors

Dimensions

mm [inches]

Figure 1

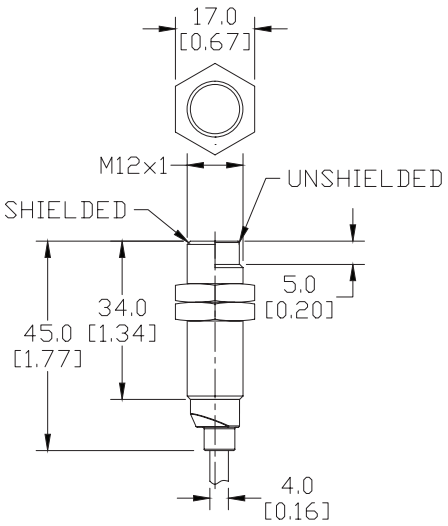


Figure 2

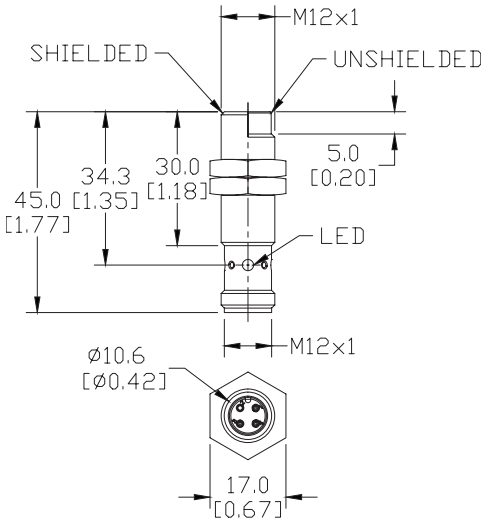


Figure 3

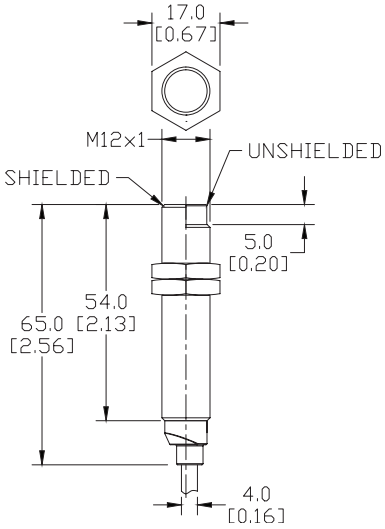


Figure 4

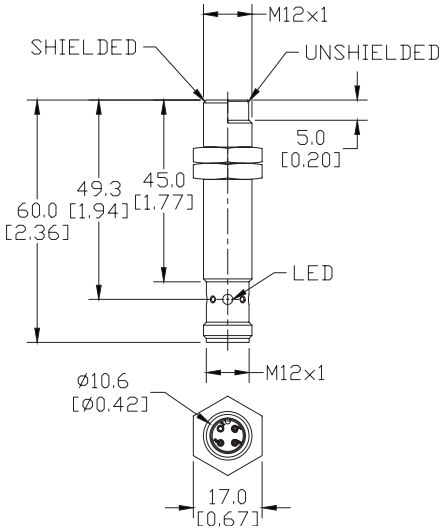


Figure 5

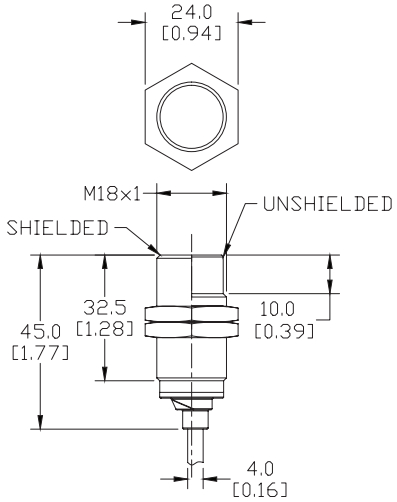
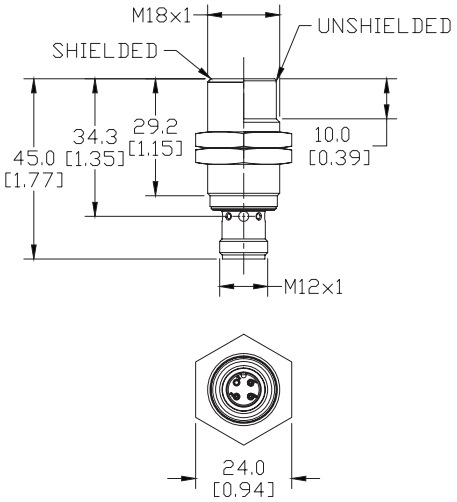


Figure 6



PN Series Inductive Proximity Sensors

Figure 7

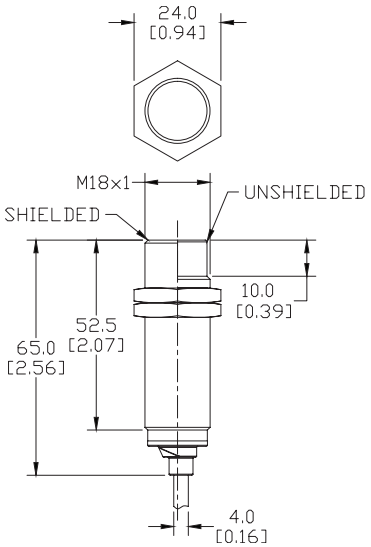


Figure 8

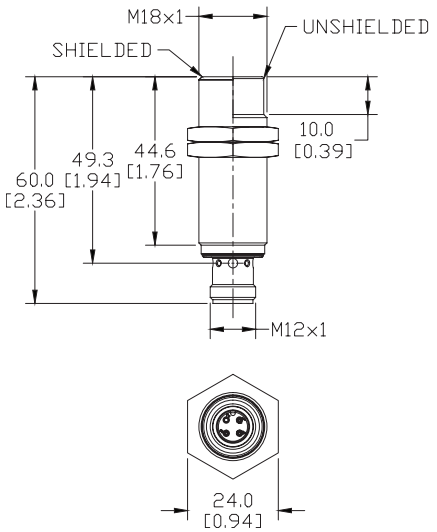


Figure 9

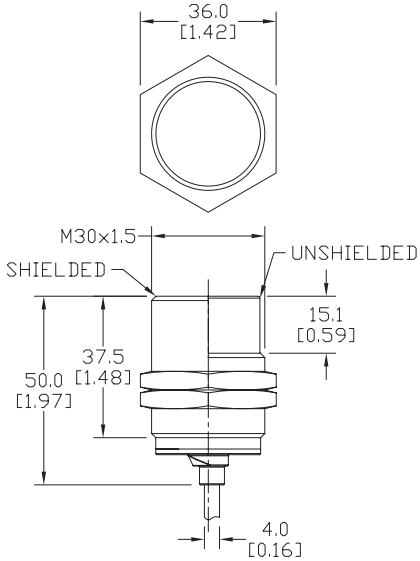


Figure 10

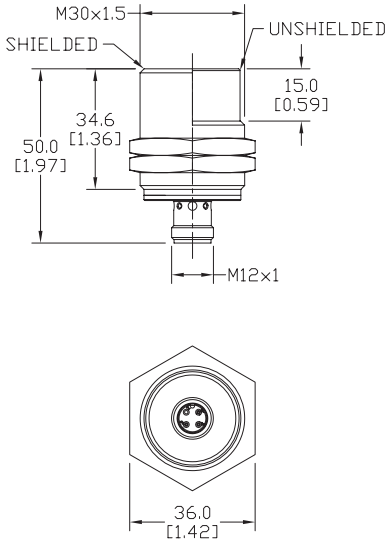


Figure 11

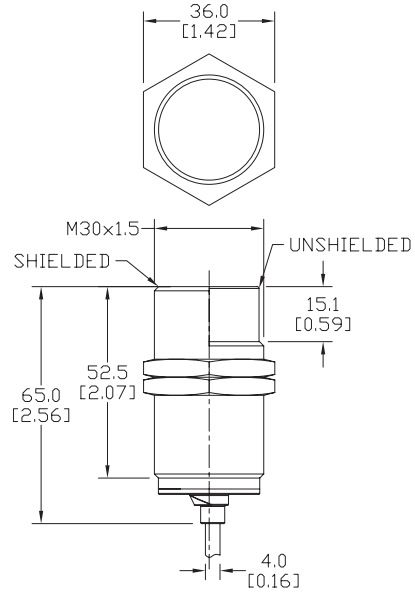
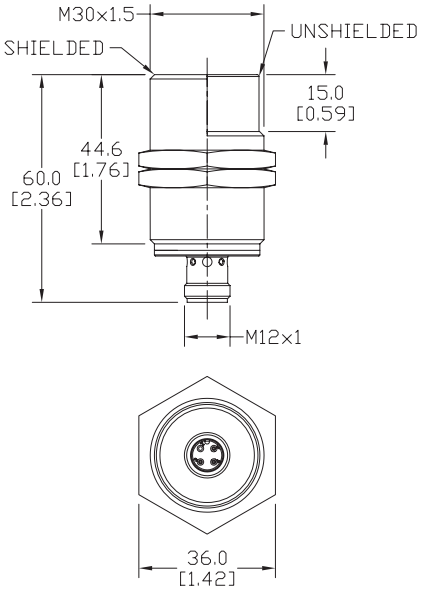


Figure 12



AM Series Inductive Proximity Sensors

M12 (12mm) Metal – DC

- 2-wire and 3-wire models
- Metal housing
- Axial cable or M12 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicator
- DC powered
- Several sensing distances available
- Lifetime warranty

AM1 Series Standard Length M12 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
AM1-AN-1A	$;09d,:	0 to 2 mm [0-0.08 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-1A	$09e3:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-1A	$09d_:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 7
AM1-AN-1H	$09e0:				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-1H	$09e4:				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-1H	$09d#:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
AM1-AN-2A	$09e1:	0 to 4 mm [0-0.157 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-2A	$09e5:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-2A	$;09d!:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 7
AM1-AN-2H	$09e2:				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-2H	$09e6:				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-2H	$09d?:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
Extended Distance								
AM1-AN-3A	$09db:	0 to 4 mm [0-0.157 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-3A	$;09df:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-3A	$09d7:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AM1-AN-3H	$09dc:				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-3H	$09dg:				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-3H	$09d8:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 6
AM1-AN-4A	$09dd:	0 to 8 mm [0-0.314 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-AP-4A	$09dh:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AM1-A0-4A	$09d9:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AM1-AN-4H	$09de:				NPN	M12 [12mm] connector	Diagram 1	Figure 6
AM1-AP-4H	$-09di:				PNP	M12 [12mm] connector	Diagram 1	Figure 6
AM1-A0-4H	$09da:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 6
Triple Distance								
AM1-AN-5H	$09eb:	6 mm [0.236 in]	Semi-flush	N.O.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
AM1-AP-5H	$09ec:				PNP	M12 [12mm] connector	Diagram 1	Figure 3

AM6 Series Short Body M12 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Extended Distance								
AM6-AN-3A	$-09dj:	0 to 4 mm [0-0.157 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AP-3A	$09do:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AN-3H	$09dk:				NPN	M12 [12mm] connector	Diagram 1	Figure 5
AM6-AP-3H	$09dp:				PNP	M12 [12mm] connector	Diagram 1	Figure 5
AM6-AN-4A	$-09dl:	0 to 8 mm [0-0.314 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AP-4A	$09dq:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 4
AM6-AN-4H	$09dn:				NPN	M12 [12mm] connector	Diagram 1	Figure 5
AM6-AP-4H	$09ds:				PNP	M12 [12mm] connector	Diagram 1	Figure 5

AM Series Inductive Proximity Sensors

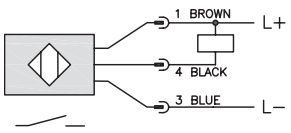
AM Series Specifications					
Mounting Type	*Standard Distance Models*		*Extended Distance Models*		*Triple Distance Models*
	Flush	*Non-flush*	*Flush*	*Non-flush*	*Semi-flush*
Nominal Sensing Distance	2mm [0.08 in]	4mm [0.157 in]	4mm [0.157 in]	8mm [0.315 in]	6mm [0.236 in]
Operating Distance	NA				
Material Correction Factors	See the Material influence table				
Output Type	NPN or PNP/N.O. only/3-wire				
Operating Voltage	10 to 30 VDC				
No-load Supply Current	≤ 20mA		≤ 10mA		
Operating (Load) Current	3-wire: ≤ 200mA / 2-wire: 3-100mA		3-wire: ≤ 200mA / 2-wire: 3-100mA		≤ 200mA
Off-state (Leakage) Current	3-wire: ≤ 10µA / 2-wire: ≤ 0.8 mA		3-wire: ≤ 120µA / 2-wire: ≤ 0.8mA		≤ 100µA
Voltage Drop	3-wire:1.2 volts max. / 2-wire: 2.8 volts max.				≤ 2.0 V
Switching Frequency	3-wire: 2kHz / 2 wire: 1.5 kHz		3-wire: 2kHz / 2 wire: 750Hz		800 Hz
Differential Travel (% of Nominal Distance)	2 to 10%		1 to 20		
Repeat Accuracy	≤ 2%		≤ 5%		
Ripple	≤ 10%				≤ 20%
Time Delay Before Availability (tv)	3-wire: 100ms / 2 wire: 50ms		100ms		
Reverse Polarity Protection	Yes				
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)				
Operating Temperature	-25 to +70°C [-13 to 158°F]				
Protection Degree (DIN 40050)	IEC IP67				
Indication/Switch Status	Yellow [output energized]				
Housing Material	Nickel-plated brass				Chrome-plated brass
Sensing Face Material	Polybutylene Terephthalate [PBT]				
Shock/Vibration	See Proximity Sensor Terminology				
Tightening Torque	10 Nm [7.37 lb-ft]				
Weight (cable/M12 connector)	70g [2.47 oz]/30g [1.06 oz]				96g [3.39 oz]/34g [1.2 oz]
Connection	2 meter [6.5 ft] PVC axial cable / M12 connector				
Agency Approvals	NA				UL file E328811

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

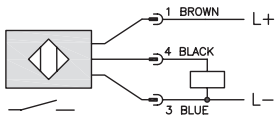
Wiring diagrams

Diagram 1

NPN Output



PNP Output

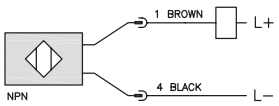


Connector

M12 connector

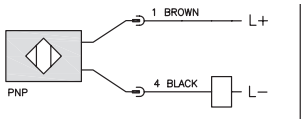
Diagram 2

Sink/Source Output



Wiring diagram when sensor is wired in sinking mode used with a sourcing module.

Sink/Source Output



Wiring diagram when sensor is wired in sourcing mode used with a sinking module.

Note: Negative (-) lead is Black on M12 quick- disconnect cables and Blue on axial cables.

AM Series Inductive Proximity Sensors

Dimensions

mm [inches]

Figure 1

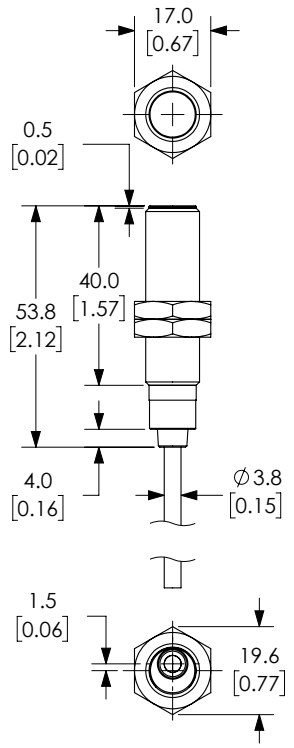


Figure 2

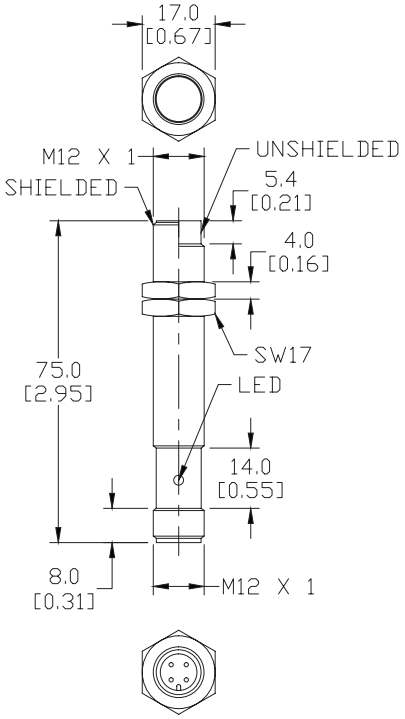


Figure 3

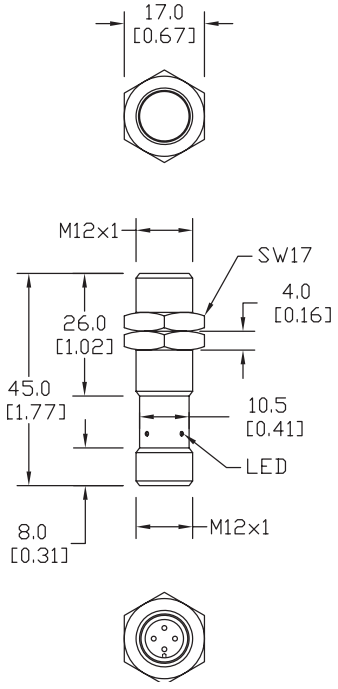
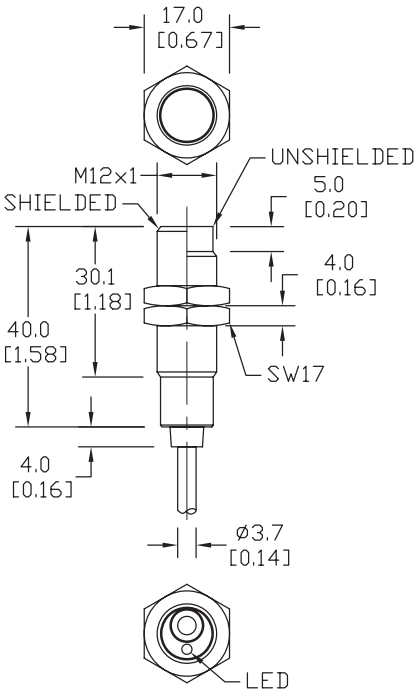


Figure 4



AM Series Inductive Proximity Sensors

Dimensions

mm [inches]

Figure 5

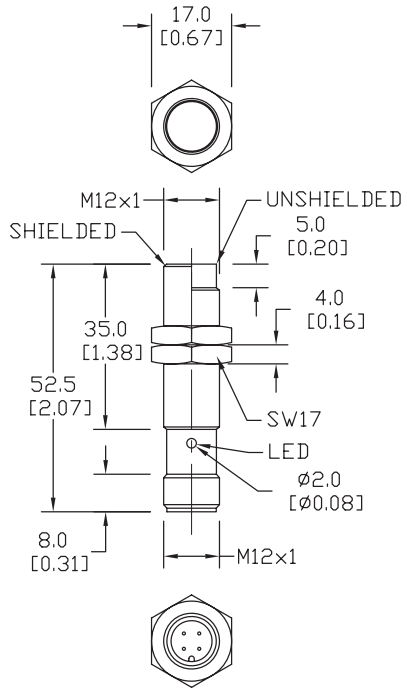


Figure 6

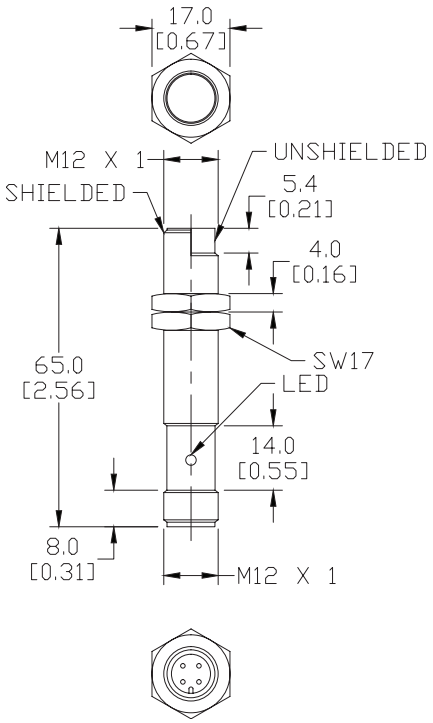
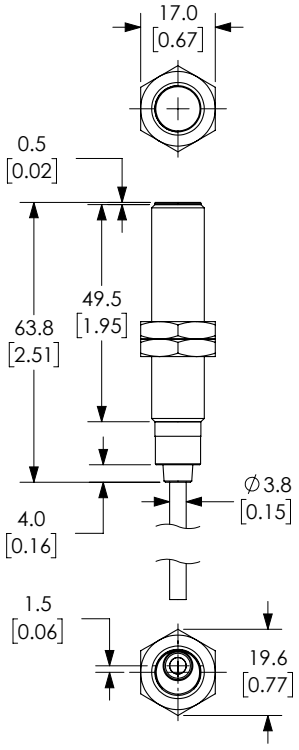


Figure 7



AK Series Inductive Proximity Sensors

M18 (18mm) Metal – DC

- Standard and extended distance models available
- 2-wire and 3-wire models
- Axial cable or M12 quick-disconnect models available
- Complete overload protection
- IP67 rated
- LED status indicators are visible 360° around the cylinder
- Lifetime warranty

AK Series M18 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
AK1-AN-1A	$09ke:	5mm [0.197 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-AP-1A	$-09ki:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-A0-1A	$09ka:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AK1-AN-1H	$;09kf:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AK1-AP-1H	$-09kj:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AK1-A0-1H	$09kb:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
AK1-AN-2A	$09kg:	8mm [0.315 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-AP-2A	$09kk:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-A0-2A	$09kc:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AK1-AN-2H	$09kh:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AK1-AP-2H	$-09kl:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AK1-A0-2H	$09kd:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
Extended Distance								
AK1-AN-3A	$;-09j[:	8mm [0.315 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-AP-3A	$-09j?:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-A0-3A	$-09jx:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AK1-AN-3H	$-09j_:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AK1-AP-3H	$;-09j,:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AK1-A0-3H	$-09jy:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
AK1-AN-4A	$-09j#:	12mm [0.472 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-AP-4A	$09k0:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AK1-A0-4A	$-09jz:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AK1-AN-4H	$;-09j!:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AK1-AP-4H	$09k1:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AK1-A0-4H	$;-09j]:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2

Dimensions

mm [inches]

Figure 1

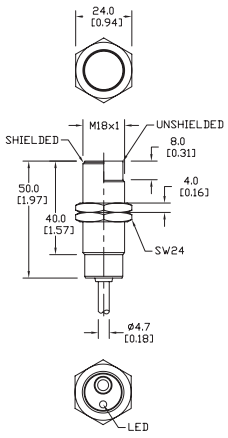
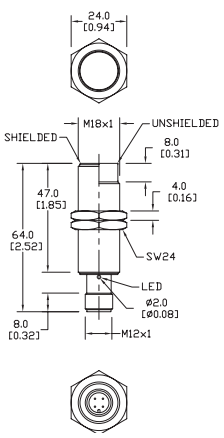


Figure 2



AK Series Inductive Proximity Sensors

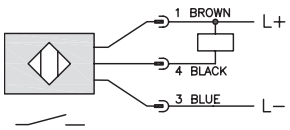
AK Series M18 DC Inductive Proximity Specifications				
Mounting Type	*Standard Distance*		*Extended Distance*	
	Flush	*Non-flush*	*Flush*	*Non-flush*
Nominal Sensing Distance	5mm [0.197 in]	8mm [0.315 in]	8mm [0.315 in]	12mm [0.472 in]
Operating Distance	NA			
Material Influence Factors	See the Material influence table			
Output Type	3- wire: NPN or PNP/N.O. / 2-wire: sink/source, N.O. only			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 20 mA			
Operating (Load) Current	3-wire: ≤ 400mA / 2-wire: 3-100mA			
Off-state (Leakage) Current	3-wire: ≤ 10µA / 2-wire: ≤ 0.8mA max			
Voltage Drop	3-wire: 1 volt max. / 2-wire: ≤ 2.8V max.			
Switching Frequency	600Hz	300hz		
Differential Travel (% of Nominal Distance)	2 to ≤ 10%		2 to ≤ 15%	
Repeat Accuracy	≤ 2%		≤ 5%	
Ripple	≤ 10%			
Time Delay Before Availability (tv)	3-wire: 100ms / 2-wire:-50ms			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)			
Operating Temperature	-25 to +70°C [-13 to 158°F]			
Protection Degree (DIN 40050)	IEC IP67			
Indication/Switch Status	Yellow [N.O. output energized]			
Housing Material	Nickel-plated brass			
Sensing Face Material	Polybutylene Terephthalate [PBT]			
Shock/Vibration	See Proximity Sensor Terminology			
Tightening Torque	25 Nm [18.44 lbs-ft]			
Weight	A type (w/ cable): 130g [4.59 oz] H type: 55g [1.94 oz]			
Connection	2 meter [6.5 ft] PVC axial cable / M12 connector			
Agency Approvals	NA			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

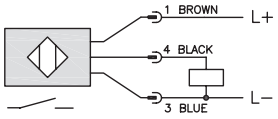
Wiring diagrams

Diagram 1

NPN Output



PNP Output



Connector

M12 connector

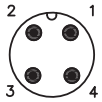
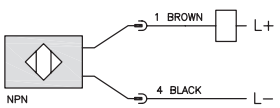


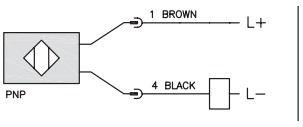
Diagram 2

Sink/Source Output



Wiring diagram when sensor is wired in sinking mode used with a sourcing module.

Sink/Source Output



Wiring diagram when sensor is wired in sourcing mode used with a sinking module.

Note: Negative (-) lead is Black on M12 quick- disconnect cables and Blue on axial cables.

AT Series Inductive Proximity Sensors

M30 (30mm) Metal – DC

- Standard and extended distance models available
- 2-wire and 3-wire models
- Axial cable or M12 quick-disconnect models
- LED status indicators are visible 360° around the cylinder
- Complete overload protection
- IP67 rated
- Lifetime warranty

AT Series M30 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
AT1-AN-1A	$09g6:	10mm [0.394 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-AP-1A	$09ga:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-A0-1A	$09g2:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AT1-AN-1H	$09g7:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AT1-AP-1H	$09gb:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AT1-A0-1H	$09g3:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
AT1-AN-2A	$09g8:	15mm [0.591 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-AP-2A	$09gc:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-A0-2A	$09g4:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AT1-AN-2H	$09g9:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AT1-AP-2H	$09gd:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AT1-A0-2H	$09g5:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
Extended Distance								
AT1-AN-3A	$;09fz:	15mm [0.591 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-AP-3A	$;09f#:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-A0-3A	$;09fu:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AT1-AN-3H	$;;09f]:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AT1-AP-3H	$;;09f!:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AT1-A0-3H	$;09fv:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2
AT1-AN-4A	$;;09f[:	20mm [0.787 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-AP-4A	$;09f?:				PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1
AT1-A0-4A	$;09fx:				Sink/source	2m [6.5 ft] axial cable	Diagram 2	Figure 1
AT1-AN-4H	$;09f_:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
AT1-AP-4H	$;;09f,:				PNP	M12 [12mm] connector	Diagram 1	Figure 2
AT1-A0-4H	$;09fy:				Sink/source	M12 [12mm] connector	Diagram 2	Figure 2

Dimensions

mm[inches]

Figure 1

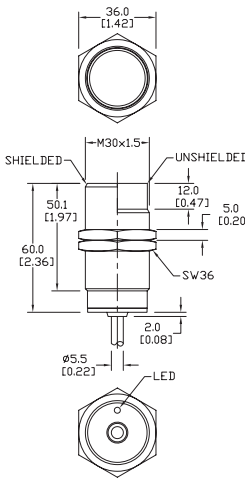
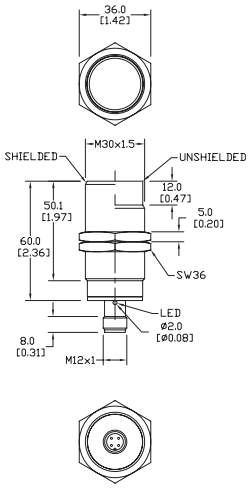


Figure 2



AT Series Inductive Proximity Sensors

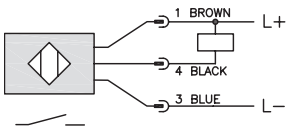
AT Series M30 DC Inductive Proximity Specifications				
Mounting Type	*Standard Distance Models*		*Extended Distance Models*	
	Flush	*Non-flush*	*Flush*	*Non-flush*
Nominal Sensing Distance	10mm [0.394 in]	15mm [0.591 in]	15mm [0.591 in]	20mm [0.787 in]
Operating Distance	NA			
Material Correction Factors	See the Material influence table			
Output Type	Three wire: NPN or PNP/N.O. (normally open) / Two wire: sink/source, N.O. only			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 20 mA			
Operating (Load) Current	3 wire: ≤ 400mA / 2-wire: 3-100mA		2-wire and 3-wire:≤ 400mA	
Off-state (Leakage) Current	3-wire:≤ 10µA / 2-wire: ≤ 0.8mA max.		3-wire ≤ 8µA / 2-wire: ≤ 0.8mA max.	
Voltage Drop	3-wire: ≤ 1 volt max. / 2-wire: ≤2.8V≤10%		3-wire: ≤1 volt max. / 2-wire: ≤ 2.8 V	
Switching Frequency	3-wire: 200Hz / 2-wire: 150Hz		2-and 3-wire:150Hz	
Differential Travel	2 to 10%		2 to 15%	
Repeat Accuracy	3-wire: 2% / 2-wire: 5%		2-wire and 3-wire: 5%	
Ripple	≤10%			
Time Delay Before Availability (tv)	3-wire: 100ms / 2-wire: 50ms		3-wire:100ms / 2-wire: 50ms	
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes [switch auto-resets after overload is removed]			
Operating Temperature	-25 to + 70°C [-13 to 158°F]; drift: 10% Sr			
Protection Degree (DIN 40050)	IEC IP67			
Indication/Switch Status	Yellow [N.O. output energized]			
Housing Material	Nickel-plated brass			
Sensing Face Material	Polybutylene Terephthalate [PBT]			
Shock/Vibration	See Proximity Sensor Terminology			
Tightening Torque	50 Nm [36.88 lbs-ft]			
Weight	A type [w/ cable]: 180g [6.35 oz] H type: 110g [3.88 oz]			
Connection	2 meter [6.5 ft] axial cable or M12 connector			
Agency Approvals	NA			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

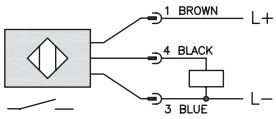
Wiring diagrams

Diagram 1

NPN Output



PNP Output

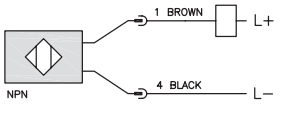


Connector

M12 connector

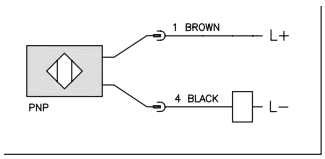
Diagram 2

Sink/Source Output



Wiring diagram when sensor is wired in sinking mode used with a sourcing module.

Sink/Source Output



Wiring diagram when sensor is wired in sourcing mode used with a sinking module.

Note: Negative (-) lead is Black on M12 quick- disconnect cables and Blue on axial cables.

PxW2 Series Metal Face Inductive Proximity Sensors

316L Stainless Steel – DC

- 8mm, 12mm, 18mm, 30mm
- Complete overload protection
- IP65, IP66, IP67, IP68, IP69K rated
- Lock nuts included
- 316L Stainless Steel body
- Metal sensing face provides durable protection
- LED Status indicator
- Lifetime warranty

Metal Face Inductive Proximity Sensors PxW2 Series Selection Chart

Part Number	Price	Sensing Range	Real Sensing Range (Sr)	Mounting	Switching Frequency	Output State	Logic	Connection	Wiring	Operating Temperature (UL)	Weight g [oz]	Drawing Link
M8 Proximity Sensors												
PEW2-AP-3F	$4z7b:	3mm [0.12in]	3 ± 10%	Semi-flush	250 Hz	N.O.	PNP	3-pin M8 quick-disconnect	Diagram 1	-25 to 85°C [-13 to 185°F]	15.8 [0.56]	PDF
PEW2-AN-3F	$6k1z:			Semi-flush		N.O.	NPN		Diagram 2			PDF
PEW2-AP-4F	$4z7d:	5mm [0.20in]	5 ± 10%	Non-flush	500 Hz	N.O.	PNP		Diagram 1		15.3 [0.54]	PDF
PEW2-AN-4F	$;6k1]:			Non-flush		N.O.	NPN		Diagram 2			PDF
M12 Proximity Sensors												
PMW2-AP-3H	$4z75:	4mm [0.16in]	4 ± 10%	Flush	100 Hz	N.O.	PNP	4-pin M12 quick-disconnect	Diagram 1	-25 to 70°C [-13 to 158°F]	25.8 [0.91]	PDF
PMW2-AP-4H	$4z76:	6mm [0.24in]	6 ± 10%	Non-flush	250 Hz	N.O.	PNP		Diagram 1	0 to 70°C [32 to 158°F]	23.9 [0.84]	PDF
M18 Proximity Sensors												
PKW2-AP-3H	$4z77:	8mm [0.31in]	8 ± 10%	Flush	100 Hz	N.O.	PNP	4-pin M12 quick-disconnect	Diagram 1	-25 to 70°C [-13 to 158°F]	44 [1.55]	PDF
PKW2-AP-4H	$4z78:	12mm [0.47in]	12 ± 10%	Non-flush	250 Hz	N.O.	PNP		Diagram 1	0 to 70°C [32 to 158°F]	38.6 [1.36]	PDF
M30 Proximity Sensors												
PTW2-AP-3H	$4z7e:	15mm [0.59in]	15 ± 10%	Flush	50 Hz	N.O.	PNP	4-pin M12 quick-disconnect	Diagram 1	-25 to 70°C [-13 to 158°F]	115 [4.05]	PDF
PTW2-AP-4H	$;4z7f:	25mm [0.98in]	25 ± 10%	Non-flush	100 Hz	N.O.	PNP		Diagram 1	0 to 70°C [32 to 158°F]	106.8 [3.77]	PDF

Wiring Diagrams

Diagram 1
PNP Output

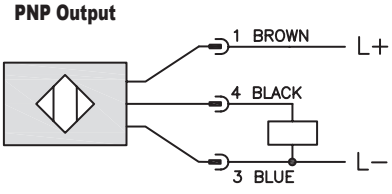
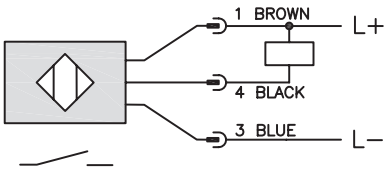
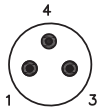


Diagram 2
NPN Output

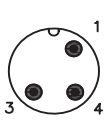


Connectors

M8 connector



M12 connector

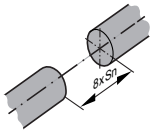


Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

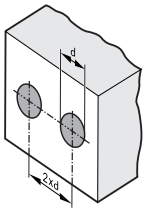
PxW2 Series Metal Face Inductive Proximity Specifications

Metal Face Inductive Proximity Sensors PxW2 Series Specifications				
Sensor	***PEW2***	***PMW2***	***PKW2***	***PTW2***
Output Type	PNP or NPN, N.O.			
Operating Voltage	10-30 VDC			
No-load Supply Current	≤ 20 mA			
Operating (Load) Current	≤100 mA			
Off-state (Leakage) Current	≤ 0.1 mA			
Voltage Drop	2.5V			
Hysteresis (% of Sr)	3 to 15			
Switch-point Drift (% of Sr)	-10 to 10			
Pressure Rating (bar)	50 [725.19 psi]	100 [1450 psi]		
Protection Class	III			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Protection Degree (DIN 40050)	IP65, IP66, IP67, IP68, IP69K (With IP69K Cable)			
Indication/Switch Status	Yellow LED, switching status, 4 x 90°			
Housing Material	316L stainless steel			
Sensing Face Material	316L stainless steel			
Material Correction Factors	See Material Influence Table			
Shock/Vibration	Shock EN 60068-2-27, Vibration EN 60068-2-6			
Tightening Torque	5 N•m	15 N•m	50 N•m	80 N•m
Connection	3-pin M8 quick-disconnect	4-pin M12 quick-disconnect		
IO-Link	NA			
Agency Approvals	CE, cULus E328811			

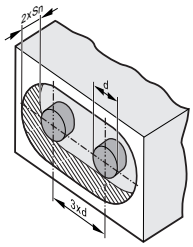
To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.



Flush:



Non-flush:



Minimum clearance for installing units of the same type (side-by-side installation). Applies to cylindrical and rectangular sensors.
The minimum distance between units may only be disregarded for units with different oscillator frequencies or different sensing principles.

Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

PMW Series Inductive Proximity Sensors

M12 (12mm) Stainless Steel – DC

- Low cost/high performance
- LED status indicators are visible at a wide angle.
- Axial cable or M12 quick-disconnect models
- Purchase cable separately (for quick-disconnect models).
- Lifetime warranty

PMW Series M12 DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
PMW-0N-1H	$;09dt:	2mm [0.08 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 3	Figure 1
PMW-0P-1H	$09dv:				PNP	M12 [12mm] connector	Diagram 4	Figure 1
PMW-0N-2H	$09du:	4mm [0.157 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 3	Figure 1
PMW-0P-2H	$09dx:				PNP	M12 [12mm] connector	Diagram 4	Figure 1
Triple Distance								
PMW-AN-5A	$009ed:	6mm [0.236 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 2
PMW-AP-5A	$;009ef:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
PMW-AN-5H	$009ee:				NPN	M12 [12mm] connector	Diagram 1	Figure 3
PMW-AP-5H	$009eg:				PNP	M12 [12mm] connector	Diagram 2	Figure 3

Wiring Diagrams

Diagram 1
NPN Output

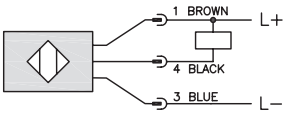
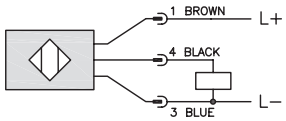
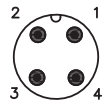


Diagram 2
PNP Output



Connector
M12 connector



Note: Pin 2 is not present on some models.

Diagram 3
NPN Output

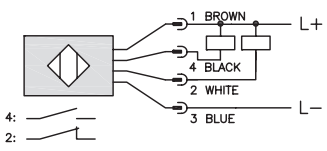
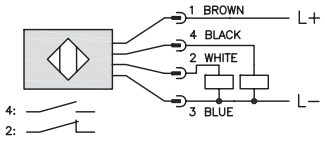


Diagram 4
PNP Output



PMW Series Inductive Proximity Sensors

PMW Series M12 DC Inductive Proximity Specifications		
Models	***Standard Distance***	***Triple Distance***
Mounting Type	Flush	Flush
Nominal Sensing Distance	2mm [0.08 in][1]	6mm [0.236 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP and N.O./N.C. complementary	NPN or PNP, N.O. only
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤15 mA	≤10 mA
Operating (Load) Current	≤100 mA	≤ 00 mA
Off-state (Leakage) Current	≤1 0µA	≤100µA
Voltage Drop	≤1.2 V	≤2.0 V
Switching Frequency	2kHz	400Hz
Differential Travel (% of Nominal Distance)	2 to 10%	≤ 15%
Repeat Accuracy	≤5%	
Ripple	≤10%	≤ 20%
Time Delay Before Availability (tv)	100ms	≤10 ms
Reverse Polarity Protection	Yes	
Short-circuit Protection	Yes	
Operating Temperature / Temperature Drift	-25 to 70°C [-13 to 158°F] / 10%Sr	
Protection Degree (DIN 40050)	IEC IP67/68	IEC IP67[2] (connector/IP68[2] cable)
Indication/Switch Status	Yellow (N.O. output energized)	
Housing Material	Stainless steel	Stainless steel
Sensing Face Material	PPS	Stainless steel
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	10Nm [7.25 lb-in]	
Weight	35g [1.23 oz]	89g [3.14 oz]
Connections	M12 connector with gold-plated contacts	
Agency Approvals	NA	UL file E328811, RoHS

Notes: [1]With 12 x 12mm FE360 target
[2]Fully submersible to 290 psi.
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm[inches]

Figure 1

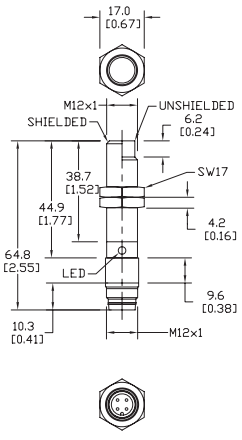


Figure 2

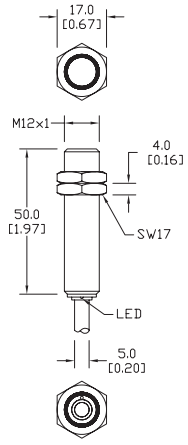
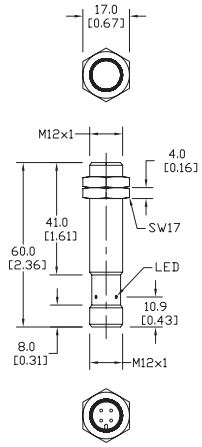
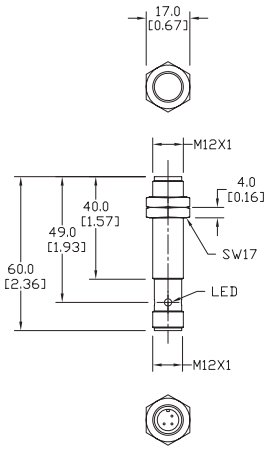


Figure 3



Note: Pin 2 is not present on some models.

Figure 4



PKW Series Inductive Proximity Sensors

M18 (18mm) Stainless Steel - DC

- Low cost/high performance
- LED status indicators are visible at a wide angle.
- Axial cable or M12 quick-disconnect models
- Purchase cable separately (for quick-disconnect models).
- Lifetime warranty

PKW Series M18 DC Inductive Proximity Selection Chart								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Standard Distance								
PKW-0N-1H	$09k2:	5mm [0.197 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 3	Figure 1
PKW-0P-1H	$09k4:				PNP	M12 [12mm] connector	Diagram 4	Figure 1
PKW-0N-2H	$09k3:	8mm [0.315 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 3	Figure 1
PKW-0P-2H	$09k5:				PNP	M12 [12mm] connector	Diagram 4	Figure 1
Triple Distance								
PKW-AN-5A	$009ks:	10mm [0.394 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 2
PKW-AP-5A	$009ku:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 2
PKW-AN-5H	$;009kt:				NPN	M12 [12mm] connector	Diagram 1	Figure 3
PKW-AP-5H	$009kv:				PNP	M12 [12mm] connector	Diagram 2	Figure 3

Wiring Diagrams

Diagram 1
NPN Output

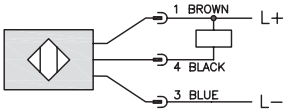
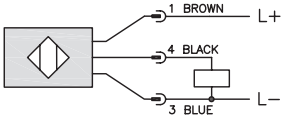


Diagram 2
PNP Output



Connector
M12 connector

Note: Pin 2 is not present on some models.

Diagram 3
NPN Output

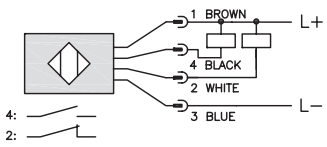
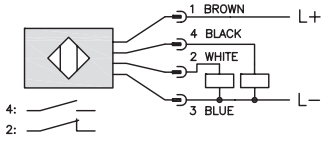


Diagram 4
PNP Output



PKW Series Inductive Proximity Sensors

PKW Series M18 DC Inductive Proximity Specifications				
Models	***Standard Distance***	***Triple Distance***	***PKW-A-1H***	***PKW-A*-2H***
Mounting Type	Flush	Flush	Flush	Non-flush
Nominal Sensing Distance	5 mm [0.197 in][1]	10 mm [0.394 in]	5 mm [0.197 in]	12 mm (0.472 in)
Operating Distance	NA	NA	0 to 4 mm	0 to 9.7 mm (0.38in)
Material Correction Factors	See the Material influence table			
Output Type	NPN or PNP and N.O./N.C. complementary	NPN or PNP, N.O. only	NPN or PNP, N.O. only	
Operating Voltage	10 to 30 VDC	10 to 30 VDC	10 to 36 VDC	10 to 30 VDC
No-load Supply Current	15mA	10mA	20mA	25mA
Operating (Load) Current	≤ 400 mA	≤ 200 mA	100 mA	
Off-state (Leakage) Current	≤ 10µA	≤ 100µA	<0.1 mA	
Voltage Drop	≤ 0.8 V	≤ 2.0 V	< 2.5 V	
Switching Frequency	1kHz	200Hz	100Hz	500Hz
Differential Travel (% of Nominal Distance)	2 to 10%	≤ 15%	≤ 20%	
Repeat Accuracy	≤ 5%	NA	NA	
Ripple	≤ 10%	≤ 20%	NA	
Time Delay Before Availability (tv)	100ms	≤ 10ms	negligible	
Reverse Polarity Protection	Not available		Yes	
Short-circuit Protection	Not available		Yes [non-latching]	
Operating Temperature	-25 to 70°C [-13 to 158°F]	-25 to 70°C [-13 to 158°F]	-25 to 70°C [-13 to 158°F]	0 to 100°C [32 to 212°F]
Protection Degree (DIN 40050)	IEC IP67/68	IEC IP67[2] [connector] IP68[2] [cable]	IEC IP67, IP68	IEC IP65/67/68/69K
Indication/Switch Status	Yellow [N.O. output energized]			
Housing Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Sensing Face Material	Polyphonylene Sulfide [PPS]	Stainless steel	Stainless steel	Stainless steel
Shock Resistance / Vibration Resistance	See Proximity Sensor Terminology			
Tightening Torque	40Nm [29 lb-ft]	50Nm [37 lb-ft]	50Nm [37 lb-ft]	
Weight	70g [2.47 oz]	114g [4.02 oz] 50g [1.76 oz]	56g [1.98 oz]	
Connection	M12 connector	2m [6.5 ft] axial cable or M12 connector	M12 connector. 2 lock nuts included	
Agency Approvals	NA	UL file E328811, RoHS	cULus file E328811, CE, RoHS	

Notes: [1]With 12 x 12mm FE360 target
[2]Fully submersible to 290 psi.
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

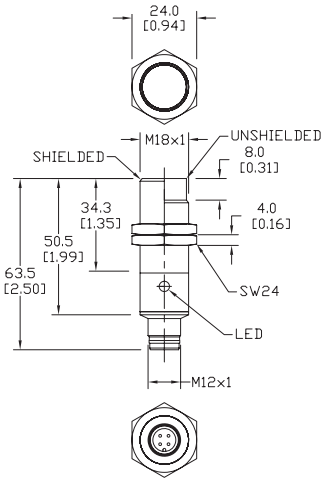


Figure 2

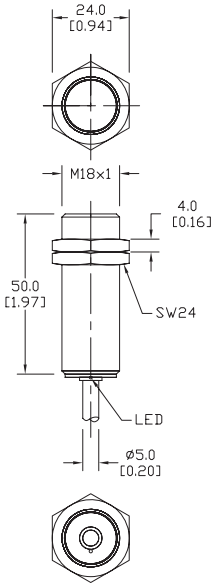
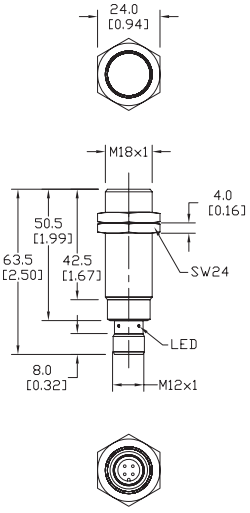


Figure 3



Note: Pin 2 is not present on some models.

