### **Dr**Sense TSDA25 Series Temperature Switches



Part No. <u>TSDA25N-AP-0284-H</u>

> Part No. <u>TSDA25N-0P-0284-H</u>

#### **Features**

- Compact temperature switch with simple setup using mechanical adjustment dials
- Extremely durable housing with 316 stainless steel wetted parts
- No internal moving parts ensure long-term stability without setpoint drift
- LEDs indicate switching and operating status
- Two normally open or complementary normally open/normally closed PNP DC switching outputs
- Optional plastic protective cover: <u>PSD-CV</u>
- Use with compatible liquid or gas media
- 3-year warranty





See <u>www.AutomationDirect.</u> <u>com</u> for a wide variety of cable options

ProSense Series Temperature Sensors							
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Optional Cover	Price	
<u>TSDA25N-AP-0284-H</u>	ProSense temperature switch, integral Pt1000 RTD, -13 to 284 deg F, 50mm insertion length, 6mm probe diameter, 1/4in male NPT process connection, output 1: switch PNP, N.O., output 2: switch PNP, N.O.	1	0.25	\$116.00	PSD-CV	\$4.25	
<u>TSDA25N-0P-0284-H</u>	ProSense temperature switch, integral Pt1000 RTD, -4 to 284 deg F, 50mm insertion length, 6mm probe diameter, 1/4in male NPT process connection, output: switch PNP, N.O./N.C. complementary.	1	0.25	\$116.00	PSD-CV	\$4.25	
Note: Purchase cable separately							

ProSense TSDA25 Series Technical Specifications						
	<u>TSDA25N-AP-0284-H</u>	<u>TSDA25N-0P-0284-H</u>				
Operating Voltage		9.6 to 32 VDC**				
Process Connection		1/4" MNPT				
Electrical Connection	M12 o	onnector; gold-plated contacts				
Outputs	Two PNP N.O. switching DC outputs	Two complementary PNP (1-N.O./1-N.C.) switching DC outputs				
Current Rating		500mA each output				
Current Consumption		< 30mA				
Short-Circuit Protection		Yes (pulsed)				
Reverse Polarity Protection		Yes				
Overload Protection	Yes					
Voltage Drop		< 2 VDC				
Pressure Rating		5802 psi (400 bar)				
Temperature Sensing Range	-13 to 284°F (-25 to 140°C)	-4 to 284°F (-20 to 140°C)				
Setpoint scale	-4 to 284°F (-20 to 140°C)	3 to 284°F (-16 to 140°C)				
Reset point scale	Fixed 9°F (5°C) below setpoint	-4 to 277°F (-20 to 136°C)				
Adjustment of the Switch Point		Setting dials				
Setting Accuracy		± 5.4°F (3°C)				
Repeatability	± 0.1% of full range in °C					
Temperature Drift	± 0.1%, of full temperature range/10°C; 32 to 176°F (0 to 80°C).					
Power-on Delay Time	0.5 seconds					
Measuring Element	1 x Pt 1	1000, to DIN EN 60751, class A				
Dynamic Response (DIN EN 60751)	*	t0.5 = 1 sec/ t0.9 = 3 sec				

\* t0.5 = a 50% of full scale change in output when immersed in water at 0.4m/s, t0.9 = a 90% FS change.

\*\* Class 2 power supply must be used in order to comply with UL requirements

### **Dr**Sense TSDA25 Series Temperature Switches

TSDA25N-AP-0284-HTSDA25N-OP-0284-HMinimum Installation Depth0.6 in (15 mm)Housing MaterialPBT (Pocan); PC (Makrolon); FPM (Viton); stainless steel (316L)Materials (wetted parts)Stainless steel (316L)Indication/Switch StatusSwitching Status: 2 LEDs: yellowPower: LED - green - Switching Status: LED - yellowAmbient Temperature-40 to 176°F (-40 to 80°C) at max. 176°F (80°C) medium temp. -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp. -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.Medium Temperature-40 to 222°F (-40 to 145°C)Storage Temperature-40 to 212°F (-40 to 100°C)ProtectionIP67Protection ClassIIIInsulation Resistance50g (DIN / IEC 68-2-27, 11ms)Vibration Resistance20g (DIN / IEC 68-2-27, 11ms)Vibration Resistance20g (DIN / EN 68-2-6, (10 to 2000 Hz)EMCEMCEN 61000-4-2 ESD4 kV CD/8 kV ADEN 61000-4-3 HF Radiated10 V/m	ProSense TSDA25 Series Technical Specifications Continued						
Minimum Installation Depth       0.6 in (15 mm)         Housing Material       PBT (Pocan); PC (Makrolon); FPM (Viton); stainless steel (316L)         Materials (wetted parts)       Stainless steel (316L)         Indication/Switch Status       Switching Status: 2 LEDs: yellow       Power: LED - green - Switching Status: LED - yellow         Ambient Temperature       -40 to 176°F (-40 to 80°C) at max. 176°F (80°C) medium temp.       -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.         Medium Temperature       -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.       -40 to 212°F (-40 to 100°C)         Protection       IP67       IP67         Protection Class       III       III         Insulation Resistance       > 100MΩ (500VDC)         Shock Resistance       50g (DIN / IEC 68-2-27, 11ms)         Vibration Resistance       20g (DIN / EN 68-2-6, (10 to 2000 Hz)         EMC       EM 61000-4-2 ESD       4 kV CD/8 kV AD         EN 61000-4-3 HF Radiated       10 V/m		<u>TSDA25N-AP-0284-H</u>	<u>TSDA25N-0P-0284-H</u>				
Housing Material       PBT (Pocan); PC (Makrolon); FPM (Viton); stainless steel (316L)         Materials (wetted parts)       Stainless steel (316L)         Indication/Switch Status       Switching Status: 2 LEDs: yellow       Power: LED - green - Switching Status: LED - yellow         Ambient Temperature       -40 to 176°F (-40 to 80°C) at max. 176°F (80°C) medium temp. -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.         Medium Temperature       -40 to 122°F (-40 to 105°C) at max. 293°F (145°C)         Storage Temperature       -40 to 223°F (-40 to 100°C)         Protection       IP67         Protection Class       III         Insulation Resistance       > 100MQ (500VDC)         Shock Resistance       20g (DIN / IEC 68-2-27, 11ms)         Vibration Resistance       20g (DIN / EN 68-2-6, (10 to 2000 Hz)         EMC       EMC         EN 61000-4-2 ESD       4 kV CD/8 kV AD         EN 61000-4-3 HF Radiated       10 V/m	Minimum Installation Depth		0.6 in (15 mm)				
Materials (wetted parts)       Stainless steel (316L)         Indication/Switch Status       Switching Status: 2 LEDs: yellow       Power: LED - green - Switching Status: LED - yellow         Ambient Temperature       -40 to 176°F (-40 to 80°C) at max. 176°F (80°C) medium temp. -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.         Medium Temperature       -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.         Medium Temperature       -40 to 293°F (-40 to 145°C)         Storage Temperature       -40 to 212°F (-40 to 100°C)         Protection       IP67         Protection Class       III         Insulation Resistance       > 100MΩ (500VDC)         Shock Resistance       20g (DIN / IEC 68-2-27, 11ms)         Vibration Resistance       20g (DIN / EN 68-2-6, (10 to 2000 Hz)         EMC       EM 61000-4-2 ESD       4 kV CD/8 kV AD         EN 61000-4-3 HF Radiated       10 V/m	Housing Material	PBT (Pocan); PC (Ma	akrolon); FPM (Viton); stainless steel (316L)				
Indication/Switch Status       Switching Status: 2 LEDs: yellow       Power: LED - green - Switching Status: LED - yellow         Ambient Temperature       -40 to 176°F (-40 to 80°C) at max. 176°F (80°C) medium temp.         -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.         Medium Temperature       -40 to 122°F (-40 to 145°C)         Storage Temperature       -40 to 212°F (-40 to 100°C)         Protection       IP67         Protection Class       III         Insulation Resistance       > 100MQ (500VDC)         Shock Resistance       20g (DIN / IEC 68-2-27, 11ms)         Vibration Resistance       20g (DIN / EN 68-2-6, (10 to 2000 Hz)         EMC       4 kV CD/8 kV AD         EN 61000-4-2 ESD       4 kV CD/8 kV AD         EN 61000-4-3 HF Radiated       10 V/m	Materials (wetted parts)		Stainless steel (316L)				
Ambient Temperature         -40 to 176°F (-40 to 80°C) at max. 176°F (80°C) medium temp. -40 to 122°F (-40 to 50°C) at max. 293°F (145°C) medium temp.           Medium Temperature         -40 to 223°F (-40 to 145°C)           Storage Temperature         -40 to 212°F (-40 to 100°C)           Protection         IP67           Protection Class         III           Insulation Resistance         > 100MΩ (500VDC)           Shock Resistance         20g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-2 ESD         4 kV CD/8 kV AD	Indication/Switch Status	Switching Status: 2 LEDs: yellow	Power: LED - green - Switching Status: LED - yellow				
Medium Temperature         -40 to 293°F (-40 to 145°C)           Storage Temperature         -40 to 212°F (-40 to 100°C)           Protection         IP67           Protection Class         III           Insulation Resistance         > 100MΩ (500VDC)           Shock Resistance         50g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-2 ESD         4 kV CD/8 kV AD	Ambient Temperature	-40 to 176°F (-40 to -40 to 122°F (-40 to 5	80°C) at max. 176°F (80°C) medium temp. 50°C) at max. 293°F (145°C) medium temp.				
Storage Temperature         -40 to 212°F (-40 to 100°C)           Protection         IP67           Protection Class         III           Insulation Resistance         > 100MΩ (500VDC)           Shock Resistance         50g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-2 ESD         4 kV CD/8 kV AD	Medium Temperature	-4(	0 to 293°F (-40 to 145°C)				
Protection         IP67           Protection Class         III           Insulation Resistance         > 100MΩ (500VDC)           Shock Resistance         50g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-3 HF Radiated         10 V/m	Storage Temperature	-4(	0 to 212°F (-40 to 100°C)				
Protection Class         III           Insulation Resistance         > 100MΩ (500VDC)           Shock Resistance         50g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-2 ESD         4 kV CD/8 kV AD           EN 61000-4-3 HF Radiated         10 V/m	Protection		IP67				
Insulation Resistance         > 100MΩ (500VDC)           Shock Resistance         50g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-3 ESD         4 kV CD/8 kV AD	Protection Class						
Shock Resistance         50g (DIN / IEC 68-2-27, 11ms)           Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-2 ESD         4 kV CD/8 kV AD           EN 61000-4-3 HF Radiated         10 V/m	Insulation Resistance		> 100MΩ (500VDC)				
Vibration Resistance         20g (DIN / EN 68-2-6, (10 to 2000 Hz)           EMC         4 kV CD/8 kV AD           EN 61000-4-2 ESD         4 kV CD/8 kV AD           EN 61000-4-3 HF Radiated         10 V/m	Shock Resistance	50g	(DIN / IEC 68-2-27, 11ms)				
EMC           EN 61000-4-2 ESD         4 kV CD/8 kV AD           EN 61000-4-3 HF Radiated         10 V/m	Vibration Resistance	20g (DI	N / EN 68-2-6, (10 to 2000 Hz)				
EN 61000-4-2 ESD         4 kV CD/8 kV AD           EN 61000-4-3 HF Radiated         10 V/m	ЕМС						
EN 61000-4-3 HF Radiated 10 V/m	EN 61000-4-2 ESD		4 kV CD/8 kV AD				
	EN 61000-4-3 HF Radiated		10 V/m				
<b>EN 61000-4-4 Burst</b> 2 kV	EN 61000-4-4 Burst	2 kV					
<b>EN 61000-4-6 HF Conducted</b> 10 V	EN 61000-4-6 HF Conducted	10 V					
Approvals cULus File # E324411, CE	Approvals	cl	JLus File # E324411, CE				

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

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions

mm [inches]







See our Web site <u>www.AutomationDirect.com</u> for complete Engineering drawings.

# **Dr**Sense TSDA25 Series Temperature Switches

#### Wiring **TSDA25N-AP-0284-H**





Note: wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

**Cable Assembly Wiring Colors:** Pin 1 - Brown Pin 2 - White Pin 3 - Blue Pin 4 - Black

#### TSDA25N-0P-0284-H **\_**1 2



Note: wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

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**Cable Assembly Wiring Colors:** Pin 1 - Brown Pin 2 - White Pin 3 - Blue Pin 4 - Black

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#### **Setting and Operation**

#### **TSDA25N-AP-0284-H**



1: locking ring

- 2: setting rings (manually adjustable after unlocking) 3: LED yellow: lights if OUT1 = ON, temperature ≥ [SET1]

4: setting marks

5: LED yellow: lights if OUT2 = ON, temperature ≥ [SET2] 6: process connection 1/4" NPT

Pin 4 = OUT1 / Pin 2 = OUT2

To obtain the setting accuracy: Set both rings to the minimum value, then set the requested values.



Scan the QR Code above or click to view the TSDA25N-AP-0284-H product insert.



- 1: locking ring
- 2: setting rings (manually adjustable after unlocking)
- 3: LED green: supply voltage O.K.
- 4: setting marks
- 5: LED yellow: value [SET] reached, OUT1 = ON / OUT2 = OFF
- 6: process connection 1/4" NPT
- pin 4 = OUT1 / pin 2 = OUT2

Minimum distance between [SET] and [RESET] = 3°C. To obtain the setting accuracy: Set both rings to the minimum value, then set the requested values.



Scan the QR Code above or click to view the TSDA25N-0P-0284-H product insert.

# Sense XTP Series Temperature Transmitter Probes



**XTP Series Units** 

The ProSense XTP series conveniently combines a precision RTD sensing element and transmitter electronics in a single stainless steel temperature transmitter probe. Offered in three preconfigured temperature measuring ranges, XTP series transmitter probes are ready to use right out of the box. Or, use our free ProSense XT-SOFT software to program the XTP transmitter probe with a custom measuring range and change other configuration parameters. Choose from several probe insertion lengths and process connections including male NPT threads, 3-A approved sanitary clean in place tri-clamp, or compression fitting allowing for adjustable insertion depth. An M12 guick-disconnect provides connection to the loop powered 4-20 mA output signal that provides a linear representation of measured temperature and is compatible with PLCs, SCADA systems, and digital panel meters.

#### Features

- RTD and transmitter electronics combined in a single stainless steel probe
- Ready to use with preconfigured temperature measuring ranges
- Free ProSense <u>XT-SOFT</u> software can be used to program custom measuring ranges and change other configuration parameters
- 30, 50, 100, 150, 160, 260, or 360mm probe insertion lengths
- Process connections include 1/4" or 1/2" male NPT threads, 3-A approved sanitary CIP tri-clamp, or compression fitting for adjustable insertion depth.
- 4-20 mA output
- M12 quick-disconnect electrical connection

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ProSense XTP Series Temperature Transmitter Probes							
Part Number	Preconfigured Measuring Range*	Process Connection	Length	Thermowell (purchased separately)	Wt(lb)	Price	Drawing Link
<u>XTP-160-N40140F</u>		None, use	160mm (6.3")	RTDTW-06-010-50N CF06-25N	0.24	\$132.00	<u>PDF</u>
<u>XTP-260-N40140F</u>		compression fitting (CF06-25N purchased	260mm (10.24")	RTDTW-06-020-50N CF06-25N	0.34	\$134.00	<u>PDF</u>
<u>XTP-360-N40140F</u>		separately)	360mm (14.17")	RTDTW-06-030-50N CF06-25N	0.37	\$136.00	<u>PDF</u>
<u>XTP25N-030-N40140F</u>			30mm (1.18")		0.2	\$168.00	PDF
<u>XTP25N-050-N40140F</u>	_	1/4" Male NPT	50mm (1.97")		0.2	\$169.00	PDF
<u>XTP25N-100-N40140F</u>	-40 to 140°F (-40 to 60°C)		100mm (3.94")	None	0.3	\$172.00	PDF
<u>XTP25N-150-N40140F</u>	_		150mm (5.91")	None	0.3	\$175.00	PDF
<u>XTP50N-030-N40140F</u>	_	1/2" Male NPT	30mm (1.18")	-	0.3	\$168.00	<u>PDF</u>
<u>XTP50N-050-N40140F</u>			50mm (1.97")		0.3	\$169.00	<u>PDF</u>
<u>XTP50N-100-N40140F</u>	-		100mm (3.94")	TW04-0x	0.4	\$172.00	<u>PDF</u>
<u>XTP50N-150-N40140F</u>			150mm (5.91")	TW06-0x	0.4	\$175.00	<u>PDF</u>
<u>XTP-160-0300F</u>		None, use	160mm (6.3")	CF06-25N	0.24	\$132.00	PDF
<u>XTP-260-0300F</u>		CF06-25N purchased	260mm (10.24")	RTDTW-06-020-50N CF06-25N	0.27	\$134.00	<u>PDF</u>
<u>XTP-360-0300F</u>		separately)	360mm (14.17")	RTDTW-06-030-50N CF06-25N	0.37	\$136.00	<u>PDF</u>
<u>XTP25N-030-0300F</u>			30mm (1.18")		0.2	\$168.00	PDF
<u>XTP25N-050-0300F</u>	_	1// " Male NPT	50mm (1.97")		0.2	\$169.00	PDF
<u>XTP25N-100-0300F</u>	0 to 300°F (-17.8 to 148.9°C)		100mm (3.94")	None	0.3	\$172.00	PDF
<u>XTP25N-150-0300F</u>			150mm (5.91")	None	0.3	\$175.00	PDF
<u>XTP50N-030-0300F</u>	_		30mm (1.18")		0.3	\$168.00	PDF
<u>XTP50N-050-0300F</u>		1/2" Male NPT	50mm (1.97")		0.3	\$169.00	PDF
<u>XTP50N-100-0300F</u>			100mm (3.94")	TW04-0x	0.4	\$172.00	PDF
XTP50N-150-0300F			150mm (5.91")	TW06-0x	0.4	\$175.00	PDF

\* Free ProSense <u>XT-SOFT</u> software can be used to program custom measuring ranges and change other configuration parameters. An <u>XT-USB</u> programming cable and <u>XT-M12</u> adapter are also required and purchased separately.

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### Sense XTP Series Temperature Transmitter Probes

ProSense XTP Series Temperature Transmitter Probes							
Part Number	Preconfigured Measuring Range*	Process Connection	Length	Thermowell (purchased separately)	Wt(lb)	Price	Drawing Link
<u>XTP-160-0100C</u>		None, use	160mm (6.3")	RTDTW-06-010-50N CF06-25N	0.25	\$132.00	PDF
<u>XTP-260-0100C</u>		compression fitting (CF06-25N purchased	260mm (10.24")	RTDTW-06-020-50N CF06-25N	0.34	\$134.00	PDF
<u>XTP-360-0100C</u>		separately)	360mm (14.17")	RTDTW-06-030-50N CF06-25N	0.37	\$136.00	PDF
<u>XTP25N-030-0100C</u>			30mm (1.18")		0.2	\$168.00	PDF
<u>XTP25N-050-0100C</u>	_	1/4" Male NPT	50mm (1.97")	- None	0.2	\$169.00	PDF
<u>XTP25N-100-0100C</u>	0 to 100°C (32 to 212°F)		100mm (3.94")		0.3	\$172.00	PDF
<u>XTP25N-150-0100C</u>			150mm (5.91")		0.3	\$175.00	<u>PDF</u>
<u>XTP50N-030-0100C</u>			30mm (1.18")		0.3	\$168.00	PDF
<u>XTP50N-050-0100C</u>			50mm (1.97")		0.3	\$169.00	PDF
<u>XTP50N-100-0100C</u>			100mm (3.94")	TW04-0x	0.4	\$172.00	PDF
<u>XTP50N-150-0100C</u>			150mm (5.91")	TW06-0x	0.4	\$175.00	PDF
<u>XTP\$15-030-0300F</u>			30mm (1.18")		0.45	\$220.00	PDF
<u>XTPS15-050-0300F</u>		1-1/2" Sanitary CIP	50mm (1.97")	- None	0.45	\$221.00	PDF
<u>XTPS15-100-0300F</u>	0 10 300 F (-17.8 10 146.9 C)	Tri-Clamp (3-A)	100mm (3.94")		0.47	\$222.00	PDF
<u>XTPS15-150-0300F</u>			150mm (5.91")		0.48	\$224.00	PDF

\* Free ProSense <u>XT-SOFT</u> software can be used to program custom measuring ranges and change other configuration parameters. An <u>XT-USB</u> programming cable and <u>XT-M12</u> adapter are also required and purchased separately.



Scan the QR Code above or click to view the XTP Series product insert.

### **N**Sense XTP Series Temperature Transmitter Probes

ProSense XTP Se	ries Temperature Transmitter Probes Specifications
Operating Voltage	10 to 35 VDC
Electrical Connection	4-pin M12 quick disconnect
Probe Diameter	6mm (0.2")
Short-Circuit Protection	Yes
Reverse Polarity Protection	Yes
Electrical Protection	Protection Class III, Overvoltage category II, Pollution degree 2
Analog Output	4 to 20 mA (software configurable for 20 to 4 mA)
Maximum Load	608Ω @ 24VDC (Προινεγειμαρία - 10\/) / 0.023 Δ
	Underranging: Linear drop to 3.8 mA
Signal on Alarm (per NAMUR NF43)	Overranging: Linear rise to 20.5 mA
g	Sensor break; Sensor short-circuit: $\geq$ 21.0 mA (21.5 mA output is guaranteed) or software configurable for $\leq$ 3.6 mA
Minimum Current Consumption	$\leq$ 3.5 mA
Current Limit	≤ 23mA
Switch-on Delay	2s
Transmitter Response Time	≤ 3s
	With or without NPT process connection**
Pressure Rating	• 1450 psig (1000ar) maximum With Sanitary Tri-clamp process connection
	• 232 psig (16bar) maximum
Altitude	Up to 6600ft (2000m) above mean sea level
Accuracy	0.25K + 0.002  T ,  T  = Numerical value of the temperature in °C without regard to the leading sign.
Long-term Stability of Electronics	$\leq$ 0.1 K / year or 0.05 % / year, % relates to the set span. The larger value applies.
Measuring Element	Pt100 class A as per IEC 60751
Measuring Range Limits	-58 to 302°F (-50 to 150°C), software configurable
Minimum Span	10K (18°F), software configurable
Minimum Installation Depth	30mm
Housing Material	Stainless steel (304)
Materials (wetted parts)	Stainless steel (316L) ; XTPS15 sanitary surface finish Ra $\leq$ 0.76 µm (30 µin)
Ambient Temperature	_40 to 185°F (-40 to 85°C)
Process Temperature	–58 to 302°F (–50 to 150°C)
Storage Temperature	_40 to 185°F (-40 to 85°C)
Shock Resistance and Vibration Resistance	4g / 2 to 150Hz as per IEC 60068-2-6
Climate Class	Per IEC 60654-1, Class C
	EMC (Electromagnetic Compatibility)*
IEC/EN 61000-4-2	ESD (electrostatic discharge) 6kV cont., 8kV air
IEC/EN 61000-4-3	Electromagnetic fields 0.08 to 2GHz, 10 V/m
IEC/EN 61000-4-4	Burst (fast transient) 2kV
IEC/EN 61000-4-5	Surge 0.5 kV sym.
IEC/EN 61000-4-6	Conducted RF 0.01 to 80MHz, 10V
Protection	IP66/67 or IP69K with appropriately rated cable
Certifications	cURus # E311366, CE, 3-A (XTPS15 models only)

\* All EMC measurements were performed with a turn down (TD) = 2:1. Maximum fluctuations during EMC - tests: < 1% of measuring span. Interference immunity to IEC/EN 61326 - series, requirements for industrial areas

Interference emission to IEC/EN 61326 - series, electrical equipment Class B.

\*\* Working pressure when using compression fitting should not exceed the fittings rated pressure.



Note: Response time will be slower when installed in a thermowell. Be sure to install the probe so that it contacts the end of the thermowell for faster response. Thermal compound may be used depending on application.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

### Sense XTP Series Temperature **Transmitter Probes**



**Cable Assembly Wiring Colors:** Pin 1 - Brown Pin 2 - White Pin 3 - Blue Pin 4 - Black

Note: wiring colors are based on Automation-Direct CD12L and CD12M 4-pole cable assemblies.





1 (BN) +

2 (WH) nc 3 (BU) -





#### Load Impedance

**Maximum Flow Velocity** 

Per insertion Length



#### RLmax = (V<sub>powersupply</sub>-10V) / 0.023 A (current output) e.g. (24V - 10V) / 0.023A = 608\Omega



L Insertion length, during flow

Flow velocity v

135

15 0

> Medium water at T = 50 °C (122 °F) А

### Endress + Hauser TM311 iTHERM CompactLine Temperature Sensors/Transmitters



Part No. TM311-P801/0



Part No. TM311-TLR0/0



#### Part No. TM311-TLR0/0TM311-TLV1/0

The Endress+Hauser TM311 iTHERM® CompactLine conveniently combines a precision RTD sensing element and transmitter electronics in a single stainless steel temperature transmitter probe. Preconfigured for a process measuring range of 0 to +150 °C (32 to +302 °F), the TM311 can be used for a wide variety of temperature sensing applications. Several probe insertion lengths are available, and process connections include male NPT thread or 3-A approved sanitary clean in place tri-clamp. An M12 quick-disconnect provides electrical connection and can be connected to operate as a loop powered 4-20 mA output signal or with IO-Link communications that enable access to various temperature process variable, configuration, diagnostic, and logging parameters.

#### **Features**

- Endress+Hauser iTHERM CompactLine RTD and transmitter electronics combined in a stainless steel probe
- Fast response time with Endress+Hauser TipSens RTD sensing element
- Preconfigured process measuring temperature range
- 4-20 mA or IO-Link communications that enable access to various temperature process variable, configuration, diagnostic, and logging parameters.
- 30, 50, 100, and 150mm probe insertion lengths
- Process connections include 1/4", 1/2" male NPT threads, or 3-A approved sanitary CIP tri-clamp
- M12 quick-disconnect electrical connection





For a variety of cable options see our website <u>www.AutomationDirect.com</u>

End	ress+Ha	user TM3	<b>11 Series</b>	<b>iTHERM</b> 1	Temperatu	re Sensor/	<b>Transmitte</b>	r Selectio	1
Part Number	Sensing Element	Temperature Range	Insertion Length	Probe Diameter	Process Connection	Output	Electrical Connection	Weight (lb)	Price
<u>TM311-P801/0</u>			30mm					0.78	\$247.00
<u>TM311-TLN8/0</u>			50mm		1//in male NDT			0.79	\$251.00
<u>TM311-T5U0/0</u>			100mm					0.80	\$251.00
<u>TM311-TLP9/0</u>			150mm					0.81	\$251.00
<u>TM311-ART9/0</u>			30mm					0.88	\$247.00
<u>TM311-TLR0/0</u>		0 to 150°C	50mm	6mm	1/2in male NPT	1-channel,	4-pin M12 quick-	0.88	\$251.00
<u>TM311-2F91/0</u>		(32 to 302°F)	100mm	Unin	1/211 male NF1	4-20mA / IO-Link	disconnect	0.90	\$251.00
<u>TM311-TLT0/0</u>			150mm					0.91	\$251.00
<u>TM311-TLU6/0</u>			30mm					0.93	\$234.00
<u>TM311-TLV1/0</u>			50mm		1-1/2in sanitary			0.93	\$238.00
<u>TM311-TWH1/0</u>			100mm	100mm	tri-clamp			0.95	\$238.00
<u>TM311-TLX2/0</u>			150mm					0.95	\$238.00

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Endress + Hauser

# TM311 iTHERM CompactLine Temperature Sensors/Transmitters

Endress+Hauser TM311 Series iTHERM Temperature Sensor/ Transmitter Information								
Part Number	Drawing Links	Manufacturer Tech Specs	Manufacturer Quick Start	Manufacturer Manual				
<u>TM311-2F91/0</u>	PDF							
<u>TM311-ART9/0</u>	PDF							
<u>TM311-P801/0</u>	PDF							
<u>TM311-T5U0/0</u>	PDF							
<u>TM311-TLN8/0</u>	PDF							
<u>TM311-TLP9/0</u>	<u>PDF</u>	DDE	DDE	PDE				
<u>TM311-TLR0/0</u>	PDF							
<u>TM311-TLT0/0</u>	PDF							
<u>TM311-TLU6/0</u>	<u>PDF</u>							
<u>TM311-TLV1/0</u>	PDF							
<u>TM311-TLX2/0</u>	PDF							
<u>TM311-TWH1/0</u>	PDF							

For complete technical information and installation see Manufacturer Tech Specs and Manual links.

### Wiring Information

#### IO-Link operating mode

- 1 Pin 1 power supply 15 to 30 VDC
- 2 Pin 2 not used
- 3 Pin 3 power supply 0 VDC
- 4 Pin 4 C/Q (IO-Link or switch output)

#### 4 to 20 mA operating mode

- 1 Pin 1 power supply 10 to 30 VDC
- 2 Pin 2 power supply 0 VDC
- 3 Pin 3 not used
- 4 Pin 4 not used





### **Dr**Sense ETS Series Digital Temperature Sensors



#### **Overview**

AutomationDirect's ProSense ETS Series of Digital Temperature Sensors is ideal for industrial temperature measurement and indication in a wide variety of applications. The ETS series conveniently combines a precision RTD sensing element, measuring electronics, and process fitting all in a single stainless steel temperature transmitter probe. They have a wide measuring range of -58 to 302°F. Choose from four standard probe insertion lengths and two integral male NPT process threads that allow direct mounting to the process or thermowells, eliminating the need for separate probe mounting or adapter fittings. With no moving parts the two solid state switch outputs provide a reliable alternative to mechanical temperature switches. Available models allow an output to be configured as a scalable analog signal, turning the unit into a combination temperature switch and transmitter. The built-in digital display provides indication of the measured temperature. Two

yellow LEDs indicate output switch status. For optimum visibility the sensor housing can be rotated up to 310° after installation and the digital display can be electronically flipped 180° for inverted installations. Simple pushbutton setup allows the ETS to be easily and quickly configured prior to installation without the need for a separate temperature reference. Or, use our free ProSense XT-SOFT software to program the ETS parameters. Electrical connection is made with a 4-pin M12 quick-disconnect cable. The compact and robust design and construction of the ProSense ETS series withstands shock and vibration, and provides high accuracy and reliability required to excel in industrial temperature sensing applications.

ProSense ETS Digital Temperature Sensors Selection Guide						
Part Number	Price	Measuring Range*	Thread Size	Length	Outputs	
<u>ETS50N-30-1001</u>	\$234.00			30mm	Output 1: quitab DND NO /NO	
<u>ETS50N-50-1001</u>	\$235.00			50mm	selectable	
<u>ETS50N-100-1001</u> **	\$237.00	-58 to 302°F	1/2 WINFT	100mm	or 4-20 mA¹	
<u>ETS50N-150-1001</u> **	\$238.00	(-50 to 150°C)		150mm	Output 2: switch PNP, N.O./N.C. selectable	
<u>ETS25N-30-1001</u>	\$231.00		1/4" MNPT	30mm	0r 4 20 mA1	
<u>ETS25N-50-1001</u>	\$232.00			50mm	4-20 MA	
<u>ETS50N-30-1003</u>	\$165.00			30mm		
<u>ETS50N-50-1003</u>	\$167.00			50mm		
<u>ETS50N-100-1003</u> **	\$168.00	-58 to 302°F	1/2 WINPT	100mm	Output 1: switch PNP, N.O./N.C. selectable	
<u>ETS50N-150-1003</u> **	\$169.00	(-50 to 150°C)		150mm	Output 2: switch PNP, N.O./N.C. selectable	
ETS25N-30-1003	\$165.00			30mm		
<u>ETS25N-50-1003</u>	\$167.00		1/4 WINPT	50mm		

\* Pushbuttons or free ProSense XT-SOFT software can be used to program custom measuring ranges and change other configuration param-

eters. An <u>XT-USB</u> programming cable may be required and purchased separately.

\*\* Thermowells available (see ETS Series Digital Temperature Sensor Accessories)

<sup>1</sup> Only one output can be configured as analog.

# **Pr**Sense ETS Series (-1001) Digital Temperature Sensors





#### Features

#### Outputs:

- 2 solid-state switch outputs provide a reliable alternative to mechanical temperature switches
- One output can be configured as a scalable analog 4-20 mA signal, turning the unit into a combination temperature switch and transmitter
- Ideal for industrial temperature measurement and indication in many applications
- RTD, measuring electronics, and process fitting combined in a single stainless steel probe
- Wide measuring range of -58 to 302°F
- Easily configured with pushbuttons or free ProSense <u>XT-SOFT</u>
- 30, 50, 100 or 150mm probe insertion lengths
- Integral 1/4" NPT or 1/2" NPT male process connection allows for direct installation without requiring extra fittings
- Built-in digital display provides indication of measured temperature and 2 yellow LEDs indicate output status
- The sensor housing can be rotated up to 310° and the digital display can be flipped 180° for installation flexibility
- Stainless steel housing provides a high IP65/IP66 ingress protection rating
- 4-pin M12 quick-disconnect electrical connection



For a variety of cable options see our website <u>www.AutomationDirect.com</u>

ETS Series (-1001) Digital Temperature Sensors							
Part Number	Description	Pcs/Pkg	Wt (lb)	Price			
<u>ETS50N-30-1001</u>	ProSense digital temperature sensor, 1/2in male NPT process connection, 30mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable or 4-20 mA, output 2: switch PNP, N.O./N.C. selectable or 4-20 mA, 4-digit display.	1	0.9	\$234.00			
<u>ETS50N-50-1001</u>	ProSense digital temperature sensor, 1/2in male NPT process connection, 50mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable or 4-20 mA, output 2: switch PNP, N.O./N.C. selectable or 4-20 mA, 4-digit display.	1	0.9	\$235.00			
<u>ETS50N-100-1001</u> *	ProSense digital temperature sensor, 1/2in male NPT process connection, 100mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable or 4-20 mA, output 2: switch PNP, N.O./N.C. selectable or 4-20 mA, 4-digit display.	1	0.9	\$237.00			
<u>ETS50N-150-1001</u> *	ProSense digital temperature sensor, 1/2in male NPT process connection, 150mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable or 4-20 mA, output 2: switch PNP, N.O./N.C. selectable or 4-20 mA, 4-digit display.	1	0.9	\$238.00			
<u>ETS25N-30-1001</u>	ProSense digital temperature sensor, 1/4in male NPT process connection, 30mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable or 4-20 mA, output 2: switch PNP, N.O./N.C. selectable or 4-20 mA, 4-digit display.	1	0.8	\$231.00			
<u>ETS25N-50-1001</u>	ProSense digital temperature sensor, 1/4in male NPT process connection, 50mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable or 4-20 mA, output 2: switch PNP, N.O./N.C. selectable or 4-20 mA, 4-digit display.	1	0.8	\$232.00			

\* Thermowells available (see ETS Series Digital Temperature Sensor Accessories)

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured

# **Dr**Sense ETS Series (-1001) Digital Temperature Sensors

Prosense ETS (-1001) Series Specifications				
		Input		
Measuring Element	Pt100 as per IEC 60751			
Measuring Range		-50 to 150°C (-58 to +302°F)		
Min. Span		20K/20°C (36°F)		
		Output		
Output Signal	2 x PNP switch out	puts or one PNP switch output and 1 x 4 to 20mA output (sourcing)		
	Switch output	Switch point (SP) and Switch-back point (RSP) in increments of 0.1°C (0.18°F) Min. distance between SP and RSP: 0.5°C (0.8°F)		
Range of Adjustment	Analog output	Lower range value (LRV) and upper range value (URV) can be set anywhere within the sensor range (min. measuring range 20K (36°F) LRV Factory Setting: 32°F (0°C) URV Factory Setting: 302°F (150°C)		
	Damping	0 (no damping) or 9 to 40s in increments of 1 second		
	Unit	°C, K, °F		
Analog Outputs	Output on Fault	$MIN = \le 3.6 \text{ mA}$ $MAX = \ge 21.0 \text{ mA}$ $HOLD = \text{last value}$		
	Load	Max. (V <sub>power supply</sub> - 6.5 V) / 0.022A (current output) , 795Ω @ 24VDC		
	Switch status ON	l <sub>a</sub> ≤ 250mA		
	Switch status OFF	I <sub>a</sub> ≤ 1mA		
	Switching cycles	> 10,000,000		
	Voltage drop PNP	≤ 2V		
Switch Outputs	Overload protection	Automatic testing of switching current; output is switched off in case of overcurrent, the switching current is tested again every 0.5 s; Max. capacitance load: 14µF for max. supply voltage (without resistive load); Periodic disconnection from a protective circuit in event of overcurrent (f = 2Hz) and indication of "Warning"		
	Output on Fault	Switch opens		
Inductive Load		Requires transient voltage suppression		
Display		Backlit LCD (7mm)		
	Por	ver Supply		
Device Connection		M12 connector		
Supply Voltage		12 to 30VDC (reverse polarity protection)		
Current Consumption	W	thout load < 60mA, with reverse polarity protection		
Power Supply Failure	Overvoltage	The device works continuously up to 34VDC without damage. No damage is caused to the device from a short-term overvoltage up to 1kV (as per EN 31000- 4-5). The specific properties are no longer guaranteed if the supply voltage is exceeded		
	Undervoltage	If the supply voltage drops below the minimum value, the device switches off (status as if note supply with power = switch open)		
	Pe	rformance		
Reference conditions	T = 25°C (77°F), relative hu	As per DIN IEC 60770or DIN 61003 midity 45 to 75%, ambient air pressure 860 to 1060kPa (12.47 to 15.37 psi)		
	Supply voltage U	24VDC		
	Electronics	± 0.2 K (0.36°F)		
Max. Measured Error Switch Point and Display	Sensor	Total class A as per IEC 60751, -50 to +200°C (-58 to 392°F) Maximum measure error in °C = ± 0.15 + 0.002 ·   T   (   T   = Process temperature in °C without taking sign into account.)		
	Total error	Electronics error + sensor error, e.g. for process temperature: -50 to +75°C (-58 to +167°F) ≤ 0.5 K (0.9°F) +75 to +200°C (+167 to 392°F) ≤ 0.75 K (1.35°F)		
Non-Repeatability Switch Point	0.1 K (0.18°F	as per EN 61298-2 (without ambient temperature influence)		
Long-Term Drift	≤ 0.1 K	(0.18°F) per year under reference operating conditions		

# **Pr**Sense ETS Series (-1001) Digital Temperature Sensors

P	roSense ETS (-1001	) Series Specifications							
Performance Continued									
Sensor Response Time	Measured as per IEC 60751, in water flowing at 0.4 m/s (1.3 ft/s) $$t_{50}$ < 1.0 s$ $t_{90}$ < 2.8 s$$								
Influence of Ambient Temperature	Switch output and display	0.00003/K							
Innuence of Amblent Temperature	Analog output	0.00005/K + influence of switch output and display							
Switch Output Response Time		100ms							
	Maximum measured error	Switch point error and display error + 0.1%							
Analog Output	Rise time t <sub>90</sub>	≤ 200ms							
	Settling time t <sub>99</sub>	≤ 500ms							
	Operating Cond	itions: Installation							
Installation Instructions		Any orientation Housing can be rotated up to 310°							
Orientation	No restrictions								
Operating Conditions: Environment									
Housing Material	Stainless st	eel (316L); ethylene propylene diene monomer (EPDM)							
Materials (wetted parts)	Stainless steel (316L)								
Ambient Temperature Range		-40 to +85°C (-40 to +185°F)							
Storage Temperature		-40 to +85°C (-40 to +185°F)							
Degree of Protection		IP65							
Shock Resistance		50g as per DIN IEC 68-2-27 (11ms)							
Vibration Resistance		4g as per German Lloyd GL Guidelines							
Electromagnetic Compatiblity	Interference em Interference immunity as per IEC	ission as per IEC 61326 Series, class B electrical equipment 61326 Series, appendix A (industrial use) and NAMUR Recommendation NE 21 EMC influence ≤ 0.5%							
	-50 to +150°C (-58 to 302°F)	, Restrictions depending on process connection and ambient temperature							
	Max. ambient temperature	Max. process temperature							
Drocco Tomporoturo Limito	Up to 25°C (77°F)	No restriction							
	Up to 40°C (104°F)	135°C (275°F)							
	Up to 60°C (140°F)	120°C (248°F)							
	Up to 85°C (185°F)	100°C (212°F)							
Process Pressure		100 bar (1450 psig) max.							
Approvals		CULus, File # E311366, CE							

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

# **Dr**Sense ETS Series (-1001) Digital Temperature Sensors

#### **ETS Wiring Diagram**



- A2: 1x PNP switch outputs for and () (diagnosis for contact A2: 1x PNP switch output and 1x analog output (4 to 20 mA)
- A3: 1x analog output (4 to 20 mA) and 1x PNP switch output (1 ( $R_2$ )
- A3': 1x analog output (4 to 20 mA) and 1x PNP switch output
  - (diagnosis / NC contact with "DESINA" setting)

#### Dimensions

#### mm [inches]



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

# **Dr**Sense ETS Series (-1001) Digital Temperature Sensors

#### **Maximum Flow Velocity**





Scan the QR Code above or click to view the ETS Series product insert.

