

# LT Series Linear Potentiometers



## Features

- Excellent reliability under all conditions
- Suitable for use in applications with heavy vibration
- Designed for easy installation thanks to an absence of electrical signal variation in output
- Mounting grooves provide a good alternative to fastening with brackets
- Typical applications include plastic injection presses, vertical presses, and many other types of processing machinery
- All potentiometers are individually tested at the manufacturer, and an individualized Linearity Error Chart is included with each unit

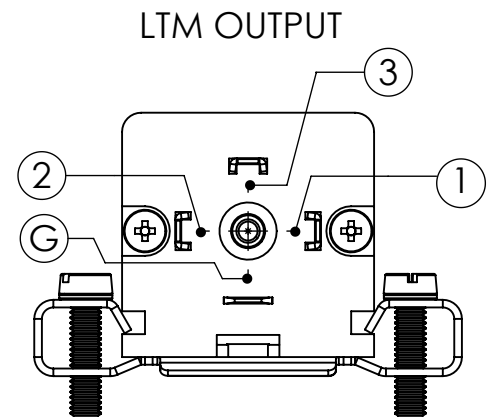
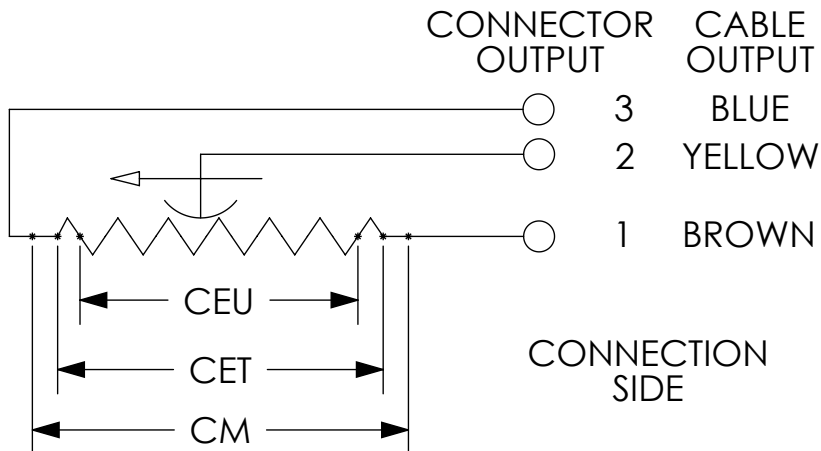
## LT Series Linear Potentiometers Selection Chart

Part Number	Price	Drawing Link	Useful Electrical Stroke (CEU) mm [in]	Theoretical Electrical Stroke (CET) mm [in]	Resistance	Mechanical Stroke (CM) mm [in]	Case Length (A) mm [in]
<a href="#">LT-M-0050-S-L</a>	\$160.00	<a href="#">PDF</a>	50 [1.97]	53 [2.09]	5K $\Omega$	59 [2.32]	113 [4.45]
<a href="#">LT-M-0075-S-L</a>	\$169.00	<a href="#">PDF</a>	75 [2.95]	78 [3.07]	5K $\Omega$	84 [3.31]	138 [5.43]
<a href="#">LT-M-0100-S-L</a>	\$172.00	<a href="#">PDF</a>	100 [3.94]	103 [4.06]	5K $\Omega$	109 [4.29]	163 [6.42]
<a href="#">LT-M-0130-S-L</a>	\$180.00	<a href="#">PDF</a>	130 [5.12]	133 [5.24]	5K $\Omega$	139 [5.47]	193 [7.60]
<a href="#">LT-M-0150-S-L</a>	\$188.00	<a href="#">PDF</a>	150 [5.91]	153 [6.02]	5K $\Omega$	159 [6.26]	213 [8.39]
<a href="#">LT-M-0175-S-L</a>	\$193.00	<a href="#">PDF</a>	175 [6.89]	178 [7.01]	5K $\Omega$	184 [7.24]	238 [9.37]
<a href="#">LT-M-0200-S-L</a>	\$196.00	<a href="#">PDF</a>	200 [7.87]	204 [8.03]	5K $\Omega$	210 [8.27]	264 [10.39]
<a href="#">LT-M-0250-S-L</a>	\$219.00	<a href="#">PDF</a>	250 [9.84]	254 [10.00]	5K $\Omega$	260 [10.24]	314 [12.36]
<a href="#">LT-M-0300-S-L</a>	\$222.00	<a href="#">PDF</a>	300 [11.81]	304 [11.97]	5K $\Omega$	310 [12.20]	364 [14.33]
<a href="#">LT-M-0400-S-L</a>	\$311.00	<a href="#">PDF</a>	400 [15.75]	406 [15.98]	5K $\Omega$	412 [16.22]	466 [18.35]

## LT Series Linear Potentiometers Specifications

Independent Linearity (Within CEU)	$\pm 0.05\%$
Resolution	Infinite
Repeatability	0.01 mm [0.0004 in]
Electrical Connections	4 pole connector DIN43650
Displacement Speed	Standard $\leq 10$ m/s [32.81 ft/s]
Protection Level	IP60
Life	$> 25 \times 10^6$ strokes or $> 100 \times 10^6$ maneuvers, whichever is less (within CEU)
Displacement Force	3.5 N (typical) IP60 version, 15N (typical) IP65 version
Vibrations	5-2000 Hz: $A_{max}=0.75$ mm [0.03 in], $a_{max}=20g$
Shock	50g, 11ms
Acceleration	200 m/s <sup>2</sup> max (20g)
Tolerance on Resistance	$\pm 20\%$
Recommended Cursor Current	$< 0.1 \mu A$
Maximum Cursor Current	10mA
Maximum Applicable Voltage	60V
Electrical Isolation	$> 100M\Omega$ at 500V~, 1bar, 2s
Dielectric Strength	$< 100\mu A$ at 500V~, 50Hz, 2s, 1bar
Dissipation at 40 °C [104 °F] (0W at 120 °C [248 °F])	3W
Thermal Coefficient of Resistance	-200 to +200 ppm/°C typical
Actual Temperature Coefficient of Output Voltage	$\leq 5$ ppm/°C typical
Working Temperature	-30 to +100°C [-22 to +212°F]
Storage Temperature	-50 to +120°C [-58 to 248°F]
Case Material	Anodized aluminum, Nylon 66
Shaft Material	Stainless steel AISI 303
Mounting	Brackets with adjustable distance between centers, or with M5 screw ISO4017-DIN933

## Electrical Connections



When choosing a transducer, it is important to remember that three different strokes exist:

- Mechanical Stroke (CM): The actual shift that the transducer's cursor (wiper) is able to make.
- Useful Electrical Stroke (CEU): The part of the mechanical stroke in which transducer linearity is guaranteed.
- Theoretical Electrical Stroke (CET): Stroke expressed in mm or angular degrees between the electrical zero ( $V_{out}=0$ ) and the electrical limit switch ( $V_{out}=V_s$ ), which physically is equal to the distance between the silver pitches at the ends of the resistive track.

Therefore, when designing an application, you should choose a transducer with a useful electrical stroke that is equal to or greater than the maximum displacement carried out by the moving part.

# PC Series Linear Potentiometers With Cylindrical Case



## Features

- Designed with mechanical strength to handle demanding applications
- 10mm [0.39 in] diameter rod, large steel joints, and reinforced structure are ideal for metalworking, woodworking and ceramics applications
- Designed for easy installation thanks to an absence of electrical signal variation in output
- Self-aligning and weight-bearing rod eyes permit assembly with free movement of the transducer axle
- All potentiometers are individually tested at the manufacturer, and an individualized Linearity Error Chart is included with each unit

## PC Series Linear Potentiometers Selection Chart

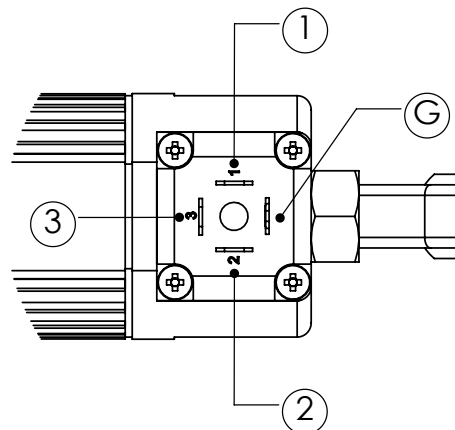
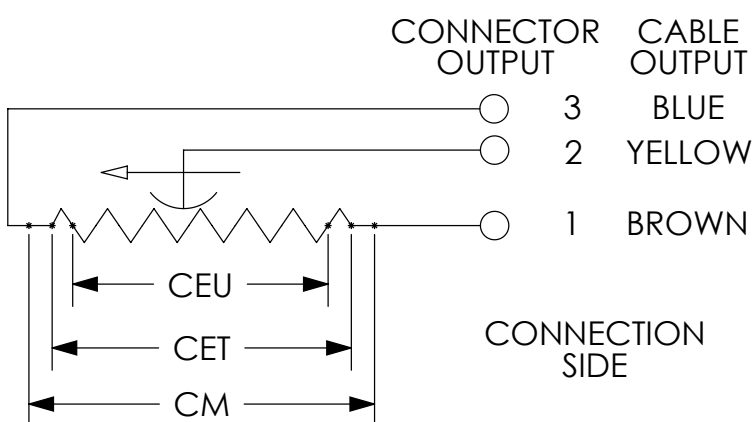
Part Number	Price	Drawing Link	Useful Electrical Stroke (CEU) mm [in]	Theoretical Electrical Stroke (CET) mm [in]	Resistance	Mechanical Stroke (CM) mm [in]	Case Length (A) mm [in]	Minimum Distance Between Rod Eyes (B) mm [in]
<a href="#">PC-M-0050-L</a>	\$306.00	<a href="#">PDF</a>	50 [1.97]	53 [2.09]	5KΩ	59 [2.32]	180.5 [7.11]	227
<a href="#">PC-M-0100-L</a>	\$326.00	<a href="#">PDF</a>	100 [3.94]	103 [4.06]	5KΩ	109 [4.29]	230.5 [9.07]	227
<a href="#">PC-M-0125-L</a>	\$335.00	<a href="#">PDF</a>	130 [5.12]	133 [5.24]	5KΩ	139 [5.47]	260.5 [10.26]	307
<a href="#">PC-M-0150-L</a>	\$346.00	<a href="#">PDF</a>	150 [5.91]	153 [6.02]	5KΩ	159 [6.26]	280.5 [11.04]	327
<a href="#">PC-M-0175-L</a>	\$353.00	<a href="#">PDF</a>	175 [6.89]	178 [7.01]	5KΩ	184 [7.24]	305.5 [12.03]	352
<a href="#">PC-M-0200-L</a>	\$358.00	<a href="#">PDF</a>	200 [7.87]	204 [8.03]	5KΩ	210 [8.27]	331.5 [13.05]	378
<a href="#">PC-M-0225-L</a>	\$366.00	<a href="#">PDF</a>	225 [8.86]	229 [9.02]	5KΩ	235 [9.25]	356.5 [14.04]	403
<a href="#">PC-M-0275-L</a>	\$379.00	<a href="#">PDF</a>	275 [10.83]	279 [10.98]	5KΩ	285 [11.22]	406.5 [16.00]	453
<a href="#">PC-M-0300-L</a>	\$382.00	<a href="#">PDF</a>	300 [11.81]	304 [11.97]	5KΩ	310 [12.20]	431.5 [16.00]	478

## PC Series Linear Potentiometers Specifications

Independent Linearity (Within CEU)	± 0.05%
Resolution	Infinite
Repeatability	0.01 mm [0.0004 in]
Electrical Connections	4 pole connector DIN43650
Displacement Speed	Standard ≤ 10 m/s [32.81 ft/s]
Protection Level	IP65
Life	> 25x106 strokes or > 100x106 operations, whichever is less (within CEU)
Displacement Force	≤15N
Vibrations	5-2000 Hz: Amax=0.75 mm [0.03 in], amax=20g
Shock	50g, 11ms
Acceleration	-
Tolerance on Resistance	±20%
Recommended Cursor Current	< 0.1 μA
Maximum Cursor Current	10mA
Maximum Applicable Voltage	60V
Electrical Isolation	>100MΩ at 500V~, 1bar, 2s
Dielectric Strength	< 100μA at 500V~, 50Hz, 2s, 1bar
Dissipation at 40 °C [104 °F] (0W at 120 °C [248 °F])	3W
Thermal Coefficient of Resistance	-
Actual Temperature Coefficient of Output Voltage	≤ 1.5 ppm/°C
Working Temperature	-30 to +100°C [-22 to +212°F]
Storage Temperature	-50 to +120°C [-58 to 248°F]
Case Material	Anodized aluminum, Nylon 66
Shaft Material	Stainless steel AISI 303
Mounting	Two self-loading and self-aligning rod eyes

# PC Series Linear Potentiometers With Cylindrical Case

## Electrical Connections

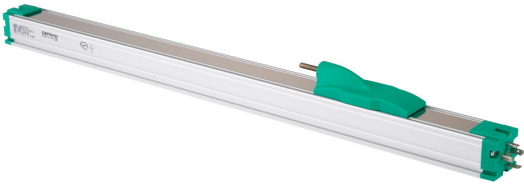


### When choosing a transducer, it is important to remember that three different strokes exist:

- Mechanical Stroke (CM): The actual shift that the transducer's cursor (wiper) is able to make.
- Useful Electrical Stroke (CEU): The part of the mechanical stroke in which transducer linearity is guaranteed.
- Theoretical Electrical Stroke (CET): Stroke expressed in mm or angular degrees between the electrical zero ( $V_{out}=0$ ) and the electrical limit switch ( $V_{out}=V_s$ ), which physically is equal to the distance between the silver pitches at the ends of the resistive track.