PTW Series Inductive Proximity Sensors

M30 (30 mm) Stainless Steel - DC

- Metal sensing face for extreme environments
- LED status indicators are visible at a wide angle.
- One-piece stainless design
- Axial cable or M12 quick-disconnect models
- Purchase cable separately (for quick-disconnect models).
- Lifetime warranty

PTW Series M30 DC SS Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Triple Distance								
PTW-AN-5A	$-009gi:	20 mm [0.787 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
PTW-AP-5A	$009gk:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
PTW-AN-5H	$-009gj:				NPN	M12 [12mm] connector	Diagram 1	Figure 2
PTW-AP-5H	$-009gl:				PNP	M12 [12mm] connector	Diagram 2	Figure 2

Wiring Diagrams

Diagram 1

NPN Output

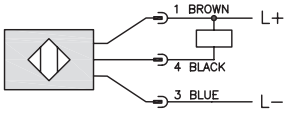
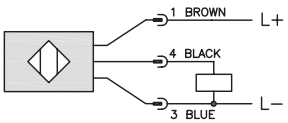


Diagram 2

PNP Output



Connector

M12 connector

Note: Pin 2 is not present on some models.

PTW Series Inductive Proximity Sensors

PTW Series M30 DC SS Inductive Proximity Specifications		
Models	***PTW-A*-2H***	***PTW-A*-5****
Mounting Type	Non-flush	Flush
Nominal Distance	25mm [0.984 in]	20mm [0.787 in]
Operating Distance	0 to 24.3 mm [0.96 in]	NA
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP, N.O. only	
Operating Voltage	10 to 36 VDC	10 to 30 VDC
No-load Supply Current	25mA	10mA
Operating (Load) Current	100mA	≤ 200mA
Off-state (Leakage) Current	< 1mA	≤ 100µA
Voltage Drop	≤ 2.5V	≤ 2.0V
Switching Frequency	250Hz	100Hz
Differential Travel (% of Nominal Distance)	≤ 20%	≤ 15%
Repeat Accuracy	Not available	≤ 5%
Ripple	Not available	≤ 20%
Time Delay Before Availability (tv)	Not available	≤ 10ms
Reverse Polarity Protection	Yes	
Short-circuit Protection	Yes [non-latching]	
Operating Temperature	0 to 100°C [32 to 212°F]	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IEC IP65/67/68/69K	IEC IP67[1] [connector] IP68[1] [cable]
Indication/Switch Status	Yellow [4 x 90°]	Yellow [N.O. output energized]
Housing Material	Stainless steel	Stainless steel
Sensing Face Material	Stainless steel	Stainless steel
Shock Resistance / Vibration Resistance	See Proximity Sensor Terminology	
Tightening Torque	80Nm [50 lb-in]	15Nm [111 lb-in]
Weight	145g [5.11 oz]	114g [4.02 oz] / 50g [1.76 oz]
Connections	M12 connector, 2 lock nuts included	2m [6.5'] axial cable or M12 connector
Agency Approvals	cULus, UL file E328811, CE, RoHS	UL file E328811, CE, RoHS

Note:[1] Fully submersible to 290 psi (20 bar).
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

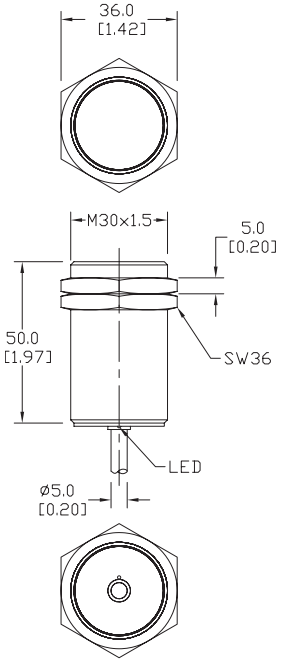
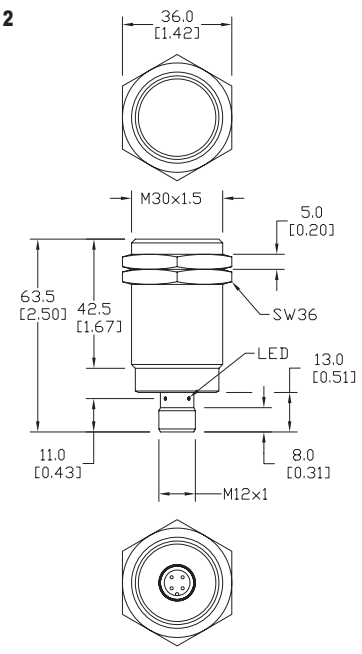


Figure 2



Note: Pin 2 is not present on some models.

V Series AC/DC Inductive Proximity Sensors

M8 (8mm)

- Low cost/high performance
- LED status indicators are visible at a wide angle
- Axial cable or 1/2 in. micro AC quick-disconnect models
- Purchase cable separately (for quick-disconnect models)
- Lifetime warranty

V Series M8 AC/DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range[1]	Mounting	Output State	Voltage	Connection	Wiring	Dimensions
V3E1-R0-3A8F	$1ohz:	2mm [0.0787 in]	Flush	N.O.	20–120 VAC/VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 1
V3E1-S0-3A8F	$;1oh]:			N.C.			Diagram 2	
V3E1-R0-3Q	$;1oh[:			N.O. (VAC) or N.O./N.C. (VDC)	20–250 VAC/VDC	1/2"-20 UNF, micro AC quick-disconnect	Diagram 3	Figure 2
V3E1-S0-3Q	$1oh_:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 4	
V3E1-R0-4A8F	$1oh#:	4mm [0.1574 in]	Non-flush	N.O.	20–120 VAC/VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 1
V3E1-S0-4A8F	$;1oh!:			N.C.			Diagram 2	
V3E1-R0-4Q	$1oh?:			N.O. (VAC) or N.O./N.C. (VDC)	20–250 VAC/VDC	1/2"-20 UNF, micro AC quick-disconnect	Diagram 3	Figure 2
V3E1-S0-4Q	$;1oh,:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 4	

[1]Standard target Fe360

Wiring Diagrams

Diagram 1

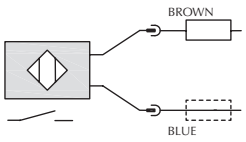
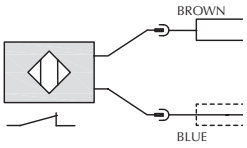


Diagram 2



Connector

1/2 in. micro AC

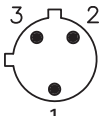


Diagram 3

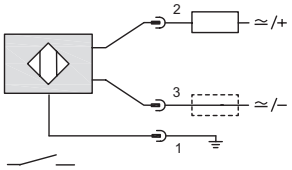
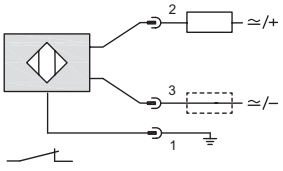
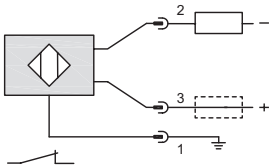
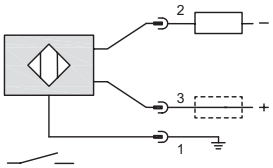


Diagram 4







V Series AC/DC Inductive Proximity Sensors

V Series M8 AC/DC Inductive Proximity Specifications			
Mounting Type		***Flush***	***Non-flush***
Nominal Sensing Distance (mm)		2	4
Operating Distance		0–1.6 mm	0–3.2 mm
Material Correction Factors		See Material Influence Table	
Output Type		N.O./N.C. for Plug; N.O. or N.C. for Cable	
Operating Voltage		20–120 VAC/VDC; 20-250 VAC/VDC (Plug only)	
No-load Supply Current		1mA (VAC) 0.7 mA (VDC Plug) 0.55 mA (VAC) 0.40 mA (VDC Cable)	
Operating (Load) Current	***DC***	80mA	
	AC	55mA	
Off-state Leakage Current	***DC***	0.40 mA	
	AC	0.55 mA	
Voltage Drop		≤ 7.5 VAC / ≤ 8.5 VDC	
Switching Frequency		900Hz	750Hz
Differential Travel (% of Nominal Distance)		1–20%	
Repeat Accuracy		≤ 5%	
Peak Current		600mA/150ms Plug 150mA/150ms Cable	
Time Delay Before Availability (tv)		100ms	
Short Circuit Protection		Yes	
Operating Temperature		-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)		IP67	
LED Indicators		Yellow [Output energized]	
Housing Material		Nickel-plated brass	
Sensing Face Material		PA4T	
Shock/Vibration		IEC 60947-5-2	
Tightening Torque		2 N·m (1.48 lb·ft)	
Weight		20g Plug; 70g Cable	
Connection		2m [6.5 ft] axial cable or 1/2"-20 UNF, micro AC quick-disconnect	
Agency Approvals		CE, UL E187310	

Note: Standard Target Fe360
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

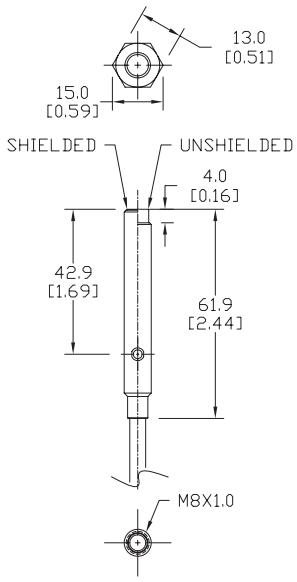
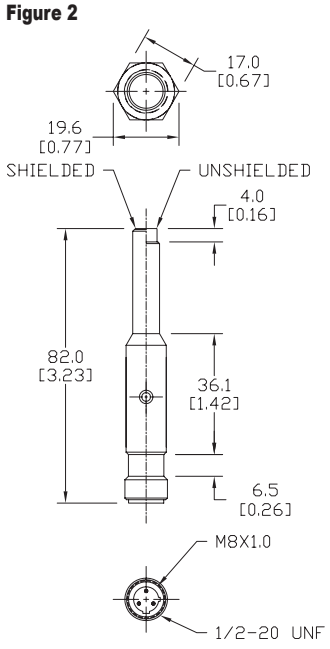


Figure 2



NOTE: Each sensor ships with jam nuts.

V Series AC & AC/DC Inductive Proximity Sensors

M12 (12mm)

- Low cost/high performance
- LED status indicators are visible at a wide angle
- Axial cable, M12 and 1/2 in. micro AC quick-disconnect models
- Purchase cable separately (for quick-disconnect models)
- Lifetime warranty

V Series M12 AC & AC/DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range[1]	Mounting	Output State	Voltage	Connection[2]	Wiring	Dimensions
Standard								
VM1-A0-1B	$;09c,:	2mm [0.06 in]	Flush	N.O.	20–253 VAC	2m [6.5 ft] axial cable	Diagram 2	Figure 1
VM1-A0-1H	$09d0:					M12 [12mm]		Figure 2
VM1-A0-2B	$09d1:	4mm [0.16 in]	Non-flush			2m [6.5 ft] axial cable		Figure 1
VM1-A0-2H	$09d2:					M12 [12mm]		Figure 2
Extended								
V3M1-R0-3A8F	$-1oi0:	4mm [0.16 in]	Flush	N.O. (VAC) or N.O./N.C. (VDC)	20–250 VAC/VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 3
V3M1-S0-3A8F	$-1oi1:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 3
V3M1-R0-3Q	$-1oi2:			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, Micro AC quick-disconnect	Diagram 4	Figure 4
V3M1-S0-3Q	$-1oi3:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 4
V3M1-R0-4A8F	$-1oi4:	6mm [0.24 in]	Non-flush	N.O. (VAC) or N.O./N.C. (VDC)		2m [6.5 ft] axial cable	Diagram 1	Figure 3
V3M1-S0-4A8F	$-1oi5:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 3
V3M1-R0-4Q	$-1oi6:			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, Micro AC quick-disconnect	Diagram 4	Figure 4
V3M1-S0-4Q	$-1oi7:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 4

[1]With 12mm x 12mm Fe360 target

[2]V Series sensors with 4-pin M12 connectors are incompatible with Zip Port junction blocks.

Wiring Diagrams

Diagram 1

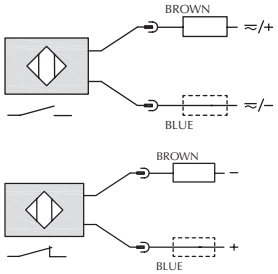


Diagram 2

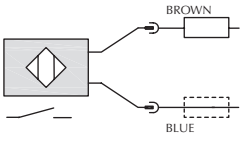


Diagram 3

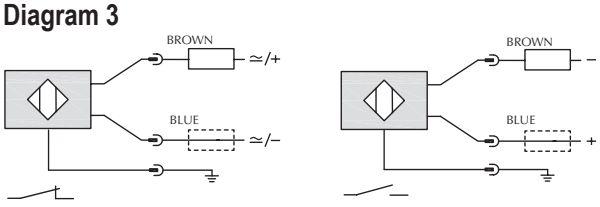


Diagram 4

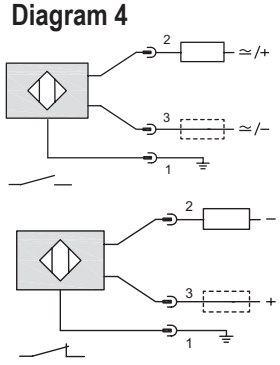
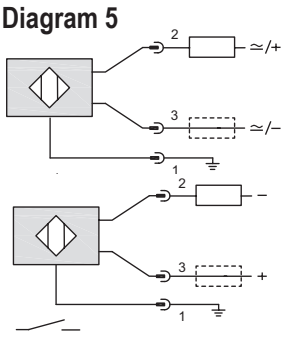


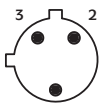
Diagram 5



Connectors

M12 connector

1/2 in. micro AC



Note: Pin 2 is not present on some models.

V Series AC & AC/DC Inductive Proximity Sensors

V Series M12 AC & AC/DC Inductive Proximity Specifications

Models	VM1		V3M1	
Mounting Type	Flush	Non-flush	Flush	Non-flush
Nominal Sensing Distance (mm)	2	4	4	6
Operating Distance	NA		0–3.2 mm	0–4.9 mm
Material Correction Factors	See Material Influence Table			
Output Type	N.O.		N.O. or N.C. (VAC) N.O./N.C. (VDC)	
Operating Voltage	20–253 VAC, 50/60 Hz		20–250 VAC/VDC	
No-load Supply Current	NA		1mA (VAC); 0.7 mA (VDC)	
Operating (Load) Current DC	NA		200mA	
AC	5–300 mA (RMS)		140mA	
Off-state Leakage Current DC	NA		0.70 mA	
AC	1.0 mA max. (RMS)		1mA	
Voltage Drop	≤ 25VAC		≤ 7.5 VAC / ≤ 8VDC	
Switching Frequency	25Hz		750Hz	500Hz
Differential Travel (% of Nominal Distance)	2–10%		1–20%	
Repeat Accuracy	5%		≤ 5%	
Peak Current	NA		600mA/150ms	
Time Delay Before Availability (tv)	200ms		100ms	
Reverse Polarity Protection	NA		Yes	
Short Circuit Protection Overload	No		Yes	
Overvoltage	NA		Yes	
Operating Temperature	-25 to +70°C [-13 to 158°F]			
Protection Degree (DIN 40050)	IEC IP67			
LED Indicators	Yellow [output energized]			
Housing Material	Nickel-plated brass			
Sensing Face Material	Polybutylene Terephthalate [PBT]		PA4T	
Shock/Vibration	IEC 60947-5-2			
Tightening Torque	10 N·m [7.3 lb·ft]		7 N·m [5 lb·ft]	
Weight	70g [2.47 oz]		20g Plug; 80g Cable	
Connection	2m [6.5 ft] axial cable or M12 [12mm] connector		2m [6.5 ft] axial cable or 1/2 "-20 UNF, micro AC quick-disconnect	
Agency Approvals	CE, UL Recognized file E130644		CE, UL E187310	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

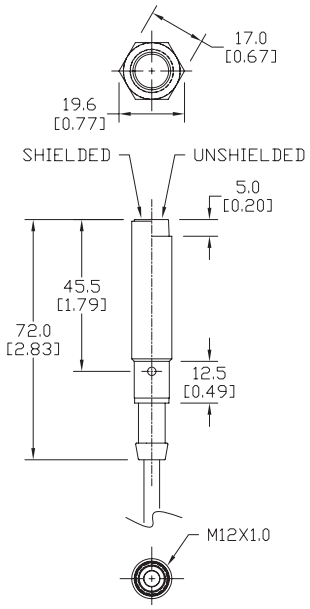


Figure 2

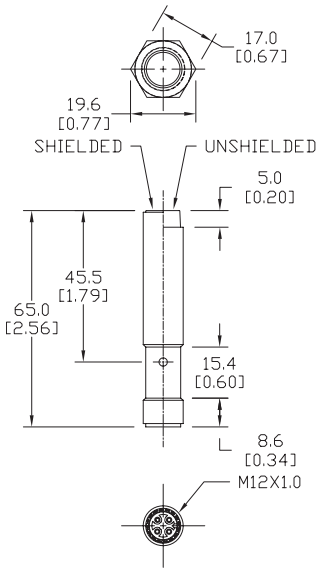


Figure 3

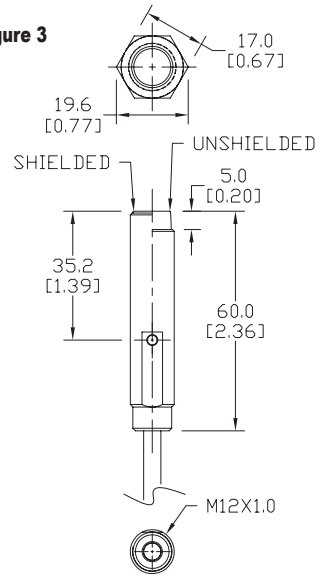
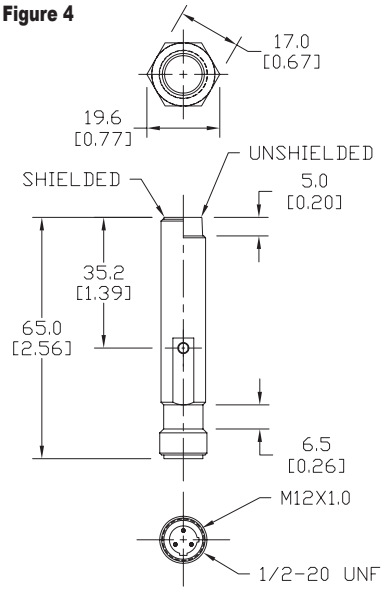


Figure 4



NOTE: Each sensor ships with jam nuts.

V Series AC & AC/DC Inductive Proximity Sensors

M18 (18mm)

- Low cost/high performance
- LED status indicators are visible at a wide angle
- Axial cable, M12 and 1/2 in. micro AC quick-disconnect models
- Purchase cable separately (for quick-disconnect models)
- Lifetime warranty

V Series M18 AC & AC/DC Inductive Prox Selection Chart

Part Number	Price	Sensing Range[1]	Mounting	Output State	Voltage	Connection[2]	Wiring	Dimensions
Standard								
VK1-A0-1B	$-09jn:	5mm [0.0787 in]	Flush	N.O.	20–253 VAC	2m [6.5 ft] axial cable	Diagram 2	Figure 1
VK1-A0-1H	$-09jo:					M12 [12mm]		Figure 2
VK1-A0-2B	$-09jp:	8mm [0.1574 in]	Non-flush			2m [6.5 ft] axial cable		Figure 1
VK1-A0-2H	$-09jq:					M12 [12mm]		Figure 2
Extended								
V3K1-R0-3A8F	$-1oi8:	6mm [0.236 in]	Flush	N.O. (VAC) or N.O./N.C. (VDC)	20–250 VAC/VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 4
V3K1-S0-3A8F	$-1oi9:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 4
V3K1-R0-3Q	$-1oia:			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, micro AC quick-disconnect	Diagram 4	Figure 3
V3K1-S0-3Q	$-1oib:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 3
V3K1-R0-4A8F	$-1oic:	10mm [0.394 in]	Non-flush	N.O. (VAC) or N.O./N.C. (VDC)		2m [6.5 ft] axial cable	Diagram 1	Figure 4
V3K1-S0-4A8F	$-1oid:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 4
V3K1-R0-4Q	$-1oie:			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, micro AC quick-disconnect	Diagram 4	Figure 3
V3K1-S0-4Q	$;-1oif:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 3

[1]With 18mm x 18mm Fe360 target
[2]V Series sensors with 4-pin M12 connectors are incompatible with Zip Port junction blocks.

Wiring Diagrams

Diagram 1

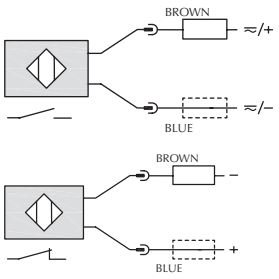


Diagram 2

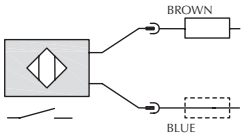


Diagram 3

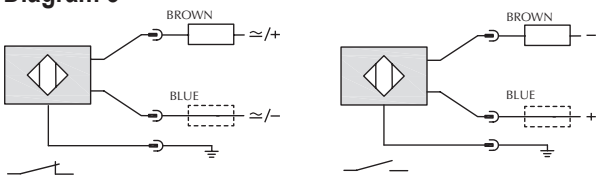


Diagram 4

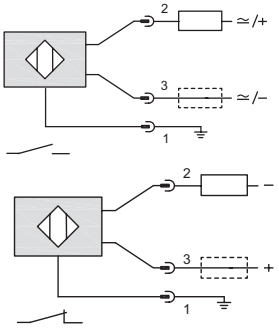
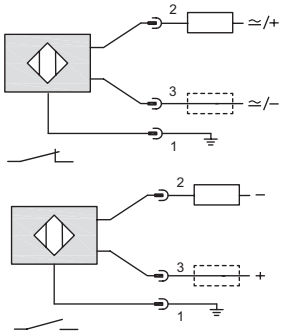


Diagram 5

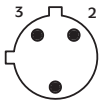


Connectors

M12 connector

Note: Pin 2 is not present on some models.

1/2 in. micro AC



V Series AC & AC/DC Inductive Proximity Sensors

Specifications

Model	VK1		V3K1	
Mounting Type	Flush	Non-flush	Flush	Non-flush
Nominal Sensing Distance (mm)	5	8	6	10
Operating Distance	NA		0–4.9 mm	0–8 mm
Material Correction Factors	See Material Influence Table			
Output Type	N.O.		N.O. or N.C. (VAC) N.O./N.C. (VDC)	
Operating Voltage	20–253 VAC, 50/60 Hz		20–250 VAC/VDC	
No-load Supply Current	NA		1mA (VAC); 0.7 mA (VDC)	
Operating (Load) Current DC	NA		200mA	
AC	5–300 mA (RMS)		140mA	
Off-state Leakage Current DC	NA		0.70 mA	
AC	1.0 mA max. (RMS)		1mA	
Voltage Drop	≤ 7.5 VAC		≤ 7.5 VAC / ≤ 8VDC	
Switching Frequency	25Hz		600Hz	550Hz
Differential Travel (% of Nominal Distance)	2–10%		1–20%	
Repeat Accuracy	5%		≤ 5%	
Peak Current	NA		600mA/150ms Max.	
Time Delay Before Availability (tv)	200ms		100ms	
Reverse Polarity Protection	NA		Yes	
Short Circuit Protection: Overload	No		Yes	
Overvoltage			Yes	
Operating Temperature	-25 to +70°C [-13 to 158°F]		-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP67		IP67	
LED Indicators	Yellow [output energized]			
Housing Material	Nickel-plated brass			
Sensing Face Material	Polybutylene Terephthalate [PBT]		PA4T	
Shock/Vibration	IEC 60947-5-2			
Tightening Torque	25 N·m [18.44 lb·ft]		15 N·m [11.0 lb·ft]	
Weight	120g [4.23 oz]		49g Plug; 100g Cable	
Connection	2m [6.5 ft] axial cable or M12 (12mm) connector		2m [6.5 ft] axial cable or 1/2"-20 UNF, micro AC quick-disconnect	
Agency Approvals	CE, UL Recognized file E130644		CE, UL E187310	

Dimensions

mm [inches]

Figure 1

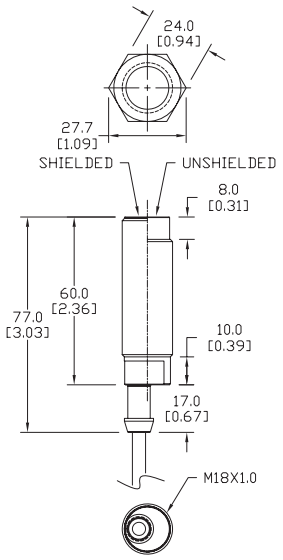


Figure 2

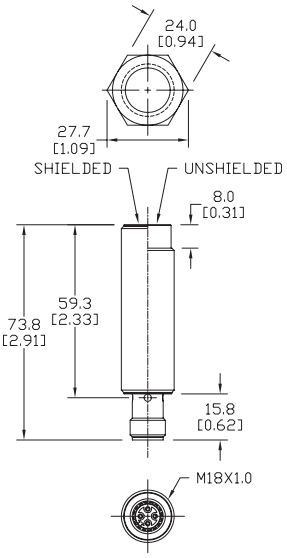


Figure 3

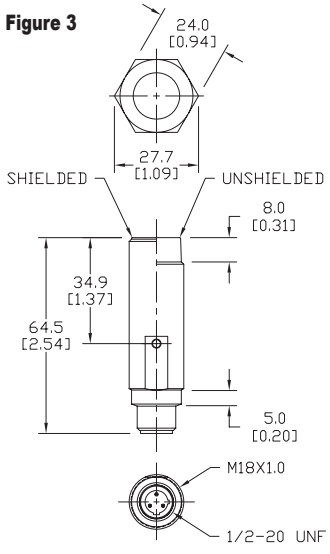
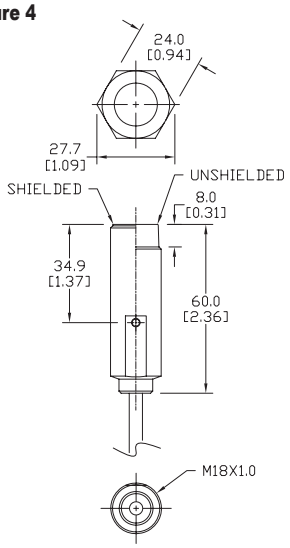


Figure 4



NOTE: Each sensor ships with jam nuts.

V Series AC & AC/DC Inductive Proximity Sensors

M30 (30mm)

- Low cost/high performance
- LED status indicators are visible at a wide angle
- Axial cable and 1/2 in. micro AC quick-disconnect models
- Purchase cable separately (for quick-disconnect models)
- Lifetime warranty

V Series M30 AC & AC/DC Inductive Proximity Sensors Selection Chart								
Part Number	*Price*	*Sensing Range[1]*	*Mounting*	*Output State*	*Voltage*	*Connection*	*Wiring*	*Dimensions*
Standard								
VT1-A0-1B	$;09fn:	10mm [0.394 in]	Flush	N.O.	20–253 VAC	2m [6.5 ft] axial cable	Diagram 2	Figure 1
VT1-A0-2B	$;09fo:	15mm [0.590 in]	Non-flush					
Extended								
V3T1-R0-3A8F	$-1oig:	12mm [0.472 in]	Flush	N.O. (VAC) or N.O./N.C. (VDC)	20–250 VAC/ VDC	2m [6.5 ft] axial cable	Diagram 1	Figure 2
V3T1-S0-3A8F	$-1oih:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 2
V3T1-R0-3Q	$--1oii:			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, micro AC quick-disconnect	Diagram 4	Figure 3
V3T1-S0-3Q	$--1oij:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 3
V3T1-R0-4A8F	$-1oik:	18mm [0.708 in]	Non-flush	N.O. (VAC) or N.O./N.C. (VDC)		2m [6.5 ft] axial cable	Diagram 1	Figure 2
V3T1-S0-4A8F	$--1oil:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 3	Figure 2
V3T1-R0-4Q	$-1oin:			N.O. (VAC) or N.O./N.C. (VDC)		1/2"-20 UNF, micro AC quick-disconnect	Diagram 4	Figure 3
V3T1-S0-4Q	$-1oio:			N.C. (VAC) or N.O./N.C. (VDC)			Diagram 5	Figure 3

[1]With 30mm x 30mm Fe360 target

Wiring Diagrams

Diagram 1

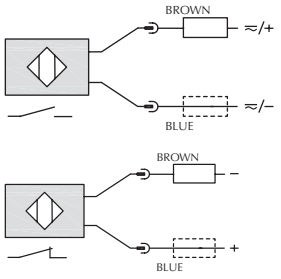


Diagram 2

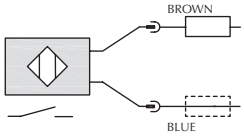


Diagram 3

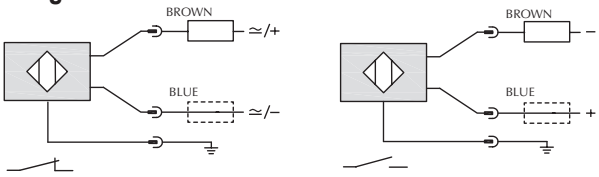


Diagram 4

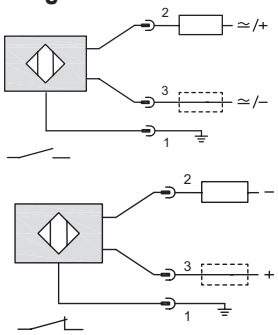
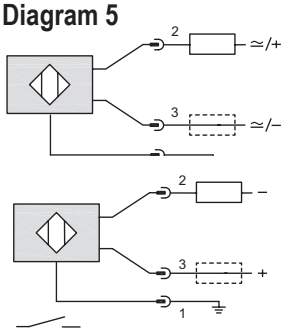


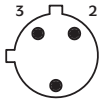
Diagram 5



Connectors

M12 connector

1/2 in. micro AC



Note: Pin 2 is not present on some models.

V Series AC & AC/DC Inductive Proximity Sensors

Specifications	VT1 Models		V3T1 Models	
Mounting Type	*Flush*	*Non-flush*	*Flush*	*Non-flush*
Nominal Sensing Distance (mm)	5	8	12	18
Operating Distance	NA		0–9.7 mm	0–14.6 mm
Material Correction Factors	See Material Influence Table			
Output Type	Triac/N.O./2-wire		N.O. or N.C. (VAC) N.O./N.C. (VDC)	
Operating Voltage	20–253 VAC, 50/60 Hz		20–250 VAC/VDC	
No-load Supply Current	NA			
Operating (Load) Current *DC*	NA		200mA	
AC	5–300 mA (RMS)		140mA	
Off-state Leakage Current *DC*	NA		0.70 mA	
AC	1.0 mA max. (RMS)		1mA	
Voltage Drop	≤ 8.8 VAC		≤ 7.5 VAC / ≤ 8VDC	
Switching Frequency	25Hz		250Hz	190Hz
Differential Travel (% of Nominal Distance)	2–10%		1–20%	
Repeat Accuracy	5%		≤ 5%	
Peak Current	NA		600mA/150ms Max.	
Time Delay Before Availability (tv)	200ms		100ms	
Reverse Polarity Protection	NA		Yes	
Short Circuit Protection: *Overload*	No		Yes	
Overvoltage			Yes	
Operating Temperature	-25 to +70°C [-13 to 158°F]		-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP67		IP67	
LED Indicators	Yellow (output energized)			
Housing Material	Nickel-plated brass			
Sensing Face Material	Polybutylene Terephthalate (PBT)		PA4T	
Shock/Vibration	IEC 60947-5-2			
Tightening Torque	25 N·m [18.44 lb·ft]		50 N·m [37 lb·ft]	
Weight	120g [4.23 oz]		120g Plug; 170g Cable	
Connection	2m [6.5 ft] axial cable		2m [6.5 ft] axial cable or 1/2"-20 UNF, micro AC quick-disconnect	
Agency Approvals	CE, UL Recognized file E130644		CE, UL E187310	

Dimensions

mm [inches]

Figure 1

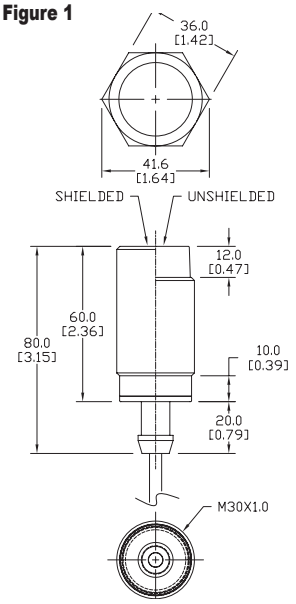


Figure 2

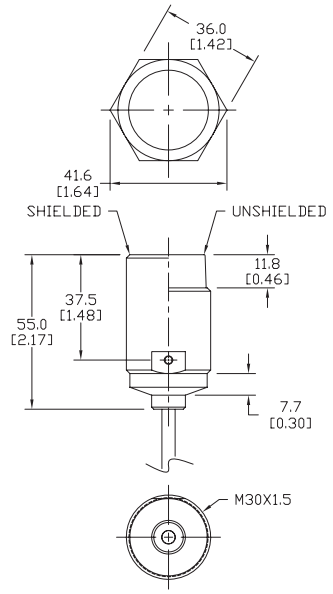
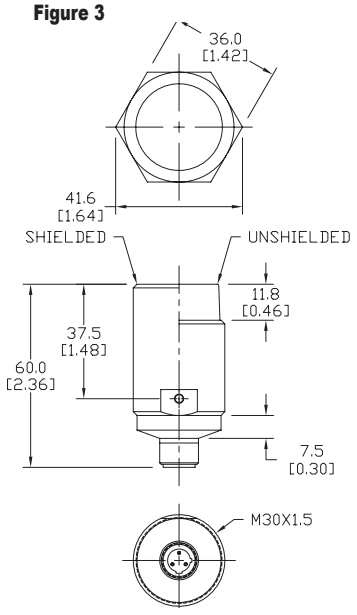
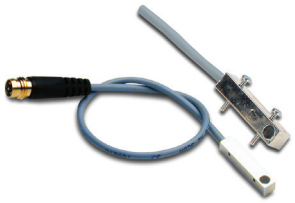


Figure 3



NOTE: Each sensor ships with jam nuts.

CR5 Series Inductive Proximity Sensors



5 x 5 mm Rectangular Metal - DC

- Compact 5 x 5 x 25 mm metal housing
- Axial cable or M8 quick-disconnect models; purchase cable separately
- Complete overload protection
- IP67 rated
- Screws included
- Lifetime warranty

CR5 Series 5x5 Rectangular DC Inductive Prox Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard Distance								
CR5-AN-1A	$-09In:	0.8 mm [0.03 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CR5-AP-1A	$-09Is:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CR5-AN-1F	$-09Io:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
CR5-AP-1F	$;-09It:				PNP	M8 [8mm] connector	Diagram 2	Figure 2
Extended Distance								
CR5-AN-2A	$-09Ip:	1.5 mm [0.06 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CR5-AP-2A	$-09Iu:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CR5-AN-2F	$-09Iq:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
CR5-AP-2F	$-09Iv:				PNP	M8 [8mm] connector	Diagram 2	Figure 2

Specifications	Standard Distance	Extended Distance
Mounting Type	Flush	Flush
Nominal Distance	0.8 mm (0.03 in)	1.5 mm (0.06 in)
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. only/3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10 mA	
Operating (Load) Current	≤ 200 mA	
Off-state (Leakage) Current	≤ 10µA	
Voltage Drop	≤ 2.0 V	
Switching Frequency	5kHz	3kHz
Differential Travel (% of Nominal Distance)	≤ 10%	
Repeat Accuracy	≤ 1.5%	
Ripple	≤ 20%	
Time Delay Before Availability (tv)	10ms	
Reverse Polarity Protection	Yes	
Short Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	Yellow (output energized)	
Housing Material	Nickel-plated brass	
Sensing Face Material	Polyester	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	1.5 Nm (1.1 lb-in)	
Weight	26g [0.92 oz)	27g [0.95 oz]
Connection	2m [6.5 ft] axial cable or M8 (8mm) connector	
Agency Approvals	UL file E328811	

Dimensions

mm [inches]

Figure 1

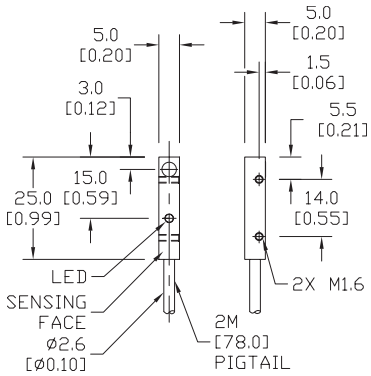
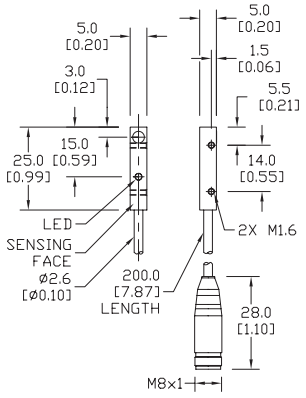


Figure 2



Wiring Diagrams

Diagram 1
NPN output

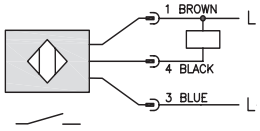
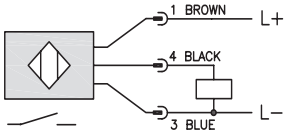
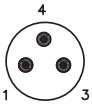


Diagram 2
PNP output



Connector
M8 connector



CR8 Series Inductive Proximity Sensors

8 x 8 mm Rectangular Metal – DC

- Compact 8 x 8 x 40 mm metal housing
- Axial cable or M8 quick-disconnect models; purchase cable separately
- Complete overload protection
- IP67 rated
- Screws included
- Lifetime warranty

CR8 Series 8x8 Rectangular DC Inductive Proximity Selection Chart								
Part Number	***Price***	***Sensing Range***	***Mounting***	***Output State***	***Logic***	***Connection***	***Wiring***	***Dimensions***
Standard Distance								
CR8-AN-1A	$09g?:	0-1.5 mm [0-0.06 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CR8-AP-1A	$09h4:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CR8-AN-1F	$;09g,:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
CR8-AP-1F	$09h5:				PNP	M8 [8mm] connector	Diagram 2	Figure 2
Extended Distance								
CR8-AN-2A	$09h0:	0-2 mm [0-0.08 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CR8-AP-2A	$09h6:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CR8-AN-2F	$09h1:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
CR8-AP-2F	$09h7:				PNP	M8 [8mm] connector	Diagram 2	Figure 2
Triple Distance								
CR8-AN-3A	$009h2:	3mm [0.118 in]	Semi-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CR8-AP-3A	$009h8:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CR8-AN-3F	$009h3:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
CR8-AP-3F	$009h9:				PNP	M8 [8mm] connector	Diagram 2	Figure 2

Wiring Diagrams

Diagram 1

NPN output

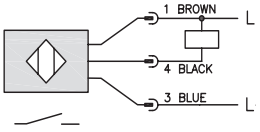
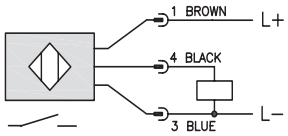


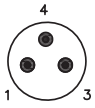
Diagram 2

PNP output



Connector

M8 connector



CR8 Series Inductive Proximity Sensors

CR8 Series 8x8 Rectangular DC Inductive Proximity Specifications			
Models	***Standard Distance***	***Extended Distance***	***Triple Distance***
Mounting Type	Flush	Flush	Semi-flush
Nominal Distance	1.5 mm [0.06 in]	2 mm [0.08 in]	3 mm [0.118 in]
Operating Distance	NA	NA	NA
Material Correction Factors	See the Material influence table		
Output Type	NPN or PNP/N.O. only/3-wire		
Operating Voltage	10 to 30 VDC		
No-load Supply Current	≤10 mA		
Operating (Load) Current	≤ 200 mA		
Off-state (Leakage) Current	≤ 10µA		
Voltage Drop	≤ 2.0 V		
Switching Frequency	1kHz		
Differential Travel (% of Nominal Distance)	≤10%		
Repeat Accuracy	≤ 5%		
Ripple	m 20%		
Time Delay Before Availability (tv)	10ms		50ms
Reverse Polarity Protection	Yes		
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)		
Operating Temperature	-25 to +70°C [-13 to 158°F]		
Protection Degree (DIN 40050)	IEC IP67		
Indication/Switch Status	Yellow (output energized)		
Housing Material	Nickel-plated brass		Chrome-plated brass
Sensing Face Material	Polybutylene Terephthalate (PBT)		
Shock/Vibration	See Proximity Sensor Terminology		
Tightening Torque	4 Nm [2.95 lb-ft]		
Weight (cable/M8 connector)	43g [1.52 oz]/15g [0.53 oz]		54g [1.90 oz]/21g [0.74 oz]
Connection	2m [6.5 ft] axial cable or M8 [8mm] connector		
Agency Approvals	UL file E328811, CE		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

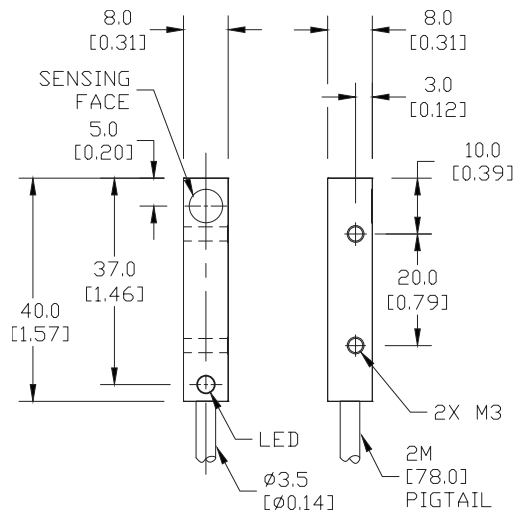
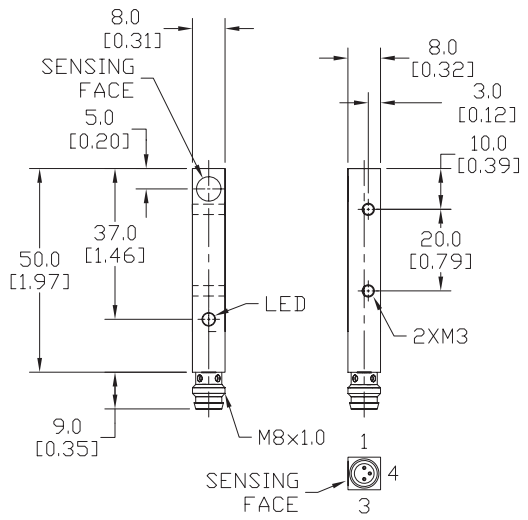


Figure 2



LF40 Series Inductive Proximity Sensors

40 x 40 x 66 mm Rectangular Plastic - DC

LF40-AP-2H

- Sensing face has five selectable positions.
- IP67 rated
- LED power (green) and status (yellow) indicators are visible at a wide angle.
- Rotatable and locking M12 connector
- Single and complementary outputs available
- Purchase cable separately.
- Lifetime warranty

LF40 Series DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
LF40-AP-1H	$09g#:	20mm [0.79 in]	Flush	N.O.	PNP	M12 [12mm] quick-disconnect	Diagram 1	Figure 1
LF40-0P-1H	$;09g[:	20mm [0.79 in]	Flush	N.O./N.C. Complementary	PNP	M12 [12mm] quick-disconnect	Diagram 2	Figure 1
LF40-AP-2H	$;09g!:	35mm [1.38 in]	Non-flush	N.O.	PNP	M12 [12mm] quick-disconnect	Diagram 1	Figure 1
LF40-0P-2H	$09g_:	35mm [1.38 in]	Non-flush	N.O./N.C. Complementary	PNP	M12 [12mm] quick-disconnect	Diagram 2	Figure 1

Note: Class 2 power supply required

Wiring Diagrams

Diagram 1

PNP output

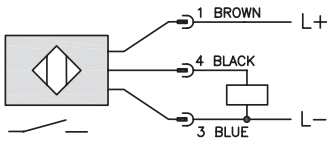
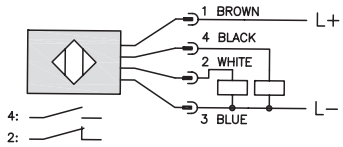


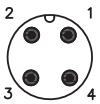
Diagram 2

PNP output



Connector

M12 Connector



LF40 Series Inductive Proximity Sensors

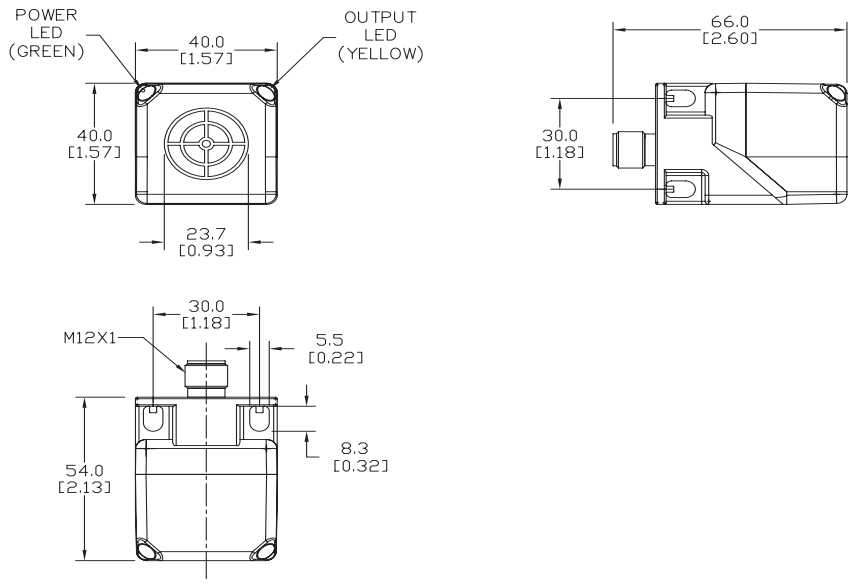
LF40 Series DC Inductive Proximity Specifications				
Model	***LF40-AP-1H***	***LF40-AP-2H***	***LF40-0P-1H***	***LF40-0P-2H***
Mounting Type	Flush	Non-flush	Flush	Non-flush
Nominal Distance	20 mm ± 10%	35 mm ± 10%	20 mm ± 10%	35 mm ± 10%
Operating Distance	0 to 16.2 mm [0 to 0.64 in]	0 to 28.3 mm [0 to 1.11 in]	0 to 16.2 mm [0 to 0.64 in]	0 to 28.3 mm [0 to 1.11 in]
Material Correction Factors	See the Material influence table			
Output Type	PNP, N.O. only		PNP, N.O. N.C. Complementary	
Operating Voltage	10 to 36 VDC			
No-load Supply Current	< 20 mA			
Operating (Load) Current	200 mA			
Off-state (Leakage) Current	< 0.1 mA			
Voltage Drop	< 2.5 V			
Switching Frequency	100Hz	80Hz	100Hz	80Hz
Differential Travel (% of Nominal Distance)	1 to 20 % of Sr			
Repeat Accuracy	NA			
Ripple	NA			
Time Delay Before Availability (tv)	NA			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes (non-latching)			
Operating Temperature	-25 to 70°C [-13 to 158°F]			
Protection Degree (DIN 40050)	IEC IP67			
Indication/Switch Status	Power: Green Switching status: Yellow			
Housing Material	PPE: diecast zinc nickel-plated			
Sensing Face Material	Polyamide (PA)			
Shock Resistance / Vibration	See Proximity Sensor Terminology			
Tightening Torque	NA			
Weight	146g [5.15 oz]	151g [5.33 oz]	147g [5.19 oz]	153g [5.4 oz]
Connection	M12 quick-disconnect			
Agency Approvals	cULus file E328811, CE, RoHS			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1