### **Conservence ETS Series (-1003) Digital Temperature Sensors**



#### **Features**

- Outputs:
   2 solid-state switch outputs provide a reliable alternative to mechanical temperature switches
- Ideal for industrial temperature measurement and indication in many applications
- RTD, measuring electronics, and process fitting combined in a single stainless steel probe
- Wide measuring range of -58 to 302°F
- Easily configured with pushbuttons or free ProSense XT-SOFT
- 30, 50, 100 or 150mm probe insertion lengths
- Integral 1/4" NPT or 1/2" NPT male process connection allows for direct installation without requiring extra fittings
- Built-in digital display provides indication of measured temperature and 2 yellow LEDs indicate output status
- The sensor housing can be rotated up to 310° and the digital display can be flipped 180° for installation flexibility
- Stainless steel housing provides a high IP65/IP66 ingress protection rating
- 4-pin M12 quick-disconnect electrical connection





For a variety of cable options see our website www.AutomationDirect.com

EPS Series (-1003) Digital Temperature Sensors									
Part Number	Description	Pcs/Pkg	Wt (lb)	Price					
<u>ETS50N-30-1003</u>	ProSense digital temperature sensor, 1/2in male NPT process connection, 30mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable, output 2: switch PNP, N.O./N.C. selectable, 4-digit display.	1	0.9	\$165.00					
<u>ETS50N-50-1003</u>	ProSense digital temperature sensor, 1/2in male NPT process connection, 50mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable, output 2: switch PNP, N.O./N.C. selectable, 4-digit display.	1	0.9	\$167.00					
<u>ETS50N-100-1003</u> *	ProSense digital temperature sensor, 1/2in male NPT process connection, 100mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable, output 2: switch PNP, N.O./N.C. selectable, 4-digit display.	1	0.9	\$168.00					
<u>ETS50N-150-1003</u> *	ProSense digital temperature sensor, 1/2in male NPT process connection, 150mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable, output 2: switch PNP, N.O./N.C. selectable, 4-digit display.	1	0.9	\$169.00					
<u>ETS25N-30-1003</u>	ProSense digital temperature sensor, 1/4in male NPT process connection, 30mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable, output 2: switch PNP, N.O./N.C. selectable, 4-digit display.	1	0.8	\$165.00					
<u>ETS25N-50-1003</u>	ProSense digital temperature sensor, 1/4in male NPT process connection, 50mm insertion length, -58 to 302°F, output 1: switch PNP, N.O./N.C. selectable, output 2: switch PNP, N.O./N.C. selectable, 4-digit display.	1	0.8	\$167.00					

\* Thermowells available (see ETS Series Digital Temperature Sensor Accessories)

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured

# **Dr**Sense ETS Series (-1003) Digital Temperature Sensors

ProSense ETS (-1003) Series Specifications								
		Input						
Measuring Element		Pt100 as per IEC 60751						
Measuring Range		-50 to 150°C (-58 to +302°F)						
Min. Span		20K/20°C (36°F)						
		Output						
Output Signal		2 x PNP switch outputs						
	Switch output	Switch point (SP) and Switch-back point (RSP) in increments of 0.1°C (0.18°F) Min. distance between SP and RSP: 0.5°C (0.8°F)						
Range of Adjustment	Damping	0 (no damping) or 9 to 40s in increments of 1 second						
	Unit	°C, K, °F						
Load	Max. (V <sub>power supply</sub> - 6.5 V) / 0.022A (current output) , 795Ω @ 24VDC							
	Switch status ON	I <sub>a</sub> ≤ 250mA						
	Switch status OFF	l <sub>a</sub> ≤ 1mA						
	Switching cycles	> 10,000,000						
	Voltage drop PNP	≤ 2V						
Switch Outputs	Overload protection	Automatic testing of switching current; output is switched off in case of overcurrent, the switching current is tested again every 0.5 s; Max. capacitance load: 14µF for max. supply voltage (without resistive load); Periodic disconnection from a protective circuit in event of overcurrent (f = 2H; and indication of "Warning"						
	Output on Fault	Switch opens						
Inductive Load		Requires transient voltage suppression						
Display	Backlit LCD (7mm)							
	Po	wer Supply						
Device Connection		M12 connector						
Supply Voltage		12 to 30VDC (reverse polarity protection)						
Current Consumption	Wi	thout load < 60mA, with reverse polarity protection						
Power Supply Failure	Overvoltage	Ine device works continuously up to 34VDC without damage. No damage caused to the device from a short-term overvoltage up to 1kV (as per EN 310 4-5). The specific properties are no longer guaranteed if the supply voltage is exceeded						
	Undervoltage	If the supply voltage drops below the minimum value, the device switches off (status as if note supply with power = switch open)						
	Pe	rformance						
Reference conditions	T = 25°C (77°F), relative hu	As per DIN IEC 60770or DIN 61003 midity 45 to 75%, ambient air pressure 860 to 1060kPa (12.47 to 15.37 psi)						
	Supply voltage U	24VDC						
	Electronics	± 0.2 K (0.36°F)						
Max. Measured Error Switch Point and Display	Sensor	Total class A as per IEC 60751, -50 to +200°C (-58 to 392°F) Maximum measure error in °C = ± 0.15 + 0.002 ·   T   (   T   = Process temperature in °C without taking sign into account.)						
	Total error	Electronics error + sensor error, e.g. for process temperature: -50 to +75°C (-58 to +167°F) ≤ 0.5 K (0.9°F) +75 to +200°C (+167 to 392°F) ≤ 0.75 K (1.35°F)						
Non-Repeatability Switch Point	0.1 K (0.18°F	) as per EN 61298-2 (without ambient temperature influence)						
Long-Term Drift	≤ 0.1 K (0.18°F) per year under reference operating conditions							

# **Pr**Sense ETS Series (-1003) Digital Temperature Sensors

ProSense ETS (-1003) Series Specifications								
	Performan	ce Continued						
Sensor Response Time	Measured as per IEC 60751, in water flowing at 0.4 m/s (1.3 ft/s) t50 < 1.0 s t90 < 2.8 s							
Influence of Ambient Temperature	Switch output and display	0.00003/K						
Switch Output Response Time	100ms							
	Operating Cond	itions: Installation						
Installation Instructions		Any orientation Housing can be rotated up to 310°						
Orientation		No restrictions						
Operating Conditions: Environment								
Housing Material	Stainless steel (316L); ethylene propylene diene monomer (EPDM)							
Materials (wetted parts)	Stainless steel (316L)							
Ambient Temperature Range	-40 to +85°C (-40 to +185°F)							
Storage Temperature		-40 to +85°C (-40 to +185°F)						
Degree of Protection		IP65						
Shock Resistance		50g as per DIN IEC 68-2-27 (11ms)						
Vibration Resistance		4g as per German Lloyd GL Guidelines						
Electromagnetic Compatiblity	Interference em Interference immunity as per IEC	ission as per IEC 61326 Series, class B electrical equipment 61326 Series, appendix A (industrial use) and NAMUR Recommendation NE 21 EMC influence ≤ 0.5%						
	-50 to +150°C (-58 to 302°F)	, Restrictions depending on process connection and ambient temperature						
	Max. ambient temperature	Max. process temperature						
Process Temperature Limits	Up to 25°C (77°F)	No restriction						
	Up to 40°C (104°F)	135°C (275°F)						
	Up to 60°C (140°F)	120°C (248°F)						
	Up to 85°C (185°F)	100°C (212°F)						
Process Pressure		100 bar (1450 psig) max.						
Approvals		CULus, File # E311366, CE						

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

# **Pr**Sense ETS Series (-1003) Digital Temperature Sensors

#### **ETS Wiring Diagram**





Note: Wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

Wiring diagram is based on user selected configuration

A1: 2x PNP switch outputs R1 and ① (R2) A1': 2x PNP switch outputs R1 and ① (diagnosis/NC contact with "DESINA" setting)

#### Dimensions

#### mm [inches]



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

# **Dr**Sense ETS Series (-1003) Digital Temperature Sensors

#### **Maximum Flow Velocity**





Scan the QR Code above or click to view the ETS Series product insert.

### **Pr**Sense ETS Series Digital Temperature Sensor Accessories

#### **ETS Series Digital Temperature Sensor Accessories**





Part No.	Description	Use with Transmitter Probe	Pcs/Pkg	Price
<u>TW04-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, 2-1/2 inch insertion length		1	\$36.00
<u>TW04-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, 2-1/2 inch insertion length	ETS50N-100-XXXX	1	\$36.00
<u>TW04-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, 2-1/2 inch insertion length		1	\$45.00
<u>TW04-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, 2-1/2 inch insertion length		1	\$45.00
<u>TW06-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter, 4-1/2 inch insertion length		1	\$49.50
<u>TW06-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter, 4-1/2 inch insertion length		1	\$49.50
<u>TW06-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter, 4-1/2 inch insertion length	e process threads, 316 pre diameter, 4-1/2 inch ETS50N-150-XXXX	1	\$57.00
<u>TW06-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter, 4-1/2 inch insertion length		1	\$57.00

# **Projection Head** Overview

for Mounting



#### • Probe

- Type J or K thermocouple elements to meet many temperature sensing applications
- 1/4" diameter, 316 SS or Inconel Alloy 600 sealed sheath to protect against harsh environments
- Magnesium Oxide (MgO) insulation provides vibration dampening and protection against thermal shock
- Bendable to adapt to installation requirements
- 6", 12" or 18" proble length
- Connection Head
  - Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
  - One turn cover removal & installation eliminates cross threading and saves time
  - 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
  - Gripping ribs on cover edge
  - Stainless steel cover chain
- Wiring
  - Ceramic terminal base
- Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
- Elevated terminal block for easy wire termination
- Made in the USA

Thermocouple Probes with Connnection Head - Types J and K										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Probe Material	Temperature Sensing Range	Mounting	
THMJ-C06-01			\$78.00	J		6"		0 1. 700%0		
THMJ-C12-01			\$83.00	J		12"		0 to 720°C (32 to 1330°E)		
<u>THMJ-C18-01</u>			\$86.00	J		18"		(02 10 1000 1)	Integral 1/2" x 1/2"	
<u>THMK-C06-01</u>			\$78.00	K		6"		0.1-00780	316 SS	
THMK-C12-01			\$83.00	K		12		(32 to 1700°E)		
<u>THMK-C18-01</u>			\$86.00	K	]	18"	316 stainloss staal	(02 10 1700 1)		
<u>THMJ-C06-02</u>			\$74.00	J		6"	510 Stall liess Steel	0 40 700%0		
<u>THMJ-C12-02</u>	1	1.3	\$75.00	J	1/4"	12"		(32 to 1330°F)	ProSense compression fitting (see accessories -	
<u>THMJ-C18-02</u>			\$76.00	J		18"				
<u>THMK-C06-02</u>			\$74.00	K		6"		0 40 00780		
<u>THMK-C12-02</u>			\$75.00	K		12"		(32 to 1700°F)	purchased separately)	
<u>THMK-C18-02</u>			\$76.00	K		18"		(02 10 1100 1)		
THMK-C06-04			\$80.00	K		6"		0 1. 44 4080	Integral 1/2" x 1/2"	
THMK-C12-04			\$91.00	K	]	12"	Inconel Alloy 600	0 to 1149°C (32 to 2100°E)	NPT Hex Nipple,	
THMK-C18-04			\$99.00	K		18"		(52 10 2 100 1 )	316 SS	
					Facherical One					

Technical Specifications							
Junction Type	Ungrounded						
ASTM E230 Standard Limits of Error	±2.2°C (±4.0°F) or 0.75%, whichever is greater						
Probe	4", 316 stainless steel or Inconel Alloy 600 sheath, single thermocouple element is embedded in MgO powder						
Probe Minimum Bend Radius	2 x sheath diameter						
Minimum Installation Depth	3" (76 mm)						
Connection Head	Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit opening, max temp. 400°F (204°C)						
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839						
Wiring	Ceramic terminal base with brass terminals and stainless steel screws (Recommended tightening torque 3-4 lb-in)						

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured. Not designed for use in a thermowell. Use spring-loaded probe when installing in a thermowell.

# **Dread** Thermocouple Probes with Connection Head

#### Dimensions

inches [mm]

#### THMJ & K - CXX-01 & 04



#### THMJ & K - CXX-02



#### Wiring Information



Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire
   nuts
- Recommended screw terminal tightening torque 3-4 lb-in



#### Accessories

Part No.	Description	Pcs/Pkg	Price
BCF14-125N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch male thread	1	\$3.25
BCF14-25N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch male thread	1	\$4.25
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch male thread	1	\$14.00
<u>CFTF-14</u>	Teflon ferrule for brass or stainless steel compression fittings and 1/4 inch diameter temperature probes	5	\$7.75

Note: Full listing of accessories available at the end of this section. Thermocouple extension lead wire available at www.automationdirect.com.

# **Probes with Connection Head**

#### THMJ & K - CXX-03



#### **Overview**

#### Probe

- Spring-loaded for positive tip contact in thermowells
- Type J or K thermocouple elements to meet many temperature sensing applications
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- Magnesium Oxide (MgO) insulation provides vibration dampening and protection against thermal shock
- 4", 6" or 12" probe length
- Connection Head
- Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
- One turn cover removal & installation eliminates cross threading and saves time
- 3/4 NPT conduit opening with internal stop to prevent overtightening and installation damage
- Gripping ribs on cover edge
- Stainless steel cover chain
- Wiring

**Open head** 

- Ceramic terminal base
- Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
- Elevated terminal block for easy wire termination
- Made in the USA

Thermo	Thermocouple Spring-Loaded Probes with Connection Head - Types J and K											
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting				
<u>THMJ-C04-03</u>			\$81.00	J		4"						
<u>THMJ-C06-03</u>	- 1 1		\$85.00	J	4 (41)	6"	0 to 720°C (32 to 1330°F)	Integral 1/2" x 1/2" NPT Hex Nipple, 316 SS, Mount in				
<u>THMJ-C12-03</u>		10	\$89.00	J		12"						
<u>THMK-C04-03</u>		1 1.3	1 1.3	1.3	\$81.00	к	1/4	4"		thermowell (see accessories, puchased separately)		
<u>THMK-C06-03</u>			\$85.00	к		6"	0 to 927°C (32 to 1700°F)					
<u>ТНМК-С12-03</u>			\$89.00	к		12"						

# **Probes with Connection Head**

Technical Specifications							
Junctio	on Type	Ungrounded					
ASTM	E230 Standard Limits of Error	±2.2°C (±4.0°F) or 0.75%, whichever is greater					
Probe		ø1/4", 316 stainless steel sheath, single thermocouple element is embedded in MgO powder					
Connection Head		Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit openir max temp. 400°F (204°C)					
Response Time		2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839					
Wiring		Connection head: Ceramic terminal base with brass terminals and stainless steel screws (Recommended tightening torque 3-4 lb-in) Replacement Probes: 3 inch stranded 24 AWG wire leads					
	Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.						

#### Dimensions



#### Wiring Information



#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts
- Recommended screw terminal tightening torque 3-4 lb-in



### Orse Thermocouple Spring-Loaded Probes with Connection Head - Accessories

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>TW04-01</u>	ProSense thermowell, 1/2in female NPT probe connection, 1/2in male NPT process connection, 304 stainless steel body, 4-1/4in overall length, 0.260in bore.	1	\$36.00
<u>TW04-02</u>	ProSense thermowell, 1/2in female NPT probe connection, 3/4in male NPT process connection, 304 stainless steel body, 4-1/4in overall length, 0.260in bore.	1	\$36.00
<u>TW04-03</u>	ProSense thermowell, 1/2in female NPT probe connection, 1/2in male NPT process connection, 316 stainless steel body, 4-1/4in overall length, 0.260in bore.	1	\$45.00
<u>TW04-04</u>	ProSense thermowell, 1/2in female NPT probe connection, 3/4in male NPT process connection, 316 stainless steel body, 4-1/4in overall length, 0.260in bore.	1	\$45.00
<u>TW06-01</u>	ProSense thermowell, 1/2in female NPT probe connection, 1/2in male NPT process connection, 304 stainless steel body, 6-1/4in overall length, 0.260in bore.	1	\$49.50
<u>TW06-02</u>	ProSense thermowell, 1/2in female NPT probe connection, 3/4in male NPT process connection, 304 stainless steel body, 6-1/4in overall length, 0.260in bore.	1	\$49.50
<u>TW06-03</u>	ProSense thermowell, 1/2in female NPT probe connection, 1/2in male NPT process connection, 316 stainless steel body, 6-1/4in overall length, 0.260in bore.	1	\$57.00
<u>TW06-04</u>	ProSense thermowell, 1/2in female NPT probe connection, 3/4in male NPT process connection, 316 stainless steel body, 6-1/4in overall length, 0.260in bore.	1	\$57.00
<u>TW12-01</u>	ProSense thermowell, 1/2in female NPT probe connection, 1/2in male NPT process connection, 304 stainless steel body, 12-1/4in overall length, 0.260in bore.	1	\$80.00
<u>TW12-02</u>	ProSense thermowell, 1/2in female NPT probe connection, 3/4in male NPT process connection, 304 stainless steel body, 12-1/4in overall length, 0.260in bore.	1	\$80.00
<u>TW12-03</u>	ProSense thermowell, 1/2in female NPT probe connection, 1/2in male NPT process connection, 316 stainless steel body, 12-1/4in overall length, 0.260in bore.	1	\$98.00
<u>TW12-04</u>	ProSense thermowell, 1/2in female NPT probe connection, 3/4in male NPT process connection, 316 stainless steel body, 12-1/4in overall length, 0.260in bore.	1	\$98.00
<u>STW04-01</u>	ProSense sanitary thermowell, 1/2in female NPT probe connection, 1-1/2in sanitary tri-clamp process connection, 316 stainless steel body, 4-1/4in overall length, 0.260in bore.	1	\$106.00
<u>STW06-01</u>	ProSense sanitary thermowell, 1/2in female NPT probe connection, 1-1/2in sanitary tri-clamp process connection, 316 stainless steel body, 6-1/4in overall length, 0.260in bore.	1	\$114.00
<u>STW12-01</u>	ProSense sanitary thermowell, 1/2in female NPT probe connection, 1-1/2in sanitary tri-clamp process connection, 316 stainless steel body, 12-1/4in overall length, 0.260in bore.	1	\$159.00
<u>STW04-02</u>	ProSense sanitary thermowell, 1/2in female NPT probe connection, 2in sanitary tri-clamp process connection, 316 stainless steel body, 4-1/4in overall length, 0.260in bore.	1	\$118.00
<u>STW06-02</u>	ProSense sanitary thermowell, 1/2in female NPT probe connection, 2in sanitary tri-clamp process connection, 316 stainless steel body, 6-1/4in overall length, 0.260in bore.	1	\$127.00
<u>STW12-02</u>	ProSense sanitary thermowell, 1/2in female NPT probe connection, 2in sanitary tri-clamp process connection, 316 stainless steel body, 12-1/4in overall length, 0.260in bore.	1	\$164.00

Note: Full listing of accessories and dimension information available at the end of this section. Thermocouple extension lead wire available at www.automationdirect.com.

#### Spring-Loaded Thermocouple Probe and Thermowell Assembly Example



 Spring-loaded probe design ensures positive tip contact with the bottom of the thermowell.

 Integral probe hex nipple threads directly into thermowell. No additional probe mounting fittings are required.

### **DYSense Thermocouple Heat Trace Probe** with Connection Head

#### **Overview**



Heat Trace Thermocouples are used to measure the surface temperature of process pipe that is carrying products whose temperatures must be controlled to prevent freeze-up, or to maintain a viscosity level so that the inner medium will flow.

#### Probe

- Type J thermocouple element
- 1/4" diameter, 316 SS sealed sheath to protect against harsh environments
- 3" hot leg with 1"x2" weld pad for mounting to pipe surface
- Mounting weld pad is flexible enough to be formed around nominal pipe sizes from 1" to 12"
- 4" cold leg allows for electrical connections outside of pipe insulation
- Connection Head
  - Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
    - One turn cover removal & installation eliminates cross threading and saves time
  - 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
  - Gripping ribs on cover edge
  - Stainless steel cover chain
- Wiring
- Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
- Elevated terminal block for easy wire termination
- Made in the USA

Thermocouple Heat Trace Probe with Connection Head								
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Length	Temperature Sensing Range	Mounting	
<u>THMJ-HT34-01</u>	1	1.44	\$74.00	J	3" Hot Leg / 4" Cold Leg	-18 to 482°C (0 to 900°F)	1" X 2" X R3/4" Weld Pad, 304 SS*	

\* Mounting pad is flexible enough to be formed around nominal pipe sizes from 1" to 12"

**Open head** 

Technical Specifications						
Junction Type Ungrounded						
ASTM E230 Standard Limits of Error ±2.2°C (±4.0°F) or 0.75%, whichever is greater						
Probe	ø1/4", 316 stainless steel sheath, single thermocouple element					
Connection Head	Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit opening, max temp. 400°F (204°C)					
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839					
Wiring	Connection head: Ceramic terminal base with brass terminals and stainless steel screws (Recommended tightening torgue 3-4 lb-in)					
Thermocouple extension lead wire available at www	automationdirect.com.					



Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

### Provide a contract of the latest pices, please check Addinate provide the latest pices, please check Addinate with Connection Head

#### **Dimensions**

#### inches [mm]



#### Wiring Information



*pe J.* (+) *white (-) reu* 

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts

• Recommended screw terminal tightening torque 3-4 lb-in



# **Pr**Sense Thermocouple Probes with Hex Nipple

#### THMJ & K - HXXL01-01 & 03

# Weld

CHTB-2

<u>CHSC-AL-1</u> <u>Ch</u> Accessories

#### **Overview**

- Type J or K thermocouple elements to meet many temperature sensing applications
- 1/4" diameter, 316 SS or Inconel Alloy 600 sealed sheath to protect from harsh sensing applications
- Magnesium Oxide (MgO) insulation provides vibration dampening and protection against thermal shock
- 6", 12" or 18" probe length
- Bendable probe to adapt to installation requirements

- 316SS, 1/2 x 1/2 NPT hex nipple allows easy replacement of existing probes and connection to a wiring junction box
- Made in the USA

Thermocouple Probes with Hex Nipple - Types J and K									
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Probe Material	Temperature Sensing Range	Mounting
<u>THMJ-H06L01-01</u>			\$51.00	J		6"	316 stainless steel	0 to 720°C (32 to 1330°F) 316 stainless steel 0 to 927°C (32 to 1700°F)	
<u>THMJ-H12L01-01</u>			\$53.00	J		12"			Integral 1/2" x 1/2" NPT Hex
<u>THMJ-H18L01-01</u>			\$59.00	J		18"			
<u>THMK-H06L01-01</u>			\$51.00	K		6"			
<u>THMK-H12L01-01</u>	1	0.5	\$53.00	K	1/4"	12"			
<u>THMK-H18L01-01</u>			\$59.00	K		18"			Nipple, 316 SS
<u>THMK-H06L01-03</u>			\$53.00	K		6"	Inconel Alloy		
<u>THMK-H12L01-03</u>			\$62.00	K	]	12"		0 to 1149°C	
<u>THMK-H18L01-03</u>			\$67.00	K		18"			

Technical Specifications						
Junction Type	Ungrounded					
ASTM E230 Standard Limits of Error ±2.2°C (±4.0°F) or 0.75%, whichever is greater						
Probe	ø1/4", 316 stainless steel or Inconel Alloy 600 sheath, single thermocouple element is embedded in MgO powder					
Probe Minimum Bend Radius	2 x sheath diameter					
Minimum Installation Depth	3" (76mm)					
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839					
Wiring	3 inch stranded 24 AWG wire leads with terminal pins, Teflon insulation					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured. Not designed for use in a thermowell. Use spring-loaded probe when installing in a thermowell.

# **Propense** Thermocouple Probes with Hex Nipple

#### Dimensions

inches [mm]

THMJ & K - HXXL01-01 & 03



PART NUMBER	DIM "A"
THMJ-H06L01-01	6.00[152.4]
THMJ-H12L01-01	12.00[304.8]
THMJ-H18L01-01	18.00[457.2]
THMK-H06L01-01	6.00[152.4]
THMK-H12L01-01	12.00[304.8]
THMK-H18L01-01	18.00[457.2]
THMK-H06L01-03	6.00[152.4]
THMK-H12L01-03	12.00[304.8]
THMK-H18L01-03	18.00[457.2]

#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>CHSC-AL-1</u>	ProSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 inch NPT process opening, 3/4 inch NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature rating of 825°F (440°C). Order probe and terminal base separately.	1	\$24.50
<u>CHTB-2</u>	ProSense ceramic terminal base, two brass terminals with stainless steel screws, for use with ProSense temperature probe connection heads, two mounting screws included.	1	\$6.50

Note: Full listing of accessories at the end of this section. Thermocouple extension lead wire available at www.automationdirect.com.

#### Dimensions

inches [mm]

#### <u>CHSC-AL-1</u>





<u>CHTB-2</u>



# **Probes with Hex Nipple**

#### THMJ & K - HXXL01-02

CHSC-AL-1

Spring-Loaded Probe

CHTB-2

Accessories



- Spring-loaded for positive tip contact in thermowells
- Type J or K thermocouple elements to meet many temperature sensing applications
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- Magnesium Oxide (MgO) insulation provides vibration dampening and protection against thermal shock
- 4" , 6" or 12" probe length

- 316 SS, 1/2 x 1/2 NPT hex nipple allows easy replacement of existing probes and connection to a wiring junction box
- Made in the USA

Thermocouple Spring-Loaded Probes with Hex Nipple - Types J and K											
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting			
<u>THMJ-H04L01-02</u>		_	\$55.00	J	4 / 4 7	4"	0 to 720°C (32 to 1330°F)	Integral 1/2" x 1/2" NPT			
<u>THMJ-H06L01-02</u>	- 1		\$60.00	J		6"					
<u>THMJ-H12L01-02</u>		0.5	\$63.00	J		12"					
<u>THMK-H04L01-02</u>				1	G.U I	0.5	\$55.00	К	1/4	4"	
<u>THMK-H06L01-02</u>			\$60.00	K		6"	0 to 927°C (32 to 1700°F)				
<u>THMK-H12L01-02</u>			\$63.00	К		12"					

Technical Specifications					
Junction Type Ungrounded					
ASTM E230 Standard Limits of Error ±2.2°C (±4.0°F) or 0.75%, whichever is greater					
Probe ø1/4", 316 stainless steel sheath, single thermocouple element is embedded in MgO powde					
Response Time 2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839					
Wiring	3 inch stranded 24 AWG wire leads with terminal pins, Teflon insulation				

Note: See end of section for thermowells to fit these units.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

# **Probes with Hex Nipple**

#### Dimensions

#### inches [mm]



TABL	_E A
PART NUMBER	DIM "A"
THMJ-H04L01-02	4.00[101.6]
THMJ-H06L01-02	6.00[152.4]
THMJ-H12L01-02	12.00[304.8]
THMK-H04L01-02	4.00[101.6]
THMK-H06L01-02	6.00[152.4]
THMK-H12L01-02	12.00[304.8]

#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>CHSC-AL-1</u>	ProSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 inch NPT process opening, 3/4 inch NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature rating of 825°F (440°C). Order probe and terminal base separately.	1	\$24.50
<u>CHTB-2</u>	ProSense ceramic terminal base, two brass terminals with stainless steel screws, for use with ProSense temperature probe connection heads, two mounting screws included.	1	\$6.50

Note: Full listing of accessories at the end of this section. Thermocouple extension lead wire available at www.automationdirect.com.

#### Dimensions

#### inches [mm]

#### <u>CHSC-AL-1</u>





<u>CHTB-2</u>



### **Pr**Sense Thermocouple Probes with Attached Plug



Thermocouple Probes with Attached Plug - Types J, K & T										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting	Attached Plug Size	Mating Jack (see accessories- purchased separately)
<u>THMJ-P06-01</u>			\$26.50	J		6"	0 to 521°C			
<u>THMJ-P12-01</u>			\$27.50	J		12"	(32 to 970°F), plug rated to			THMJ-MJ
<u>THMJ-P18-01</u>			\$31.00	J		18"	400 °F (204 °C)			
<u>THMK-P06-01</u>			\$26.50	К		6"	0 to 927°C		Miniature	
<u>THMK-P12-01</u>			\$27.50	К	1/8"	12"	(32 to 1700°F) plug			THMK-MJ
<u>THMK-P18-01</u>			\$31.00	K	K T	18"	400 °F (204 °C)	ProSense compression fitting (see accessories purchased		
<u>THMT-P06-01</u>			\$25.50	Т		6"	-200 to 371°C			THMT-MJ
<u>THMT-P12-01</u>	1	0.2	\$26.50	Т		12"	(-328 to 700°F) plug rated to			
<u>THMT-P18-01</u>			\$29.50	Т		18"	400 °F (204 °C)			
<u>THMJ-P06-02</u>			\$32.00	J		6"	0 to 720°C	separately)		
<u>THMJ-P12-02</u>			\$34.50	J		12"	(32 to 1330°F) plug		Standard -	THMJ-SJ
<u>THMJ-P18-02</u>			\$40.50	J	1//"	18"	400 °F (204 °C)			
<u>THMK-P06-02</u>			\$32.00	К	1/4	6"	0 to 927°C	1		
THMK-P12-02			\$34.50	K		12"	(32 to 1700°F) plug			THMK-SJ
<u>THMK-P18-02</u>			\$40.50	K		18"	400 °F (204 °C)			
					Techni	cal Specif	ications			

Junction Type	Ungrounded					
ASTM E230 Standard Limits of Error	pr Types J, K: ± 2.2°C (± 4.0°F); Type T: ± 1°C (± 1.8°F); or 0.75% whichever is greater					
Probe ø1/8" or ø1/4", 316 stainless steel sheath, single thermocouple element is embedded in MgO powder						
Probe Minimum Bend Radius	<i>imum Bend Radius</i> 2 x sheath diameter					
Minimum Installation Depth	Italiation Depth 1/8" O.D.: 1.75" (44.5 mm), 1/4" O.D.: 3" (76 mm)					
Response Time 2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839						
iring Attached plug, mating jack sold separately. See accessories.						

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

### **Proper Sense Thermocouple Probes with Attached** Plug

#### Dimensions

inches [mm]

THMJ, K & T - PXX-01



TABLE A								
PART NUMBER	DIM "A"	DIM "B"						
THMJ-P06-01	6.00[152.4]	7.61[193.3]						
THMJ-P12-01	12.00[304.8]	13.61[345.7]						
THMJ-P18-01	18.00[457.2]	19.61[498.1]						
THMK-P06-01	6.00[152.4]	7.61[193.3]						
THMK-P12-01	12.00[304.8]	13.61[345.7]						
THMK-P18-01	18.00[457.2]	19.61[498.1]						
THMT-P06-01	6.00[152.4]	7.61[193.3]						
THMT-P12-01	12.00[304.8]	13.61[345.7]						
THMT-P18-01	18.00[457.2]	19.61[498.1]						

#### Wiring Information

Type J: black plug Type K: yellow plug Type T: blue plug Pins labeled + and -

- Must use with mating jack and thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts





#### Dimensions

inches [mm]

THMJ & K - PXX-02



TABLE A								
PART NUMBER	DIM "A"	DIM "B"						
THMJ-P06-02	6.00[152.4]	8.36[212.3]						
THMJ-P12-02	12.00[304.8]	14.36[364.7]						
THMJ-P18-02	18.00[457.2]	20.39[517.14]						
THMK-P06-02	6.00[152.4]	8.36[212.3]						
THMK-P12-02	12.00[304.8]	14.36[364.7]						
THMK-P18-02	18.00[457.2]	20.39[517.14]						

#### Wiring Information

Type J: black plug Type K: yellow plug Pins labeled + and -

- Must use with mating jack and thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



# **Processories** Thermocouple Probes with Attached Plug - Accessories

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF18-125N</u>	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
BCF18-25N	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
BCF18-50N	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.00
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF18-125N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF18-25N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF18-50N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$13.50
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-18</u>	Teffon ferrule for brass or stainless steel compression fittings and 1/8 inch diameter temperature probes	5	\$7.25
<u>CFTF-14</u>	Teflon ferrule for brass or stainless steel compression fittings and 1/4 inch diameter temperature probes	5	\$7.75
<u>CF18-BC</u>	Adjustable bayonet cap compression fitting for 1/8 inch diameter probe sheaths	1	\$10.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size.	1	\$5.50
<u>THMT-SJ</u>	Thermocouple connector, Type T, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic blue body, thermocouple material pins, 14 AWG (2.0	1	\$6.25
<u>THMJ-MJ</u>	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG	1	\$4.25
<u>тнмк-мј</u>	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG	1	\$4.25
<u>THMT-MJ</u>	maximum (0.8 mm) wire size Thermocouple connector, Type T, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic blue body, thermocouple material pins, 20 AWG (0.8 mm) maximum wire size	1	\$4.50
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
<u>THMT-SPJ</u>	Thermocouple connector, Type T, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic blue body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
<u>THMJ-MPJ</u>	I nermocouple connector, Type J, miniature tlat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25
<u>THMK-MPJ</u>	Thermocouple connector, Type K, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00
<u>THMT-MPJ</u>	Thermocouple connector, Type T, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic blue body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.75
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00
WCB-M	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00

Thermocouple Connectors



<u>THMJ-SP</u>



<u>THMJ-SPJ</u>



S.S. Compression Fittings

<u>CF18-125N</u>



<u>CF14-125N</u>



<u>CF14-25N</u>



<u>CFTF-14</u>



Note: Thermocouple extension lead wire available at www.automationdirect.com.

See end of section for full listing of accessories and dimension information.

### **Dread Wire** Transition

THMJ, K & T - TXXL06-01, 02 & 03



#### Overview

- Type J, K or T thermocouple elements to meet many temperature sensing applications
- 1/8" or 1/4" Diameter, 316 stainless steel or Inconel Alloy 600 sheath to protect against harsh environments
- Magnesium Oxide (MgO) insulation provides vibration dampening and protection against thermal shock
- 6" , 12" or 18" probe length
- Bendable probe to adapt to installation requirements
- Heavy duty lead wire transition with relief spring
- 6-foot lead wires with stainless steel overbraid
- Made in the USA

	Therm	ocouple	Probe	s with	Lead Wire	<b>Fransitio</b>	n - Types J	l, K and T	
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (0.D)	Probe Length	Probe Material	Temperature Sensing Range	Mounting
<u>THMJ-T06L06-01</u>		0.4	\$43.00	J		6"	316 stainless steel 316 stainless steel	0 to 521°C (32 to 970°F), lead wire transition rated to 400 °F (204 °C)	ProSense compression fitting (see accessories purchased separately)
<u>THMJ-T12L06-01</u>		0.6	\$45.50	J		12"			
<u>THMJ-T18L06-01</u>		0.0	\$47.00	J		18"			
<u>THMK-T06L06-01</u>		0.4	\$43.50	K		6"		0 to 927°C (32 to 1700°F), lead wire transition rated to 400 °F (204 °C)	
<u>THMK-T12L06-01</u>		0.6	\$46.00	K	1/8"	12"			
<u>THMK-T18L06-01</u>		0.0	\$47.50	К		18"			
<u>THMT-T06L06-01</u>		0.4	\$41.50	Т		6"		-200 to 371°C (-328 to 700°F), lead wire transition rated to 400 °F (204 °C)	
<u>THMT-T12L06-01</u>		0.6	\$42.50	Т		12"			
<u>THMT-T18L06-01</u>	1	0.0	\$45.00	Т		18"			
<u>THMJ-T06L06-02</u>		0.4	\$47.50	J		6"		0 to 720°C (32 to 1330°F), lead wire transition rated to 400 °F (204 °C)	
<u>THMJ-T12L06-02</u>		0.6	\$49.50	J		12"			
<u>THMJ-T18L06-02</u>	-	0.0	\$54.00	J		18"			
<u>THMK-T06L06-02</u>		0.4	\$47.50	K		6"		0 to 927°C (32 to 1700°F), lead wire transition rated to 400 °F (204 °C)	
<u>THMK-T12L06-02</u>		0.6	\$49.50	K	1/4"	12"			
<u>THMK-T18L06-02</u>	- 0.	0.0	\$54.00	K		18"			
<u>THMK-T06L06-03</u>		0.4	\$48.50	К		6"		0 to 1149°C	
<u>THMK-T12L06-03</u>		0.6	\$56.00	К		12"	Inconel Alloy 600	(32 to 2100°F), lead	
<u>THMK-T18L06-03</u>		0.0	\$64.00	К		18"		400 °F (204 °C)	
# **Property of Sense Thermocouple Probes with Lead Wire Transition**

Technical Specifications								
Junction Type	Ungrounded							
ASTM E230 Standard Limits of Error	Types J, K: ± 2.2°C (± 4.0°F); Type T: ± 1°C (± 1.8°F); or 0.75% whichever is greater							
Probe	ø1/8" or ø1/4", 316 stainless steel or Inconel Alloy 600 sheath, single thermocouple element is embedded in MgO powder							
Probe Minimum Bend Radius	2 x sheath diameter							
Minimum Installation Depth	1/8" O.D.: 1.75" (44.5 mm), 1/4" O.D.: 3" (76 mm)							
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839							
Wiring	6 foot stranded 20 AWG wire leads with stripped ends, fiberglass insulation and stainless steel overbraid							
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.								