Therefore, when designing an application, you should choose a transducer with a useful electrical stroke that is equal to or greater than the maximum displacement carried out by the moving part.

# PK Series Rodless Linear Potentiometers



## Features

- Excellent reliability under all conditions
- Mechanical linkage joint (M5 thread) takes up play
- Designed for easy installation thanks to an absence of electrical signal variation in output
- Mounting grooves provide a good alternative to fastening with brackets
- Typical applications include plastic injection presses, vertical presses, and many other types of processing machinery
- Grade of protection: IP40
- All potentiometers are individually tested at the manufacturer, and an individualized Linearity Error Chart is included with each unit



## PK Series Rodless Linear Potentiometers Selection Chart

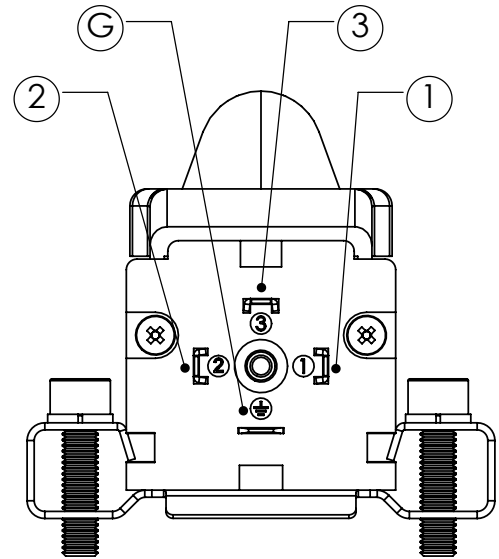
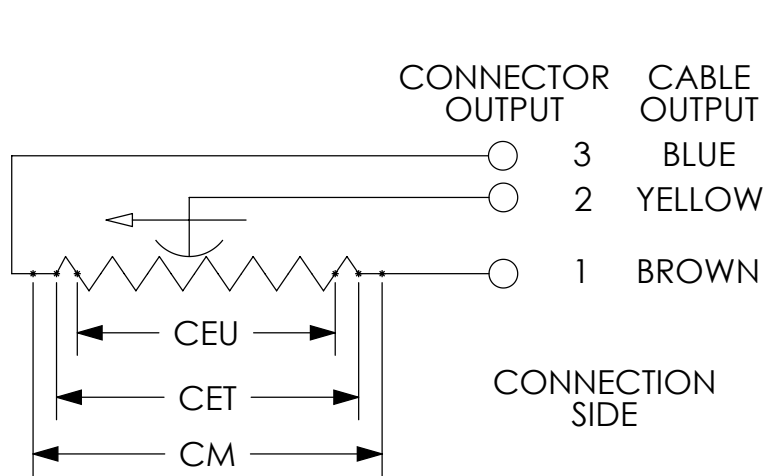
Part Number	Price	Drawing Link	Useful Electrical Stroke (CEU) mm [in]	Theoretical Electrical Stroke (CET) mm [in]	Resistance	Mechanical Stroke (CM) mm [in]	Case Length (A) mm [in]
<a href="#">PK-M-0400-L</a>	\$272.00	<a href="#">PDF</a>	400 [15.75]	406 [15.98]	10KΩ	416 [16.38]	556 [21.89]
<a href="#">PK-M-0500-L</a>	\$304.00	<a href="#">PDF</a>	500 [19.69]	509 [20.04]	10KΩ	519 [20.43]	659 [25.94]
<a href="#">PK-M-0600-L</a>	\$320.00	<a href="#">PDF</a>	600 [23.62]	611 [24.06]	10KΩ	621 [24.45]	761 [29.96]
<a href="#">PK-M-0700-L</a>	\$335.00	<a href="#">PDF</a>	700 [27.56]	713 [28.07]	10KΩ	723 [28.46]	863 [33.98]
<a href="#">PK-M-0800-L</a>	\$368.00	<a href="#">PDF</a>	800 [31.50]	815 [32.09]	10KΩ	825 [32.48]	965 [37.99]
<a href="#">PK-M-0900-L</a>	\$381.00	<a href="#">PDF</a>	900 [35.43]	915 [36.02]	10KΩ	925 [36.42]	1065 [41.93]
<a href="#">PK-M-1000-L</a>	\$484.00	<a href="#">PDF</a>	1000 [39.37]	1017 [40.04]	10KΩ	1027 [40.43]	1167 [45.94]

## PK Series Rodless Linear Potentiometers Specifications

Independent Linearity (Within CEU)	± 0.05%
Resolution	Infinite
Repeatability	0.01 mm [0.0004 in]
Electrical Connections	4 pole connector DIN43650
Displacement Speed	Standard ≤ 10 m/s [32.81 ft/s]
Protection Level	IP40
Life	-
Displacement Force	≤ 1.2 N
Vibrations	5-2000 Hz: Amax=0.75 mm [0.03 in], amax=20g
Shock	50g, 11ms
Acceleration	200 m/s <sup>2</sup> max (20g)
Tolerance on Resistance	±20%
Recommended Cursor Current	< 0.1 μA
Maximum Cursor Current	10mA
Maximum Applicable Voltage	60V
Electrical Isolation	>100MΩ at 500V~, 1bar, 2s
Dielectric Strength	< 100μA at 500V~, 50Hz, 2s, 1bar
Dissipation at 40 °C [104 °F] (0W at 120 °C [248 °F])	3W
Thermal Coefficient of Resistance	-200 to +200 ppm/°C typical
Actual Temperature Coefficient of Output Voltage	≤ 5 ppm/°C typical
Working Temperature	-30 to +100°C [-22 to +212°F]
Storage Temperature	-50 to +120°C [-58 to 248°F]
Case Material	Anodized aluminum, Nylon 66
Shaft Material	Stainless steel AISI 303
Mounting	Brackets with variable longitudinal axis with M6 screw ISO4017-DIN933

# PK Series Rodless Linear Potentiometers

## Electrical Connections



### When choosing a transducer, it is important to remember that three different strokes exist:

- Mechanical Stroke (CM): The actual shift that the transducer's cursor (wiper) is able to make.
- Useful Electrical Stroke (CEU): The part of the mechanical stroke in which transducer linearity is guaranteed.
- Theoretical Electrical Stroke (CET): Stroke expressed in mm or angular degrees between the electrical zero ( $V_{out}=0$ ) and the electrical limit switch ( $V_{out}=V_s$ ), which physically is equal to the distance between the silver pitches at the ends of the resistive track.

Therefore, when designing an application, you should choose a transducer with a useful electrical stroke that is equal to or greater than the maximum displacement carried out by the moving part.

# PY2 Series Linear Potentiometers With Ball Tip



## Features

- Excellent reliability under all conditions
- Mechanical linkage joint (M5 thread) takes up play
- Designed for easy installation thanks to an absence of electrical signal variation in output
- Mounting grooves provide a good alternative to fastening with brackets
- Typical applications include plastic injection presses, vertical presses, and many other types of processing machinery
- Grade of protection: IP40
- All potentiometers are individually tested at the manufacturer, and an individualized Linearity Error Chart is included with each unit

## PY2 Series Linear Potentiometers Selection Chart

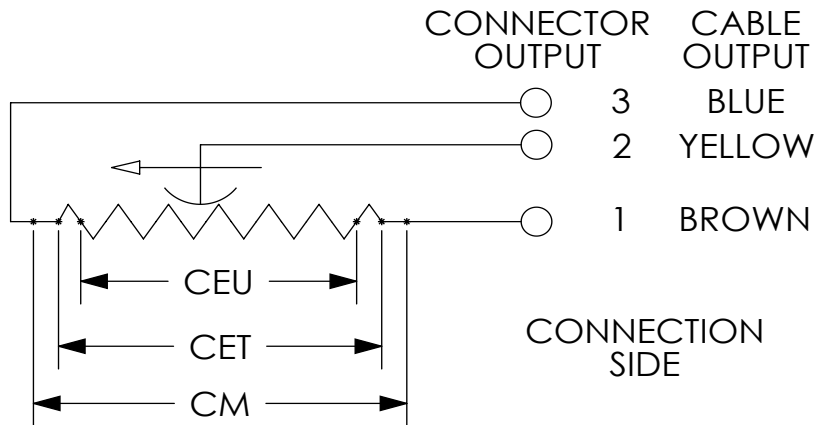
Part Number	Price	Drawing Link	Useful Electrical Stroke (CEU) mm [in]	Theoretical Electrical Stroke (CET) mm [in]	Resistance	Mechanical Stroke (CM) mm [in]	Case Length (A) mm [in]	Tip Length (B) mm [in]	Total Length (C) mm [in]	Mechanical Stop (Quote) (D) mm [in]
<a href="#">PY2-F-0010-S-L</a>	\$168.00	<a href="#">PDF</a>	10 [0.39]	11 [0.43]	1KΩ	15 [0.59]	48 [1.89]	32 [1.26]	108 [4.25]	–
<a href="#">PY2-F-0025-S-L</a>	\$174.00	<a href="#">PDF</a>	25 [0.98]	26 [1.02]	1KΩ	30 [1.18]	63 [2.48]	32 [1.26]	138 [5.43]	–
<a href="#">PY2-F-0050-S-L</a>	\$180.00	<a href="#">PDF</a>	50 [1.97]	51 [2.01]	5KΩ	55 [2.16]	88 [3.46]	40 [1.57]	196 [7.72]	–
<a href="#">PY2-F-0075-S-L</a>	\$185.00	<a href="#">PDF</a>	76 [2.99]	76 [2.99]	5KΩ	81 [3.19]	114 [4.49]	40 [1.57]	251 [9.88]	5 [0.20]
<a href="#">PY2-F-0100-S-L</a>	\$189.00	<a href="#">PDF</a>	101 [3.98]	101 [3.98]	5KΩ	106 [4.17]	139 [5.47]	40 [1.57]	307 [12.09]	11 [0.43]