D80 Series Rectangular Inductive Proximity Sensors

D80-0P-4T

D80V-A0-3M

Large Rectangular 80 x 40 mm

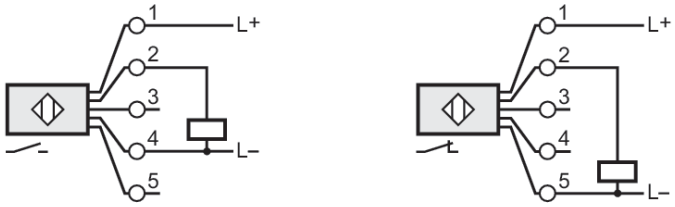
- Long sensing range
- Large active sensor face
- Non-flush or flush models
- Robust housing for harsh environments PPE (Polyphenylene Ether)
- IP65 or IP67 rated
- Lifetime warranty

D80 Series Rectangular Inductive Proximity Sensors Selection Chart									
Part Number	*Price*	*Sensing Range*	*Operating Voltage*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
80 x 40 x 105 mm									
D80-0P-4T	$;05xa[:	20-60mm [0.78-2.36 in]	10-36 VDC	Non-flush	N.O./N.C. (selectable)	PNP	Terminal Chamber	Diagram 1	PDF
D80-0P-4H*	$05xa_:						4-pin M12 quick-disconnect	Diagram 2	PDF
80 x 40 x 92 mm									
D80-AP-3H*	$05xa#:	50mm [1.96 in]	10-36 VDC	Flush	N.O.	PNP	4-pin M12 quick-disconnect	Diagram 2	PDF
D80V-A0-3M*	$;05xa!:		20-140 VAC/ 10-140 VDC			—	3-pin mini 7/8 in - 16UNF thread	Diagram 3	PDF
D80V-A0-3Q*	$05xa?:					—	3-pin 1/2 in - 20UNF thread	Diagram 3	PDF

***Purchase cable separately.**

Wiring Diagrams

Diagram 1



Terminals: 2.5 mm²; Cable sheath: Ø 7-13 mm; Cable gland: M20 X 1.5

Diagram 2

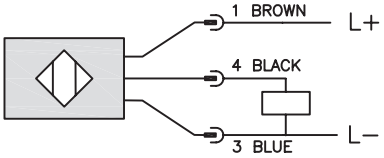
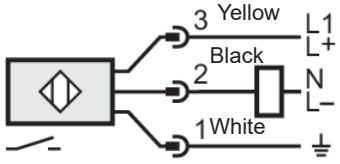
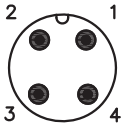


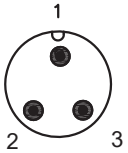
Diagram 3



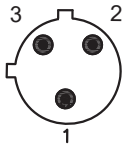
M12 connector



Connector: 1 x 7/8" coding: A



Connector: 1 x 1/2" coding: C



Mounting Bracket

D80 Series Rectangular Proximity Sensors Mounting Bracket				
Part Number	*Price*	*Description*	*Weight*	*Drawing Link*
D80-BRKT-3	$;5xa]:	ProSense mounting bracket, parallel, stainless steel. For use with D80-xx-3x flush mount prox sensors only.	317.1 g [11.18 oz]	PDF

D80 Series Rectangular Inductive Proximity Sensors

D80 Series Rectangular Inductive Proximity Sensors Specifications					
Sensor	***D80-0P-4T***	***D80-0P-4H***	***D80-AP-3H***	***D80V-A0-3M***	***D80V-A0-3Q***
Mounting Type	Non-flush		Flush		
Sensing Range	20-60mm [0.78-2.36 in] Adjustable via potentiometer		50mm [1.96 in]		
Real Sensing Range (Sr)	60mm ± 10%		50mm		
Material Correction Factors	See Material Influence Table				
Output Type	N.O./N.C.(selectable), PNP		N.O. PNP	N.O.	
Operating Voltage	10 – 36 VDC			20 –140 VAC / 10 –140 VDC	
No-load Supply Current	15mA (24V)	< 15	15mA (24V)	5.5 mA	
Operating (Load) Current	250mA			450mA	
Off-state (Leakage) Current	Neglectable (3-wire system)			1.7mA (140 VAC/VDC)	
Voltage Drop	2.5 V			6V	
Switching Frequency	100 Hz		70 Hz	25 Hz	
Hysteresis (% of Sr)	1 to 15		3 to 20		
Switch-point Drift (% of Sr)	-10 to 10%		-15 to 15%		
Protection Class	II			I	
Reverse Polarity Protection	Yes				
Short-Circuit Protection	Yes	Yes, non-latching			
Ambient Temperature	-25 to 80°C [-13 to 180°F]		-25 to 70°C [-13 to 158°F]		
Protection Degree (DIN 40050)	IP65	IP67			
Indication/Switch Status	Yellow LED: Switching Status		Yellow LED: Switching Status / Green LED: Power	Red LED: Switching Status / Green LED: Power / Green/Red LED: Alternating flashing short circuit	
Housing Material	PPE (Polyphenylene Ether)		PPE (Polyphenylene Ether), diecast zinc nickel-plated		
Shock	EN 60068-2-27 Ea 100g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes				
Vibration	EN 60068-2-6 Fc 20g (10 to 3000 Hz) / 50 sweep cycles per frequency; 1 octave per minute in 3 axes				
Tightening Torque	2.8 +/- 0.3 N•m				
Weight	434g [15.30 oz]	440.5 g [15.53 oz]	420.5 g [14.83 oz]	427g [15.06 oz]	432g [15.23 oz]
Connection	Terminal chamber 2.50 mm^2 (14 AWG)	4-pin M12 quick-disconnect	4-pin M12 quick-disconnect	3-pin 1/2in - 20UNF thread	3-pin mini 7/8in - 16UNF thread
Agency Approvals	CE, cULus E174191, UKCA				

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

DR10 Series Inductive Proximity Sensors

10 x 16 mm Plastic – DC

- Compact plastic housing
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- IP67 rated
- Purchase cable separately
- Lifetime warranty

DR10 Series Rectangular DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
DR10-AN-1A	$09gn:	3mm [0.118 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DR10-AP-1A	$09gs:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DR10-AN-1F	$09go:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
DR10-AP-1F	$;09gt:				PNP	M8 [8mm] connector	Diagram 2	Figure 2
DR10-AN-2A	$09gp:	6mm [0.236 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
DR10-AP-2A	$09gu:				PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
DR10-AN-2F	$09gq:				NPN	M8 [8mm] connector	Diagram 1	Figure 2
DR10-AP-2F	$09gv:				PNP	M8 [8mm] connector	Diagram 2	Figure 2

DR10 Series Rectangular DC Inductive Proximity Specifications

Mounting Type	Flush	Non-flush
Nominal Distance	3mm [0.118in]	6mm [0.236in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. only/3-wire	
Operating Voltage	10-30VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	≤ 300mA	
Off-state (Leakage) Current	≤ 10µA	
Voltage Drop	≤ 1.5 V	
Switching Frequency	3kHz	
Differential Travel	≤ 1-10%	
Repeat Accuracy	≤ 1%	
Ripple	m 10%	
Time Delay Before Availability (tv)	2ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes [switch auto-resets after overload is removed]	
Operating Temperature	-25 to +75° C [-13 to 167° F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	Yellow [output energized]	
Housing Material	Plastic	
Sensing Face Material	Plastic	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	NA	
Weight	113g [3.99oz]/6g [0.21oz]	
Connection	2m [6.5 ft] PVC axial cable or M8 [8mm] connector	
Agency Approvals	CE	

Dimensions

mm [inches]

Figure 1

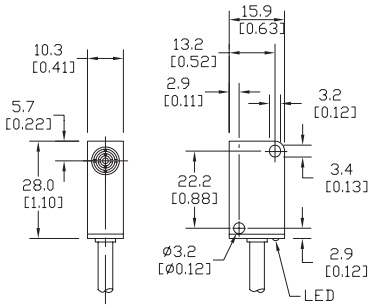
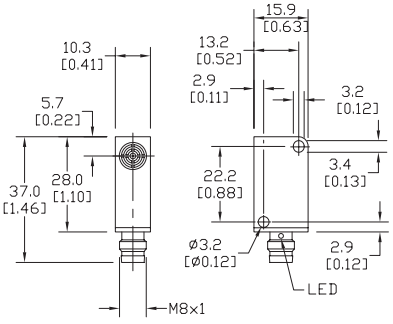


Figure 2



Wiring Diagrams

Diagram 1
NPN Output

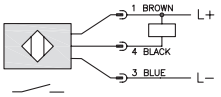
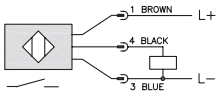
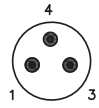


Diagram 2
PNP Output



Connector
M8 connector



CONTRINEX

DW Series Inductive Proximity Sensors

DW-AD-611-C12P

DW-AD-611-C12P-1523

12 x 27mm Small Rectangular Plastic - DC

- LED status indicator
- IP67 rated
- 10-30 VDC
- Top or front sensing models
- N.O or N.C.
- IO-Link v1.0 (PNP models only)
- Mounting hardware included
- Lifetime warranty

UK CA CE c UL us IO-Link LIMITED LIFETIME WARRANTY

DW Series Inductive Proximity Sensors									
Part Number	*Price*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Housing Size*	*Drawing Link*
Top Sensing									
DW-AD-611-C12P	$;5]7g:	4mm [0.15 in]	Non-flush	N.O.	NPN	3-wire, pigtail, 6.5ft/2m	Diagram 1	12 x 27 x 6.5 mm	PDF
DW-AD-612-C12P	$;5]7h:			N.C.	NPN		Diagram 1		PDF
DW-AD-613-C12P	$;-5]7i:			N.O.	PNP		Diagram 2		PDF
Front Sensing									
DW-AD-611-C12P-1523	$;-5]7j:	4mm [0.15 in]	Non-flush	N.O.	NPN	3-wire, pigtail, 6.5ft/2m	Diagram 1	12 x 27 x 12 mm	PDF
DW-AD-612-C12P-1523	$;5]7k:			N.C.	NPN		Diagram 1		PDF
DW-AD-613-C12P-1523	$;;5]7f:			N.O.	PNP		Diagram 2		PDF

Note: Mounting hardware included.

Wiring Diagrams

Diagram 1

NPN Cable

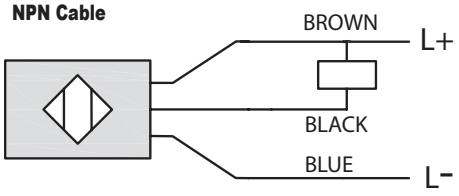
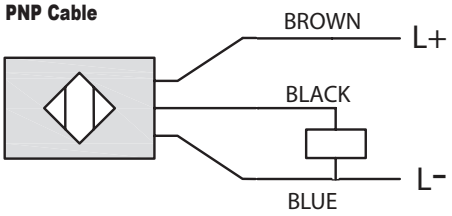


Diagram 2

PNP Cable



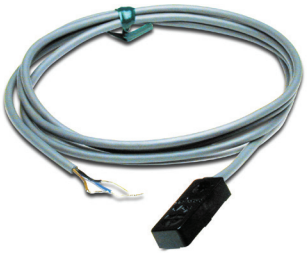
CONTRINEX

DW Series Inductive Proximity Sensors Specifications

DW Series Inductive Proximity Sensors Specifications	
Rated Operating Distance	4mm [0.15 in]
Assured Operating Distance	≤ (0.81 x S_n) mm
Material Correction Factors	See the Material influence table
Output Type	NPN or PNP, N.O. or N.C
Operating Voltage	10 to 30 VDC
No-load Supply Current	≤ 10mA
Operating (Load) Current	200mA
Off-state (Leakage) Current	≤ 0.1 mA
Voltage Drop	≤ 2.0 V
Switching Frequency	≤ 2,000Hz
Differential Travel (% of Nominal Distance)	≤ 10% s_r
Repeat Accuracy	0.2 mm
Ripple	≤ 20% U_B
Reverse Polarity Protection	Yes
Short-Circuit Protection	Yes
Operating Temperature	-25 to 70°C [-13 to 158°F]
Protection Degree (DIN 40050)	IP67
Indication/Switch Status	Yellow LED, sensing state (0 < s ≤ Sr)
Housing Material	Polycarbonate
Sensing Face Material	Polycarbonate
Shock/Vibration	IEC 60947-5-2
Tightening Torque	≤ 0.4 Nm (for M3 screw)
Weight	33g [0.63 oz]
Connection	PVC, 3-wire, pigtail, 6.5 ft [2m]
IO-Link	v1.0 (PNP models)
Agency Approvals*	CE, cULus E239373, UKCA

*** To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.**

APS Inductive Proximity Sensors



Top Sensing
APS4-12S-E-D

Front Sensing
APS4-12M-E-D

Compact 12 x 27 / 8 x 26.5 mm Plastic – DC

- Compact polycarbonate housing; comes with mounting plate
- High-frequency oscillation type
- Top or front sensing models
- DC 2-wire or 3-wire
- NPN, PNP, or NPN/PNP
- N.O. or N.C.
- Axial cable
- LED indicator
- IP67 rated
- Lifetime warranty

Top Sensing
APS25-8S-E-D

Front Sensing
APS25-8M-E-D

Compact Rectangular DC Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Top-Sensing								
APS25-8S-E-D	$-0?ci:	2.5mm [0.098 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
APS4-12S-E-D	$;09g]:	4mm [0.157 in]		N.O.				Figure 3
APS4-12S-E1-D	$-0?cl:			N.C.				
APS4-12S-E2-D	$09gz:			N.O.	PNP		Diagram 2	
APS4-12S-Z-D	$0?cn:			N.O.	NPN/ PNP		Diagram 3	
Front-Sensing								
APS25-8M-E-D	$0?ch:	2.5mm [0.098 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 2
APS4-12M-E-D	$09gy:	4mm [0.157 in]		N.O.				Figure 4
APS4-12M-E1-D	$-0?cj:			N.C.				
APS4-12M-E2-D	$09gx:			N.O.	PNP		Diagram 2	
APS4-12M-Z-D	$0?ck:			N.O.	NPN/ PNP		Diagram 3	

Wiring Diagrams

Diagram 1
NPN Output

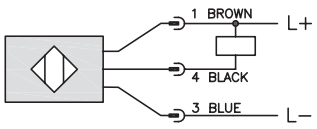


Diagram 2
PNP Output

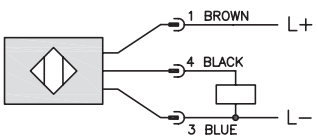
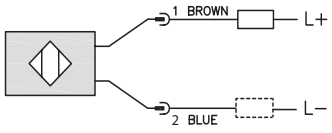


Diagram 3
NPN/PNP Output



APS Inductive Proximity Sensors

Compact Rectangular DC Proximity Specifications		
	APS25	***APS4***
Mounting Type	Non-flush	
Nominal Distance	2.5 mm [0.09 in]	4mm [0.157 in]
Operating Distance	NA	
Material Correction Factor	See the Material influence table	
Output Type	See sensor selection chart	
Operating Voltage	10-30 VDC	
No-load Supply Current	≤ 20mA	≤ 20mA (NA for Z)
Operating (Load) Current	≤ 50mA	
Off-state (Leakage) Current	≤ 0.1 mA (≤ 1.0 mA for Z units)	
Voltage Drop	≤ 1.0 VDC (< 3V for Z models)	
Switching Frequency	500Hz	200Hz
Differential Travel	< 20%	
Repeat Accuracy	NA	
Ripple	NA	
Time Delay Before Availability (tv)	5ms	
Reverse Polarity Protection	NA	
Short Circuit Protection	NA	
Operating Temperature	-10 to +50°C [14 to 122°F]	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	Embedded red LED (illuminated when output is active)	
Housing, Sensing Face Material	Polycarbonate	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	< 0.4 Nm	
Weight (cable/M8 connector)	0.0816 lb	
Connection	2m [6.5 ft] axial cable	
Agency Approvals	CE, cURus [UR E198343]	

Dimensions

mm [inches]

Figure 1

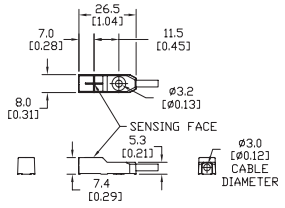


Figure 2

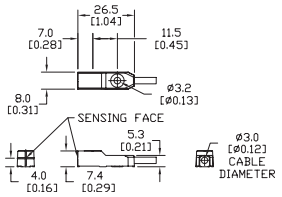


Figure 3

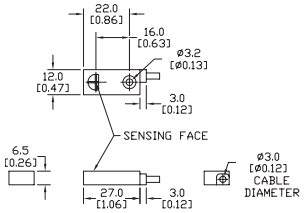
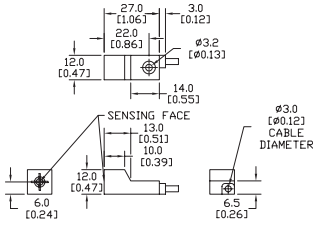
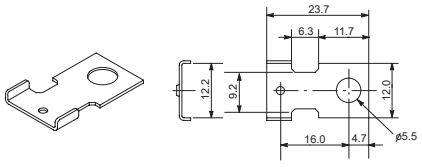


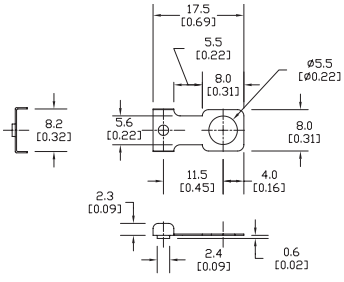
Figure 4



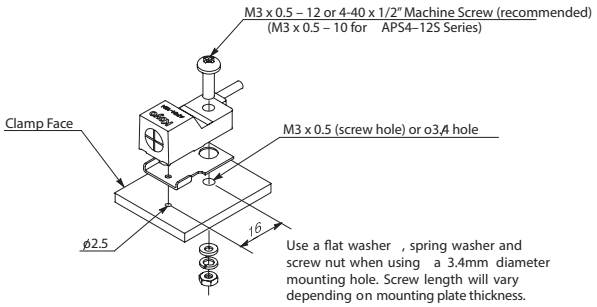
Mounting Plate



Supplied with APS4x sensors



Supplied with APS25x sensors



Use a flat washer , spring washer and screw nut when using a 3.4mm diameter mounting hole. Screw length will vary depending on mounting plate thickness.

ProSense® P8 Series Inductive Rectangular Proximity Sensors

8 x 16 mm Rectangular – DC

- Compact 8 x 16 x 4 mm plastic housing
- Axial cable or M8 quick-disconnect models; purchase cable separately
- Complete overload protection
- IP67 rated
- Lifetime warranty

P8 Series Rectangular DC Inductive Proximity Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
P8-AP-1F	$4nbo:	1.5 mm [0.06 in]	Flush	N.O.	PNP	M8x1, 3-pin	Diagram 1	PDF
P8-CP-1F	Retired	1.5 mm [0.06 in]	Flush	N.C.	PNP	M8x1, 3-pin	Diagram 1	PDF
P8-AN-1F	$4nbq:	1.5 mm [0.06 in]	Flush	N.O.	NPN	M8x1, 3-pin	Diagram 2	PDF
P8-CN-1A	$4nbs:	1.5 mm [0.06 in]	Flush	N.C.	NPN	3-wire cable, 2m [6.5ft]	Diagram 2	PDF
P8-AP-2F	$;4nbt:	2.5 mm [0.10 in]	Non-flush	N.O.	PNP	M8x1, 3-pin	Diagram 1	PDF
P8-CP-2F	$-4nbl:	2.5 mm [0.10 in]	Non-flush	N.C.	PNP	M8x1, 3-pin	Diagram 1	PDF
P8-AN-2A	$4nbn:	2.5 mm [0.10 in]	Non-flush	N.O.	NPN	3-wire cable, 2m [6.5 ft]	Diagram 2	PDF

Wiring Diagrams

Diagram 1
PNP Output

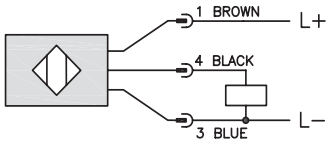
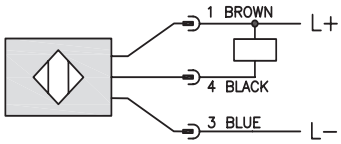
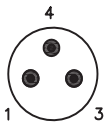


Diagram 2
NPN Output



M8 connector



Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

P8 Series Inductive Rectangular Specifications

P8 Series Rectangular DC Inductive Proximity Specifications						
Part Number	*Operating Voltage*	*Operating (Load) Current*	*Off-state (Leakage) Current*	*Voltage Drop*	*Switching Frequency*	*Repeat Accuracy*
P8-AP-1F	10-30 VDC	100mA	50µA	2.5 V	2500Hz	1.0 %
P8-CP-1F	10-30 VDC	100mA	50µA	2.5 V	2500Hz	1.0 %
P8-AN-1F	5-30 VDC	50mA	50µA	1.1 V	2500Hz	5.0 %
P8-CN-1A	10-30 VDC	100mA	50µA	1.8 V	2500Hz	1.0 %
P8-AP-2F	10-30 VDC	100mA	1µA	2.5 V	3000Hz	3.0 %
P8-CP-2F	10-30 VDC	100mA	1µA	2.5 V	3000Hz	3.0 %
P8-AN-2A	10-30 VDC	100mA	50µA	2.5 V	2500Hz	5.0 %

P8 Series Rectangular DC Inductive Proximity Specifications		
Mounting Type	*Flush*	*Non-flush*
Nominal Distance	See Selection Table	
Assured Operating Distance	1.2 mm [0.05 in]	2.2 mm [0.09 in]
Material Correction Factors	See Material Influence Table	
Output Type	See Sensor Selection Chart	
No-load Supply Current	3mA	
Ripple	15%	
Time Delay Before Availability (tv)	20ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Operating Temperature	-25 to +70°C [-13 to +158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Embedded function LED for switch status	
Housing Material	PA 6, GF30 (Nylon 6 Polymer)	
Sensing Face Material	PA 6, GF30 (Nylon 6 Polymer)	
Shock / Vibration	Shock: EN 60068-2-27 Vibration: EN 60068-2-6	
Tightening Torque	0.06 N•m [0.04 lb•ft]	
Weight (cable/M8 connector)	M8 Models 9.07 g [0.31 oz] Cabled Models 22.68 g [0.8 oz]	
Connections	M8x1, 3-pin 0.30 m [0.98 ft] or cable 2m [6.5 ft] PUR, 28AWG [0.09 mm2]	
Agency Approvals	CE, cULus, IEC 60947-5-2	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

BALLUFF

Capacitive Proximity Sensors

Capacitive Proximity Sensors

BCS00NA

- Operating distance 4mm [0.16 in] to 30mm [1.18 in]
- Stainless steel or polybutylene terephthalate housing
- LCP (liquid crystal polymer) active face
- Cable or M12 connector
- PNP or NPN, N.O. or N.C.
- IP66 or IP67 protection

Capacitive Proximity Sensor Selection Chart (Tubular)

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Housing Material	Data Sheet Link	Drawing Link
M12									
BCS00P0	$;05?9f:	4mm [0.16 in]	Flush	N.O.	PNP	4-pin M12 quick-disconnect	Stainless Steel	PDF	PDF
BCS00P1	$05?9e:			N.C.				PDF	PDF
BCS00P4	$05?9d:	8mm [0.31 in]	Non-flush	N.O.				PDF	PDF
BCS00PJ	$05?98:	4mm [0.16 in]	Flush				Polybutylene Terephthalate	PDF	PDF
BCS00PU	$05?99:					Cable, 3-pole, 6.5ft/2m		PDF	PDF
BCS00R0	$05?9h:	8mm [0.31 in]	Non-flush					PDF	PDF
BCS00R1	$05?9g:			N.C.				PDF	PDF
BCS0179	$-05?9i:			N.O.	NPN/PNP	4-pin M12 quick-disconnect	Stainless Steel	PDF	PDF
BCS017A	$05?9b:			N.C.				PDF	PDF
BCS017K	$05?9c:	5mm [0.20 in]	Flush	N.O.				PDF	PDF
BCS017L	$05?9a:			N.C.				PDF	PDF
M18									
BCS006A	$05?9p:	15mm [0.59 in]	Non-flush	N.O.	PNP	4-pin M12 quick-disconnect	Stainless Steel	PDF	PDF
BCS00LM	$05?9k:						Polybutylene Terephthalate	PDF	PDF
BCS00M8	$05?9n:	8mm [0.31 in]	Flush					PDF	PDF
BCS00MF	$-05?9j:						Stainless Steel	PDF	PDF
BCS00MJ	$-05?9l:				NPN		Polybutylene Terephthalate	PDF	PDF
BCS00NZ	$05?9o:				PNP	Cable, 3-pole, 6.5ft/2m		PDF	PDF
M30									
BCS004K	$05?9x:	20mm [0.79 in]	Flush	N.O./N.C.	PNP	Cable, 3-pole, 6.5ft/2m	Polybutylene Terephthalate	PDF	PDF
BCS004M	$05?9v:					4-pin M12 quick-disconnect		PDF	PDF
BCS004T	$05?9q:						Stainless Steel	PDF	PDF
BCS007F	$05?9u:	30mm [1.18 in]	Non-flush				Polybutylene Terephthalate	PDF	PDF
BCS007L	$05?9y:						Stainless Steel	PDF	PDF
BCS00NA	$;05?9t:	15mm [0.59 in]	Flush	N.O.			Polybutylene Terephthalate	PDF	PDF
BCS00NH	$05?9s:	25mm [0.98 in]	Non-flush					PDF	PDF

Capacitive Proximity Sensors

- Operating distance 25mm [0.98 in]
- Polyoxymethylene (POM) thermoplastic housing
- LCP (liquid crystal polymer) active face
- Cable or M8 connector
- PNP or NPN, N.O. or N.C.
- IP65 or IP67 protection

BCS003K

Capacitive Proximity Sensor Selection Chart (Round)									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Housing Material*	*Data Sheet Link*	*Drawing Link*
BCS003K	$05?9#:	25mm [0.98 in]	Flush	N.O./N.C.	NPN/PNP	Cable, 3-pole, 6.5ft/2m	Polyoxymethylene (POM)	PDF	PDF
BCS003L	$;05?9!:					3-pin M8 quick-disconnect		PDF	PDF

Capacitive Proximity Sensors

- Operating distance 8mm [0.31 in] to 20mm [0.79 in]
- Polypropylene or polybutylene terephthalate housing
- LCP (liquid crystal polymer) active face
- Cable or M8 connector
- PNP or NPN, N.O. or N.C.
- IP67 protection

BCS00TR

BCS012A

Capacitive Proximity Sensor Selection Chart (Flat)									
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Housing Material*	*Data Sheet Link*	*Drawing Link*
Square									
BCS00TR	$5?9z:	20mm [0.79 in]	Flush	N.O./N.C.	NPN/PNP	Cable, 3-pole, 6.5ft/2m	Polybutylene Terephthalate	PDF	PDF
BCS00U6	$;5?9]:			N.O.	PNP	3-pin M8 quick-disconnect		PDF	PDF
Rectangular									
BCS012A	$05?9_:	8mm [0.31 in]	Flush	N.O.	PNP	Cable, 3-pole, 0.9ft/0.3m	Polypropylene (PP)	PDF	PDF
BCS012T	$;05?t4:					4-pin M8 quick-disconnect		PDF	PDF

CE1 Series Capacitive Proximity Sensors

M8 (8mm) Stainless Steel – DC

- Sensitivity adjustment via potentiometer (adjustment tool included with each sensor)
- IP65 rated
- LED status indicators
- M8 quick-disconnect (purchase cable separately), or cabled models

CE1 Series Capacitive Proximity Sensors Selection Chart								
Part Number	*Price*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Drawing Link*
CE1-AP-1A	$;-04l,d:	1.5 mm [0.06 in]	Flush	N.O.	PNP	3-wire cable, 2m [6.5 ft]	Diagram 1	PDF
CE1-CP-1A	$;-04l,e:	1.5 mm [0.06 in]	Flush	N.C.	PNP	3-wire cable, 2m [6.5 ft]	Diagram 1	PDF
CE1-AN-1A	$;;-04l,f:	1.5 mm [0.06 in]	Flush	N.O.	NPN	3-wire cable, 2m [6.5 ft]	Diagram 2	PDF
CE1-AP-1F	$;-04l,g:	1.5 mm [0.06 in]	Flush	N.O.	PNP	M8x1, 3-pin	Diagram 1	PDF
CE1-CP-1F	$;-04l,h:	1.5 mm [0.06 in]	Flush	N.C.	PNP	M8x1, 3-pin	Diagram 1	PDF
CE1-AP-2A	$;--04l,i:	3mm [0.12 in]	Non-flush	N.O.	PNP	3-wire cable, 2m [6.5 ft]	Diagram 1	PDF
CE1-CP-2A	$;--04l,j:	3mm [0.12 in]	Non-flush	N.C.	PNP	3-wire cable, 2m [6.5 ft]	Diagram 1	PDF
CE1-AN-2A	$;-04l,k:	3mm [0.12 in]	Non-flush	N.O.	NPN	3-wire cable, 2m [6.5 ft]	Diagram 2	PDF
CE1-AP-2F	$;--04l,l:	3mm [0.12 in]	Non-flush	N.O.	PNP	M8x1, 3-pin	Diagram 1	PDF
CE1-CP-2F	$;-04l,n:	3mm [0.12 in]	Non-flush	N.C.	PNP	M8x1, 3-pin	Diagram 1	PDF

Wiring Diagrams

Diagram 1
PNP Output

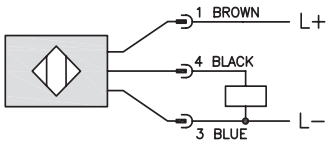
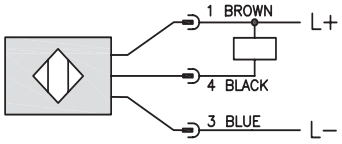
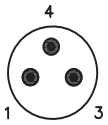


Diagram 2
NPN Output



M8 connector



Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

CE1 Series Capacitive Specifications

CE1 Series Capacitive Proximity Sensors Specifications	
Nominal Sensing Distance	See Selection Table
Operating Distance	See Installation Guide
Material Correction Factors	N/A
Output Type	See Selection Table
Operating Voltage	11-30 VDC
No-load Supply Current	10mA
Operating (Load) Current	50mA
Voltage Drop	2V static max
Switching Frequency	100Hz
Hysteresis (% of Sr)	15%
Repeat Accuracy	2%
Ripple	10% max
Time Delay Before Availability (tv)	100ms
Reverse Polarity Protection	Yes
Short-circuit Protection	Yes
Operating Temperature	-10 to +70°C [+14 to +158°F]
Protection Degree (DIN 40050)	IP65
Indication/Switch Status	LED function indicator
Housing Material	Stainless steel
Sensing Face Material	PTFE (Polytetrafluoroethylene)
Shock/Vibration	IEC 60947-5-2
Tightening Torque	6 N•m [4.42 lb•ft]
Weight	Cabled Models: 58.98 g [2.08 oz] M8 Models: 31.75 g [1.11 oz]
Connections	M8x1, 3-pin, 0.30 m [0.98 ft] or cable, 2m [6.5 ft], PUR, 26 AWG (0.14 mm^2)
Agency Approvals	CE, cULus

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

CM Series Capacitive Proximity Sensors

M12 (12mm) metal – DC

- Sensitivity adjustment via potentiometer
- IP65 rated
- LED status indicators
- M12 quick-disconnect; purchase cable separately

CM Series Capacitive Proximity Selection Chart								
Part Number	*Price*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
CM1-AP-1H	$0097a:	6mm [0.24 in]	Flush	N.O.	PNP	M12 (12mm) quick-disconnect	Diagram 1	Figure 1
CM1-AP-2H	$0097b:	12mm [0.47 in]	Non-flush	N.O.	PNP	M12 (12mm) quick-disconnect	Diagram 1	Figure 1

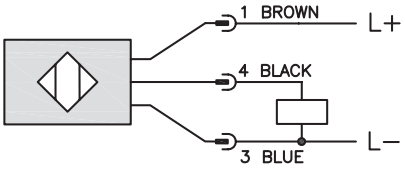
CM Series Capacitive Proximity Specifications		
Part Number	***CM1-AP-1H***	***CM1-AP-2H***
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	6mm [0.24 in]	12mm [0.47 in]
Operating Distance	NA	
Material Correction Factors		
Output Type	PNP; N.O. only	
Operating Voltage	10 to 36VDC	
No-load Supply Current	< 12mA	
Operating (Load) Current	100mA	
Off-state (Leakage) Current	NA	
Voltage Drop	< 2.5V	
Switching Frequency	50Hz	
Differential Travel (% of Nominal Distance)	NA	
Repeat Accuracy		
Ripple		
Time Delay Before Availability (tv)		
Reverse Polarity Protection	Yes	
Short-circuit Protection	Yes, pulsed	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP65	
Indication/Switch Status	Yellow (output energized)	
Housing Material	Stainless steel	
Sensing Face Material	Polyether Ether Ketone (PEEK)	
Shock/Vibration	DIN EN 60947-5-2	
Tightening Torque	5.0 N•m [3.69 lb•ft]	
Weight	54g [1.90 oz]	
Connectors	M12 connector. 2 lock nuts included	
Agency Approvals	cULus file E328811, CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

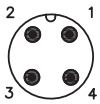
CM Series Capacitive Proximity Sensors

Wiring Diagrams

Diagram 1
PNP Output



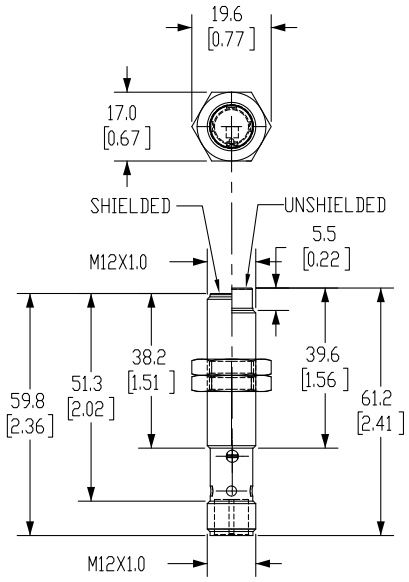
Connectors
M12 connector



Dimensions

mm [inches]

Figure 1



See our website: www.AutomationDirect.com for complete engineering drawings

CK Series Capacitive Proximity Sensors

M18 (18mm) plastic – DC

Pushbutton models

- N.O./N.C. selectable
- Pushbutton teach
- LED status indicators
- IP65/IP67 rated
- M12 quick-disconnect; purchase cable separately
- Mounting accessories available

Potentiometer models

- N.O. or N.C. units available
- Potentiometer sensitivity adjustment
- LED status indicators
- IP65/IP67/IP69K rated
- M12 quick-disconnect; purchase cable separately
- Mounting accessories available

CK Series Capacitive Proximity Selection Chart

Part Number	Price	Sensing Distance	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Pushbutton select and teach								
CK1-00-2H	$0097c:	12mm [0.47 in]	Non-flush	N.O./N.C.	NPN/PNP	M12 [12mm] quick-disconnect	Diagram 1	Figure 1
Potentiometer sensitivity adjustment								
CK2-AP-1H	$;;44]]:	8mm [0.32 in]	Flush	N.O.	PNP	M12 [12mm] quick-disconnect	Diagram 1 (PNP)	Figure 2
CK2-CP-1H	$;44]z:	8mm [0.32 in]	Flush	N.C.	PNP	M12 [12mm] quick-disconnect	Diagram 1 (PNP)	Figure 2
CK2-AP-2H	$;44]y:	15mm [0.59 in]	Non-flush	N.O.	PNP	M12 [12mm] quick-disconnect	Diagram 1 (PNP)	Figure 2
CK2-CP-2H	$;44]x:	15mm [0.59 in]	Non-flush	N.C.	PNP	M12 [12mm] quick-disconnect	Diagram 1 (PNP)	Figure 2

CK Series Capacitive Proximity Specifications

Part Number	CK1-00-2H	CK2-XX-XX	CK2-XX-XX
Mounting Type	Non-flush	Non-flush	Flush
Nominal Sensing Distance	12mm [0.47 in]	15mm [0.59 in]	8mm [0.32 in]
Operating Distance	NA	NA	
Material Correction Factors			
Output Type	NPN/PNP; N.O./N.C.	PNP; N.O./N.C.	
Operating Voltage	10 to 36VDC	10 to 30VDC	
No-load Supply Current	< 20mA	< 22mA	
Operating (Load) Current	200mA		
Off-state (Leakage) Current	NA		
Voltage Drop	< 2.5V		
Switching Frequency	10Hz	30Hz	
Differential Travel (% of Nominal Distance)	NA		
Repeat Accuracy			
Ripple			
Time Delay Before Availability (tv)			
Reverse Polarity Protection	Yes		
Short-circuit Protection	Yes, pulsed		
Operating Temperature	-25 to 80°C [-13 to 176°F] Sensing face: -25° to 110°C [-13° to 230°F]		
Protection Degree (DIN 40050)	IEC IP65/IP67	IEC IP65/IP67IP69K	
Indication/Switch Status	Yellow [output energized]		
Housing Material	Polybutylene Terephthalate [PBT]		
Sensing Face Material			
Shock/Vibration	DIN EN 60947-5-2		
Tightening Torque	2.0 N•m [1.48 lb•ft]		
Weight	59g [2.08 oz]	26.1 g [0.92 oz]	
Connectors	M12 connector. 2 lock nuts included		
Agency Approvals	cULus file E328811, CE		

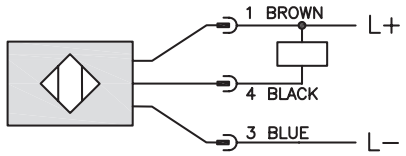
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CK Series Capacitive Proximity Sensors

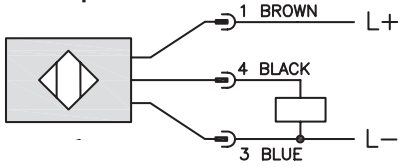
Wiring Diagrams

Diagram 1

NPN Output



PNP Output



Connectors

M12 connector

Dimensions

mm [inches]

Figure 1

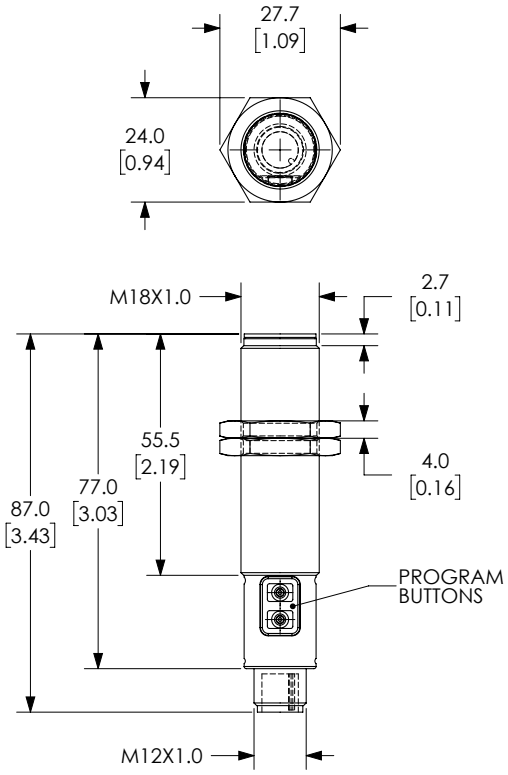
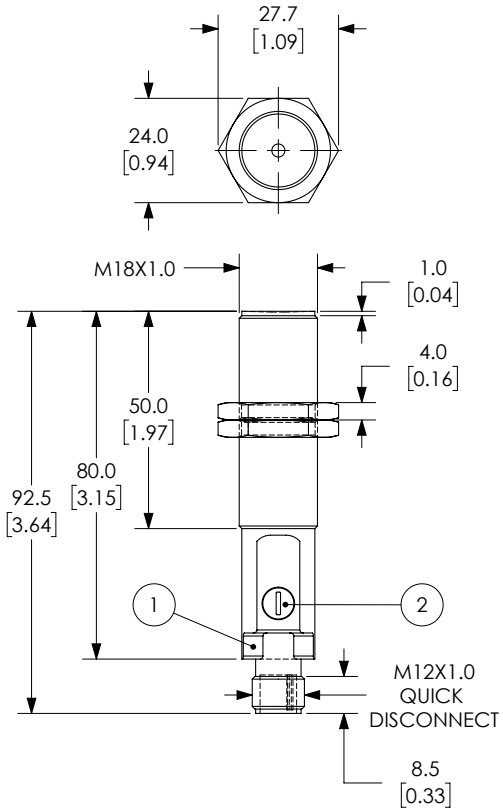


Figure 2



1 = LED YELLOW SWITCHING STATUS
2 = POTENTIOMETER SENSING RANGE

See our website: www.AutomationDirect.com for complete engineering drawings

CT Series Capacitive Proximity Sensors

M30 (30mm) Plastic – AC/DC

- Plastic Housing
- Push button teach
- N.O./N.C. selectable
- IP65/IP67 rated
- LED status indicators
- 1/2 inch Micro AC quick-disconnect; purchase cable separately
- Mounting accessories available

CT Series Capacitive Prox Selection Chart								
Part Number	*Price*	*Sensing Distance*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
CTV-00-2M	$0097k:	40mm [1.58 in]	Non-flush	N.O./N.C.	-	1/2 inch micro AC quick-disconnect	Diagram 1	Figure 1

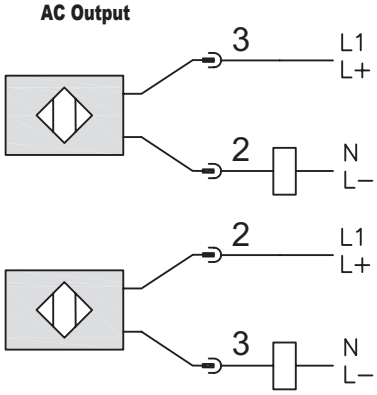
CT Series Specifications	
Part Number	***CTV-00-2M***
Mounting Type	Non-flush
Nominal Sensing Distance	40mm [1.58 in]
Sensitivity	Push to teach
Operating Distance	NA
Material Correction Factors	
Output Type	AC/DC; N.O./N.C.
Operating Voltage	20 to 250VDC; 30 to 250VAC
No-load Supply Current	NA
Operating (Load) Current	150mA [40°C]/100mA [80°C] continuous; 1.0 A [20ms/ 0.5 Hz] peak
Off-state (Leakage) Current	< 2.5mA (250VAC) < 1.7mA (110VAC) < 1.5mA (24VDC)
Voltage Drop	< 8VDC/ <10VAC
Switching Frequency	10Hz
Differential Travel (% of Nominal Distance)	NA
Repeat Accuracy	
Ripple	
Time Delay Before Availability (tv)	
Reverse Polarity Protection	Yes
Short-circuit Protection	No
Operating Temperature	-25 to 80°C [-13 to 176°F]; Sensing face: -25 to 110°C [-13 to 230°F]
Protection Degree (DIN 40050)	IEC IP65/IP67
Indication/Switch Status	Yellow [output energized]
Housing Material	Polybutylene Terephthalate [PBT]
Sensing Face Material	Polybutylene Terephthalate [PBT]
Shock/Vibration	DIN EN 60947-5-2
Tightening Torque	8.0 N•m [5.9 lb•ft]
Weight	122g [4.30 oz]
Connectors	0.5 in [12.7 mm] micro AC connector, 2 lock nuts included
Agency Approvals	cULus file E328811, CE, RoHS

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CT Series Capacitive Proximity Sensors

Wiring Diagram

Diagram 1
AC Output

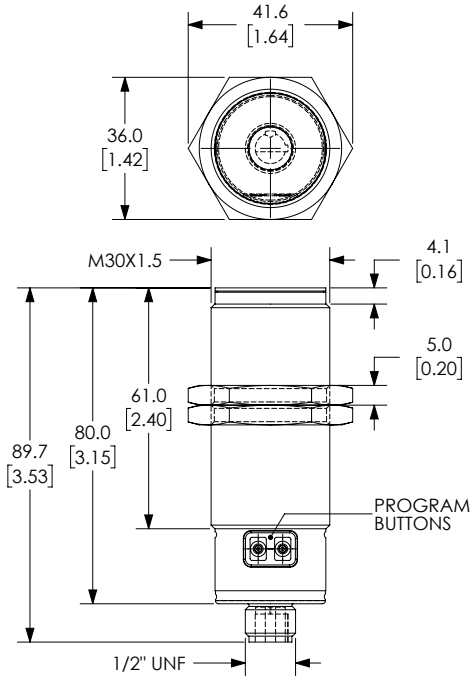


Connector
1/2" micro AC

Dimensions

mm [inches]

Figure 1



See our website: www.AutomationDirect.com for complete engineering drawings

CT Series Capacitive Proximity Sensors

M30 (30mm) Metal

- Potentiometer sensitivity adjustment
- N.O. or N.C. units
- IP65 rated
- LED status indicators
- 2m (6.5 ft) axial cable
- Mounting accessories available

CT Series Capacitive Proximity Selection Chart

Part Number	Price	Sensing Distance	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Metal Housing								
CT1-AN-1A	$097e:	15mm [0.59 in]	Flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CT1-AP-1A	$097g:	15mm [0.59 in]	Flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CT1-AN-2A	$;097f:	20mm [0.79 in]	Non-flush	N.O.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CT1-AP-2A	$097h:	20mm [0.79 in]	Non-flush	N.O.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1
CT1-CN-2A	$-097i:	20mm [0.79 in]	Non-flush	N.C.	NPN	2m [6.5 ft] axial cable	Diagram 1	Figure 1
CT1-CP-2A	$-097j:	20mm [0.79 in]	Non-flush	N.C.	PNP	2m [6.5 ft] axial cable	Diagram 2	Figure 1

CT Series Capacitive Proximity Specifications

Part Number	CT1-xx-1X	CT1-xx-2X
Mounting Type	Flush	Non-flush
Nominal Sensing Distance	15mm [0.59 in]	20mm [0.79 in]
Sensitivity	20-turn potentiometer	
Operating Distance	NA	
Material Correction Factors		
Output Type	NPN/PNP; N.O./N.C.	
Operating Voltage	10 to 30VDC	
No-load Supply Current	8mA	
Operating (Load) Current	m200mA	
Off-state (Leakage) Current	m10µA	
Voltage Drop	1.8 volts maximum	
Switching Frequency	100Hz	
Differential Travel (% of Nominal Distance)	2 to 20%	
Repeat Accuracy	10%	
Ripple	m10%	
Time Delay Before Availability (tv)	100ms	
Reverse Polarity Protection	Yes	
Short-circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IEC IP65	
Indication/Switch Status	Green (supply, Red [NO output energized])	
Housing Material	Nickel-plated brass	
Sensing Face Material	Polybutylene Terephthalate [PBT]	
Shock/Vibration	DIN EN 60947-5-2	
Tightening Torque	50N•m [36.9 lb•ft]	
Weight	280g [19.88oz]	
Connectors	2m [6.5 ft] axial cable, 2 lock nuts included	
Agency Approvals	CE	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CT Series Capacitive Proximity Sensors