#### Dimensions

inches [mm]

#### THMJ, K & T - TXXL06-01, 02 & 03



#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red Type T: (+) blue (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts

TABLE A										
PART NUMBER	DIM "A"	DIM "B"	DIM "C"							
THMJ-T06L06-01	6.00[152.4]	0.13[3.3]	0.25[6.35]							
THMJ-T12L06-01	12.00[304.8]	0.13[3.3]	0.25[6.35]							
THMJ-T18L06-01	18.00[457.2]	0.13[3.3]	0.25[6.35]							
THMT-T06L06-01	6.00[152.4]	0.13[3.3]	0.25[6.35]							
THMT-T12L06-01	12.00[304.8]	0.13[3.3]	0.25[6.35]							
THMT-T18L06-01	18.00[457.2]	0.13[3.3]	0.25[6.35]							
THMK-T06L06-01	6.00[152.4]	0.13[3.3]	0.25[6.35]							
THMK-T12L06-01	12.00[304.8]	0.13[3.3]	0.25[6.35]							
THMK-T18L06-01	18.00[457.2]	0.13[3.3]	0.25[6.35]							
THMJ-T06L06-02	6.00[152.4]	0.25[6.35]	0.38[9.67]							
THMJ-T12L06-02	12.00[304.8]	0.25[6.35]	0.38[9.67]							
THMJ-T18L06-02	18.00[457.2]	0.25[6.35]	0.38[9.67]							
THMK-T06L06-02	6.00[152.4]	0.25[6.35]	0.38[9.67]							
THMK-T12L06-02	12.00[304.8]	0.25[6.35]	0.38[9.67]							
THMK-T18L06-02	18.00[457.2]	0.25[6.35]	0.38[9.67]							
THMK-T06L06-03	6.00[152.4]	0.25[6.35]	0.38[9.67]							
THMK-T12L06-03	12.00[304.8]	0.25[6.35]	0.38[9.67]							
THMK-T18L06-03	18.00[457.2]	0.25[6.35]	0.38[9.67]							





# Orsense Thermocouple Probes with Lead Wire Transition

#### Accessories

Part No.	Description	Pcs/Pkg	Price						
BCF18-125N	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25						
BCF14-125N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25						
BCF18-25N	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25						
BCF14-25N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25						
BCF18-50N	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.00						
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50						
<u>CF18-125N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00						
CF14-125N	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00						
CF18-25N	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25						
CF14-25N	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25						
CF18-50N	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes 1/2 inch NPT male thread								
CF14-50N	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00						
CFTF-18	Teflon ferrule for brass or stainless steel compression fittings and 1/8 diameter temperature probes	5	\$7.25						
CFTF-14	Teflon ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75						
CF18-BC	Bayonet adapter, 7/8 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$10.50						
THMJ-SP	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled	1	\$4.50						
	thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size		\$ 1.00						
<u>THMJ-SJ</u>	thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75						
THMK-SP	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled	1	\$4 50						
	thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size Thermocouple connector, Type K, standard round nin lack, maximum continuous temperature 400°F (200°C), class filled								
<u>THMK-SJ</u>	thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50						
THMK-HSP	Thermocouple connector, Type K, high-temperature standard round pin plug, maximum continuous temperature 662°F (350°C)	, 1	\$14.00						
	[thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size Thermocouple connector. Type K, high-temperature standard round nin jack, maximum continuous temperature 662°F (350°C)								
<u>THMK-HSJ</u>	thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	' 1	\$16.50						
THMT-SP	Thermocouple connector, Type T, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled	1	\$4.75						
TUMT OI	Thermocouple connector, Type T, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled	4	¢C 05						
<u>I HIVI I-5J</u>	thermoplastic blue body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size		\$0.25						
THMJ-MP	I hermocouple connector, Type J, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermocouple material pins. 20 AWG maximum (0.8 mm) wire size.	1	\$3.75						
	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled	1	¢4.05						
	thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size		φ4.20						
THMK-MP	I nermocoupie connector, Type K, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermocoupie material pins. 20 AWG maximum (0.8 mm) wire size	1	\$4.00						
	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled	1	¢4.25						
	thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	-	φ4.2J						
<u>THMT-MP</u>	Intermocouple connector, Type T, miniature hat pin plug, maximum continuous temperature 400 P (200 C), glass lined Ithermoplastic blue body, thermocouple material pins, 20 AWG (0.8 mm) maximum wire size	1	\$4.00						
THMT_M.I	Thermocouple connector, Type T, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled	1	\$4 50						
	thermoplastic blue body, thermocouple material pins, 20 AWG (0.8 mm) maximum wire size	4	¢40.00						
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00						
WCB-IM	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00						
<u>THMJ-SPJ</u>	thermoplastic black body. thermocouple material pins. 14 AWG (2.0 mm) maximum wire size	1	\$11.00						
THMK-SP.I	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled	1	\$10.50						
	[thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size Thermocouple connector, Type T, standard round pin papel jack, maximum continuous temperature 400°F (200°C), glass filled		<b></b>						
<u>THMT-SPJ</u>	thermoplastic blue body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50						
THMJ-MPJ	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled	1	\$8.25						
	Intermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	· ·							
<u>THMK-MPJ</u>	thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00						
THMT-MPJ	Thermocouple connector, Type T, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled	1	\$9.75						
Noto: Thormocourde	unermoprasuo pide pody, mermocoupie material pins, 14 AVVG (2.0 mm) maximum wire size	R-125N	l						
note. Thermocouple	CALCHISIUM ICAU WILC AVAIIADUC AL THMISPI <u>DEFICE 2010</u>	, ILUN							

Note: Thermocouple extension lead wire available at www.automationdirect.com.

See end of section for full listing of accessories and dimension information.







\*Working pressure of compression fitting should not exceed 500 psi. However we recommend any pressure application use a thermowell

# **Pr**Sense Thermocouple Probes with Cuttable Length



#### **Overview**

- Type J or K thermocouple elements to meet many temperature sensing applications
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 24" probe length can be cut using an ordinary tubing cutter to adapt to the application
- Mounting is accomplished using a variety of ProSense compression fittings
- 2-foot fiberglass insulated leadwires
- Made in the USA

	Thermocouple Probes with Cuttable Length								
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D)	Probe Length	Probe Material	Temperature Sensing Range	Mounting
<u>THMJ-V24L06-01</u>	1	0.44	\$41.00	J		24"	316		ProSense compression
<u>THMK-V24L06-01</u>	1	0.44	\$43.50	К	1/4"	(4" minimum cut length)	stainless steel	-18 to 482°C (0 to 900°F)	fitting(see accessories purchased separately)

Technical Specifications								
Junction Type	Ungrounded							
ASTM E230 Standard Limits of Error	±2.2°C (±4.0°F) or 0.75%, whichever is greater							
Probe	ø1/4", 316 stainless steel sheath, single thermocouple element							
Probe Minimum Bend Radius	Not bendable							
Minimum Installation Depth	3" (76 mm)							
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839							
Wiring	2 foot solid 20 AWG wire leads with stripped ends, fiberglass insulation							

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

# **Dr**Sense Thermocouple Probes with Cuttable Length

#### Dimensions

inches [mm]

#### THMJ & K - V24L06-01



#### **Cutting Instructions**

- 1. Remove the plastic retainer mounted to the top of outer metal tube.
- 2. Remove the inner sensing element and wires to prevent possible damage while cutting.
- 3. Cut the tube to the desired length and remove all burrs or sharp edges.
- 4. Reinstall the sensing element and plastic retainer.
- Note: Ensure sensing element is fully seated at the base of the outer tube. If outer tube is compressed during installation it may not be possible to remove the sensing element.

#### Wiring Information

Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



### **Dr**Sense Thermocouple Probes with Cuttable Length - Accessories

#### Accessories

Part No.	Description						
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25				
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25				
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50				
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00				
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25				
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00				
<u>CFTF-14</u>	Teflon ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75				
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50				
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75				
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50				
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50				
<u>THMK-HSP</u>	Thermocouple connector, Type K, high-temperature standard round pin plug, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$14.00				
<u>THMK-HSJ</u>	Thermocouple connector, Type K, high-temperature standard round pin jack, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$16.50				
<u>THMJ-MP</u>	Thermocouple connector, Type J, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$3.75				
<u>THMJ-MJ</u>	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25				
<u>THMK-MP</u>	Thermocouple connector, Type K, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.00				
<u>THMK-MJ</u>	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25				
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00				
<u>WCB-M</u>	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00				
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00				
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50				
<u>THMJ-MPJ</u>	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25				
THMK-MPJ	Thermocouple connector, Type K, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00				

Note: Thermocouple extension lead wire available at www.automationdirect.com See end of section for full listing of accessories and dimension information.

thermowell

\*Working pressure of compression fitting should not exceed 500 psi. However we recommend any pressure application use a <u>THMJ-SPJ</u>

THMJ-SP

<u>CF14-25N</u>



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THMJ-SJ





### **Dr**Sense Thermocouple Probes with Flange Mount



#### **Overview**

- Ideal for use with ovens, freezers, ducts, or anywhere through the wall temperature sensing is required.
- Type J or K thermocouple elements to meet many temperature sensing applications
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 6", 12", or 18" probe lengths
- Mounting is accomplished using the conveniently attached round mounting flange
- 6-foot lead wires with stainless steel overbraid
- Made in the USA

	Thermocouple Probes with Flange Mount								
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (0.D)	Probe Length	Probe Material	Temperature Sensing Range	Mounting
<u>THMJ-F06L06-01</u>	1	0.44	\$50.00			6"			
<u>THMJ-F12L06-01</u>	1	0.44	\$52.00	J	l	12"	316 stainless	1" -18 to 482°C str (0 to 900°F) Ø0	1" diameter 1/16" thick 304 stainless steel flange (2x -
<u>THMJ-F18L06-01</u>	1	0.44	\$54.00		4 / 4 77	18"			
<u>THMK-F06L06-01</u>	1	0.44	\$53.00		1/4	6"	steel		Ø0.144" mounting
<u>THMK-F12L06-01</u>	1	0.44	\$56.00	К		12"			spacing)
THMK-F18L06-01	1	0.44	\$56.00			18"			

Technical Specifications								
Junction Type	Ungrounded							
ASTM E230 Standard Limits of Error ±2.2°C (±4.0°F) or 0.75%, whichever is greater								
Probe ø1/4", 316 stainless steel, single thermocouple element								
Minimum Installation Depth	3" (76 mm)							
Probe Minimum Bend Radius	Not bendable							
Response Time         2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839								
Wiring	6 foot stranded 20 AWG wire leads with stripped ends, fiberglass insulation and stainless steel overbraid							
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.								

### **Pr**Sense Thermocouple Probes with Flange Mount

#### **Dimensions**

inches [mm]

THMJ & K - FXXLXX-01



TABLE A									
PART NUMBER	DIM "A"								
THMJ-F06L06-01	6.00[152.4]								
THMJ-F12L06-01	12.00[304.8]								
THMJ-F18L06-01	18.00[457.2]								
THMK-F06L06-01	6.00[152.4]								
THMK-F12L06-01	12.00[304.8]								
THMK-F18L06-01	18.00[457.2]								

#### Wiring Information

Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



### **Dr**Sense Thermocouple Probes with Flange Mount - Accessories

#### Accessories

Part No.	Description	Pcs/Pkg	Price				
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50				
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75				
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50				
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size						
<u>THMK-HSP</u>	Thermocouple connector, Type K, high-temperature standard round pin plug, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$14.00				
<u>THMK-HSJ</u>	Thermocouple connector, Type K, high-temperature standard round pin jack, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$16.50				
<u>THMJ-MP</u>	Thermocouple connector, Type J, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size						
<u>THMJ-MJ</u>	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25				
<u>THMK-MP</u>	Thermocouple connector, Type K, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.00				
<u>THMK-MJ</u>	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25				
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00				
<u>WCB-M</u>	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00				
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00				
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50				
<u>THMJ-MPJ</u>	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25				
<u>THMK-MPJ</u>	Thermocouple connector, Type K, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00				

Note: Thermocouple extension lead wire available at <u>www.automationdirect.com</u> See end of section for full listing of accessories and dimension information.

<u>THMJ-SPJ</u>

THMJ-SP



THMJ-SJ



### Orsense Melt-Bolt Thermocouple Probes with Attached Plug



#### **Overview**

- Used on extruders and injection molding machines to directly measure the melt temperature of plastic as it moves down the extruder barrel
- Commonly used Type J thermocouple
- 3" or 6" bolt lengths
- Flush, 1/8", 1/4", or adjustable tip lengths
- Grounded or ungrounded junctions
- 1/2-20 UNF thread process connection
- 2-pin standard size plug

<u>THMJ-MB6T00-02</u>



#### THMJ-MB6TA-01

		Melt-	Bolt T	herm	ocouple	Probes	s with A	ttached Plug	- Type J		
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Tip Length	Tip Diameter	Bolt Length	Temperature Sensing Range	Junction Type	Attached Plug Size	Mating Jack (see accessories- purchased separately)
<u>THMJ-MB3T00-01</u>		0.63	\$51.00		Flush						
<u>THMJ-MB3T18-01</u>		0.63	\$51.00		1/8"				Grounded		
<u>THMJ-MB3T14-01</u>		0.63	\$51.00		1/4"		3"				
<u>THMJ-MB3T00-02</u>		0.63	\$54.00		Flush	_	4/07	Ungrou		d Standard	THMJ-SJ or THMJ-SPJ
<u>THMJ-MB3T18-02</u>		0.63	\$54.00		1/8"				Ungrounded		
<u>THMJ-MB3T14-02</u>		0.63	\$54.00		1/4"	1/0"					
<u>THMJ-MB6T00-01</u>	1	0.75	\$64.00		Flush	1/0		(0 to 900°F), plug	Grounded		
<u>THMJ-MB6T18-01</u>		0.75	\$64.00	J	1/8"			rated to 204°C			
<u>THMJ-MB6T14-01</u>		0.75	\$64.00		1/4"		<b>C</b> "	(400°F)			
<u>THMJ-MB6T00-02</u>		0.75	\$67.00		Flush		0		Ungrounded		
THMJ-MB6T18-02		0.75	\$67.00		1/8"						
THMJ-MB6T14-02		0.75	\$67.00		1/4"						
THMJ-MB3TA-01		0.75	\$165.00		Adjustable	E (20)"	3"		Fundadad		
THMJ-MB6TA-01		0.75	\$169.00		(0 - 1")	5/32	6"		⊨xposed		

Technical Specifications							
ASTM E230 Standard Limits of Error	±2.2°C (±4.0°F) or 0.75%, whichever is greater						
Bolt Threads	1/2-20 UNF - 2A Bolt Thread (Nominal Thread Length 1-7/8")						
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839						
Wiring	Fixed tip: Fiberglass insulation with flexible armor Adjustable tip: MgO insulated tube 1/8" graduated marks Attached plug, mating jack sold separately. See accessories.						

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

### **Properse Melt-Bolt Thermocouple Probes with** Attached Plug

#### Dimensions

inches [mm]

#### THMJ-MBxxxx-xx



	TABLE A	
PART NUMBER	DIM "A"	DIM "B"
THMJ-MB3T00-01	3.00[76.2]	0.00[FLUSH]
THMJ-MB3T14-01	3.00[76.2]	0.25[6.4]
THMJ-MB3T18-01	3.00[76.2]	0.125[3.2]
THMJ-MB3T00-02	3.00[76.2]	0.00[FLUSH]
THMJ-MB3T14-02	3.00[76.2]	0.25[6.4]
THMJ-MB3T18-02	3.00[76.2]	0.125[3.2]
THMJ-MB6T00-01	6.00[152.4]	0.00[FLUSH]
THMJ-MB6T14-01	6.00[152.4]	0.25[6.4]
THMJ-MB6T18-01	6.00[152.4]	0.125[3.2]
THMJ-MB6T00-02	6.00[152.4]	0.00[FLUSH]
THMJ-MB6T14-02	6.00[152.4]	0.25[6.4]
THMJ-MB6T18-02	6.00[152.4]	0.125[3.2]

#### Wiring Information

#### Type J: (+) white (-) red

• Must use thermocouple extension lead wire

 Observe polarity when making connections

Do not use standard wire nuts



#### Dimensions

#### inches [mm]

#### THMJ-MB3TA-0X



TABLE A									
PART NUMBER	DIM "A"								
THMJ-MB3TA-01	3.00[76.2]								
THMJ-MB3TA-02	6.00[152.4]								

# **Dr**Sense Melt-Bolt Thermocouple Probes with Attached Plug - Accessories

#### **Accessories**

Part No.	Description	Pcs/Pkg	Price
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
<u>THMJ-MPJ</u>	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25

Note: Thermocouple extension lead wire available at www.automationdirect.com See end of section for full listing of accessories and

THMJ-SJ







### **Or**Sense Thermocouple Threaded Bolt Sensors



#### **Overview**

- Typically used to measure the temperature of the nozzle of an injection molding machine without being in direct contact with the molten plastic.
- The small size of this sensor makes it ideal for other general areas of use such as mounting in bearing housings, sealing bars, heat plates, and other limited space applications
- Type J or Type K thermocouples
- Grounded or ungrounded junctions
- $\bullet$  1/4-28 UNF threaded stainless steel rotating bolt allows for easy installation
- · 6-foot lead wires with stainless steel overbraid
- Made in the USA

Thermocouple Threaded Bolt Sensors - Types J and K											
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Junction Type	Bolt	Temperature Sensing Range				
<u>THMJ-N38P14-01</u>	1	0.25	\$32.50	Grounded 1/4 29 x 2/9"							
THMJ-N38P14-02	1	0.25	\$35.00	J	Ungrounded	Stainless	19 to 19290 (0 to 00095)				
<u>THMK-N38P14-01</u>	1	0.25	\$34.00	K	Grounded	Steel Rotating	-10 10 402 C (0 to 900 F)				
<u>THMK-N38P14-02</u>	1	0.25	\$36.50	Ň	Ungrounded	Bolt					

Technical Specifications							
ASTM E230 Standard limits of Error	±2.2°C (±4.0°F) or 0.75%, whichever is greater						
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839						
Wiring	6 foot stranded 24 AWG wire leads with stripped ends, fiberglass insulation and stainless steel overbraid						

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions

inches [mm]

THMJ & K - N38P14-0X



#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



### **Dr**Sense Thermocouple Threaded Bolt Sensors

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50
<u>THMK-HSP</u>	Thermocouple connector, Type K, high-temperature standard round pin plug, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$14.00
<u>THMJ-MP</u>	Thermocouple connector, Type J, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$3.75
<u>THMJ-MJ</u>	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25
<u>THMK-MP</u>	Thermocouple connector, Type K, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.00
<u>THMK-MJ</u>	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
<u>THMJ-MPJ</u>	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25
<u>THMK-MPJ</u>	Thermocouple connector, Type K, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00
<u>WCB-M</u>	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: Thermocouple extension lead wire available at <u>www.automationdirect.com</u> See end of section for full listing of accessories and dimension information.

<u>THMJ-SJ</u>

<u>THMJ-SP</u>

<u>THMJ-SPJ</u>





Thermocouple Connectors



### **Dr**Sense Thermocouple Adjustable Immersion Sensors

THMJ & K - D08LXX-01 & 02

THMJ & K - A01LXX-01 & 02



Spring Adjustable

01LXX-01 & 02

Armor Adjustable

#### Overview

- Ideal thermocouple sensors for the plastics processing industry
- Type J or K thermocouple elements to meet many temperature sensing applications
- Spring adjustable and armor adjustable styles allow for variable immersion depths
- Integral bayonet cap makes installation and removal quick and easy when used with a bayonet adaptor or pipe clamp adapter
- Made in the USA

Shown with optional PCA pipe clamp adapter

Thermocouple Spring Adjustable Immersion Sensors - Types J and K										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Junction Type	Sensor Dimensions	Lead Wire Length (ft)	Temperature Sensing Range	Mounting	
<u>THMJ-D08L04-01</u>	-		\$29.00	J	J J J K Grounded		4		Bayonet fitting cap 7/16" inside diameter, single slot. Mount with ProSense bayonet fitting adapter or pipe clamp	
<u>THMJ-D08L06-01</u>			\$32.00	J		1/4" length x 3/16" O.D. sensing tip 8" length x 0.263" - diameter spring	6	0 to 482°C (32 to 900°F)		
<u>THMJ-D08L10-01</u>			\$36.50	J			10			
<u>THMK-D08L04-01</u>	1	0.6	\$29.00	K			4			
<u>THMK-D08L06-01</u>		0.0	\$32.50	K			6			
<u>THMK-D08L10-01</u>			\$37.00	K			10		separately - see	
<u>THMJ-D08L10-02</u>			\$36.50	J	Lingrounded		10		accessories)	
THMK-D08L10-02			\$37.00	К	Ungrounded		10			

Thermocouple Armor Adjustable Immersion Sensors - Types J and K										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Junction Type	Sensor Dimensions	Lead Wire Length (ft)	Temperature Sensing Range	Mounting	
<u>THMJ-A01L04-01</u>			\$31.00	J	- Grounded	1/4" length x 3/16" O.D. sensing tip 0.275" O.D. flexible armor	4		Bayonet fitting cap 7/16" inside diameter, single slot. Mount with ProSense bayonet fitting adapter or pipe clamp adapter (purchased	
<u>THMJ-A01L06-01</u>	1	0.6	\$34.50	J			6	0 to 482°C (32 to 900°F)		
<u>THMJ-A01L10-01</u>			\$41.50	J			10			
<u>THMK-A01L04-01</u>	1		\$31.50	К			4			
<u>THMK-A01L06-01</u>		0.0	\$35.00	К			6			
<u>THMK-A01L10-01</u>			\$42.00	К			10			
<u>THMJ-A01L10-02</u>			\$42.50	J	L la succession de el		10		separately - see accessories)	
THMK-A01L10-02			\$43.00	К	ongrounded		10			

Technical Specifications							
ASTM E320 Standard Limits of Error ±2.2°C (±4.0°F) or 0.75%, whichever is greater							
Probe	1/4" length x 3/16" O.D. sensing tip, 316 stainless steel sheath, single thermocouple element						
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839						
Wiring         Spring adjustable: Stranded 20 AWG wire leads with stripped ends, fiberglass insulation and stainless steel overthe           Armor adjustable: Stranded 20 AWG wire leads with stripped ends, fiberglass insulation and flexible armor         This probe is not sealed and cannot be immersed in liquids							

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

### **Dr**Sense Thermocouple Adjustable Immersion Sensors

#### Dimensions

#### inches [mm]

#### THMJ & K - D08LXX-01 & 02



#### TABLE А PART NUMBER "A" DIM THMJ-D08L04-01 48.00[1219.2] THMJ-D08L06-01 72.00 1828.8 THMJ-D08L10-01 120.00[3048.0] THMK-D08L04-01 48.00 1219.2 THMK-D08L06-01 72.00[1828.8] 120.00 3048.0 THMK-D08L10-01 THMJ-D08L10-02 120.00[3048.0] 120.00[3048.0] THMK-D08L10-02

#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



#### Dimensions

inches [mm]



TABLE A								
PART NUMBER	DIM "A"							
THMJ-A01L04-01	48.00[1219.2]							
THMJ-A01L06-01	72.00[1828.8]							
THMJ-A01L10-01	120.00[3048.0]							
THMK-A01L04-01	48.00[1219.2]							
THMK-A01L06-01	72.00[1828.8]							
THMK-A01L10-01	120.00[3048.0]							
THMJ-A01L10-02	120.00[3048.0]							
THMK-A01L10-02	120.00[3048.0]							

#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections.
- Do not use standard wire nuts



### **Pr**Sense Thermocouple Adjustable Immersion Sensors - Accessories

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BA-078</u>	Bayonet adapter, 7/8 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$1.75
<u>BA-100</u>	Bayonet adapter, 1 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$1.75
<u>BA-114</u>	Bayonet adapter, 1-1/4 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.25
<u>BA-112</u>	Bayonet adapter, 1-1/2 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.25
BA-200	Bayonet adapter, 2 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.50
BA-212	Bayonet adapter, 2-1/2 long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.75
<u>BA-300</u>	Bayonet adapter, 3 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$3.00
BA-312	Bayonet adapter, 3-1/2 long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$3.50
<u>PCA-125</u>	Pipe clamp adapter, 11/16 to 1-1/4 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$19.00
<u>PCA-200</u>	Pipe clamp adapter with 1-1/16 to 2 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$19.00
<u>PCA-300</u>	Pipe clamp adapter with 2-1/16 to 3 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$21.00
<u>PCA-425</u>	Pipe clamp adapter with 3-5/16 to 4-1/4 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$24.00
<u>PCA-500</u>	Pipe clamp adapter with 4-1/8 to 7 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$22.50
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
THMK-SPJ	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors.	4	\$12.00

Note: Thermocouple extension lead wire available at <u>www.automationdirect.com</u>

See end of section for full listing of accessories and dimension information.

#### <u>BA-078</u>

<u>THMJ-SJ</u>



<u>BA-114</u>





<u>BA-300</u>







PCA-XXX



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Thermocouple Connectors

### **Or**Sense Thermocouple Bolt-On Ring Sensors

THMJ & K - B01L06-01

THMJ & K - B01L06-02



- **Overview**
- Ideal thermocouple sensor for nozzles, extruder barrels, die heads, molds and many other surface sensing applications
- Type J or K thermocouple elements to meet many temperature sensing applications
- 316 SS or brass construction
- Grounded or ungrounded junctions
- 6 foot lead wires with stainless steel overbraid
- Made in the USA

	Thermocouple Bolt-On Ring Sensors - Types J and K											
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Junction Type	Ring Material	Temperature Sensing Range	Mounting				
<u>THMJ-B01L06-01</u>			\$23.50	J	Grounded	Crounded 216.0	316.99					
<u>THMK-B01L06-01</u>			\$24.00	K		510 55	0° to 482°C (32° to 900°F)	#6-#10 (4mm-5mm) screw or bolt size				
<u>THMJ-B01L06-02</u>		0.4	\$35.50	J	Ungrounded	Brass						
<u>THMK-B01L06-02</u>	1		\$40.00	K								
<u>THMJ-B02L06-01</u>	1		\$23.00	J	Grounded	316 SS		#12, 1/4 to 5/16 inch (5mm - 8mm) screw or bolt size				
THMK-B02L06-01			\$24.50	K								
<u>THMJ-B02L06-02</u>			\$36.50	J		Droop						
<u>THMK-B02L06-02</u>		\$42.00 K Ungrounded Bi	Brass		01 0011 0120							

Technical Specifications						
ASTM E230 Standard limits of Error ±2.2°C (±4.0°F) or 0.75%, whichever is greater						
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839					
Wiring	6 foot stranded 20 AWG wire leads with stripped ends, fiberglass insulation and stainless steel overbraid					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions

#### inches [mm]

#### THMJ & K - B01L06-01



#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



### Or Sense Thermocouple Bolt-On Ring Sensors

#### Dimensions

#### inches [mm]

#### THMJ & K - B01L06-02



#### THMJ & K - B02L06-01



#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts







#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors.	4	\$12.00

Note: Thermocouple extension lead wire available at <u>www.automationdirect.com</u> See end of section for full listing of accessories and dimension information.



THMJ-SP

<u>THMJ-SPJ</u>





Thermocouple Connectors

### **Dr**Sense Room Temperature Sensors -Thermistor, Thermocouple, and RTD Types



RTD1-R01-01

#### <u>RTD1-R01-02</u>

# 

NTC10K3-R02-01

#### Internal terminal strip for wiring connections Can be mounted horizontally or vertically

**Overview** 

• ABS Plastic ventilated cover

• Available in thermistor, thermocouple, and RTD versions

ProSense Room Temperature Sensors									
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Temperature Sensing Range	Mounting		
<u>NTC10K3-R02-01</u>	1	0.14	\$29.50	PDF	10K-AN Type 3 Thermistor	-40 to 185°F (-40 to 85°C)	Single element, plastic ventilated housing, plastic wall mounting subplate, terminal strip for wiring connections.		
<u>THMJ-R01-01</u>	1	0.3	\$43.50	PDF		32 to 185°F	Single element, ungrounded junction, plastic ventilated housing		
<u>THMJ-R01-02</u>	1	0.3	\$28.25	PDF	(0 to 85°C)		connections (-02 model does not have metal wall mounting subplate)		
<u>RTD1-R01-01</u>	1	0.3	\$45.00	PDF	PT 100,	-40 to 185°F	Plastic ventilated housing with metal wall mounting subplate, internal		
<u>RTD1-R01-02</u>	1	0.3	\$34.25	PDF	3-wire	(-40 to 85°C)	wall mounting subplate)		

### **Pr**Sense Room Temperature Sensors -Thermistor, Thermocouple, and RTD Types

ProSense Room Sensor Technical Specifications							
Part Number	Sensing Element	Limits of Error	Initial Accuracy	Housing	Response Time	Wiring	
<u>NTC10K3-R02-01</u>	Epoxy Coated NTC Thermistor 10kΩ at 25°C r	N/A	± 0.2°C from 0°C to 70°C		Approximately 10 seconds*		
<u>THMJ-R01-01</u> THMJ-R01-02	Type J thermocouple	±2.2°C (±4.0°F) or 0.75%, whichever is greater	N/A	ABS	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839	Screw terminal strip	
<u>RTD1-R01-01</u> RTD1-R01-02	PT 100, Class B, 3-wire, TCR = 0.00385 ohm/ohm/°C	N/A	Class B		7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)		

\* The sensing element has an approximate response time of 10 seconds in still air. Different constructions will have different thermal responses.

#### Wiring Information

#### NTC10K3-R02-01



No polarity

#### <u>THMJ-R01-01</u>

Type J: (+) white (-) red • Must use thermocouple

- extension lead wireObserve polarity when
- making connections
- Do not use standard wire nuts



#### <u>RTD1-R01-01</u>



### Sense Thermocouple Spade Sensors



#### Overview

- · Ideal for surface temperature measurement.
- Versions include a thermocouple sandwiched between two thin shims of stainless steel or a thermocouple sealed in epoxy between two layers of polyimide tape.
- Stainless steel version can be mounted using a worm drive hose clamp or by placing under heater bands.
- Polyimide versions are provided with an adhesive backing for easy attachment to many surfaces.
- These spades can be formed and secured to the outside of various size tubes, pipes, or nozzles.
- Type J or Type K thermocouples
- · Grounded or ungrounded junctions
- · 6-foot lead wires with stainless steel overbraid
- Made in the USA

Thermocouple Spade Sensors - Types J and K							
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Junction Type	Spade Material	Temperature Sensing Range
<u>THMJ-S01L06-01</u>	1	0.25	\$29.00		Grounded	Stainless steel	-18 to 482°C (0 to 900°F)
<u>THMJ-S02L06-01</u>	1	0.25	\$31.50	J	Ungrounded	Polyimide w/ adhesive	-18 to 204°C (0 to 400°F)
<u>THMK-S01L06-01</u>	1	0.25	\$32.50	K	Grounded	Stainless steel	-18 to 482°C (0 to 900°F)
<u>THMK-S02L06-01</u>	1	0.25	\$34.00	n n	Ungrounded	Polyimide w/ adhesive	-18 to 204°Ć (0 to 400°F)

Technical Specifications						
ASTM E230 Standard limits of Error	$\pm 2.2^{\circ}$ C ( $\pm 4.0^{\circ}$ F) or 0.75%, whichever is greater					
Response Time	2.9 seconds, 63.2% of a 25-77°C step change per method ASTM E839					
Wiring	6 foot stranded (Stainless steel spade: 20 AWG / Polyimide spade: 24 AWG) wire leads with stripped ends, fiberglass insulation and stainless steel overbraid					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions



#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- · Observe polarity when making connections
- Do not use standard wire nuts



### **Or**Sense Thermocouple Spade Sensors

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50
<u>THMK-HSP</u>	Thermocouple connector, Type K, high-temperature standard round pin plug, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$14.00
<u>THMJ-MP</u>	Thermocouple connector, Type J, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$3.75
<u>THMJ-MJ</u>	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25
<u>THMK-MP</u>	Thermocouple connector, Type K, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.00
<u>THMK-MJ</u>	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
<u>THMJ-MPJ</u>	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25
<u>THMK-MPJ</u>	Thermocouple connector, Type K, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00
<u>WCB-M</u>	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: Thermocouple extension lead wire available at <u>www.automationdirect.com</u> See end of section for full listing of accessories and dimension information.

<u>THMJ-SJ</u>

<u>THMJ-SP</u>

THMJ-SPJ



Thermocouple Connectors

### **Dr**Sense Thermocouple Magnet Mount Sensors



#### **Overview**

- Magnet sensors are designed to measure the surface temperature of ferrous metals with a convenient and non-destructive magnetic attachment.
- Can be mounted either vertically or horizontally to molding press platens, bearing/motor housings and various other metal surfaces.
- Type J or Type K thermocouples
- Exposed junction
- · 6-foot lead wires with stainless steel overbraid
- Made in the USA

Thermocouple Magnet Mount Sensors - Types J and K							
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Junction Type	Temperature Sensing Range	Mounting
<u>THMJ-M01L06-01</u>	1	0.75	\$119.00	J	Fundad	-18 to 316°C	Alnico 4-pole rotor
THMK-M01L06-01	1	0.75	\$126.00	K	Exposed	(0 to 600°F)*	magnet (10lb pull force)

\* Continuous operating temperature of 400 °F. Intermittent temperatures up to 600 °F, but the pull of the magnet will be degraded at temperatures above 450 °F.

Technical Specifications							
ASTM E	230 Standard limits of Error	$\pm 2.2^{\circ}$ C ( $\pm 4.0^{\circ}$ F) or 0.75%, whichever is greater					
Wiring		6 foot stranded 20 AWG wire leads with stripped ends, fiberglass insulation and stainless steel overbraid					
	Note: Check the chemical co	ompatibility of the sensor's wetted parts with the medium to be measured.					

#### Dimensions

#### inches [mm]

#### THMJ & K - M01L06-01



#### Wiring Information

#### Type J: (+) white (-) red Type K: (+) yellow (-) red

- Must use thermocouple extension lead wire
- Observe polarity when making connections
- Do not use standard wire nuts



Note: Magnet mount sensors ship with a metal blank attached to the magnet. Remove the metal blank before use.

### **Or**Sense Thermocouple Magnet Mount Sensors

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>THMJ-SP</u>	Thermocouple connector, Type J, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMJ-SJ</u>	Thermocouple connector, Type J, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.75
<u>THMK-SP</u>	Thermocouple connector, Type K, standard round pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$4.50
<u>THMK-SJ</u>	Thermocouple connector, Type K, standard round pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG maximum (2.0 mm) wire size	1	\$5.50
<u>THMK-HSP</u>	Thermocouple connector, Type K, high-temperature standard round pin plug, maximum continuous temperature 662°F (350°C), thermoset brown body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$14.00
<u>THMJ-MP</u>	Thermocouple connector, Type J, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$3.75
<u>THMJ-MJ</u>	Thermocouple connector, Type J, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25
<u>THMK-MP</u>	Thermocouple connector, Type K, miniature flat pin plug, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.00
<u>THMK-MJ</u>	Thermocouple connector, Type K, miniature flat pin jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 20 AWG maximum (0.8 mm) wire size	1	\$4.25
<u>THMJ-SPJ</u>	Thermocouple connector, Type J, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$11.00
<u>THMK-SPJ</u>	Thermocouple connector, Type K, standard round pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$10.50
<u>THMJ-MPJ</u>	Thermocouple connector, Type J, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic black body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$8.25
<u>THMK-MPJ</u>	Thermocouple connector, Type K, miniature flat pin panel jack, maximum continuous temperature 400°F (200°C), glass filled thermoplastic yellow body, thermocouple material pins, 14 AWG (2.0 mm) maximum wire size	1	\$9.00
<u>WCB-M</u>	Wire / cable clamp bracket for use with miniature thermocouple connectors	4	\$12.00
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: Thermocouple extension lead wire available at <u>www.automationdirect.com</u> See end of section for full listing of accessories and dimension information.

<u>THMJ-SJ</u>

THMJ-SP

THMJ-SPJ





Thermocouple Connectors



### **Or**Sense RTD Probes with Connection Head

#### RTD1-CXX-01



RTD1-CXX-02



#### **Overview**

- Probe
  - 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 SS sealed sheath to protect against harsh environments
- RTD element encased in alumina powder insulation provides excellent vibration dampening and heat transfer
- 6", 12" or 18" probe length
- Connection Head
- Cast aluminum NEMA 4X, IP66 screw cover head with gasket
- One turn cover removal & installation eliminates cross threading and saves time
- 3/4 NPT conduit opening with internal stop to prevent overtightening and installation damage
- Gripping ribs on cover edge
- Stainless steel cover chain
- Wiring
- Ceramic terminal base
- Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
- Elevated terminal block for easy wire termination
- Made in the USA

RTD Probes with Connection Head																									
Part Number	Pcs/Pkg	Wt (Ib)	Price	RTD Type	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting																	
<u>RTD1-C06-01</u>			\$100.00			6"		Integral 1/2" x 1/2"																	
<u>RTD1-C12-01</u>		1.3	\$103.00		12"		NPT Hex Nipple,																		
<u>RTD1-C18-01</u>																					\$106.00 pt 100		18"	-50 to 300°C	316 SS
<u>RTD1-C06-02</u>	1		\$93.00	3-wire	1/4"	6"	(-58 to 572°F)	ProSense compression fitting (see accessories - purchased separately)																	
<u>RTD1-C12-02</u>			\$95.00			12"																			
<u>RTD1-C18-02</u>			\$99.00			18"																			

Technical Specifications						
Sensing Element Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C						
Initial Accuracy Class A ±[0.15 +0.002  t]] °C						
Probe ø1/4", 316 stainless steel sheath, single RTD is embedded in alumina powder						
Minimum Installation Depth	3" (76 mm)					
Connection Head	Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit opening, max temp. 400°F (204°C)					
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)					
Wiring	Ceramic terminal base with brass terminals and stainless steel screws (recommended tightening torque 3-4 lb-in)					
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured						

### **Orsense RTD Probes with Connection Head**

#### Dimensions

#### inches [mm]

#### RTD1-CXX-01

#### Wiring Information

 Recommended screw terminal tightening

torque 3-4 lb-in



#### RTD1-CXX-02



#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75

Note: RTD extension lead wire available at <u>www.automationdirect.com</u>

See end of section for full listing of accessories and dimension information.