## PY2 Series Linear Potentiometers Specifications

Model PY2-F-xxxx-S-L	0010	0025	0050	0075	0100
<b>Independent Linearity (Within CEU)</b>	± 0.3%	± 0.2%	± 0.1%	± 0.1%	± 0.1%
<b>Resolution</b>	Infinite				
<b>Repeatability</b>	–				
<b>Electrical Connections (LTM)</b>	PVC, 1m [3.28 ft] 3-wire axial cable, 24AWG [0.25 mm <sup>2</sup> ]				
<b>Displacement Speed</b>	Standard ≤ 10 m/s [32.81 ft/s]				
<b>Protection Level</b>	IP40				
<b>Life</b>	> 25x10 <sup>6</sup> strokes or > 100x10 <sup>6</sup> maneuvers, whichever is less (within CEU)				
<b>Displacement Force</b>	≤ 4N				
<b>Vibrations</b>	5-2000 Hz: Amax=0.75 mm [0.03 in], amax=20g				
<b>Shock</b>	50g, 11ms				
<b>Acceleration</b>	–				
<b>Tolerance on Resistance</b>	±20%				
<b>Recommended Cursor Current</b>	< 0.1 μA				
<b>Maximum Cursor Current</b>	10mA				
<b>Maximum Applicable Voltage</b>	14V	25V	60V	60V	60V
<b>Electrical Isolation</b>	>100MΩ at 500V~, 1bar, 2s				
<b>Dielectric Strength</b>	< 100μA at 500V~, 50Hz, 2s, 1bar				
<b>Dissipation at 40 °C [104 °F] (0W at 120 °C [248 °F])</b>	0.2 W	0.6 W	1.2 W	1.8 W	2.4 W
<b>Thermal Coefficient of Resistance</b>	-200 to +200 ppm/°C				
<b>Actual Temperature Coefficient of Output Voltage</b>	≤ 1.5 ppm/°C				
<b>Working Temperature</b>	-30 to +100°C [-22 to +212°F]				
<b>Storage Temperature</b>	-50 to +120°C [-58 to 248°F]				
<b>Case Material</b>	Anodized aluminum, Nylon 66				
<b>Shaft Material</b>	Stainless steel AISI 303				
<b>Mounting</b>	Brackets with variable longitudinal axis				

# PY2 Series Linear Potentiometers With Ball Tip

## Electrical Connections



### When choosing a transducer, it is important to remember that three different strokes exist:

- Mechanical Stroke (CM): The actual shift that the transducer's cursor (wiper) is able to make.
- Useful Electrical Stroke (CEU): The part of the mechanical stroke in which transducer linearity is guaranteed.
- Theoretical Electrical Stroke (CET): Stroke expressed in mm or angular degrees between the electrical zero ( $V_{out}=0$ ) and the electrical limit switch ( $V_{out}=V_s$ ), which physically is equal to the distance between the silver pitches at the ends of the resistive track.

Therefore, when designing an application, you should choose a transducer with a useful electrical stroke that is equal to or greater than the maximum displacement carried out by the moving part.



# PZ12 Series Linear Potentiometers With Cylindrical Case



## Features

- Half-inch-diameter cylindrical housing
- Multiple mounting options (brackets, rod eyes or flange) enhance versatility for a wide range of applications
- Designed for easy installation thanks to an absence of electrical signal variation in output
- Ideal for applications such as wood and glass working, finishing machinery, and car test benches
- All potentiometers are individually tested at the manufacturer, and an individualized Linearity Error Chart is included with each unit

### PZ12 Series Linear Potentiometers Selection Chart

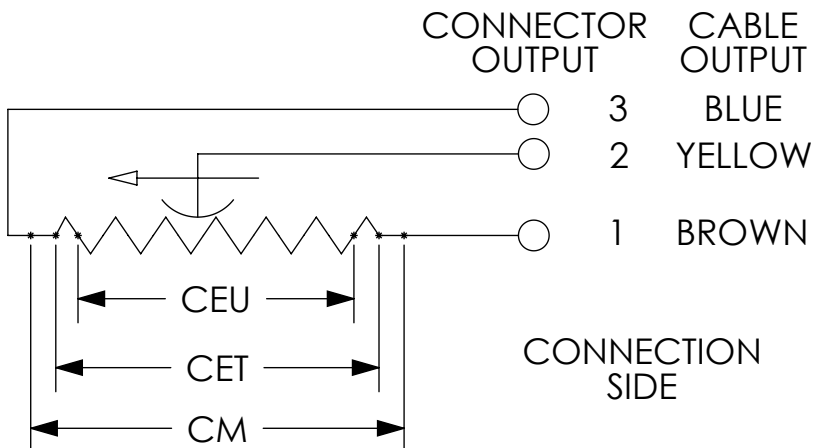
Part Number	Price	Drawing Link	Useful Electrical Stroke (CEU) mm [in]	Theoretical Electrical Stroke (CET) mm [in]	Resistance (CET)	Mechanical Stroke (CM) mm [in]	Case Length (A) mm [in]	Recommended Distance Between Brackets (B) mm [in]	Minimum Distance Between Rod Eyes (C) mm [in]
<b>PZ12-F-xxxx-L Flange Mount Models</b>									
<a href="#">PZ12-F-0025-L</a>	\$157.00	<a href="#">PDF</a>	25 [0.98]	26 [1.02]	1KΩ	30 [1.18]	74.5 [2.93]	-	-
<a href="#">PZ12-F-0050-L</a>	\$166.00	<a href="#">PDF</a>	50 [1.97]	51 [2.01]	2KΩ	55 [2.17]	99.5 [3.92]	-	-
<a href="#">PZ12-F-0075-L</a>	\$171.00	<a href="#">PDF</a>	75 [2.95]	76 [2.99]	3KΩ	80 [3.15]	124.5 [4.90]	-	-
<a href="#">PZ12-F-0100-L</a>	\$177.00	<a href="#">PDF</a>	100 [3.94]	101 [3.98]	4KΩ	105 [4.13]	149.5 [5.89]	-	-
<a href="#">PZ12-F-0200-L</a>	\$191.00	<a href="#">PDF</a>	200 [7.87]	201 [7.91]	8KΩ	205 [8.07]	249.5 [9.82]	-	-
<b>PZ12-A-xxxx-L Rod Eyes Mount Models</b>									
<a href="#">PZ12-A-0025-L</a>	\$215.00	<a href="#">PDF</a>	25 [0.98]	26 [1.02]	1KΩ	30 [1.18]	102 [4.02]	-	153 [6.02]
<a href="#">PZ12-A-0050-L</a>	\$279.00	<a href="#">PDF</a>	50 [1.97]	51 [2.01]	2KΩ	55 [2.17]	127 [5.00]	-	178 [7.01]
<a href="#">PZ12-A-0075-L</a>	\$285.00	<a href="#">PDF</a>	75 [2.95]	76 [2.99]	3KΩ	80 [3.15]	152 [5.98]	-	203 [7.99]
<a href="#">PZ12-A-0100-L</a>	\$290.00	<a href="#">PDF</a>	100 [3.94]	101 [3.98]	4KΩ	105 [4.13]	177 [6.97]	-	228 [8.98]
<a href="#">PZ12-A-0200-L</a>	\$304.00	<a href="#">PDF</a>	200 [7.87]	201 [7.91]	8KΩ	205 [8.07]	277 [10.91]	-	328 [12.91]
<b>PZ12-S-xxxx-L Clamp Brackets Mount Models</b>									
<a href="#">PZ12-S-0025-L</a>	\$166.00	<a href="#">PDF</a>	25 [0.98]	26 [1.02]	1KΩ	30 [1.18]	74.5 [2.93]	42 [1.65]	-
<a href="#">PZ12-S-0050-L</a>	\$183.00	<a href="#">PDF</a>	50 [1.97]	51 [2.01]	2KΩ	55 [2.17]	99.5 [3.92]	67 [2.64]	-
<a href="#">PZ12-S-0075-L</a>	\$188.00	<a href="#">PDF</a>	75 [2.95]	76 [2.99]	3KΩ	80 [3.15]	124.5 [4.90]	92 [3.62]	-
<a href="#">PZ12-S-0100-L</a>	\$193.00	<a href="#">PDF</a>	100 [3.94]	101 [3.98]	4KΩ	105 [4.13]	149.5 [5.89]	117 [4.61]	-
<a href="#">PZ12-S-0200-L</a>	\$209.00	<a href="#">PDF</a>	200 [7.87]	201 [7.91]	8KΩ	205 [8.07]	249.5 [9.82]	217 [8.54]	-

# PZ12 Series Linear Potentiometers With Cylindrical Case

PZ12 Series Linear Potentiometers Specifications					
Model PZ12-x-xxxx-L	0025	0050	0075	0100	0200
<b>Independent Linearity (Within CEU)</b>	± 0.2%	± 0.1%	± 0.1%	± 0.1%	± 0.05%
<b>Resolution</b>	Infinite				
<b>Repeatability</b>	-				
<b>Electrical Connections</b>	PVC, 1m [3.28 ft] 3-wire axial cable, 24AWG (0.25 mm <sup>2</sup> )				
<b>Displacement Speed</b>	Standard ≤ 10 m/s [32.81 ft/s]				
<b>Protection Level</b>	IP60				
<b>Life</b>	> 25x10 <sup>6</sup> strokes or > 100x10 <sup>6</sup> maneuvers, whichever is less (within CEU)				
<b>Displacement Force</b>	≤ 0.5 N				
<b>Vibrations</b>	5-2000 Hz: Amax=0.75 mm [0.03 in], amax=20g				
<b>Shock</b>	50g, 11ms				
<b>Acceleration</b>	-				
<b>Tolerance on Resistance</b>	±20%				
<b>Recommended Cursor Current</b>	< 0.1 μA				
<b>Maximum Cursor Current</b>	10mA				
<b>Maximum Applicable Voltage</b>	20V	40V	60V	60V	60V
<b>Electrical Isolation</b>	>100MΩ at 500V=, 1bar, 2s				
<b>Dielectric Strength</b>	< 100μA at 500V~, 50Hz, 2s, 1bar				
<b>Dissipation at 40 °C [104 °F] (0W at 120 °C [248 °F])</b>	0.5 W	1W	1.5 W	2W	3W
<b>Thermal Coefficient of Resistance</b>	-200 to +200 ppm/°C				
<b>Actual Temperature Coefficient of Output Voltage</b>	≤ 1.5 ppm/°C				
<b>Working Temperature</b>	-30 to +100°C [-22 to +212°F]				
<b>Storage Temperature</b>	-50 to +120°C [-58 to 248°F]				
<b>Case Material</b>	Anodized aluminum, Nylon 66				
<b>Shaft Material</b>	Stainless steel AISI 303				
<b>Mounting</b>	Brackets, self-aligning rod eyes, or flange				

# PZ12 Series Linear Potentiometers With Cylindrical Case

## Electrical Connections



### When choosing a transducer, it is important to remember that three different strokes exist:

- Mechanical Stroke (CM): The actual shift that the transducer's cursor (wiper) is able to make.
- Useful Electrical Stroke (CEU): The part of the mechanical stroke in which transducer linearity is guaranteed.
- Theoretical Electrical Stroke (CET): Stroke expressed in mm or angular degrees between the electrical zero ( $V_{out}=0$ ) and the electrical limit switch ( $V_{out}=V_s$ ), which physically is equal to the distance between the silver pitches at the ends of the resistive track.

Therefore, when designing an application, you should choose a transducer with a useful electrical stroke that is equal to or greater than the maximum displacement carried out by the moving part.