Wiring Diagrams

Diagram 1
NPN Cable

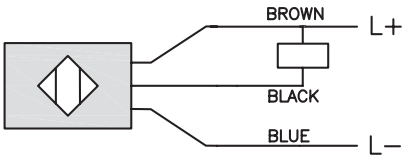
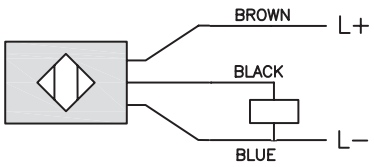


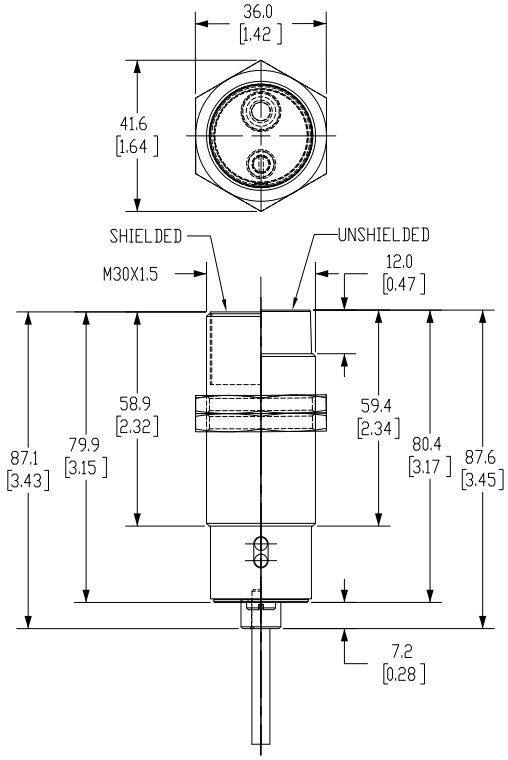
Diagram 2
PNP Cable



Dimensions

mm [inches]

Figure 1



See our website: www.AutomationDirect.com for complete engineering drawings

CT Series Capacitive Proximity Sensors

CT1-00-2H

CT2-AP-1A

CT2-CP-2H

M30 (30mm) Plastic – DC

Pushbutton Models

- N.O./N.C. selectable
- Pushbutton teach
- LED status indicators
- IP65/IP67 rated
- M12 quick-disconnect; purchase cable separately
- Mounting accessories available

Potentiometer Models

- N.O. or N.C. units available
- Potentiometer sensitivity adjustment
- LED status indicators
- IP65/IP67/IP69K rated
- 2m (6.5 ft) cable or M12 quick-disconnect; purchase cable separately
- Mounting accessories available

CT Series Capacitive Proximity Selection Chart

Part Number	Price	Sensing Distance	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Pushbutton select and teach								
CT1-00-2H	$097d:	40 mm [1.58 in]	Non-flush	N.O./N.C.	NPN/PNP	M12 [12mm] quick-disconnect	Diagram 2	Figure 1
Potentiometer sensitivity adjustment								
CT2-AP-1A	$;-44]i:	15mm [0.59 in]	Flush	N.O.	PNP	2m [6.5 ft] cable	Diagram 1	Figure 2
CT2-AP-1H	$;44]v:	15mm [0.59 in]	Flush	N.O.	PNP	M12 micro DC connector	Diagram 2	Figure 3
CT2-CP-1A	$;;44]t:	15mm [0.59 in]	Flush	N.C.	PNP	2m [6.5 ft] cable	Diagram 1	Figure 2
CT2-CP-1H	$;44]u:	15mm [0.59 in]	Flush	N.C.	PNP	M12 micro DC connector	Diagram 2	Figure 3
CT2-AN-2A	$;44]o:	25mm [0.98 in]	Non-flush	N.O.	NPN	2m [6.5 ft] cable	Diagram 1	Figure 2
CT2-AN-2H	$;-44]j:	25mm [0.98 in]	Non-flush	N.O.	NPN	M12 micro DC connector	Diagram 2	Figure 3
CT2-AP-2A	$;44]s:	25mm [0.98 in]	Non-flush	N.O.	PNP	2m [6.5 ft] cable	Diagram 1	Figure 2
CT2-AP-2H	$;44]n:	25mm [0.98 in]	Non-flush	N.O.	PNP	M12 micro DC connector	Diagram 2	Figure 3
CT2-CN-2A	$;44]q:	25mm [0.98 in]	Non-flush	N.C.	NPN	2m [6.5 ft] cable	Diagram 1	Figure 2
CT2-CN-2H	$;-44]l:	25mm [0.98 in]	Non-flush	N.C.	NPN	M12 micro DC connector	Diagram 2	Figure 3
CT2-CP-2A	$;44]p:	25mm [0.98 in]	Non-flush	N.C.	PNP	2m [6.5 ft] cable	Diagram 1	Figure 2
CT2-CP-2H	$;44]k:	25mm [0.98 in]	Non-flush	N.C.	PNP	M12 micro DC connector	Diagram 2	Figure 3

CT Series Capacitive Proximity Sensors

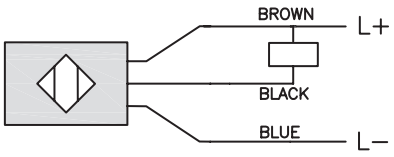
CT Series Capacitive Proximity Specifications			
Model	***CT1-00-2H***	***CT2-xx-xx***	***CT2-xx-xx***
Mounting Type	Non-flush	Flush	Non-flush
Nominal Sensing Distance	40mm [1.58 in]	15mm [0.59 in]	25mm [0.98 in]
Sensitivity	Push to teach	Potentiometer	
Operating Distance	NA		
Material Correction Factors			
Output Type	NPN/PNP; N.O./N.C.		
Operating Voltage	10 to 36VDC	10 to 30VDC	
No-load Supply Current	< 20mA	< 22mA	
Operating (Load) Current	200mA		
Off-state (Leakage) Current	NA		
Voltage Drop	< 2.5 VDC		
Switching Frequency	10Hz	40Hz	
Differential Travel (% of Nominal Distance)	NA		
Repeat Accuracy			
Ripple			
Time Delay Before Availability (tv)			
Reverse Polarity Protection	Yes		
Short-circuit Protection	Yes, pulsed		
Operating Temperature	-25 to 80°C [-13 to 176°F] Sensing face: -25 to 110°C [-13 to 230°F]		
Protection Degree (DIN 40050)	IEC IP65/IP67	IEC IP65/IP67/IP69K	
Indication/Switch Status	Yellow [output energized]		
Housing Material	Polybutylene terephthalate [PBT]		
Sensing Face Material	Polybutylene terephthalate [PBT]		
Shock/Vibration	DIN EN 60947-5-2		
Tightening Torque	8.0 N•m [5.9 lb•ft]		
Weight	117g [4.13 oz]	96.7 g [3.41 oz]	
Connectors	M12 connector, 2 lock nuts included		
Agency Approvals	cULus file E328811, CE		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CT Series Capacitive Proximity Sensors

Wiring Diagrams

Diagram 1
NPN Cable



PNP Cable

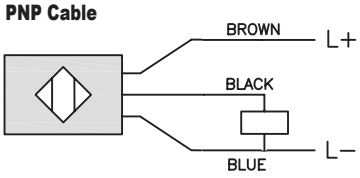
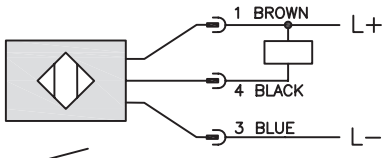
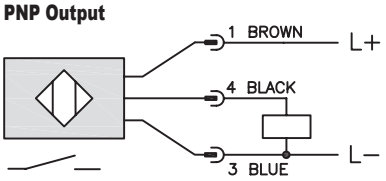


Diagram 2
NPN Output



PNP Output

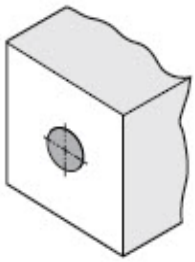


Connector
M12 connector

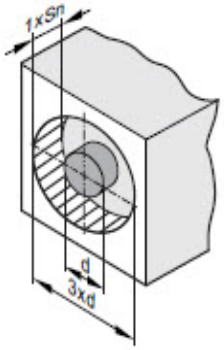
Mounting

NOTE: If the required clear space is not observed for non-flush units, the sensor is predamped. This may lead to permanent switching. Non-flush sensors may be installed flush in non-conductive materials and have to be installed in non-flush in conductive materials.

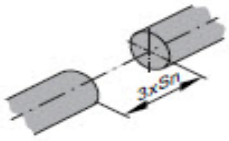
Flush

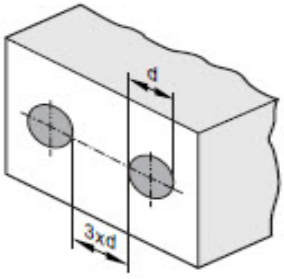


Non-flush

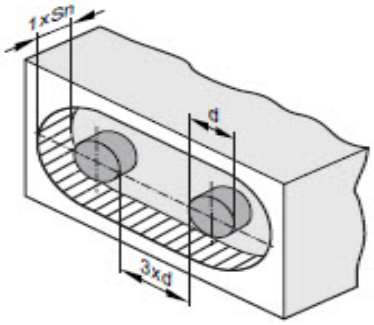


Flush





Non-flush



CT Series Capacitive Proximity Sensors

Dimensions

mm [inches]

Figure 1

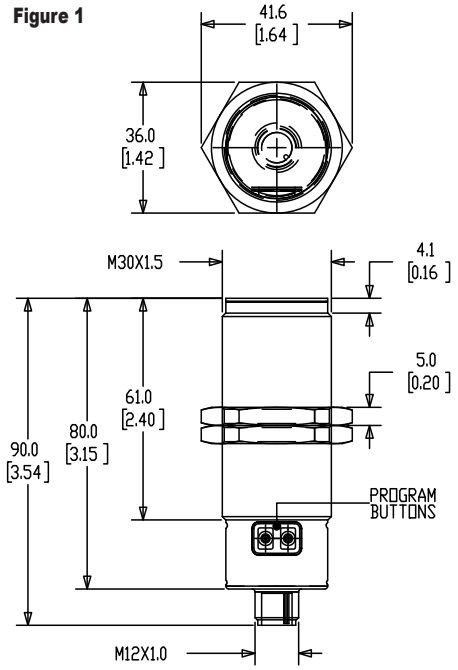
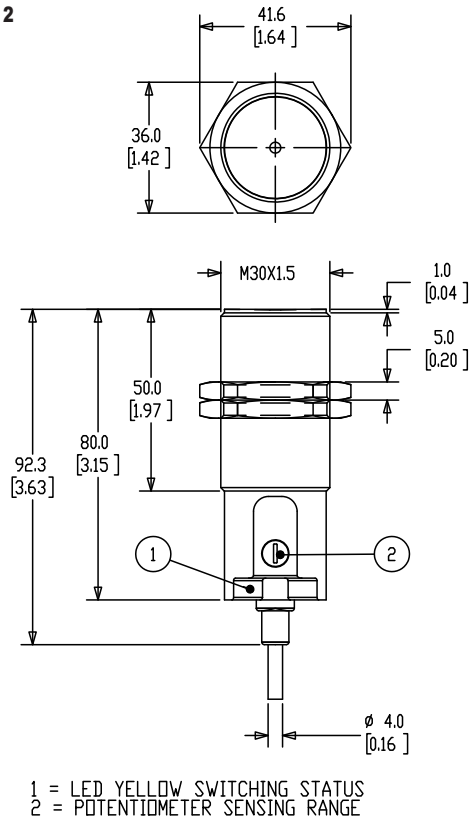
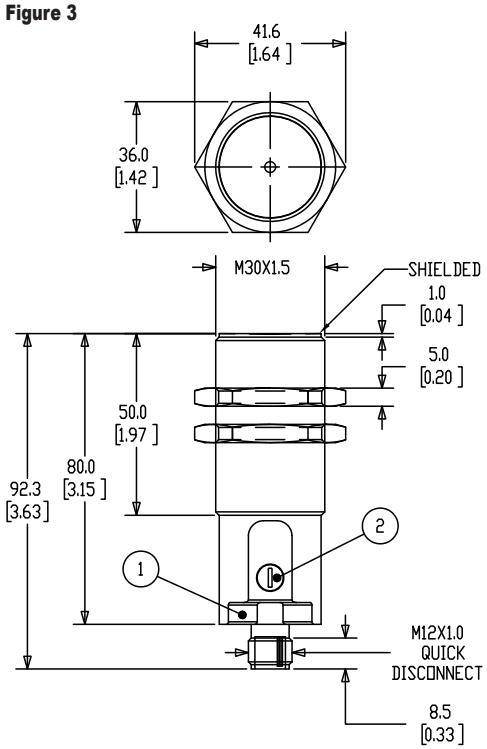


Figure 2



1 = LED YELLOW SWITCHING STATUS
2 = POTENTIOMETER SENSING RANGE

Figure 3



1 = LED YELLOW SWITCHING STATUS
2 = POTENTIOMETER SENSING RANGE

See our website: www.AutomationDirect.com for complete engineering drawings

CR Series Capacitive Proximity Sensors

Rectangular Plastic - DC

- Low profile housing ideal for sight glass applications
- N.O./N.C. selectable
- IP65/IP67 rated
- LED status indicators
- Auto-detect circuit
- Push button teach
- Mounting accessories available

CR Series Capacitive Proximity Selection Chart								
Part Number	***Price***	***Sensing Distance***	***Mounting***	***Output State***	***Logic***	***Connection***	***Wiring***	***Dimensions***
CR1-00-2A	$-097I:	12 mm [0.47 in]	Non-flush	N.O./N.C.	NPN/PNP	2m [6.5 ft] axial cable	Diagram 1	Figure 1

CR Series Capacitive Proximity Specifications	
Mounting Type	Non-flush
Nominal Sensing Distance	12mm [0.47 in]
Operating Distance	NA
Material Correction Factors	
Output Type	NPN/PNP; N.O./N.C.
Operating Voltage	10 to 36VDC
No-load Supply Current	< 17mA
Operating (Load) Current	100mA
Off-state (Leakage) Current	NA
Voltage Drop	< 2.5V
Switching Frequency	10Hz
Differential Travel (% of Nominal Distance)	NA
Repeat Accuracy	
Ripple	
Time Delay Before Availability (tv)	
Reverse Polarity Protection	Yes
Short-circuit Protection	Yes, pulsed
Operating Temperature	-25 to 80°C [-13 to 176°F]
Protection Degree (DIN 40050)	IEC IP65/IP67
Indication/Switch Status	Yellow [output energized]
Housing Material	Polybutylene Terephthalate [PBT]
Sensing Face Material	
Shock/Vibration	DIN EN 60947-5-2
Tightening Torque	NA
Weight	92g [3.25 oz]
Connectors	2m [6.5 ft] axial cable
Agency Approvals	cULus file E328811, CE, RoHS

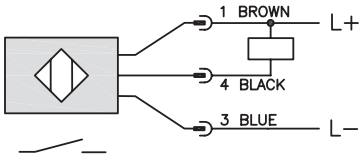
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

CR Series Capacitive Proximity Sensors

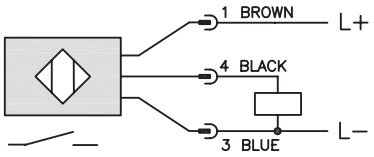
Wiring Diagrams

Diagram 1

NPN Output



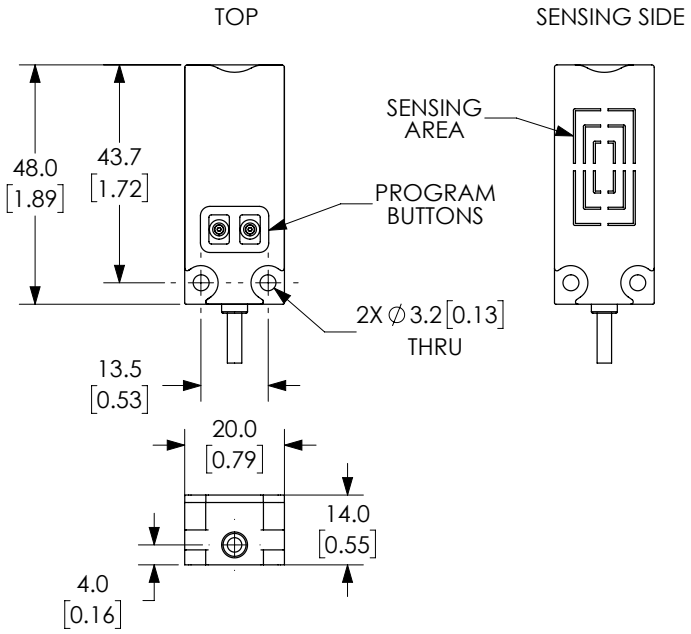
PNP Output



Dimensions

mm [inches]

Figure 1



See our website: www.AutomationDirect.com for complete engineering drawings

Capacitive Proximity Sensors - Accessories

Mounting Well

Mounting Adapter

Capacitive Proximity Sensors Accessory Chart				
Part Number	***Price***	***Description***	***Material***	***Dimensions***
Mounting Adapter				
CR1-ADPTR	$4b?:	Adapter for CR1 series capacitive sensors	Housing: Polybutylene Terephthalate (PBT) Included Screws: M3 x 6 Steel (0.5 N•m [0.37 lb•ft])	Figure 1
Mounting Wells				
MWT-01	$06e#:	30mm [1.18 in] sensor mounting well	PTFE - Polytetrafluoroethylene (Teflon®) Temp: -25 to 246°C [-13 to 474.8°F] Max. pressure: 100 PSI [6.9 bar]	Figure 2
MWK-01	$06e_:	18mm [0.71 in] sensor mounting well		Figure 3

Dimensions

mm [inches]

Figure 1

CR1 Adapter

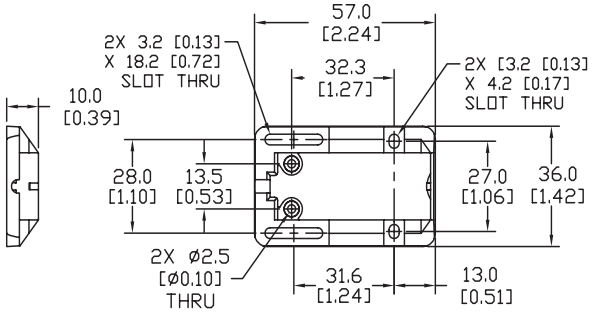


Figure 2

30mm Sensor Mounting Well

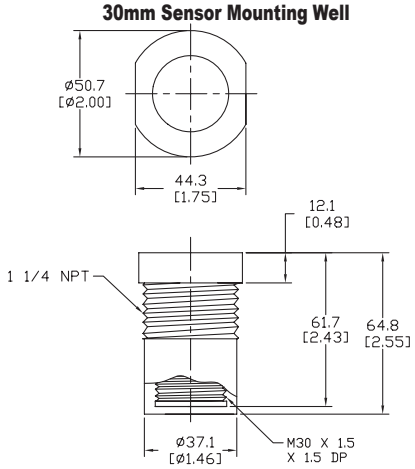
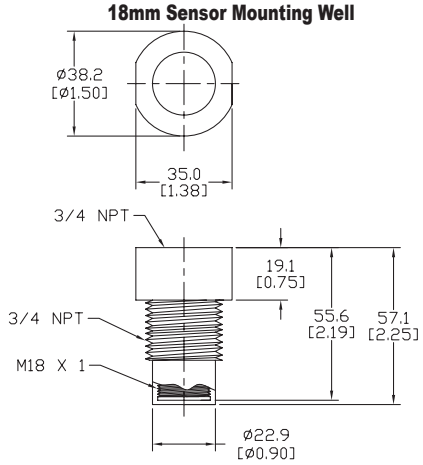


Figure 3

18mm Sensor Mounting Well



See our website: www.AutomationDirect.com for complete engineering drawings

OPT Series Tubular Ultrasonic Sensors

OPT2209

Tubular - Stainless Steel - DC

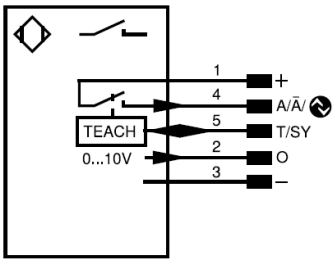
- Digital and analog output
- Synchronous mode
- Temperature drift eliminable
- Stainless steel housing
- IO-Link v1.0

CE cULus IO-Link

OPT Series Tubular Ultrasonic Sensors										
Part Number	*Price*	*Sensing Range*	*Output State*	*Logic*	*Switching Frequency*	*Protection Degree*	*Connection*	*Wiring*	*Housing Size*	*Drawing Link*
Diffuse										
OPT2209	$-05zl?:	100-1200mm [3.93-47.24 in]	N.O./ 0-10 V	PNP	7 Hz	IP67	5-pin M12 quick-disconnect	Diagram 1	18 x 95mm	PDF
OPT2210	$;-05zl,:	50-400mm [1.96-15.74 in]			20 Hz				18 x 86mm	PDF

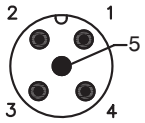
Wiring Diagram

Diagram 1



Connector

M12 Connector



LEGEND					
+	Supply Voltage +	nc	Not connected	EN_{BRS422}	Encoder B/$\bar{B}$ (TL)
-	Supply Voltage 0 V	U	Test Input	EN_A	Encoder A
~	Supply Voltage (AC Voltage)	$\bar{U}$	Test Input Inverted	EN_B	Encoder B
A	Switching Output (N.O)	W	Trigger Input	A_{MIN}	Digital output MIN
Ā	Switching Output (N.C.)	W-	Ground for the Trigger Input	A_{MAX}	Digital output MAX
V	Contamination/Error Output (N.O.)	O	Analog Output	A_{OK}	Digital output OK
$\bar{V}$	Contamination/Error Output (N.C.)	O-	Ground for the Analog Output	SY IN	Synchronization In
E	Input (analog or digital)	BZ	Block Discharge	SY OUT	Synchronization OUT
T	Teach Input	AMV	Valve Output	OLT	Brightness output
Z	Time Delay (activation)	a	Valve Control Output +	M	Maintenance
S	Shielding	b	Valve Control Output -	rsv	Reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Colors according to DIN IEC 60757	
TxD	Interface Send Path	SY-	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	⏚	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
IO-Link	IO-Link	Rx+/-	Ethernet Receive Path	GN	Green
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
OSSD	Safety Output	La	Emitted Light Disengageable	GY	Gray
Signal	Signal Output	Mag	Magnet Activation	WH	White
Bl_D+/_	Ethernet Gigabit bidirect. data line (A-D)	RES	Input Confirmation	PK	Pink
$EN_{0\ RS422}$	Encoder 0-pulse 0 / TTL	EDM	Contact Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	EN_{ARS422}	Encoder A/ Ā (TTL)		

OPT Series Tubular Ultrasonic Sensors

OPT Series Tubular Ultrasonic Sensors Specifications		
Type	***OPT2209***	***OPT2210***
Sensing Distance	100-1200mm [3.93-47.24 in]	50-400mm [1.96-15.74 in]
Sensitivity	Teach-in / IO-Link	
Output State	N.O. or N.C via Teach-in or IO-Link, 0-10V output	
Operating Voltage	18 to 30VDC	
Analog Output	0 to 10V	
Current Consumption (24V)	< 30mA	
Switching Current	100mA	
Voltage Drop	< 2.5 V	
Switching Frequency	7 Hz	20 Hz
Ultrasonic Frequency	240 kHZ	300 kHz
Switching Hysteresis	10mm	2mm
Short-Circuit Protection	Yes	
Operating Temperature	-30 to 60ºC [-22 to 140ºF]	
Thermal Drift	NA	
Protection Degree (DIN 40050)	IP67	
LED Indicators	Yes	
Housing Material	Stainless Steel	
Shock/Vibration	Shock test is according to standard EN 60068-2-27 Vibration test is according to standard EN 60068-2-6	
Tightening Torque	0.5 N•m [0.37 lb•ft] for mounting	
Weight lbs [oz]	0.16 [2.56]	
Connectors	5-pin M12 quick-disconnect	
IO Link	IO-Link v1.0	
Agency Approvals *	cULus, E189727, CE, UKCA, RoHS	

*** To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.**

UK1 Series Ultrasonic Sensors

UK1A-G1-1E

M18 (18mm) Metal – Discrete or Analog Output

- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Several units can be synchronized for multi-point inspection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty

UK1A Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1A-GN-1E	$;04afa:	50 to 400 mm [1.97 to 15.75 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1A-GP-1E	$;04afd:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1A-GW-1E	$;04afg:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1A-G1-1E	$04ae?:		0-10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1A-G2-1E	$;04af1:		4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1A-G6-1E	$;04af4:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1A-G7-1E	$;04af7:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1C Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1C-GN-1E	$;04afy:	80 to 900 mm [3.15 to 35.43 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1C-GP-1E	$;;04af[:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1C-GW-1E	$;;04af!:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1C-G1-1E	$;-04afj:		0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1C-G2-1E	$;04afn:		4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1C-G6-1E	$;04afq:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1C-G7-1E	$;04afu:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1D Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1D-GN-1E	$04agc:	150 to 1600mm [5.90 to 62.99 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1D-GP-1E	$;04agf:		PNP, N.O./N.C. selectable	M12 quick disconnect	Diagram 2	1
UK1D-GW-1E	$-04agi:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1D-G1-1E	$04ag0:		0-10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1D-G2-1E	$04ag3:		4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1D-G6-1E	$04ag6:		4 -20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1D-G7-1E	$04ag9:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1F Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1F-GN-1E	$;04ag]:	200 to 2200 mm [7.87 to 86.61 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1F-GP-1E	$04ag#:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1F-GW-1E	$;04ag,:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1F-G1-1E	$-04agl:		0-10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1F-G2-1E	$04agp:		4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1F-G6-1E	$;04agt:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1F-G7-1E	$04agx:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1 Series Ultrasonic Sensors

UK1 Series Specifications				
Model	***UK1A***	***UK1C***	***UK1D***	***UK1F***
Nominal Sensing Distance	50-400 mm [1.97 to 15.75 in]	80 to 900 mm [3.15 to 35.43 in]	150-1600 mm [5.90 to 62.99 in]	200-2200 mm [7.87 to 86.61 in]
Operating Distance (Sensing Range)	50-400 mm [1.97 to 15.75 in]	80 to 900 mm [3.15 to 35.43 in]	150-1600 mm [5.90 to 62.99 in]	200-2200 mm [7.87 to 86.61 in]
Output Type	See “Output State” column in selection chart			
Operating Voltage	10-30 VDC			
No-load Supply Current	≤ 50mA			
Operating (Load) Current	100mA			
Off-state (Leakage) Current	10µA @ 30VDC			
Analog Output	Voltage: minimum load is 3kΩ / Current: maximum load is 500Ω at 24VDC supply			
Voltage Drop	2.2 V max @ 100mA			
Switching Frequency	10Hz	4Hz	3Hz	1Hz
Repeat Accuracy	0.5%			
Time Delay Before Availability (tv)	≤ 300ms			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Linearity Error	1%			
Ultrasonic Frequency	300kHz	300kHz	230kHz	200kHz
Ultrasonic Beam Angle	10°± 2°	10°± 2°	7°± 2°	14°± 2°
Max. Response Time (digital output)	500ms	500ms	500ms	500ms
Sensitivity Adjustment	Yes, via teach-in button			
Input Voltage Transient Protection	Yes			
Operating Temperature	-20 to 70°C [-4 to 158°F]			
Temperature Compensation	Yes			
Protection Degree	IEC IP67			
Indication/Switch Status	Multi-function LED indicator			
Housing Material	316L stainless steel			
Shock/Vibration	IEC 69047-5-2/7.4			
Tightening Torque	50 N•m [36.88 lb•ft]			
Weight	55g [1.94 oz] [plug exit]			
Connection	M12 [12mm] connector			
Agency Approvals	CE, cULus file E187310			

Wiring Diagrams

Diagram 1

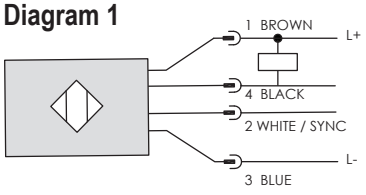


Diagram 2

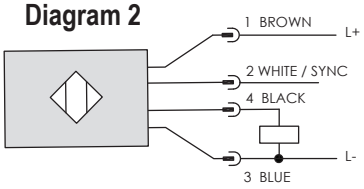
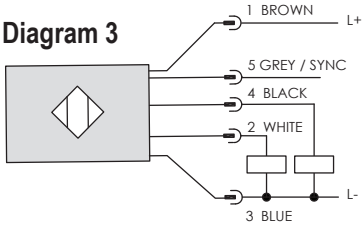


Diagram 3



Connector

M12 connector

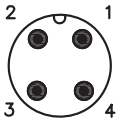


Diagram 4

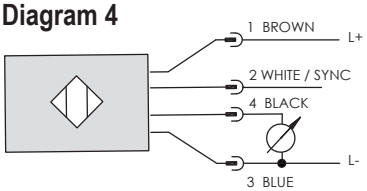
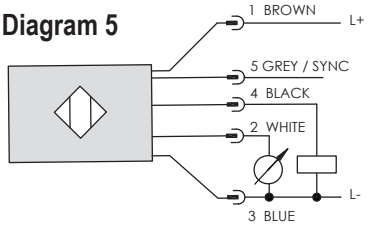
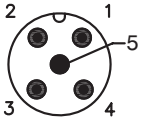


Diagram 5



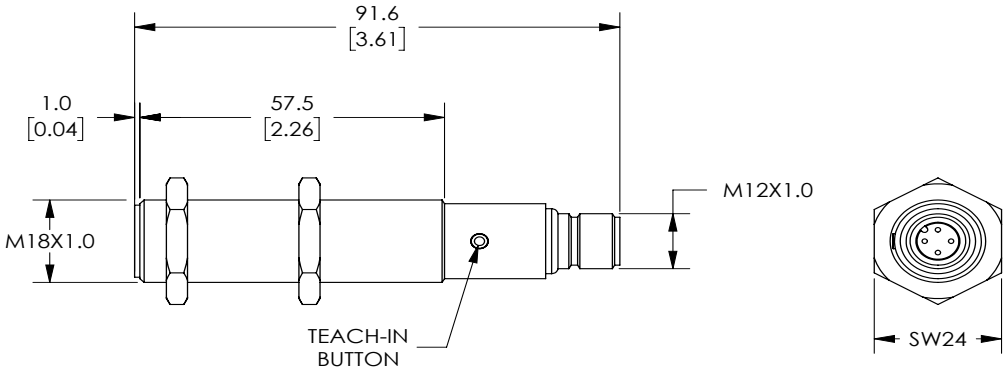


UK1 Series Ultrasonic Sensors

Dimensions

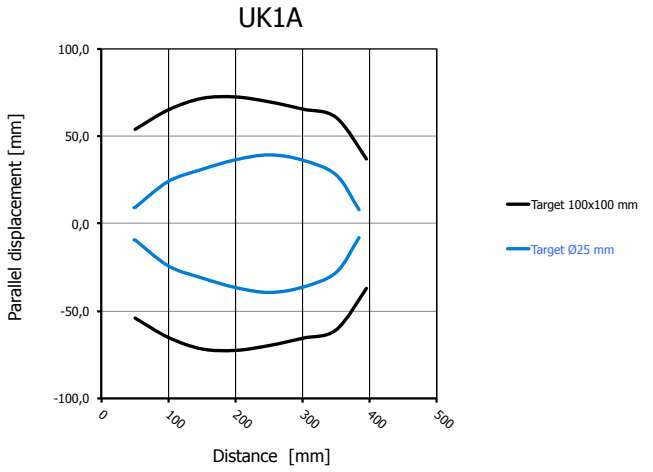
mm [inches]

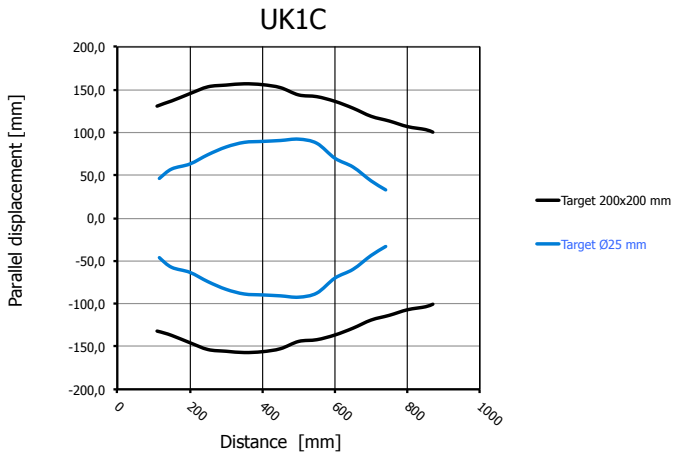
UK1 Series Metal M12 Quick Disconnect

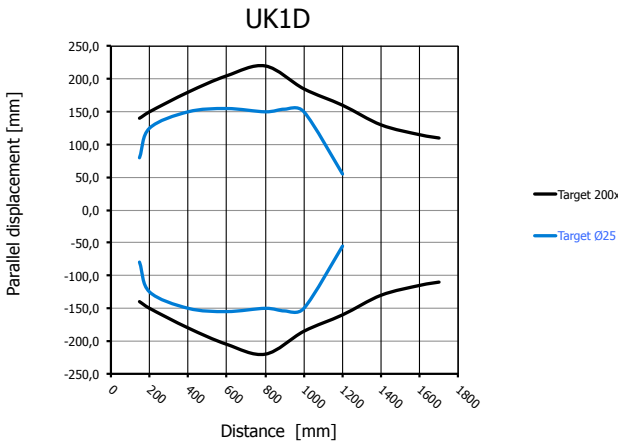


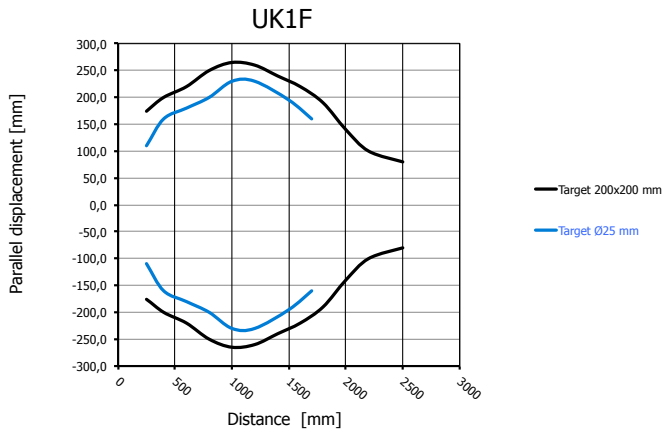
UK1 Series Ultrasonic Sensors

Characteristic Curves







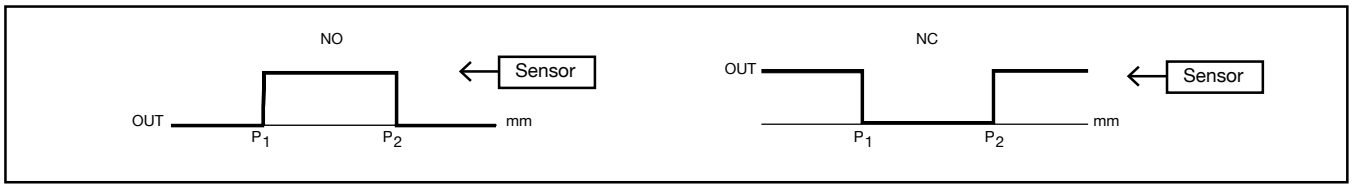


UK1 Series Ultrasonic Sensors

Functions

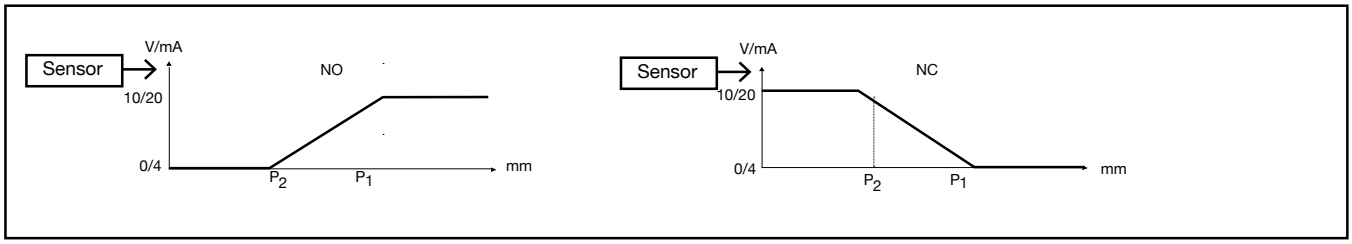
Models with single digital output

#1



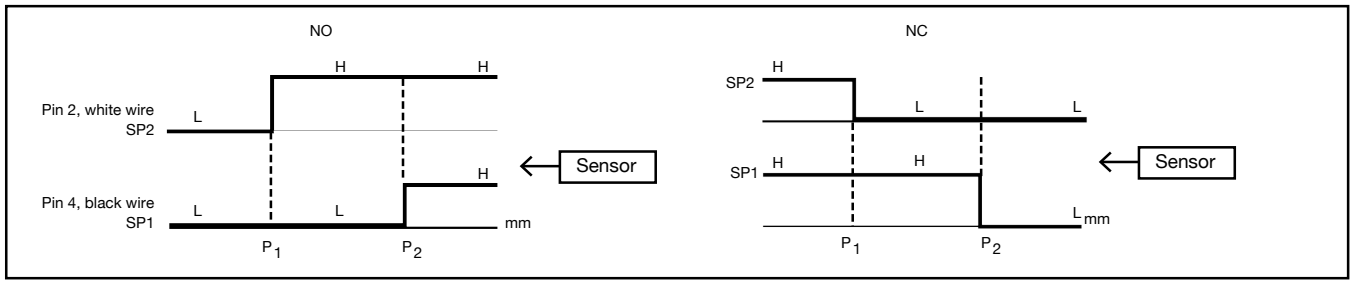
Models with single analog output

#2



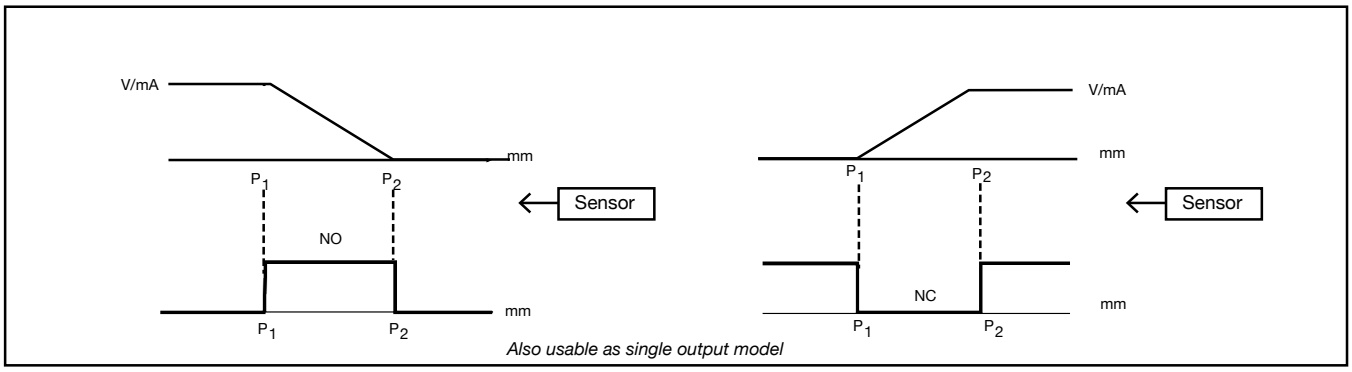
Models with double digital output

#3



Models with digital output + analog output

#4



Also usable as single output model

Note: P1 *maximum selected working distance and first point to select*
P2 *minimum selected working distance and second point to select*

UK1 Series Ultrasonic Sensors

M18 (18mm) Plastic – Discrete or Analog Output

UK1A-GN-0E
UK1A-GN-0A

- 10 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Several units can be synchronized for multi-point inspection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty

UK1A Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1A-GN-0A	$;04af8:	50 to 400 mm [1.97 to 15.75 in]	NPN, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 1	1
UK1A-GN-0E	$;04af9:		NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1A-GP-0A	$;04afb:		PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UK1A-GP-0E	$;04afc:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1A-GW-0A	$;04afe:		PNP, 2 N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 3	3
UK1A-GW-0E	$;;04aff:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1A-G1-0A	$04ae#:		0 to 10 VDC analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1A-G1-0E	$;04ae!:		0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1A-G2-0A	$;04ae,:		4-20mA analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1A-G2-0E	$;04af0:		4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1A-G6-0A	$;04af2:		4-20mA analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1A-G6-0E	$;04af3:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1A-G7-0A	$;04af5:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1A-G7-0E	$;04af6:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1C Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1C-GN-0A	$;04afv:	80 to 900 mm [3.15 to 35.43 in]	NPN, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 1	1
UK1C-GN-0E	$;04afx:		NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1C-GP-0A	$;04afz:		PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UK1C-GP-0E	$;;04af]:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1C-GW-0A	$;04af_:		PNP, 2 N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 3	3
UK1C-GW-0E	$;04af#:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1C-G1-0A	$;04afh:		0 to 10 VDC analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1C-G1-0E	$;-04afi:		0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1C-G2-0A	$;04afk:		4-20mA analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1C-G2-0E	$;-04afl:		4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1C-G6-0A	$;04afo:		4-20mA analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1C-G6-0E	$;04afp:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1C-G7-0A	$;04afs:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1C-G7-0E	$;;04aft:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1 Series Ultrasonic Sensors

UK1D Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	***Price***	***Sensing Range***	***Output State***	***Connection***	***Wiring***	***Function***
UK1D-GN-0A	$04aga:	150 to 1600 mm [5.90 to 62.99 in]	NPN, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 1	1
UK1D-GN-0E	$04agb:		NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1D-GP-0A	$04agd:		PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UK1D-GP-0E	$04age:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1D-GW-0A	$04agg:		PNP, 2 N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 3	3
UK1D-GW-0E	$04agh:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1D-G1-0A	$;04af?:		0 to 10 VDC analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1D-G1-0E	$;;04af,:		0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1D-G2-0A	$04ag1:		4 to 20mA analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1D-G2-0E	$04ag2:		4 to 20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1D-G6-0A	$04ag4:		4-20mA analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1D-G6-0E	$04ag5:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1D-G7-0A	$04ag7:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1D-G7-0E	$04ag8:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

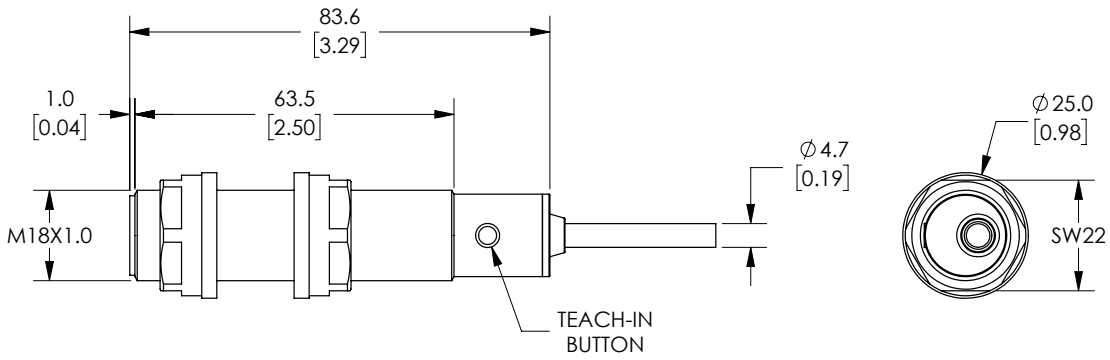
UK1F Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	***Price***	***Sensing Range***	***Output State***	***Connection***	***Wiring***	***Function***
UK1F-GN-0A	$04agy:	200 to 2200 mm [7.87 to 86.61 in]	NPN, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 1	1
UK1F-GN-0E	$04agz:		NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1F-GP-0A	$;04ag[:		PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UK1F-GP-0E	$04ag_:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1F-GW-0A	$;04ag!:		PNP, 2 N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 3	3
UK1F-GW-0E	$04ag?:		PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1F-G1-0A	$-04agj:		0 to 10 VDC analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1F-G1-0E	$04agk:		0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1F-G2-0A	$04agn:		4 to 20mA analog output	2m [6.5 ft] output cable	Diagram 4	2
UK1F-G2-0E	$04ago:		4 to 20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1F-G6-0A	$04agq:		4-20mA analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1F-G6-0E	$04ags:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1F-G7-0A	$04agu:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 5	4
UK1F-G7-0E	$04agv:		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1 Series Ultrasonic Sensors

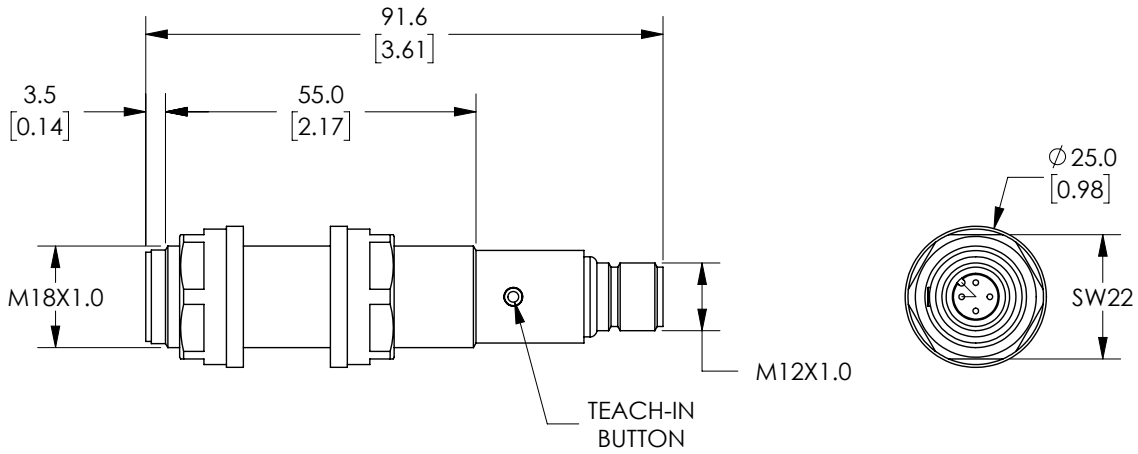
Dimensions

mm [inches]

UK1 Series Plastic 2m Cable



UK1 Series Plastic M12 Quick Disconnect



UK1 Series Ultrasonic Sensors

Specifications				
Model	***UK1A***	***UK1C***	***UK1D***	***UK1F***
Nominal Sensing Distance	50-400 mm [1.97 to 15.75 in]	80 to 900 mm [3.15 to 35.43 in]	150-1600 mm [5.90 to 62.99 in]	200-2200 mm [7.87 to 86.61 in]
Operating Distance (Sensing Range)	100-400 mm [3.94 to 15.75 in]	100-900 mm [3.94 to 35.43 in]	150-1600 mm [5.90 to 62.99 in]	200-2200 mm [7.87 to 86.61 in]
Output Type	See "Output State" column in selection chart			
Operating Voltage	10 to 30 VDC			
No-load Supply Current	≤ 50mA			
Operating (Load) Current	100mA			
Off-state (Leakage) Current	10µA @ 30 VDC			
Analog Output	Voltage: minimum load is 3kΩ / Current: maximum load is 500Ω at 24VDC supply			
Voltage Drop	2.2 V max @ 100mA			
Switching Frequency	10Hz	4Hz	3Hz	1Hz
Repeat Accuracy	0.5%			
Time Delay Before Availability (tv)	≤ 300ms			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Linearity Error	<1%			
Ultrasonic Frequency	300kHz	300kHz	230kHz	200kHz
Ultrasonic Beam Angle	10°±2°	10°±2°	7°±2°	8°±2°
Max. Response Time (digital output)	500ms	500ms	500ms	500ms
Sensitivity Adjustment	Yes, via teach-in button			
Input Voltage Transient Protection	Yes			
Operating Temperature	-20 to 70°C [-4° to 158°F]			
Temperature Compensation	Yes			
Protection Degree	IEC IP67			
Indication/Switch Status	Multi-function LED indicator			
Housing Material	Polybutylene Terephthalate [PBT]			
Shock/Vibration	IEC 69047-5-2/7.4			
Tightening Torque	1 N•m [0.737 lb•ft]			
Weight	30g [1.06 oz] (plug exit) 100g [3.53 oz] (cable exit)			
Connection	M12 [12 mm] connector or 2m [6.5 ft] prewired output cable			
Agency Approvals	CE, cULus file E187310			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1