### Orsense RTD Spring-Loaded Probes with Connection Head

#### RTD1-CXX-03





#### Overview

#### Probe

- Spring-loaded for positive tip contact in thermowells
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- RTD element encased in alumina powder insulation provides excellent vibration dampening and heat transfer
- 4", 6" or 12" probe length
- Connection Head
  - Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
  - One turn cover removal & installation eliminates cross threading and saves time
- 3/4 NPT conduit opening with internal stop to prevent overtightening and installation damage
- Gripping ribs on cover edge
- Stainless steel cover chain
- Wiring
- Ceramic terminal base
- Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
- Elevated terminal block for easy wire termination
- Made in the USA

RTD Spring-Loaded Probes with Connection Head									
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting	
<u>RTD1-C04-03</u>			\$102.00			4"		Integral 1/2" x 1/2" NPT	
<u>RTD1-C06-03</u>	1	1.3	\$106.00	PT 100, 3-wire	1/4"	6"	-50 to 300°C (-58 to 572°F)	Mount in thermowell	
<u>RTD1-C12-03</u>			\$111.00			12"	· · · /	(see accessories, purchased separately)	

RTD Spring-Loaded Replacement Probes										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Fits Probe Length	Temperature Sensing Range	For Use With		
RTD1-C04R-03			\$51.00	57.400		4"		RTD1-C04-03		
RTD1-C06R-03	1	0.2	\$53.00	PT 100, 3-wire	PT 100, 3 wiro	PT 100, 3 wiro	1/4"	6"	-50 to 300°C	RTD1-C06-03
<u>RTD1-C12R-03</u>			\$55.00			12"	(-50 10 572 1)	RTD1-C12-03		

Technical Specifications							
Sensing Element	Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C						
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C						
Probe	ø1/4", 316 stainless steel sheath, single RTD is embedded in alumina powder						
Connection Head	Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit opening, Max Temp. 400°F (204°C)						
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)						
Wiring	Connection head: Ceramic terminal base with brass terminals and stainless steel screws (Recommended tightening torque 3-4 lb-in) Replacement Probes: 3 inch stranded 24 AWG wire leads						

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

Wiring Information

## **Orsense RTD Spring-Loaded Probes with Connection Head**

#### Dimensions

#### inches [mm]

#### RTD1-CXX-03



# White tracer



 Ignore polarity marks on terminal base

• Recommended screw terminal tightening torque 3-4 lb-in

#### Dimensions

inches [mm]

#### RTD1-CXXR-03



TABLE A								
PART NUMBER	DIM "A"							
RTD1-C04R-03	5.00[127.0]							
RTD1-C06R-03	7.00[177.8]							
RTD1-C12R-03	13.00[330.2]							

Note: RTD extension lead wire available at the end of this section. See end of section for full listing of accessories and dimension information.

#### **Probe Replacement**

- 1. Open top cover.
- 2. Disconnect wires and remove terminal block.
- Remove snap ring at bottom of head (snap ring pliers recommended).
- 4. Slide out old probe and slide new probe in place.
- 5. While compressing spring, replace snap ring.
- 6. Replace terminal block and connect probe wires.

## **Propertiese RTD Spring-Loaded Probes with Connection Head - Accessories**

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>TW04-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$36.00
<u>TW04-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$36.00
<u>TW04-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$45.00
<u>TW04-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$45.00
<u>TW06-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$49.50
<u>TW06-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$49.50
<u>TW06-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$57.00
<u>TW06-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$57.00
<u>TW12-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$80.00
<u>TW12-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$80.00
<u>TW12-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$98.00
<u>TW12-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$98.00

Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information.

#### Spring-Loaded RTD Probe and Thermowell Assembly Example



 Spring-loaded probe design ensures positive tip contact with the bottom of the thermowell.

 Integral probe hex nipple threads directly into thermowell. No additional probe mounting fittings are required.

### **Pr**Sense RTD Heat Trace Probes with Connection Head



**Open head** 

#### **Overview**

Heat Trace RTD's are used to measure the surface temperature of process pipe that is carrying products whose temperatures must be controlled to prevent freeze-up, or to maintain a viscosity level so that the inner medium will flow.

• Probe

- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 SS sealed sheath to protect against harsh environments
- 3" hot leg with 1"x2" weld pad for mounting to pipe surface
- Mounting weld pad is flexible enough to be formed
- around nominal pipe sizes from 1" to 12"
- 4" cold leg allows for electrical connections outside of pipe insulation
- Connection Head
- Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
- One turn cover removal & installation eliminates cross threading and saves time
- 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
- Gripping ribs on cover edge
- Stainless steel cover chain
- Wiring
- Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
- Elevated terminal block for easy wire termination
- Made in the USA

RTD Heat Trace Probe with Connection Head							
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Length	Temperature Sensing Range	Mounting
<u>RTD1-HT34-01</u>	1	1.44	\$91.00	PT 100, 3-wire	3" Hot Leg / 4" Cold Leg	-40 to 482°C (-40 to 900°F)	1" X 2" X R3/4" Weld Pad, 304 SS*

\* Mounting pad is flexible enough to be formed around nominal pipe sizes from 1" to 12"

Technical Specifications							
Sensing Element	Single 100 $\Omega$ platinum (Pt 100), 3-wire; TCR = 0.00385 $\Omega/\Omega/^{\circ}$ C						
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C						
Probe ø1/4", 316 stainless steel sheath, single RTD							
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)						
Wiring Connection head: Ceramic terminal base with brass terminals and stainless steel screws (Recommended tightening torque 3-4 lb-in)							
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.							

### **Pr**Sense **RTD Heat Trace Probes with** Connection Head

#### **Dimensions**

#### inches [mm]



#### Wiring Information



 Ignore polarity marks on terminal base

• Recommended screw terminal tightening torque 3-4 lb-in

### **Dr**Sense RTD Probes with Hex Nipple

RTD1-HXXL01-01

CHSC-AL-1



CHTB-3

Accessories

#### Overview

- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 sealed stainless steel sheath to protect against harsh environments
- RTD element encased in alumina powder insulation provides excellent vibration dampening and heat transfer
- 6", 12", or 18" probe length
- 1/2" x 1/2" NPT hex nipple allows easy replacement of existing probes and connection to a wiring junction box
- Made in the USA

RTD Probes with Hex Nipple										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting		
<u>RTD1-H06L01-01</u>			\$74.00			6"		Integral 1/2" x 1/2"		
<u>RTD1-H12L01-01</u>	1	0.5	\$79.00	PT 100, 3-wire	PT 100, 3-wire	PT 100, 3-wire	100, wire 1/4"	12"	-50 to 300°C (-58 to 572°E)	NPT Hex Nipple,
RTD1-H18L01-01			\$86.00			18"	(00 00 072 1)	316 SS		

Technical Specifications						
Sensing Element Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C						
Initial Accuracy	Class A ±[0.15 +0.002  t]] °C					
Probe ø1/4", 316 stainless steel sheath, single RTD is embedded in alumina powder						
Minimum Installation Depth 3" (76 mm)						
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)					
Wiring	3-inch stranded 24 AWG wire leads with terminal pins, Kapton insulated					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions

#### inches [mm]

#### RTD1-HXXL01-01



#### Wiring Information

	White trace
L L	Red tracer
	Red tracer
	_

TABL	TABLE A									
PART NUMBER	DIM "A"									
RTD1-H06L01-01	6.00[152.4]									
RTD1-H12L01-01	12.00[304.8]									
RTD1-H18L01-01	18.00[457.2]									

### **Of**Sense<sup>®</sup> **RTD Probes with Hex Nipple**

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>CHSC-AL-1</u>	ProSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 inch NPT process opening, 3/4 inch NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature rating of 825°F (440°C). Order probe and terminal base separately.	1	\$24.50
<u>CHTB-3</u>	ProSense ceramic terminal base, three brass terminals with stainless steel screws, for use with ProSense temperature probe connection heads, two mounting screws included.	1	\$7.50

Note: Full listing of accessories available at the end of this section. RTD extension lead wire available at www.automationdirect.com

#### Dimensions

#### inches [mm]

#### <u>CHSC-AL-1</u>





<u>CHTB-3</u>



### **Propertiese RTD Spring-Loaded Probes with Hex Nipple**



Accessories

Overview

- Spring-loaded for positive tip contact in thermowells
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 stainless steel sheath to protect against harsh environments
- RTD element encased in alumina powder insulation provides excellent vibration dampening and heat transfer
- 4", 6", or 12" probe length
- 1/2" x 1/2" NPT hex nipple allows easy replacement of existing probes and connection to a wiring junction box
- Made in the USA

RTD Spring-Loaded Probes with Hex Nipple										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting		
<u>RTD1-H04L01-02</u>	RTD1-H04L01-02		\$81.00			4"		Integral 1/2" x 1/2"		
<u>RTD1-H06L01-02</u>	1	0.5	\$85.00	PT 100, 3-wire	), 1/4"	6"	-50 to 300°C	NPT Hex Nipple,		
<u>RTD1-H12L01-02</u>			\$91.00			12"		316 SS		

Technical Specifications					
Sensing Element Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C					
Initial Accuracy Class A ±[0.15 +0.002  t ] °C					
Probe	ø1/4", 316 stainless steel sheath, single RTD is embedded in alumina powder				
Response Time 7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)					
Wiring	3-inch stranded 24 AWG wire leads with terminal pins, Kapton insulated				

Note: See end of section for thermowells to fit these unit.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions

#### inches [mm]



Wiring Information



TABLE A							
PART NUMBER	DIM "A"						
RTD1-H04L01-02	4.00[101.6]						
RTD1-H06L01-02	6.00[152.4]						
RTD1-H12L01-02	12.00[304.8]						

### **Pr**Sense **RTD Spring-Loaded Probes with** Hex Nipple

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>CHSC-AL-1</u>	ProSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 inch NPT process opening, 3/4 inch NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature rating of 825°F (440°C). Order probe and terminal base separately.	1	\$24.50
<u>CHTB-3</u>	ProSense ceramic terminal base, three brass terminals with stainless steel screws, for use with ProSense temperature probe connection heads, two mounting screws included.	1	\$7.50

Note: Full listing of accessories available at the end of this section. RTD extension lead wire available at www.automationdirect.com

#### Dimensions

inches [mm]

#### CHSC-AL-1





<u>CHTB-3</u>



### **Dr**Sense RTD Probes with Attached Plug

RTD1-PXX-01



#### Overview

- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 stainless steel sheath to protect against harsh environments
- RTD element encased in alumina powder insulation provides excellent vibration dampening and heat transfer
- 6", 12", or 18" probe length
- Attached 3-pin plug for quick and easy wiring connections
- Made in the USA

RTD Probes with Attached Plug											
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting	Attached Plug Size	Mating Jack	
RTD1-P06-01			\$59.00			6"	-50 to 300°C	ProSense			
<u>RTD1-P12-01</u>	1	0.3 \$6	0.3	\$63.00	PT 100,	1/4"	12"	(-58 to 572°F)	(see accessories,	Standard	accessories, sold
<u>RTD1-P18-01</u>			\$66.00	3-WIIE		18"	(204°C)	purchased separately)	SIZE, S-PIT	separately)	

Technical Specifications						
Sensing Element Single 100Ω platinum (Pt 100). 3-wire; TCR = 0.00385 Ω/Ω/°C						
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C					
Probe	ø1/4", 316 stainless steel sheath, single RTD is embedded in alumina powder					
Minimum Installation Depth	3" (76 mm)					
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)					
Wiring	Attached 3-pin standard size plug (mating jack sold separately, see accessories)					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

#### Dimensions

#### inches [mm]

RTD1-PXX-01



TABLE A							
PART NUMBER	DIM "A"						
RTD1-P06-01	6.00[152.4]						
RTD1-P12-01	12.00[304.8]						
RTD1-P18-01	18.00[457.2]						

#### Wiring Information

PT100: white plug Pins labeled +, - and G


## **Probes with Attached** Plug - Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon™ ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information. \*Working pressure of compression fitting should not exceed 500 psi. However we

recommend any pressure application use a thermowell

<u>CF14-50N</u>

<u>CF14-25N</u>

<u>CF14-125N</u>







S.S. Compression Fittings

<u>BCF14-50N</u>

<u>BCF14-25N</u>

<u>BCF14-125N</u>







Brass Compression Fittings

<u>RTD-SP</u>



<u>RTD-SJ</u>



RTD Connectors

# **Or**Sense RTD Probes with Lead Wire Transition



### **Overview**

- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 stainless steel sheath to protect against harsh environments
- · RTD element encased in alumina powder insulation provides excellent vibration dampening and heat transfer
- 6", 12", or 18" probe length
- Heavy duty lead wire transition with relief spring

- 6-foot lead wires with Kapton insulation and stainless steel overbraid
- Made in the USA

RTD Probes with Lead Wire Transition										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting		
RTD1-T06L06-01			\$70.00			6"	-50 to 300°C	ProSense		
<u>RTD1-T12L06-01</u>	1	0.4	\$72.00	PT 100,	1/4"	12"	(-58 to 572°F), lead	(see accessories		
<u>RTD1-T18L06-01</u>			\$79.00	3-wire		18"	to 400°F (204°C)	purchased separately)		

Technical Specifications						
Sensing Element	Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C					
Initial Accuracy	Class A ±[0.15 +0.002  t]] °C					
Probe	ø1/4", 316 stainless steel sheath, single RTD is embedded in alumina powder					
Minimum Installation Depth	3" (76 mm)					
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)					
Wiring	6 foot stranded 24 AWG wire leads with stripped ends, Kapton insulation and stainless steel overbraid					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## **Dimensions**

#### inches [mm]

RTD1-TXXL06-01



	white

 white
red
red

TABL	_E A
PART NUMBER	DIM "A"
RTD1-T06L06-01	6.00[152.4]
RTD1-L12L06-01	12.00[304.8]
RTD1-L18L06-01	18.00[457.2]

## **Properse RTD Probes with Lead Wire Transition** - Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
BCF14-125N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
BCF14-25N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon™ ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information. \*Working pressure of compression fitting should not exceed 500 psi. However we recommend any pressure application use a thermowell

<u> CFTF-14</u>





CF14-50N



CF14-25N

S.S. Compression Fittings



CF14-125N

BCF14-50N

BCF14-25N





BCF14-125N

Brass Compression Fittings

<u>RTD-SJ</u>

<u>RTD-SP</u>





**RTD Connectors** 

# **Processer RTD Probes with M12 Cable Connector**



#### **Overview**

- 100 ohm platinum RTD element
- Class A accuracy
- 316 stainless steel sheath to protect from harsh sensing applications
- 6 mm (0.24") diameter 3-wire or 10 mm (0.4") diameter 4-wire probes
- Probe lengths of 30mm, 50mm, 100mm, 150mm, 160mm, 260mm, and 360mm
- Process connections include 1/4" or 1/2" male NPT threads, 3-A approved sanitary CIP tri-clamp, or compression fitting for adjustable insertion depth.
- 4-pin M12 cable connector plug for simplified wiring





CE







RTD Probes With M12 Cable Connector										
Part Number	Wt(lb)	Price	Туре	Diameter	Length	Temperature Sensing Range	Process Connection	Thermowell (purchased separately)	Drawing Link	
<u>RTD0100-06-010-H</u>	0.10	\$40.50			160mm (6.3")		None, use	RTDTW-06-010-50N CF06-25N	PDF	
<u>RTD0100-06-020-H</u>	0.20	\$42.00	Pt100, 3-wire	6mm (0.24")	260mm (10.24")		(CF06-25N	RTDTW-06-020-50N CF06-25N	<u>PDF</u>	
<u>RTD0100-06-030-H</u>	0.30	\$46.00			360mm (14.17")	-40 to 302°F (-40 to 150°C)	separately)	RTDTW-06-030-50N CF06-25N	<u>PDF</u>	
<u>RTD0100-10-010-H</u>	0.10	\$40.50	Pt100 4-wire	10mm (0.4")	160mm (6.3")		None, use compression fitting (CF10-50N purchased separately)	RTDTW-10-010-50N CF10-50N	<u>PDF</u>	
<u>RTD1-25N-030-H</u>	0.2	\$78.00			30mm (1.18")				<u>PDF</u>	
<u>RTD1-25N-050-H</u>	0.21	\$79.00		50mm (1.97")		1///" Male NPT		<u>PDF</u>		
<u>RTD1-25N-100-H</u>	0.22	\$80.00			100mm (3.94")	- -58 to 302°F (−50 to 150°C)		None	<u>PDF</u>	
<u>RTD1-25N-150-H</u>	0.23	\$81.00			150mm (5.91")				<u>PDF</u>	
<u>RTD1-50N-030-H</u>	0.3	\$80.00			30mm (1.18")		1/2" Male NPT		<u>PDF</u>	
<u>RTD1-50N-050-H</u>	0.31	\$81.00	Pt100,	6mm	50mm (1.97")				PDF	
<u>RTD1-50N-100-H</u>	0.32	\$83.00	3-wire	(0.24")	100mm (3.94")			TW04-0x STW04-0x	<u>PDF</u>	
<u>RTD1-50N-150-H</u>	0.33	\$84.00			150mm (5.91")			TW06-0x STW06-0x	<u>PDF</u>	
<u>RTD1-\$15-030-H</u>	0.41	\$123.00			30mm (1.18")				<u>PDF</u>	
<u>RTD1-S15-050-H</u>	0.42	\$124.00			50mm (1.97")		1-1/2" Sanitary CIP Tri-Clamp (3-A)	Nana	<u>PDF</u>	
<u>RTD1-S15-100-H</u>	0.44	\$128.00			100mm (3.94")			None	PDF	
<u>RTD1-S15-150-H</u>	0.44	\$129.00			150mm (5.91")				<u>PDF</u>	



Scan the QR Code or click to view the RTD1 Series product insert.

# **Processe RTD Probes with M12 Cable Connector**

RTD Probes With M12 Cable Connector Technical Specifications								
Series	RTD0100 Series	RTD1 Series						
Sensing Element	Single 100Ω platinum (Pt100), TCR = 0.00385 Ω/Ω/°C							
Initial Accuracy	DIN EN 60751, C	lass A, ±(0.15 + 0.002[t])°C						
Probe Diameter	6mm (0.24") or 10mm (0.4")	6mm (0.24")						
Minimum Installation Depth	15mm (0.6")	30mm (1.2")						
Response Time	*t0.5 = 1 sec/ t0.9 = 3 sec (DIN EN 60751)	*t0.5 = <1 sec/ t0.9 = <2 sec (DIN EN 60751)						
Electrical Connection	4-pin M12 quick disconnect							
Housing Material	Stainless steel (316L)	Stainless steel (304)						
Materials (Wetted Parts)	Stainless steel (316L)	Stainless steel (316L)						
Protection	IP68 or IP 69K with appropriately rated cable	IP66/67 or IP69K with appropriately rated cable						
Ambient Temperature	-13 to 176°F ( -25 to 80°C)	-40 to 185°F ( -40 to 85°C)						
Process Temperature	-40 to 302°F ( -40 to 150°C)	-58 to 302°F ( -50 to 150°C)						
Storage Temperature	-40 to 212°F ( -40 to 100°C)	-40 to 185°F ( -40 to 85°C)						
Pressure Rating	2320 psig (160 bar) maximum	With NPT process connection, 1450 psig (100bar) maximum With Sanitary Tri-clamp process connection, 232 psig (16bar) maximum						
Certifications	cULus, CE	cURus, CE, 3-A (RTD1-S models only)						

\* to.5 = a 50% of full scale change in output when immersed in water flowing at 0.4m/s, to.9 = a 90% FS change.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

Note: Response time will be slower when installed in a thermowell. Be sure to install the probe so that it contacts the end of the thermowell for faster response. Thermal compound may be used depending on application.

## Wiring Information RTD0100-06





B = Internal Jumper

## **RTD1 Series**





## Wiring Information RTD0100-10 Series



#### Note: wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

Cable Assembly Wiring Colors: Pin 1 - Brown

Pin 2 - White Pin 3 - Blue Pin 4 - Black

# **Probes RTD Sanitary Clean-in-Place (CIP) Probes**

#### RTD1-S04-XX





- Designed to meet the stringent requirements of HTST pasteurization systems
- Probe
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- Clean-in-place (CIP) sanitary 316 SS connectors for use in processing applications where sensor corrosion and product contamination are critical factors
- Certified to meet or exceed 3-A Sanitary Council Standard surface finish specifications
- 316 SS sheaths available in standard 1/4" diameter, or 3/8" diameter with 3/16" diameter reduced tip for greater durability in high viscosity applications
- Commonly used 4" probe insertion length



- Connection head
  - FDA compliant white thermoplastic screw cover head with captive o-ring seal provides excellent washdown protection
  - One turn cover removal & installation eliminates cross threading and saves time
  - 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
  - Gripping ribs on cover edge
  - Stainless steel cover chain
- Wiring
  - Ceramic terminal base
  - Brass terminals with stainless steel screws eliminate the need to wrap connections around screws
  - Elevated terminal block for easy wire termination
- Made in the USA



RTD Probes with Leadwire Transition										
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Insertion Length	Temperature Sensing Range	Mounting		
<u>RTD1-S04-01</u>			\$124.00				4 / 4 "			1" or 1-1/2" tri-clamp
RTD1-S04-02		1.0	\$132.00	PT 100,	1/4	417	-50 to 204°C	2" tri-clamp		
RTD1-S04-03			\$158.00	3-wire	3/8" O.D. reduced to 3/16" O.D. x 1-1/4" long tip	3/8" O.D. reduced to 3/16" O.D. x 1-1/4" long tip	4	(-58 to 400°F)	1" or 1-1/2" tri-clamp	
RTD1-S04-04			\$160.00				3/16" O.D. x 1-1/4" long tip			2" tri-clamp

Technical Specifications						
Sensing Element	Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385Ω/Ω/°C					
Initial Accuracy	Class A ±[0.15+0.002  t ]°C					
Probe & Process Connection	316 stainless steel sheath and 316 stainless steel sanitary CIP tri-clamp connection with a minimum 32 micro-inch Ra food grade surface finish. Meets or exceeds 3-A Sanitary Council Standard specifications					
Connection Head	FDA compliant white polypropylene screw cover with stainless steel chain, BUNA-N o-ring seal, NEMA 4X, 3/4" NPT conduit opening max. temp. 250°F (121°C)					
Response Time	<4 seconds, 63% of 25 to 77°C step change (ASTM E1137)					
Wiring	Ceramic terminal base with brass terminals and stainless steel screws (Recommended tightening torque 3-4 lb-in)					
(*****)						

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

# **Probes** RTD Sanitary Clean-in-Place (CIP) Probes

## **Dimensions**

#### inches [mm]

#### RTD1-S04-01 and 02



3.69 [93.6]

			•	
Ac	CPO	SO	rie	S
	CC.	50		-0

PART NUMBER

RTD1-S04-03

RTD1-S04-04

0.19 [4.8]

0.38 [9.5]

DIM "A"-

RTD extension lead wire available at www.automationdirect.com

1/2 X 1/2 NPT-

1"

3/4 NPT

FITS TUBE SIZE

2"

OR 1-1/2"

0.25 [6.4]

TABLE A

DIM "A"

1.98[50.3]

2.51 63.8

# **Dr**Sense RTD Flange Mount Probes



## **Overview**

- Ideal for use with ovens, freezers, ducts, or anywhere through the wall temperature sensing is required.
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 6", 12", or 18" probe lengths
- Mounting is accomplished using the conveniently attached round mounting flange
- 6-foot lead wires with stainless steel overbraid
- Made in the USA

	RTD Flange Mount Probes							
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Insertion Length	Probe Material	Temperature Sensing Range	Mounting
<u>RTD1-F06L06-01</u>	1	0.44	\$82.00	PT 100	6"			1" diameter 1/16" thick 304 staipless
<u>RTD1-F12L06-01</u>	1	0.44	\$84.00	Class A,	12"	316 stainless steel	ss -40 to 316°C (-40 to 600°F)	steel flange (2x -
<u>RTD1-F18L06-01</u>	1	0.44	\$87.00	3-wire	18"		(	ø0.144 mounting holes 0.75" spacing)

Technical Specifications				
Sensing Element	Single 100 $\Omega$ platinum (Pt 100), 3-wire; TCR = 0.00385 $\Omega/\Omega/^{\circ}$ C			
Initial Accuracy Class A ±[0.15 +0.002  t ] °C				
Probe	1/4" O.D., 316 stainless steel sheath			
Minimum Installation Depth	3" (76mm)			
Probe Minimum Bend Radius	Not bendable			
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)			
Wiring	6 foot stranded 24 AWG wire leads with stripped ends, Kapton insulation and stainless steel overbraid			
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.				

## Dimensions

#### inches [mm]

#### RTD1-FXXL06-01



# **Or**Sense<sup>®</sup> RTD Flange Mount Probe - Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

#### Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information.

<u>RTD-SJ</u>

<u>RTD-SP</u>





RTD Connectors

# **Dr**Sense RTD Cuttable Length Probe



**Overview** 

- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 24" probe length can be cut using an ordinary tubing cutter to adapt to the application
- Mounting is accomplished using a variety of ProSense compression fittings
- 2-foot Kapton insulated leadwires
- Made in the USA

	RTD Cuttable Length Probe								
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Probe Diameter (O.D.)	Probe Length	Probe Material	Temperature Sensing Range	Mounting
<u>RTD1-V24L06-01</u>	1	0.44	\$58.00	PT 100, Class A, 3-wire	1/4"	24" (4" minimum cut length)	316 stainless steel	-40 to 316°C (-40 to 600°F)	ProSense compression fitting(see accessories purchased separately)

Technical Specifications				
Sensing Element	Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C			
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C			
Probe	1/4" O.D., 316 stainless steel sheath			
Minimum Installation Depth	3" (76mm)			
Probe Minimum Bend Radius	Not bendable			
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)			
Wiring	2 foot solid 24 AWG wire leads with stripped ends, Kapton insulation			
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured				

Dimensions

#### inches [mm]



ø0.25 [ø6.4]

## **Cutting Instructions**

1. Remove the plastic retainer mounted to the top of outer metal tube.

2. Remove the inner sensing element and wires to prevent possible damage while cutting.

- 3. Cut the tube to the desired length and remove all burrs or sharp edges.
- 4. Reinstall the sensing element and plastic retainer.
- Note: Ensure sensing element is fully seated at the base of the outer tube. If outer tube is compressed during installation it may not be possible to remove the sensing element.

## Wiring Information



## Sense RTD Cuttable Length Probe -Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon™ ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information.

\*Working pressure of compression fitting should not exceed 500 psi. However we recommend any

pressure application use a thermowell

<u>CFTF-14</u>







CF14-25N



CF14-125N

S.S. Compression Fittings



BCF14-25N



BCF14-125N

CF14-50N

**Brass Compression Fittings** 

<u>rtd-Sj</u>

<u>RTD-SP</u>





**RTD Connectors** 

# **Dr**Sense RTD Melt Bolt Probes



**Overview** 

- Used on extruders and injection molding machines to directly measure the melt temperature of plastic as it moves down the extruder barrel
- 100 ohm platinum RTD 3-wire element
- Class A accuracy

- 3" or 6" bolt lengths
- Flush, 1/8", 1/4" tip lengths
- 1/2-20 UNF thread process connection
- Made in the USA

RTD Melt Bolt Probes																	
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Tip Length	Tip Diameter	Bolt length	Temperature Sensing Range	Attached Plug Size	Mating Jack							
<u>RTD1-MB3T00-01</u>	1	0.63	\$83.00		Flush		3"	-40 to 316°C	Olandard								
<u>RTD1-MB3T18-01</u>	1	0.63	\$83.00		1/8" 1/4"												
<u>RTD1-MB3T14-01</u>	1	0.63	\$83.00	PT 100,		4.(0"											
<u>RTD1-MB6T00-01</u>	1	0.75	\$91.00	3-wire	3-wire	3-wire Flush	3-wire	Flush	, Flush	Flush	Flush 1/8"	1/0	1/0		(-40 to 600°F)	Standard	RID-SJ
<u>RTD1-MB6T18-01</u>	1	0.75	\$91.00		1/8"	1/8"			6"	6"							
<u>RTD1-MB6T14-01</u>	1	0.75	\$91.00		1/4"												

Technical Specifications					
Sensing Element	Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C				
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C				
Probe	316 stainless steel sheath				
Bolt Threads	1/2-20 UNF - 2A Bolt Thread (Nominal Thread Length 1-7/8")				
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)				
Wiring	Kapton insulation with flexible armor Attached plug, mating jack sold separately. See accessories.				
000000					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Dimensions

#### inches [mm]

#### RTD1-MBXTXX-01



	TABLE A	
PART NUMBER	DIM "A"	DIM "B"
RTD1-MB3T00-01	3.00[76.2]	0.00[FLUSH]
RTD1-MB3T14-01	3.00[76.2]	0.25[6.4]
RTD1-MB3T18-01	3.00[76.2]	0.125[3.2]
RTD1-MB6T00-01	6.00[152.4]	0.00[FLUSH]
RTD1-MB6T14-01	6.00[152.4]	0.25[6.4]
RTD1-MB6T18-01	6.00[152.4]	0.125[3.2]

## Wiring Information



# **Orsense RTD Melt Bolt Probes**

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information.

<u>RTD-SJ</u>

<u>RTD-SP</u>





RTD Connectors

# **Dr**Sense RTD Threaded Bolt Sensors



## **Overview**

- Typically used to measure the temperature of the nozzle of an injection molding machine without being in direct contact with the molten plastic.
- The small size of this sensor makes it ideal for other general areas of use such as mounting in bearing housings, sealing bars, heat plates, and other limited space applications
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- 1/4-28 UNF threaded stainless steel rotating bolt allows for easy installation
- 6-foot lead wires with stainless steel overbraid
- Made in the USA

RTD Threaded Bolt Sensors						
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Bolt	Temperature Sensing Range
<u>RTD1-N38P14-01</u>	1	0.25	\$67.00	PT 100, 3-wire	1/4-28 x 3/8" SS - Rotating Bolt	-40 to 316°C (-40 to 600°F)

Technical Specifications				
Sensing Element Single 100Ω platinum (Pt 100), 3-wire; TCR = 0.00385 Ω/Ω/°C				
Initial Accuracy Class A ±[0.15 +0.002  t]] °C				
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)			
Wiring 6 foot stranded 24 AWG wire leads with stripped ends, Kapton insulation and stainless steel overbra				
Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.				

## Dimensions

inches [mm]



## Wiring Information



## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: Full listing of accessories and dimension information available at the end of this section. RTD extension lead wire available at www.automationdirect.com

# **Or**Sense<sup>®</sup> RTD Adjustable Immersion Sensor



## **Overview**

- Ideal sensor for the plastics processing industry
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- Spring adjustable allows for variable immersion depths



- Integral bayonet cap makes installation quick and easy when used with a bayonet adapter or pipe clamp adapter
- Made in the USA

Shown with optional PCA pipe clamp adapter

		RT	D Probe	s with	<b>Spring Adjustable</b>	e Immersi	on			
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Sensor Dimensions	Lead Wire Length (ft)	Temperature Sensing Range	Mounting		
<u>RTD1-D08L10-01</u>	1	0.3	\$61.00	PT 100, Class A, 3-wire	1/4" length x 3/16" O.D. sensing tip 8" length x 0.263" diameter spring.	10	-50 to 300°C (-58 to 572°F), lead wire transition rated to 400°F (204°C)	Bayonet fitting cap 7/16" inside diameter, single slot. Mount with ProSense bayonet fitting adapter or pipe clamp adapter (purchased separately - see accessories)		
				Techn	ical Specification	S				
Sensing Element					Single 100Ω platinum (Pt 10	00), 3-wire; TCR =	= 0.00385 Ω/Ω/°C			
Initial Accuracy         Class A ±[0.15 +0.002  t ] °C										
Probe			1/4" length x 3/16" O.D. sensing tip, 316 stainless steel sheath							
Response Time			7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)							
Wiring			Stra	anded 24 AV	VG wire leads with stripped en This probe is not sealed a	ids, fiberglass insi nd cannot be imm	ulation and stainless s nersed in liquids.	teel overbraid		

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## **Dimensions**

inches [mm]

RTD1-D08L10-01



white

red

red

# **Pr**Sense<sup>®</sup> **RTD Adjustable Immersion Sensor** - Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00
<u>BA-078</u>	Bayonet adapter, 7/8 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$1.75
<u>BA-100</u>	Bayonet adapter, 1 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$1.75
<u>BA-114</u>	Bayonet adapter, 1-1/4 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.25
<u>BA-112</u>	Bayonet adapter, 1-1/2 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.25
<u>BA-200</u>	Bayonet adapter, 2 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.50
<u>BA-212</u>	Bayonet adapter, 2-1/2 long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$2.75
<u>BA-300</u>	Bayonet adapter, 3 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$3.00
<u>BA-312</u>	Bayonet adapter, 3-1/2 long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	1	\$3.50
<u>PCA-125</u>	Pipe clamp adapter, 11/16 to 1-1/4 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors.	1	\$19.00
<u>PCA-200</u>	Pipe clamp adapter with 1-1/16 to 2 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$19.00
<u>PCA-300</u>	Pipe clamp adapter with 2-1/16 to 3 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$21.00
<u>PCA-425</u>	Pipe clamp adapter with 3-5/16 to 4-1/4 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$24.00
<u>PCA-500</u>	Pipe clamp adapter with 4-1/8 to 7 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors	1	\$22.50

#### Note: RTD extension lead wire available at www.automationdirect.com

See end of section for full listing of accessories and dimension information.

<u>BA-078</u>



<u>RTD-SJ</u>





<u>RTD-SP</u>

**RTD Connectors** 

<u>BA-114</u>



<u>BA-300</u>





**Bayonet Mounting Adapters** 

1-800-633-0405

# **Dr**Sense<sup>®</sup> **RTD Bolt-On Ring Sensors**



## **Overview**

- Ideal for many surface mount sensing applications
- 100 ohm platinum RTD 3-wire element
- Class A accuracy
- Brass ring construction
- 6-foot lead wires with Kapton insulation and stainless steel overbraid
- Made in the USA

RTD Probes with Leadwire Transition							
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Ring Material	Temperature Sensing Range	Mounting
<u>RTD1-B01L06-01</u>	1	0.4	\$76.00	PT 100, 3-wire	Brass	-50 to 300°C (-58 to 572°F)	Bolt on #6-#10 (4mm- 5mm) screw or bolt size
<u>RTD1-B02L06-01</u>	1	0.4	\$80.00	PT 100, 3-wire	Brass	-50 to 300°C (-58 to 572°F)	Bolt on #12, 1/4 to 5/16 inch (5mm - 8mm) screw or bolt size

Technical Specifications						
Sensing Element	Single 100 $\Omega$ platinum (Pt 100), 3-wire; TCR = 0.00385 $\Omega/\Omega/^{\circ}$ C					
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C					
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)					
Wiring	6 foot stranded 24 AWG wire leads with stripped ends, Kapton insulation and stainless steel overbraid					

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Dimensions

#### inches [mm]

#### RTD1-BOXL06-01



## Wiring Information



TABLE A						
PART NUMBER	DIM "A"	DIM "B"	DIM "C"			
RTD1-B01L06-01	0.63[15.9]	0.38[9.5]	Ø0.20[Ø5.2]			
RTD1-B02L06-01	0.88[22.2]	0.63[15.9]	Ø0.33[Ø8.3]			

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors.	4	\$12.00

Note: Full listing of accessories and dimension information available at the end of this section. RTD extension lead wire available at www.automationdirect.com

# Sense RTD Spade Sensors



RTD1-S02L06-01

## **Overview**

- Ideal for surface temperature measurement.
- 100 ohm platinum RTD 3-wire element sealed in epoxy between two layers of polyimide tapé.
- Class A accuracy
- Provided with an adhesive backing for easy attachment to many surfaces.
- Can be formed and secured to the outside of various size tubes, pipes, or nozzles.
- · 6-foot lead wires with stainless steel overbraid.
- Made in the USA

RTD Spade Sensors						
Part Number	Pcs/Pkg	Wt (lb)	Price	Туре	Spade Material	Temperature Sensing Range
<u>RTD1-S02L06-01</u>	1	0.25	\$55.00	PT 100, 3-wire	Polyimide w/ adhesive back	-40 to 204°C (-40 to 400°F)

Technical Specifications				
Sensing Element	Single 100 $\Omega$ platinum (Pt 100), 3-wire; TCR = 0.00385 $\Omega/\Omega/^{\circ}$ C			
Initial Accuracy	Class A ±[0.15 +0.002  t ] °C			
Response Time	7 seconds, 63% of a 25 to 77°C step change (ASTM E1137)			
Wiring	6 foot stranded 24 AWG wire leads with stripped ends, Kapton insulation and stainless steel overbraid			

## **Dimensions**

inches [mm]



## Wiring Information



## **Accessories**

Part No.	Description	Pcs/Pkg	Price
<u>RTD-SP</u>	RTD 3-pin connector, standard round pin plug, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$9.25
<u>RTD-SJ</u>	RTD 3-pin connector, standard round pin jack, maximum continuous temperature 400°F (200°C), white body, copper pins, 14 AWG maximum (2.0 mm) wire size	1	\$12.00
<u>WCB-S</u>	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

Note: Full listing of accessories and dimension information available at the end of this section. RTD extension lead wire available at www.automationdirect.com

# **Dr**Sense 10K-3 Thermistor Probes with Connection Head



Note: Full probe length not shown in photos

#### **Overview**

#### Probe

- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 SS sealed sheath to protect against harsh environments
- 6", 12" or 18" probe length
- Connection Head
- Cast aluminum NEMA 4X, IP66 screw cover head with gasket
- One turn cover removal & installation eliminates cross threading and saves time
- 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
- Gripping ribs on cover edge
- Stainless steel cover chain
- Wiring
  - 2 feet of cable provided with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Probes with Connection Head																		
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting									
<u>NTC10K3-C06-01</u>		1.12	\$73.50	PDF			6"		Integral 1/2" x 1/2" NPT									
<u>NTC10K3-C12-01</u>		1.18	\$75.50	PDF	10K-AN Type 3 Thermistor	<u>DF</u> 10K-AN Type 3										12"		Hex Nipple,
<u>NTC10K3-C18-01</u>	1	1.23	\$78.00	PDF			1 / / "	18"	-40 to 125° C	316 SS								
<u>NTC10K3-C06-02</u>		1.0	\$67.00	PDF		1/4	6"	(-40 to 257° F)	ProSense compression									
<u>NTC10K3-C12-02</u>		1.09	\$69.50	PDF			12"		fitting (see accessories									
<u>NTC10K3-C18-02</u>		1.16	\$72.00	PDF			18"		- purchased separately)									

Technical Specifications				
Sensing Element	Epoxy Coated NTC Thermistor			
No-Load Resistance	10kΩ at 25°C			
Accuracy	± 0.2°C from 0°C to 70°C			
Probe	ø1/4", 316 stainless steel sheath			
Minimum Installation Depth	3" (76 mm)			
Connection Head	Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit opening, max temp. 221°F (105°C)			
Sensing Element Response Time	Approximately 1 second*			
Wiring	24 inches of PVC cable inside cover with 2 inches of 24AWG wire stripped 1/4 inch and tinned			

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

# **Propense** 10K-3 Thermistor Probes with Connection Head

## Wiring Information



No polarity

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75

See end of section for full listing of accessories and dimension information.