# PZ34 Series Linear Potentiometers With Cylindrical Case



## Features

- PZ34 models feature a 0.75 in [19.05 mm] cylindrical housing
- Rod eye mounting system adds versatility for a wide range of applications
- Designed for easy installation thanks to an absence of electrical signal variation in output
- Ideal for applications such as wood and glass working, finishing machinery, and car test benches
- All potentiometers are individually tested at the manufacturer, and an individualized Linearity Error Chart is included with each unit

## PZ34 Series Linear Potentiometers Selection Chart

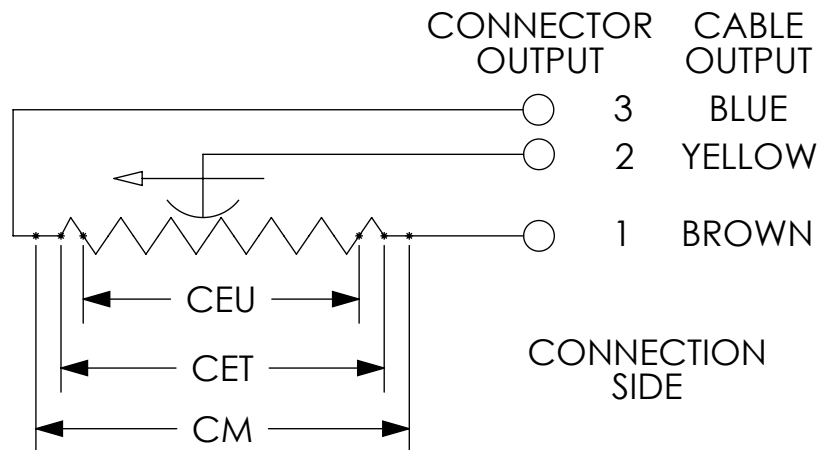
Part Number	Price	Drawing Link	Useful Electrical Stroke (CEU) mm [in]	Theoretical Electrical Stroke (CET) mm [in]	Resistance (CET)	Mechanical Stroke (CM) mm [in]	Case Length (A) mm [in]	Minimum Distance Between Rod Eyes (C) mm [in]
<a href="#">PZ34-A-0025-L</a>	\$198.00	<a href="#">PDF</a>	25 [0.98]	26 [1.02]	1K $\Omega$	30 [1.18]	110 [4.33]	163 [6.42]
<a href="#">PZ34-A-0050-L</a>	\$207.00	<a href="#">PDF</a>	50 [1.97]	51 [2.01]	2K $\Omega$	55 [2.17]	135 [5.31]	188 [7.40]
<a href="#">PZ34-A-0075-L</a>	\$210.00	<a href="#">PDF</a>	75 [2.95]	76 [2.99]	3K $\Omega$	80 [3.15]	160 [6.30]	213 [8.39]
<a href="#">PZ34-A-0100-L</a>	\$215.00	<a href="#">PDF</a>	100 [3.94]	101 [3.98]	4K $\Omega$	105 [4.13]	185 [7.28]	238 [9.37]
<a href="#">PZ34-A-0125-L</a>	\$218.00	<a href="#">PDF</a>	125 [4.92]	126 [4.96]	5K $\Omega$	130 [5.12]	210 [8.27]	263 [10.35]
<a href="#">PZ34-A-0150-L</a>	\$221.00	<a href="#">PDF</a>	150 [5.91]	151 [5.94]	6K $\Omega$	155 [6.10]	235 [9.25]	288 [11.34]
<a href="#">PZ34-A-0200-L</a>	\$225.00	<a href="#">PDF</a>	200 [7.87]	201 [7.91]	7K $\Omega$	205 [8.07]	285 [11.22]	338 [13.31]
<a href="#">PZ34-A-0250-L</a>	\$235.00	<a href="#">PDF</a>	250 [9.84]	251 [9.88]	8K $\Omega$	255 [10.04]	335 [13.19]	388 [15.28]

## PZ34 Series Linear Potentiometers Specifications

Model PZ34-A-xxxx-L	0025	0050	0075	0100	0125	0150	0200	0250
Independent Linearity (Within CEU)	$\pm 0.2\%$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.05\%$	$\pm 0.05\%$	$\pm 0.05\%$	$\pm 0.05\%$
Resolution	Infinite							
Repeatability	-							
Electrical Connections	PVC, 1m [3.28 ft] 3-wire axial cable, 24AWG (0.25 mm <sup>2</sup> )							
Displacement Speed	$\leq 10$ m/s [32.81 ft/s]							
Protection Level	IP60							
Life	$> 25 \times 10^6$ strokes or $> 100 \times 10^6$ maneuvers, whichever is less (within CEU)							
Displacement Force	$\leq 0.5$ N							
Vibrations	5-2000 Hz: $A_{max}=0.75$ mm [0.03 in], $a_{max}=20$ g							
Shock	50g, 11ms							
Acceleration	-							
Tolerance on Resistance	$\pm 20\%$							
Recommended Cursor Current	$< 0.1$ $\mu$ A							
Maximum Cursor Current	10mA							
Maximum Applicable Voltage	20V	40V	60V	60V	60V	60V	60V	60V
Electrical Isolation	$> 100$ M $\Omega$ at 500V=, 1bar, 2s							
Dielectric Strength	$< 100$ $\mu$ A at 500V-, 50Hz, 2s, 1bar							
Dissipation at 40 °C [104 °F] (0W at 120 °C [248 °F])	0.8 W	1.6 W	2.6 W	3W	3W	3W	3W	3W
Thermal Coefficient of Resistance	-							
Actual Temperature Coefficient of Output Voltage	$\leq 1.5$ ppm/°C							
Working Temperature	-30 to +100°C [-22 to +212°F]							
Storage Temperature	-50 to +120°C [-58 to 248°F]							
Case Material	Anodized aluminum, Nylon 66							
Shaft Material	Stainless steel AISI 303							
Mounting	Self-aligning rod eyes							

# PZ34 Series Linear Potentiometers With Cylindrical Case

## Electrical Connections



### When choosing a transducer, it is important to remember that three different strokes exist:

- Mechanical Stroke (CM): The actual shift that the transducer's cursor (wiper) is able to make.
- Useful Electrical Stroke (CEU): The part of the mechanical stroke in which transducer linearity is guaranteed.
- Theoretical Electrical Stroke (CET): Stroke expressed in mm or angular degrees between the electrical zero ( $V_{out}=0$ ) and the electrical limit switch ( $V_{out}=V_s$ ), which physically is equal to the distance between the silver pitches at the ends of the resistive track.

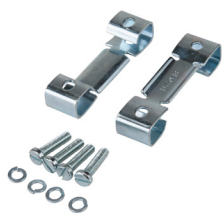
Therefore, when designing an application, you should choose a transducer with a useful electrical stroke that is equal to or greater than the maximum displacement carried out by the moving part.

# Linear Potentiometer Accessories

Connectors For Gefran Linear Potentiometers				
Part Number	Price	Drawing Link	Description	Number of Poles
<a href="#"><u>CON006-1KJ</u></a>	\$8.00	<a href="#"><u>PDF</u></a>	Gefran field wireable connector, 18mm DIN 43650 Form A, 90-degree cable entry, 4-pole. For use with Gefran LT, PK and WPG linear position sensors.	4
<a href="#"><u>CON008-1KJ</u></a>	\$8.00	<a href="#"><u>PDF</u></a>	Gefran field wireable connector, 9.4mm DIN 43650 Form C, 90-degree cable entry, 4-pole. For use with Gefran PC series potentiometers.	4



Mounting Brackets and Accessories For Gefran Linear Potentiometers		
Part Number	Price	Description
<a href="#"><u>PKIT009-1KJ</u></a>	\$12.00	Gefran mounting brackets, for use with Gefran LT Series potentiometers
<a href="#"><u>PKIT015-1KJ</u></a>	\$21.50	Gefran rod eye joint accessory, for use with Gefran LT Series potentiometers
<a href="#"><u>PKIT059-1KJ</u></a>	\$12.00	Gefran mounting brackets, for use with 100 to 900mm Gefran PK Series potentiometers
<a href="#"><u>PKIT061-1KJ</u></a>	\$13.50	Gefran mounting brackets, for use with 1000 to 2000mm Gefran PK Series potentiometers
<a href="#"><u>STA074-1KJ</u></a>	\$5.50	Gefran mounting brackets, for use with Gefran PZ12-S Series potentiometers



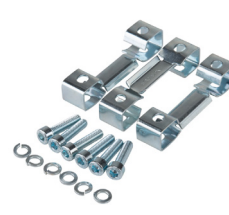
[PKIT009-1KJ](#)



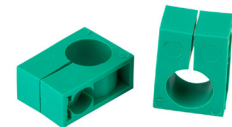
[PKIT015-1KJ](#)



[PKIT059-1KJ](#)



[PKIT061-1KJ](#)



[STA074-1KJ](#)

# WPG Series Magnetostrictive Linear Position Sensor Slides



## Overview

The WPG series are contactless linear position transducer with magnetostrictive technology for longer lifetime.

The absence of electrical contact on the cursor eliminates all wear and almost guarantees an infinite life.

The performance gained from EMC immunity makes the WPG series suitable for use in industrial environments where electromagnetic interferences are present.

MAGNETOSTRICTIVE HYPERWAVE uses the magnetic characteristic and micro-elastic deformation of the primary element to pinpoint the exact position of the cursor.

## Features

- Strokes from 50 to 500mm
- Purchase cursor separately
- Analog output represents direct measurement of displacement
- Working temperature: -20 to +75°C [-4 to +167°F]
- IP67 protection
- Power supply 24VDC ±20%
- Electromagnetic compatibility EMC 2014/30/EU



**WPG-A-M-0100-E**



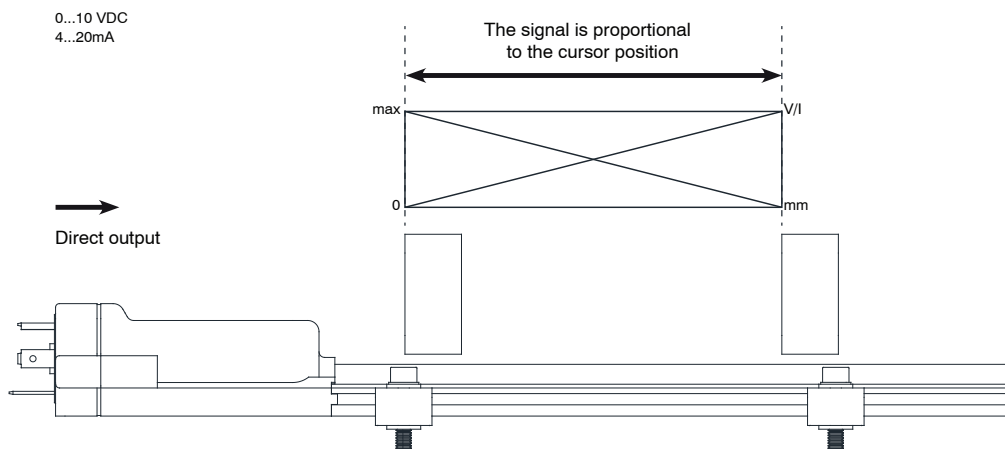
### WPG Series Magnetostrictive Linear Position Sensor Slides Chart

Part Number	Price	Drawing Link	Stroke	Output	Connection	Housing Material
<a href="#">WPG-A-M-0050-E</a>	\$239.00	<a href="#">PDF</a>	50mm	4-20 mA	18mm DIN 43650 Form A (CON006-1KJ)	anodized aluminum
<a href="#">WPG-A-M-0050-N</a>	\$239.00	<a href="#">PDF</a>	50mm	0-10 VDC		
<a href="#">WPG-A-M-0100-E</a>	\$241.00	<a href="#">PDF</a>	100mm	4-20 mA		
<a href="#">WPG-A-M-0100-N</a>	\$241.00	<a href="#">PDF</a>	100mm	0-10 VDC		
<a href="#">WPG-A-M-0150-E</a>	\$242.00	<a href="#">PDF</a>	150mm	4-20 mA		
<a href="#">WPG-A-M-0150-N</a>	\$242.00	<a href="#">PDF</a>	150mm	0-10 VDC		
<a href="#">WPG-A-M-0200-E</a>	\$243.00	<a href="#">PDF</a>	200mm	4-20 mA		
<a href="#">WPG-A-M-0200-N</a>	\$243.00	<a href="#">PDF</a>	200mm	0-10 VDC		
<a href="#">WPG-A-M-0250-E</a>	\$244.00	<a href="#">PDF</a>	250mm	4-20 mA		
<a href="#">WPG-A-M-0250-N</a>	\$244.00	<a href="#">PDF</a>	250mm	0-10 VDC		
<a href="#">WPG-A-M-0300-E</a>	\$245.00	<a href="#">PDF</a>	300mm	4-20 mA		
<a href="#">WPG-A-M-0300-N</a>	\$245.00	<a href="#">PDF</a>	300mm	0-10 VDC		
<a href="#">WPG-A-M-0400-E</a>	\$259.00	<a href="#">PDF</a>	400mm	4-20 mA		
<a href="#">WPG-A-M-0400-N</a>	\$259.00	<a href="#">PDF</a>	400mm	0-10 VDC		
<a href="#">WPG-A-M-0500-E</a>	\$267.00	<a href="#">PDF</a>	500mm	4-20 mA		
<a href="#">WPG-A-M-0500-N</a>	\$267.00	<a href="#">PDF</a>	500mm	0-10 VDC		

Purchase cursor and mounting brackets separately.