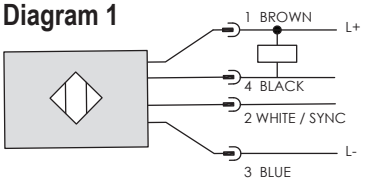


Diagram 2

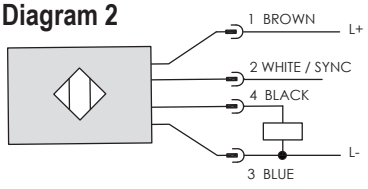
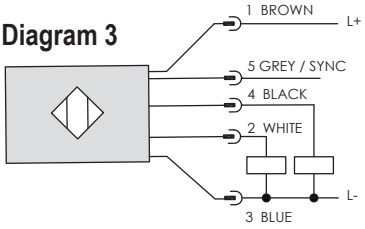


Diagram 3



Connector

M12 connector

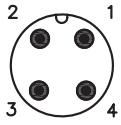


Diagram 4

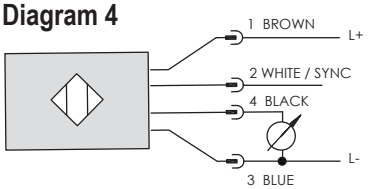
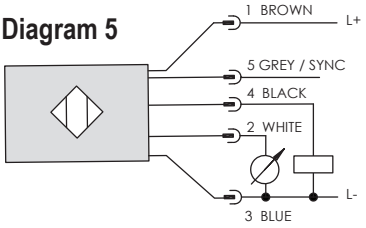
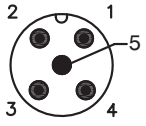


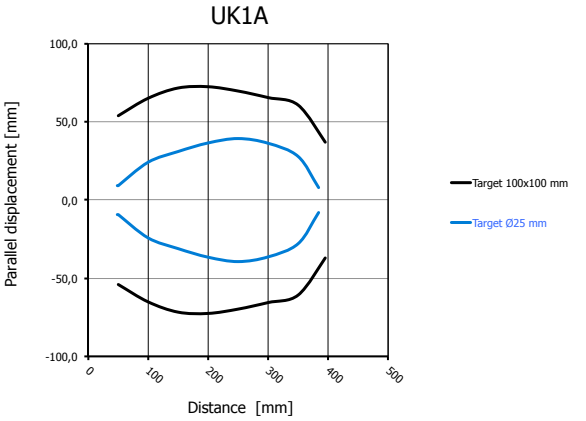
Diagram 5

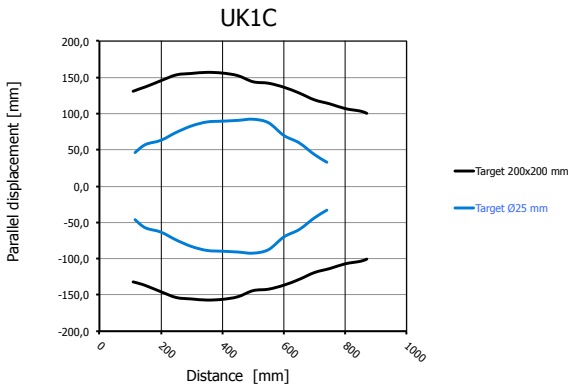


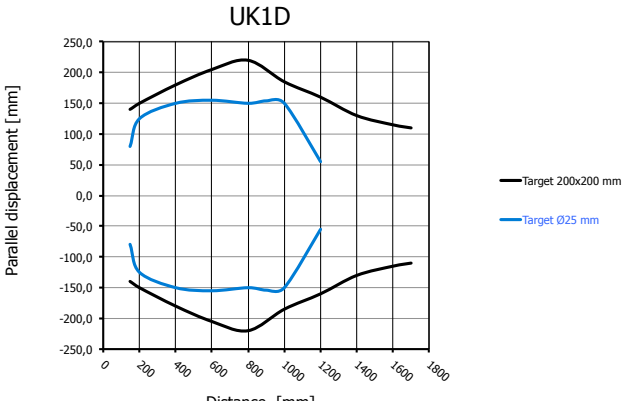


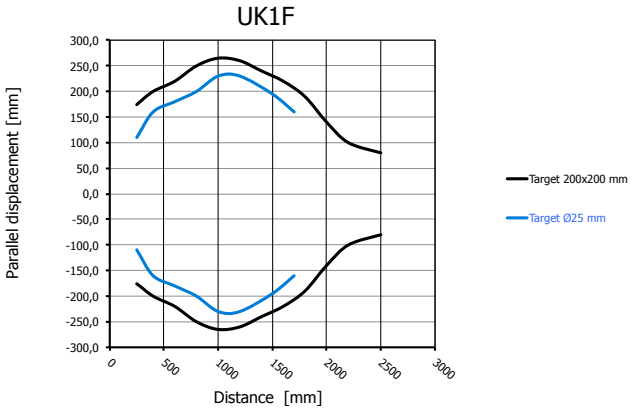
UK1 Series Ultrasonic Sensors

Characteristic Curves







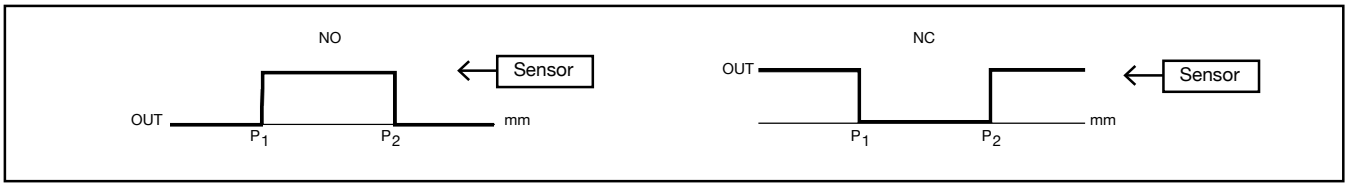


UK1 Series Ultrasonic Sensors

Functions

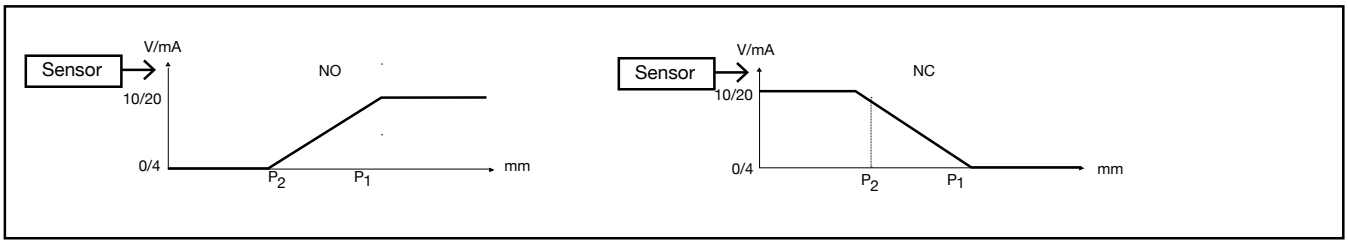
Models with single digital output

#1



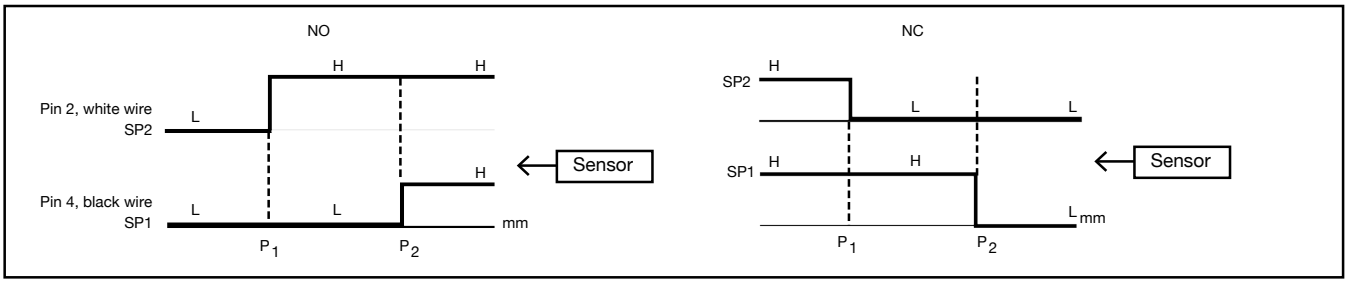
Models with single analog output

#2



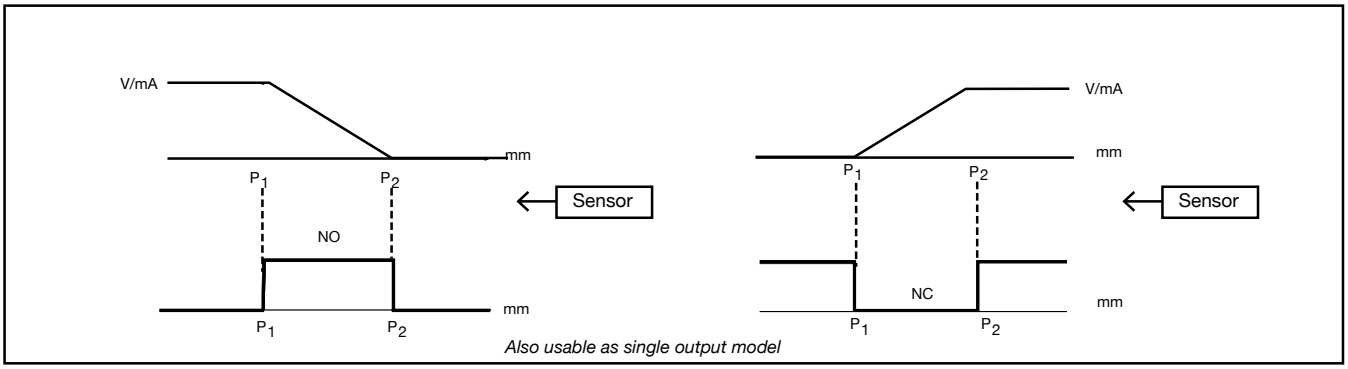
Models with double digital output

#3



Models with digital output + analog output

#4



Note: P1 *maximum selected working distance and first point to select*
P2 *minimum selected working distance and second point to select*

UK6 Series Ultrasonic Sensors

M18 (18 mm) plastic – Discrete or analog output

- 10 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog or discrete switching outputs
- Short body for flexible mounting
- Complete overload protection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty

UK6A-D1-0A with 2m Output Cable

UK6A-D1-0E with M12 Quick Disconnect

UK6A Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	*Price*	*Sensing Range*	*Output State*	*Connection*	*Wiring*	*Function*
UK6A-D1-0A	$008_v:	40-300 mm [1.57 to 11.81 in]	0-10 VDC analog output	2m [6.5 ft] output cable	Diagram 1	2
UK6A-D1-0E	$008_x:		0-10 VDC analog output	M12 quick-disconnect	Diagram 1	2
UK6A-D2-0A	$008_y:		4-20mA analog output	2m [6.5 ft] output cable	Diagram 1	2
UK6A-D2-0E	$008_z:		4-20mA analog output	M12 quick-disconnect	Diagram 1	2
UK6A-DN-0A	$;008_]:		NPN, N.O./N.C .selectable	2m [6.5 ft] output cable	Diagram 2	1
UK6A-DN-0E	$;008_[:		NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK6A-DP-0A	$008__:		PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 3	1
UK6A-DP-0E	$008_#:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	1

UK6C Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	*Price*	*Sensing Range*	*Output State*	*Connection*	*Wiring*	*Function*
UK6C-D1-0A	$;-008[j:	60-800 mm [2.36-31.50 in]	0-10 VDC analog output	2m [6.5 ft] output cable	Diagram 1	2
UK6C-D1-0E	$;008[k:		0-10 VDC analog output	M12 quick-disconnect	Diagram 1	2
UK6C-D2-0A	$;-008[l:		4-20mA analog output	2m [6.5 ft] output cable	Diagram 1	2
UK6C-D2-0E	$;008[n:		4-20mA analog output	M12 quick-disconnect	Diagram 1	2
UK6C-DN-0A	$;008[o:		NPN, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UK6C-DN-0E	$;008[p:		NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK6C-DP-0A	$;008[q:		PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 3	1
UK6C-DP-0E	$;008[s:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	1

Wiring Diagrams

Diagram 1

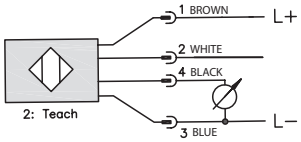


Diagram 2

NPN Output

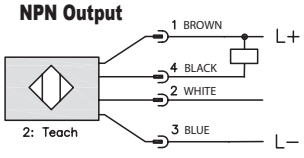
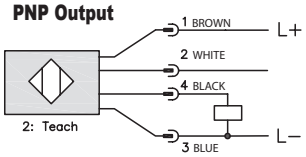


Diagram 3

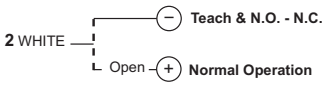
PNP Output



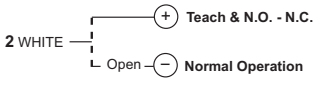
Connector

M12 connector

For Diagram 1 and 2



For Diagram 3



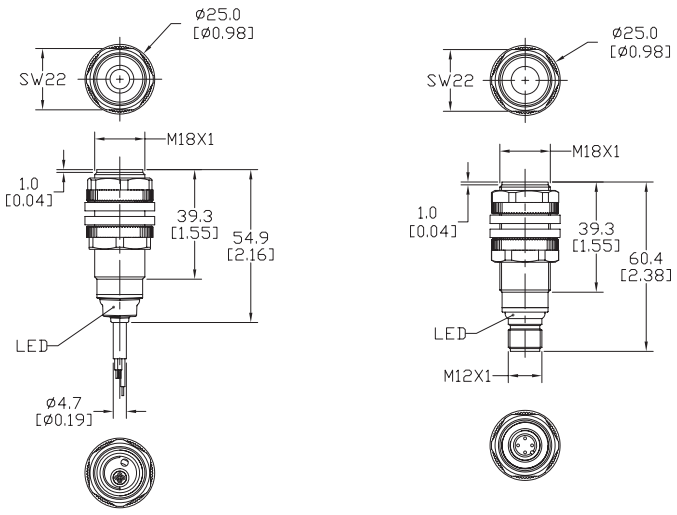
UK6 Series Ultrasonic Sensors

Specifications		
Model	***UK6A***	***UK6C***
Nominal Sensing Distance	40-300 mm [1.57 to 11.81 in]	60-800 mm [2.36-31.50 in]
Operating Distance (Sensing Range)	40-300 mm [1.57 to 11.81 in]	60-800 mm [2.36-31.50 in]
Output Type	See "Output State" column in selection chart	
Operating Voltage	10-30 VDC	
No-load Supply Current	≤ 35mA	
Operating (Load) Current	100mA	
Off-state (Leakage) Current	10µA @ 30VDC	
Analog Output	Voltage: minimum load is 3kΩ / Current: maximum load is 500Ω at 24VDC supply	
Voltage Drop	2.2 volts max@ 100 mA	
Switching Frequency	20Hz	6Hz
Repeat Accuracy	2%	
Time Delay Before Availability (tv)	≤ 300ms (digital output) ≤ 900ms (analog output)	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes	
Linearity Error	<3%	
Ultrasonic Frequency	300kHz	
Ultrasonic Beam Angle	± 10°	± 8°
Max. Response Time (digital output)	25ms	83ms
Sensitivity Adjustment	Remote teach-in via cable	
Input Voltage Transient Protection	Yes	
Operating Temperature	-20° to -60°C [-4° to 140°F]	
Temperature Compensation	Yes	
Protection Degree	IEC IP67	
Indication/Switch Status	Multi-function LED indicator	
Housing Material	Polybutylene Terephthalate [PBT]	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	1N•m [0.737 lb•ft]	
Weight	15g [0.53 oz] (plug exit) 80g [2.82 oz] (cable exit)	
Connection	M12 [12mm] connector or 2m [6.5 ft] prewired output cable	
Agency Approvals	CE, cULus file E187310, RoHS	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

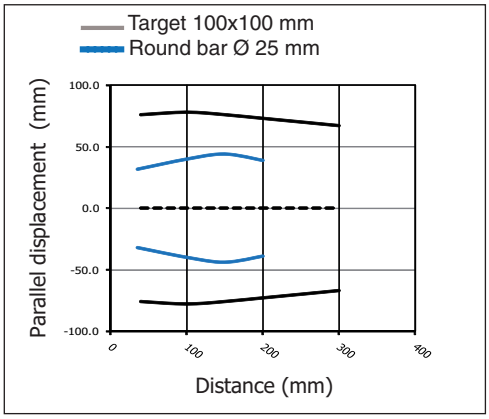
mm [inches]



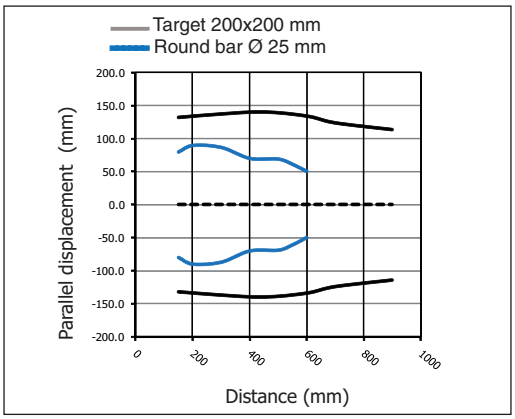
UK6 Series Ultrasonic Sensors

Characteristic Curves

UK6A models



UK6C models



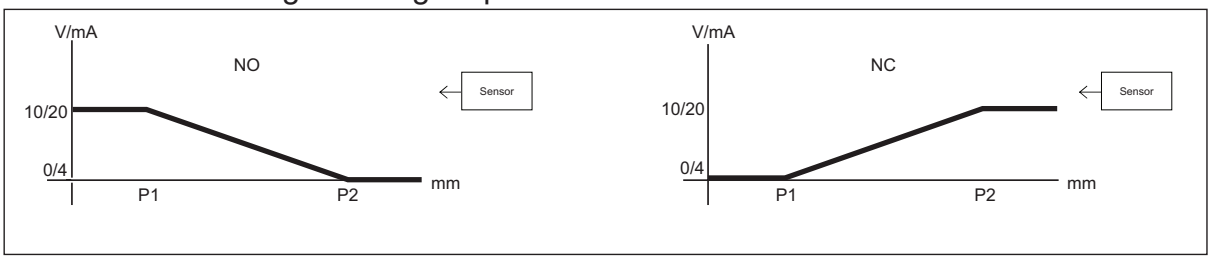
Functions

Models with single digital output

#1

Models with single analog output

#2



UT Series Ultrasonic Sensors

M30 (30mm) Plastic – Discrete or Analog Output

UT1B-G6-0E
UT1B-G7-0A
UT2F-G6-0E

- 10 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Several units can be synchronized for multi-point inspection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty

UT1B Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UT1B-GW-0A	$-04ahi:	250 to 3500 mm [(9.84 to 137.80 in]	PNP, 2 N.O./N.C selectable	2m [6.5 ft] output cable	Diagram 1	2
UT1B-GW-0E	$-04ahj:		PNP, 2 N.O./N.C selectable	M12 quick-disconnect	Diagram 1	2
UT1B-G6-0A	$04ahc:		4-20mA analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UT1B-G6-0E	$04ahd:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UT1B-G7-0A	$;04ahf:		0-10 VDC analog output, PNP, N.O./N.C. selectable	2m [6.5 ft] output cable	Diagram 2	1
UT1B-G7-0E	$04ahg:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1

UT2F Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

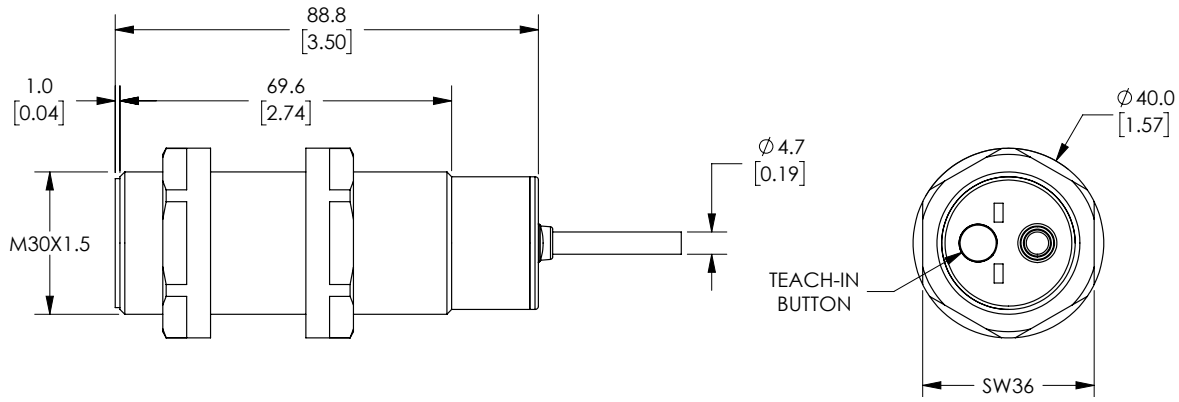
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UT2F-GW-0E	$04aho:	350 to 6000 mm [13.78 to 236.22 in]	PNP, 2 N.O./N.C selectable	M12 quick-disconnect	Diagram 1	2
UT2F-G6-0E	$-04ahl:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UT2F-G7-0E	$04ahn:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1

UT Series Ultrasonic Sensors

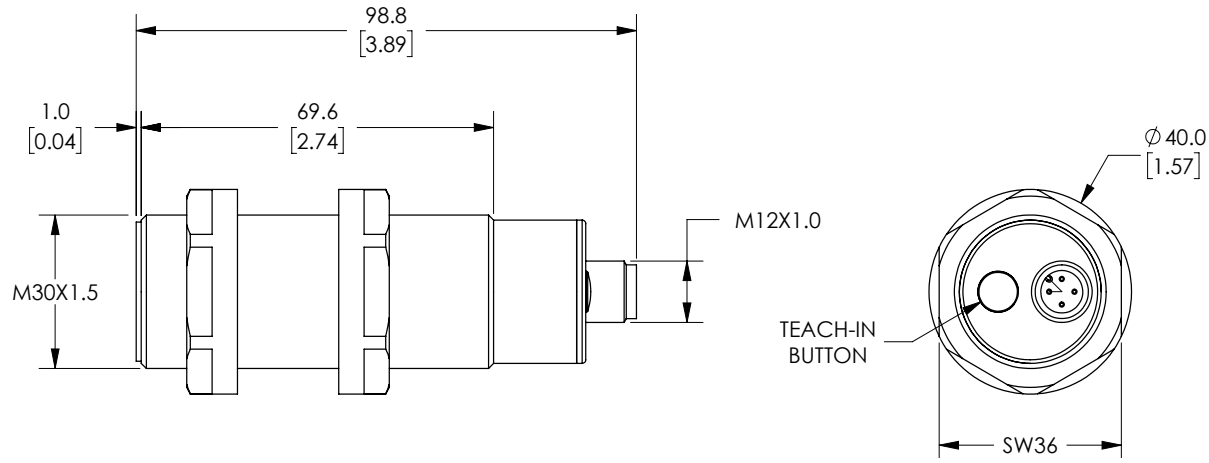
Dimensions

mm [inches]

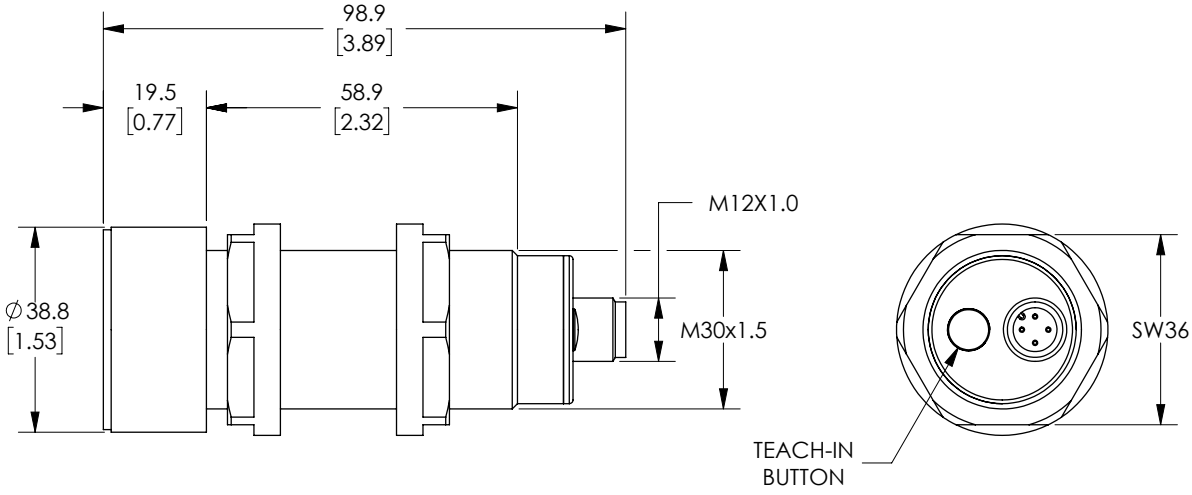
UT1 Series Plastic 2m Output Cable



UT1 Series Plastic M12 Quick Disconnect



UT2 Series Plastic M12 Quick Disconnect



UT Series Ultrasonic Sensors

Specifications		
Model	***UT1B***	***UT2F***
Nominal Sensing Distance	250 to 3500 mm [9.84 to 137.80 in]	350 to 6000 mm [13.78 to 236.22 in]
Operating Distance (Sensing Range)	250 to 3500 mm [9.84 to 137.80 in]	350 to 6000 mm [13.78 to 236.22 in]
Output Type	See "Output State" column in selection chart	See "Output State" column in selection chart
Operating Voltage	10-30 VDC	10-30 VDC
No-load Supply Current	≤ 25mA	≤ 50mA
Operating (Load) Current	100mA	100mA
Off-state (Leakage) Current	10µA @ 30VDC	10µA @ 30VDC
Analog Output	Voltage: minimum load is 3kΩCurrent: maximum load is 500Ω at 24VDC supply	Voltage: minimum load is 3kΩ Current: maximum load is 500Ω at 24VDC supply
Voltage Drop	2.2 V max @ 100mA	2.2 V max @ 100mA
Switching Frequency	1Hz	1Hz
Repeat Accuracy	0.1%	0.5%
Time Delay Before Availability (tv)	≤ 400ms (digital out), ≤ 600ms (analog out)	≤ 400ms (digital out), ≤ 600ms (analog out)
Reverse Polarity Protection	Yes	Yes
Short-Circuit Protection	Yes	Yes
Linearity Error	1%	1%
Ultrasonic Frequency	112kHz	75kHz
Ultrasonic Beam Angle	12°± 2°	15°± 2°
Max. Response Time (digital output)	600ms	600ms
Sensitivity Adjustment	Yes, via teach-in button	Yes, via teach-in button
Input Voltage Transient Protection	Yes	Yes
Operating Temperature	-20 to +70°C [-4 to +158°F]	-20 to +70°C [-4 to +158°F]
Temperature Compensation	Yes	Yes
Protection Degree	IEC IP67	IEC IP67
Indication/Switch Status	Multi-function LED indicator	Multi-function LED indicator
Housing Material	Polybutylene terephthalate [PBT]	Polybutylene terephthalate [PBT]
Shock/Vibration	IEC 69047-5-2/7.4	IEC 69047-5-2/7.4
Tightening Torque	1.5 N•m [1.106 lb•ft]	1.5 N•m [1.106 lb•ft]
Weight	85g [3.00 oz] [plug exit] 150g [5.29 oz] cable exit]	115g [4.06 oz] [plug exit]
Connection	M12 [12mm] connector or 2m [6.5 ft] prewired output cable [4@26AWG]	M12 [12mm] connector
Agency Approvals	CE, cULus file E187310	CE, cULus file E187310

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1

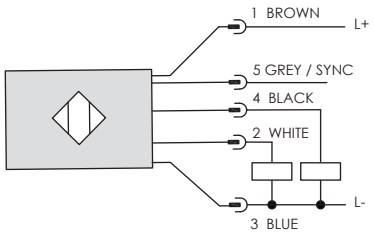
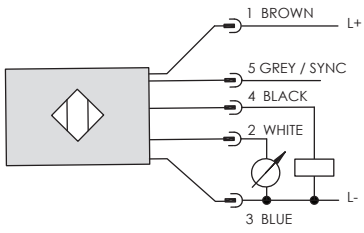
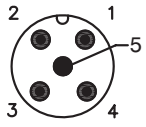


Diagram 2



Connector

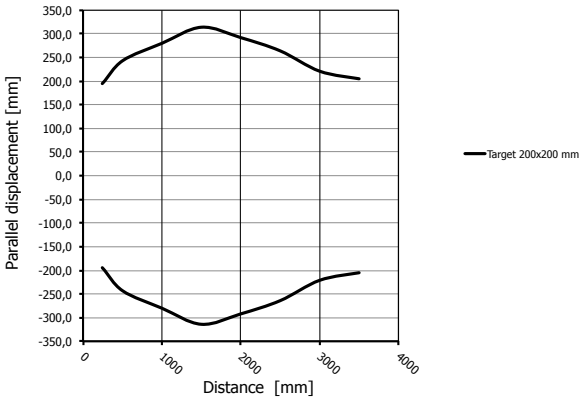
M12 connector



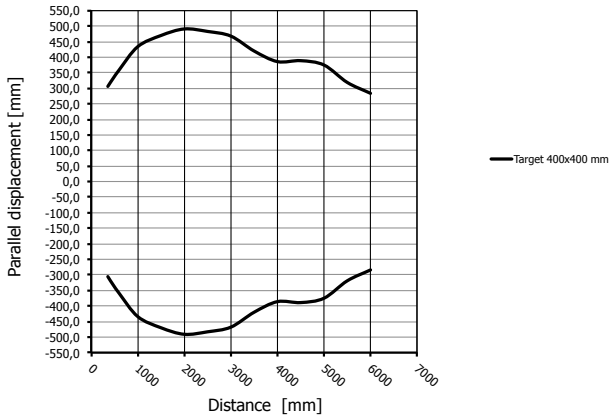
UT Series Ultrasonic Sensors

Characteristic Curves

UT1B



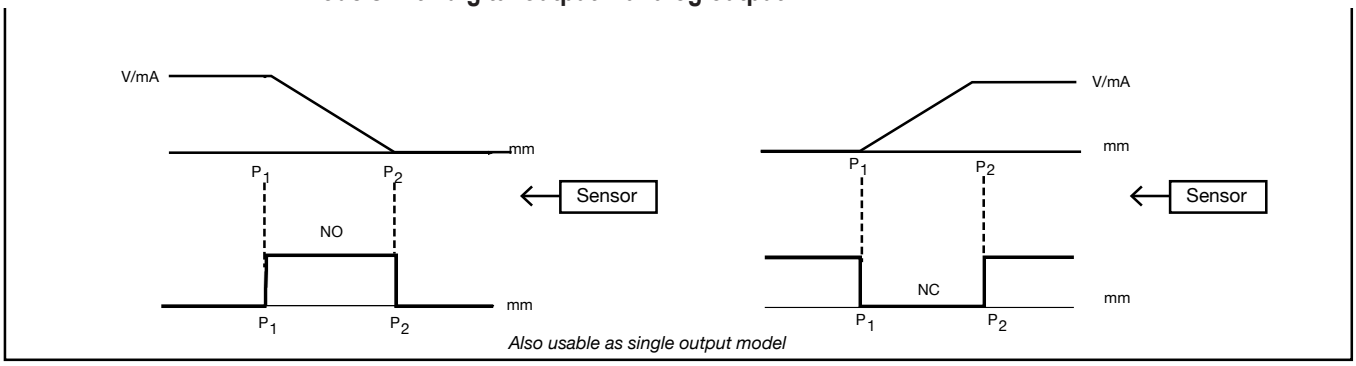
UT2F



Functions

Models with digital output + analog output

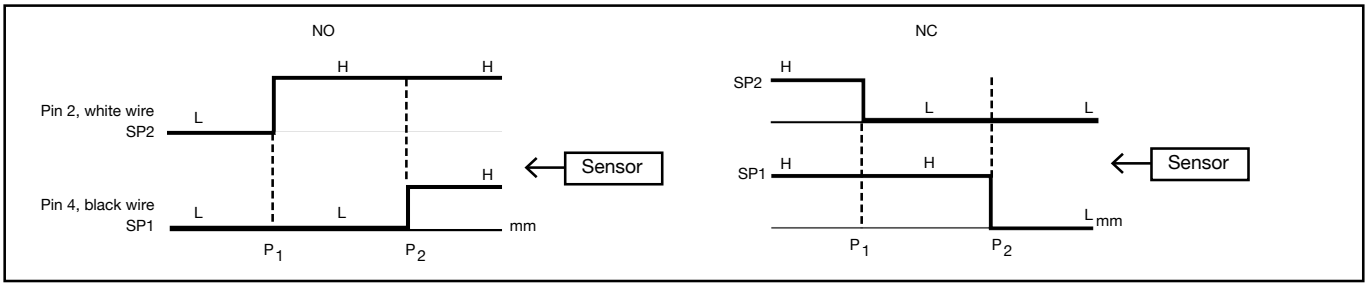
#1



Note: P1 *maximum selected working distance and first point to select*
P2 *minimum selected working distance and second point to select*

Models with double digital output: hysteresis or standard window

#2



UT Series Ultrasonic Sensors

UT1B-G7-1E
UT5L-G7-1E

M30 (30mm) Metal – Discrete or analog output

- 10 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Several units can be synchronized for multi-point inspection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty

UT1B Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	*Price*	*Sensing Range*	*Output State*	*Connection*	*Wiring*	*Function*
UT1B-GW-1E	$04ahk:	250 to 3500 mm [9.84 to 137.80 in]	PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	2
UT1B-G6-1E	$04ahe:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UT1B-G7-1E	$04ahh:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1

UT5L Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	*Price*	*Sensing Range*	*Output State*	*Connection*	*Wiring*	*Function*
UT5L-GW-1E	$04ahs:	600 to 8000 mm [23.62 to 314.96 in]	PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	2
UT5L-G6-1E	$04ahp:		4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UT5L-G7-1E	$04ahq:		0-10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1

Wiring Diagrams

Diagram 1

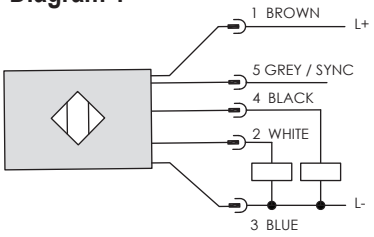
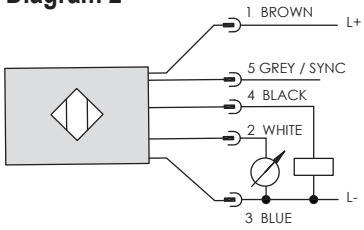
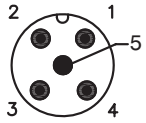


Diagram 2



Connector

M12 connector

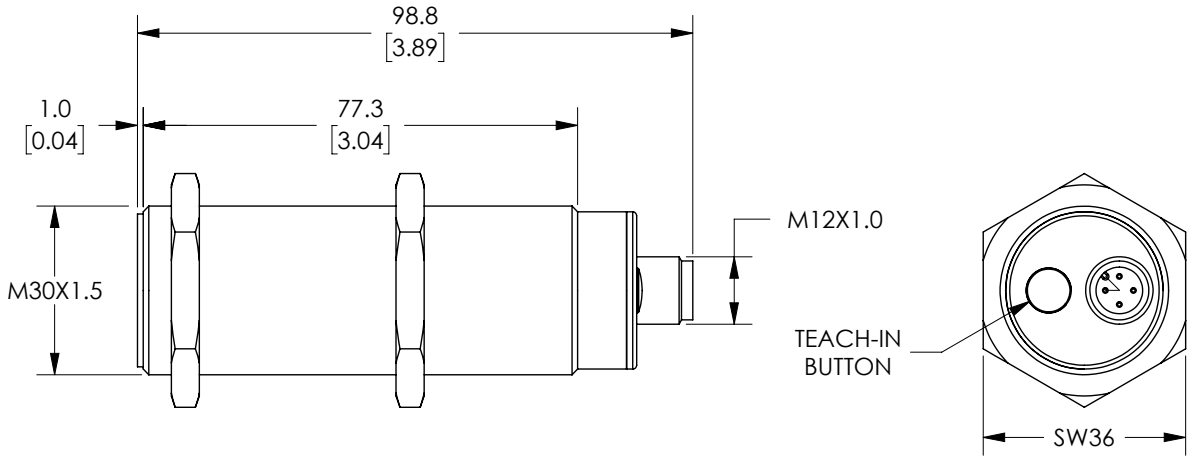


UT Series Ultrasonic Sensors

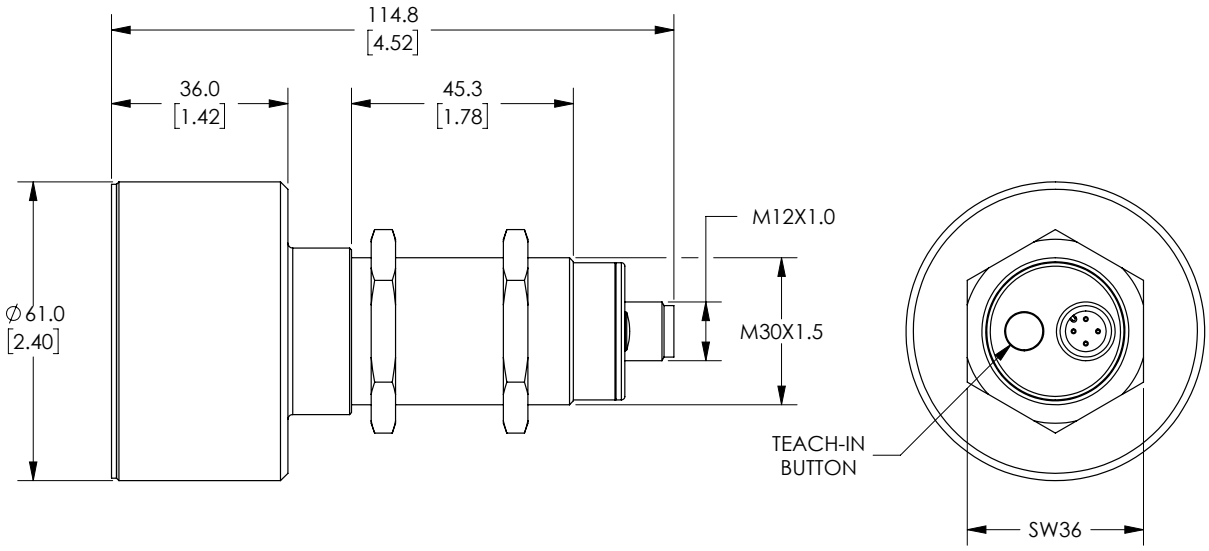
Dimensions

mm [inches]

UT1B Series Metal M12 Quick Disconnect



UT5L Series Metal M12 Quick Disconnect



UT Series Ultrasonic Sensors

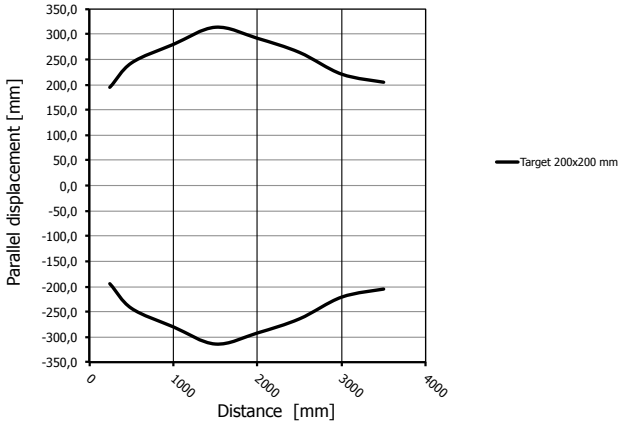
Specifications		
Model	***UT1B***	***UT5L***
Nominal Sensing Distance	250 to 3500 mm [9.84 to 137.80 in]	600 to 8000 mm [23.62 to 314.96 in]
Operating Distance (Sensing Range)	250 to 3500 mm [9.84 to 137.80 in]	600 to 8000 mm [23.62 to 314.96 in]
Output Type	See "Output State" column in selection chart	See "Output State" column in selection chart
Operating Voltage	10-30 VDC	10-30 VDC
No-load Supply Current	≤ 25mA	≤5 0mA
Operating (Load) Current	100mA	100mA
Off-state (Leakage) Current	10µA @ 30VDC	10µA @ 30VDC
Analog Output	Voltage: minimum load is 3kΩ Current: maximum load is 500Ω at 24VDC supply	Voltage: minimum load is 3kΩ Current: maximum load is 500Ω at 24VDC supply
Voltage Drop	2.2 V max @ 100mA	2.2 V max @ 100mA
Switching Frequency	1Hz	1Hz
Repeat Accuracy	0.1%	1%
Time Delay Before Availability (tv)	≤ 400ms (digital out), ≤ 600ms (analog out)	≤ 400ms (digital out), ≤ 600ms (analog out)
Reverse Polarity Protection	Yes	Yes
Short-Circuit Protection	Yes	Yes
Linearity Error	0.5%	1%
Ultrasonic Frequency	112kHz	60kHz
Ultrasonic Beam Angle	12°± 2°	10°± 2°
Max. Response Time (digital output)	600ms	600ms
Sensitivity Adjustment	Yes, via teach-in button	Yes, via teach-in button
Input Voltage Transient Protection	Yes	Yes
Operating Temperature	-20 to +70°C [-4 to +158°F]	-20 to +70°C [-4 to +158°F]
Temperature Compensation	Yes	Yes
Protection Degree	IEC IP67	IEC IP67
Indication/Switch Status	Multi-function LED indicator	Multi-function LED indicator
Housing Material	316L stainless steel	316L stainless steel
Shock/Vibration	IEC 69047-5-2/7.4	IEC 69047-5-2/7.4
Tightening Torque	100 N•m [73.7 lb•ft]	100 N•m [73.7 lb•ft]
Weight	150g [5.29 oz] (plug exit)	350g [12.35 oz] (plug exit)
Connection	M12 [12mm] connector	M12 [12mm] connector
Agency Approvals	CE, cULus file E187310	CE, cULus file E187310, RoHS

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

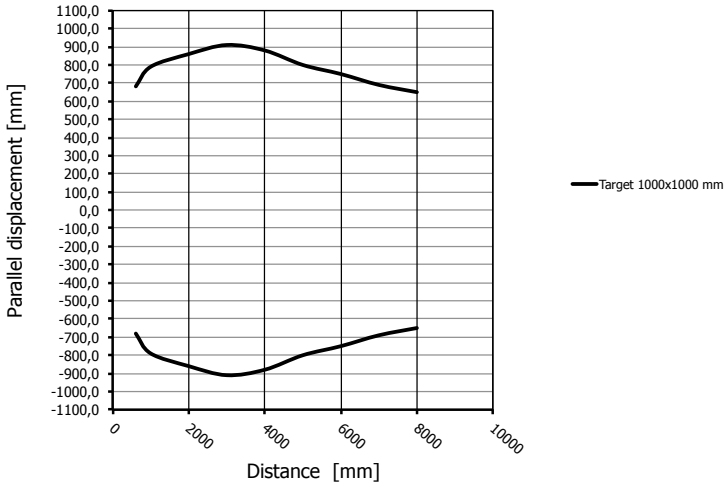
UT Series Ultrasonic Sensors

Characteristic Curves

UT1B



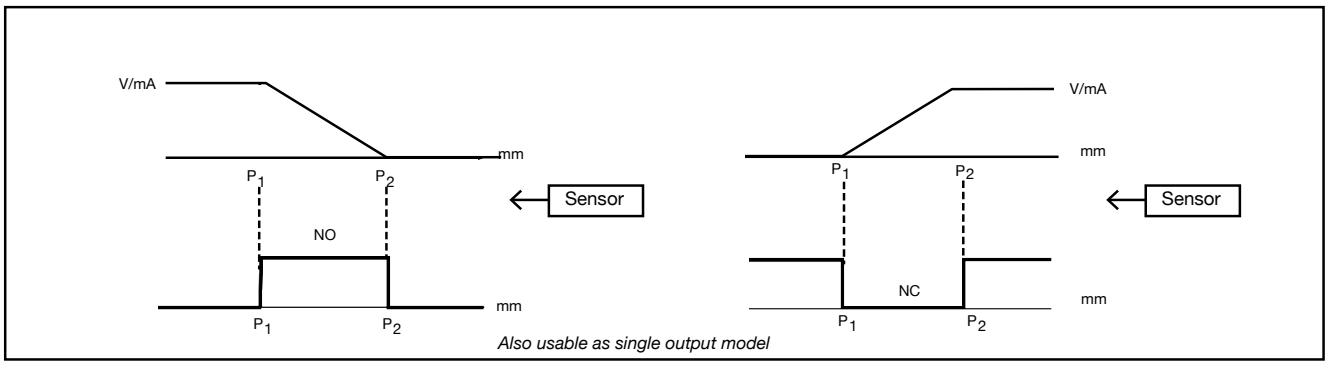
UT5L



Functions

Models with digital output + analog output

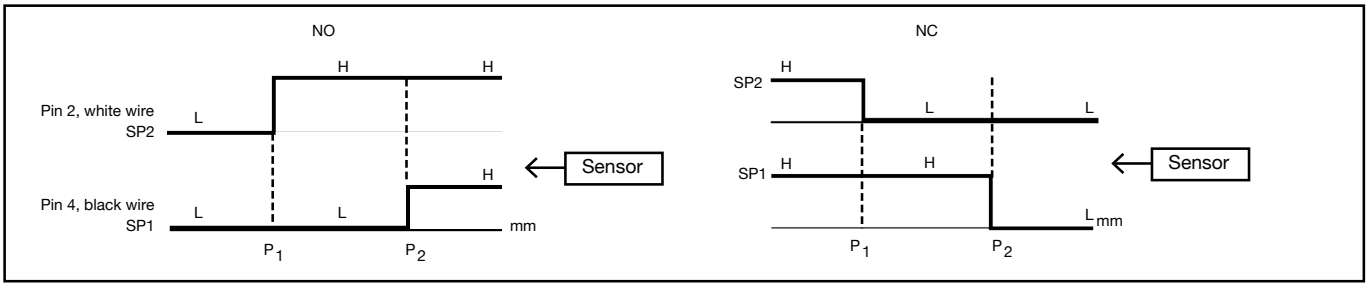
#1



Note: P1 *maximum selected working distance and first point to select*
P2 *minimum selected working distance and second point to select*