# **Probes with Connection Head**

#### NTC10K3-C04-03



### Overview

#### • Probe

- Spring-loaded for positive tip contact in thermowells
- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 4", 6" or 12" probe length
- Connection Head
  - Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
  - One turn cover removal & installation eliminates cross threading and saves time
  - 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
  - Gripping ribs on cover edge
  - Stainless steel cover chain
- Wiring
  - 2 feet of cable provided with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Spring-Loaded Probes with Connection Head									
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting
<u>NTC10K3-C04-03</u>		1.1	\$74.00	<u>PDF</u>	4014 444		4"		Integral 1/2" x 1/2" NPT
<u>NTC10K3-C06-03</u>	1	1.11	\$75.00	PDF	10K-AN Type 3 Thermistor	JK-AN iype 3 1/4" ermistor	6"	-40 to 125° C (-40 to 257° F)	Hex Nipple, 316 SS. Mount in thermowell (see accessories, purchased separately)
<u>NTC10K3-C12-03</u>		1.15	\$77.00	PDF			12"		

Technical Specifications						
Sensing Element	Epoxy Coated NTC Thermistor					
No-Load Resistance	10kΩ at 25°C					
Accuracy	± 0.2°C from 0°C to 70°C					
Probe	ø1/4", 316 stainless steel sheath					
Connection Head	Die-cast aluminum, screw cover with stainless steel chain, compressed graphite gasket, NEMA 4X, IP66, 3/4" NPT conduit opening, Max Temp. 221°F (105°C)					
Sensing Element Response Time	Approximately 1 second*					
Wiring	24 inches of PVC cable inside cover with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information





# **Probes with Connection Head -**Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>TW04-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$36.00
<u>TW04-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$36.00
<u>TW04-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$45.00
<u>TW04-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$45.00
<u>TW06-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$49.50
<u>TW06-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$49.50
<u>TW06-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$57.00
<u>TW06-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$57.00
<u>TW12-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$80.00
<u>TW12-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$80.00
<u>TW12-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$98.00
<u>TW12-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$98.00

See end of section for full listing of accessories and dimension information.

## Spring-Loaded Probe and Thermowell Assembly Example



- Spring-loaded probe design ensures positive tip contact with the bottom of the thermowell.
- Integral probe hex nipple threads directly into thermowell. No additional probe mounting fittings are required.

# **Dr**Sense 10K-3 Thermistor Spring-Loaded Probes with Hex Nipple

#### NTC10K3-H04L01-02



## **Overview**

- Spring-loaded for positive tip contact in thermowells
- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 stainless steel sheath to protect against harsh environments
- 4", 6", or 12" probe length
- 1/2" x 1/2" NPT hex nipple allows easy replacement of existing probes and connection to a wiring junction box
- Wiring
  - 2 feet of cable provided with 2 inches of 24AWG wire prestripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Spring-Loaded Probes with Hex Nipple									
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting
NTC10K3-H04L01-02		0.28	\$49.00	PDF	10K-AN		4"		Integral 1/2" x 1/2"
<u>NTC10K3-H06L01-02</u>	1	0.30	\$50.00	PDF	Туре 3	1/4"	6"	-40 to 125° C (-40 to 257° F)	NPT Hex Nipple,
NTC10K3-H12L01-02		0.35	\$52.00	PDF	Thermistor		12"		316 SS

Technical Specifications						
Sensing Element	Epoxy Coated NTC Thermistor					
No-Load Resistance	10kΩ at 25°C					
Accuracy	± 0.2°C from 0°C to 70°C					
Probe	ø1/4", 316 stainless steel sheath					
Sensing Element Response Time	Approximately 1 second*					
Wiring	24 inches of PVC cable inside cover with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: See end of section for thermowells to fit these units.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information