### ANALOG OUTPUT

The WPG-A magnetostrictive transducers provide a direct voltage or current analog output proportional to the magnetic cursor's position. Since the output is direct, no signal electronic processing is required if interfaced with controllers or measurement instruments.



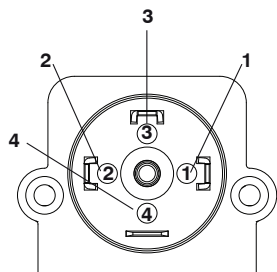
# WPG Series Magnetostrictive Linear Position Sensor Slides

WPG Series Magnetostrictive Linear Position Sensor Slides Specifications	
Sampling Time	1ms
Independent Linearity ±%FS	stroke: 50 to 250mm with sliding cursors ≤ ± 0.150 mm stroke > 250mm with sliding cursors ≤ ± 0.04% F.S. (Min. ± 0.090 mm)
Repeatability (mm)	≤ 0.01 (Typical)
Hysteresis (mm)	≤ 0.02 (Typical)
Displacement Speed	≤ 10 m/s
Resolution	INFINITE (only limited by the electrical noise max 5 mVpp)
Operating Temperature	-20 to +75°C [-4 to +167°F]
Storage Temperature	-40 to +100°C [-40 to +212°F]
Temperature Coefficient	≤ 0.01% f.s. /°C (min. 0.015 mm/°C)
Vibration (DIN IEC68T2-6)	12g/10...2000 Hz
Shock (DIN IEC68T2-27)	100g-11ms - single shock
Electromagnetic Compatibility	EMC 2014/30/EU
Terminations	See wiring diagrams
Connection	18mm DIN 43650, Form A, CON006-1KJ
Protection	IP67

WPG Series Magnetostrictive Linear Position Sensor Slides Electrical Data		
Series	-N models	-E models
Output Signal	0 to 10V	4 to 20mA
Nominal Power Supply	24VDC ± 20%	
Max. Power Ripple	1VDC	
Typical Current Consumption	35mA	60mA
Output Load	≥10KΩ	50 to 500Ω
Max. Output Value	12V	30mA
Output Signal in Absence of Cursor	10.5 V	21mA
Electrical Isolation (*)	500V	
Protection Against Polarity Inversion	Yes	
Protection Against Overvoltage	Yes	
Protection Against Power Supply in Output	Yes	

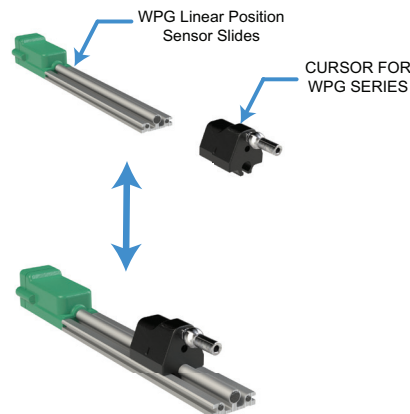
(\*) Includes a 31V 1.7J voltage suppressor

## Wiring Diagram



Wiring Table	
Pin 1	Power Supply -
Pin 2	Direct Output
Pin 3	Power Supply +
Pin 4	Shield

## Cursor Assembly





# WPP Series Magnetostrictive Linear Position Sensor Slides

## Overview

The WPP series are contactless linear position transducers with HYPERWAVE magnetostrictive technology.

The absence of electrical contact on the cursor eliminates all wear and almost guarantees an infinite life.

The WPP series also has a high resistance to vibrations and mechanical shocks, ideal for use in a harsh industrial environment.

MAGNETOSTRICTIVE HYPERWAVE uses the magnetic characteristic and micro-elastic deformation of the primary element to pinpoint the exact position of the cursor.

## Features

- Optimized mechanical structure
- Strokes from 50 to 500mm
- Purchase cursor separately
- Dual analog outputs (voltage or current options) represent direct and inverse measurement of displacement
- Power supply 24VDC ±20%
- Resistance to vibration (DIN IEC68T2/6 12g)
- IP67 protection
- Working temperature: -30 to +75°C [-22 to +167° F]
- High performance in terms of environmental IP protection and EMC immunity



**WPP-A-H-0100-E**



WPP Series Magnetostrictive Linear Position Sensor Slides Chart						
Part Number	Price	Drawing Link	Stroke	Output	Connection	Housing Material
<a href="#">WPP-A-H-0050-E</a>	\$362.00	<a href="#">PDF</a>	50mm	4-20 and 20-4 mA	8-pin M12 quick-disconnect	anodized aluminum
<a href="#">WPP-A-H-0050-N</a>	\$362.00	<a href="#">PDF</a>	50mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0100-E</a>	\$365.00	<a href="#">PDF</a>	100mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0100-N</a>	\$365.00	<a href="#">PDF</a>	100mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0150-E</a>	\$367.00	<a href="#">PDF</a>	150mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0150-N</a>	\$367.00	<a href="#">PDF</a>	150mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0200-E</a>	\$368.00	<a href="#">PDF</a>	200mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0200-N</a>	\$368.00	<a href="#">PDF</a>	200mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0250-E</a>	\$370.00	<a href="#">PDF</a>	250mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0250-N</a>	\$370.00	<a href="#">PDF</a>	250mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0300-E</a>	\$371.00	<a href="#">PDF</a>	300mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0300-N</a>	\$371.00	<a href="#">PDF</a>	300mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0400-E</a>	\$388.00	<a href="#">PDF</a>	400mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0400-N</a>	\$388.00	<a href="#">PDF</a>	400mm	0-10 and 10-0 VDC		
<a href="#">WPP-A-H-0500-E</a>	\$408.00	<a href="#">PDF</a>	500mm	4-20 and 20-4 mA		
<a href="#">WPP-A-H-0500-N</a>	\$408.00	<a href="#">PDF</a>	500mm	0-10 and 10-0 VDC		

Purchase cursor and mounting brackets separately.

### ANALOG OUTPUT

The WPP-A magnetostrictive transducers provide a direct and reverse voltage or current analog output proportional to the magnetic cursor's position. Since the outputs are proportional, no signal electronic processing is required if interfaced with controllers or measurement instruments.

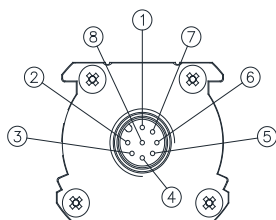
# WPP Series Magnetostrictive Linear Position Sensor Slides

WPP Series Magnetostrictive Linear Position Sensor Slides Specifications	
Sampling Time	50-300mm Stroke 0.5; 400-500mm Stroke 1
Independent Linearity $\pm\%$ FS	Typical: $\leq \pm 0,02\%$ FS (min $\pm 0,060$ mm) with sliding cursor max: $\leq \pm 0,02\%$ FS with floating cursor at a distance between 2 and 5mm max: $\leq \pm 0,04\%$ FS with floating cursor at a distance between 5 and 7mm
Repeatability (mm)	$\leq 0.01$ (limited by the resolution of the output value)
Hysteresis (mm)	$\leq 0.02$ (limited by the resolution of the output value)
Displacement Speed	$\leq 10$ m/s
Resolution	16 bit (max electrical noise 5 mVpp)
Operating Temperature	-30 to +75°C [-22 to +167° F]
Storage Temperature	-40 to +100°C [-40 to 212°F]
Temperature Coefficient	0.005% F.S. / °C
Vibration (DIN IEC68T2-6)	12g/10...2000 Hz
Shock (DIN IEC68T2-27)	100g-11 ms - single shock
Electromagnetic Compatibility	EMC 2014/30/EU
Terminations	See wiring diagrams
Connection	8-pin M12 quick-disconnect
Protection	IP67

WPP Series Magnetostrictive Linear Position Sensor Slides Electrical Data		
Series	-N models	-E models
Output Signal	0 to 10V	4 to 20mA
Nominal Power Supply	24VDC $\pm 20\%$	
Max. Power Ripple	1Vpp	
Max. Consumption	70mA	90mA
Max. Output Load	5k $\Omega$	< 500 $\Omega$
Max. Output Noise	< 5mVpp	< 5mVpp
Max. Output Value	12V	30mA
Alarm Output Value	10.5 V	21mA
Electrical Isolation (*)	500V (*)	
Protection Against Polarity Inversion	Yes	
Protection Against Overvoltage	Yes	
Protection Against Power Supply in Output	Yes	

(\*) Includes a 30V 0.4 J voltage suppressor

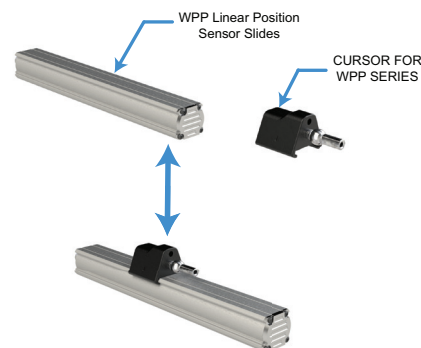
## Wiring Diagram



Wiring Table	
Pin 1	OV Output Cursor 1
Pin 2	OV Output Cursor 1
Pin 3	Invert Output Cursor 1
Pin 4	No Connection
Pin 5	Output Cursor 1
Pin 6	Power Supply -
Pin 7	Power Supply +
Pin 8	No Connection

Note: The transducer case must be grounded with the cable sheathing on the control system side only.

## Cursor Assembly



# WPG and WPP Series Accessories



**PCUR220-1KJ**



**PCUR221-1KJ**



**PCUR222-1KJ**

WPG Series Cursors			
Part Number	Price	Description	Drawing Link
<a href="#">PCUR220-1KJ</a>	\$35.50	Gefran cursor, 5mm axial joint low process connection, slide mount. For use with Gefran WPG series magnetostrictive sensors.	<a href="#">PDF</a>
<a href="#">PCUR221-1KJ</a>	\$37.50	Gefran cursor, 5mm axial joint high process connection, slide mount. For use with Gefran WPG series magnetostrictive sensors.	<a href="#">PDF</a>
<a href="#">PCUR222-1KJ</a>	\$37.50	Gefran cursor, 5mm axial joint process connection, slide mount. For use with Gefran WPG series magnetostrictive sensors.	<a href="#">PDF</a>



**PCUR210-1KJ**



**PCUR211-1KJ**



**PCUR212-1KJ**

WPP Series Cursors			
Part Number	Price	Description	Drawing Link
<a href="#">PCUR210-1KJ</a>	\$35.50	Gefran cursor, 5mm axial joint low process connection, slide mount. For use with Gefran WPP series magnetostrictive sensors.	<a href="#">PDF</a>
<a href="#">PCUR211-1KJ</a>	\$37.50	Gefran cursor, 5mm axial joint high process connection, slide mount. For use with Gefran WPP series magnetostrictive sensors.	<a href="#">PDF</a>
<a href="#">PCUR212-1KJ</a>	\$37.50	Gefran cursor, 5mm axial joint process connection, slide mount. For use with Gefran WPP series magnetostrictive sensors.	<a href="#">PDF</a>

WPG and WPP Series Cursor Floating Mount			
Part Number	Price	Description	Drawing Link
<a href="#">PCUR202-1KJ</a>	\$32.00	Gefran cursor, floating mount. For use with Gefran WPG and WPP series magnetostrictive sensors.	<a href="#">PDF</a>



**PCUR202-1KJ**

WPG Series Mounting Brackets			
Part Number	Price	Description	Drawing Link
<a href="#">PKIT590-1KJ</a>	\$8.75	Gefran mounting brackets, 42.5mm hole spacing. For use with Gefran WPG series magnetostrictive sensors.	<a href="#">PDF</a>
<a href="#">PKIT591-1KJ</a>	\$8.75	Gefran mounting brackets, 50mm hole spacing. For use with Gefran WPG series magnetostrictive sensors.	<a href="#">PDF</a>



**PKIT590-1KJ**

WPP Mounting Brackets			
Part Number	Price	Description	Drawing Link
<a href="#">PKIT090-1KJ</a>	\$8.75	Gefran mounting brackets, 42.5mm hole spacing. For use with Gefran WPP series magnetostrictive sensors.	<a href="#">PDF</a>
<a href="#">PKIT091-1KJ</a>	\$8.75	Gefran mounting brackets, 50mm hole spacing. For use with Gefran WPP series magnetostrictive sensors.	<a href="#">PDF</a>



**PKIT090-1KJ**



## GHSE19-050A-02-10S

### Low cost, compact, high performance gauging probes

The GHSE-19/GHSI-19 series of LVIT (Linear Variable Inductance Transducer) spring-loaded position sensors by Alliance Sensors Group are contactless devices designed for dimension measurements. They are suitable for use in a variety of settings where the sensing element cannot be attached to the object being measured. Typical applications include the following:

- Quality Assurance (QA) labs
- Position measuring applications in factory automation systems
- Industrial and commercial applications such as automotive testing, mil/aero test stands, robotic arms, and packaging equipment

GHSE-19/GHSI-19 Linear Variable Inductance Transducers are offered in nominal full scale ranges from 0.25 to 4.0 in [6.35 to 101.6 mm] with excellent resolution and high stroke-to-body-length ratios. The maximum tip contact force applied to the item being measured is 1lbf [0.454 kgf].