Models with double digital output: hysteresis or standard window

#2



OPT Series Rectangular Ultrasonic Sensors

OPT2200

OPT2203

Rectangular - plastic- DC

- 2 mutually independent switching outputs
- Miniature design
- IO-Link v1.1 (all models)
- Through-beam models available

CE cULus IO-Link

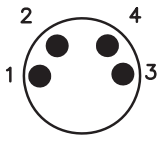
OPT Series Rectangular Ultrasonic Sensors Selection Chart

Part Number	Price	Sensing Range	Output State	Logic	Switching Frequency	Protection Degree	Connection	Wiring	Housing Size	Drawing Link
Diffuse										
OPT2200	$-05zlv:	30-400mm [1.18-15.74 in]	N.O.	PNP	30 Hz	IP68	4-pin M8 quick-disconnect	Diagram 1	38.5 x 19.5 x 12mm	PDF
OPT2201	$-05zlx:			NPN				Diagram 2		PDF
OPT2202	$-05zly:			PNP			4-pin M12 quick-disconnect, 200mm [7.87 in] cable	Diagram 1		PDF
Diffuse										
OPT2203	$-05zlz:	100-1200mm [3.93-47.24 in]	N.O.	PNP	7 Hz	IP67 IP68	5-pin M12 quick-disconnect	Diagram 3	56.5 x 16 x 35mm	PDF
OPT2204	$;-05zl]:			NPN				Diagram 3		PDF
OPT2205	$;-05zl[:	80-400mm [3.14-15.74]		PNP	20 Hz		4-pin M12 quick-disconnect	Diagram 4		PDF
Through-beam Emitter *										
OPT2206	$-05zl_:	1-2000mm [0.03-78.74]	–	–	NA	IP67 IP68	5-pin M12 quick-disconnect	–	56.5 x 16 x 35mm	PDF
Through-beam Receivers*										
OPT2207	$-05zl#:	1-2000mm [0.03-78.74]	N.O.	PNP	7 Hz	IP67 IP68	5-pin M12 quick-disconnect	Diagram 3	56.5 x 16 x 35mm	PDF
OPT2208	$;-05zl!:			NPN				Diagram 3		PDF

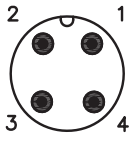
*** Purchase one receiver and one emitter for a complete set.**

Connectors

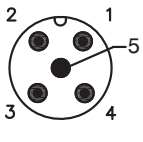
M8 Connector



M12 Connector



M12 connector



OPT Series Rectangular Ultrasonic Sensors

Wiring Diagrams

Diagram 1

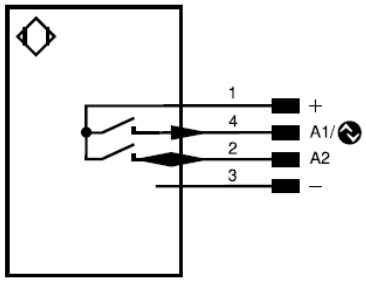


Diagram 2

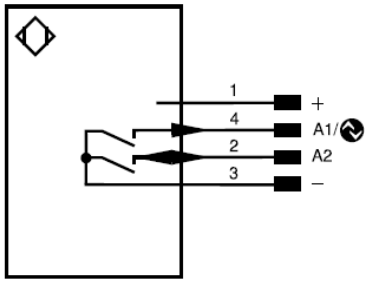


Diagram 3

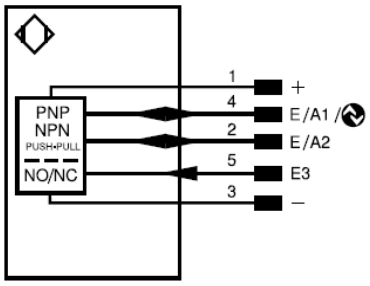
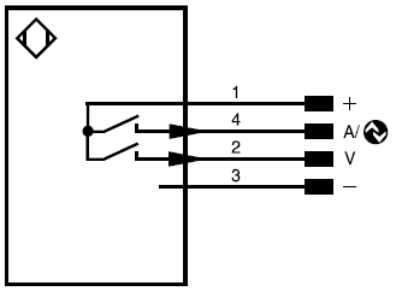


Diagram 4



LEGEND					
+	Supply Voltage +	nc	Not connected	EN_{BRS422}	Encoder B/$\bar{B}$ (TL)
-	Supply Voltage 0 V	U	Test Input	EN_A	Encoder A
~	Supply Voltage (AC Voltage)	$\bar{U}$	Test Input Inverted	EN_B	Encoder B
A	Switching Output (N.O)	W	Trigger Input	A_{MIN}	Digital output MIN
$\bar{A}$	Switching Output (N.C.)	W-	Ground for the Trigger Input	A_{MAX}	Digital output MAX
V	Contamination/Error Output (N.O.)	O	Analog Output	A_{OK}	Digital output OK
$\bar{V}$	Contamination/Error Output (N.C.)	O-	Ground for the Analog Output	SY IN	Synchronization In
E	Input (analog or digital)	BZ	Block Discharge	SY OUT	Synchronization OUT
T	Teach Input	AMV	Valve Output	OLT	Brightness output
Z	Time Delay (activation)	a	Valve Control Output +	M	Maintenance
S	Shielding	b	Valve Control Output -	rsv	Reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Colors according to DIN IEC 60757	
TxD	Interface Send Path	SY-	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	⏚	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
IO-Link	IO-Link	Rx+/-	Ethernet Receive Path	GN	Green
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
OSSD	Safety Output	La	Emitted Light Disengageable	GY	Gray
Signal	Signal Output	Mag	Magnet Activation	WH	White
Bl_D+/_	Ethernet Gigabit bidirect. data line (A-D)	RES	Input Confirmation	PK	Pink
$EN_{0\ RS422}$	Encoder 0-pulse 0 / TTL	EDM	Contact Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	EN_{ARS422}	Encoder A/ Ā (TTL)		

OPT Series Rectangular Ultrasonic Sensors

OPT Series Rectangular Ultrasonic Sensors Specifications									
Part Number	***OPT2200***	***OPT2201***	***OPT2202***	***OPT2203***	***OPT2204***	***OPT2205***	***OPT2206***	***OPT2207***	***OPT2208***
Sensing Distance	30-400mm [1.18-15.74 in]			100-1200mm [3.93-47.24 in]		80-400mm [3.14-15.74]	1-2000mm [0.03-78.74]		
Sensitivity	Teach-In/IO-Link					IO-Link only	Teach-In/IO-Link		
Output State	Antivalent								
Operating Voltage	18 to 30 VDC								
Current Consumption (24V)	< 20mA			< 30mA					
Switching Current	100mA								
Voltage Drop	< 2.5 V								
Switching Frequency	30 Hz			7 Hz		20 Hz	NA	7 Hz	
Ultrasonic Frequency	325 kHz			240 kHz		300 kHz	240 kHz		
Switching Hysteresis	1% of the switching distance, at least 2 mm								
Short-Circuit Protection	Yes								
Operating Temperature	-30 to 60ºC [-22 to 140ºF]								
Thermal Drift	NA								
Protection Degree (DIN 40050)	IP68			IP67 / IP68					
LED Indicators	Yes								
Housing Material	PC (polycarbonate)			PBT (polycarbonate)					
Shock/Vibration	Vibration test is according to standard EN 60068-2-6 a Shock test is according to standard EN 60068-2-27								
Tightening Torque	0.5 N•m [0.37 lb•ft] for mounting								
Weight lbs[oz]	0.6 [9.6]		0.9 [14.4]	0.11 [1.76]		0.10 [1.6]	0.11 [1.76]		
Connectors	4-pin M8 quick-disconnect		4-pin M12 quick-disconnect, 200mm [7.87 in] cable	5-pin M12 quick-disconnect		4-pin M12 quick-disconnect	5-pin M12 quick-disconnect		
IO Link	IO-Link v1.1 (all models)								
Agency Approvals *	cULus, E189727, CE, UKCA, RoHS								

*** To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.**

UQ1 Series Ultrasonic Sensors

M18 (18mm) Cubic Plastic – Discrete or analog output

UQ1A-GN-0E

- 10 to 30VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- IP67 rated
- LED status indicators
- Mounting hex nut included
- Purchase cable for M12 plug separately
- Lifetime warranty

UQ1A Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UQ1A-GN-0E	$04ah2:	40 to 300 mm [1.57 to 11.81 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UQ1A-GP-0E	$04ah3:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UQ1A-G6-0E	$04ah0:		4–20 mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	2
UQ1A-G7-0E	$04ah1:		0–10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	2

UQ1C Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UQ1C-GN-0E	$04ah6:	60 to 800 mm [2.36 to 31.50 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UQ1C-GP-0E	$04ah7:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UQ1C-G6-0E	$04ah4:		4–20 mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	2
UQ1C-G7-0E	$04ah5:		0–10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	2

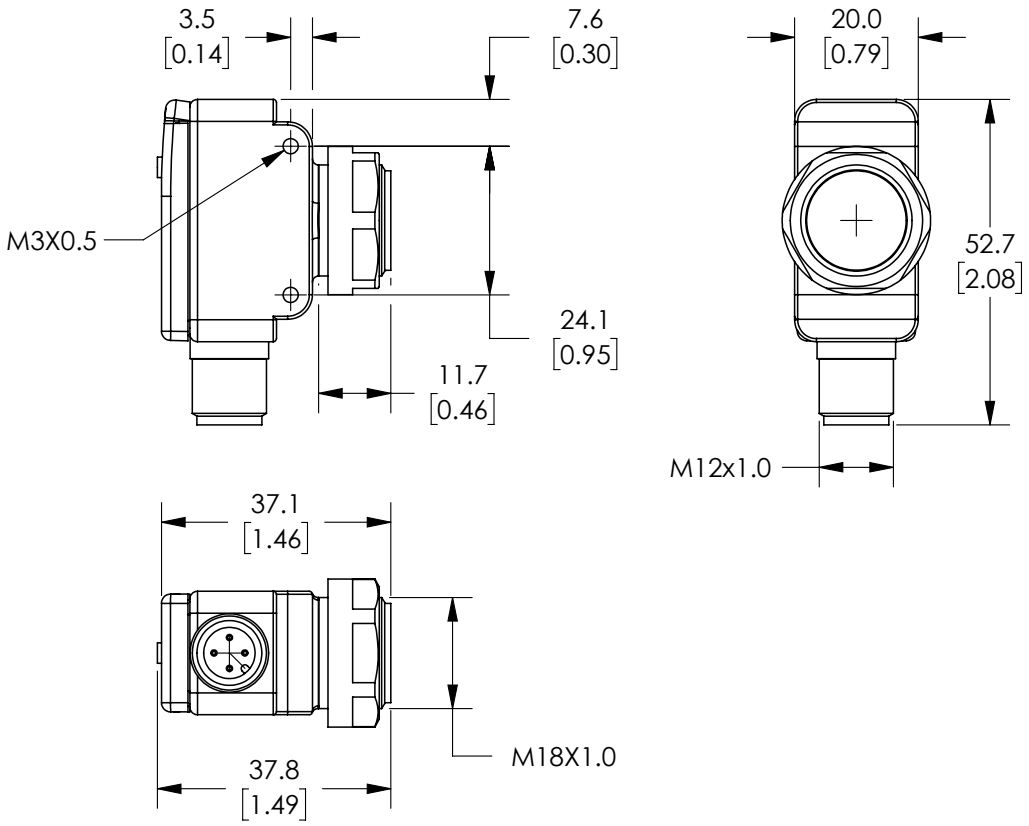
UQ1D Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UQ1D-GN-0E	$04aha:	80 to 1200 mm [3.15 to 47.24 in]	NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UQ1D-GP-0E	$04ahb:		PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UQ1D-G6-0E	$04ah8:		4–20 mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	2
UQ1D-G7-0E	$04ah9:		0–10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	2

UQ1 Series Ultrasonic Sensors

Dimensions

mm [inch]



UQ1 Series Ultrasonic Sensors

Specifications			
Model	***UQ1A***	***UQ1C***	***UQ1D***
Nominal Sensing Distance	40 to 300mm [1.57 to 11.81 in]	60 to 800mm [2.36 to 31.50 in]	80 to 1200mm [3.15 to 47.24 in]
Operating Distance (Sensing Range)	40 to 300mm [1.57 to 11.81 in]	60 to 800mm [2.36 to 31.50 in]	80 to 1200mm [3.15 to 47.24 in]
Output Type	See "Output State" column in selection chart		
Operating Voltage	10-30 VDC		
No-load Supply Current	≤ 35mA		
Operating (Load) Current	100mA		
Off-state (Leakage) Current	10µA @ 30VDC		
Analog Output	Voltage: minimum load is 3kΩ / Current: maximum load is 500Ω at 24VDC supply		
Voltage Drop	2.2 V max @ 100mA		
Switching Frequency	8Hz	5Hz	3Hz
Repeat Accuracy	1%		
Time Delay Before Availability (tv)	≤ 400ms		
Reverse Polarity Protection	Yes		
Short-Circuit Protection	Yes		
Linearity Error	< 1%		
Ultrasonic Frequency	300kHz	230kHz	200kHz
Ultrasonic Beam Angle	7°± 2°	8°± 2°	8°± 2°
Max. Response Time (digital output)	400ms	400ms	400ms
Sensitivity Adjustment	Yes, via teach-in button		
Input Voltage Transient Protection	Yes		
Operating Temperature	-20 to 70°C [-4 to 158°F]		
Temperature Compensation	Yes		
Protection Degree	IEC IP67		
Indication/Switch Status	Multi-function LED indicator		
Housing Material	Polybutylene Terephthalate [PBT]		
Shock/Vibration	IEC 69047-5-2/7.4		
Tightening Torque	1 N•m [0.737 lb•ft]		
Weight	30g [1.06 oz]		
Connection	M12 [12mm] connector		
Agency Approvals	CE, cULus file E187310		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Wiring Diagrams

Diagram 1

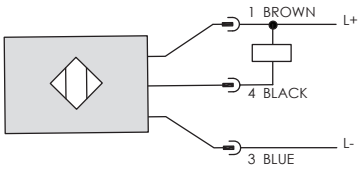
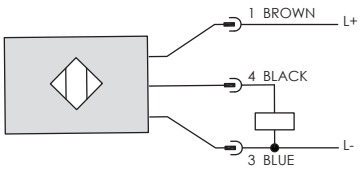


Diagram 2



Connector

M12 connector

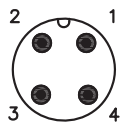
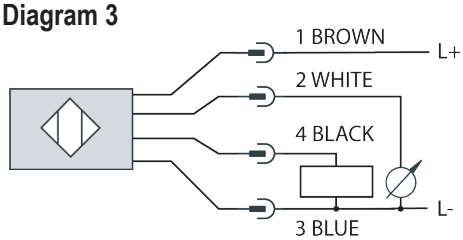
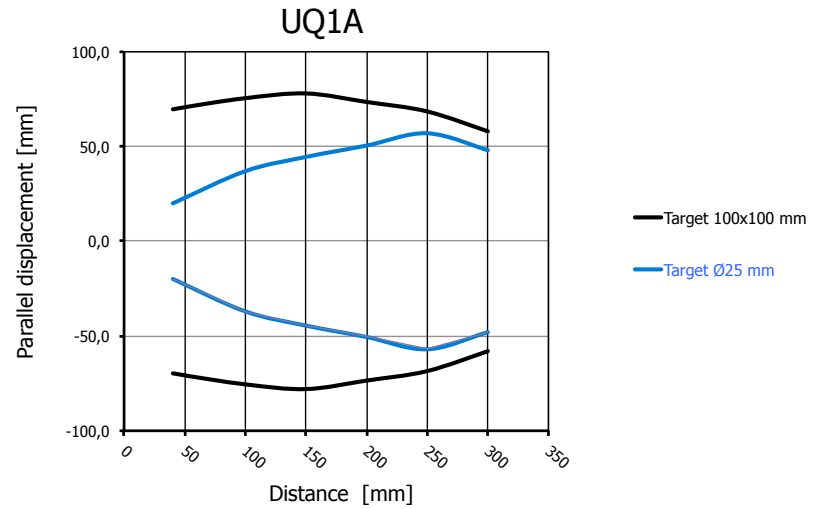


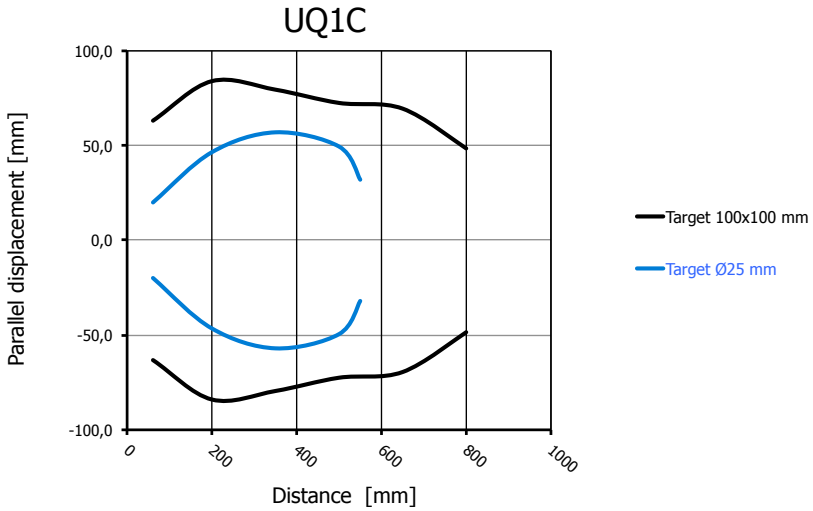
Diagram 3

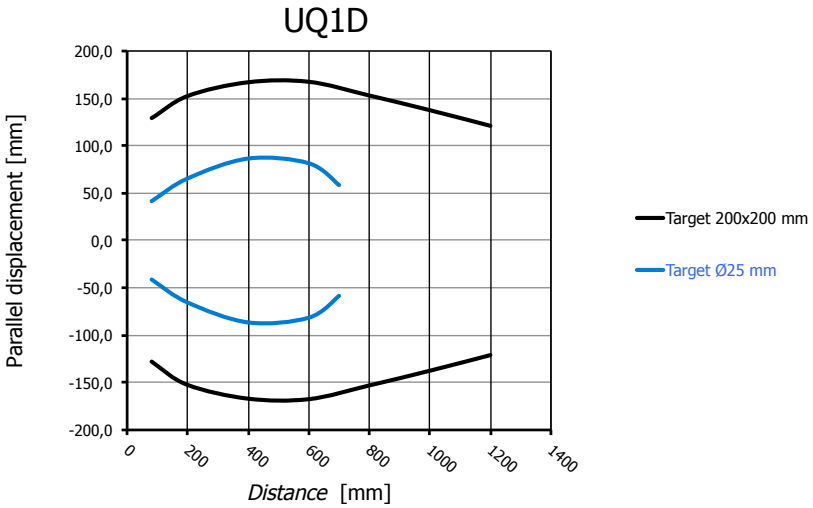


UQ1 Series Ultrasonic Sensors

Characteristic Curves





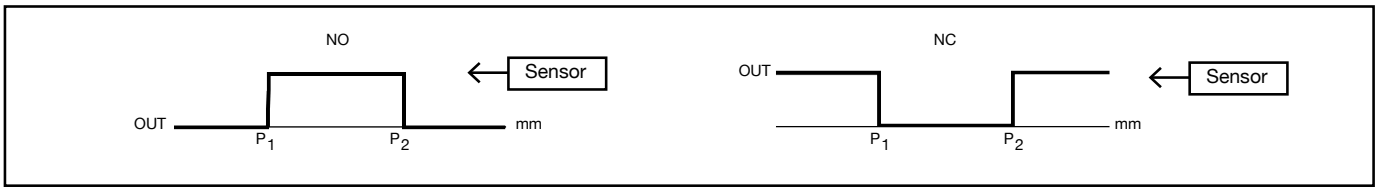


UQ1 Series Ultrasonic Sensors

Functions

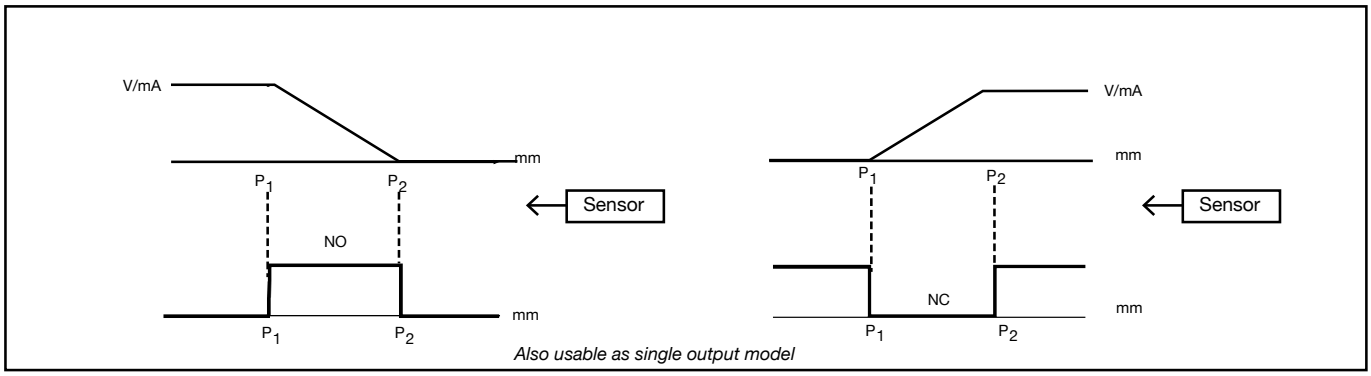
Models with single digital output

#1



Models with digital output + analog output

#2



Also usable as single output model

Note: P1 *maximum selected working distance and first point to select*
P2 *minimum selected working distance and second point to select*

SU Series Ultrasonic Sensors

M18 (18mm) Plastic – PNP or Analog Output

- High resolution
- 2 analog models available
- Complete overload protection
- IP67 rated
- Purchase cable separately (for quick-disconnect model)

SU Series Ultrasonic Analog Output Sensor Selection Chart					
Part Number	*Price*	*Sensing Range*	*Output*	*Connection*	*Wiring*
SU1-B1-0E	$-008ul:	100 to 600 mm [3.94-23.62 in]	0-10 VDC	M12 [12mm] connector	Diagram 2
SU2-A1-0E	$;-008ti:	200 to 1500 mm [7.87-59.06 in]	0-10 VDC	M12 [12mm] connector	Diagram 2

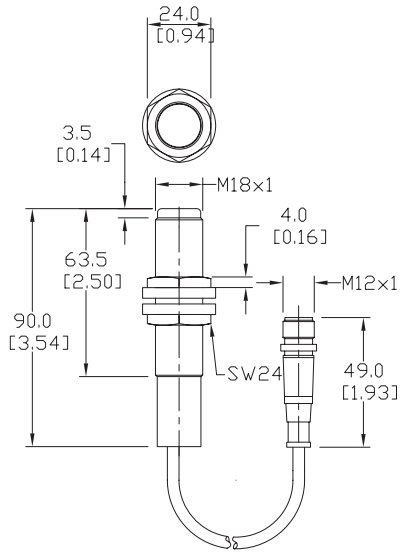
Specifications		
Mounting Type	***SU1-B1-0E***	***SU2-A1-0E***
Nominal Sensing Distance	100 to 600 mm [3.94-23.62 in]	200 to 1500 mm [7.87-59.06 in]
Operating Distance	N/A	
Output Type	0-10VDC	
Operating Voltage	18-30VDC	
No-load Supply Current	≤ 35 mA	
Operating (Load) Current	≤ 5 mA	
Off-state (Leakage) Current	≤ 10 µA	
Voltage Drop	-	-
Switching Frequency	NA	
Differential Travel	-	-
Repeat Accuracy	±2 mm	
Time Delay Before Availability (tv)	≤ 500ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Linearity Error	≤ 0.3%	
Ultrasonic Frequency	300kHz	180kHz
Ultrasonic Beam Angle	8°	
Max. Response Time	50ms	150ms
Control Input	Hold / Sync	
Sensitivity Adjustment	-	
Input Voltage Transient Protection	Yes, only if transient peak does not exceed 30 VDC	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Temperature Compensation	Yes	
Protection Degree	IEC IP67	
Indication/Switch Status	-	
Housing Material	Polybutylene Terephthalate [PBT]	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	3 Nm [2.21 lb-ft]	
Weight	38g [1.34 oz]	
Connection	M12 [12 mm] connector	
Agency Approvals	CE, UL listed file E187310	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

SU Series Ultrasonic Sensors

Dimensions

mm [inches]



Wiring Diagrams

Diagram 1*

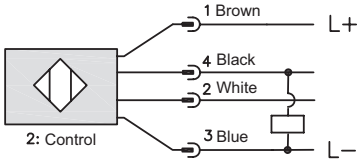
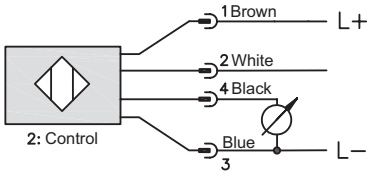


Diagram 2*



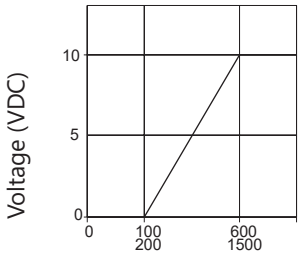
Connector

Must be used with 2M or 7M cable (4-wire)

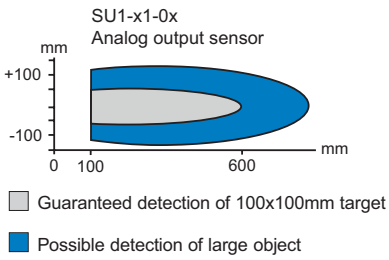
**Note: Control wire can be used to inhibit sensor or to synchronize with another sensor.*

Characteristic Curves

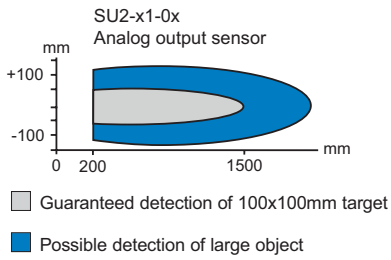
Analog Output



Detection Area SU1 Analog output



Detection Area SU2 Analog output



TU Series Ultrasonic Sensors

M30 (30 mm) Plastic – PNP or Analog Output

- High resolution
- PNP output model with adjustable sensitivity
- Complete overload protection
- IP67 rated
- LED status indicator on PNP models
- Purchase cable separately
- Lifetime warranty

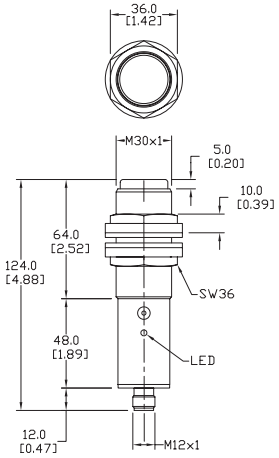
TU Series Ultrasonic PNP Output Sensor Selection Chart						
Part Number	*Price*	*Sensing Range*	*Output State*	*Logic*	*Connection*	*Wiring*
TU1-C0-0E	$008v1:	300 to 2500 mm [11.81-98.43 in]	N.O.	PNP	M12 [12 mm] connector	Diagram 1

TU Series Ultrasonic Analog Output Sensor Selection Chart					
Part Number	*Price*	*Sensing Range*	*Output*	*Connection*	*Wiring*
TU1-C1-0E	$008v2:	300 to 2500 mm [11.81-98.43 in]	0 to 10 VDC	M12 [12 mm] connector	Diagram 2

Specifications		
Mounting Type	*TU1-C0-0E*	*TU1-C1-0E*
Nominal Sensing Distance	300 to 2500 mm [11.81-98.43 in]	300 to 2500 mm [11.81-98.43 in]
Operating Distance	NA	NA
Output Type	PNP / N.O.	0 to 10 VDC
Operating Voltage	19 to 30 VDC	
No-load Supply Current	≤ 35 mA	
Operating (Load) Current	≤ 500 mA	≤ 5 mA
Off-state (Leakage) Current	≤ 10 µA	
Voltage Drop	≤2.5 volts	NA
Switching Frequency	1Hz	NA
Differential Travel	±2.0%	NA
Repeat Accuracy	0.2%	±2 mm
Linearity Error	-	≤ 0.3%
Ultrasonic Frequency	130kHz	
Ultrasonic Beam Angle	8°	
Max. Response Time	-	100 ms
Time Delay Before Availability (tv)	≤200 ms	≤ 1 s
Control Input	Hold / Sync	
Sensitivity Adjustment	Yes	-
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25 to +70°C [-13 to 158°F]	
Temperature Compensation	Yes	
Protection Degree	IEC IP67	
Indication/Switch Status	Yellow (output energized)	NA
Housing Material	Polybutylene Terephthalate [PBT]	
Tightening Torque	3 Nm [2.21 lb-ft]	
Weight (connector)	124g [4.37 oz]	
Connection	M12 [12mm] connector	
Agency Approvals	CE, UL listed file E187310	

Dimensions

mm [inches]



Wiring Diagrams

Diagram 1*

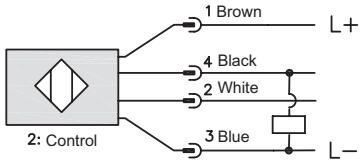
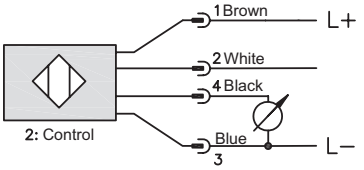
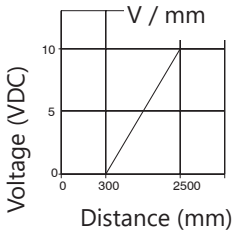


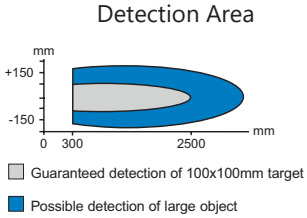
Diagram 2*



**Note: Control wire can be used to inhibit sensor or to synchronize with another sensor.*

Characteristic Curves (analog)





Connector

M12 connector

Must be used with 2M or 7M cable

UHZ Series Ultrasonic Sensors

Overview

The principle of ultrasonic sensors is based on the emission of a sound impulse and the measurement of the time elapsing of the return echo signal reflected by the detected object. The ultrasonic beam is well reflected by almost all materials (metal, wood, plastic, glass, liquid, etc.) and is not affected by colored, transparent, or shiny objects.

This allows the user to standardize on one sensor for many materials without any extra setup or sensing concerns.

Measuring only 30 mm x 20 mm, these miniature sensors are specifically designed for applications with limited mounting space. Through-beam pair sensors are often the most accurate and reliable sensor configurations, but can also be the most costly when compared to traditional diffuse or retroreflective sensors. The low price of a UHZ series through-beam pair allows it to be a competitive alternative to similarly priced but less accurate sensors.

Ultrasonic sensors (rectangular) are ideal for detecting objects in applications where the use of a normal photocell does not, such as:

- level measurement: for tanks containing solid or liquid
- diameter or loop detection: for materials such as paper, sheet iron, etc.
- transparent object detection: for plastic or glass bottles, plastic filters, etc.

Ultrasonic Through-Beam Sensors Specifications	
Specifications	***UHZ***
Nominal Sensing Distance	300 mm [11.81 in]
Operating Distance	NA
Output Type	PNP/NPN, N.O./ N.C.
Operating Voltage	18 - 30 VDC
No Load Supply Current	< 40mA
Operating (Load) Current	500mA
Off-state (Leakage) Current	< 10µA @ 30 VDC
Voltage Drop	NA
Switching Frequency	150Hz
Sensing Beam	Beam angle 15°
Differential Travel (% of Nominal Distance)	NA
Repeat Accuracy	NA
Ripple	NA
Time Delay Before Availability (tv)	NA
Response Time	1ms
Reverse Polarity Protection	Yes
Short-Circuit Protection	Output short circuit and over current protection, reverse polarity protection
Operating Temperature	5 to 140°F [-15 to +60°C]
Protection Degree	IEC-IP67
Indication/Switch Status	Yellow Output State
Case Material	PBTP
Active Head Material	Ceramic
Shock/Vibration	per IEC EN 60947-5-2
Tightening Torque	NA
Weight	161g [5.68 oz]
Connection	2m [6.5 ft] axial cable
Agency Approvals	CE

UHZ Series Ultrasonic Sensors

Overview

The UHZ series of miniature ultrasonic sensors includes four models of rectangular through-beam units. These tiny 20 mm x 30 mm sensors have a maximum sensing distance of 300 mm, with no dead zone at close range. This enables object sensing at a variety of distances. All models have an LED indicator on the receiver and are IP67 protection rated.

With two pre-drilled mounting holes, the UHZ units can be surface mounted more easily than traditional 18 mm or 30 mm threaded tubular designs, which often require a separate mounting bracket or a large mounting hole and additional locknuts.

Features

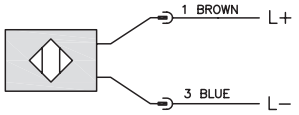
- 30x20x12 mm emitter/receiver rectangular ultrasonic sensor
- LED status indicator for all models
- Complete protection against electrical damage
- IP67 protection
- Strong plastic housing
- Switching frequency 150 Hz
- Sensing distance (sn): 300mm
- Beam angle: 15°
- Supply voltage: 18 - 30 VDC
- Lifetime warranty

Rectangular Ultrasonic Through-Beam Sensors Selection Chart

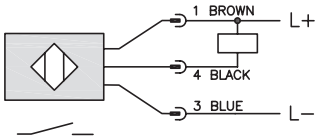
Part Number	Price	Voltage Range	Sensing Range	Switching Frequency	Sensing Beam	Through-Beam Component	Output Type	Connection Type	Wiring
UHZ-AN-0A	$;008vt:	18 - 30 VDC	11.81 in [0.3 m]	150Hz	Ultrasonic	pair	NPN /N.O.	2m [6.5 ft] cable	Diagram 1
UHZ-AP-0A	$008vu:					pair	PNP/ N.O.		Diagram 2

Wiring Diagram

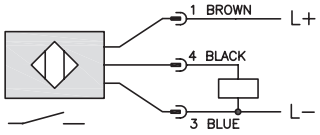
Emitter



Receiver (NPN) Diagram 1

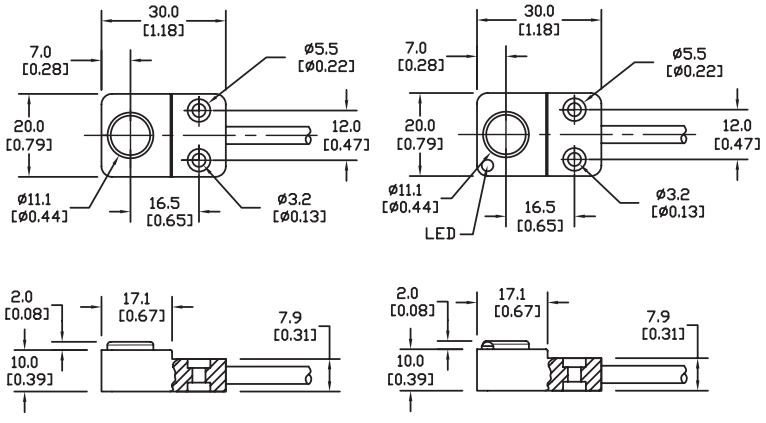


Receiver (PNP) Diagram 2



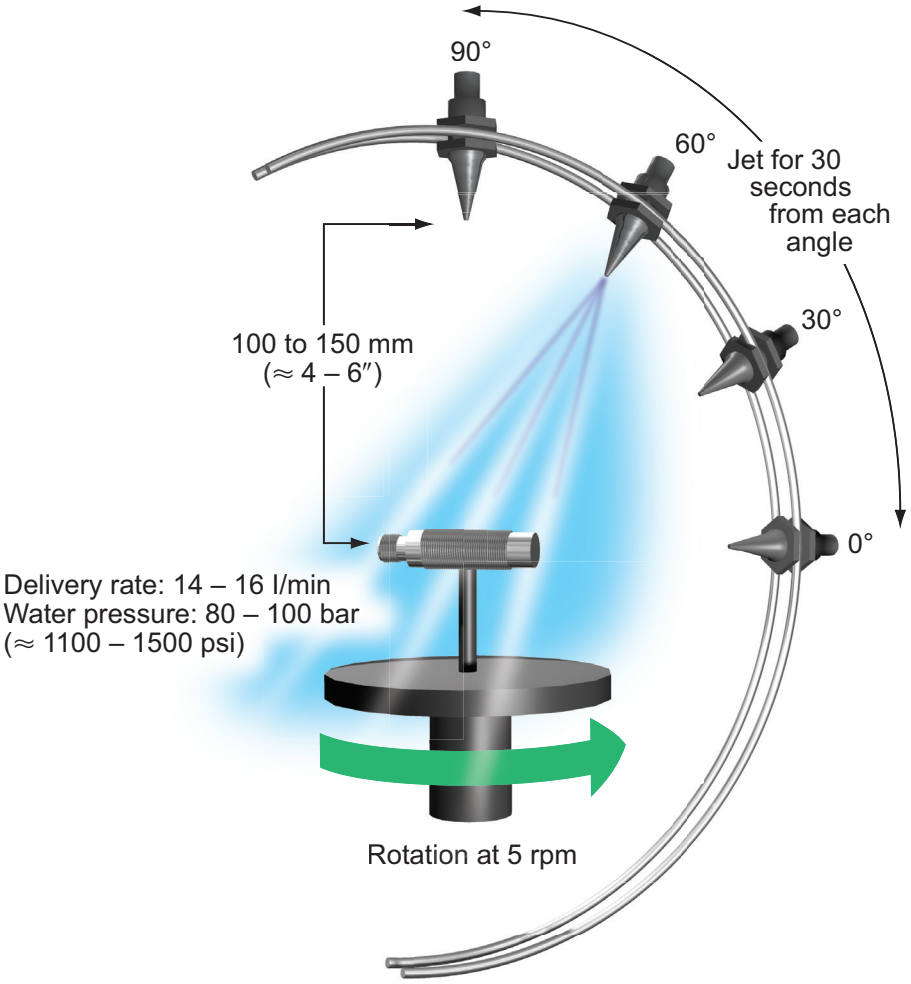
Dimensions

mm [inch]



Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

IP69K-rated Proximity Sensors



Overview

IP69K high-pressure cleaning test

The ADC Food and Beverage products were tested in accordance with the IP69K standard, according to DIN 40050 part 9. The goal of this test was to duplicate pressure cleaning conditions on a plant floor. In the test fixture, the sensors were exposed to a 1500 psi spray of water at a temperature of 176 ˚F. The duration of each cleaning cycle was 30 seconds. The test was performed at specified angles using a spray nozzle located at a distance of 4" from the switch. The sensors withstood test conditions and were still operable, providing 100% of sensing range.

Thermal endurance

In pressure cleaning environments, proximity and photo sensors can be exposed to extreme temperature conditions. A thermal shock test was performed on the proximity sensors by cycling the temperature to ensure their consistent high reliability. All proximity and FFRS photoeyes can withstand temperatures up to 100°C (212°F).

FDA certified Materials

The ADC Food & Beverage sensors are manufactured from materials capable of withstanding solutions used during equipment cleaning. These materials are all approved by the FDA for use in food production environments:

- 316L (V4A) stainless steel
- PMMA (acrylic)
- PEEK (Polyether Ether Ketone)
- PPS (Techtron)

Third Party chemical testing companies such as ECOLAB and Johnson Diversey have tested these products with common cleaning agents, such as P3-clint KF and P3-topax 52, to assure continued operation.

PFM Series IP69K-rated Proximity Sensors

12mm Stainless Steel - DC

PFM1-BN-1H

- 12 mm diameter
- 316 L stainless steel housing
- M12 quick-disconnect plug with gold-plated pins (purchase cable separately)
- Complete overload protection
- IP69K rated for food and beverage applications
- M12 mounting hex nuts included
- Lifetime warranty

PFM Series Food and Beverage DC Inductive Prox Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Dimensions
Standard								
PFM1-BN-1H	$;09f4:	0 to 2 mm [0 to 0.08 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 2
PFM1-BP-1H	$;09f8:				PNP	M12 [12mm] connector	Diagram 2	Figure 2
PFM1-BN-2H	$;09f5:	0 to 4 mm [0 to 0.157 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 2
PFM1-BP-2H	$;09f9:				PNP	M12 [12mm] connector	Diagram 2	Figure 2
Extended								
PFM1-BN-3H	$;09f6:	0 to 4 mm [0 to 0.157 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 2
PFM1-BP-3H	$;09fa:				PNP	M12 [12mm] connector	Diagram 2	Figure 2
PFM1-BN-4H	$;09f7:	0 to 8 mm [0 to 0.315 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 2
PFM1-BP-4H	$;09fb:				PNP	M12 [12mm] connector	Diagram 2	Figure 2
PFM1-AP-4H	Retired	0 to 7 mm [0 to 0.275 in]		N.O.	PNP	M12 [12mm] connector	Diagram 3	Figure 1

Wiring Diagrams

Diagram 1

NPN Output

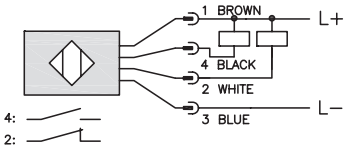
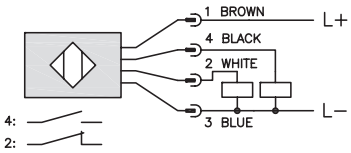


Diagram 2

PNP Output

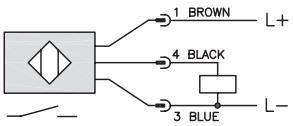


Connector

M12 connector

Diagram 3

PNP Output



Note: Class 2 power supply required

PFM Series IP69K-rated Proximity Sensors

PFM Series Specifications	Standard		Extended			
Mounting Type	***Flush***	***Non-flush***	***Flush***	***Non-flush***	***Flush***	***Non-flush***
Nominal Sensing Distance	2mm [0.08 in]	4mm [0.157 in]	4mm [0.157 in]	8mm [0.315 in]	4mm [0.157 in]	7m [0.275 in]
Operating Distance	NA					
Material Correction Factors	See the Material influence table					
Output Type	NPN or PNP/4-wire, N.O./N.C				PNP, N.O. only	
Operating Voltage	10 - 30 VDC				10 - 36 VDC	
No-load Supply Current	≤ 15 mA				≤ 10 mA	
Operating (Load) Current	≤ 200 mA				≤ 100 mA	
Off-state (Leakage) Current	≤ 10 µA				NA	
Voltage Drop	≤ 2.0 V				≤ 2.5 V	
Switching Frequency	2000Hz				800Hz	
Differential Travel (% of Nominal Distance)	1 - 20%					3 - 15%
Repeat Accuracy	5%				10%	
Ripple	≤ 10%				NA	
Time Delay Before Availability (tv)	50 ms				30 ms	
Reverse Polarity Protection	Yes					
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)					
Operating Temperature	-40 to 80°C [-40 to 176°F], Short exposure (15 minutes) to 100°C [212°F] during cleaning processes				0 to 100°C [32 to 212°F]	
Temperature Drift	≤ 10% Sr					
Protection Degree (DIN 40050)	IEC IP67, IP68, IP69K				IEC IP68, IP69K	
Indication/Switch Status	Normally Open output energized - Yellow					
Housing Material	316L stainless steel					
Sensing Face Material	PPS (FDA certified)				PEEK (Polyether Ether Ketone)	
Shock/Vibration	See Proximity Sensor Terminology					
Tightening Torque	20 Nm [14.75 lb-ft]				20 Nm [14.75 lb-ft]	
Weight	35g [1.23 oz]				25g [0.88 oz]	
Connection	M12 plug with gold-plated pins					
Agency Approvals	UL file E187310, CE, ECOLAB, RoHS				UL file E328811, CE, ECOLAB, RoHS	

*** Part number PFM1-AP-4H has N.O. PNP outputs only.**
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

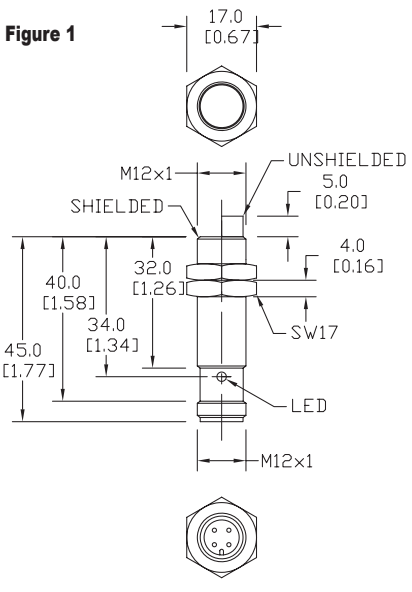
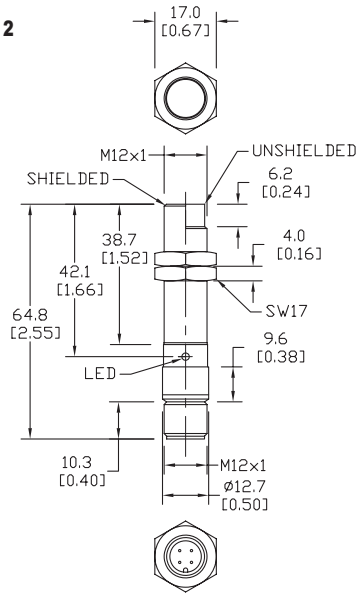


Figure 2



PFK Series IP69K-rated Proximity Sensors

18mm Stainless Steel - DC

PFK1-BN-1H

- 18mm diameter
- 316 L stainless steel housing
- M12 quick-disconnect plug with gold-plated pins (purchase cable separately)
- Complete overload protection
- IP69K rated for food and beverage applications
- M18 mounting hex nuts included
- Lifetime warranty

PFK Series Food and Beverage DC Inductive Proximity Selection Chart								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
Standard								
PFK1-BN-1H	$;09fe:	0 to 5 mm [0 to 0.197 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
PFK1-BP-1H	$;-09fi:				PNP	M12 [12mm] connector	Diagram 2	Figure 3
PFK1-BN-2H	$;;09ff:	0 to 8 mm [0 to 0.315 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
PFK1-BP-2H	$;-09fj:				PNP	M12 [12mm] connector	Diagram 2	Figure 3
Extended								
PFK1-BN-3H	$;09fg:	0 to 8 mm [0 to 0.315 in]	Flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
PFK1-BP-3H	$;09fk:				PNP	M12 [12mm] connector	Diagram 2	Figure 3
PFK1-BN-4H	$;09fh:	0 to 12 mm [0 to 0.472 in]	Non-flush	N.O./N.C.	NPN	M12 [12mm] connector	Diagram 1	Figure 3
PFK1-BP-4H	$;-09fl:				PNP	M12 [12mm] connector	Diagram 2	Figure 3
PFK1-AP-4H	Retired			N.O.	PNP	M12 [12mm] connector	Diagram 3	Figure 2

Wiring Diagrams

Diagram 1

NPN Output

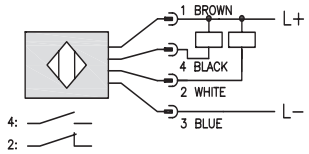
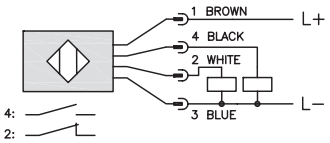