No polarity

## Accessories

	Part No.	Description	Pcs/Pkg	Price				
9	<u>CHSC-AL-1</u>	ProSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 inch NPT process opening, 3/4 inch NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature rating of 825°F (440°C). Order probe and terminal base separately.	1	\$24.50				
~~~ <sup>0</sup>	Note: Full listing of accessories available at the end of this section.							

CHSC-AL-1

www.automationdirect.com

# Sense 10K-3 Thermistor Probes with Hex Nipple

#### NTC10K3-H06L01-01



## Overview

- NTC 10k Thermistor Type 3
- $1/4^{\prime\prime}$  diameter, 316 sealed stainless steel sheath to protect against harsh environments
- 6", 12", or 18" probe length
- 1/2" x 1/2" NPT hex nipple allows easy replacement of existing probes and connection to a wiring junction box
- Wiring
  - 2 feet of cable provided with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Probes with Hex Nipple									
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting
NTC10K3-H06L01-01		0.31	\$48.50	PDF	10K-AN		6"		Integral 1/2" x 1/2"
<u>NTC10K3-H12L01-01</u>	1	0.37	\$51.00	PDF	Type 3	1/4"	12"	-40 to 125° C (-40 to 257° F)	NPT Hex Nipple,
<u>NTC10K3-H18L01-01</u>		0.42	\$53.50	PDF	Thermistor		18"	(40 10 207 1)	316 SS

Technical Specifications					
Sensing Element	Epoxy Coated NTC Thermistor				
No-Load Resistance	10kΩ at 25°C				
Accuracy	± 0.2°C from 0°C to 70°C				
Probe	ø1/4", 316 stainless steel sheath				
Minimum Installation Depth	3" (76 mm)				
Sensing Element Response Time	Approximately 1 second*				
Wiring	24 inches of PVC cable inside cover with 2 inches of 24AWG wire stripped and tinned				

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information



• No polarity

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>CHSC-AL-1</u>	ProSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 inch NPT process opening, 3/4 inch NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature rating of 825°F (440°C). Order probe and terminal base separately.	1	\$24.50
Note: Full listing of a	terminal base separately.		

CHSC-AL-1

# **Probes with Junction Box**

#### NTC10K3-JB04-03



#### Note: Full probe length not shown in photo

### **Overview**

#### Probe

- Spring-loaded for positive tip contact in thermowells
- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 4", 6" or 12" probe length
- 2" X 4" Junction Box
  - Nine, 1/2" knockouts for conduit and other connections
- Easy install cover with two screws to keep cover securely closed
- Wiring
  - 2 feet of cable provided with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



		10K-3	Thermis	stor Spr	ing-Loa	aded Probes with	Junction	Box	
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting
<u>NTC10K3-JB04-03</u>		0.86	\$62.00	PDF			4"		Integral 1/2" x 1/2" NPT
<u>NTC10K3-JB06-03</u>	1	0.89	\$63.00	PDF	— 10K-AN Type 3 — Thermistor	1/4"	6"	-40 to 125° C (-40 to 257° F)	Hex Nipple, 316 SS. Mount in thermowell (see accessories, purchased separately)
<u>NTC10K3-JB12-03</u>		0.92	\$65.50	PDF			12"		

Technical Specifications						
Sensing Element	Epoxy Coated NTC Thermistor					
No-Load Resistance         10kΩ at 25°C						
Accuracy	± 0.2°C from 0°C to 70°C					
Probe	ø1/4", 316 stainless steel sheath					
Junction Box	2" X 4" galvanized steel junction box with multiple conduit openings, Max Temp. 221°F (105°C)					
Sensing Element Response Time	Approximately 1 second*					
Wiring	24 inches of PVC cable inside cover with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information



No polarity

# **Probe with Junction Box - Accessories**

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>TW04-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter, for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$36.00
<u>TW04-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$36.00
<u>TW04-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$45.00
<u>TW04-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 4-1/4 inch overall length with 0.260 inch bore diameter for use with 4-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 2-1/2 inch insertion length	1	\$45.00
<u>TW06-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$49.50
<u>TW06-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$49.50
<u>TW06-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$57.00
<u>TW06-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 6-1/4 inch overall length with 0.260 inch bore diameter for use with 6-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 4-1/2 inch insertion length	1	\$57.00
<u>TW12-01</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 304 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$80.00
<u>TW12-02</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 304 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$80.00
<u>TW12-03</u>	Standard duty threaded thermowell with 1/2 inch NPT male process threads, 316 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$98.00
<u>TW12-04</u>	Standard duty threaded thermowell with 3/4 inch NPT male process threads, 316 stainless steel, 12-1/4 inch overall length with 0.260 inch bore diameter for use with 12-inch long, 1/4 inch diameter spring loaded probes with 1/2 inch NPT threaded fitting, 10-1/2 inch insertion length	1	\$98.00

See end of section for full listing of accessories and dimension information.

## Thermowells



# **Dr**Sense 10K-3 Thermistor Probes with Junction Box

#### <u>NTC10K3-JB06-01</u>

#### <u>NTC10K3-JB06-02</u>



Note: Full probe length not shown in photos

### Overview

#### Probe

- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 SS sealed sheath to protect against harsh environments
- 6", 12" or 18" probe length
- 2" X 4" Junction Box
- Nine, 1/2" knockouts for conduit and other connections
- Easy install cover with two screws to keep cover securely closed
- Wiring
- 2 feet of cable provided with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Probes with Junction Box													
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting				
<u>NTC10K3-JB06-01</u>		0.89	\$57.00	PDF			6"		Integral 1/2" x 1/2" NPT				
<u>NTC10K3-JB12-01</u>		0.96	).96 \$59.50	PDF	10K-AN Type 3 Thermistor	10K-AN Type 3	10K-AN Type 3	10K-AN Type 3			12"		Hex Nipple,
<u>NTC10K3-JB18-01</u>	1	1.0	\$62.00	PDF					1//"	18"	-40 to 125° C	316 SS	
<u>NTC10K3-JB06-02</u>	I	0.81	\$51.50	PDF		1/4	6"	(-40 to 257° F)	ProSense compression				
<u>NTC10K3-JB12-02</u>		0.86	\$53.50	PDF				12"		fitting (see accessories			
<u>NTC10K3-JB18-02</u>		0.93	\$56.00	PDF			18"		<ul> <li>purchased separately)</li> </ul>				

Technical Specifications						
Sensing Element	Epoxy Coated NTC Thermistor					
No-Load Resistance	10kΩ at 25°C					
Accuracy	± 0.2°C from 0°C to 70°C					
Probe	ø1/4", 316 stainless steel sheath					
Minimum Installation Depth	3" (76 mm)					
Junction Box	2" X 4" galvanized steel junction box with multiple conduit openings, max temp. 221°F (105°C)					
Sensing Element Response Time	Approximately 1 second*					
Wiring	24 inches of PVC cable inside cover with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

# **Propense** 10K-3 Thermistor Probes with Junction Box

## Wiring Information



• no polarity

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75

See end of section for full listing of accessories and dimension information.

1-800-633-0405

# **Pr**Sense 10K-3 Thermistor Probes with Attached Plug

#### <u>NTC10K3-P06-02</u>



## Overview

- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 stainless steel sheath to protect against harsh environments
- 6", 12", or 18" probe length
- Attached 2-pin plug for quick and easy wiring connections
- Made in the USA



10K-3 Thermistor Probes with Attached Plug											
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting	Attached Plug Size	Mating Jack
NTC10K3-P06-02		0.1	\$33.00	PDF	101/ 41		6"	-40 to 125° C	ProSense		NTC S L (200
NTC10K3-P12-02	1	0.14	\$36.25	PDF	Type 3	1/4"	12"	(-40 to 257° F)	(see accessories,	Standard	accessories, sold
<u>NTC10K3-P18-02</u>		0.18	\$40.50	PDF	Thermistor		18"	(204°C)	purchased separately)	SIZE, Z-PIII	separately)

Technical Specifications					
Sensing Element	Epoxy Coated NTC Thermistor				
No-Load Resistance	10kΩ at 25°C				
Accuracy	± 0.2°C from 0°C to 70°C				
Probe	ø1/4", 316 stainless steel sheath				
Minimum Installation Depth	3" (76 mm)				
Sensing Element Response Time	Approximately 1 second*				
Wiring	Attached 2-pin standard size plug (mating jack sold separately, see accessories)				

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information



No polarity

## Or Sense 10K-3 Thermistor Probes with **Attached Plug - Accessories**

## **Accessories**

Part No.	Description	Pcs/Pkg	Price
BCF14-125N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
BCF14-50N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes,1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon ™ ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75
<u>NTC-SJ</u>	ProSense 2-pin thermistor connector, standard round pin jack, 400 deg F (200 deg C), glass filled thermoplastic body, white, copper pins, 32 AWG to 14 AWG wire size range.	1	\$6.75
WCB-S	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors	4	\$12.00

See end of section for full listing of accessories and dimension information.

\* Working pressure of compression fitting should not exceed 500 psi. However, we

recommend any pressure application use a thermowell.



**BCF14-50N** 



Brass Compression Fittings



# **Pr**Sense 10K-3 Thermistor Probes with Lead Wire Transition

#### NTC10K3-T06L06-02



## Overview

- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 stainless steel sheath to protect against harsh
- environments
- 6", 12", or 18" probe length
- 4 point crimp and sleeve transition to PVC cable
- 6-foot cable with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Probes with Lead Wire Transition									
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Temperature Sensing Range	Mounting
NTC10K3-T06L06-02		0.11	\$33.50	PDF			6"		ProSense
<u>NTC10K3-T12L06-02</u>	1	0.16	\$37.00	PDF	Type 3	1/4"	12"	-40 to 125° C	(see accessories
<u>NTC10K3-T18L06-02</u>		0.20	\$40.50	PDF	Thermistor		18"	(-40 to 257° F)	purchased separately)

Technical Specifications					
Sensing Element	Epoxy Coated NTC Thermistor				
No-Load Resistance	10kΩ at 25°C				
Accuracy	± 0.2°C from 0°C to 70°C				
Probe	ø1/4", 316 stainless steel sheath				
Minimum Installation Depth	3" (76 mm)				
Sensing Element Response Time	Approximately 1 second*				
Wiring	72 inches of PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned				

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information



• No polarity

## **DYSense** 10K-3 Thermistor Probes with Lead Wire Transition - Accessories

## Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon™ ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75

See end of section for full listing of accessories and dimension information.

\* Working pressure of compression fitting should not exceed 500 psi. However, we recommend any

pressure application use a thermowell.



# Sense 10K-3 Thermistor Flange Mount Probes

#### NTC10K3-F06L06-01



## **Overview**

- Ideal for use with freezers, ducts, or anywhere through the wall temperature sensing is required.
- NTC 10k Thermistor Type 3
- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 6", 12", or 18" probe lengths
- Mounting is accomplished using the conveniently attached round mounting flange
- 6-foot cable with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Flange Mount Probes									
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Insertion Length	Probe Material	Temperature Sensing Range	Mounting
<u>NTC10K3-F06L06-01</u>	1	0.12	\$37.50	PDF	10K-AN	6"			1" diameter 1/16" thick 304 stainless
<u>NTC10K3-F12L06-01</u>	1	0.17	\$40.00	PDF	Type 3	12"	316 stainless steel	-40 to 125° C (-40 to 257° F)	steel flange (2x -
<u>NTC10K3-F18L06-01</u>	1	0.22	\$43.00	PDF	Inermistor	18"			holes 0.75" spacing)

Technical Specifications					
Sensing Element	Epoxy Coated NTC Thermistor				
No-Load Resistance	10kΩ at 25°C				
Accuracy	± 0.2°C from 0°C to 70°C				
Probe	1/4" O.D., 316 stainless steel sheath				
Minimum Installation Depth	3" (76mm)				
Probe Minimum Bend Radius	Not bendable				
Sensing Element Response Time	Approximately 1 second*				
Wiring	72 inches of PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned				

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

See end of section for full listing of accessories and dimension information.

## Wiring Information



No polarity

## Sense 10K-3 Thermistor Threaded Bolt **Sensors**



#### **Overview**

- Easily add temperature measurement of surfaces that can be drilled and tapped
- The small size of this sensor makes it ideal for other general areas of use, such as mounting in bearing housings, sealing bars, heat plates, and other space-limited applications
- NTC 10k Thermistor Type 3
- 1/4-28 UNF threaded stainless steel rotating bolt allows for easy installation
- 6-foot cable with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- · Made in the USA



NTC10K3-N38P14-01

10K-3 Thermistor Threaded Bolt Sensors							
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Bolt	Temperature Sensing Range
<u>NTC10K3-N38P14-01</u>	1	0.08	\$37.00	<u>PDF</u>	10K-AN Type 3 Thermistor	1/4-28 x 3/8" SS - Rotating Bolt	-40 to 125° C (-40 to 257° F)

Technical Specifications						
Sensing Element Epoxy Coated NTC Thermistor						
No-Load Resistance	10kΩ at 25°C					
Accuracy	± 0.2°C from 0°C to 70°C					
Sensing Element Response Time	Approximately 1 second*					
Wiring	72 inches of PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

See end of section for full listing of accessories and dimension information.

## Wiring Information



No polarity

# **Of Sense** 10K-3 Thermistor Bolt-On Ring Sensors



## **Overview**

- Ideal for many surface mount sensing applications
- NTC 10k Thermistor Type 3
- Brass ring construction
- 6-foot cable with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Bolt-On Ring Sensors								
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Ring Material	Temperature Sensing Range	Mounting
NTC10K3-B01L06-02	1	0.08	\$43.00	PDF	10K-AN		-40 to 125° C (-40 to 257° F)	Bolt on #6-#10 (4mm- 5mm) screw or bolt size
NTC10K3-B02L06-02	1	0.1	\$43.00	PDF	Type 3 Thermistor	Brass		Bolt on #12, 1/4 to 5/16 inch (5mm - 8mm) screw or bolt size

Technical Specifications						
Sensing Element Epoxy Coated NTC Thermistor						
o-Load Resistance 10kΩ at 25°C						
Accuracy	± 0.2°C from 0°C to 70°C					
Sensing Element Response Time	nse Time Approximately 1 second*					
Wiring	72 inches of PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

See end of section for full listing of accessories and dimension information.

## Wiring Information



• No polarity

## **Probe** 10K-3 Thermistor Cuttable Length Probe



### **Overview**

• NTC 10k Thermistor Type 3

- 1/4" diameter, 316 SS sheath to protect against harsh environments
- 24" probe length can be cut using an ordinary tubing cutter to adapt to the application
- Mounting is accomplished using a variety of ProSense compression fittings
- $\bullet$  2-foot PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned.
- Made in the USA



10K-3 Thermistor Cuttable Length Probe										
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Probe Diameter (O.D.)	Probe Length	Probe Material	Temperature Sensing Range	Mounting
<u>NTC10K3-V24L06-01</u>	1	0.22	\$39.25	PDF	10K-AN Type 3 Thermistor	1/4"	24" (4" minimum cut length)	316 stainless steel	-40 to 125° C (-40 to 257° F)	ProSense compression fitting(see accessories purchased separately)

Technical Specifications						
Sensing Element	Epoxy Coated NTC Thermistor					
No-Load Resistance	10kΩ at 25°C					
Accuracy	± 0.2°C from 0°C to 70°C					
Probe	1/4" O.D., 316 stainless steel sheath					
Minimum Installation Depth	3" (76mm)					
Probe Minimum Bend Radius	Not bendable					
Sensing Element Response Time	Approximately 1 second*					
Wiring	24 inches of PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned					

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

## Wiring Information



No polarity

## **Cutting Instructions**

- 1. Remove the plastic retainer mounted to the top of outer metal tube.
- 2. Remove the inner sensing element and wires to prevent possible damage while cutting.
- 3. Cut the tube to the desired length and remove all burrs or sharp edges.
- 4. Reinstall the sensing element and plastic retainer.
- Note: Ensure sensing element is fully seated at the base of the outer tube. If outer tube is compressed during installation, it may not be possible to remove the sensing element.
# **Probe - Accessories**

#### Accessories

Part No.	Description	Pcs/Pkg	Price
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$3.25
<u>BCF14-25N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$4.25
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$6.50
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	\$8.00
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	\$9.25
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	\$14.00
<u>CFTF-14</u>	Teflon™ ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	\$7.75

See end of section for full listing of accessories and dimension information.

\* Working pressure of compression fitting should not exceed 500 psi. However, we recommend any

pressure application use a thermowell.



<u>CF14-50N</u>





<u>CF14-25N</u>

et fit summer

<u>CF14-125N</u>

Stainless Steel Compression Fittings

<u>BCF14-50N</u>

<u>BCF14-25N</u>

BCF14-125N







Brass Compression Fittings

# **Dr**Sense 10K-3 Thermistor Bead Sensor



#### **Overview**

- Miniature sensor adaptable to restricted space applications
- NTC 10k Thermistor Type 3
- 6-foot cable with 2 inches of 24AWG wire pre-stripped 1/4 inch and tinned
- Made in the USA



10K-3 Thermistor Bead Sensor							
Part Number Pcs/Pkg Wt (Ib) Price Drawing Link Type Bead Material Temperature Sensing Range							Temperature Sensing Range
<u>NTC10K3-BR01L06-01</u>	1	0.07	\$23.50	PDF	10K-AN Type 3 Thermistor	Polyolefin inside melt heat shrink	-40 to 125° C (-40 to 257° F)

Technical Specifications					
Sensing Element Epoxy Coated NTC Thermistor					
No-Load Resistance 10kΩ at 25°C					
Accuracy	± 0.2°C from 0°C to 70°C				
Sensing Element Response Time	Approximately 1 second*				
Wiring	72 inches of PVC cable with 2 inches of 24 AWG wire stripped 1/4 inch and tinned				

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

Note: Check the chemical compatibility of the sensor's wetted parts with the medium to be measured.

See end of section for full listing of accessories and dimension information.

### Wiring Information



No polarity

# **Dr**Sense<sup>®</sup> 10K-3 Thermistor Spade Sensor



#### **Overview**

- Ideal for surface temperature measurement.
- NTC 10k Thermistor Type 3 element sealed in epoxy between two layers of polyimide tape.
- Provided with an adhesive backing for easy attachment to many surfaces.
- Can be formed and secured to the outside of various size tubes, pipes, or nozzles.
- 6-foot PVC 24 lead wires stripped and tinned.
- Made in the USA



10K-3 Thermistor Spade Sensors							
Part Number	Pcs/Pkg	Wt (lb)	Price	Drawing Link	Туре	Spade Material	Temperature Sensing Range
<u>NTC10K3-S02L06-01</u>	1	0.07	\$38.00	<u>PDF</u>	10K-AN Type 3 Thermistor	Polyimide w/ adhesive back	-40 to 125° C (-40 to 257° F)

Technical Specifications					
Sensing Element Epoxy Coated NTC Thermistor					
No-Load Resistance	10kΩ at 25°C				
Accuracy	± 0.2°C from 0°C to 70°C				
Sensing Element Response Time	Approximately 1 second*				
Wiring	72 inches of PVC cable with 2 inches of 24AWG wire stripped 1/4 inch and tinned				

\* The sensing element has an approximate response time of 1 second in a well stirred liquid bath. Different constructions will have different thermal responses.

See end of section for full listing of accessories and dimension information.

### Wiring Information



• No polarity

## Sense Temperature Transmitters -Head Mounted



ХТН

#### Features - Non-programmable Models

- Sensor Types:
- Models for thermocouple Types J, K, or T
- Select from a variety of pre-configured measuring ranges
- Internal cold junction compensation for thermocouple input models
- Transmitter is powered by 8-35 VDC and is reverse- polarity protected
- Output is linearized 2-wire 4-20mA current loop
- Up scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
- Mounts in ProSense connection head or any DIN Form B sensor head
- 2 kVAC isolation between input and output



ProSens	ProSense Head Mounted Temperature Transmitters							
Part Number	Input Type	Fixed Measuring Range	Pcs/Pkg	Wt(lb)	Price			
<u>XTH-0100F-J</u>		0 to 100°F (-17.8 to 37.8°C)	1	0.09	\$97.00			
<u>XTH-0200F-J</u>		0 to 200°F (-17.8 to 93.3°C)	1	0.09	\$97.00			
<u>XTH-0300F-J</u>	thermocouple	0 to 300°F (-17.8 to 148.9°C)	1	0.09	\$97.00			
<u>XTH-0500F-J</u>	Monograph 175,	0 to 500°F (-17.8 to 260°C)	1	0.09	\$97.00			
<u>XTH-0800F-J</u>	IEC584)	0 to 800°F (-17.8 to 426.7°C)	1	0.09	\$97.00			
<u>XTH-01000F-J</u>		0 to 1000°F (-17.8 to 537.8°C)	1	0.09	\$97.00			
<u>XTH-0100F-K</u>		0 to 100°F (-17.8 to 37.8°C)	1	0.09	\$97.00			
<u>XTH-0200F-K</u>		0 to 200°F (-17.8 to 93.3°C)	1	0.09	\$97.00			
<u>XTH-0300F-K</u>	Turne K	0 to 300°F (-17.8 to 148.9°C)	1	0.09	\$97.00			
<u>XTH-0500F-K</u>	thermocouple	0 to 500°F (-17.8 to 260°C)	1	0.09	\$97.00			
<u>XTH-0800F-K</u>	Monograph 175,	0 to 800°F (-17.8 to 426.7°C)	1	0.09	\$97.00			
<u>XTH-01000F-K</u>	IEC384)	0 to 1000°F (-17.8 to 537.8°C)	1	0.09	\$97.00			
<u>XTH-01500F-K</u>		0 to 1500°F (-17.8 to 815.5°C)	1	0.09	\$97.00			
<u>XTH-02000F-K</u>		0 to 2000°F (-17.8 to 1093.3°C)	1	0.09	\$97.00			
<u>XTH-N2000F-T</u>	Type T	-200 to 0°F (-128.9 to -17.8°C)	1	0.09	\$97.00			
<u>XTH-N100100F-T</u>	(to NIST	-100 to 100°F (-73.3 to 37.8°C)	1	0.09	\$97.00			
<u>XTH-0200F-T</u>	Monograph 175, - IEC584)	0 to 200°F (-17.8 to 93.3°C)	1	0.09	\$97.00			



Click on the thumbnail or go to <u>https://www.automationdirect.com/</u> <u>VID-TE-0002</u> for a short video on DIN Rail Mounted Temperature Transmitters



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1-800-633-0405

## **Pr**Sense Temperature Transmitters -Head Mounted

	ProSense Head Mounted Te	emperature Transmitters	General Specifi	cations		
		XTH (J Series)	XTH (K Series)	XTH (T Series)		
	Output Signal		4-20 mA			
	Signal Transmission	Out	put linear to temperature			
	Fault Signal	Under Over ra Sensor break; sensor short circuit down Sensor break; sensor short	ranging / Standard / 3.8 mA anging / Standard / 20.5 mA scale / To NAMUR NE 43 / m 0-UNV) circuit up scale / To NAMUR	3.6 mA (only applicable to XTH- NE 43 / M21.0 mA		
	Max. Load Impedance	(Vpowersupply- 8V	/) / 0.025 A e.g. (24v-8V)/0.02	5A=640 Ω		
Output	Galvanic Isolation	2	2 kV AC (input/output)			
ouput	Input Current Requirement		≤ 3.5 mA			
	Current Limit		≤ 25 mA			
	Switch on Delay	4 seconds (durin	ng power up output current =	3.8 mA)		
	Response Time		1 second			
	Digital Filter	N/A				
	Power Supply	8 to 35 VDC, polarity protected				
	Allowable Ripple	$\leq$ 5 V with power supply $\geq$ 13; Max. frequency = 1 kHz				
	Reference Conditions	Calibration temperature 73.4°F w 9°F (23°C w 5°C)				
	Maximum Measuring Error	0.9°F (0.5°C) or 0.08%				
Accuracy	Influence of Power Supply	≤ w 0.01%/V deviation from 24 V				
	Load Influence	≤ w 0.02%/100 Ω				
	Long Term Stability	≤ 0.1 K / Year or m 0.05% / Year				
Installation	Orientation		No restrictions			
mstanation	Location	Connection he	ad according to DIN 43 729 F	Form B		
	Ambient	-40	) to 185°F (-40 to 85°C)			
	Storage	-40	to 212°F (-40 to 100°C)			
	Climate Class	As p	er IEC 60 654-1, class C			
Environmental	Ingress Protection	IP00 / IP66	installed in appropriate hous	ing		
	Shock and Vibration	4g / 2 to	150 Hz as per IEC 60 068-2-6	3		
	EMC Immunity		See Table 2			
	Moisture Condensation		Allowable			
Construction	Materials	Housing: Pol	ycarbonate; Potting: Polyuret	hane		
Construction	Terminals	Cable up to max	. 1.75 mm² (16 AWG), secure	screws		
Approvals		CE, UL recognize	ed (UL 3111-1), File # E31136	6, RoHS		

Table 1 - Max	Table 1 - Maximum Measuring Error XTH-0-UNV						
	Туре	Measurement Accuracy*					
Thermocouple TC	K, J, T, E, L, U N, C, D S, B, R	typ. 0.9°F (0.5°C) or 0.08% typ. 1.8°F (1.0°C) or 0.08% typ. 3.6°F (2.0°C) or 0.08%					
	Measurement Range	Measurement Accuracy*					
Resistance Transmitter (Ω)	10 to 400 Ω 10 to 2000 Ω	± 0.1 Ω or 0.08% ± 1.5 Ω or 0.12%					
Voltage Transmitters (mV)	-10 to 100 mV	± 20 μV or 0.08%					

Tabl	e 2 - IEC I	mmunity	
Discharge of Static Electricity	IEC 61000-4-2	6 kV cont., 8 kV air	N/A
Electromagnetic Fields	IEC 61000-4-3	80 to 1000 Hz	10 V/m
Burst (Signal)	IEC 61000-4-4	1 kV; 2 kV (B)**	N/A
Transient Voltage	IEC 61000-4-5	1 kV unsym. / 0.5 kV sym.	N/A
HF Coupling	IEC 61000-4-6	0.15 to 80 MHz	10V

\*\* self recovery

 $^{\ast}$  % is related to the adjusted measurement range. The value to be applied is the greater.

# **Pr**Sense Temperature Transmitters -Head Mounted

#### Wiring

#### XTH J, K & T - Thermocouple Input



#### Dimensions

inches [mm]



#### Load Impedance



### **Application**

ProSense head mounted transmitters can be easily added in the field to a ProSense connection head probe. Just order a pre-assembled ProSense connection head probe and replace the internal terminal block with an XTH series transmitter and included mounting hardware.





### Sense Temperature Transmitters -Head Mounted

#### Features - Non-programmable Models



XTH2

- Sensor Types:Models for RTD Type Pt100 3-wire
- Select from a variety of pre-configured nonprogrammable (fixed) measuring ranges
- Transmitter is powered by 10-36 VDC and is reverse-polarity protected
- Output is linearized 2-wire 4-20mA current loop
- Up scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
- Mounts in ProSense connection head or any DIN Form B sensor head



ProSense Head Mounted Temperature Transmitters							
Part Number	Input Type	Non-programmable (Fixed) Measuring Range	Pcs/Pkg	Wt(lb)	Price	Drawing Link	
<u>XTH2-N40140F-PT1</u>		-40 to 140°F (-40 to 60°C)	1	0.15	\$97.00	PDF	
<u>XTH2-0100F-PT1</u>		0 to 100°F (-17.8 to 37.8°C)	1	0.15	\$97.00	PDF	
<u>XTH2-0200F-PT1</u>	(to IEC 751)	0 to 200°F (-17.8 to 93.3°C)	1	0.15	\$97.00	PDF	
<u>XTH2-0300F-PT1</u>	(a= 0.00385)	0 to 300°F (-17.8 to 148.9°C)	1	0.15	\$97.00	PDF	
<u>XTH2-0500F-PT1</u>		0 to 500°F (-17.8 to 260°C)	1	0.15	\$97.00	PDF	



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Click on the thumbnail or go to <u>https://www.automationdirect.com/VID-TE-0006</u> for a short video on Remote Temperature Sensing



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1-800-633-0405

## **Pr**Sense Temperature Transmitters -Head Mounted

ProSense Head Mounted Temperature Transmitters General Specifications				
		XTH2 (PT1 Series)		
	Output Signal	4-20 mA		
	Signal Transmission	Output linear to temperature		
	Fault Signal	Under ranging / Standard / 3.8 mA Over ranging / Standard / 20.5 mA Sensor break; sensor short circuit upscale / To NAMUR NE 43 / ≤22.5 mA		
	Max. Load Impedance	(Vpowersupply-10V) / 0.0225A (current output) e.g. (24V - 10V) / 0.0225A = 622.2 Ω		
Output	Input Current Requirement	≤ 3.5 mA		
	Current Limit	≤ 22.5 mA		
	Switch on Delay	$\leq$ 5 seconds (during powerup output current = 3.8 mA)		
	Response Time	≤ 0.5 second		
	Digital Filter	N/A		
	Power Supply	10 to 36 VDC, polarity protected		
	Allowable Ripple	$\leq$ 5 V with power supply $\geq$ 13; Max. frequency = 1 kHz		
	Reference Conditions	Calibration temperature 77°F ±5.4°F (+25°C, ±3°C)		
	Maximum Measuring Error	0.15 K or 0.07 % of span*		
Accuracy	Influence of Power Supply	$\leq$ ± 0.01%/V deviation from 24 V		
	Load Influence	$\leq \pm 0.02\% / 100\Omega$		
	Long Term Stability	0.05 K or 0.03% / Year		
Installation	Orientation	No restrictions		
IIISIdIIdiiUII	Location	Connection head according to DIN 43 729 Form B		
	Ambient	-40 to 185°F (-40 to 85°C)		
	Storage	-58 to 212°F (-50 to 100°C)		
	Climate Class	As per IEC 60 654-1, class C1		
Environmental	Ingress Protection	IP00 / IP66 installed in appropriate housing		
	Shock and Vibration	DIN EN 60068-2-27 : 30g, 18ms		
	EMC Immunity	See Table		
	Moisture Condensation	Allowable		
Construction	Materials	Housing: Polycarbonate; Potting: SIL gel; Screw terminals: nickel-plated brass		
Construction	Terminals	Cable up to max. 1.5 mm <sup>2</sup> (16AWG), secure screws		
Approvals		CE, cCSAus, File#: 601711, RoHS		

\* Whichever is higher

IEC Immunity							
Discharge of Static Electricity	IEC 61000-4-2	4kV cont., 8kV air	N/A				
Electromagnetic Fields	IEC 61000-4-3	80MHz - 1GHz with 10V/m 1GHz - 6GHz with 3V/m	10V/m				
Burst (Signal)	IEC 61000-4-4	1kV	N/A				
Transient Voltage	IEC 61000-4-5	1kV unsym.	N/A				
HF Coupling	IEC 61000-4-6	0.15 to 80MHz	3V				

# **Pr**Sense Temperature Transmitters -Head Mounted

### Wiring

XTH2 PT1 - Pt100 3-wire RTD Input



2 Power supply (10 to 36 VDC)

### Application

ProSense head mounted transmitters can be easily added in the field to a ProSense connection head probe. Just order a pre-assembled ProSense connection head probe and replace the internal terminal block with an XTH2 series transmitter and included mounting hardware.



### Load Impedance



### Sense Head Mounted Universal Temperature Transmitters -Programmable

#### Features - Programmable Models

- Sensor Types:
  - Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L, A
    - RTD Types Pt100, Pt200, Pt500, Pt1000, Pt50, Ni100, Ni120, Cu50, Cu100 (2, 3 or 4-wire)
  - Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms (2, 3 or 4-wire)
  - Millivolts -20 to 100 mV
- Measuring range configurable within the full range of the sensor type selected
- Selectable units of °F, °C, K, Ohm and mV
- Choose from internal, external, or user defined fixed value reference junction compensation for thermocouple inputs
- Wire resistance compensation for 2-wire RTDs
- Transmitter is powered by 10-36 VDC and is reversepolarity protected
- Output is linearized 2-wire current loop and can be

configured for 4-20mA or 20-4mA

- Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
- Adjustable digital filter time constant to compensate for undesirable input fluctuations
- Mounts in ProSense connection head probes or any DIN Form B sensor head, XTH2-ENC-F, XTH2-ENC-P, DN-CLIP-FM4-5
- 2 kVAC isolation between input and output
- Quick and easy configuration with Free ProSense Field Device Configurator software and <u>XT-USB</u> cable (purchased separately) – NO decade box, meters, or signal generators needed!



	Head Mounted Universal Temperature Transmitters - Programmable						
Part No.	Description      Pcs/Pkg      Wt (lb)      Drawing Link						
<u>XTH2-0-UNV-S</u>	ProSense programmable temperature transmitter, isolated, Input: 1-channel, RTD/ thermocouple/voltage/potentiometer, deg F or deg C, Output: 1-channel, current, 10-36 VDC operating voltage, DIN Form B connection head mount, screw terminals.	1	0.20	<u>PDF</u>	\$124.00		
<u>XTH2-0-UNV-P</u>	ProSense programmable temperature transmitter, isolated, Input: 1-channel, RTD/ thermocouple/voltage/potentiometer, deg F or deg C, Output: 1-channel, current, 10-36 VDC operating voltage, DIN Form B connection head mount, push-in terminals.	1	0.40	PDF	\$124.00		



Scan the QR Code above or click to view the XTH2 Series product insert.



<u>XTH2-0-UNV-S</u>



#### <u>XTH2-0-UNV-P</u>

# **Pr**Sense Head Mounted Universal Temperature Transmitters -Programmable

	Head Mounted Universal Temperature Transmitters - Programmable General Specifications				
	Input Type	Programmable Measuring Range Limits	Min. Span		
	Pt100 RTD Pt200 RTD Pt500 RTD Pt1000 RTD (to IEC 751) a=0.003851)	-328 to 1562°F (-200 to 850°C) -328 to 1562°F (-200 to 850°C) -328 to 932°F (-200 to 500°C) -328 to 482°F (-200 to 250°C)	18°F (10°C)		
	Pt100 RTD (to JIS C1604) (a=0.0039)	-328 to 950°F (-200 to 510°C)	18°F (10°C)		
Inputs	Ni100 RTD Ni120 RTD (to DIN 43760) (a=0.006180)	-76 to 482°F (-60 to 250°C)	18°F (10°C)		
	Ni100 RTD Ni120 RTD (to OIML, GOST) (a=0.006170)	-76 to 356°F (-60 to 180°C)	18°F (10°C)		
	Pt50 RTD Pt100 RTD (to GOST) (a=0.00390)	-301 to 2012°F (-185 to 1100°C) -328 to 1562°F (-200 to 850°C)	18°F (10°C)		
	Pt100 (Callendar van Dusen) Nickel polynomial Copper polynomial	The measuring range limits are specified by entering the limit values that depend on the coefficients A to C and R0.	18°F (10°C)		
	Cu50 RTD Cu100 RTD (to OMIL, GOST) (a=0.004280)	-292 to 392°F (-180 to 200°C)	18°F (10°C)		
	Cu50 RTD (to OMIL, GOST) (a=0.004260)	-58 to 392°F (-50 to 200°C)	18°F (10°C)		

# **Pr**Sense Head Mounted Universal Temperature Transmitters -Programmable

Head Mounted Universal Temperature Transmitters - Programmable General Specifications						
	Input Type	Programmable Measuring Range Limits	Min. Span			
Inputs	RTDs: • Connection type: 2-, 3-, or 4-wire connection • Software compensation of cable resistance possible in the 2 wire system • Sensor cable resistance max. 50Ω per cable in the 3 and 4 wire system • Sensor current: ≤ 0.3mA					
	Resistance $\Omega$	10 to 400 Ω 10 to 2000 Ω	10 Ω			
	Thermocouples: Type A Type B Type E Type J Type K Type N Type R Type R Type S Type T (to 60584, Part 1)	32 to 4532°F (0 to +2500°C) 104 to 3308°F (40 to +1820°C) -482 to 1832°F (-250 to +1000°C) -346 to 2192°F (-210 to +1200°C) -454 to 2501°F (-270 to +1372°C) -454 to 2372°F (-270 to +1300°C) -58 to 3214°F (-50 to +1768°C) -328 to 752°F (-200 to +400°C)	90°F (50°C)			
	Thermocouples: Type C Type D (to ASTM E988)	32 to 4199°F (0 to +2315°C) 32 to 4199°F (0 to +2315°C)	90°F (50°C)			
	Thermocouples: Type L Type U (to DIN 43710)	-328 to 1652°F (-200 to +900°C) -328 to 1112°F (-200 to +600°C)	90°F (50°C)			
	Thermocouple: Type L (to GOST)	-328 to 1472°F (-200 to +800°C)	90°F (50°C)			
	• Internal cold jur (If the ser	Thermocouples: • Internal cold junction (Pt100) or external programmable fixed value, -40 to 185°F (-40 to 85°C) • Accuracy of cold junction: ± 1.8°F (1°C) • Sensor current: 30nA • Maximum sensor wire resistance 10kΩ (If the sensor wire resistance is greater than 10 kΩ, an error message is output in accordance with NAMUR NE89.)				
	Millivolt (mV)	-20 to 100 mV	5 mV			

1-800-633-0405

### **Pr**Sense Head Mounted Universal Temperature Transmitters -Programmable

Head Mounted Universal Temperature Transmitters - Programmable				
General Specifications Cont.				
	Output Signal	4-20 mA, 20-4 mA		
	Signal Transmission	Quitout linear to temperature		
		Linder ranging / Standard / 3.8 mA		
	Fault Signal	Over ranging / Standard / 305 mA Over ranging / Standard / 20.5 mA Sensor failure: sensor short-circuit / To NAMUB NE43 / $\leq$ 3.6 mA (low) or $\geq$ 21 to 23 mA (high)		
	Max Load Impedance	$(V_{\text{powersupply}} = 10V) / 0.023 \text{ A e g} (24y-10V) /$		
Autout	Galvanic Isolation	2 kV AC (input/output)		
ouipui	Input Current Requirement	≤ 3.5 mA		
	Current Limit	≤ 23 mA		
	Switch on Delay	≤ 7 seconds (during power up output current = 3.8 mA)		
	Response Time	1 second		
	Digital Filter	0 to 120 seconds (programmable)		
	Power Supply	10 to 36 VDC, polarity protected		
	Reference Conditions	Calibration temperature 77°F ±5.4 °F (25°C)		
	Maximum Measuring Error	See Table 1		
Accuracy	Influence of Power Supply	$\leq \pm 0.01\%$ /V deviation from 24 V		
	Load Influence	≤ ± 0.02%/100 Ω		
	Long Term Stability	$\leq$ 0.1 K / Year or ± 0.05% / Year		
Installation	Orientation	No restrictions		
mstanation	Location	Connection head according to DIN 43 729 Form B		
	Ambient	-40 to 185°F (-40 to 85°C)		
	Storage	-58 to 212°F (-58 to 100°C)		
	Climate Class	As per IEC 60 654-1, class C1		
Environmental	Ingress Protection	IP00 with screw terminals, IP30 with push-in terminals/ IP66/68 when installed in NEMA Type 4x enclosure.		
	Shock and Vibration	4g / 2 to 100 Hz (increased vibration stress) as per DNVGL-CG-0339 : 2015 and DIN EN 60068-2-27. Shock resistance as per KTA 3505 (section 5.8.4 Shock test)		
	EMC Immunity	See Table 2		
	Moisture Condensation	Permitted		
Construction	Materials	Housing: Polycarbonate (PC); Potting: QSIL 553		
o on our de li On	Terminals	Cable up to max. 1.75 mm <sup>2</sup> (16 AWG), secure screws		
Approvals		CE, CSA, RoHS		

Table 1	- Maximum Measuring Error			
	Туре	Measurement Accuracy*		
Resistance Thermometer (RTD)	Pt100 Pt1000	0.18°F (0.10°C) 0.14°F (0.08°C)		
Thermocouple TC	K J T	1.15°F (0.64°C) 0.98°F (0.54°C) 0.95°F (0.53°C)		
	Measurement Range	Measurement Accuracy*		
Resistance Transmitter (Ω)	10 to 400 Ω 10 to 2000 Ω	120.7 mΩ 623.4 mΩ		
Voltage Transmitters (mV)	-20 to 100 mV	37.36 μV		

Table 2 - IEC Immunity				
Discharge of Static Electricity	IEC 61000-4-2	6 kV cont., 8 kV air	N/A	
Electromagnetic Fields	IEC 61000-4-3	0.08 to 2.7 GHz	10 V/m	
Burst (Signal)	IEC 61000-4-4	1 kV; 2 kV (B)**	N/A	
Transient Voltage	IEC 61000-4-5	1 kV unsym.	N/A	
HF Coupling	IEC 61000-4-6	0.15 to 80 MHz	10V	

\*\* self recovery

\* Maximum measured error for the specified measuring range. Note: For less common types see manual. 1-800-633-0405

### Sense Head Mounted Universal **Temperature Transmitters -**Programmable

### Wiring



1130 Ω G .oad Operating Region U 10 V 36 V Supply Voltage (VDC) RLmax = (Vpowersupply-10V) / 0.023A (current

Load Impedance

output) e.g. (24V - 10V) / 0.023A = 608.7 Ω

Configuration Cable interface

Note: In the event of a thermocouple (TC) measurement, a 2-wire Pt100 RTD can be connected to measure the reference junction temperature. This is connected to terminals 4 and 6.

### **Dimensions**

#### inches [mm]



Head transmitter version with screw terminals. Dimensions in mm (in)

- A Spring travel L ≥ 5 mm (not for US M4 securing screws)
- B Mounting elements for attachable measured value display
- C Interface for contacting measured value display
- H The height of housing H varies depending on the terminal version: screw terminals = 24.1 mm (0.95 in) push-in terminals = 29.1 mm (1.15 in)

### **Application**

ProSense head mounted transmitters can be easily added in the field to a ProSense connection head probe. Just order a pre-assembled ProSense connection head probe and replace the internal terminal block with an XTH series transmitter and included mounting hardware.





Pre-Assembled ProSense Connection Head Temperature Probe

XTH2 Series Transmitter

### **Pr**Sense Head Mounted Universal Temperature Transmitters -Programmable Accessories

The **XTH2-UNV-DISP** is a convenient, easy to use display accessory for the XTH2 temperature transmitters. Simply clip the display on the XTH2 transmitter to get a digital readout of the transmitter scaled output. Transmitter configuration parameters are automatically read by the XTH2-UNV-DISP, so no additional configuration is required. A DIP switch setting is available to rotate the display reading 180 degrees.

The **XTH2-ENC-F** is a rugged aluminum NEMA 4X, IP66/68 rated field mount housing for the XTH2 temperature transmitters. The housing is designed to accommodate both the XTH2 transmitter and the XTH2-UNV-DISP, and includes a window to view the display reading from outside the housing. Two 1/2" female NPT ports are available for wiring access. The XHT2-ENC-F can be wall mounted using the XTH2-ENC-BKT1 wall mount bracket or pipe mounted using the XTH2-ENC-BKT2 pipe mount bracket.

The **XTH2-ENC-P** is a rugged aluminum NEMA 4X, IP66/68 rated probe connection head housing for the XTH2 temperature transmitters. The housing is designed to accommodate both the XTH2 transmitter and the XTH2-UNV-DISP, and includes a window to view the display reading from outside the housing. One 1/2" female NPT port is available for a temperature probe and another 1/2" female NPT port for wiring access.

For a low cost DIN rail mounted temperature transmitter with or without a display, the DN-CLIP-FM4-5 DIN rail clip can be used with the XTH2 transmitter and XTH2-UNV-DISP. Use the mounting hardware provided with the XTH2 temperature transmitter to attach two DN-CLIP-FM4-5 clips to the XTH2 transmitter and secure the assembly to DIN rail in a panel as shown in the image below.



Temperature transmitter, display, DIN rail, and DIN rail clips purchased separately.



Note: Purchase XTH2-UNV-DISP separately

Head Mounted Universal Temperature Transmitters - Programmable Accessories						
Part No.	Description	Pcs/Pkg	Wt (lb)	Drawing Link	Price	
<u>XTH2-UNV-DISP</u>	ProSense display, polycarbonate. For use with programmable temperature transmitter XTH2- 0-UNV-S and XTH2-0-UNV-P.	1	0.10	<u>PDF</u>	\$85.00	
<u>XTH2-ENC-F</u>	ProSense field housing, (2) 1/2in female NPT, -40 to +212 degrees F (-40 to 100 degrees C), aluminum, NEMA 4X, IP66 IP68. For use with programmable temperature transmitter XTH2-0-UNV-S and XTH2-0-UNV-P.	1	1.65	PDF	\$68.00	
<u>XTH2-ENC-P</u>	ProSense connection head, 1/2in female NPT probe connection, 1/2in female NPT, -40 to +212 degrees F (-40 to 100 degrees C), aluminum, NEMA 4X, IP66 IP68. For use with programmable temperature transmitter XTH2-0-UNV-S and XTH2-0-UNV-P.	1	1.65	PDF	\$68.00	
<u>XTH2-ENC-BKT1</u>	ProSense wall mount bracket, 316L stainless steel. For use with field housing XTH2-ENC-F. Mounting hardware included.	1	0.22	PDF	\$23.50	
<u>XTH2-ENC-BKT2</u>	ProSense pipe mount bracket, 316L stainless steel. For use with field housing XTH2-ENC-F. Mounting hardware included.	1	0.60	PDF	\$46.00	

## **Pr**Sense Temperature Transmitters -DIN Rail Mounted



Features - Non-programmable Models

- Sensor Types:
- Models for thermocouple Types J, K, or T
- Models for RTD Type Pt100 3-wire
- Select from a variety of pre-configured measuring ranges
- Internal cold junction compensation for thermocouple input models
- Transmitter is powered by 12-35 VDC and is reverse-polarity protected
- Output is linearized 2-wire 4-20mA current loop

XTD

- Up scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
  - Mounts on 35mm DIN rail in a control panel
  - 2 kVAC isolation between input and output



ProSense DI	N Rail Mou	nted Temperature Trar	nsmitte	r Serie	S
Part Number	Input Type	Range	Pcs/Pkg	Wt(lb)	Price
<u>XTD-N40140F-PT1</u>		-40 to 140°F (-40 to 60°C)	1	0.2	\$123.00
<u>XTD-0100F-PT1</u>		0 to 100°F (-17.8 to 37.8°C)	1	0.2	\$123.00
<u>XTD-0200F-PT1</u>	(to IEC 751)	0 to 200°F (-17.8 to 93.3°C)	1	0.2	\$123.00
<u>XTD-0300F-PT1</u>	(a= 0.00385)	0 to 300°F (-17.8 to 148.9°C)	1	0.2	\$123.00
<u>XTD-0500F-PT1</u>		0 to 500°F (-17.8 to 260°C)	1	0.2	\$123.00
<u>XTD-0100F-J</u>		0 to 100°F (-17.8 to 37.8°C)	1	0.2	\$123.00
<u>XTD-0200F-J</u>		0 to 200°F (-17.8 to 93.3°C)	1	0.2	\$123.00
<u>XTD-0300F-J</u>	J thermocouple (to NIST	0 to 300°F (-17.8 to 148.9°C)	1	0.2	\$123.00
<u>XTD-0500F-J</u>	Monograph 175, IEC584)	0 to 500°F (-17.8 to 260°C)	1	0.2	\$123.00
<u>XTD-0800F-J</u>	]	0 to 800°F (-17.8 to 426.7°C)	1	0.2	\$123.00
<u>XTD-01000F-J</u>		0 to 1000°F (-17.8 to 537.8°C)	1	0.2	\$123.00
<u>XTD-0100F-K</u>		0 to 100°F (-17.8 to 37.8°C)	1	0.2	\$123.00
<u>XTD-0200F-K</u>		0 to 200°F (-17.8 to 93.3°C)	1	0.2	\$123.00
<u>XTD-0300F-K</u>		0 to 300°F (-17.8 to 148.9°C)	1	0.2	\$123.00
<u>XTD-0500F-K</u>	K thermocouple (to NIST	0 to 500°F (-17.8 to 260°C)	1	0.2	\$123.00
<u>XTD-0800F-K</u>	Monograph 175, IEC584)	0 to 800°F (-17.8 to 426.7°C)	1	0.2	\$123.00
<u>XTD-01000F-K</u>	]	0 to 1000°F (-17.8 to 537.8°C)	1	0.2	\$123.00
<u>XTD-01500F-K</u>		0 to 1500°F (-17.8 to 815.5°C)	1	0.2	\$123.00