# GHSE19/GHSI19 Spring-Loaded LVIT Linear Position Sensors



GHSE-19/GHSI-19 sensors have a 0.75 in [19mm] diameter stainless steel body with a 1/2-20 UNF-2A thread 1.5 in [38mm] long with two hex jam nuts for drop-in installation in place of a spring-loaded DC LVDT gage head.

These sensors utilize a probe equipped with a No. 9 contact tip and are offered with a PT02A-10-6P connector. Operating from a variety of DC voltages, models are available with either 0-10 V or 4-20 mA output (see table below). All include ASG's proprietary SenSet™ field calibration feature.

## Features

- Spring-loaded LVIT Technology™ (Linear Variable Inductance Transducer)
- Contactless operation prevents internal wear-out from dithering or rapid cycling
- Excellent stroke-to-body-length ratio
- Proprietary SenSet™ Field Adjustable Range Scaling



### GHSE19/GHSI19 Series Spring-Loaded LVIT Linear Position Sensors Selection Chart

Part Number	Price	Drawing Link	Nominal Range (in [mm])	Body Length (in [mm])	Spring Rate (lbf/in [kgf/cm])	Maximum Force (lbf [kgf])
<b>0-10 V models</b>						
<a href="#">GHSE19-006A-02-10S</a>	\$743.00	<a href="#">PDF</a>	0.25 [6.35]	3.50 [88.9]	0.75 [0.134]	0.9 [0.41]
<a href="#">GHSE19-013A-02-10S</a>	\$753.00	<a href="#">PDF</a>	0.5 [12.7]	3.50 [88.9]	0.75 [0.134]	0.9 [0.41]
<a href="#">GHSE19-025A-02-10S</a>	\$778.00	<a href="#">PDF</a>	1.0 [25.4]	4.00 [101.6]	0.75 [0.134]	0.9 [0.41]
<a href="#">GHSE19-050A-02-10S</a>	\$803.00	<a href="#">PDF</a>	2.0 [50.8]	5.08 [129.0]	0.43 [0.077]	1.0 [0.45]
<a href="#">GHSE19-075A-02-10S</a>	\$828.00	<a href="#">PDF</a>	3.0 [76.2]	6.16 [156.5]	0.30 [0.054]	1.0 [0.45]
<a href="#">GHSE19-100A-02-10S</a>	\$853.00	<a href="#">PDF</a>	4.0 [101.6]	7.25 [184.1]	0.23 [0.041]	1.0 [0.45]
<b>4-20mA models</b>						
<a href="#">GHSI19-006A-02-20S</a>	\$743.00	<a href="#">PDF</a>	0.25 [6.35]	3.50 [88.9]	0.75 [0.134]	0.9 [0.41]
<a href="#">GHSI19-013A-02-20S</a>	\$753.00	<a href="#">PDF</a>	0.5 [12.7]	3.50 [88.9]	0.75 [0.134]	0.9 [0.41]
<a href="#">GHSI19-025A-02-20S</a>	\$778.00	<a href="#">PDF</a>	1.0 [25.4]	4.00 [101.6]	0.75 [0.134]	0.9 [0.41]
<a href="#">GHSI19-050A-02-20S</a>	\$803.00	<a href="#">PDF</a>	2.0 [50.8]	5.08 [129.0]	0.43 [0.077]	1.0 [0.45]
<a href="#">GHSI19-075A-02-20S</a>	\$828.00	<a href="#">PDF</a>	3.0 [76.2]	6.16 [156.5]	0.30 [0.054]	1.0 [0.45]
<a href="#">GHSI19-100A-02-20S</a>	\$853.00	<a href="#">PDF</a>	4.0 [101.6]	7.25 [184.1]	0.23 [0.041]	1.0 [0.45]

1. NOTE: All GHSI and GHSE models require [PT06A-10-6S-SR](#) connector and user-supplied cable

### GHSE19/GHSI19 Series Spring-Loaded LVIT Linear Position Sensors Specifications

<b>Analog I/Os</b>	0-10VDC output with 12-30VDC power source; 4-20 mA (3-wire) output with 18-30VDC power source, 60mA max, 167°F [75°C] max
<b>Measuring Ranges</b>	0.25 to 4.0 in [6.35 to 101.6 mm] full scale (nominal)
<b>Linearity Error</b>	±0.15% of full scale output (FSO) typical, ±0.25% max
<b>Resolution</b>	0.025% of full scale
<b>Operating Temperature</b>	GSHE19 (0-10V models) -40 to +221°F [-40 to +105°C] GHSI19 (4-20mA models): -4 to 185°F [-20 to +85°C]
<b>Temperature Coefficient</b>	±0.015% of FS/K
<b>Vibration</b>	5-20Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	Alliance Sensors Group connector, <a href="#">PT06A-10-6S-SR</a> , 6-pin, solder, straight cable entry.

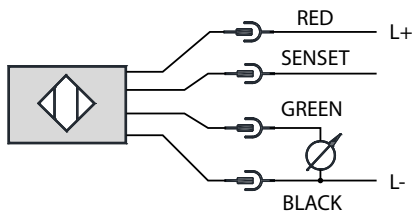
# GHSE19/GHI19 Spring-Loaded LVIT Linear Position Sensors

## Connector



Connector for GHSx Linear Position Sensors		
Part Number	Price	Description
<b><u>PT06A-10-6S-SR</u></b>	\$41.50	Alliance Sensors connector, PT0 6-pin solder, straight cable entry, 6-pole. For use with GHSx linear position sensors.

## Wiring Diagram



Wiring Table	
<b>+DC Power Input</b>	E
<b>Common Ground</b>	D
<b>Analog Output</b>	A
<b>SenSet™</b>	B

# LRSE18/LRSI18 LVIT Linear Position Sensors


**LRSE18-050A-00-10A**


## Low cost, compact, high performance gauging probes

The LRSE-18/LRSI-18 series of LVIT (Linear Variable Inductance Transducer) spring loaded position sensors by Alliance Sensors Group are contactless devices designed for dimension or position measuring applications in factory automation and in various industrial and commercial applications where the sensing element cannot be attached to the object being measured. Typical applications include the following:

- Automotive testing
- Robotic arms
- Packaging equipment
- Mil/aero test stands

LRSE-18/LRSI-18 Linear Variable Inductance Transducers are offered in full scale ranges from 0.5 to 4.0 in [12.7 to 101.6 mm] with excellent resolution and high stroke-to-body-length ratios. The maximum tip force on the item being measured is 1lb [0.454 kgf].

LRSE-18/LRSI-18 series sensors have a 0.75 in [19mm] diameter aluminum or stainless steel body with an M18x1 thread. These sensors are supplied with two hex jam nuts for easy installation.

These sensors use a 0.25 in [6.35 mm] diameter probe equipped with an AGD No. 9 contact tip and are offered with an axial cable. Operating from a variety of DC voltages, models are available with either 0-10 V or 4-20 mA output (see table below). All include ASG's proprietary SenSet™ field calibration feature.

## Features

- Spring loaded LVIT Technology™ (Linear Variable Inductance Transducer)
- Ranges from 0.5 to 4.0 in [12.7 to 101.6 mm]
- Contactless operation prevents internal wear out from dithering or rapid cycling
- Excellent stroke-to-body-length ratio
- Proprietary SenSet™ field adjustable range scaling



### LRSE18/LRSI18 Series Linear Position Sensors Selection Chart

Part Number	Price	Drawing Link	Nominal Range (in [mm])	Body Length (in [mm])	Spring Rate (lbf/in [kgf/cm])	Maximum Force (lbf [kgf])
<b>0-10V models</b>						
<a href="#">LRSE18-013A-00-10A</a>	\$437.00	<a href="#">PDF</a>	0.5 [12.7]	3.04 [77.2]	0.75 [0.134]	0.9 [0.41]
<a href="#">LRSE18-025A-00-10A</a>	\$462.00	<a href="#">PDF</a>	1.0 [25.4]	3.54 [89.9]	0.75 [0.134]	0.9 [0.41]
<a href="#">LRSE18-050A-00-10A</a>	\$487.00	<a href="#">PDF</a>	2.0 [50.8]	4.62 [117.3]	0.43 [0.077]	1.0 [0.45]
<a href="#">LRSE18-075A-00-10A</a>	\$512.00	<a href="#">PDF</a>	3.0 [76.2]	5.69 [144.5]	0.30 [0.054]	1.0 [0.45]
<a href="#">LRSE18-100A-00-10A</a>	\$537.00	<a href="#">PDF</a>	4.0 [101.6]	6.80 [172.7]	0.23 [0.041]	1.0 [0.45]
<b>4-20mA models</b>						
<a href="#">LRSI18-013A-00-20A</a>	\$437.00	<a href="#">PDF</a>	0.5 [12.7]	3.04 [77.2]	0.75 [0.134]	0.9 [0.41]
<a href="#">LRSI18-025A-00-20A</a>	\$462.00	<a href="#">PDF</a>	1.0 [25.4]	3.54 [89.9]	0.75 [0.134]	0.9 [0.41]
<a href="#">LRSI18-050A-00-20A</a>	\$487.00	<a href="#">PDF</a>	2.0 [50.8]	4.62 [117.3]	0.43 [0.077]	1.0 [0.45]
<a href="#">LRSI18-075A-00-20A</a>	\$512.00	<a href="#">PDF</a>	3.0 [76.2]	5.69 [144.5]	0.30 [0.054]	1.0 [0.45]
<a href="#">LRSI18-100A-00-20A</a>	\$537.00	<a href="#">PDF</a>	4.0 [101.6]	6.80 [172.7]	0.23 [0.041]	1.0 [0.45]

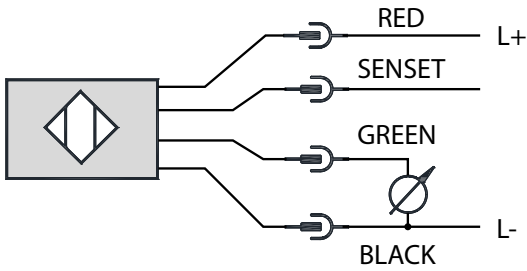
### LRSE18/LRSI18 Series Linear Position Sensors Specifications

<b>Analog I/Os</b>	0-10VDC output with 12-30V power source, 35mA max; 4-20mA (3-wire) output with 18-30V power source, 60mA max, 167°F [75°C] max
<b>Measuring Ranges</b>	0.5 to 4.0 in [12.7 to 101.6 mm] full scale
<b>Linearity Error</b>	±0.15% of full scale output (FSO) typical, ±0.25% max
<b>Resolution</b>	0.025% of full scale
<b>Operating Temperature</b>	-4 to 185°F [-20 to +85°C]; -40 to +221°F [-40 to +105°C] extended range
<b>Temperature Coefficient</b>	±0.015% of FS/K
<b>Vibration</b>	5-20 Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	1M, PUR, 4 conductor, 24AWG



# LRSE18/LRSI18 LVIT Linear Position Sensors

## Wiring Diagram



Wiring Table	
Function	Cable Color
+DC Power Input	Red
Common Ground	Black
Analog Output	Green
SenSet™	White

# LRE19/LRI19 LVIT Linear Position Sensors


**LRE19-100R-00-10A**


## Low cost, compact, high performance linear position sensors

The LRE-19/LRI-19 series of inductive linear position sensors by Alliance Sensors Group are contactless devices designed for factory automation and a variety of industrial or commercial applications. Typical applications include the following:

- Motor sport vehicles
- Automotive testing
- Solar cell positioning
- Wind turbine, prop pitch and brake positioning
- Packaging equipment

With their compact design and excellent stroke-to-length ratio, LR-19 series sensors are ideal for industrial testing laboratories and OEM applications.