Diagram 2

PNP Output

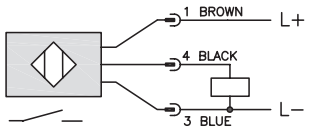


Connector

M12 connector

Diagram 3

PNP Output



Note: Class 2 power supply required

PFK Series IP69K-rated Proximity Sensors

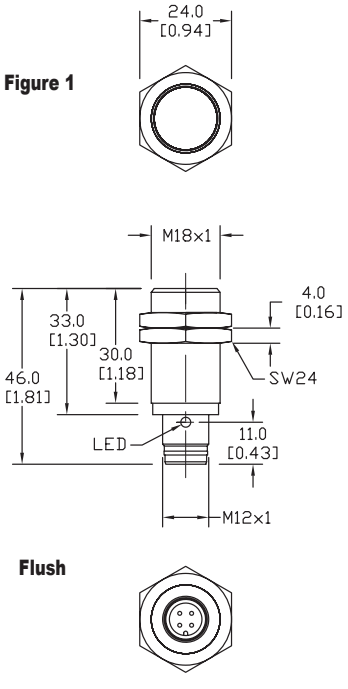
PFK Series Specifications	Standard		Extended			
Mounting Type	*Flush*	*Non-flush*	*Flush*	*Non-flush*	*Flush**	*Non-flush**
Nominal Sensing Distance	5mm [0.196 in]	8mm [0.315 in]	8mm [0.315 in]	12mm [0.472 in]	8mm [0.315 in]	12mm [0.472 in]
Operating Distance	NA					
Material Correction Factors	See the Material influence table					
Output Type	NPN or PNP/4-wire, N.O./N.C.				PNP, N.O. only	
Operating Voltage	10 - 30 VDC				10 - 36 VDC	
No-load Supply Current	≤ 15mA				≤10mA	
Operating (Load) Current	≤200mA				≤ 100mA	
Off-state (Leakage) Current	≤10 µA				NA	
Voltage Drop	≤2.0 V				≤ 2.5 V	
Switching Frequency	1500Hz				600Hz	300Hz
Differential Travel (% of Nominal Distance)	1 - 20%					3 - 15%
Repeat Accuracy	5%				10%	
Ripple	≤10%				NA	
Time Delay Before Availability (tv)	50ms				30ms	
Reverse Polarity Protection	Yes					
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)					
Operating Temperature	-40 to 80°C [-40 to 176°F], Short exposure (15 minutes) to 100°C [212°F] during cleaning processes				0 to 100°C [32 to 212°F]	
Protection Degree (DIN 40050)	IEC IP67, IP68, IP69K				IEC IP68, IP69K	
Indication/Switch Status	Normally Open output energized - Yellow					
Housing Material	316 L stainless steel					
Sensing Face Material	PPS (FDA certified)				PEEK (Polyether Ether Ketone)	
Shock/Vibration	See Proximity Sensor Terminology					
Tightening Torque	107 Nm [79 lb-ft]				50 Nm [37 lb-ft]	
Weight	35g [1.23 oz]				45g [1.587 oz]	
Connection	M12 plug with gold-plated pins					
Agency Approvals	UL file E187310, CE, ECOLAB, RoHS				UL file E187310, CE, ECOLAB, RoHS	

*** Part number PFK1-AP-4H have N.O. PNP outputs only.**
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

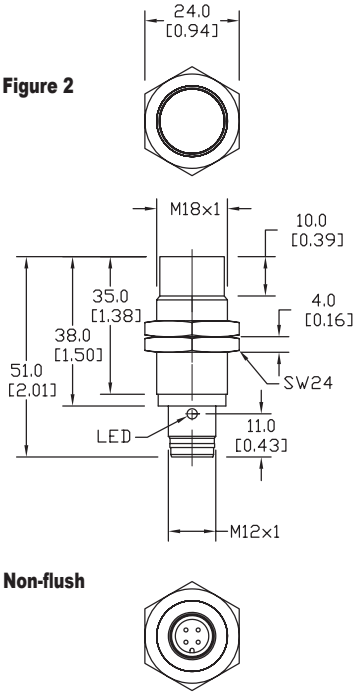
mm [inches]

Figure 1



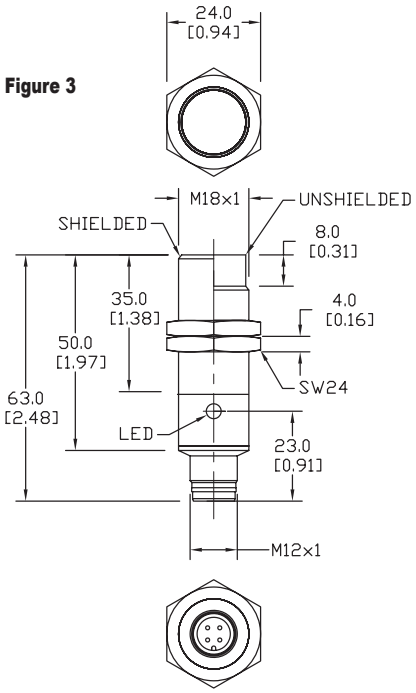
Flush

Figure 2



Non-flush

Figure 3



PFT Series IP69K-rated Proximity Sensors

PFT1-AP-3H
PFT1-AP-4H

30 mm Stainless Steel - DC

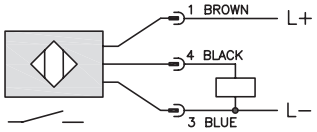
- PFT1 series – short-body length, PFT2 series – regular body length
- 30 mm diameter
- 316L stainless steel housing
- M12 quick-disconnect plug with gold-plated pins (purchase cable separately)
- Complete overload protection
- IP69K rated for food and beverage applications
- M30 mounting hex nuts included
- Lifetime warranty

PFT Series Food and Beverage DC Inductive Proximity Selection Chart								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
PFT1-AP-3H	$-09el:	0 to 14 mm [0 to 0.551 in]	Flush	N.O.	PNP	M12 [12mm] connector	Diagram 1	Figure 1
PFT2-AP-3H	Retired	0 to 15 mm [0 to 0.590 in]			PNP	M12 [12mm] connector	Diagram 1	Figure 2
PFT1-AP-4H	$09en:	0 to 22 mm [0 to 0.866 in]	Non-flush	N.O.	PNP	M12 [12mm] connector	Diagram 1	Figure 1
PFT2-AP-4H	$09ep:				PNP	M12 [12mm] connector	Diagram 1	Figure 2

Wiring Diagram

Diagram 1

PNP output



Connector

M12 connector

Note: Class 2 power supply required

PFT Series IP69K-rated Proximity Sensors

PFT Series Food and Beverage DC Inductive Proximity Specifications				
Mounting Type	***Flush***		***Non-flush***	
Series	PFT1	PFT2	PFT1	PFT2
Nominal Sensing Distance	14mm [0.551 in]	15mm [0.590 in]	22mm [0.866 in]	
Operating Distance	NA			
Material Correction Factors	See the Material influence table			
Output Type	PNP, N.O. only			
Operating Voltage	10 - 36 VDC			
No-load Supply Current	≤ 10mA			
Operating (Load) Current	≤ 100mA			
Off-state (Leakage) Current	NA			
Voltage Drop	≤ 2.5 V			
Switching Frequency	50Hz		100Hz	
Differential Travel (% of Nominal Distance)	3 - 15%			
Repeat Accuracy	10%			
Ripple	NA			
Time Delay Before Availability (tv)	30ms			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)			
Operating Temperature	0 to 100°C [32 to 212°F]			
Protection Degree (DIN 40050)	IEC IP68, IP69K			
Indication/Switch Status	Normally Open output energized - Yellow			
Housing Material	316 L stainless steel			
Sensing Face Material	PEEK (Polyether Ether Ketone)			
Shock/Vibration	See Proximity Sensor Terminology			
Tightening Torque	80 Nm [59 lb-ft]			
Weight	110g [3.88 oz]	130g [4.58 oz]	107g [3.77 oz]	124g [4.37 oz]
Connection	M12 plug with gold-plated pins			
Agency Approvals	UL file E328811, CE ECOLAB, RoHS			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1

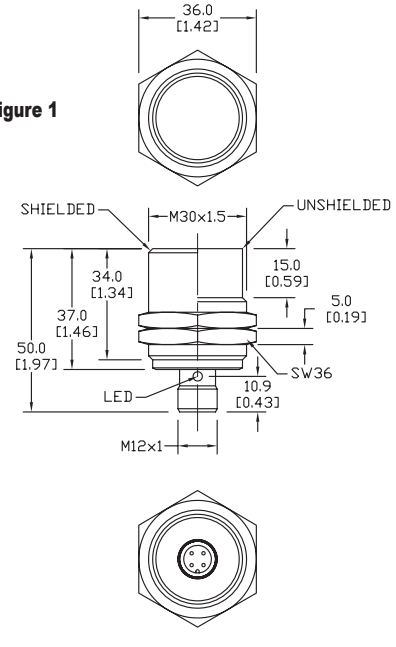
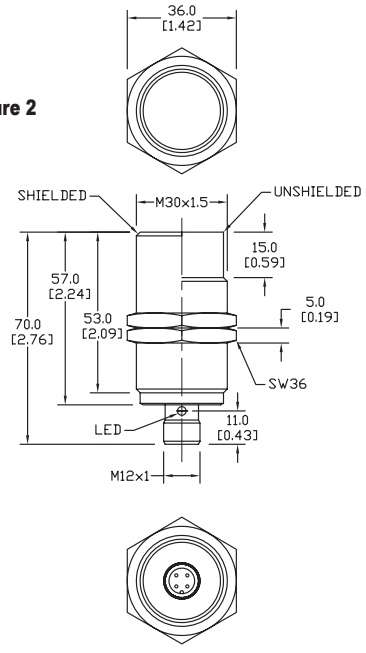


Figure 2



VFK Series IP69K-rated Proximity Sensors

VFK1-A0-1M
VFK1-A0-2M

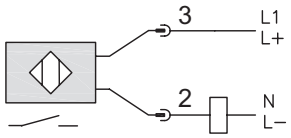
18mm Stainless Steel - AC

- 18mm diameter
- 316L stainless steel housing
- 1/2" micro AC quick-disconnect plug with gold-plated pins (purchase cable separately)
- Complete overload protection
- IP69K rated for food and beverage applications
- M18 mounting hex nuts included
- Lifetime warranty

VFK Series Food and Beverage AC Inductive Proximity Selection Chart							
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Connection*	*Wiring*	*Dimensions*
VFK1-A0-1M	$09eh:	0 to 5 mm [0 to 0.197 in]	Flush	N.O.	1/2" micro AC quick-disconnect plug	Diagram 1	Figure 1
VFK1-A0-2M	$-09ei:	0 to12 mm [0 to 0.472 in]	Non-flush		1/2" micro AC quick-disconnect plug	Diagram 1	Figure 1

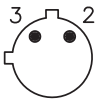
Wiring Diagram

Diagram 1



Note: Class 2 power supply required

Connector



VFK Series IP69K-rated Proximity Sensors

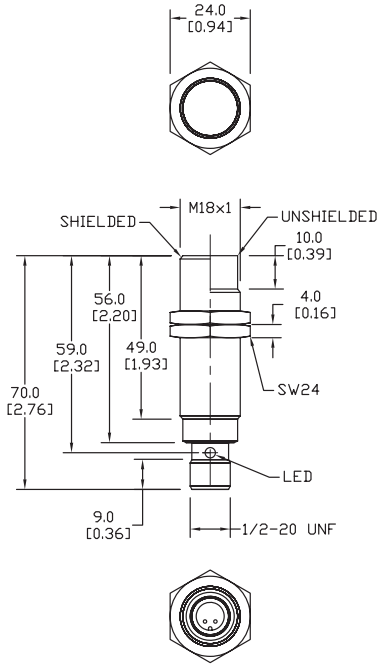
VFK Series Food and Beverage AC Inductive Proximity Specifications		
Mounting Type	***Flush***	***Non-flush***
Nominal Sensing Distance	0 to 5 mm [0 to 0.197 in]	0 to12 mm [0 to 0.472 in]
Operating Distance	NA	
Material Correction Factors	See the Material influence table	
Output Type	N.O. only	
Operating Voltage	20 to 140 VAC/VDC	
No-load Supply Current	NA	
Operating (Load)Current	5 - 200mA	
Off-state (Leakage) Current	< 1mA	
Voltage Drop	< 5.5 V	
Switching Frequency	25Hz VAC/400Hz VDC	25Hz VAC/300Hz VDC
Differential Travel (% of Nominal Distance)	1 - 20%	
Repeat Accuracy	10%	
Ripple	NA	
Time Delay Before Availability (tv)	1s	
Reverse Polarity Protection	yes	
Short-Circuit Protection	yes [non latching]	
Operating Temperature	0 to 100°C [32 to 212°F]	
Protection Degree (DIN 40050)	IEC IP68/IP69K, II	
Indication/Switch Status	Normally Open output energized - Yellow	
Housing Material	316L stainless steel	
Sensing Face Material	PEEK (Polyether Ether Ketone)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	50 Nm [37 lb-ft]	
Weight	68g [2.39 oz]	59g [2.08 oz]
Connection	1/2" micro AC connector	
Agency Approvals	UL E328811, CE, ECOLAB, RoHS	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

mm [inches]

Figure 1



VFT Series IP69K-rated Proximity Sensors

VFT1-A0-1M
VFT1-A0-2M

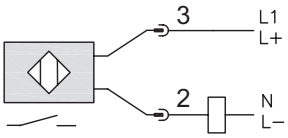
30mm Stainless Steel - AC

- 30mm diameter
- 316L stainless steel housing
- 1/2" micro AC quick-disconnect plug with gold-plated pins (purchase cable separately)
- Complete overload protection
- IP69K rated for food and beverage applications
- M30 mounting hex nuts included
- Lifetime warranty

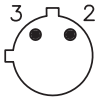
VFT Series Food and Beverage AC Inductive Proximity Selection Chart							
Part Number	***Price***	***Sensing Range***	***Mounting***	***Output State***	***Connection***	***Wiring***	***Dimensions***
VFT1-A0-1M	$-09ej:	0 to 14 mm [0 to 0.551 in]	Flush	N.O.	1/2" micro AC quick-disconnect plug	Diagram 1	Figure 1
VFT1-A0-2M	$09ek:	0 to 22 mm [0 to 0.866 in]	Non-flush		1/2" micro AC quick-disconnect plug	Diagram 1	Figure 1

Wiring Diagram

Diagram 1



Connector



Note: Class 2 power supply required

VFT Series IP69K-rated Proximity Sensors

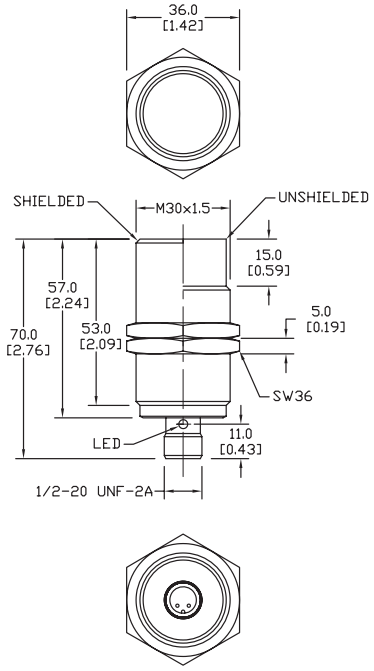
VFT Series Food and Beverage AC Inductive Proximity Specifications		
Mounting Type	***Flush***	***Non-flush***
Nominal Sensing Distance	0 to 14 mm [0 to 0.551 in]	0 to 22 mm [0 to 0.866 in]
Operating Distance	NA	NA
Material Correction Factors	See the Material influence table	
Output Type	N.O. only	
Operating Voltage	20 to 140 VAC/VDC	
No-load Supply Current	NA	
Operating (Load) Current	5 - 200mA	
Off-state (Leakage) Current	< 1mA	
Voltage Drop	< 5.5 V	
Switching Frequency	25Hz VAC/100Hz VDC	
Differential Travel (% of Nominal Distance)	2 - 15%	3 - 15%
Repeat Accuracy	10%	
Ripple	NA	
Time Delay Before Availability (tv)	1s	
Reverse Polarity Protection	yes	
Short-Circuit Protection	yes (non latching)	
Operating Temperature	0 to 100°C [32 to 212°F]	
Protection Degree (DIN 40050)	IEC IP68/IP69K, II	
Indication/Switch Status	Normally Open output energized - Yellow	
Housing Material	316L stainless steel	
Sensing Face Material	PEEK (Polyether Ether Ketone)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	80 Nm [59 lb-ft]	
Weight	149g [5.25 oz]	142g [5.01 oz]
Connection	1/2" micro AC connector	
Agency Approvals	UL E328811, CE, ECOLAB, RoHS	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

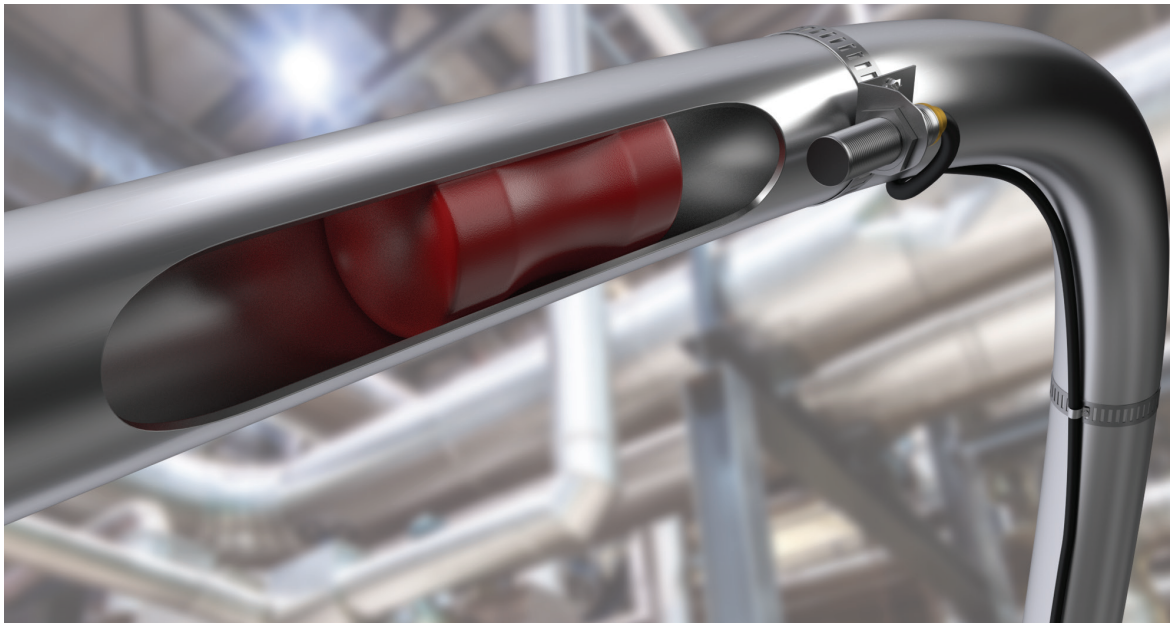
Dimensions

mm [inches]

Figure 1



M Series Magnetic Proximity Sensors



Overview

Magnetic proximity sensors are used for non-contact position detection beyond the normal limits of inductive sensors. In conjunction with a separate "damping" magnet, magnetic sensors offer very long sensing ranges from a small package size. Depending on the orientation of the magnetic field the sensor can be damped from the front or from the side.

Since magnetic fields penetrate all non-magnetisable materials, these sensors can detect magnets through walls made of non-ferrous metal, stainless steel, aluminium, plastic or wood.

In the food industry the magnetic sensor is often used in connection with a "pig" (cleaning devices which pass through the inside of pipes). These magnetic proximity sensors can detect the exact position of the pig from outside the wall of the stainless steel pipe.

Many clean in place (CIP) systems use magnetic proxes at a "diverter panel" to detect the position of a U-tube through a stainless steel faceplate.

Features:

- Detection through plastic, wood, and any non-magnetisable metals
- Small housings with very long sensing ranges up to 70 mm
- Cylinder and rectangular designs satisfy space-dependent applications
- High mechanical stability in case of shock or vibration
- Flush or non-flush installation in non-magnetisable metals

Operating Principle

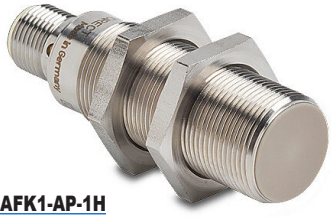
Magnetic sensors use GMR (Giant Magneto Resistive Effect) technology. The measuring cell consists of resistors with several extremely fine, ferromagnetic and non-magnetic layers. Two of these GMR resistors are used to form a conventional Wheatstone bridge circuit which produces a large signal proportional to the magnetic field when a magnetic field is present. A threshold value is defined and an output signal is switched via a comparator.

M Series Cylindrical Magnetic Proximity Sensors

8mm, 12mm and 18mm stainless steel

- 8mm, 12mm, and 18mm diameter
- 316L stainless steel housing
- 316L stainless steel or PBT (polybutylene terephthalate) sensing face
- Complete overload protection
- IP67, IP65/IP67 or IP65/IP68/IP69K rated
- 2m axial cable or quick-disconnect termination styles
- Mounting hex nuts included
- Lifetime warranty

MAFM1-AP-1H



MAFK1-AP-1H

M Series Magnetic DC Proximity Selection Chart								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
8mm Diameter								
MAE-AP-1F	$11gx:	0 to 60 mm [0 to 2.362 in]	Flush	N.O.	PNP	M8 connector	Diagram 3	Figure 1
MAE-AP-1A	$11gy:					2m [6.5 ft] cable	Diagram 1	Figure 2
12mm Diameter								
MAFM1-AP-1H	$5xay:	0 to 60 mm [0 to 2.362 in]	Flush	N.O.	PNP	M12 connector	Diagram 3	Figure 3
MMW-AP-1H	$11g?:						Diagram 3	
MMW-AN-1H	$;11g,:				NPN		Diagram 2	
MMW-CP-1H	$11h0:			N.C.	PNP		Diagram 4	
18mm Diameter								
MAFK1-AP-1H	$5xaz:	0 to 70 mm [0 to 2.756 in]	Flush	N.O.	PNP	M12 connector	Diagram 3	Figure 4
MKW-AP-1H	$11h1:						Diagram 3	
MKW-AN-1H	$11h2:				NPN		Diagram 2	
MKW-CP-1H	$11h3:			N.C.	PNP		Diagram 4	

Wiring Diagrams

Diagram 1

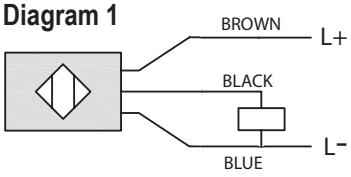


Diagram 2

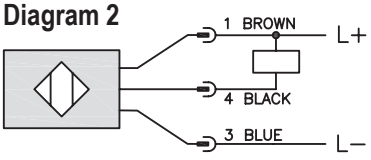


Diagram 3

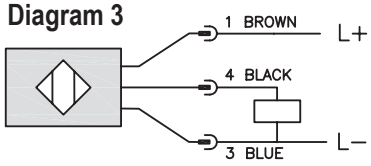
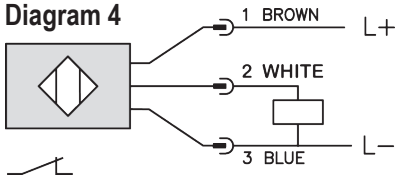
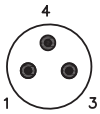


Diagram 4



Connectors

M8 connector



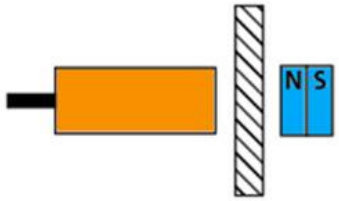
M12 connector

Note: Class 2 power supply required

M Series Cylindrical Magnetic Proximity Sensors

M Series Magnetic DC Proximity Specifications					
Series	***MAE***	***MAFM***	***MMW***	***MAFK***	***MKW***
Mounting Type	Flush				
Nominal Sensing Distance*	0 to 60 mm [0 to 2.362 in]			0 to 70 mm [0 to 2.756 in]	
Operating Distance	NA				
Material Correction Factors	NA				
Output Type	PNP, N.O. only	PNP, N.O. only	PNP/NPN N.O., N.C.	PNP, N.O. only	PNP/NPN N.O., N.C.
Operating Voltage	10 to 30 VDC				
No-load Supply Current	< 10mA				
Operating (Load) Current	200mA				
Off-state (Leakage) Current	NA				
Voltage Drop	< 2.5 V				
Switching Frequency	5000 Hz VDC				
Differential Travel (% of Nominal Distance)	1 to 10%				
Repeat Accuracy	10%				
Ripple	NA				
Time Delay Before Availability (tv)	10s				
Reverse Polarity Protection	Yes				
Short-Circuit Protection	Yes (non latching)				
Operating Temperature	-25 to 75°C [-13 to 167°F]	0 to 100°C [32 to 212°F]	-25 to 75°C [-13 to 167°F]	0 to 100°C [32 to 212°F]	-25 to 75°C [-13 to 167°F]
Protection Degree (DIN 40050)	IEC IP67 III	IEC IP65/IP68/IP69K, III	IEC IP65/IP67 III	IEC IP65/IP68/IP69K, III	IEC IP65/IP67 III
Indication/Switch Status	Normally open output energized - Yellow				
Housing Material	316L stainless steel				
Sensing Face Material	PBT (Polybutylene Terephthalate)	Stainless steel 316L			
Shock/Vibration	See Proximity Sensor Terminology				
Tightening Torque	3.5 N•m [2.58 lb-ft]	20 N•m [14.75 lb-ft]	10 N•m [7.38 lb-ft]	50 N•m [37 lb-ft]	35 N•m [25.81 lb-ft]
Weight	69g [2.4 oz] cable 27g [0.95 oz] connector	28g [0.98 oz]	29g [1.02 oz]	49g [1.73 oz]	49g [1.73 oz]
Connection	M8 connector or 2m [6.5 ft] cable	M12 connector			
Agency Approvals	cULus E32881, CE				

Note: To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.
***Sensing distances are based on MAG-4 magnet.**
Note: Purchase magnets separately (see listing for compatible magnets later in this section).



Sensing distances are based on the MAG-4 magnet with North facing the sensor. The sensor will work fine with South facing also, but ranges vary.

M Series Cylindrical Magnetic Proximity Sensors

Dimensions

mm [inches]

Figure 1

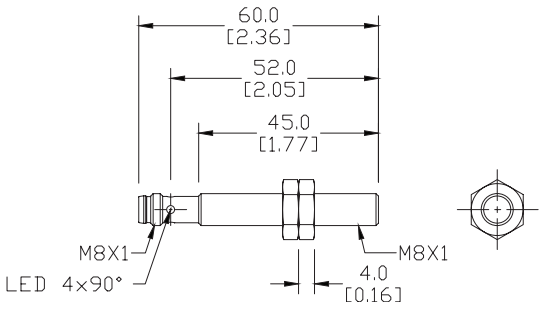


Figure 2

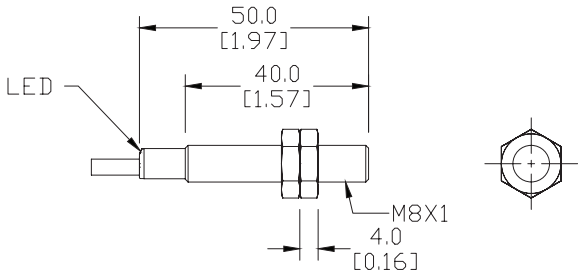


Figure 3

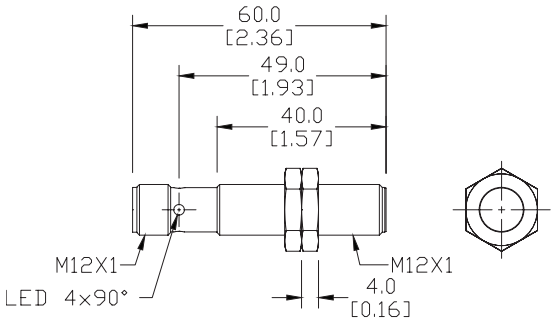
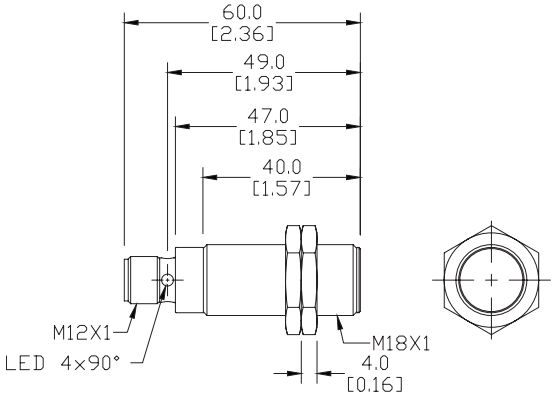


Figure 4



See our website: www.AutomationDirect.com for complete Engineering drawings.

M Series Rectangular Magnetic Proximity Sensors

Rectangular DC

- Rectangular units
- Polybutylene terephthalate housing
- M8 quick-disconnect or 2m cable
- Complete overload protection
- Lifetime warranty

M Series Magnetic DC Proximity Selection Chart								
Part Number	*Price*	*Sensing Range*	*Mounting*	*Output State*	*Logic*	*Connection*	*Wiring*	*Dimensions*
MDR-AP-1F	$11g#:	0 to 60 mm [0 to 2.362 in]	Flush	N.O.	PNP	M8 connector	Diagram 4	Figure 1
MDR-AP-1A	$;11g!:	0 to 60 mm [0 to 2.362 in]	Flush			2m [6.5 ft] cable	Diagram 2	Figure 2

Wiring Diagrams

Diagram 1

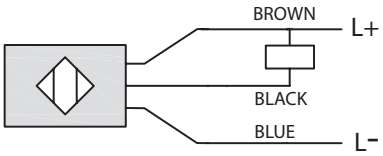
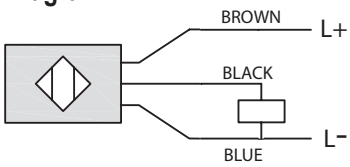


Diagram 2



Connectors

M8 connector

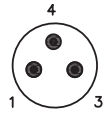


Diagram 3

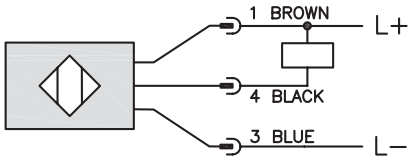
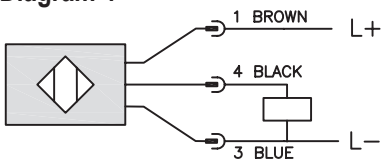


Diagram 4



Note: Class 2 power supply required

Dimensions

mm [inches]

Figure 1

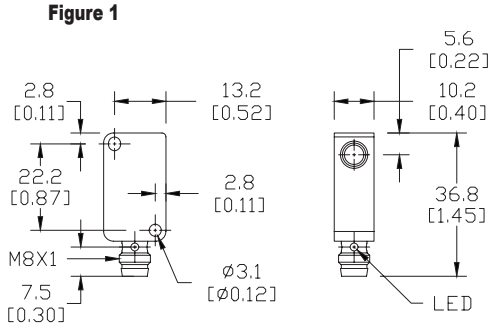
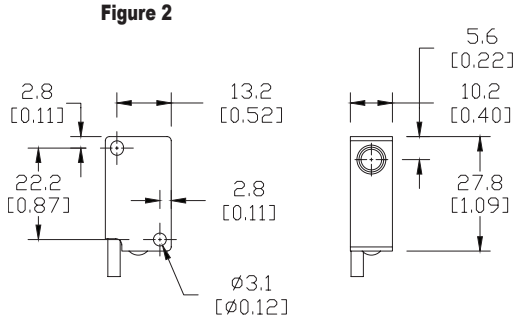


Figure 2

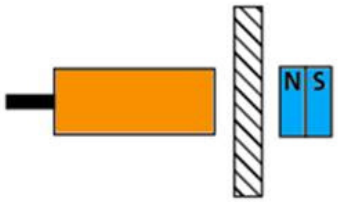


See our website: www.AutomationDirect.com for complete Engineering drawings.

M Series Rectangular Magnetic Proximity Sensors

M Series Magnetic DC Proximity Specifications	
Series	***MDR***
Mounting Type	Flush
Nominal Sensing Distance*	0 to 60mm [0 to 2.362 in]
Operating Distance	NA
Material Correction Factors	NA
Output Type	PNP, N.O. only
Operating Voltage	10 to 30VDC
No-load Supply Current	< 10mA
Operating (Load) Current	200mA
Off-state (Leakage) Current	NA
Voltage Drop	< 2.5 V
Switching Frequency	5000Hz VDC
Differential Travel (% of Nominal Distance)	1 to 10%
Repeat Accuracy	10%
Ripple	NA
Time Delay Before Availability (tv)	1s
Reverse Polarity Protection	yes
Short-Circuit Protection	yes (non latching)
Operating Temperature	-25 to 75°C [-13 to 167°F]
Protection Degree (DIN 40050)	IEC IP67
Indication/Switch Status	Yellow (Output energized)
Housing Material	PBT (Polybutylene terephthalate)
Sensing Face Material	PBT (Polybutylene terephthalate)
Shock/Vibration	See Proximity Sensor Terminology
Tightening Torque	NA
Weight	Cable: 60g [2.12 oz]; M8: 17g [0.6 oz]
Connection	M8 connector or 2m [6.5 ft] cable
Agency Approvals	cULus E32881, CE

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.
***Sensing distances are based on MAG-4 magnet.**
Note: Purchase magnets separately (see listing for compatible magnets later in this section).



Sensing distances are based on the MAG-4 magnet with North facing the sensor. The sensor will work fine with South facing also, but ranges vary.

Proximity Sensor Damping Magnets

Magnet

Damping Magnets		
Part Number	***Price***	***Drawing Link***
AW-MAG	$097n:	PDF
AW-MAG-3	$11ha:	PDF
MAG-1	$11h6:	PDF
MAG-3	$11h7:	PDF
MAG-4	$11h8:	PDF
MAG-5	$11h9:	PDF

- Damping magnet for use with magnet series sensors
- Barium ferrite and Samarium

Damping Magnets Specifications						
	AW-MAG	***AW-MAG-3***	***MAG-1***	***MAG-3***	***MAG-4***	***MAG-5***
Ambient Temperature	-13 to 266°F [-25 to 130°C]	-13 to 266°F [-25 to 130°C]	-58 to 392°F [-50 to 200°C]	-13 to 392°F [-25 to 200°C]		
Housing Materials	Barium ferrite, samarium	Barium Ferrite	Samarium Cobalt	Barium Ferrite		
Coating	Stainless steel (1.4571/316Ti)		–	–	–	–
Magnetic Field Strength	48 mT	45 mT	136 mT	95 mT	103 mT	115 mT
Weight	82g [2.89 oz]	22g [0.78 oz]	4g [0.14 oz]	11g [0.39 oz]	35g [1.23 oz]	56g [1.98 oz]

Inductive Proximity Sensors PAE Series

PAE-AP-1A

PAE-AP-2F

Tubular M8 (8mm) Stainless Steel – DC

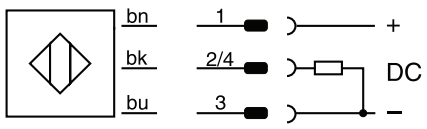
Features

- 304 stainless steel construction
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicator
- Mounting hardware included
- Lifetime warranty

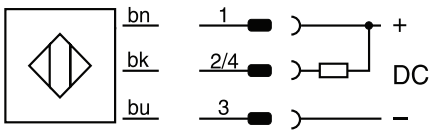
Tubular M8 DC Inductive Proximity Sensors PAE Series Selection Chart									
Part Number	*Price*	*Sensing Distance mm [in]*	*Mounting*	*Output State*	*Logic*	*Connection*	*Weight g [oz]*	*Body Size mm [in]*	*Drawing Link*
PAE-AP-1A	$63e2:	1.5 [0.05]	Flush	N.O.	PNP	PVC, 3-wire pigtail 2m [6.5 ft], 26AWG	40.2 [1.41]	22 [0.86]	PDF
PAE-AP-1F	$63e3:					3-pin M8 quick-disconnect [purchase cable separately]	13 [0.45]	45 [0.77]	PDF
PAE-AN-1F	$63e4:				NPN				PDF
PAE-AP-2A	$63e5:	2.5 [0.09]	Non-flush	N.O.	PNP	PVC, 3-wire pigtail 2m [6.5 ft], 26AWG	39.8 [1.40]	22 [0.86]	PDF
PAE-AP-2F	$63e6:					3-pin M8 quick-disconnect [purchase cable separately]	12.5 [0.44]	45 [0.77]	PDF
PAE-AN-2F	$63e7:				NPN				PDF

Wiring Diagrams

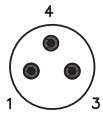
PNP Cable



NPN Cable



M8 Connector



Inductive Proximity Sensors PAE Series Specifications

Tubular M8 DC Inductive Proximity Sensors PAE Series Specifications		
Mounting Type	Flush	Non-Flush
Rated Operating Distance	1.5 mm [0.05 in]	2.5 mm [0.09 in]
Assured Operating Distance	≤ (0.81 x S_n) mm	
Repeat Accuracy	0.07 mm	0.12 mm
Hysteresis	≤ 20% S_r	
Temperature Drift	≤ 10% S_r	
Material Correction Factors	See the Material Influence Table	
Output Type	PNP or NPN, N.O.	
Operating Voltage	10 to 30 VDC	
Residual Ripple	≤ 20% U_B	
Output Current	≤ 200mA	
Output Voltage Drop	≤ 2.0 V @ 200mA	
Power Consumption (no-load)	≤ 10 mA	
Residual Current	≤ 0.1 mA	
Switching Frequency	5kHz	4.5 kHz
Short-Circuit Protection	Yes	
Reverse Polarity Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	LED, Yellow Sensing state (0 ≤ s ≤ Sr)	
Mounting	Embeddable	Non-embeddable
Housing Material	304 Stainless steel	
Sensing Face Material	PA66 (polyamide)	PBTP (Crastin) - glass fiber reinforced polybutylene terephthalate
Shock/Vibration	IEC 60947-5-2	
Agency Approvals	cULus File E328811, CE	

To obtain the most current agency approval information, see the Agency Compliance & Certifications section on the specific part number's web page.

Inductive Proximity Sensors PAM Series

PAM-AP-1A

PAM-AP-2H

Tubular M12 (12mm) – DC

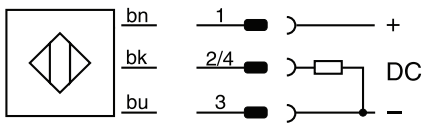
Features

- Nickel-plated brass construction
- Axial cable or M12 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicator
- Mounting hardware included
- Lifetime warranty

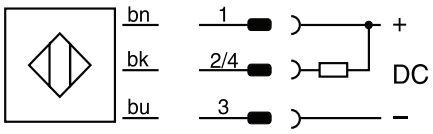
Tubular M12 DC Inductive Proximity Sensors PAM Series Selection Chart									
Part Number	*Price*	*Sensing Distance mm [in]*	*Mounting*	*Output State*	*Logic*	*Connection*	*Weight g [oz]*	*Body Size mm [in]*	*Drawing Link*
PAM-AP-1A	$63e8:	2 [0.07]	Flush	N.O.	PNP	PVC, 3-wire pigtail 2m [6.5 ft], 22AWG	90.5 [3.19]	35 [1.37]	PDF
PAM-AP-1H	$63e9:					4-pin M12 quick-disconnect [purchase cable separately]	23.5 [0.82]	45 [0.77]	PDF
PAM-AN-1H	$63ea:				NPN				PDF
PAM-AP-2A	$63eb:	4 [0.15]	Non-flush	N.O.	PNP	PVC, 3-wire pigtail 2m [6.5 ft], 22AWG	91.4 [3.22]	35 [1.37]	PDF
PAM-AP-2H	$63ec:					4-pin M12 quick-disconnect [purchase cable separately]	23.4 [0.82]	45 [0.77]	PDF
PAM-AN-2H	$63ed:				NPN				PDF

Wiring Diagrams

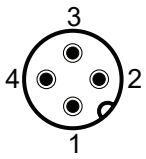
PNP Cable



NPN Cable



M12 Connector



Inductive Proximity Sensors PAM Series Specifications

Tubular M12 DC Inductive Proximity Sensors PAM Series Specifications		
Mounting Type	Flush	Non-Flush
Rated Operating Distance	2mm [0.07 in]	4mm [0.15 in]
Assured Operating Distance	≤ (0.81 x S_n) mm	
Repeat Accuracy	0.1 mm	0.2 mm
Hysteresis	≤ 20% S_r	
Temperature Drift	≤ 10% S_r	
Material Correction Factors	See the Material Influence Table	
Output Type	PNP or NPN, N.O.	
Operating Voltage	10 to 30 VDC	
Residual Ripple	≤ 20% U_B	
Output Current	≤ 200mA	
Output Voltage Drop	≤ 2.0 V @ 200mA	
Power Consumption (no-load)	≤ 10 mA	
Residual Current	≤ 0.1 mA	
Switching Frequency	3kHz	2kHz
Short-Circuit Protection	Yes	
Reverse Polarity Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	LED, Yellow Sensing state (0 ≤ s ≤ Sr)	
Mounting	Embeddable	Non-embeddable
Housing Material	Nickel-plated brass	
Sensing Face Material	PBTP (polybutylene terephthalate)	
Shock/Vibration	IEC 60947-5-2	
Agency Approvals	cULus File E328811, CE	

To obtain the most current agency approval information, see the Agency Compliance & Certifications section on the specific part number's web page.

Inductive Proximity Sensors PAK Series

PAK-AP-1A

PAK-AP-2H

Tubular M18 (18mm) – DC

Features

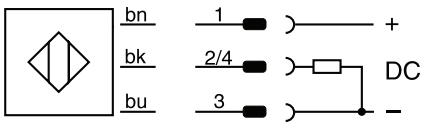
- Nickel-plated brass construction
- Axial cable or M12 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicator
- Mounting hardware included
- Lifetime warranty

Tubular M18 DC Inductive Proximity Sensors PAK Series Selection Chart

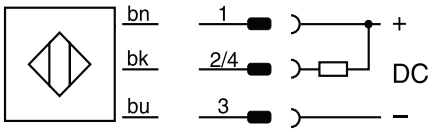
Part Number	Price	Sensing Distance mm [in]	Mounting	Output State	Logic	Connection	Weight g [oz]	Body Size mm [in]	Drawing Link
PAK-AP-1A	$63ee:	5mm [0.19]	Flush	N.O.	PNP	PVC, 3-wire pigtail 2m [6.5 ft], 22AWG	116 [4.09]	50 [1.96]	PDF
PAK-AP-1H	$;63ef:					4-pin M12 quick-disconnect [purchase cable separately]	51 [1.79]	63.5 [2.5]	PDF
PAK-AN-1H	$63eg:				NPN				PDF
PAK-AP-2A	$63eh:	8mm [0.31]	Non-flush	N.O.	PNP	PVC, 3-wire pigtail 2m [6.5 ft], 22AWG	112 [3.95]	50 [1.96]	PDF
PAK-AP-2H	$-63ei:			N.O.		4-pin M12 quick-disconnect [purchase cable separately]	49 [1.72]	63.5 [2.5]	PDF
PAK-AN-2H	$-63ej:			N.O.	NPN				PDF

Wiring Diagrams

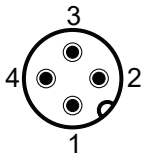
PNP Cable



NPN Cable



M12 Connector



Inductive Proximity Sensors PAK Series Specifications

Tubular M18 DC Inductive Proximity Sensors PAK Series Specifications		
Mounting Type	Flush	Non-Flush
Rated Operating Distance	5mm [0.19 in]	8mm [0.31 in]
Assured Operating Distance	≤ (0.81 x S_n) mm	
Repeat Accuracy	0.25 mm	0.4 mm
Hysteresis	≤ 20% S_r	
Temperature Drift	≤ 10% S_r	
Material Correction Factors	See the Material Influence Table	
Output Type	PNP or NPN, N.O.	
Operating Voltage	10 to 30 VDC	
Residual Ripple	≤ 20% U_B	
Output Current	≤ 200mA	
Output Voltage Drop	≤ 2.0 V @ 200mA	
Power Consumption (no-load)	≤ 10 mA	
Residual Current	≤ 0.1 mA	
Switching Frequency	2kHz	2kHz
Short-Circuit Protection	Yes	
Reverse Polarity Protection	Yes	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	LED, Yellow Sensing state (0 ≤ s ≤ Sr)	
Mounting	Embeddable	Non-embeddable
Housing Material	Nickel-plated brass	
Sensing Face Material	PBTP (polybutylene terephthalate)	
Shock/Vibration	IEC 60947-5-2	
Agency Approvals	cULus File E328811, CE	

To obtain the most current agency approval information, see the Agency Compliance & Certifications section on the specific part number's web page.

ProSense Basic M8 Inductive Proximity Sensors

Basic Series Inductive Proxes M8 (8mm)

- Operating range 1.5 to 2mm
- Nickel-plated brass housing
- LCP (Liquid Crystal Polymer) active face
- Normal range operating distance
- Cable or M8 connector
- PNP or NPN, N.O. or N.C.
- IP67 protection

Basic M8 Inductive Proximity Sensor Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
PBE6-AP-1A	$4n47:	1.5 mm [0.06 in]	Flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBE6-AP-1F	$4n4d:	1.5 mm [0.06 in]	Flush	N.O.	PNP	3-pin M8 connector	Diagram 3	PDF
PBE6-CP-1A	$-4n4j:	1.5 mm [0.06 in]	Flush	N.C.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBE6-CP-1F	$4n4q:	1.5 mm [0.06 in]	Flush	N.C.	PNP	3-pin M8 connector	Diagram 3	PDF
PBE6-AN-1A	$4n4y:	1.5 mm [0.06 in]	Flush	N.O.	NPN	Cable, 3 pole, 2m [6.5 ft]	Diagram 2	PDF
PBE6-AN-1F	$4n42:	1.5 mm [0.06 in]	Flush	N.O.	NPN	3-pin M8 connector	Diagram 4	PDF
PBE6-AP-2A	$4n43:	2mm [0.08 in]	Non-flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBE6-AP-2F	$4n44:	2mm [0.08 in]	Non-flush	N.O.	PNP	3-pin M8 connector	Diagram 3	PDF
PBE6-CP-2A	$4n45:	2mm [0.08 in]	Non-flush	N.C.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBE6-CP-2F	$4n46:	2mm [0.08 in]	Non-flush	N.C.	PNP	3-pin M8 connector	Diagram 3	PDF
PBE6-AN-2A	$4n48:	2mm [0.08 in]	Non-flush	N.O.	NPN	Cable, 3 pole, 2m [6.5 ft]	Diagram 2	PDF
PBE6-AN-2F	$4n49:	2mm [0.08 in]	Non-flush	N.O.	NPN	3-pin M8 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1

PNP Cable Version

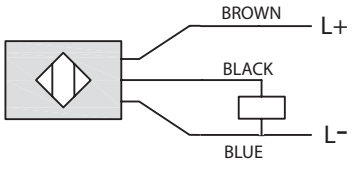
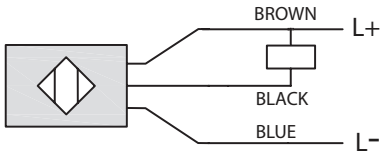


Diagram 2

NPN Cable Version



Connector

M8 connector

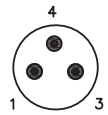


Diagram 3

PNP M8 Connector

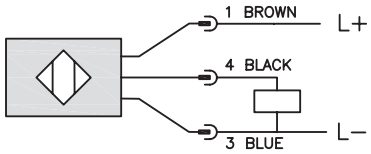
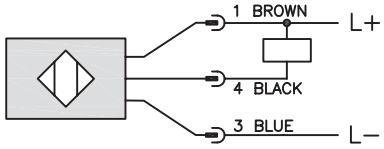


Diagram 4

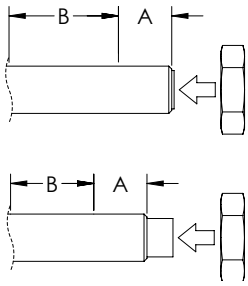
NPN M8 Connector



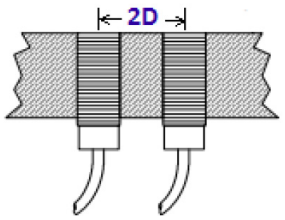
ProSense Basic M8 Inductive Proximity Sensors

Basic M8 Inductive Proximity Sensor Specifications		
Mounting Type	***Flush***	***Non-flush***
Nominal Sensing Distance	1.5 mm [0.06 in]	2mm [0.078 in]
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	200mA	
Off-state (Leakage) Current	≤ 10mA	
Voltage Drop	≤ 1.2 V (I=100mA)	
Switching Frequency	1000Hz	
Hysteresis	< 10%	
Repeat Accuracy	< 3%	
Ripple	< 10%	
Time Delay Before Availability (tv)	< 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25° to 70°C [-13° to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow, on when detecting	
Housing Material	Nickel-plated brass	
Sensing Face Material	LCP (Liquid Crystal Polymer)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	See Torque Table below	
Weight	80g [2.82 oz] (cable version) – 35g [1.23 oz] (M8 connector)	
Connection	2m [6.5 ft] PUR Cable, 3 pole, 26AWG or M8 Connector	
Agency Approvals	CE cULus E187310	

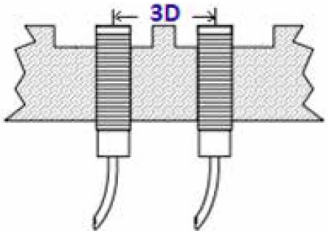
Installation Tightening Torque	
Mounting	Flush, non-flush mountable
Housing Material	Nickel plated brass
Diameter	8mm [0.31 in]
Tightening Torque for A (A = 11mm [0.43 in])	2 N•m [1.48 lb•ft]
Tightening Torque for B	4 N•m [2.95 lb•ft]



Flush Mounting
Flush models can be installed with their sensing faces flush to the metal. The distance from opposing metal surfaces must be ≥3sn (where sn=nominal switching distance), and the distance between two proximity switches (side by side) must be ≥2D.