<u>XTD-02000F-K</u>		0 to 2000°F (-17.8 to 1093.3°C)	1	0.2	\$123.00
<u>XTD-N2000F-T</u>	T thermocouple	-200 to 0°F (-128.9 to -17.8°C)	1	0.2	\$123.00
<u>XTD-N100100F-T</u>	(to NIST Monograph 175.	-100 to 100°F (-73.3 to 37.8°C)	1	0.2	\$123.00
<u>XTD-0200F-T</u>	IEC584)	0 to 200°F (-17.8 to 93.3°C)	1	0.2	\$123.00



Click on the thumbnail or go to <u>https://www.automationdirect.com/</u> <u>VID-TE-0002</u> for a short video on DIN Rail Mounted Temperature Transmitters



Click on the thumbnail or go to https://www.automationdirect.com/VID-TE-0006 for a short video on Remote Temperature Sensing



Scan the QR Code above or click to view the Fixed Range XTD Series product insert.

# **DIN Rail Mounted**

### Wiring





#### Dimensions

#### inches [mm]



#### 1-800-633-0405

### Sense DIN Rail Mounted Universal Temperature Transmitters -Programmable

#### Features - Programmable Models

- Sensor Types:
  - Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L, A
  - RTD Types Pt100, Pt200, Pt500, Pt1000, Pt50, Ni100, Ni120, Cu50, Cu100 (2, 3 or 4-wire)
  - Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms (2, 3 or 4-wire)
  - Millivolts -20 to 100 mV
- Measuring range configurable within the full range of the sensor type selected
- Selectable units of °F, °C, K, Ohm and mV
- Choose from internal, external, or user defined fixed value reference junction compensation for thermocouple inputs
- Wire resistance compensation for 2-wire RTDs
- Transmitter is powered by 11-36 VDC and is reversepolarity protected
- Output is linearized 2-wire current loop and can be

- configured for 4-20mA or 20-4mA
- Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
- Adjustable digital filter time constant to compensate for undesirable input fluctuations
- Mounts on 35mm DIN rail in a control panel
- 2kVAC isolation between input and output
- Quick and easy configuration with Free ProSense Field Device Configurator software and XT-USB cable (purchased separately) – NO decade box, meters, or signal generators needed!



	DIN Rail Mounted Universal Temperature Transmitters - Programmable						
Part No.	Description	Pcs/Pkg	Wt (lb)	Drawing Link	Price		
<u>XTD2-0-UNV-S</u>	ProSense programmable temperature transmitter, isolated, Input: 1-channel, RTD/ thermocouple/voltage/potentiometer, deg F or deg C, Output: 1-channel, current, 11-36 VDC operating voltage, 35mm DIN rail mount, removable screw terminal plugs.	1	0.20	<u>PDF</u>	\$154.00		
<u>XTD2-0-UNV-P</u>	ProSense programmable temperature transmitter, isolated, RTD, thermocouple, millivolt or potentiometer input, deg F or deg C, current output, 11-36 VDC operating voltage, 35mm DIN rail mount, removable push-in terminals.	1	0.40	PDF	\$154.00		



Scan the QR Code above or click to view the XTD2 Series product insert.



XTD2-0-UNV-S



#### XTD2-0-UNV-P

# **Pr**Sense DIN Rail Mounted Universal Temperature Transmitters -Programmable

DIN Rail Mounted Universal Temperature Transmitters - Programmable General Specifications				
	Input Type	Programmable Measuring Range Limits	Min. Span	
	Pt100 RTD Pt200 RTD Pt500 RTD Pt1000 RTD (to IEC 751) a=0.003851)	-328 to 1562°F (-200 to 850°C) -328 to 1562°F (-200 to 850°C) -328 to 932°F (-200 to 500°C) -328 to 482°F (-200 to 250°C)	18°F (10°C)	
	Pt100 RTD (to JIS C1604) (a=0.0039)	-328 to 950°F (-200 to 510°C)	18°F (10°C)	
Inputs	Ni100 RTD Ni120 RTD (to DIN 43760) (a=0.006180)	-76 to 482°F (-60 to 250°C)	18°F (10°C)	
	Ni100 RTD Ni120 RTD (to OIML, GOST) (a=0.006170)	-76 to 356°F (-60 to 180°C)	18°F (10°C)	
	Pt50 RTD Pt100 RTD (to GOST) (a=0.00390)	-301 to 2012°F (-185 to 1100°C) -328 to 1562°F (-200 to 850°C)	18°F (10°C)	
	Pt100 (Callendar van Dusen) Nickel polynomial Copper polynomial	The measuring range limits are specified by entering the limit values that depend on the coefficients A to C and R0.	18°F (10°C)	
	Cu50 RTD Cu100 RTD (to OMIL, GOST) (a=0.004280)	-292 to 392°F (-180 to 200°C)	18°F (10°C)	
	Cu50 RTD (to OMIL, GOST) (a=0.004260)	-58 to 392°F (-50 to 200°C)	18°F (10°C)	

# **Pr**Sense DIN Rail Mounted Universal Temperature Transmitters -Programmable

DIN Rail Mounted Universal Temperature Transmitters - Programmable General Specifications						
	Input Type	Programmable Measuring Range Limits	Min. Span			
	RTDs: • Connection type: 2-, 3-, or 4-wire connection • Software compensation of cable resistance possible in the 2 wire system (0-30Ω) • Sensor cable resistance max. 50Ω per cable in the 3 and 4 wire system • Sensor current: ≤ 0.3mA					
	Resistance $\Omega$	10 to 400 Ω 10 to 2000 Ω	10 Ω			
	Thermocouples: Type A Type B Type E Type J Type K Type N Type R Type S Type T (to 60584, Part 1)	32 to 4532°F (0 to +2500°C) 104 to 3308°F (40 to +1820°C) -482 to 1832°F (-250 to +1000°C) -346 to 2192°F (-210 to +1200°C) -454 to 2501°F (-270 to +1372°C) -454 to 2372°F (-270 to +1300°C) -58 to 3214°F (-50 to +1768°C) -58 to 3214°F (-50 to +1768°C) -328 to 752°F (-200 to +400°C)	90°F (50°C)			
mpuis	Thermocouples: Type C Type D (to ASTM E988)	32 to 4199°F (0 to +2315°C) 32 to 4199°F (0 to +2315°C)	90°F (50°C)			
	Thermocouples: Type L Type U (to DIN 43710)	-328 to 1652°F (-200 to +900°C) -328 to 1112°F (-200 to +600°C)	90°F (50°C)			
	Thermocouple: Type L (to GOST)	-328 to 1472°F (-200 to +800°C)	90°F (50°C)			
	• Internal cold jur (If the ser	Thermocouples: nction (Pt100) or external programmable fixed value, -40 to 185°F (-4 • Accuracy of cold junction: ± 1.8°F (1°C) • Sensor current: 30nA • Maximum sensor wire resistance 10kΩ nsor wire resistance is greater than 10 kΩ, an error message is output accordance with NAMUR NE89.)	10 to 85°C) It in			
	Millivolt (mV)	-20 to 100 mV	5 mV			

## **DIN Rail Mounted Universal** Temperature Transmitters -Programmable

DIN Rail Mounted Universal Temperature Transmitters - Programmable			
General Specifications Cont.			
	Output Signal	4-20 mA, 20-4 mA programmable	
	Signal Transmission	Output linear to temperature	
	Fault Signal	Under ranging / Standard / 3.8 mA Over ranging / Standard / 20.5 mA Sensor failure; sensor short-circuit /To NAMUR NE43 / ≤ 3.6 mA (low) or ≥ 21 to 23 mA (high)	
	Max. Load Impedance	(Vpowersupply- 11 V) / 0.023 A e.g. (24v-11V) / 0.023A=565.22Ω	
Output	Galvanic Isolation	2 kV AC (input/output)	
	Input Current Requirement	≤ 3.5 mA	
	Current Limit	≤ 23 mA	
	Switch on Delay	$\leq$ 7 seconds (during power up output current = 3.8 mA)	
	Response Time	1 second	
	Digital Filter	0 to 120 seconds (programmable)	
	Power Supply	11 to 36 VDC, polarity protected	
	Reference Conditions	Calibration temperature 77°F ±5.4 °F (25°C)	
	Maximum Measuring Error	See Table 1	
Accuracy	Influence of Power Supply	$\leq \pm 0.01\%$ /V deviation from 24 V	
	Load Influence	≤ ± 0.02%/100 Ω	
	Long Term Stability	≤ 0.1 K / Year or m 0.05% / Year	
Installation	Orientation	Mount vertically to ensure maximum accuracy	
	Ambient	-40 to 185°F (-40 to 85°C)	
	Storage	-58 to 212°F (-50 to 100°C)	
	Climate Class	As per IEC 60 654-1, class B2	
Environmental	Ingress Protection	IP20	
	Shock and Vibration	0.7g / 2 to 100 Hz (general vibration stress) as per DNVGL-CG-0339 : 2015 and DIN EN 60068-2-27. Shock resistance as per KTA 3505 (section 5.8.4 Shock test)	
	EMC Immunity	See Table 2	
	Moisture Condensation	Not Permitted	
Ormation	Materials	Housing: Polycarbonate (PC); Potting: Silgel612EH	
Construction	Terminals	Pluggable screw terminal, max. 2.5 mm <sup>2</sup> (14 AWG) solid, or strand with wire end sleeve, recommended torque 0.5-0.7Nm (4.5-6.2lb.in)	
Human Interface	Display	Illuminated green power LED, Red status LED	
Approvals		CE, CSA, RoHS	

Table 1 - Maximum Measuring Error					
	Туре	Measurement Accuracy*			
Resistance Thermometer (RTD)	Pt100 Pt1000	0.18°F (0.10°C) 0.14°F (0.08°C)			
Thermocouple TC	K J T	1.15°F (0.64°C) 0.98°F (0.54°C) 0.95°F (0.53°C)			
	Measurement Range	Measurement Accuracy*			
Resistance Transmitter (Ω)	10 to 400 Ω 10 to 2000 Ω	120.7 mΩ 623.4 mΩ			
Voltage Transmitters (mV)	-20 to 100 mV	37.36 µV			

Table 2 - IEC Immunity				
Discharge of Static Electricity	IEC 61000-4-2	6 kV cont., 8 kV air	N/A	
Electromagnetic Fields	IEC 61000-4-3	0.08 to 2.7 GHz	10 V/m	
Burst (Signal)	IEC 61000-4-4	1 kV (B)**	N/A	
Transient Voltage	IEC 61000-4-5	1 kV unsym.	N/A	
HF Coupling	IEC 61000-4-6	0.15 to 80 MHz	10V	

\*\* self recovery

\* Maximum measured error for the specified measuring range. Note: For less common types see manual.

## Sense Temperature Transmitters -**DIN Rail Mounted**

### Wiring

тс

Sensor input

RTD,Ω: 4-, 3- and 2-wire



#### Load Impedance



\* For convenient installation, wiring plugs are removable.

Note: In the event of a thermocouple (TC) measurement, a 2-wire Pt100 RTD can be connected to measure the reference junction temperature. This is connected to terminals 4 and 6.

### **Dimensions**

#### inches [mm]



red

The height of housing H varies depending on the terminal version: screw terminals = 114 mm (4.49 in), push-in terminals = 111.5 mm (4.39 in)

### **Dr**Sense Temperature Transmitter Configuration Software

Quick and easy configuration with Free XT-SOFT and ProSense Field Device Configurator Software – NO decade box, meters, or signal generators needed!

#### **Overview**

<u>XT-SOFT</u> PC software is a utility program that allows users to easily configure ProSense <u>XTD-0-UNV</u>, and XTP series temperature transmitters and ETS series digital temperature sensors.

ProSense Field Device Configurator is a utility program that allows users to easily configure, monitor, and retrieve diagnostic information from the ProSense XTH2 and XTD2 series temperature transmitters.

Download your free copy of <u>XT-SOFT</u> and ProSense Field Device Configurator at <u>www.AutomationDirect.com</u> and connect your transmitter to the PC through an <u>XT-USB</u> configuration cable (purchased separately). An <u>XT-M12</u> adapter is also required when connecting to an XTP series transmitter.

XT-SOFT System Requirements:

- Windows 10, 11
- 1 USB 2.0 Port

• 128 MB hard disk space

ProSense Field Device Configurator System Requirements:

- Windows 10, 11
- 1 USB 2.0 Port
- 25 MB hard disk space
- Microsoft .Net Framework ≥4.8
- PDF Reader

#### XTP Series Configuration Parameters (Requires XT-SOFT):

- Measuring unit (°C/°F)
- Measuring range limits  $\,$  -50 to 150°C (-58 to 302°F)
- Fault condition reaction ( $\leq$  3.6 mA or  $\geq$  21.0 mA)
- Output (4-20 mA or 20-4 mA)
- Filter (0 to 8s)
- Offset (-9.9 to +9.9 K)
- Measurement point identification/TAG
- Output simulation drives output to a fixed value



XTP Series

#### XTH & XTD Configuration Parameters: (Requires XT-SOFT)

- Sensor Type:
- Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L
- RTD Types Pt100, Pt500, Pt1000, Pt50, Ni100, Ni120, Ni500, Ni1000
- Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms
- Millivolts -10 to 100 mV
- Wiring connection 2, 3, or 4-wire (RTD or Linear Resistance only)
- Measuring range start and end points
- Selectable units of °F or °C
- Choose from internal or external cold junction compensation (TC only)
- Wire resistance compensation (2-wire RTD or Linear Resistance only)
- Output action of 4-20 mA or 20-4 mA
- Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE43 fault response)
- Adjustable digital filter time constant to compensate for undesirable input fluctuations
- Zero point correction offset factor in °F or °C



**XTH Series** 



**XTD Series** 



# **Pr**Sense Temperature Transmitter Configuration Software

### XTH2 & XTD2 Configuration Parameters (Requires Field Device Configurator):

- Sensor Type:
- Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L
- RTD Types Pt100, Pt500, Pt1000, Pt50, Ni100, Ni120, Ni500, Ni1000
- Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms
- Millivolts -20 to 100 mV
- Wiring connection 2, 3, or 4-wire (RTD or Linear Resistance only)
- Measuring range start and end points
- Selectable units of °F, °C, K, Ohm and mV
- Choose from internal or external cold junction compensation (TC only)
- Wire resistance compensation (2-wire RTD or Linear Resistance only)
- Output action of 4-20 mA or 20-4 mA
- Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE43 fault response)
- Adjustable digital filter time constant to compensate for undesirable input fluctuations
- Zero point correction offset factor in °F or °C

### ETS Series Configuration Parameters (Requires XT-SOFT):

- Basic Settings:
- Measuring unit (°C/°F/K)
- Offset: Configure zero point: ±18°F (±10°C/K)
- Display Measured value display
  - Measured value display rotated 180° Set switch point display Set switch point display rotated 180° Display off Display off rotated 180°
- Damping: display value, output signal: 0 (no damping) to 40s (in increments of 1 second)
- DESINA® PIN assignment of the M12 connector is in accordance with the guidelines of DESINA
- Settings for Switch Output:
- Switching characteristic Window/NC contact Hysteresis/NC contact
  - Window/NO contact Hysteresis/NO contact
  - Analog output (if applicable)
- Switch point value: -57.1 to 302°F (-49.5 to 150°C) in increments of 0.18°F (0.1°C)
- Switch-back point value: -58 to 300°F (-50 to 149°C) in increments of 0.18°F (0.1°C)
- Switch point delay: 0 to 99s in increments of 0.1s
- Switch-back point delay: 0 to 99s in increments of 0.1s
- Settings for Analog Output (if applicable):
- Value for 4mA: -58 to 266°F (-50 to 130°C) Lower range value in increments of 0.18°F (0.1°C)
- Value for 20mA: -22 to 302°F (-30 to 150°C) Upper range value in increments of 0.18°F (0.1°C)
- Error current Current value in event of error:

 $\begin{array}{l} \text{Minimum} = \leq 3.6 \text{ mA} \\ \text{Maximum} = \geq 21.0 \text{ mA} \\ \text{HOLD} = \text{last value} \end{array}$ 

- Settings for Service Functions:
- Locking code Enter the locking code for enabling the device.
- Change locking code Freely selectable code 1 to 9999.
- 0 = no locking
- Simulation output 1 or 2 OFF: No simulation
  OPEN: Switch output open
  - CLOSE: Switch output closed
    - Simulation values for analog output in mA (3.5 / 4.0 / 8.0 / 12.0 / 16.0 / 20.0 / 21.7)





XTH2 Series

**XTD2** Series



**ETS Series** 

# **Pr**Sense<sup>®</sup> Temperature Transmitter Configuration Software





<u>XT-SOFT</u>

<u>XT-USB</u>

<u>XT-M12</u>

Part No.	Description	Pcs/Pkg	Wt(lb)	Price
<u>XT-SOFT</u>	ProSense configuration software, free download. For use with ProSense temperature transmitter XTP series, digital temperature sensor ETS series and models XTH-0-UNV, XTD-0-UNV.	1	N/A	Free Download
Field Device Configurator	ProSense configuration software, free download. For use with ProSense temperature transmitter series XTH2- 0-UNV and XTD2-0-UNV.	1	N/A	Free Download
<u>XT-USB</u>	ProSense configuration cable, USB to keyed 4-pin male, 7.9 ft/2.4 m cable length. For use with XT-SOFT and Field Device Configurator software, ProSense temperature transmitter XTP series, digital temperature sensor ETS series and models XTH-0-UNV, XTD-0-UNV, XTH2-0-UNV, and XTD2-0-UNV.	1	0.4	\$124.00
<u>XT-M12</u>	ProSense adapter, keyed 4-pin female to 4-pin M12. For use with ProSense temperature transmitter XTP series and XT-USB cable.	1	0.1	\$21.00

### **Connection Examples**

#### XTH2-0-UNV Connection (Requires Field Device Configurator)



#### XTD2-0-UNV Connection (Requires Field Device Configurator)



#### XTP Series Connection (Requires XT-SOFT)



Note: <u>XT-SOFT</u> version 1.27.13.0 or later required for use with the XTP series transmitters ETS Series Connection (Requires XT-SOFT)



External power not required for programming via XT-USB & XT-SOFT

Note: <u>XT-SOFT</u> version 1.27.15.0 or later required for use with the ETS Series.



Scan the QR Code or click to view the help file for the <u>XT-SOFT</u> software.



Scan the QR Code or click to view the help file for the ProSense Field Device Configurator software. 1-800-633-0405

# **Of Sense TTD Series Temperature Transmitters**

#### **Overview**

#### Converts RTD temperature probe output to 4-20mA signal

- High accuracy 2-wire or 3-wire 4-20mA temperature transmitter
- M12 quick-disconnect for fast mounting
- 3 available temperature ranges
- 3-year warranty
- LED indication of loop current





Note: Above photo shows assembled unit with TTD Transmitter and RTD0100 Probe

ProSense Temperature Transmitter TTD Series							
Part Number	Description	Pcs/Pkg	Wt (lb)	Price	Cable Assemblies*		
<u>TTD-20-N40160F-H</u>	Temperature transmitter, 4-20mA output, over temperature range of -40°F to 160°F (-40°C to 71.1°C)	1	0.25	\$79.00	CD12L-0B-020-A0 CD12L-0B-020-C0 CD12M-0B-070-A1 CD12M-0B-070-C1		
<u>TTD-20-N40300F-H</u>	Temperature transmitter, 4-20mA output, over temperature range of -40°F to 300°F (-40°C to 148.8°C)	1	0.25	\$79.00	CDP12-0B-010-AA CDP12-0B-030-AA CDP12-0B-010-BB CDP12-0B-030-BB		

\* Order separately - See proximity sensor section for cable specs.

ProSense TTD Series Technical Specifications						
	TTD-20-N40160F-H	TTD-20-N40300F-H	TTD-20-30300F-H			
Operating Voltage		20 to 32 VDC				
Electrical Connection	M12 conne	ector; gold-plated contacts (torque 5 t	o 13 in/lbs)			
Short-Circuit Protection		Yes (non-latching)				
Overload Protection		Yes				
Reverse Polarity Protection		Yes				
Analog Output		4 to 20 mA (min/max 3.85 to 22 mA)				
Maximum Load		Rmax: 300 Ω				
Accuracy		± 0.3°C + (± 0.1 % span)				
Resolution		± 0.3°C + (± 0.1 % span)				
Measuring - Display [ms] / Cycle [ms]	100					
Scaled Range	-40°F to 160°F (-40°C to 71.1°C) -40°F to 300°F (-40°C to 148.8°C) 30°F to 300°F (-1.1°C to 148.8°C)					
Dynamic Response (DIN EN 60751)	*t0.5 + 1 sec. / t0.9 = 3 sec.					
Housing Material	Polyamide PACM 12 (TROGAMID)	PED; sealing:FPM (Viton); nut: stain TPU (urethane)	less steel 316L / 1.4404; connector:			
Ambient Temperature		-13°F to 158°F (-25°C to 70°C)				
Storage Temperature		-40°F to 185°F (-40°C to 85°C)				
Protection		IP 67				
Insulation Resistance		> 100MΩ / 500 VDC				
Shock Resistance		50g (DIN / IEC 68-2-27, 11ms)				
Vibration Resistance		20g (DIN / EN 68-2-6, (10 to 2000 Hz	)			
ЕМС		EN 61326				
EN 61000-4-2 ESD		4 kV CD / 8 kV AD				
EN 61000-4-3 HF Radiated		10 V/m				
EN 61000-4-4 Burst	2 kV					
EN 61000-4-5 Surge	1 kV					
EN 61000-4-6 HF Conducted		10 V				
Power-On Delay Time		1 sec.				
Agency Approvals	U	L 508 listed, File # E324411, CE, Rol	IS			

# **Of**Sense TTD Series Temperature Transmitter





Wiring

INPUT SENSOR CONNECTION

TTD-20

2

3 Wire RTD Sensor RTD0100-06-xxx-H

Cable Assembly Wiring Colors: Pin 1 - Brown Pin 2 - White

Pin 3 - Blue

Pin 4 - Black

Note: Wiring colors are based on

AutomationDirect CD12L and CD12M 4-pole cable assemblies.



4 Wire RTD Sensor



Direct Connection or Optional M12 Cable

-Direct Connection or Optional M12 Cable

OUTPUT SIGNAL CONNECTION

2 Wire 4-20mA Output Signal



3 Wire 4-20mA Output Signal



Endress+Hauser People for Process Automation

# Endress + Hauser TEMP . TMT36-13A9/10

#### Part No. TMT36-13A9/101



#### Part No. TMT36-13C0/101

### **TMT36 iTEMP Programmable Temperature Transmitters with IO-LINK**

The Endress+Hauser TMT36 iTEMP<sup>®</sup> programmable temperature transmitters work with Pt100 or Pt1000 RTD sensors. IO-Link communication output enables access to various temperature process variable, configuration, diagnostic, and logging parameters. These transmitters mount in a DIN Form B sensor connection head and are available with either screw or push-in terminals for electrical connection.

#### Features

- Sensor Types: RTD: Pt100 or Pt1000
- IO-Link communication output that enables access to various temperature process variable, configuration, diagnostic, and logging parameters.
- DIN Form B sensor connection head mounting
- Screw or push-in terminals
- Compatible with Endress+Hauser TID10-1009/0 display





For a variety of cable options see our website www.AutomationDirect.com

	Endress + Hauser TMT36 iTEMP Temperature Transmitter Selection							
Part Number	Transmitter Type	Input	Output	Operating Voltage	Connection Head Mount	Electrical Connection	Weight (lb)	Price
<u>TMT36-13A9/101</u>	Non indicted	1 channel PTD	1 abannal 10 Link		DIN Form B	Screw terminals	0.38	\$210.00
<u>TMT36-13C0/101</u>	NOT-ISOIALEO			10-30 VDC	connection head	Push-in terminals	0.37	\$210.00

#### Endress + Hauser TMT36 Series iTEMP Programmable **Temperature Transmitter Information**

Part Number Drawing Links		Manufacturer Tech Specs	Manufacturer Quick Start	Manufacturer Manual	
<u>TMT36-13A9/101</u>	PDF	DDE	DDE	PDF	
<u>TMT36-13C0/101</u>	PDF				

For complete technical information and installation see Manufacturer Tech Specs and Manual links.

### Wiring Information



- **Display connection** 2
- Power supply 18 to 30 VDC L+
- Power supply 0 VDC 1 -
- C/Q IO-Link or switch output



TMT36 shown with optional TID10-1009/0 display

### Endress+Hauser TMT72 iTEMP Programmable **Temperature Transmitters with HART**



Part No. TMT72-4LR3/142



Part No. TMT72-6XR7/101



Part No. TMT72-EQ74/115



#### Part No. TMT72-4H19/139

z:



#### **Features**

- Sensor Types:
- Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L, A
- RTD Types Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Cu50, Cu100 (2, 3, or 4-wire)
- Linear Resistance 10 to 2000 Ohms (2, 3, or 4-wire)
- Millivolts -20 to 100 mV
- Measuring range configurable within the full range of the sensor type selected
- Selectable units of °F, °C, K, Ohm and mV
- Choose from internal, external, or user defined fixed value reference junction compensation for thermocouple inputs
- Wire resistance compensation for 2-wire RTDs
- Head transmitter is powered by 10-36 VDC, and DIN rail transmitter is powered by 11-36 VDC
- Output is linearized 2-wire current loop and can be configured for 4-20 mA or 20-4 mA with HART Communications
- Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
- Adjustable digital filter time constant to compensate for undesirable input fluctuations
- · Mounts in DIN Form B sensor head or on 35mm DIN rail in a control panel
- 2kVAC isolation between input and output
- Screw or push-in terminals
- Compatible with Endress+Hauser <u>TID10-1009/0</u> display
- Configured and monitored using HART communications or with its Bluetooth wireless interface on Android and iOS devices via the free Endress+Hauser SmartBlue App



COMMUNICATION PROTOCOL



For a variety of cable options see our website www.AutomationDirect.com

Endress+Hauser TMT72 Series iTEMP Programmable Temperature Transmitter Selection									
Part Number	Transmitter Type	Input	Output	Operating Voltage	Connection Head Mount	Electrical Connection	Weight (lb)	Price	
<u>TMT72-4LR3/142</u>		1-channel, RTD/ thermocouple/ on-isolated bipolar voltage/ potentiometer, 2 deg F or deg C	1-channel, 4-20 mA or 20-4 mA / HART	10-36 VDC	DIN Form B	Screw terminals	0.50	\$627.00	
<u>TMT72-6XR7/101</u>	New indexed					Push-in terminals	0.51	\$627.00	
<u>TMT72-4H19/139</u>	Non-isolated			11-36 VDC	35mm DIN rail	Screw terminals	0.50	\$645.00	
<u>TMT72-EQ74/115</u>						Push-in terminals	0.50	\$645.00	

Endress+Hauser People for Process Automation

# **TMT72 iTEMP Programmable Temperature Transmitters with HART**

Endress+Hauser TMT72 Series iTEMP Programmable Temperature Transmitter Information					
Part Number	Drawing Links	Manufacturer Manufacturer Tech Specs Quick Start		Manufacturer Manual	
<u>TMT72-4LR3/142</u>	PDF		PDF		
<u>TMT72-6XR7/101</u>	<u>PDF</u>	DDE		DDE	
<u>TMT72-4H19/139</u>	PDF				
<u>TMT72-EQ74/115</u>	PDF				

For complete technical information and installation see Manufacturer Tech Specs and Manual links.

### **Head Transmitter Wiring**



- Bus connection and power supply 4-20 mA D
- Е Display connection and CDI interface



Bus connection and power supply 4-20 mA



HART® - Signal



TMT72 shown with optional TID10-1009/0 display

D

People for Process Automation

### **TMT142B iTEMP Programmable** Endress+Hauser **Temperature Transmitter with HART**



Endr	Endress+Hauser TMT142B Series iTEMP Programmable Temperature Transmitter						
Part Number	Description	Weight (lb)	Price				
<u>TMT142B-1E60/1W9</u>	Endress+Hauser iTEMP programmable temperature transmitter, isolated, Input: 1-channel, RTD/thermocouple/bipolar voltage/potentiometer, deg F or deg C, Output: 1-channel, current/HART, 11-36 VDC operating voltage, IP66 and IP67, wall mount, (3) 1/2in female NPT.	4.25	\$1,400.00				

Endress+Hauser TMT142B Series iTEMP Programmable				
Temperature Transmitter Information				

Part Number	Drawing Links	Manufacturer Tech Specs	Manufacturer Quick Start	Manufacturer Manual	
<u>TMT142B-1E60/1W9</u>	<u>PDF</u>	<u>PDF</u>	<u>PDF</u>	<u>PDF</u>	

For complete technical information and installation see Manufacturer Tech Specs and Manual links.

### Wiring Information



www.automationdirect.com

### Endress+Hauser TMT36 & TMT72 ITEMP

# Endress+Hauser (3) EH\_TMT72\_W V 72.3\*F

The <u>TID10-1009/0</u> is a convenient, easy to use display accessory for the Endress+Hauser TMT36 and TMT72 connection head temperature transmitters. Simply clip the display on the TMT36 or TMT72 transmitter to get a digital readout of the transmitter scaled output. Transmitter configuration parameters are automatically read by the TID10, so no additional configuration is required. A DIP switch setting is available to rotate the display reading 180 degrees.

**Programmable Temperature** 

**Transmitters Accessory** 





For a variety of cable options see our website <u>www.AutomationDirect.com</u>

Endress+Hauser TMT36 & TMT72 Programmable Temperature Transmitter Accessory							
Part Number	Description	Weight (lb)	Price				
<u>TID10-1009/0</u>	Endress+Hauser display, polycarbonate. For use with Endress+Hauser TMT36 and TMT72 programmable temperature transmitters.	0.36	\$121.00				

Display Information						
Part Number Drawing Links Manufacturer Manual						
<u>TID10-1009/0</u>	PDF	PDF				

For complete technical information and installation see Manufacturer Manual link.



TID10-1009/0 shown mounted on a TMT72 transmitter.

#### **Display Information**



DIP-Switches Default = OFF

# Sense Thermowells



#### **Overview**

• Thermowells designed for use with ProSense thermocouple and RTD probes or ProSense Thermometers elminate the need for a separate probe mounting fitting or adapter

- TW Series Thermowells Drilled bar stock one piece construction (no welds) from 304 or 316 stainless steel
- 1/2" and 3/4" NPT male process threads available
- Designs and fabrication comply with ASME B31.1 and boiler and pressure vessel codes
- Material complies with NACE MR 0175 / ISO 15156
- CRN registered for all Canadian provinces
- 1-year warranty

#### **RTDTW Series Thermowells**

- Welded 316 stainless steel construction
- 1/2" NPT male process threads
- 3-year warranty



	Thermowells for Thermocouples -TW Series														
Part Number	Pcs/ Pkg	Wt(lb)	Price	I.D.	Overall Length/"U" Length	Male Process Threads	Female Probe Threads	Wetted Material	Temperature/ Pressure Rating	Use With Probe or Thermometer					
<u>TW025-01</u>	1	0.4	\$31.00		0.0/4"/4"	1/2" NPT		304 SS							
<u>TW025-03</u>	1	0.4	\$36.00			2-3/4 / 1	1/2" NPT		316 SS						
<u>TW04-01</u>	1	0.5	\$36.00			1/2" NPT		304 SS							
<u>TW04-02</u>	1	0.5	\$36.00		A 4/4" / 0 4/0"	3/4" NPT		304 SS							
<u>TW04-03</u>	1	0.5	\$45.00					4-1/4 / 2-1/2	1/2" NPT		316 SS				
<u>TW04-04</u>	1	0.5	\$45.00											3/4" NPT	
<u>TW06-01</u>	1	0.7	\$49.50			1/2" NPT		304 SS	304SS: 1000°F						
<u>TW06-02</u>	1	0.7	\$49.50			0.00" 0.4/4" / 4.4/0"	3/4" NPT		304 SS	max	See Sensor				
<u>TW06-03</u>	1	0.7	\$57.00	0.20	.20 0-1/4 / 4-1/2	1/2" NPT	Т 3	316 SS	316SS: 1000°F	Compatibility Table					
<u>TW06-04</u>	1	0.7	\$57.00			3/4" NPT		316 SS	max; 5200psi max						
<u>TW09-01</u>	1	1.0	\$71.00		9-1/4" / 7-1/2" 1/2" NPT 1/2" NPT 1/2" NPT	1/2" NPT		304 SS							
<u>TW09-03</u>	1	1.0	\$82.00			1/2" NPT		316 SS							
<u>TW12-01</u>	1	1.2	\$80.00			304 SS									
<u>TW12-02</u>	1	1.2	\$80.00		10 1/4" / 10 1/0"	3/4" NPT		304 SS	-						
<u>TW12-03</u>	1	1.2	\$98.00		12-1/4 / 10-1/2	1/2" NPT		316 SS							
<u>TW12-04</u>	1	1.2	\$98.00			3/4" NPT		316 SS							

# **Dr**Sense Thermowells

Thermowells for Thermocouples -RTDTW Series												
Part Number	Pcs/ Pkg	Wt(lb)	Price	I.D.	Overall Length	Male Process Threads	Female Probe Threads	Wetted Material	Temperature/ Pressure Rating	Use With		
<u>RTDTW-06-010-50N</u>	1	0.10	\$43.00		113mm (4.4")					XTP-160-N40140F XTP-160-0300F XTP-160-0100C RTD0100-06-010-H CF06-25N fitting		
<u>RTDTW-06-020-50N</u>	1	0.20	\$46.00	7 mm (0.28")	213mm (8.4")	1/2" NPT	1/4" NPT		600°E (315°C)	XTP-260-N40140F XTP-260-0300F XTP-260-0100C RTD0100-06-020-H CF06-25N fitting		
<u>RTDTW-06-030-50N</u>	1	0.30	\$51.00		313mm (12.3")		1/2" NPT	1/2" NPT		316 SS	max; 232 psi (16 bar) max	XTP-360-N40140F XTP-360-0300F XTP-360-0100C RTD0100-06-030-H CF06-25N fitting
<u>RTDTW-10-010-50N</u>	1	0.10	\$43.00	11 mm	92mm (3.62")			1/2" NDT			RTD0100-10-010-H CF10-50N fitting	
<u>RTDTW-10-030-50N</u>	1	0.22	Retired	(0.43")	292mm (11.48")		1/2 INF1			CF10-50N fitting		

Note: Check the chemical compatibility of the thermowell's wetted parts with the medium to be measured.

Note: Response time will be slower when installed in a thermowell. Be sure to install the probe so that it contacts the end of the thermowell for faster response. Thermal compound may be used depending on application



### Spring-loaded Thermocouple or RTD and Thermowell Assembly Example



- Using spring-loaded probe design ensures positive tip contact with the bottom of the thermowell.

- Probes with hex nipple thread directly into

thermowell. No additional probe mounting fittings are required.

# **Dr**Sense Thermowells

### Dimensions

inches [mm]

TW04-XX & TW025-XX



TABLE A						
PART NUMBER	DIM "A'	THREAD "B' NPT	DIM "U'			
TW025-01	2.50[63.5]	1/2-14	1 00[25 5]			
TW025-03	2.50[63.5]	1/2-14	1.00[20.0]			
TW04-01	4.00[101.6]	1/2-14				
TW04-02	4.00[101.6]	3/4-14	2 50[63 5]			
TW04-03	4.00[101.6]	1/2-14	2.30[03.3]			
TW04-04	4.00[101.6]	3/4-14				

#### Dimensions

inches [mm]

TW06-XX TW09-XX TW12-XX



TABLE A						
PART NUMBER	DIM "A"	THREAD "B" NPT	DIM "C"	DIM "U"		
TW06-01	6.00[152.4]	1/2-14	0.63[15.9]			
TW06-02	6.00[152.4]	3/4-14	0.75[19.1]	4 50[14 3]		
TW06-03	6.00[152.4]	1/2-14	0.63[15.9]	4.50[14.5]		
TW06-04	6.00[152.4]	3/4-14	0.75[19.1]			
TW09-01	9.00[228.6]	1/2-14	0.63[15.9]	7 50[100 5]		
TW09-03	9.00[228.6]	1/2-14	0.63[15.9]	7.50[190.5]		
TW12-01	12.00[304.8]	1/2-14	0.63[15.9]			
TW12-02	12.00[304.8]	3/4-14	0.75[19.1]	10 50[266 7]		
TW12-03	12.00[304.8]	1/2-14	0.63[15.9]	10.30[200.7]		
TW12-04	12.00[304.8]	3/4-14	0.75[19.1]			

# **Dr**Sense Thermowells

#### Dimensions

#### mm [inches]

#### **RTDTW-06 Series**





Part Number	L1
RTDTW-06-010-50N	113mm [ 4.4]
RTDTW-06-020-50N	213mm [ 8.4]
RTDTW-06-030-50N	313mm [12.3]

Torque threads to 40 lb-ft [54.23 Nm]\*

\* Torque values are for reference. Actual torque required for a proper seal of NPT threads is influenced by tolerance, sealant, lubricant, etc.

#### **RTDTW-10 Series**



Part Number	L1	L2
RTDTW-10-030-50N	92mm [ 3.62]	70mm [ 2.75]
<u>RTDTW-10-050-50N</u>	292mm [11.48]	270mm [10.6]

Torque threads to 40 lb-ft [54.23 Nm]\*
# **Dr**Sense Thermowells

		TW	/ Series Therm	owells Senso	r Compatibilit	y Table	
	Junction Box	Connection Head	Hex Nipple	Attached Plug	Lead Wire Transition	M12	Thermometer
Thermowell	Ŷ				9		
<u>TW025-01</u> <u>TW025-03</u>	_	_	-	_	_	_	T30-N40160-25C T30-0250-25C T30-50500-25C T30-150750-25C T50-N40160-25A T50-0250-25A T50-50500-25A T50-150750-25A
<u>TW04-01</u> <u>TW04-02</u> <u>TW04-03</u> <u>TW04-04</u>	NTC10K3-JB04-03	RTD1-C04-03 THMJ-C04-03 THMK-C04-03 NTC10K3-C04-03	RTD1-H04L01-02 THMJ-H04L01-02 THMK-H04L01-02 NTC10K3-H04L01-02	RTD1-P06-01 w/ CF14-50N THMJ-P06-02 w/ CF14-50N THMK-P06-02 w/ CF14-50N NTC10K3-P06-02 w/ CF14-50N	RTD1-T06L06-01 w/ CF14-50N THMJ-T06L06-02 w/ CF14-50N THMK-T06L06-02 w/ CF14-50N NTC10K3-T06L06-02 w/CF14-50N	RTD1-50N-100-H RTD0100-06-010-H w/CF14-50N XTP-160-N40140F w/CF14-50N XTP-160-0300F w/CF14-50N XTP-160-0100C w/CF14-50N XTP50N-100-N40140F XTP50N-100-0300F XTP50N-100-0100C ETS50N-100-1001 ETS50N-100-1003	T30-N40160-4C T30-0250-4C T30-50500-4C T30-150750-4C T50-N40160-4A T50-0250-4A T50-50500-4A T50-150750-4A
<u>TW06-01</u> <u>TW06-02</u> <u>TW06-03</u> <u>TW06-04</u>	NTC10K3-JB06-03	RTD1-C06-03 THMJ-C06-03 THMK-C06-03 NTC10K3-C06-03	RTD1-H06L01-02 THMJ-H06L01-02 THMK-H06L01-02 NTC10K3-H06L01-02	RTD1-P12-01 w/ CF14-50N THMJ-P12-02 w/ CF14-50N THMK-P12-02 w/ CF14-50N NTC10K3-P12-02 w/ CF14-50N	RTD1-T12L06-01 w/ CF14-50N THMJ-T12L06-02 w/ CF14-50N THMK-T12L06-02 w/ CF14-50N NTC10K3-T12L06-02 w/CF14-50N	RTD1-50N-150-H RTD0100-06-020-H w/CF14-50N XTP-260-N40140F w/CF14-50N XTP-260-0300F w/CF14-50N XTP-260-0100C wCF14-50N XTP50N-150-N40140F XTP50N-150-0300F XTP50N-150-0100C ETS50N-150-1001 ETS50N-150-1003	T30-N40160-6C T30-0250-6C T30-50500-6C T30-150750-6C T50-N40160-6A T50-0250-6A T50-50500-6A T50-150750-6A
<u>TW09-01</u> <u>TW09-03</u>	-	_	-	-	_	-	T50-N40160-9A T50-0250-9A T50-50500-9A T50-150750-9A
<u>TW12-01</u> TW12-02 TW12-03 TW12-04	NTC10K3-JB12-03	RTD1-C12-03 THMJ-C12-03 THMK-C12-03 NTC10K3-C12-03	RTD1-H12L01-02 THMJ-H12L01-02 THMK-H12L01-02 NTC10K3-H12L01-02	RTD1-P18-01 w/ CF14-50N THMJ-P18-02 w/ CF14-50N THMK-P18-02 w/ CF14-50N NTC10K3-P18-02 w/ CF14-50N	RTD1-T18L06-01 w/ CF14-50N THMJ-T18L06-02 w/ CF14-50N THMK-T18L06-02 w/ CF14-50N NTC10K3-T18L06-02 w/CF14-50N	RTD0100-06-030-H w/CF14-50N XTP-360-N40140F w/CF14-50N XTP-360-0300F w/CF14-50N XTP-360-0100C w/CF14-50N	-

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Note: Response time will be slower when installed in a thermowell. Be sure to install the probe so that it contacts the end of the thermowell for faster response. Thermal compound may be used depending on application.

# Sense Thermowells Sanitary Clean-in-Place (CIP)



STW06-01

#### **Overview**

- Sanitary Clean-In-Place 3-A approved thermowells allow the use of standard temperature sensors in hygienic applications
- · All wetted parts are 316 stainless steel
- Surface finish that meets or exceeds 32µin Ra
- Up to 1500/1200 psi (103/83 bar) at 70/250 °F (21/121 °C) dependent on clamp and seal assembly.
- Bore diameter of 0.260" to accommodate sensing probes with a 0.252" maximum diameter
- Probes with integral 1/2" male NPT process threads mount directly into the thermowell. Probes without threads require a compression fitting with 1/2" male NPT threads.





Thermowells Sanitary Clean-in-Place (CIP)											
Part Number	Pcs/Pkg	Wt(lb)	Price	I.D.	Overall Length/"U" Length	Process Connection	Female Probe Threads	Wetted Material	Use With		
<u>STW04-01</u>	1	0.75	\$106.00		4-1/4" / 2-1/2"	1-1/2" tri-clamp		316 S stainless C steel	See Sensor		
<u>STW06-01</u>	1	0.88	\$114.00		6-1/4" / 4-1/2"						
<u>STW12-01</u>	1	1.13	\$159.00		12-1/4" / 10-1/2"						
<u>STW04-02</u>	1	0.75	\$118.00	ØU.26U	4-1/4" / 2-1/2"		1/2° NP1		Table		
<u>STW06-02</u>	1	0.88	\$127.00		6-1/4" / 4-1/2"	2" tri-clamp					
<u>STW12-02</u>	1	1.13	\$164.00		12-1/4" / 10-1/2"						

Note: Check the chemical compatibility of the thermowell's wetted parts with the medium to be measured.

Note: Response time will be slower when installed in a thermowell. Be sure to install the probe so that it contacts the end of the thermowell for faster response. Thermal compound may be used depending on application

#### Probe & Thermowell **Assembly Example**



# **Dr**Sense Thermowells Sanitary Clean-in-Place (CIP)

### Spring-loaded Thermocouple or RTD and Thermowell Assembly Example



- Using spring-loaded probe design ensures positive tip
- contact with the bottom of the thermowell.
- Probes with hex nipple thread directly into
- thermowell. No additional probe mounting fittings are required.

#### Dimensions

inches [mm]

STWXX-XX



TABLE A									
PART NUMBER	DIM "A"	DIM "B"	DIM "C"						
STW04-01	2.50[63.5]	4.25[108.0]	1.50[38.1]						
STW06-01	4.50[114.3]	6.25[158.8]	1.50[38.1]						
STW12-01	10.50[266.8]	12.25[311.3]	1.50[38.1]						
STW04-02	2.50[63.5]	4.25[108.0]	2.00[50.8]						
STW06-02	4.50[114.3]	6.25[158.5]	2.00[50.8]						
STW12-02	10.50[266.8]	12.25[311.3]	2.00[50.8]						

# **Pr**Sense Thermowells Sanitary Clean-in-Place (CIP)

	Th	ermowells S	Sanitary Clean	-in-Place (Cl	P) Sensors Ca	mpatibility Table	
	Junction Box	Connection Head Sensor	Hex Nipple Sensor	Attached Plug Sensor	Lead Wire Transition Sensor	M12 Sensor	Thermometer
Thermowell	Ÿ				Q		
<u>STW04-01</u>	NTC10K3-JB04-03	RTD1-C04-03 THMJ-C04-03 THMK-C04-03 NTC10K3-C04-03	RTD1-H04L01-02 THMJ-H04L01-02 THMK-H04L01-02 NTC10K3-H04L01-02	RTD1-P06-01 w/ CF14-50N THMJ-P06-02 w/ CF14-50N THMK-P06-02 w/ CF14-50N NTC10K3-P06-02 w/ CF14-50N	RTD1-T06L06-01 w/ CF14-50N THMJ-T06L06-02 w/ CF14-50N THMK-T06L06-02 w/ CF14-50N	RTD1-50N-100-H RTD0100-06-010-H w/CF14-50N XTP-160-N40140F w/CF14-50N XTP-160-0300F w/CF14-50N XTP-160-0100C w/CF14-50N XTP50N-100-N40140F XTP50N-100-N40140F XTP50N-100-0300F XTP50N-100-0100C ETS50N-100-1001 ETS50N-100-1003	T30-N40160-4C T30-0250-4C T30-50500-4C T30-150750-4C T50-N40160-4A T50-0250-4A T50-50500-4A T50-150750-4A
<u>STW06-01</u>	NTC10K3-JB06-03	RTD1-C06-03 THMJ-C06-03 THMK-C06-03 NTC10K3-C06-03	RTD1-H06L01-02 THMJ-H06L01-02 THMK-H06L01-02 NTC10K3-H06L01-02	RTD1-P12-01 w/ CF14-50N THMJ-P12-02 w/ CF14-50N THMK-P12-02 w/ CF14-50N NTC10K3-P12-02 w/ CF14-50N	RTD1-T12L06-01 w/ CF14-50N THMJ-T12L06-02 w/ CF14-50N THMK-T12L06-02 w/ CF14-50N	RTD1-50N-150-H RTD0100-06-020-H w/CF14-50N XTP-260-N40140F w/CF14-50N XTP-260-0300F w/CF14-50N XTP-260-0100C wCF14-50N XTP50N-150-N40140F XTP50N-150-0300F XTP50N-150-0100C ETS50N-150-1001 ETS50N-150-1003	T30-N40160-6C T30-0250-6C T30-50500-6C T50-150750-6C T50-N40160-6A T50-2250-6A T50-50500-6A T50-150750-6A
<u>STW12-01</u>	NTC10K3-JB12-03	RTD1-C12-03 THMJ-C12-03 THMK-C12-03 NTC10K3-C12-03	RTD1-H12L01-02 THMJ-H12L01-02 THMK-H12L01-02 NTC10K3-H12L01-02	RTD1-P18-01 w/ CF14-50N THMJ-P18-02 w/ CF14-50N THMK-P18-02 w/ CF14-50N NTC10K3-P18-02 w/ CF14-50N	RTD1-T18L06-01 w/ CF14-50N THMJ-T18L06-02 w/ CF14-50N THMK-T18L06-02 w/ CF14-50N	RTD0100-06-030-H w/CF14-50N XTP-360-N40140F w/CF14-50N XTP-360-0300F w/CF14-50N XTP-360-0100C w/CF14-50N	-
<u>STW04-02</u>	NTC10K3-JB04-03	RTD1-C04-03 THMJ-C04-03 THMK-C04-03 NTC10K3-C04-03	RTD1-H04L01-02 THMJ-H04L01-02 THMK-H04L01-02 NTC10K3-H04L01-02	RTD1-P06-01 w/ CF14-50N THMJ-P06-02 w/ CF14-50N THMK-P06-02 w/ CF14-50N NTC10K3-P06-02 w/ CF14-50N	RTD1-T06L06-01 w/ CF14-50N THMJ-T06L06-02 w/ CF14-50N THMK-T06L06-02 w/ CF14-50N	RTD1-50N-100-H RTD0100-06-010-H w/CF14-50N XTP-160-N40140F w/CF14-50N XTP-160-0300F w/CF14-50N XTP-160-0100C w/CF14-50N XTP50N-100-N40140F XTP50N-100-N40140F XTP50N-100-0300F XTP50N-100-0100C ETS50N-100-1001 ETS50N-100-1003	T30-N40160-4C T30-0250-4C T30-50500-4C T30-150750-4C T50-N40160-4A T50-50500-4A T50-50500-4A T50-150750-4A
<u>STW06-02</u>	NTC10K3-JB06-03	RTD1-C06-03 THMJ-C06-03 THMK-C06-03 NTC10K3-C06-03	RTD1-H06L01-02 THMJ-H06L01-02 THMK-H06L01-02 NTC10K3-H06L01-02	RTD1-P12-01 w/ CF14-50N THMJ-P12-02 w/ CF14-50N THMK-P12-02 w/ CF14-50N NTC10K3-P12-02 w/ CF14-50N	RTD1-T12L06-01 w/ CF14-50N THMJ-T12L06-02 w/ CF14-50N THMK-T12L06-02 w/ CF14-50N	RTD1-50N-150-H RTD0100-06-020-H w/CF14-50N XTP-260-N40140F w/CF14-50N XTP-260-0300F w/CF14-50N XTP-260-0100C wCF14-50N XTP50N-150-N40140F XTP50N-150-N40140F XTP50N-150-0100C ETS50N-150-1001 ETS50N-150-1003	T30-N40160-6C T30-0250-6C T30-50500-6C T30-150750-6C T50-N40160-6A T50-0250-6A T50-50500-6A T50-150750-6A
<u>STW12-02</u>	NTC10K3-JB12-03	RTD1-C12-03 THMJ-C12-03 THMK-C12-03 NTC10K3-C12-03	RTD1-H12L01-02 THMJ-H12L01-02 THMK-H12L01-02 NTC10K3-H12L01-02	RTD1-P18-01 w/ CF14-50N THMJ-P18-02 w/ CF14-50N THMK-P18-02 w/ CF14-50N NTC10K3-P18-02 w/ CF14-50N	RTD1-T18L06-01 w/ CF14-50N THMJ-T18L06-02 w/ CF14-50N THMK-T18L06-02 w/ CF14-50N	RTD0100-06-030-H w/CF14-50N XTP-360-N40140F w/CF14-50N XTP-360-0300F w/CF14-50N XTP-360-0100C w/CF14-50N	-

Note: Response time will be slower when installed in a thermowell. Be sure to install the probe so that it contacts the end of the thermowell for faster response. Thermal compound may be used depending on application.

# Sense Connection Head and Ceramic **Terminal Bases**



#### Overview

- Cast aluminum NEMA 4X, IP66 screw cover head with captive gasket
- One turn cover removal & installation eliminates cross threading and saves time
- 3/4" NPT conduit opening with internal stop to prevent overtightening and installation damage
- Gripping ribs on cover edge
- Stainless steel cover chain
- Made in the USA

	ProSense Aluminum Connection Head			
Part Number	Description	Pcs/ Pkg	Wt(lb)	Price
CHSC-AL-1	roSense general purpose screw cover connection head for temperature probes, die-cast aluminum, 1/2 IPT process opening, 3/4 NPT conduit opening, NEMA 4X, IP66 rated, graphite gasket, maximum temperature ating of 825°F (440°C)	1	1.0	\$24.50
Dimensio inches [mm] CHSC-AL-1	ns 3.75 [95.2] 1/2 NPT 3/4 NPT (96.6] (96.6] (96.6] (96.6] (44.5] (44.5] (44.5] (44.5] (44.5] (44.5] (2x 6-32 UNC COARSE (33.0]			
8 	<ul> <li>Available with two terminals for thermocouple</li> <li>Fits <u>CHSC-AL-1</u> connection heads</li> <li>Cermaic base with brass terminals and stainles</li> <li>Accepts up to 12 AWG wire</li> </ul>	s or three s	terminals ews	for RTD
CHTB-2	CHTB-3			

CHTB-2

1.50

[38.1]

	Terminal Base for Connection Heads										
Part Number	Description	Pcs/ Pkg	Wt(lb)	Price							
<u>CHTB-2</u>	ProSense ceramic terminal base, two brass terminals with stainless steel screws, for use with ProSense temperature probe connection heads, two mounting screws included.	1	1.0	\$6.50							
<u>CHTB-3</u>	ProSense ceramic terminal base, three brass terminals with stainless steel screws, for use with ProSense temperature probe connection heads, two mounting screws included.	1	1.0	\$7.50							

#### **Dimensions**

inches [mm]



[42.5]



# **Pr**Sense Compression Mounting Fittings for Temperature Probes

	Compression Mounting Fittings for Temperature Probes									
Part Number	Description	Pcs/ Pkg	Wt(lb)	Price						
<u>BCF18-125N</u>	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/8 inch NPT male thread	1	0.5	\$3.25	A - Maria					
<u>BCF14-125N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/8 inch NPT male thread	1	0.5	\$3.25						
<u>BCF18-25N</u>	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/4 inch NPT male thread	1	0.5	\$4.25						
BCF14-25N	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	0.5	\$4.25						
BCF18-50N	Compression fitting, brass, for 1/8 inch diameter temperature probes, 1/2 inch NPT male thread	1	0.5	\$6.00						
<u>BCF14-50N</u>	Compression fitting, brass, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	0.5	\$6.50	<u>BCF18-25N</u>					
<u>CF18-125N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/8 inch NPT male thread	1	0.5	\$8.00						
<u>CF14-125N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes,1/8 inch NPT male thread	1	0.5	\$8.00						
<u>CF18-25N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/4 inch NPT male thread	1	0.5	\$9.25						
<u>CF14-25N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/4 inch NPT male thread	1	0.5	\$9.25						
<u>CF18-50N</u>	Compression fitting, 316 stainless steel, for 1/8 inch diameter temperature probes, 1/2 inch NPT male thread	1	0.5	\$13.50	<u>BCF18-50N</u>					
<u>CF14-50N</u>	Compression fitting, 316 stainless steel, for 1/4 inch diameter temperature probes, 1/2 inch NPT male thread	1	0.5	\$14.00						
<u>CFTF-18</u> **	Teflon <sup>™</sup> ferrule for brass or stainless steel compression fittings and 1/8 diameter temperature probes	5	0.5	\$7.25						