LRE-19/LRI-19 series sensors are offered in 6 full scale ranges from 1 to 8 in [25.4 to 203.2 mm]. Operating from

a variety of DC voltages, models are available with either 0-10 V or 4-20mA output (see table below). All include ASG's proprietary SenSet™ field calibration feature.

LRE-19/LRI-19 series products are available with a radial exiting cable and two swivel rod eye ends for easy installation.

The LRE-19/LRI-19 series also includes a larger body version, the LRE-27/LRI-27, for those applications needing a heavier duty unit.

## Features

- Contactless operation prevents internal wear-out from dithering or rapid cycling
- Excellent stroke-to-length ratio
- 0.75 in [19mm] diameter anodized aluminum housing sealed to IP-67
- Radial cable exit version comes with swivel rod eye ends



### LRE19/LRI19 Series Linear Position Sensors Selection Chart

Part Number	Price	Drawing Link	Nominal Range (in [mm])	Body Length (in [mm])
<b>0-10V models</b>				
<a href="#">LRE19-025R-00-10A</a>	\$345.00	<a href="#">PDF</a>	1.0 [25.4]	3.40 [86.3]
<a href="#">LRE19-050R-00-10A</a>	\$370.00	<a href="#">PDF</a>	2.0 [50.8]	4.40 [111.8]
<a href="#">LRE19-075R-00-10A</a>	\$395.00	<a href="#">PDF</a>	3.0 [76.2]	5.40 [138.1]
<a href="#">LRE19-100R-00-10A</a>	\$420.00	<a href="#">PDF</a>	4.0 [101.6]	6.40 [162.5]
<a href="#">LRE19-150R-00-10A</a>	\$470.00	<a href="#">PDF</a>	6.0 [152.4]	8.40 [213.3]
<a href="#">LRE19-200R-00-10A</a>	\$520.00	<a href="#">PDF</a>	8.0 [203.2]	10.40 [264.1]
<b>4-20mA models</b>				
<a href="#">LRI19-025R-00-20A</a>	\$345.00	<a href="#">PDF</a>	1.0 [25.4]	3.40 [86.3]
<a href="#">LRI19-050R-00-20A</a>	\$370.00	<a href="#">PDF</a>	2.0 [50.8]	4.40 [111.8]
<a href="#">LRI19-075R-00-20A</a>	\$395.00	<a href="#">PDF</a>	3.0 [76.2]	5.40 [138.1]
<a href="#">LRI19-100R-00-20A</a>	\$420.00	<a href="#">PDF</a>	4.0 [101.6]	6.40 [162.5]
<a href="#">LRI19-150R-00-20A</a>	\$470.00	<a href="#">PDF</a>	6.0 [152.4]	8.40 [213.3]
<a href="#">LRI19-200R-00-20A</a>	\$520.00	<a href="#">PDF</a>	8.0 [203.2]	10.40 [264.1]

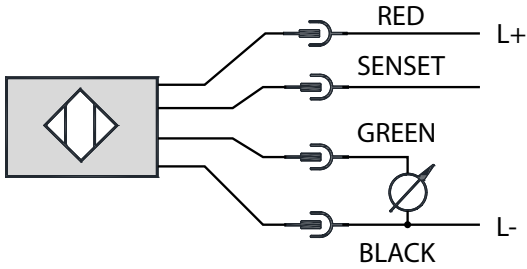
### LRE19/LRI19 Series Linear Position Sensors Specifications

<b>Analog I/Os</b>	0-10V output with 12-30V power source, 35mA max; 4-20 mA (3-wire) output with 18-30V power source, 60mA max, 167°F [75°C] max
<b>Measuring Ranges</b>	1 to 8 in [25.4 to 203.2 mm]
<b>Linearity Error</b>	≤ ±0.15% of FSO
<b>Resolution</b>	0.025% of FS
<b>Bandwidth</b>	300Hz update rate (nominal)
<b>Operating Temperature</b>	-4 to 185°F [-20 to +85°C]; -40 to +221°F [-40 to +105°C] extended range
<b>Temperature Coefficient</b>	±0.015% of FS/K
<b>Vibration</b>	5-20Hz, 0.5 in peak-to-peak; 20-2000Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	1M, PUR, 4 conductor, 24AWG



# LRE19/LRI19 LVIT Linear Position Sensors

## Wiring Diagram



Wiring Table	
<i>Function</i>	<i>Cable Color</i>
<b>+DC Power Input</b>	Red
<b>Common Ground</b>	Black
<b>Analog Output</b>	Green
<b>SenSet™</b>	White

# LRE27/LRI27 LVIT Linear Position Sensors


**LRE27-075R-00-10A**


## Low cost, compact, high performance linear position sensors

The LRE-27/LRI-27 series of LVIT (Linear Variable Inductance Transducer) by Alliance Sensor Group are heavy duty contactless position sensors for factory automation systems and a variety of industrial and commercial uses. Typical applications include the following:

- Solar cell positioners
- Wind turbine prop pitch and brakes
- Chute or gate positioners for off-road or agri-vehicles
- Packaging machinery

The modular design and excellent stroke-to-length ratio make LRE-27/LRI-27 sensors an ideal choice for in-plant or mobile equipment OEMs.

LRE-27/LRI-27 series sensors are currently offered in 5 full-scale ranges from 1 to 6 in [25.4 to 152.4 mm]. Operating from a variety of DC voltages, models are available with either 0-10 V or 4-20 mA output (see table below). All include ASG's proprietary SenSet™ field calibration feature.

LRE-27/LRI-27 products are available with a radial exiting cable and two spherical rod eye ends.

The LR series also include a smaller body version, the LRE-19/LRI-19, for applications where a reduced body envelope is required as well as the LRLE-27/LRLI-27 (for longer strokes lengths up to 18 in [457.2 mm]).

## Features

- LVIT Technology™ (Linear Variable Inductance Transducer)
- Contactless operation prevents internal wear-out from dithering or rapid cycling
- Excellent stroke-to-length ratio
- Proprietary SenSet™ field adjustable range scaling



### LRE27/LRI27 Series Linear Position Sensors Selection Chart

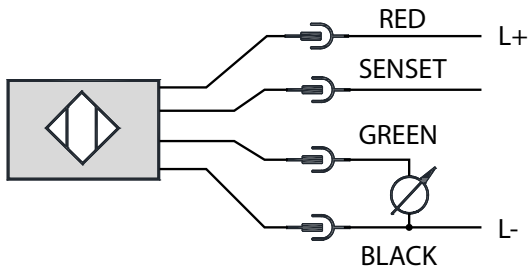
Part Number	Price	Drawing Link	Nominal Range (in [mm])	Body Length (in [mm])
<b>0-10V models</b>				
<a href="#">LRE27-025R-00-10A</a>	\$481.00	<a href="#">PDF</a>	1.0 [25.4]	4.12 [104.6]
<a href="#">LRE27-050R-00-10A</a>	\$506.00	<a href="#">PDF</a>	2.0 [50.8]	5.12 [130.0]
<a href="#">LRE27-075R-00-10A</a>	\$531.00	<a href="#">PDF</a>	3.0 [76.2]	6.12 [155.4]
<a href="#">LRE27-100R-00-10A</a>	\$556.00	<a href="#">PDF</a>	4.0 [101.6]	7.12 [180.8]
<a href="#">LRE27-150R-00-10A</a>	\$606.00	<a href="#">PDF</a>	6.0 [152.4]	9.12 [231.6]
<b>4-20mA models</b>				
<a href="#">LRI27-025R-00-20A</a>	\$481.00	<a href="#">PDF</a>	1.0 [25.4]	4.12 [104.6]
<a href="#">LRI27-050R-00-20A</a>	\$506.00	<a href="#">PDF</a>	2.0 [50.8]	5.12 [130.0]
<a href="#">LRI27-075R-00-20A</a>	\$531.00	<a href="#">PDF</a>	3.0 [76.2]	6.12 [155.4]
<a href="#">LRI27-100R-00-20A</a>	\$556.00	<a href="#">PDF</a>	4.0 [101.6]	7.12 [180.8]
<a href="#">LRI27-150R-00-20A</a>	\$606.00	<a href="#">PDF</a>	6.0 [152.4]	9.12 [231.6]

### LRE27/LRI27 Series Linear Position Sensors Specifications

<b>Analog I/Os</b>	0-10V output with 12-30V power source, 35mA max; 4-20 mA (3-wire) output with 18-30V power source, 60mA max, 167°F [75°C] max
<b>Measuring Ranges</b>	1 to 6 in [25.4 to 152.4 mm] full scale (nominal)
<b>Linearity Error</b>	≤ ±0.15% of FSO
<b>Resolution</b>	0.025% of FS
<b>Update Rate</b>	300Hz nominal
<b>Operating Temperature</b>	-4 to 185°F [-20 to +85°C]; -40 to +221°F [-40 to +105°C] extended range
<b>Temperature Coefficient</b>	≤ ±0.015% of FS/°C
<b>Vibration</b>	5-20 Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	1M, PUR, 4 conductor, 24AWG

# LRE27/LRI27 LVIT Linear Position Sensors

## Wiring Diagram



Wiring Table	
<i>Function</i>	<i>Cable Color</i>
<b>+DC Power Input</b>	Red
<b>Common Ground</b>	Black
<b>Analog Output</b>	Green
<b>SenSet™</b>	White

# LRLE27/LRLI27 LVIT Linear Position Sensors


**LRLE27-400R-00-10A**


## Low cost, compact, high performance linear position sensors

Alliance Sensor Group's LRLE-27/LRLI-27 series of LVIT (Linear Variable Inductance Transducer) contactless position sensors complements the LR series devices with extended ranges up to 18in [450mm] in a compact package.

These sensors are designed for use in factory automation systems and a wide variety of industrial and commercial applications. Cost effective high-end performance and excellent stroke-to-length ratios make these sensors ideal choices for practically any industrial application.

LRLE-27/LRLI-27 sensors are offered in six nominal ranges from 8 to 18 in [203.2 to 457.2 mm]. Operating from a variety of DC voltages, models are available with either 0-10 V or 4-20 mA output (see table below). All include ASG's proprietary SenSet™ field calibration feature.

LRLE-27/LRLI-27 products are available with a radial exiting cable and two spherical rod eye ends.

The LRLE-27/LRLI-27 series also includes smaller body versions, the LRE-19/LRI-19. Those versions are suitable for use in applications where a reduced body envelope is required. Use the LRE-27/LRI-27 for shorter stroke lengths from 2 to 6 in [50.8 to 152.4 mm].