Non-Flush Mounting
Non-flush models can be identified by their "caps," since they have no metal housing surrounding the area of the sensing face. The sensing face must extend ≥2sn (where sn=nominal switching distance) from the metallic installation medium. The distance from opposing metal surfaces must be ≥3sn, and the distance between two adjacent proximity switches must be ≥3D. The metal body leaves uncovered part of the sensing area, resulting in an increased sensing distance.



ProSense Basic M12 Inductive Proximity Sensors

Basic Series Inductive Proxes M12 (12mm)

- Operating distance 2 to 4mm
- Nickel-plated brass housing
- LCP (Liquid Crystal Polymer) active face
- Normal range operating distance
- Cable or M12 connector
- PNP or NPN, N.O. or N.C.
- IP67 protection

Basic M12 Inductive Proximity Sensor Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
PBM6-AP-1A	$4n4a:	2mm [0.08 in]	Flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBM6-AP-1H	$4n4b:	2mm [0.08 in]	Flush	N.O.	PNP	4-pin M12 connector	Diagram 3	PDF
PBM6-CP-1A	$4n4c:	2mm [0.08 in]	Flush	N.C.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBM6-CP-1H	$4n4e:	2mm [0.08 in]	Flush	N.C.	PNP	4-pin M12 connector	Diagram 3	PDF
PBM6-AN-1A	$;4n4f:	2mm [0.08 in]	Flush	N.O.	NPN	Cable, 3 pole, 2m [6.5 ft]	Diagram 2	PDF
PBM6-AN-1H	$4n4g:	2mm [0.08 in]	Flush	N.O.	NPN	4-pin M12 connector	Diagram 4	PDF
PBM6-AP-2A	$4n4h:	4mm [0.16 in]	Non-flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBM6-AP-2H	$-4n4i:	4mm [0.16 in]	Non-flush	N.O.	PNP	4-pin M12 connector	Diagram 3	PDF
PBM6-CP-2A	$4n4k:	4mm [0.16 in]	Non-flush	N.C.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBM6-CP-2H	$-4n4l:	4mm [0.16 in]	Non-flush	N.C.	PNP	4-pin M12 connector	Diagram 3	PDF
PBM6-AN-2A	$4n4n:	4mm [0.16 in]	Non-flush	N.O.	NPN	Cable, 3 pole, 2m [6.5 ft]	Diagram 2	PDF
PBM6-AN-2H	$4n4o:	4mm [0.16 in]	Non-flush	N.O.	NPN	4-pin M12 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1

PNP Cable Version

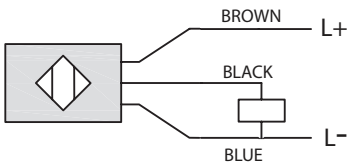
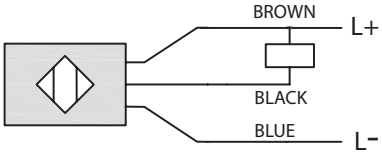


Diagram 2

NPN Cable Version



Connector

M12 connector

Diagram 3

PNP M12 Connector

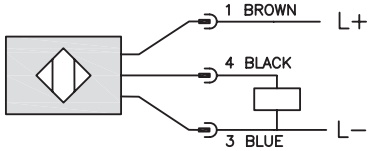
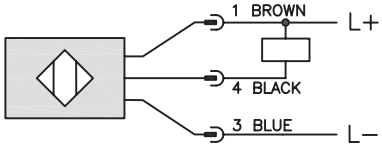


Diagram 4

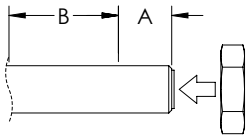
NPN M12 Connector

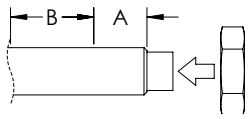


ProSense Basic M12 Inductive Proximity Sensors

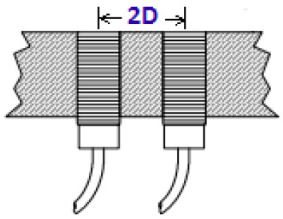
Basic M12 Inductive Proximity Sensor Specifications		
Mounting Type	***Flush***	***Non-flush***
Nominal Sensing Distance	2mm [0.08 in]	4mm [0.16 in]
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	200mA	
Off-state (Leakage) Current	≤ 10mA	
Voltage Drop	≤ 1.8 V (I=100mA)	
Switching Frequency	1000Hz	
Hysteresis	< 10%	
Repeat Accuracy	< 3%	
Ripple	< 10%	
Time Delay Before Availability (tv)	< 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow, on when detecting	
Housing Material	Nickel-plated brass	
Sensing Face Material	LCP (Liquid Crystal Polymer)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	See Torque Table below	
Weight	110g [3.88 oz] (cable version) – 60g [2.12 oz] (M12 connector)	
Connection	2m [6.5 ft] PUR Cable, 3 pole, 26AWG or M12 Connector	
Agency Approvals	CE cULus E328811	

Installation Tightening Torque	
Mounting	Flush, non-flush mountable
Housing Material	Nickel plated brass
Diameter	12mm [0.47 in]
Tightening Torque for A (A = 11mm [0.43 in])	6 N•m [4.43 lb•ft]
Tightening Torque for B	10 N•m [7.38 lb•ft]

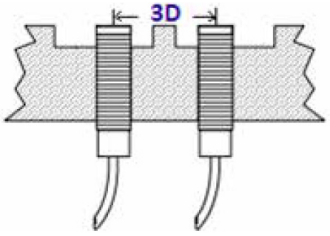




Flush Mounting
Flush models can be installed with their sensing faces flush to the metal. The distance from opposing metal surfaces must be ≥3sn (where sn=nominal switching distance), and the distance between two proximity switches (side by side) must be ≥2D.



Non-Flush Mounting
Non-flush models can be identified by their "caps," since they have no metal housing surrounding the area of the sensing face. The sensing face must extend ≥2sn (where sn=nominal switching distance) from the metallic installation medium. The distance from opposing metal surfaces must be ≥3sn, and the distance between two adjacent proximity switches must be ≥3D. The metal body leaves uncovered part of the sensing area, resulting in an increased sensing distance.



ProSense Basic M18 Inductive Proximity Sensors

Basic Series Inductive Proxes M18 (18mm)

- Operating distance 5 to 8mm
- Nickel-plated brass housing
- LCP (Liquid Crystal Polymer) active face
- Normal range operating distance
- Cable or M12 connector
- PNP or NPN, N.O. or N.C.
- IP67 protection

Basic M18 Inductive Proximity Sensor Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
PBK6-AP-1A	$4n4p:	5mm [0.20 in]	Flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBK6-AP-1H	$4n4s:	5mm [0.20 in]	Flush	N.O.	PNP	4-pin M12 connector	Diagram 3	PDF
PBK6-CP-1H	$;4n4t:	5mm [0.20 in]	Flush	N.C.	PNP	4-pin M12 connector	Diagram 3	PDF
PBK6-AN-1H	$4n4u:	5mm [0.20 in]	Flush	N.O.	NPN	4-pin M12 connector	Diagram 4	PDF
PBK6-AP-2A	$4n4v:	8mm [0.31 in]	Non-flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBK6-AP-2H	$4n4x:	8mm [0.31 in]	Non-flush	N.O.	PNP	4-pin M12 connector	Diagram 3	PDF
PBK6-CP-2H	$4n4z:	8mm [0.31 in]	Non-flush	N.C.	PNP	4-pin M12 connector	Diagram 3	PDF
PBK6-AN-2H	$;4n4]:	8mm [0.31 in]	Non-flush	N.O.	NPN	4-pin M12 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1

PNP Cable Version

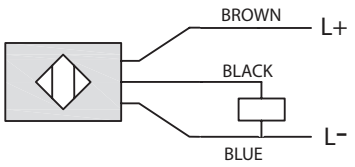
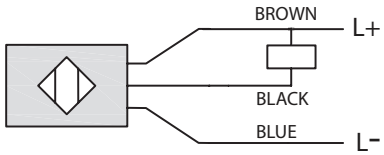


Diagram 2

NPN Cable Version



Connector

M12 connector

Diagram 3

PNP M12 Connector

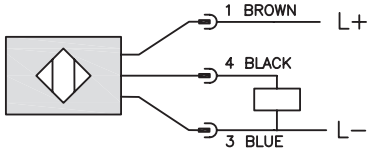
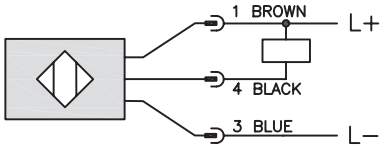


Diagram 4

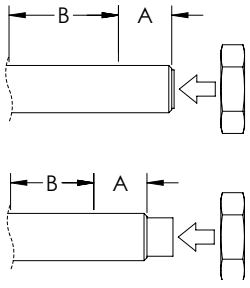
NPN M12 Connector



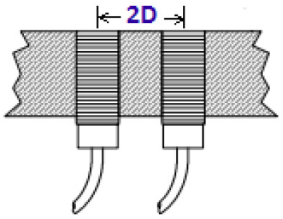
ProSense Basic M18 Inductive Proximity Sensors

Basic M18 Inductive Proximity Sensor Specifications		
Mounting Type	***Flush***	***Non-flush***
Nominal Sensing Distance	5mm [0.20 in]	8mm [0.31 in]
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	200mA	
Off-state (Leakage) Current	≤ 10mA	
Voltage Drop	≤ 1.8 V [I=100mA]	
Switching Frequency	1000Hz	
Hysteresis	< 10%	
Repeat Accuracy	< 3%	
Ripple	< 10%	
Time Delay Before Availability (tv)	< 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25 to 70°C [-13 to 158°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow, on when detecting	
Housing Material	Nickel-plated brass	
Sensing Face Material	LCP (Liquid Crystal Polymer)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	See Torque Table below	
Weight	145g [5.11 oz] (cable version) – 95g [3.35 oz] (M12 connector)	
Connection	2m [6.5 ft] PUR Cable, 3 pole, 26AWG or M12 Connector	
Agency Approvals	CE cULus E328811	

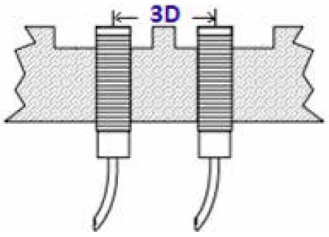
Installation Tightening Torque	
Mounting	Flush, non-flush mountable
Housing Material	Nickel plated brass
Diameter	18mm [0.71 in]
Tightening Torque for A (A = 11mm [0.43 in])	20 N•m [14.75 lb•ft]
Tightening Torque for B	30 N•m [22.13 lb•ft]



Flush Mounting
Flush models can be installed with their sensing faces flush to the metal. The distance from opposing metal surfaces must be ≥3sn (where sn=nominal switching distance), and the distance between two proximity switches (side by side) must be ≥2D.



Non-Flush Mounting
Non-flush models can be identified by their "caps," since they have no metal housing surrounding the area of the sensing face. The sensing face must extend ≥2sn (where sn=nominal switching distance) from the metallic installation medium. The distance from opposing metal surfaces must be ≥3sn, and the distance between two adjacent proximity switches must be ≥3D. The metal body leaves uncovered part of the sensing area, resulting in an increased sensing distance.



ProSense Basic M30 Inductive Proximity Sensors

Basic Series Inductive Proxes M30 (30mm)

- Operating distance 10 to 15mm
- Nickel-plated brass housing
- LCP (Liquid Crystal Polymer) active face
- Normal range operating distance
- Cable or M12 connector
- PNP or NPN, N.O. or N.C.
- IP67 protection

Basic M30 Inductive Proximity Sensor Selection Chart

Part Number	Price	Sensing Range	Mounting	Output State	Logic	Connection	Wiring	Drawing Link
Standard Distance								
PBT6-AP-1A	$;4n4[:	10mm [0.39 in]	Flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBT6-AP-1H	$4n4_:	10mm [0.39 in]	Flush	N.O.	PNP	4-pin M12 connector	Diagram 3	PDF
PBT6-CP-1H	$4n4#:	10mm [0.39 in]	Flush	N.C.	PNP	4-pin M12 connector	Diagram 3	PDF
PBT6-AN-1H	$;4n4!:	10mm [0.39 in]	Flush	N.O.	NPN	4-pin M12 connector	Diagram 4	PDF
PBT6-AP-2A	$4n4?:	15mm [0.59 in]	Non-flush	N.O.	PNP	Cable, 3 pole, 2m [6.5 ft]	Diagram 1	PDF
PBT6-AP-2H	$;4n4,:	15mm [0.59 in]	Non-flush	N.O.	PNP	4-pin M12 connector	Diagram 3	PDF
PBT6-CP-2H	$4n50:	15mm [0.59 in]	Non-flush	N.C.	PNP	4-pin M12 connector	Diagram 3	PDF
PBT6-AN-2H	$4n51:	15mm [0.59 in]	Non-flush	N.O.	NPN	4-pin M12 connector	Diagram 4	PDF

Wiring Diagrams

Diagram 1
PNP Cable Version

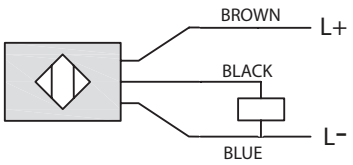
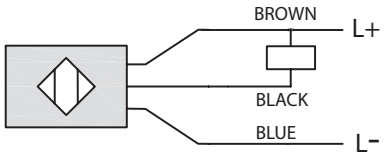


Diagram 2
NPN Cable Version



Connector
M12 connector

Diagram 3
PNP M12 Connector

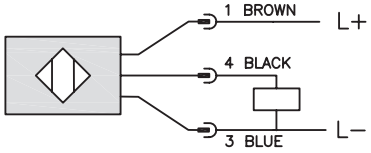
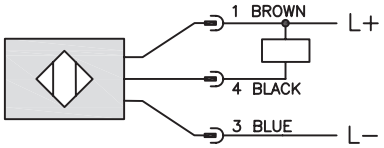


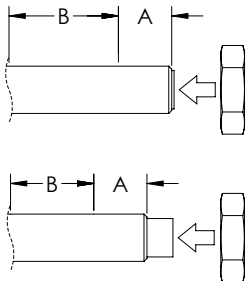
Diagram 4
NPN M12 Connector



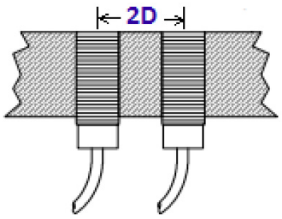
Prosense Basic M30 Inductive Proximity Sensors

Basic M30 Inductive Proximity Sensor Specifications		
Mounting Type	***Flush***	***Non-flush***
Nominal Sensing Distance	10mm [0.39 in]	15mm [0.59 in]
Material Correction Factors	See the Material influence table	
Output Type	NPN or PNP/N.O. or N.C./3-wire	
Operating Voltage	10 to 30 VDC	
No-load Supply Current	≤ 10mA	
Operating (Load) Current	200mA	
Off-state (Leakage) Current	≤ 10mA	
Voltage Drop	≤ 1.8 V [I=100mA]	
Switching Frequency	300Hz	
Hysteresis	< 10%	
Repeat Accuracy	< 3%	
Ripple	< 10%	
Time Delay Before Availability (tv)	< 50 ms	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (auto-reset)	
Operating Temperature	-25 to 60°C [-13 to 140°F]	
Protection Degree (DIN 40050)	IP67	
Indication/Switch Status	Yellow, on when detecting	
Housing Material	Nickel-plated brass	
Sensing Face Material	LCP (Liquid Crystal Polymer)	
Shock/Vibration	See Proximity Sensor Terminology	
Tightening Torque	See Torque Table below	
Weight	210g [7.41 oz] (cable version) – 170g [6.00 oz] (M12 connector)	
Connection	2m [6.5 ft] PUR Cable, 3 pole, 26AWG or M12 Connector	
Agency Approvals	CE cULus E328811	

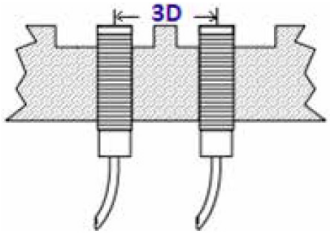
Installation Tightening Torque	
Mounting	Flush, non-flush mountable
Housing Material	Nickel plated brass
Diameter	30mm [1.18 in]
Tightening Torque for A (A = 11mm [0.43 in])	40 N•m [29.50 lb•ft]
Tightening Torque for B	60 N•m [44.25 lb•ft]



Flush Mounting
Flush models can be installed with their sensing faces flush to the metal. The distance from opposing metal surfaces must be ≥3sn (where sn=nominal switching distance), and the distance between two proximity switches (side by side) must be ≥2D.



Non-Flush Mounting
Non-flush models can be identified by their "caps," since they have no metal housing surrounding the area of the sensing face. The sensing face must extend ≥2sn (where sn=nominal switching distance) from the metallic installation medium. The distance from opposing metal surfaces must be ≥3sn, and the distance between two adjacent proximity switches must be ≥3D. The metal body leaves uncovered part of the sensing area, resulting in an increased sensing distance.



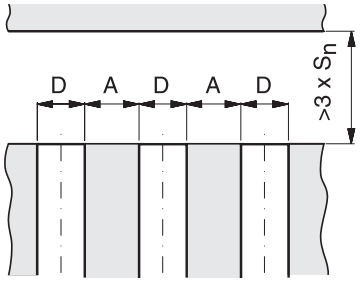
Proximity Sensor Terminology

The following descriptions refer to the European standard EN 60947-5-2. of 2007.

The specifications given here are intended to be minimum performance values described by the standard.

Alignment

Proximity switches must not be mutually influenced. For this reason, a minimum distance between them (referred to as alignment) must be provided. Where not explicitly listed on product data sheet or installation instructions, follow these general guidelines.



Size D	Flush A (mm)	Non-flush A (mm)
Ø3	0	--
M4	0	--
Ø4	0	--
M5	0	--
5X5	0	--
M8	2 / 3*	8
8X8	2 / 3*	--
M12	6 / 10*	12
M18	12 / 20*	30
M30	30	60

***Extended distance models**

Break function (N.C., normally closed)

A break function causes load current to flow only when a target is not detected.

Protection degree

If not otherwise specified, proximity switches (when installed in accordance with manufacturer's instructions) have minimum IP65 protection against dust and water jets.

Differential travel (Hysteresis)

The differential travel is given as a percentage of the nominal sensing distance (Sn) and is the maximum difference between the switching distances. The differential is intentionally introduced to guarantee the stability of the output state in case the target is positioned near the switching points.

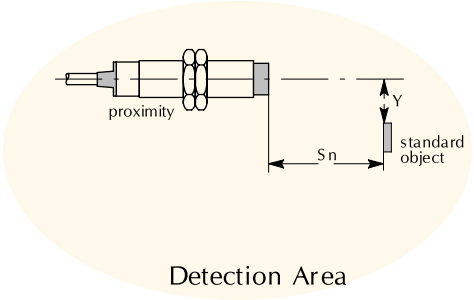
Electrical connections

Keep sensor cables and power cables separated to avoid electrical interference.

The power supply voltage must not exceed the specified limits Ub.

If a non-stabilized supply voltage is used for DC sensors, the maximum voltage peak under minimum power consumption conditions and minimum voltage peak under maximum power consumption must not exceed Ub limits.

If the power supply of the sensor is also used to switch inductive loads, a suppression device must be provided. A fuse to protect the power supply line is also recommended.



Installation notes

Select a sensor compatible with the operating environment: verify the compatibility between building materials, the presence of chemicals, temperature range, protection degree, vibrations, shocks, EMC, supply voltage available, load type, etc.

Select the sensor by referring to the size and type of material to be detected.

Check the minimum distances between sensor and damping materials or another sensor.

Check that the number of operations does not exceed the maximum switching frequency. If the phase of the output signal is important, check the turn on and turn off time.

Metallic chips or dust must not accumulate on the sensing face. The distance between the sensor and the object to detect must not exceed the assured operating distance Sa; the best sensing range is Sn/2.

Check the effect of vibrations.

Install the sensor using the installation accessories and do not exceed the maximum tightening torque.

Indication/switch status

Proximity switches may incorporate one or more color indicators. The meaning of the colors vary by part. Please see part specifications for meaning.

Make function (N.O., normally open)

A make function causes load current to flow only when a target is detected.

Proximity Sensor Terminology

Material influence

The nominal sensing distance (Sn) is defined using precisely defined measuring conditions (See Operating Distance). Other conditions may result in a reduction of the operating distance. The table below shows the influence different target materials have on the operating distances of the sensors.

Material Influence					
Sensor Series	*Target Material Value*				
	Steel	*Copper*	*Aluminum*	*Brass*	*Stainless Steel*
*AC1-**-1**	1.00	0.28	0.21	0.32	0.63
*AC1-**-3**	1.00	0.29	0.23	0.31	0.66
AE-A*-1**	1.00	0.29	0.38	0.49	0.78
AE-A*-2**	1.00	0.43	0.51	0.59	0.83
AE-A*-3**	1.00	0.35	0.43	0.52	0.78
AE-A*-4**	1.00	0.47	0.52	0.58	0.79
AE-A*-5**	1.00	0.27	0.33	0.41	0.72
*AE9-10-1**	1.00	0.25	0.28	0.40	0.68
*AES-**-1**	1.00	0.15	0.10	0.15	0.55
*AES-**-3**	1.00	0.15	0.15	0.21	0.56
*AHS-**-1**	1.00	0.10	0.05	0.13	0.54
*AHS-**-3**	1.00	0.05	0.05	0.10	0.50
AK1-A-1**	1.00	0.40	0.48	0.72	0.86
AK1-A-2**	1.00	0.45	0.53	0.56	0.77
AK1-A-3**	1.00	0.40	0.45	0.50	0.75
AK1-A-4**	1.00	0.45	0.53	0.56	0.77
*AK9-**-1**	1.00	0.15	0.18	0.28	0.60
AM-A*-1**	1.00	0.22	0.31	0.41	0.77
AM-A*-2**	1.00	0.41	0.47	0.56	0.86
AM-A*-3**	1.00	0.33	0.40	0.50	0.82
AM-A*-4**	1.00	0.41	0.46	0.52	0.71
*AM1-A0-1**	1.00	0.30	0.35	0.50	0.80
*AM1-A0-2**	1.00	0.52	0.57	0.62	0.87
*AM1-A0-3**	1.00	0.42	0.47	0.55	0.80
*AM1-A0-4**	1.00	0.51	0.56	0.62	0.78
AM/*0-5H*	1.00	0.25	0.30	0.40	0.70
*AM9-**-1**	1.00	0.20	0.28	0.35	0.47
APS4-12-E*-D*	1.00	0.35	0.45	0.55	0.70
APS25-8-E-D*	1.00	0.40	0.50	0.50	0.75
AT1-A-1**	1.00	0.35	0.45	0.50	0.75
AT1-A-2**	1.00	0.45	0.50	0.55	0.80
AT1-A-3**	1.00	0.35	0.45	0.50	0.70
AT1-A-4**	1.00	0.45	0.50	0.55	0.75
*AT9-**-1**	1.00	0.17	0.20	0.30	0.65
CR5-A-**	1.00	0.60	0.60	0.70	0.85
CR8-A-1**	1.00	0.40	0.45	0.55	0.80
CR8-A-2**	1.00	0.45	0.50	0.60	0.80
CR8-A-3**	1.00	0.27	0.36	0.45	0.77
DR10-A-1**	1.00	0.25	0.28	0.37	0.63
DR10-A-2**	1.00	0.41	0.50	0.55	0.75
DW-A-50*-04*	1.00	0.25	0.28	0.36	0.60
DW-A-50*-M5*	1.00	0.30	0.33	0.42	0.67
DW-A-50*-M8-001*	1.00	0.27	0.33	0.41	0.72
DW-A-50*-M8*	1.00	0.27	0.33	0.41	0.72
DW-A-50*-M12*	1.00	0.25	0.30	0.40	0.70
DW-A-50*-M18*	1.00	0.26	0.30	0.40	0.67
DW-A-50*-M18-002*	1.00	0.26	0.30	0.40	0.67

Proximity Sensor Terminology

Material Influence					
Sensor Series	Target Material Value				
	Steel	Copper	Aluminum	Brass	Stainless Steel
DW-A*-50*-M30	1.00	0.35	0.40	0.45	0.66
DW-A*-50*-M30-002	1.00	0.35	0.40	0.45	0.66
DW-A*-50*P12	1.00	0.12	0.20	0.34	0.75
DW-A*-50*P8	1.00	0.22	0.26	0.39	0.66
DW-A*-51*-M8	1.00	0.44	0.47	0.55	0.77
DW-A*-51*-M8-001	1.00	0.44	0.47	0.55	0.77
DW-A*-51*-M12*	1.00	0.45	.049	0.56	0.77
DW-A*-51*-M18	1.00	0.42	0.44	0.50	0.69
DW-A*-51*-M18-002	1.00	0.42	0.44	0.50	0.69
DW-A*-51*-M30	1.00	0.37	0.42	0.47	0.78
DW-A*-51*-M30-002	1.00	0.37	0.42	0.47	0.78
DW-A*-52x-M8	1.00	0.22	0.25	0.33	0.63
DW-A*-52x-M12	1.00	0.23	0.27	0.36	0.67
DW-A*-60*-M8*	1.00	0.20	0.25	0.35	0.70
DW-A*-60*-M12*	1.00	0.30	0.35	0.50	0.85
DW-A*-60*-M18*	1.00	0.30	0.35	0.45	0.75
DW-A*-60*-M30*	1.00	0.40	0.45	0.55	0.80
DW-A*-61*-M8*	1.00	0.50	0.50	0.60	0.80
DW-A*-61*-M12*	1.00	0.50	0.50	0.60	0.90
DW-A*-61*-M18*	1.00	0.40	0.40	0.50	0.70
DW-A*-61*-M30*	1.00	0.40	0.50	0.50	0.85
DW-A*-62*-03-96*	1.00	0.45	0.50	0.60	0.80
DW-A*-62*-03	1.00	0.45	0.50	0.60	0.80
DW-A*-62*-M4-96*	1.00	0.45	0.50	0.60	0.80
DW-A*-62*-M4	1.00	0.45	0.50	0.60	0.80
DW-A*-62*-M8*	1.00	0.30	0.30	0.45	0.70
DW-A*-62*-M12*	1.00	0.40	0.44	0.54	0.80
DW-A*-62*-M18*	1.00	0.30	0.35	0.40	0.70
DW-A*-63*-M8*	1.00	0.40	0.45	0.50	0.75
DW-A*-63*-M12*	1.00	0.45	0.70	0.55	0.75
DW-A*-63*-M18*	1.00	0.40	0.45	0.55	0.75
DW-A*-63*-M30*	1.00	0.40	0.70	0.50	0.60
DW-A*-70*-C23	1.00	0.80	1.00	1.20	0.85
DW-A*-70*-C23-276	1.00	0.80	1.00	1.20	0.85
DW-Ax-71x-04	1.00	0.95	1.00	1.35	0.40
DW-Ax-71x-M5	1.00	0.95	1.00	1.35	0.40
DW-A*-71*-M8	1.00	0.85	1.00	1.40	0.90
DW-A*-71*-M8-001	1.00	0.85	1.00	1.40	0.90
DW-A*-71*-M12	1.00	0.80	1.00	1.40	0.65
DW-A*-71*-M12-967	1.00	1.50	1.0	1.80	0/0
DW-A*-71*-M18-002	1.00	0.90	1.00	1.35	0.70
DW-A*-71*-M18	1.00	0.90	1.00	1.35	0.70
DW-A*-71*-M18-002	1.00	0.90	1.00	1.35	0.70
DW-A*-71*-M18-967	1.00	1.50	1.70	1.70	0/0.2
DW-A*-71*-M30	1.00	0.90	1.00	1.20	0.25
DW-A*-71*-M30-002	1.00	0.90	1.00	1.20	0.25
DW-A*-71*-M30-967	1.00	1.65	1.65	1.20	0/0
DW-AD-603-M10E-***	1.00	0	0	0.05	0.70
DW-AD-62*-03E-961	1.00	0.18	0.21	0.32	0.50
DW-HD-60*-M12-200	1.00	0.15	0.20	0.15	0.65
DW-HD-60*-M18-310	1.00	0.20	0.25	0.35	0.70

Proximity Sensor Terminology

Material Influence

Sensor Series	Target Material Value				
	Steel	Copper	Aluminum	Brass	Stainless Steel
DW-HD-60*-M18-411	1.00	0.20	0.25	0.35	0.70
DW-HD-60*-M30-310	1.00	TBD	TBD	TBD	TBD
DW-HD-60*-M30-411	1.00	0.30	0.35	0.50	0.70
DW-HD-61*-M30-411	1.00	TBD	TBD	TBD	TBD
DW-HD-61*-M50-517	1.00	TBD	TBD	TBD	TBD
DW-HD-62*-M8-1**	1.00	≤ 0.15	≤ 0.15	0.25	0.60
DW-L*-70*-P12G	1.00	0.80	1.00	1.50	0/0
DW-L*-70*-P12G -embedded	1.00	—	0.60	0.70	0.80
LF40-**-*H	1.00	0.30	0.40	0.40	0.70
P8	1.00	0.25 to 0.45	0.30 to 0.45	0.35 to 0.50	0.60 to 1.00
PAE (1.5 mm)	1.00	0.20	0.25	0.35	0.70
PAE (2.5 mm)	1.00	0.5	0.5	0.6	0.8
PAK (5mm)	1.00	0.30	0.35	0.45	0.75
PAK (8mm)	1.00	0.40	0.4	0.5	0.7
PAM (2mm)	1.0	0.30	0.35	0.50	0.85
PAM (4mm)	1.00	0.5	0.5	0.6	0.8
PBE6	1.00	0.3	0.4	0.5	0.9
PBM6	1.00	0.3	0.4	0.5	0.9
PBK6	1.00	0.3	0.4	0.5	0.9
PBT6	1.00	0.3	0.4	0.5	0.9
PBK-A*-*H	1.00	0.00	0.10	0.20	0.50
PBM-A*-*H	1.00	0.10	0.30	0.30	0.60
PBT-A*-*H	1.00	0.30	0.40	0.40	0.70
PD1-A*-1*	1.00	0.45	0.50	0.55	0.80
PD1-A*-3*	1.00	0.40	0.40	0.50	0.75
PEW-A*-1*	1.00	0.30	0.40	0.50	0.70
PEW2	1.00	0.3	0.4	0.4	0.9
PFK1-B*-1H	1.00	0.25	0.35	0.40	0.70
PFK1-B*-2H	1.00	0.27	0.35	0.42	0.70
PFK1-**-3H	1.00	0.20	0.30	0.40	0.65
PFK1-**-4H	1.00	0.30	0.38	0.42	0.65
PFM1-B*-1H	1.00	0.25	0.30	0.40	0.75
PFM1-B*-2H	1.00	0.33	0.40	0.50	0.80
PFM1-**-3H	1.00	0.30	0.35	0.40	0.75
PFM1-**-4H	1.00	0.33	0.40	0.45	0.75
PFT1*-AP-*H	1.00	0.30	0.40	0.40	0.70
PKW-**-1H	1.00	0.12	0.20	0.26	0.62
PKW-**-2H	1.00	0.30	0.37	0.46	0.78
PKW-A*-5*	1.00	0.80	1.00	1.20	0.50
PKW-A*-5* -embedded	0.75	—	0.90	0.75	0.80
PKW2	1.00	0.2	0.5	0.6	0.7
PMW-**-1H	1.00	0.02	0.08	0.20	0.68
PMW-**-2H	1.00	0.34	0.41	0.51	0.88
PMW-A*-5*	1.00	0.85	1.00	1.30	0.50
PMW-A*	0.70	—	1.15	1.05	0.80
PMW2	1.00	0.2	0.5	0.6	0.7
PNE6	1.00	0.3	0.4	0.4	0.7
PNM	1.00	0.30	0.40	0.50	0.70
PNMK	1.00	0.30	0.40	0.50	0.70
PNK	1.00	0.30	0.40	0.50	0.70
PNK6	1.00	0.30	0.40	0.50	0.70
PNT	1.00	0.30	0.40	0.50	0.70

Proximity Sensor Terminology

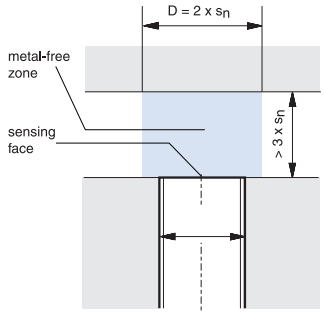
Material Influence					
Sensor Series	Target Material Value				
	Steel	Copper	Aluminum	Brass	Stainless Steel
PNT6	1.00	0.30	0.40	0.50	0.70
PTW-A*-**	1.00	0.9	1	1.3	0.4 0 to 0.75
PTW2	1.00	0.2	0.5	0.6	1.2
PY3-A*-1A	1.00	0.50	0.55	0.65	0.80
PY3-A*-3A	1.00	0.45	0.50	0.60	0.80
PY4-A*-1A	1.00	0.50	0.55	0.65	0.80
PY4-A*-3A	1.00	0.45	0.50	0.60	0.80
VFK1-A0-*M	1.00	0.30	0.40	0.50	0.70
VFT1-A0-*M	1.00	0.30	0.40	0.40	0.70
V3E1/**-3*	1.00	0.51	0.48	0.56	0.83
V3E1/**-4*	1.00	0.47	0.52	0.57	0.79
V3K1/**-3*	1.00	0.39	0.46	0.52	0.81
V3K1/**-4*	1.00	0.47	0.51	0.55	0.77
VK1-A0-1*	1.00	0.35	0.40	0.50	0.80
VK1-A0-2*	1.00	0.40	0.45	0.55	0.95
V3M1/**-3*	1.00	0.48	0.54	0.60	0.86
V3M1/**-4*	1.00	0.49	0.54	0.58	0.79
VM1-A0-1*	1.00	0.40	0.50	0.55	0.75
VM1-A0-2*	1.00	0.45	0.50	0.60	0.80
V3T1/**-3*	1.00	0.42	0.48	0.53	0.83
V3T1/**-4*	1.00	0.55	0.51	0.46	0.81
VT1-A0-1B	1.00	0.40	0.45	0.50	0.82
VT1-A0-2B	1.00	0.45	0.50	0.55	0.82
WSE	—	0.2	0.3	0.4	0.6
WSM	—	0.2	0.3	0.4	0.6
WSK	—	0.2	0.3	0.4	0.6
WST	—	0.2	0.3	0.4	0.6

Proximity Sensor Terminology

Mounting type

Flush (shielded/embeddable) proximity switches.

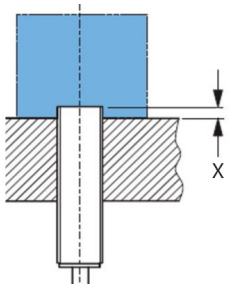
These proximity switches may be flush mounted regardless of the metal being used. For reliable operation, it is necessary to observe the minimum distances from adjacent metal targets.



Sn = Nominal sensing distance (see Rated operating distance)

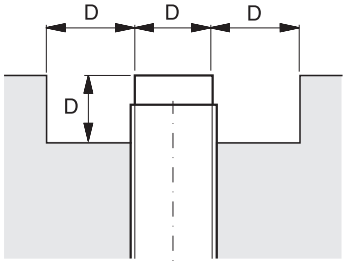
Semi-flush (quasi-embeddable) proximity switches.

When mounting semi-flush proximity switches in conducting materials (metals), the unit can be almost flush, with a minimal protrusion (X=roughly 20% of the housing diameter) above the surface. See specific sensor for exact value.



Non-flush (unshielded/non-embeddable) proximity switches.

When mounting non-flush proximity switches in conducting materials (metals), it is necessary to observe the minimum distances from adjacent metal targets. Flush mounting in non-conducting materials is permitted.



Off-state (leakage)current

This is the current that flows through the load circuit of the proximity switch in the OFF state at the maximum supply voltage.

Open collector

The output transistor is not internally connected to a pull-up or pull-down load. It is therefore possible to connect an external load supplied by an external voltage.

Operating distance (assured sensing range) (Sa)

The operating distance is the distance at which a standard target approaching the active face of the sensor causes a sensor output state change.

Output type and load connections – 3-wire NPN

There are two power wires and one output wire. The switching element is connected between the output wire and the negative terminal, and the load is connected between the output wire and the positive terminal. In the ON state, the current sinks from the load into the switching element.

Output type and load connections – 3-wire PNP

There are two power wires and one output wire. The switching element is connected between the output wire and the positive terminal, and the load is connected between the output wire and the negative terminal. In the ON state, the current flows from the switching element into the load.

Overvoltage protection

No damage will occur in the presence of surge pulses exceeding Ub and energy less than 0.5J.

Polarity reversing protection

No damage will occur to proximity switches if the supply wires are reversed.

Protection against inductive loads

Unless otherwise specified, DC sensors are protected against inductive overvoltage by use of a surge diode or a zener diode.

Unshielded proximity switches

The sensor housing does not cover the side of the sensing head. This type of sensor has a higher sensing range than the shielded type.

Rated insulation voltage (Ui)

Unless specified differently, all of the sensors with a supply voltage of up to 50VAC and 75VDC are tested at 500VAC.

Sensors with a supply voltage up to 250VAC are tested as follows:

- Class 1 (with earth terminal) at 1500VAC
- Class 2 (with double insulation, without earth terminal) at 3000VAC.

Nominal sensing distance — (Rated operating distance) (Sn)

This distance does not take into account manufacturing tolerances (±10%) or variations due to external conditions, such as voltages and temperatures not falling within the rated values.

Repeat accuracy (R)

The repeat accuracy of the effective operating distance (Sr) is measured over an eight hour period at an ambient temperature of 73°F (±9°) [23°C (± 5°)] at a specified humidity and with a specified supply voltage. The difference between the measurements shall not exceed the specified value, or if not specified, 10% of Sn.

Ripple

his is given as a percentage of the mean supply voltage. It is the maximum peak-to-peak value of the admitted ripple voltage. A ripple voltage of <10% Ub is desirable.

Proximity Sensor Terminology

Shocks

- In accordance with IEC 60068-2-27
- Pulse shape: half-sine
- Peak acceleration: 30g
- Pulse duration: 11 ms

Short-circuit protection

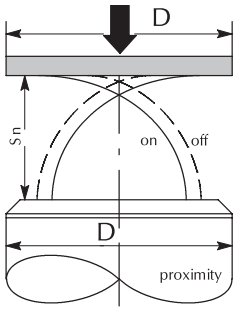
All DC sensors have integrated short-circuit protection. AC sensors should be protected externally by such devices as fuses.

No load supply (current consumption)

Amount of current consumed by sensor when output is not energized.

Standard target

A standard target is square, 1mm thick, and made from type FE360 carbon steel. The length of the side of the square is equal to the diameter of the sensor's active surface, or three times the rated operating distance (Sn), whichever is greater.



Nominal Sensing Distance

Switching frequency (f)

Switching frequency is the maximum output switching frequency performed by the output circuit when standard targets cross the sensing field at a distance of Sn/2. The targets are spaced 2d.

- For DC sensors, the minimum output pulse width must not fall below 50 µS.
- For AC sensors, the minimum output pulse must not fall below half a sine period (ie. for 60 Hz, 1/60÷2 = 8.33 ms.)

Temperature range

Unless otherwise specified, the minimum temperature range is –13 to +158°F [-25 to +70°C].

Turn-on time

Turn-on time is the elapsed time from when the target enters the sensing range until the output switches.

Turn-off time

Turn-off time is the elapsed time from when the target is removed until the output switches.

Operating voltage (Ub)

Supply voltage range for safe and correct sensor operation.

Operating (load) Current

Maximum current the sensor output is capable of switching.

Voltage drop (Ud)

This is the voltage measured across the active output of the proximity switch when the rated operational current (Ie) flows in the load at the rated supply voltage and the temperature is at 73°F (±9°) [(23°C (±5°)]. Unless specified differently, the following values are guaranteed:

- Two-wire DC models <8 VDC
- Three-wire DC models <3.5 VDC
- Two-wire AC models <10

Vibration

In accordance with IEC 60868-2-6

Frequency range: 10-55 Hz

Amplitude: 1mm

Sweep cycle duration: 5 min.

Duration of endurance at 55 Hz: 30 min. in each of the three axis directions

4-wire NPN or PNP (complementary outputs)

There are two power wires: one normally open output wire and one normally closed output wire.

4-wire NPN and PNP

There are two power wires, and the output type is wiring programmable. An NPN output is available by connecting the PNP terminal to the negative power supply line. A PNP output is available by connecting the NPN terminal to the positive power supply line.

Time delay before availability (tv)

The time delay before availability is the time between the switching on of the supply voltage and the instant at which the sensor becomes ready to operate correctly.

During the reset the output circuit is in OFF-state; false signal may be present but the duration shall not exceed 2 ms. If not specified otherwise, the reset duration doesn't exceed 300 ms.

Frequently Asked Questions

How do inductive proximity switches work?

Inductive proximity switches are used to detect the presence of metallic objects without actually contacting the object. Their high-speed switching and small size make them indispensable in automation applications.

Inductive proximity switches consist of a coil driven by an oscillator. The oscillator creates an electromagnetic field which appears at the active face of the switch. If a metal target enters this area, the electromagnetic field is reduced and the switch turns on or off.

Some typical inductive sensor applications are: counting metallic objects, monitoring the position of elements in a machine, sensing the presence of metallic parts like screws, etc., and measuring the rotational speed of axial detecting cams.

What is the difference between inductive and capacitive sensors?
The primary difference is sensing material. Inductive sensors only detect metallic objects while capacitive sensors will detect materials such as wood, paper, liquids, cardboard, etc.

How do I know what size proximity sensor I need?
It depends on two factors: mounting space and sensing distance. Each application has a specific space available for the sensor and each application has a requirement for how close the sensor can be mounted to the sensed object.

What is the difference between Flush and Non-flush?
With a shielded proximity sensor, the face of the sensor may be mounted flush with metal, whereas an unshielded sensor may NOT be mounted flush with metal (otherwise the sensor will always be ON). In many applications, flush mounting is a requirement. Also, unshielded proximity sensors allow for greater sensing distances.

Semi-flush options, which are similar to shielded sensors in construction, are also available. Semi-flush sensors must have the sensor slightly protruding from the mounting surface.

What output do I need? NPN or PNP?
This is determined by the device you are connecting the sensor to. Most DirectLOGIC PLC modules (except 305 series) allow NPN or PNP sensors to be connected. This is determined by how the sensor is wired to the PLC.

How do I choose between normally open (NO) and normally closed (NC)?
N.O. sensors do not pass power to the PLC until an object is detected. N.C. sensors always pass power to the PLC until an object is detected. The majority of Centsable sensors are N.O.; however, some sensors offer the option of N.C., such as PKW, PMW and CT1 series.

When do I want quick disconnects (Q/D) versus embedded cable output?
There is a slight cost increase to purchase a sensor and a Q/D cable compared to only purchasing a sensor with a pre-attached cable. However, the Q/D output allows easy replacement of a failed sensor. This is important in minimizing machine or operation downtime.

What is the difference between 2-wire, 3-wire, and 4-wire sensors?
2-wire sensors: allows either NPN or PNP outputs (don't have to select).

3-wire sensors: standard sensors. When ordering, you must choose between NPN and PNP output.

4-wire sensors: Allow either N.O. or N.C. outputs (don't have to select). Must still select NPN or PNP output.

Do AutomationDirect supplied sensors operate on AC or DC voltage?
The majority of AutomationDirect supplied sensors operate on 10-30 VDC. However, we do offer the VT1, VK1, VM1, VFT and VFK series that operate on 20-253VAC.

Can my sensor be installed in a washdown area?
Yes. Although most AutomationDirect sensors carry an IP67 protective rating which is suitable for submersion, we do offer units designed for harsh high-pressure cleaning environments. These units include the PFM, PFK, PFT, VFK and VFT series.

What does switching frequency mean to my application?
This is how fast your sensor can sense an object, reset, and sense another object. For example, if a sensor has a switching frequency of 100 Hz or 100 cycles per second, the sensor can sense a maximum of 100 objects per second. This is very critical in many applications such as gear rotation measurement.

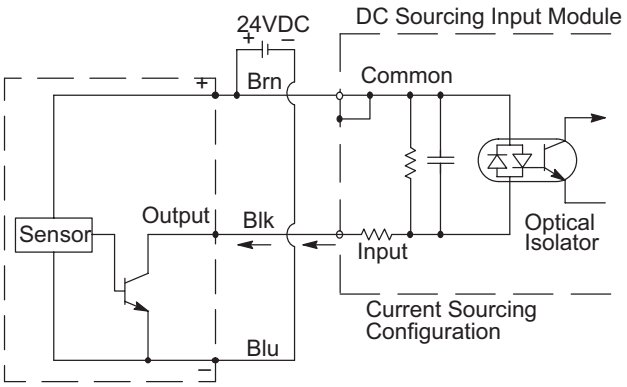
Can the sensor be put into a vibrating environment?
Yes. Frequency range of 10-55 Hz, maximum amplitude of 1mm. Duration in any axis a maximum of 30 minutes.

What is the temperature range of the sensors?
Most sensors operate between -25°F and 70°F. However, check the specifications for exact ranges.

If I wire my proximity sensor wrong, will it damage it?
Possibly. All sensors contain polarity reversal, short-circuit and transient noise protection. However, the transient protection is only effective under 30 VDC.

Field Device Examples – 3-Wire Connections

NPN (Sinking)
Field Device Example



PNP (Sourcing)
Field Device Example