<u>CFTF-14</u> **	Teflon ferrule for brass or stainless steel compression fittings and 1/4 diameter temperature probes	5	0.5	\$7.75						
<u>CF06-25N</u>	1/4 NPT stainless steel compression fitting for 0.24 inch (6 mm) diameter RTD probe with M12 connector.	1	0.18	\$33.00						
<u>CF10-50N</u>	1/2 NPT stainless steel compression fitting for 10 mm (0.4 inch) diameter RTD probe with M12 connector.	1	0.20	\$34.00	<u>88122N-20N</u>					
<u>CF18-BC</u>	Bayonet compression fitting, for 1/8" diameter probe sheath sensors	1	0.1	\$10.50	Sillion					
BB125N-50N	Reducing bushing, brass, 1/2 MNPT x 1/8 FNPT, hex head	1	0.1	\$6.00	Statistic (					

\* Working pressure of compression fitting should not exceed 500 psi. However we recommend any pressure application use a thermowell \*\* Teflon has a max working temperature range of -400 to 500°F (-240 to 260°C)



<u> CFTF-18</u>





CF14-125N

<u>CF18-BC</u>



CF14-50N

CF06-25N



<u>CF14-25N</u>



CF10-50N

# **Dr**Sense Compression Mounting Fittings for Temperature Probes

BCF14-50N









<u>CF18-25N</u>

<u>CF18-50N</u>

BCF14-25N

<u>CF18-125N</u>







#### **Dimensions**



Note: All threaded connections should be hand tightened and then turned 1 to 2 full turns for proper sealing.

Actual torque required for a proper seal of NPT threads is influenced by tolerance, sealant, lubricant, etc.

	ProSense Compression Fittings										
Part No.	Weight (lb)	Description	"T" Tube O.D.	"P" NPT(M)	"Ľ" Body Length*	"L1" Thread Length**	"F" Body Hex**	"G" Nut Hex**	"NĽ' Nut Length**		
<u>BCF18-125N/</u> <u>CF18-125N</u>	0.5	1/8" OD x 1/8" NPT(M)	0.128/0.132	1/8" NPT(M)	0.909"	0.393"	0.5"	0.433"	0.492"		
<u>BCF14-125N/</u> <u>CF14-125N</u>	0.5	1/4" OD x 1/8" NPT(M)	0.253/0.257	1/8"NPT(M)	1.0"	0.393"	0.5"	0.559"	0.5"		
<u>BCF18-25N/</u> <u>CF18-25N</u>	0.5	1/8" OD x 1/4" NPT(M)	0.128/0.132	1/4" NPT(M)	1.114"	0.551"	0.551"	0.433"	0.492"		
<u>BCF14-25N/</u> <u>CF14-25N</u>	0.5	1/4" OD x 1/4" NPT(M)	0.253/0.257	1/4" NPT(M)	1.188"	0.551"	0.551"	0.559"	0.5"		
<u>BCF18-50N</u> / <u>CF18-50N</u>	0.5	1/8" OD x 1/2" NPT(M)	0.128/0.132	1/2" NPT(M)	1.377"	0.748"	0.866"	0.433"	0.492"		
<u>BCF14-50N</u> / <u>CF14-50N</u>	0.5	1/4" OD x 1/2" NTP(M)	0.253/0.257	1/2" NPT(M)	1.437"	0.748"	0.866"	0.559"	0.5"		
<u>CF06-25N</u>	0.18	6 mm OD x 1/4" NPT(M)	0.236/0.240	1/4" NPT(M)	1.174"	0.59"	0.67"	0.55"	0.587"		
<u>CF10-50N</u>	0.20	10 mm OD x 1/2" NPT(M)	0.394/0.399	1/2" NPT(M)	1.458"	0.55"	1.06"	0.75"	0.608"		

Note: All dimensions are in inches

\* w 0.07

\*\* w 0.03

Note: Once the compression fitting has been fully tightened on the probe, the ferrule will be locked onto the probe and cannot be removed or reused.

\*Working pressure of compression fitting should not exceed 500 psi. However we recommend any pressure application use a thermowell



Scan the QR Code or click to view the CF06 & CF10 Compression Fitting Installation Instructions

# **Dr**Sense Bayonet Mounting Adapter for **Temperature Sensors**

Part Number	Description	Material	Pcs/ Pkg	Wt(lb)	Price
<u>BA-078</u>	Bayonet adapter, 7/8 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$1.75
<u>BA-100</u>	Bayonet adapter, 1 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$1.75
<u>BA-114</u>	Bayonet adapter, 1-1/4 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$2.25
<u>BA-112</u>	Bayonet adapter, 1-1/2 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT	Stainless Steel (304)	1	0.5	\$2.25
<u>BA-200</u>	Bayonet adapter, 2 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$2.50
<u>BA-212</u>	Bayonet adapter, 2-1/2 long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$2.75
<u>BA-300</u>	Bayonet adapter, 3 inch long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$3.00
<u>BA-312</u>	Bayonet adapter, 3-1/2 long, 7/16 inch outside diameter, 9/32 inch inside diameter, 1/8 inch MNPT		1	0.5	\$3.50
<u>CF18-BC</u>	Adjustable bayonet compression fitting, for 1/8" diameter probe sheath sensors		1	0.1	\$10.50
<u>BB125N-50N</u>	Reducing bushing, 1/2 MNPT x 1/8 FNPT, hex head	Brass	1	0.1	\$6.00







<u>CF18-BC</u>



<u>BA-300</u>

BA-112



BB125N-50N



BA-312





<u>BA-212</u>



# **Dr**Sense Pipe Clamp Adapters



<u>PCA-300</u>

#### Overview

- For use with ProSense adjustable immersion thermocouple and RTD sensors
- Available in adjustable diameters from 11/16 to 7 inches
- Provides an easy means of sensing temperature on the outside of a pipe



Shown with optional adjustable immersion sensor

Pipe Clamp Adapters for ProSense Adjustable Immersion Sensors										
Part Number	Description	Pcs/ Pkg	Wt(lb)	Price						
<u>PCA-125</u>	ProSense pipe clamp adapter, 11/16 to 1-1/4 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors.	1	0.1	\$19.00						
<u>PCA-200</u>	ProSense pipe clamp adapter with 1-1/16 to 2 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors.	1	0.1	\$19.00						
<u>PCA-300</u>	ProSense pipe clamp adapter with 2-1/16 to 3 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors.	1	0.1	\$21.00						
<u>PCA-425</u>	ProSense pipe clamp adapter with 3-5/16 to 4-1/4 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors.	1	0.1	\$24.00						
<u>PCA-500</u>	ProSense pipe clamp adapter with 4-1/8 to 7 inch adjustable diameter, 2-inch attached bayonet adapter with 7/16 inch outside diameter and 9/32 inch inside diameter. Use with Prosense adjustable immersion sensors.	1	0.1	\$22.50						

### Dimensions

#### inches [mm]



	TABLE A									
PART NUMBER	DIM "A"	FITS PIPE SIZES								
PCA-125	Ø0.68-1.25 [Ø17.2-31.7]	1/2 TO 3/4 NPS								
PCA-200	ø1.06-2.00 [ø26.9-50.8]	1 TO 1-1/2 NPS								
PCA-300	Ø2.06-3.00 [Ø52.3-76.2]	2 TO 2-1/2 NPS								
PCA-425	ø3.31-4.25 [ø84.1-108.0]	3 TO 3-1/2 NPS								
PCA-500	ø4.12-7.00 [ø104.6-177.8]	4 TO 6 NPS								

# Sense Thermocouple, RTD, and Thermistor Connectors

#### **Overview**

- Glass-filled high quality thermoplastic body with original thermocouple material pins and spring-loaded inserts
- Polarized pins
- Molded barriers prevent short circuit
- Captive central cover screw for easy assembly
- · Easy wire connection pressure plate

construction

- Stainless steel screws with combination head (Slotted and Phillips)
- 3-pin standard connectors have a third pin for ground or continuous shield, or for 3-wire RTDs

			T	nermoc	ouple, RTD, and Tl	hermistor	Connecto	rs	
Part Number	Pcs/ Pkg	Wt(lb)	Price	Sensor Type	Connector Type	Temperature Rating	Body Color	Wire Size	Wire Cable Clamp Bracket
<u>THMJ-SP</u>	1	0.5	\$4.50		Standard round pin plug			32  AVAC (0.2  mm)  to  14	WCBS
<u>THMJ-SJ</u>	1	0.5	\$5.75		Standard round pin jack		Disals	AWG	WCB-3
<u>THMJ-SPJ</u>	1	0.5	\$11.00		Standard round direct mount jack			maximum (2.0 mm)	-
THMJ-MP	1	0.5	\$3.75	0	Miniature flat pin plug		DIAGK	40 AWG (0.08 mm) to 20	
<u>THMJ-MJ</u>	1	0.5	\$4.25		Miniature flat pin jack			AWG	WCD-IVI
<u>THMJ-MPJ</u>	1	0.5	\$8.25		Miniature round direct mount jack	Max continuous		maximum (0.8 mm)	-
<u>THMK-SP</u>	1	0.5	\$4.50		Standard round pin plug	400°F (200°C)		32 AWG (0.2 mm) to 14	WCB-S
<u>THMK-SJ</u>	1	0.5	\$5.50		Standard round pin jack	_		AWG	W0D-0
<u>THMK-SPJ</u>	1	0.5	\$10.50		Standard round direct mount				maximum (2.0 mm)
THMK-MP	1	0.5	\$4.00	Miniature flat pin plug           K         Miniature flat pin jack		Yellow	40 000 (0.00		
THMK-MJ	1	0.5	\$4.25		Miniature flat pin jack	-		40 AWG (0.08 mm) to 20 AWG	WCB-M
THMK-MPJ	1	0.5	\$9.00		Miniature round direct mount			maximum (0.8 mm)	-
<u>THMK-HSP</u>	1	0.5	\$14.00		Standard hi-temp round pin	Max continuous	Daarina		
<u>THMK-HSJ</u>	1	0.5	\$16.50		Standard hi-temp round pin jack	662°F (350°C)	Brown	32 AWG (0.2 mm) to 14	WCB-S
<u>THMT-SP</u>	1	0.5	\$4.75		Standard round pin plug			ÂWG (2.0 mm)	
<u>THMT-SJ</u>	1	0.5	\$6.25		Standard round pin jack				
<u>THMT-SPJ</u>	1	0.5	\$10.50	] <sub>т</sub>	Standard round direct mount jack		Plue		-
<u>THMT-MP</u>	1	0.5	\$4.00		Miniature flat pin plug		Dide	40 AWG (0.08 mm) to 20	
<u>THMT-MJ</u>	1	0.5	\$4.50		Miniature flat pin jack	Max continuous		AWG	WCD-IM
<u>THMT-MPJ</u>	1	0.5	\$9.75		Miniature round direct mount jack			maximum (0.8 mm)	-
<u>RTD-SP</u>	1	0.5	\$9.25	BTD	Standard round pin plug				
<u>RTD-SJ</u>	1	0.5	\$12.00		Standard round pin jack		White	AWG maximum (2.0 mm)	WCB-S
<u>NTC-SJ</u>	1	0.5	\$6.75	Thermistor	Standard round pin jack				









RTD-SJ

THMK-SJ



THMK-MP



<u>THMJ-MJ</u>

THMT-SPJ

THMK-HSP

THMK-HSJ NTC-SJ













# Or Sense Thermocouple, RTD, and Thermistor Connectors

#### Dimensions





www.automationdirect.com

# **Thermocouple and RTD Connectors**

WCB-M

WCB-S





WCB-S Application

WCB-M Application





Thermocouple and RTD Connectors Accessories								
Part Number	Pcs/ Pkg	Wt(lb)	Price	Description				
WCB-S	10	0.5	\$12.00	Wire / cable clamp bracket for use with standard thermocouple and RTD connectors.				
<u>WCB-M</u>	10	0.5	\$12.00	Wire / cable clamp bracket for use with miniature thermocouple connectors.				

### Dimensions

inches [mm]

<u>WCB-S</u>



WCB-M







# Sense Bi-Metal Dial Thermometers



### **Applications**

Industrial process, hot/chilled water lines, boilers, HVAC, food processing and wastewater, OEM

#### **Features**

- General purpose 3" and 5" dial, 304 stainless steel thermometer
- Bi-metallic sensing element for reliable readings
- Back or adjustable angle connection
- Welded stem length from 2.5" to 9"
- Dual scale (°F / °C)
- ±1% accuracy
- Anti-parallax dial that reduces operator reading errors
- Re-zero adjustment screws
- Optional thermowells
- 5 year warranty



Click on the thumbnail or go to https://www.automationdirect.com/VID-TE-0001 for a short video on Bi-Metal **Dial Thermometers** 



ProSense 3" Dial Bi-Metal Thermometers								
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Thermowell			
<u>T30-N40160-25C</u>	Thermometer, 3 in. dial, 2.5 in. stem, -40 to 160 °F (-40 to 70 °C), center back mount	1	0.50	\$41.50				
<u>T30-0250-25C</u>	Thermometer, 3 in. dial, 2.5 in. stem, 0 to 250 °F (-18 to 120 °C), center back mount	1	0.50	\$41.50	<u>TW025-01</u> *			
<u>T30-50500-25C</u>	Thermometer, 3 in. dial, 2.5 in. stem, 50 to 500 °F (10 to 260 °C), center back mount	1	0.50	\$41.50	<u>TW025-03</u> *			
<u> 730-150750-25C</u>	Thermometer, 3 in. dial, 2.5 in. stem, 150 to 750 °F (70 to 400 °C), center back mount	1	0.50	\$41.50				
<u>T30-N40160-4C</u>	Thermometer, 3 in. dial, 4 in. stem, -40 to 160 °F (-40 to 70 °C), center back mount	1	0.50	\$41.50	T\M04_01*			
<u>T30-0250-4C</u>	Thermometer, 3 in. dial, 4 in. stem, 0 to 250 °F (-18 to 120 °C), center back mount	1	0.50	\$41.50	<u>TW04-01</u> TW04-02*			
<u>T30-50500-4C</u>	Thermometer, 3 in. dial, 4 in. stem, 50 to 500 °F (10 to 260 °C), center back mount	1	0.50	\$41.50	<u>TW04-03</u> *			
<u>T30-150750-4C</u>	Thermometer, 3 in. dial, 4 in. stem, 150 to 750 °F (70 to 400 °C), center back mount	1	0.50	\$41.50	<u>1 VV04-04</u> *			
<u>T30-N40160-6C</u>	Thermometer, 3 in. dial, 6 in. stem, -40 to 160 °F (-40 to 70 °C), center back mount	1	0.50	\$41.50	TW06 01*			
<u>T30-0250-6C</u>	Thermometer, 3 in. dial, 6 in. stem, 0 to 250 °F (18 to 120 °C), center back mount	1	0.50	\$41.50	TW06-02*			
<u>T30-50500-6C</u>	Thermometer, 3 in. dial, 6 in. stem, 50 to 500 °F (10 to 260 °C), center back mount	1	0.50	\$41.50	TW06-03*			
T30-150750-6C	Thermometer, 3 in. dial, 6 in. stem, 150 to 750 °F (70 to 400 °C), center back mount	1	0.50	\$41.50	<u>1 vv06-04</u> ^			

ProSense 5" Dial Bi-Metal Thermometers									
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Thermowell				
T50-N40160-25A	Thermometer, 5 in. dial, 2.5 in. stem, -40 to 160 °F (-40 to 70 °C), adjustable angle mount	1	1.30	\$95.00					
<u>T50-0250-25A</u>	Thermometer, 5 in. dial, 2.5 in. stem, 0 to 250 °F (-18 to 120 °C), adjustable angle mount	1	1.30	\$95.00	TW025-01*				
<u>T50-50500-25A</u>	Thermometer, 5 in. dial, 2.5 in. stem, 50 to 500 °F (10 to 260 °C), adjustable angle mount	1	1.30	\$95.00	<u>TW025-03</u> *				
<u>T50-150750-25A</u>	Thermometer, 5 in. dial, 2.5 in. stem, 150 to 750 °F (70 to 400 °C), adjustable angle mount	1	1.30	\$95.00					
<u>T50-N40160-4A</u>	Thermometer, 5 in. dial, 4 in. stem, -40 to 160 °F (-40 to 70 °C), adjustable angle mount	1	1.30	\$95.00	T\N/04_01*				
<u>T50-0250-4A</u>	Thermometer, 5 in. dial, 4 in. stem, 0 to 250 °F (-18 to 120 °C), adjustable angle mount	1	1.30	\$95.00	<u>TW04-01</u> *				
<u>T50-50500-4A</u>	Thermometer, 5 in. dial, 4 in. stem, 50 to 500 °F (10 to 260 °C), adjustable angle mount	10 to 260 °C), adjustable angle mount 1 1.30 \$95.00							
<u>T50-150750-4A</u>	Thermometer, 5 in. dial, 4 in. stem, 150 to 750 °F (70 to 400 °C), adjustable angle mount	1	1.30	\$95.00	<u>1 vv04-04</u> "				
<u>T50-N40160-6A</u>	Thermometer, 5 in. dial, 6 in. stem, -40 to 160 °F (-40 to 70 °C), adjustable angle mount	1	1.30	\$95.00	TW06 01*				
<u> 750-0250-6A</u>	Thermometer, 5 in. dial, 6 in. stem, 0 to 250 °F (-18 to 120 °C), adjustable angle mount	1	1.30	\$95.00	TW06-02*				
<u>T50-50500-6A</u>	Thermometer, 5 in. dial, 6 in. stem, 50 to 500 °F (10 to 260 °C), adjustable angle mount	1	1.30	\$95.00	TW06-03*				
<u>T50-150750-6A</u>	Thermometer, 5 in. dial, 6 in. stem, 150 to 750 °F (70 to 400 °C), adjustable angle mount	1	1.30	\$95.00	1000-04				
<u>T50-N40160-9A</u>	Thermometer, 5 in. dial, 9 in. stem, -40 to 160 °F (-40 to 70 °C), adjustable angle mount	1	1.50	\$95.00					
<u>T50-0250-9A</u>	Thermometer, 5 in. dial, 9 in. stem, 0 to 250 °F (-18 to 120 °C), adjustable angle mount	1	1.50	\$95.00	TW09-01*				
<u>T50-50500-9A</u>	Thermometer, 5 in. dial, 9 in. stem, 50 to 500 °F (10 to 260 °C), adjustable angle mount	1	1.50	\$95.00	TW09-03*				
<u>T50-150750-9A</u>	Thermometer, 5 in. dial, 9 in. stem, 150 to 750 °F (70 to 400 °C), adjustable angle mount	1	1.50	\$95.00					

\* Catalog pages for these thermowells are located on previous pages in this same section, under the "Thermowells for Spring-Loaded Thermocouples and RTD's, or Thermometers" pages.

# **Dr**Sense Bi-Metal Dial Thermometers

	Technical Specifications								
Dial Size	3.0" [76.2 mm] 5.0" [127 mm]								
Case	AISI 304 SS								
Stem	AISI 304 SS welded to socket, center AISI 304 center back, adjustab								
Lens	Glass, hermetically sealed								
Ring	AISI 304 SS								
Connection	1/2" NPT								
Sensing Element	Bi-met	allic coil							
Pointer	Aluminum,	painted black							
Maximum Operating Pressure	125 psi	(861 kPa)							
Operating Temperature	75% of full scale value (	recommended maximum)							
Ambient Temperatures	-58°F to 248°F	(-50°C to 120°C)							
Accuracy	±	1%							
Enclosure Rating	IF	268							

Note: The use of a thermowell is recommended to protect the thermometer in corrosive or pressure applications, as well as to maintain a closed system during its removal from the process.

#### Dimensions

Inches [mm]



Dimension "A" According to Thermometer Model								
Part Number Ending With:	Inches	Millimeters						
-25C	2.5"	63.5 mm						
-4C	4"	101.6 mm						
-6C	6"	152.4 mm						
-9C	9"	228.6 mm						



# CS LT and CSmicro Infrared Pyrometers

The Optris CS LT and CSmicro infrared pyrometer temperature sensors provide an accurate, non-contact way to measure temperature. Sensors come preconfigured and ready to use out of the box. They are available in different cable lengths and several output types, depending on model and configuration. CS LT models have a convenient Type K thermocouple or mV output for easy replacement of existing sensors\*. The CSmicro series comes in either mA or mV versions, multiple temperature ranges, and models ideal for measuring metals and metallic surfaces. Wires from both series are ferrule terminated for easy installation in most applications. All sensors feature tough, stainless-steel construction; fast response times as low as 8ms and easy adjustment of settings via the free IRmobile Android App or Windows software (CompactConnect). The Optris configuration cable (ACCSMIACC) is required to make changes to the sensor

settings. Non-contact temperature sensors, including the Optris pyrometers, are capable of measuring moving objects and can be used in applications in which traditional contact measurements are not possible, such as fast moving food products. Additionally, non-contact measurement can be used to count objects, like hot bottles passing by on a production line. Other advantages of non-contact temperature measurement include not influencing the actual temperature of the object, not causing damage or surface wear to the measuring location, and the ability to measure temperatures through glass with select models. Optris infrared temperature sensors are an excellent choice for applications that are moving, cannot be reached, are in areas that are too hot, or are near electrical interference.

\* Thermocouple output disabled by default. <u>ACCSMIACC</u> configuration cable required to make all configuration changes.



CS LT Series



**CSmicro Series** 

#### Features

- Tough, stainless-steel construction
- · German quality engineering and manufacturing
- Broad temperature sensing ranges
- Adjustable settings to fit many applications
- Fast response time: 8-150 ms dependent on model.
- Popular optical resolutions: 15:1, 22:1, 33:1 and 75:1 with spectral ranges of 8-14  $\mu m,$  1.6  $\mu m,$  and 2.3  $\mu m$
- · LED for alarm indication, aiming support, self-diagnostic or temperature code indication
- Wide power input range: 5-30 VDC
- Log and graph temperatures using free downloadable software

#### **Applications**

- Temperature readings:
- Of moving materials like films, bottles or baked goods
- Areas of high ambient heat through a protective window
- Objects in areas of high electromagnetic noise or that are carrying a voltage or current
- Of small areas, like the surfaces of microcontrollers or electrical components, without having an influence on the measured temperature
- Measure temperatures through glass on select models
- Temperature measurements of metals and metallic surfaces
- Counting objects based on temperature difference
- Monitoring for fast changes in temperature
- Plastic processing industries
- Metal processing industries

#### **Pyrometer Operation**

The Optris CS LT and CSmicro pyrometers input optics focus emitted infrared radiation onto an infrared detector. The detector generates an electrical signal that corresponds to the radiation, which is subsequently amplified and used for further processing. Digital signal processing transforms the signal into an output value proportional to the object's surface temperature, which is then provided as an analog output signal. The Optris pyrometers offered by AutomationDirect.com operate in the 8 to 14  $\mu m$  wavelength for general applications ,1.6  $\mu m$  wavelength for metal, and a 2.3  $\mu$ m for metallic surfaces and can measure through glass. The CSmicro 2M sensor is ideal for measuring the temperatures of low emissivity materials like metals. For 8-14 µm wavelength sensors low emissivity materials may require a coating to increase their surface emissivity to measure the temperature accurately. Krylon  $^{\ensuremath{\mathbb{R}}}$  black high heat spray paint can be used to coat and provide a surface emissivity close to 0.95 and is heat resistant up to 600°F. In general, higher emissivity surfaces will provide a more accurate temperature reading when using a pyrometer. The area measured is given as a ratio of distance to spot diameter. The Optris CS LT and CSmicro pyrometers are available in a range of distance to spot diameters from 15:1 to 75:1. A close focus lens accessory is also available for the CS LT, CSmicro LT, and CSmicro LTH pyrometers for measuring small areas.





# CS LT and CSmicro Infrared Pyrometers

D:S = 15:1 (26.7mm @ 400mm)



CS LT distance to spot size





CSmicro LT distance to spot size



D:S = 22:1 (50mm @ 1100mm)





# CS LT and CSmicro Infrared Pyrometers

D:\$ = 33:1 (48.5mm @ 1600mm)



D:S = 75:1 (16mm @ 1200mm)



CSmicro 2MH distance to spot size





Part No. OPTCSLT15SFCB8

# CS LT Series Infrared Pyrometers

#### **Features**

- Stainless-steel housing with M12x1 threaded end and two mounting nuts
- Up to 80°C (176°F) ambient temperature without cooling
- IP 63 environmental rating
- Selectable analog output 0 to 5/10 V scalable or thermocouple Type K
- Alarm output or digital output
- Green LED alarm indication, aiming support, self-diagnostic and temperature code indication
- Selectable signal processing (peak hold, valley hold, average or extended hold function with threshold and hysteresis)
- Easy configuration via IRmobile Android App and Windows software (CompactConnect)
- CE marked
- 2-year warranty



Optris CS LT Series Infrared Pyrometer Selection												
Part Number	Description	Measurement Range*	Spectral Response	Optical Resolution	Ambient Temp	Analog Output	Digital Output	Operating Voltage	End Mount	Cable	Wt (Ib)	Price
<u>OPTCSLT15SFCB1</u>	Optris CS 50 to 1030°C	s CS _50 to 1030°C	0.44	15:1 (26.7mm	-20 to 80°C	0-5 VDC, 0-10	$^{0}$ Alarm or	5 00 1/20	M12x1	1m integral 7-conductor shielded	0.15	\$125.00
OPTCSLT15SFCB8	pyrometer	(-58 to 1886°F)	ο-14 μm	@ 400mm)	(-4 to 176°F)	thermocouple	pulse output	5-30 VDC	threaded	8m integral 7-conductor shielded	0.59	\$165.00

\* Factory default range 0 to 350°C. ACCSMIACC configuration cable required to make all configuration changes.

# Optris CS LT Series Infrared Pyrometer Information Links

Part Number	Drawing Link	Manufacturer Specs	Manufacturer Quick Start	Manufacturer Manual
<u>OPTCSLT15SFCB1</u>	<u>PDF</u>	PDF	PDF	PDF
<u>OPTCSLT15SFCB8</u>	<u>PDF</u>	PDF	PDF	PDF



# CS LT Series Infrared Pyrometers

### Wiring



<sup>1)</sup> The t/c wires are indicated with an additional cable marker to avoid wrong connections due to the identical cable colors of other wires (white, green). Thermocouple output disabled by default. ACCSMIACC configuration cable required to make all configuration changes.

### **Pin Configuration**

Used Pin			Function					
Out	In/Out		Function					
x		Analog	0-5 V <sup>1)</sup> or 0-10 V <sup>2)</sup> / scalable					
X		Alarm	utput voltage adjustable; N/O or N/C					
X		Alarm	3-state alarm output (three voltage level for no alarm, pre-alarm, alarm)					
	x	Analog	Programmable open collector output (NPN type) [0-30 VDC/ 50 mA] $^{4)}$					
	x	Temp. Code	Temp. Code Output (open collector (NPN type)) [0-30 VDC/ 50 mA] 4)					
	x	Input	Programmable functions: • external emissivity adjustment • ambient temperature compensation • triggered signal output and peak hold function <sup>5)</sup>					
X	x	Serial digital <sup>3)</sup>	uni- (burst mode) or bidirectional					

1) 0...4.6 V at supply voltage 5 VDC; also valid for alarm output

<sup>2)</sup> Only at supply voltage  $\ge$  11 V

<sup>3)</sup> Inverted RS232, TTL, 9600 Baud

4) Loadable up to 500 mA if the mV output is not used

<sup>5)</sup> High level: > 0.8 V/ Low level: < 0.8 V





Part No. OPTCSMVLT15SF33

# CSmicro Series Infrared Pyrometers

#### Features

- 5-30 VDC Operating voltage
- M12x1 threaded end mount
- Stainless-steel, 28mm long housing with M12x1 threaded end and mounting nut
- Very small sensor size for installation in tight spaces
- High ambient operating temperature up to 180°C (356°F) without cooling
- IP 65 (NEMA 4) environmental rating
- Scalable analog output: CSMV models: 0 to 5/10 V or CSMA models: 4 to 20 mA (two-wire); additional simultaneous alarm output
- Green LED alarm indication, aiming support, self-diagnostic, or temperature code indication
- Selectable signal processing (peak hold, valley hold, average, or extended hold function with threshold and hysteresis)
- Easy configuration via IRmobile Android App and Windows software (CompactConnect)
- CE marked
- 2-year warranty



	Optris CSmicro Series Infrared Pyrometer Selection												
			Factory	Spectral	Ontinal	Amb	ient Temp	Analan Dinit			14/4		
Part Number	Description	Range	Default Temp Range	Range Response	Resolution	Sensing Head	Electronics*	Analog Output	Output	Cable	(Ib)	Price	
OPTCSMALT15SF0505	Optris CSmicro LT Series infrared pyrometer						-20 to 75°C (-4 to 167°F)	4-20 mA		1m integral 5-conductor	0.11	\$250.00	
OPTCSMVLT15SF0505		Optris CSmicro LT		0 to 350°C		15:1 (26.7mm	-20 to 120°C	-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded cable	0.11	\$250.00
OPTCSMALT15SF33		eries infrared pyrometer	(32 to 662°F)		@ 400mm)	(-4 to 248°F)	-20 to 75°C (-4 to 167°F)	4-20 mA		6m integral 5-conductor	0.35	\$300.00	
OPTCSMVLT15SF33		-50 to 1030°C		0.44			-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded cable	0.35	\$300.00	
OPTCSMALT22HSF0505		(-58 to 1886°F)	) 0 to 500°C (32 to 932°F)	0-14 µm		-20 to 180°C (-4 to 356°F)	-20 to 75°C (-4 to 167°F)	4-20 mA**		1m integral 5-conductor shielded cable	0.15	\$370.00	
OPTCSMVLT22HSF0505	Optris CSmicro LTH						-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC	Alarm		0.15	\$370.00	
OPTCSMALT22HSF33	Series infrared pyrometer						-20 to 75°C (-4 to 167°F)	4-20 mA**	output	6m integral 5-conductor	0.25	\$420.00	
OPTCSMVLT22HSF33					22:1 (50mm		-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded cable	0.35	\$420.00	
OPTCSMA3MLSF0505					@ 1100mm)		-20 to 75°C (-4 to 167°F)	4-20 mA		1m integral 5-conductor	0.10	\$690.00	
OPTCSMV3MLSF0505	Optris CSmicro 3ML	50 to 350°C	50 to 350°C	2.2 μm		-20 to 85⁰C	-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded cable	0.10	\$690.00	
OPTCSMA3MLSF33	Series infrared pyrometer	ries infrared (122 to 662°F) byrometer	(122 to 662°F)	2.3 µm		(-4 to 185°F)	-20 to 75°C (-4 to 167°F)	4-20 mA		6m integral 5-conductor		\$740.00	
OPTCSMV3MLSF33								-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded	0.35	\$740.00

\* For Vcc (supply voltage) 5-12VDC/ at Vcc > 12 VDC the max. ambient temperature of the electronics is 65°C

\*\* See manual for grounding instructions based on installation.

ACCSMIACC configuration cable required to make all configuration changes.



# CSmicro Series Infrared Pyrometers

Optris CSmicro Series Infrared Pyrometer Selection												
		Magaziramani	Factory	Spectral Range Response	Ontion	Amb	ient Temp	Anolog	Distil		14/4	
Part Number	Description	Range	Default Temp Range		Resolution	Sensing Head	Electronics*	Analog Output	Output	Cable	(Ib)	Price
<u>OPTCSMA3MHSF0505</u>				2.3 µm			-20 to 75℃ (-4 to 167°F)	4-20 mA		1m integral 5-conductor	0.10	\$525.00
<u>OPTCSMV3MHSF0505</u>	Optris	100 to 600°C	100 to 600°C		33:1 (48.5mm @ 1600mm)	-20 to 85℃ (-4 to 185°F)	-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded cable		\$525.00
<u>OPTCSMA3MHSF33</u>	Series infrared pyrometer	Series infrared (212 to 1112°F) pyrometer	(212 to 1112°F)				-20 to 75℃ (-4 to 167°F)	4-20 mA		6m integral 5-conductor shielded cable	0.35	\$575.00
<u>OPTCSMV3MHSF33</u>							-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC				\$575.00
<u>OPTCSMA2MHSF0505</u>			385 to 1600°C (725 to 2912°F)	1.6 µm	75:1 (16mm @ 1200mm)		-20 to 75℃ (-4 to 167°F)	4-20 mA	Alarm or pulse output	1m integral 5-conductor shielded cable	0.10	\$560.00
<u>OPTCSMV2MHSF0505</u>	Optris CSmicro 2MH	385 to 1600°C				-20 to 125⁰C	-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC				\$560.00
<u>OPTCSMA2MHSF33</u>	Series infrared pyrometer	infrared (725 to 2912°F) meter				(-4 to 257°F)	-20 to 75°C (-4 to 167°F)	4-20 mA		6m integral 5-conductor	0.25	\$610.00
OPTCSMV2MHSF33		<u>SF33</u>						-20 to 80°C (-4 to 176°F)	0-5 VDC, 0-10 VDC		shielded cable	0.35

\* For Vcc (supply voltage) 5-12VDC/ at Vcc > 12 VDC the max. ambient temperature of the electronics is 65°C <u>ACCSMIACC</u> configuration cable required to make all configuration changes.

# CSmicro Series Infrared Pyrometers

Optris CSmicro Series Infrared Pyrometer Information Links									
Part Number	Drawing Link	Manufacturer Specs	Manufacturer Manual						
OPTCSMALT15SF0505	PDF	PDF	PDF						
OPTCSMVLT15SF0505	PDF	PDF	PDF						
OPTCSMALT15SF33	PDF	PDF	PDF						
<u>OPTCSMVLT15SF33</u>	PDF	PDF	PDF						
OPTCSMALT22HSF0505	PDF	PDF	PDF						
<u>OPTCSMVLT22HSF0505</u>	PDF	PDF	PDF						
OPTCSMALT22HSF33	PDF	PDF	PDF						
OPTCSMVLT22HSF33	PDF	PDF	PDF						
OPTCSMA3MLSF0505	PDF	PDF	PDF						
OPTCSMV3MLSF0505	PDF	PDF	PDF						
<u>OPTCSMA3MLSF33</u>	PDF	PDF	PDF						
<u>OPTCSMV3MLSF33</u>	PDF	PDF	PDF						
<u>OPTCSMA3MHSF0505</u>	PDF	PDF	PDF						
OPTCSMV3MHSF0505	PDF	PDF	PDF						
<u>OPTCSMA3MHSF33</u>	PDF	PDF	PDF						
<u>OPTCSMV3MHSF33</u>	PDF	PDF	PDF						
<u>OPTCSMA2MHSF0505</u>	PDF	PDF	PDF						
OPTCSMV2MHSF0505	PDF	PDF	PDF						
OPTCSMA2MHSF33	PDF	PDF	PDF						
OPTCSMV2MHSF33	PDF	PDF	PDF						



# CSmicro Series Infrared Pyrometers

#### Wiring



### **Pin Configuration**

Used	d Pin	Function	COMU	09888		
Out	In/Out	Function	23///	COMA		
x		Analog	0-5 V <sup>1)</sup> or 0-10 V <sup>2)</sup> / scalable	4-20 mA/ scalable (current loop between Power and GND pin)		
x		Alarm	Output voltage adjustable; N/O or N/C	Output current adjustable; N/O or N/C (current loop between Power and GND pin)		
X		Alarm	3-state alarm output (three voltage level for no alarm, pre-alarm, alarm)	-		
	x	Alarm	Programmable open collector output (NPN type) [0-30 V DC/ 50 mA] <sup>4</sup> )	Programmable open collector (NPN type) [0-30 V DC/ 500 mA]		
	x	Temp. Code	Temp. Code Output (open collector (NPN type)) [0-30 V DC/ 50 mA] <sup>4</sup> )	Temp. Code Output (open collector (NPN type)) [0-30 V DC/ 500 mA]		
	x	Input	Programmable functions: • external emissivity adjustment • ambient temperature compensation • triggered signal output and peak hold function <sup>5</sup> ) • reset of hold function <sup>6</sup> )	Programmable functions: • triggered signal output and peak hold function <sup>5)</sup> • reset of hold function <sup>7)</sup>		
x	x	Serial digital <sup>3)</sup>	uni- (burst mode) or bidirectional	uni- (burst mode) or bidirectional		

<sup>1)</sup> 0...4.6 V at supply voltage 5 VDC; also valid for alarm output

<sup>2)</sup> Only at supply voltage  $\geq$  11 V

<sup>3)</sup> Inverted RS232, TTL, 9600 Baud

<sup>4)</sup> 500 mA if the mV output is not used

<sup>5)</sup> High level: > 0.8 V/ Low level: < 0.8 V

<sup>6</sup> Reset of peak or valley hold by High level at IN/ OUT pin (Low: open or GND / High: >2.4 V...11 V)

7) Reset of peak or valley hold by Low level at IN/ OUT pin (Low: GND / High: open or >1 V...11 V)



# **CS Series Infrared Pyrometer Accessories**

Optris CS Series Infrared Pyrometer Accessories										
Item Photo	Part No.	Description	Weight	Price	Drawing Link					
	<u>ACCTCF</u> *	Optris close focus lens, for use with Optris CS LT and Optris CSmicro IR pyrometers.	0.03	\$60.00	PDF					
C.S.S	<u>ACCTFB</u> **	Optris swivel mounting bracket, for use with Optris CS LT and Optris CSmicro IR pyrometers.	0.04	\$30.00	<u>PDF</u>					
	<u>ACCTMB</u> **	Optris mounting bolt, M12 x 1. For use with Optris CS LT and Optris CSmicro IR pyrometers and ACCTFB mounting bracket. M12x1 nut included.	0.08	\$30.00	<u>PDF</u>					
	ACCSAP	Optris standard air purge collar, for use with Optris CS LT and Optris CSmicro IR pyrometers. 3x5mm air hose connection.	0.07	\$45.00	PDF					
	<u>ACCTRAM</u> *	Optris right angle mirror, for use with Optris CS LT and Optris CSmicro IR pyrometers.	0.04	\$85.00	PDF					
a dime	<u>ACCSMIACC</u>	Optris configuration cable, USB-C to 5-pin terminal, 3.7ft/1.1m cable length. For use with Optris CS IR pyrometers and PC or Android configuration software.	0.12	\$60.00	PDF					

\* Optical accessories require adjusting the sensors settings. See manual for parameter adjustment instructions. \*\* Mounting bracket and mounting bolt can be combined into a 2 axis mounting assembly.



# CS Series Infrared Pyrometer Accessories

### Close Focus Lens Accessory (ACCTCF)

The Optris close focus lens accessory (<u>ACCTCF</u>) allows for focusing on a very small - less than 1mm - area and can be used on CS LT or the CSmicro LT and LTH series pyrometers. When the close focus lens is used, the sensor transmission setting must be set to 0.78. To change this value, the programming cable accessory (<u>ACCSMIACC</u>) is required (**sold separately**).





# CS Series Infrared Pyrometer Accessories

### Right Angle Mirror Accessory (ACCTRAM)

The right angle mirror allows measurements at a 90° angle. The mirror has a reflection of 96% (some deviation is possible) in combination with Optris CS LT or CSmicro series pyrometers. When using the mirror accessory, the emissivity value of the measurement object should be multiplied by 0.96. For example, an object with an emissivity of 0.85 would be multiplied by 0.96, giving a final emissivity of 0.816. In this example, the sensor emissivity should then be adjusted to 0.816. To change this value, the programming cable accessory <u>ACCSMIACC</u> is required (**sold separately**).

### Air Purge Accessory (ACCSAP)

The air purge accessory should be used to keep the lens of the Optris CS LT or CSmicro sensors clean when there is heavy contamination in the air around the sensor. The Optris air purge accessory should be supplied approximately 2 to 10 liters per minute (I/min) of clean, oil-free air via the 3x5mm hose connection.

### Configuration Cable (ACCSMIACC)

The Optris configuration cable (**sold separately**) provides a USB connection to either a Windows computer or an Android phone or tablet. Using either the IRmobile Android App or Windows software (CompactConnect), the Optris sensor can be configured, and the sensor values can be monitored and analyzed. The terminal block included with the configuration cable makes connecting the sensor and configuration cable easy by pressing the release with a screwdriver and inserting the wire of the sensor. When connecting the sensor to the configuration cable, match the wire color of the configuration cable works on most Android devices running 5.0 or higher with a USB port that supports USB-OTG (On The Go). The free IRmobile Android App is available direct from the Google Play store and the CompactConnect Windows software can be downloaded from Automationdirect.com. See manual for additional information on data logging, graphing and serial communication.

### Scan to download the free IRmobile Android App



available on Google Play





**CSlaser Pyrometers** 

The Optris CSlaser infrared pyrometer temperature sensor provides an accurate, non-contact way to measure temperature. Sensors come preconfigured and ready to use out of the box. All CSlaser pyrometers provide double laser aiming to easily determine the measurement spot on the object surface and adjustable switches for setting the sensors emissivity value. The CSlaser series provides an analog 4-20mA output, multiple temperature ranges, and models ideal for measuring metals and ceramic materials. The CSlaser sensors feature a tough, stainless-steel construction with integrated electronics, fast response times as low as 10 ms, and easy adjustment of settings via the free IRmobile Android App or Windows software (CompactConnect). The Optris configuration cable <u>ACCSMIACC</u> is required to make changes to the sensor settings. Non-contact temperature sensors, including the Optris pyrometers, are capable of measuring moving objects and can be used in applications in which traditional contact measurements are not possible, such as fast moving food products. Additionally, non-contact measurement can be used to count objects, like hot bottles passing by on a production line. Other advantages of noncontact temperature measurement include not influencing the actual temperature of the object, not causing damage or surface wear to the measuring location. Optris infrared temperature sensors are an excellent choice for applications that are moving, cannot be reached, are in areas that are too hot, or are near electrical interference.



Part No. <u>OPTCSLLTSF</u>



Part No. <u>OPTCSL2MLSF</u>

#### Features

- Tough, stainless-steel construction
- German quality engineering and manufacturing
- Broad temperature sensing ranges
- Adjustable settings to fit many applications
- Fast response time: 10-150 ms dependent on model
- Popular optical resolutions: 50:1, 150:1, and 300:1 with spectral ranges of 8-14 μm and 1.6 μm
- Innovative double-laser sighting for exact marking of measurement targets without the need
- of lookup tables or graphs • Wide power input range: 5-30 VDC
- Log and graph temperatures using free downloadable software
- 2 wire, loop powered for easy installation

#### **Applications**

- Temperature readings:
- Of moving materials like films, bottles or baked goods
- Areas of high ambient heat through a protective window
- Objects in areas of high electromagnetic noise or that are carrying a voltage or current
- Of small areas, like the surfaces of microcontrollers or electrical components, without having an influence on the measured temperature
- Of metals and ceramic surfaces with 2M models
- · Counting objects based on temperature difference
- Monitoring for fast changes in temperature
- Plastic processing industries
- Metal processing industries

#### **CSlaser Pyrometer Laser Aiming Operation**

The Optris CSlaser pyrometers measure surface temperature the same way the CS LT and CSmicro series pyrometers do with the added advantage of a double laser aiming system. The dual lasers intersect at the focal point where the measurement area, or spot size, is smallest. This makes aiming and determining the focal point easy without referencing distance to spot size charts. The area measured is given as a ratio of distance to spot diameter. The Optris CSlaser pyrometers offered by AutomationDirect.com operate in the 8 to 14  $\mu$ m wavelength for general applications or 1.6  $\mu$ m wavelength for metal surfaces depending on model. The Optris CSlaser pyrometers are also available in spot sizes of 50:1, 150:1, and 300:1 depending on the model selected providing a greater distance range to the smallest point of measurement compared to the CS LT and CSmicro series pyrometers.





### **CSlaser Pyrometers**







CSlaser 2ML 150:1 (7.3 mm @ 1100mm) D:S Far field = 42:1 CSlaser 2MH 300:1 (3.7 mm @ 1100mm) D:S Far field = 48:1

Optris CSIaser Series Pyrometer Selection													
Part Number	Description	Measurement Range	Factory Default Temp Range	Spectral Range Response	Optical Resolution	Ambient Temp	Analog Output	Digital Output	Operating Voltage	End Mount	Electrical Connection	Wt (Ib)	Price
<u>OPTCSLLTSF</u>	Optris CSlaser LT Series Pyrometer	-30 to 1000°C (-22 to 1832°F)	0 to 500°C	8-14 µm	50:1 (24mm @ 1200mm)							1.36	\$700.00
<u>OPTCSL2MLSF</u>	Optris CSlaser 2ML Series Pyrometer	250 to 800°C (482 to 1472°F)	250 to 800°C	- 1.6 μm	150:1 (7.3mm @ 1100mm)	-20 to 85°C (-4 to 185°F)	4-20 mA	nA Alarm	5-30 VDC	M48 x 1.5mm	Removable terminal block	1.36	\$800.00
<u>OPTCSL2MHSF</u>	Optris CSlaser 2MH Series Pyrometer	385 to 1600°C (725 to 2912°F)	385 to 1600°C		300:1 (3.7mm @ 1100mm)							1.36	\$800.00

\* For Vcc (supply voltage) 5-12VDC/ at Vcc > 12 VDC the max. ambient temperature of the electronics is 65°C <u>ACCSMIACC</u> configuration cable required to make all configuration changes.

Optris CSlaser Series Pyrometer Information Links								
Part Number	Drawing Link	Manufacturer Specs	Manufacturer Manual					
<u>OPTCSLLTSF</u>	PDF	PDF	PDF					
OPTCSL2MLSF	PDF	PDF	PDF					
OPTCSL2MHSF	PDF	PDF	PDF					



# **CSlaser Pyrometers**

#### Wiring

#### **Designation (sensor terminal block)**

RXD	Receive data (digital)
TXD	Transmit data (digital)
LOOP +	Current loop (+)
LOOP -	Current loop (–)
LASER –	Power supply laser (-)
LASER +	Power supply laser (+)

Above the terminal block you will find two rotary switches for emissivity setting.



Sensor back side with terminal block



### Emissivity

After opening of the sensor backplane both of the emissivity switches are accessible.



For an emissivity setting of **1.00** please turn both switches to **0**. Values below **0.10** are not adjustable. For all other switch positions the following applies: **0**, <u>S1 S2</u>. Therefore the adjustment range is **0.10...1.09**.

#### <u>Example:</u> ε = 0.84 S1=8

S1=6 S2=4

If you use the software (optional) please consider that the emissivity switches can be activated/ deactivated in the software menu **Device/Device setup**. At time of delivery the switches are active.

The emissivity set in the software interacts as a factor to the emissivity set on the unit. Thus the adjustment range increases to **0.100...1,199**.

**Example:**  $\epsilon_{Software} = 0.952 \times \epsilon_{Sensor} = 0.82 (S1=8/S2=2)$ Therefore the effective emissivity is: 0.781.

eneral mAoutput Output	Alarm Pos	t processing Calibration
General setup		_
Transmission:	1,000	
Avg. Time [s]:	0,200	Smart averaging
Emissivity:	0,952	
Ambient temp. source:	Internal (	head) 👻
Emissivity switches :		
Emissivity switches : Enable emissivity switch Emissivit	es ty switche:	s = 0,82
Emissivity switches : Enable emissivity switch Emissivit Emissivity = fix	es ty switches value * sw	s = 0,82 itches ( 0,781)
Emissivity switches : Enable emissivity switch Emissiviti Emissivity = fix IN Comm	ty switches value * sw unication i	s = 0,82 itches ( 0,781) input
Emissivity switches : Emissivity switch Emissivity Emissivity = fix IN Comm Save Config Factor	ty switches value * sw unication i	s = 0,82 itches ( 0,781) input Cancel



# CSlaser Pyrometer Accessories

Optris CSIaser Series Pyrometer Accessories								
Item Photo	Part No.	Description	Weight	Price	Drawing Link			
9	<u>ACCTLAB</u>	Optris mounting bracket, two axis. For use with Optris CSlaser IR pyrometers.	1.1	\$115.00	PDF			
	<u>ACCTLAP</u>	Optris air purge collar, for use with Optris CSlaser IR pyrometers.	1.2	\$135.00	PDF			
Alter and a second	<u>ACCSMIAC</u>	Optris configuration cable, micro USB to 5-pin terminal. For use with Optris CS IR pyrometers and PC or Android configuration software. Comes with a USB A and USB C adapter.	0.12	Retired	PDF			
A. A. A.	ACCSMIACC	Optris configuration cable, USB-C to 5-pin terminal, 3.7ft/1.1m cable length. For use with Optris CS IR pyrometers and PC or Android configuration software.	0.12	\$60.00	PDF			

### Air Purge Accessory (<u>ACCTLAP</u>)

The air purge accessory should be used to keep the lens of the Optris CSlaser clean when there is heavy contamination in the air around the sensor. The Optris air purge accessory should be supplied approximately 2 to 10 liters per minute (I/min) of clean, oil-free air via the 6x8mm hose connection.

### Configuration Cable (ACCSMIAC)

The Optris configuration cable (**sold separately**) provides a USB connection to either a Windows computer or an Android phone or tablet. Using either the IRmobile Android App or Windows software (CompactConnect), the Optris sensor can be configured, and the sensor values can be monitored and analyzed. The terminal block included with the configuration cable makes connecting the sensor and configuration cable easy by pressing the release with a screwdriver and inserting the wire of the sensor. When connecting the sensor to the configuration cable, match the wire color of the configuration cable with the sensor wire color. The configuration cable works on most Android devices running 5.0 or higher with a USB port that supports USB-OTG (On The Go). The free IRmobile Android App is available direct from the Google Play store and the CompactConnect Windows software can be downloaded from Automationdirect.com. See manual for additional information on data logging, graphing and serial communication.

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### Scan to download the free IRmobile Android App



available on Google Play