## Features

- LVIT Technology™ (Linear Variable Inductance Transducer)
- Contactless operation prevents internal wear-out from dithering or rapid cycling
- Excellent stroke-to-length ratio
- Proprietary SenSet™ field adjustable range scaling



### LRLE27/LRLI27 Series Linear Position Sensors Selection Chart

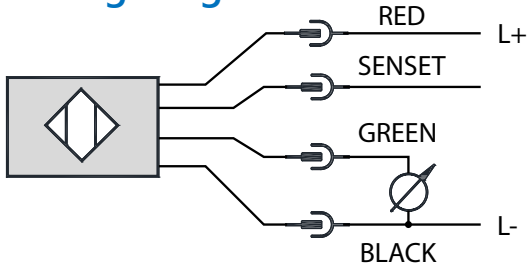
Part Number	Price	Drawing Link	Nominal Range (in [mm])	Body Length (Dimension A) (in [mm])
<b>0-10V models</b>				
<a href="#">LRLE27-200R-00-10A</a>	\$709.00	<a href="#">PDF</a>	8.0 [203.2]	11.50 [292.1]
<a href="#">LRLE27-250R-00-10A</a>	\$712.00	<a href="#">PDF</a>	10.0 [254.0]	13.50 [342.9]
<a href="#">LRLE27-300R-00-10A</a>	\$762.00	<a href="#">PDF</a>	12.0 [304.8]	15.50 [393.7]
<a href="#">LRLE27-350R-00-10A</a>	\$812.00	<a href="#">PDF</a>	14.0 [355.6]	17.50 [444.5]
<a href="#">LRLE27-400R-00-10A</a>	\$862.00	<a href="#">PDF</a>	16.0 [406.2]	19.50 [495.3]
<a href="#">LRLE27-450R-00-10A</a>	\$912.00	<a href="#">PDF</a>	18.0 [457.2]	21.50 [546.1]
<b>4-20mA models</b>				
<a href="#">LRLI27-200R-00-20A</a>	\$709.00	<a href="#">PDF</a>	8.0 [203.2]	11.50 [292.1]
<a href="#">LRLI27-250R-00-20A</a>	\$712.00	<a href="#">PDF</a>	10.0 [254.0]	13.50 [342.9]
<a href="#">LRLI27-300R-00-20A</a>	\$762.00	<a href="#">PDF</a>	12.0 [304.8]	15.50 [393.7]
<a href="#">LRLI27-350R-00-20A</a>	\$812.00	<a href="#">PDF</a>	14.0 [355.6]	17.50 [444.5]
<a href="#">LRLI27-400R-00-20A</a>	\$862.00	<a href="#">PDF</a>	16.0 [406.2]	19.50 [495.3]
<a href="#">LRLI27-450R-00-20A</a>	\$788.00	<a href="#">PDF</a>	18.0 [457.2]	21.50 [546.1]

### LRLE-27/LRLI-27 Series Linear Position Sensors Specifications

<b>Analog I/Os</b>	0-10V output with 12-30V power source, 35mA max; 4-20 mA (3-wire) output with 18-30V power source, 60mA max, 167°F [75°C] max
<b>Measuring Ranges</b>	8 to 18 in [203.2 to 457.2 mm] full scale (nominal)
<b>Linearity Error</b>	≤ ±0.15% of Full Scale Output (FSO) typical, ±0.25% max
<b>Resolution</b>	0.025% of FS
<b>Update Rate</b>	300Hz nominal
<b>Operating Temperature</b>	-4 to 185°F [-20 to +85°C]; -40 to +221°F [-40 to +105°C] extended range
<b>Temperature Coefficient</b>	≤ ±0.015% of FS/°C
<b>Vibration</b>	5-20 Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	1M, PUR, 4 conductor, 24AWG

# LRLE27/LRLI27 LVIT Linear Position Sensors

## Wiring Diagram



Wiring Table	
Function	Cable Color
+DC Power Input	Red
Common Ground	Black
Analog Output	Green
SenSet™	White

# LVE45/LVI45 LVIT Inductive Linear Position Sensors



LVE45-100R-01-10S



## Features

- LVIT Technology™ (Linear Variable Inductance Transducer)
- Contactless operation
- Excellent stroke-to-body-length ratio
- Stroke ranges from 100 to 375 mm (4 to 15 inches)
- Proprietary SenSet™ field adjustable range scaling

The LV45 series LVIT (Linear Variable Inductance Transducer) position sensors are designed for heavy-duty industrial measuring applications that require rugged devices. Typical applications include the following:

- Steel, aluminum, and paper mills
- Power generation steam valves
- Material creep measurements
- Roadway/bridge expansion
- Hydro power plants

LV45 sensors use a contactless inductive technology that allows them to replace other types of technology sensors like potentiometers and DC LVDTs in most applications. With a simple coil design, a captive 1/2 inch diameter connecting rod with 1/2-20 male thread, a stainless steel thick-walled housing, and a radial M12 connection, the sensors are shorter and more robust than their DC-LVDT counterparts. With a wider temperature range, LV45 sensors can withstand the vibration and shock levels found in mills and power plants as well as the temperature and humidity found in outdoor applications.



## LVE45/LVI45 LVIT Inductive Linear Position Sensors

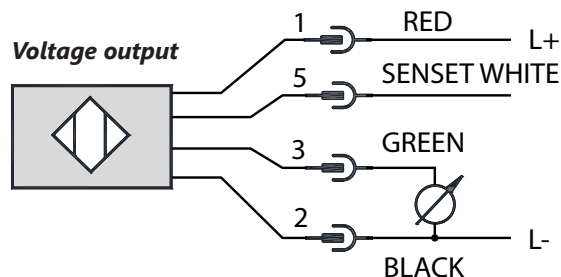
Part Number	Price	Drawing Link	Stroke mm [in]	Body Length mm [in]	Output	Connection	Housing Material
<b>0-10 VDC models</b>							
<a href="#">LVE45-100R-01-10S</a>	\$1,067.00	<a href="#">PDF</a>	100 [4.0]	250.9 [9.88]	0-10 VDC	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVE45-150R-01-10S</a>	\$1,190.00	<a href="#">PDF</a>	150 [6.0]	301.7 [11.88]	0-10 VDC	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVE45-200R-01-10S</a>	\$1,313.00	<a href="#">PDF</a>	200 [8.0]	352.5 [13.88]	0-10 VDC	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVE45-250R-01-10S</a>	\$1,362.00	<a href="#">PDF</a>	250 [10.0]	403.3 [15.88]	0-10 VDC	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVE45-300R-01-10S</a>	\$1,411.00	<a href="#">PDF</a>	300 [12.0]	454.1 [17.88]	0-10 VDC	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVE45-375R-01-10S</a>	\$1,461.00	<a href="#">PDF</a>	375 [15.0]	530.4 [20.88]	0-10 VDC	5-pin M12 quick-disconnect	Stainless steel
<b>4-20 mA models</b>							
<a href="#">LVI45-100R-01-20S</a>	\$1,067.00	<a href="#">PDF</a>	100 [4.0]	250.9 [9.88]	4-20 mA	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVI45-150R-01-20S</a>	\$1,190.00	<a href="#">PDF</a>	150 [6.0]	301.7 [11.88]	4-20 mA	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVI45-200R-01-20S</a>	\$1,313.00	<a href="#">PDF</a>	200 [8.0]	352.5 [13.88]	4-20 mA	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVI45-250R-01-20S</a>	\$1,362.00	<a href="#">PDF</a>	250 [10.0]	403.3 [15.88]	4-20 mA	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVI45-300R-01-20S</a>	\$1,411.00	<a href="#">PDF</a>	300 [12.0]	454.1 [17.88]	4-20 mA	5-pin M12 quick-disconnect	Stainless steel
<a href="#">LVI45-375R-01-20S</a>	\$1,461.00	<a href="#">PDF</a>	375 [15.0]	530.4 [20.88]	4-20 mA	5-pin M12 quick-disconnect	Stainless steel

# LVE45/LVI45 LVIT Inductive Linear Position Sensors

LVE45/LVI45 LVIT Inductive Linear Position Sensors Specifications	
<b>Analog I/Os</b>	0-10V output with 12 -30V input, 35 mA max. 4-20 mA (3-wire) output with 18-30V input, 60 mA max. [75° C max]
<b>Measuring Ranges</b>	100 to 450 mm [4 to 18 in] full-scale [nominal]
<b>Linearity Error</b>	< ± 0.15% of Full Scale Output [FSO] typical, ±0.25% max
<b>Resolution</b>	0.025% of FSO
<b>Update Rate</b>	300Hz [nominal]
<b>Operating Temperature</b>	Current output: -20 to +85°C; [-40 to +185°F]; Voltage output: -40 to 105°C [-40 to 221°F]
<b>Temperature Coefficient</b>	< ± 0.015% of FS/°C
<b>Vibration</b>	5-20 Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	5-pin M12 quick-disconnect
<b>Mounting</b>	rod eyes [see 2D drawing for specifications]
<b>Agency Approval *</b>	CE

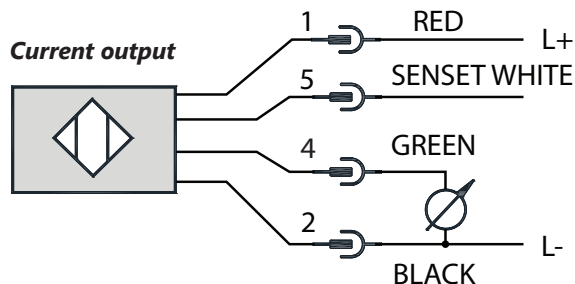
\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

## Wiring Diagram

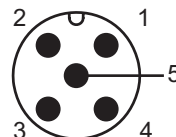


Wiring Table		
I/O Function	Cable Color	PIN
DC Power Input	Red	1
Ground	Black	2
Voltage Output	Green	3
Current Output	Green	4
SenSet™	White	5

\*Shield not connected internally



**5-pin M12 Connector**



# LZE13 LVIT Inductive Linear Position Sensors



LZE13-100A-00-10S

The LZE13 series of LVIT (Linear Variable Inductance Transducer) miniature position sensors are inductive, contactless devices designed for use in factory automation or assembly machinery applications where space is a premium. The LVIT is offered in nominal full-scale ranges from 2.5 to 200mm [0.1 to 8 in] with an excellent stroke-to-body-length ratio. The sensor has 12.7 mm [1/2 in] outside diameter stainless steel body with a 1m [3.2 ft] cable for I/O connections. The 4.78 mm [0.188 in] diameter through-bore of an LZE13 provides clearance for its 4mm [0.157 in] diameter moving target rod with M4 thread and hex nut, which is made of the same material as its housing. This through-bore feature also means that the sensor is not subject to damage from typical mechanical overstroking.



## Features

- LVIT Technology™ (Linear Variable Inductance Transducer)
- Contactless operation prevents internal wearout from dithering or rapid cycling
- Full-scale ranges from 2.5 to 200 mm [0.10 to 8.0 in]
- Through-bore design eliminates mechanical overstroking
- DC in / DC out operation with built in electronics
- For applications where size is a constraint and superior stroke-to-body-length ratio is required
- Proprietary SenSet™ field adjustable range scaling



## LZE13 LVIT Inductive Linear Position Sensors

Part Number	Price	Drawing Link	Stroke mm [inch]	Body Length mm [inch]	Output	Connection m [ft]	Housing Material
<a href="#">LZE13-2.5A-00-10S</a>	\$331.00	<a href="#">PDF</a>	2.5 [0.10]	35.8 [1.41]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-6.4A-00-10S</a>	\$336.00	<a href="#">PDF</a>	6.4 [0.25]	35.8 [1.41]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-12.7A-00-10S</a>	\$341.00	<a href="#">PDF</a>	12.7 [0.50]	35.8 [1.41]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-025A-00-10S</a>	\$351.00	<a href="#">PDF</a>	25 [1.0]	35.8 [1.41]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-050A-00-10S</a>	\$371.00	<a href="#">PDF</a>	50 [2.0]	61.2 [2.41]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-100A-00-10S</a>	\$386.00	<a href="#">PDF</a>	100 [4.0]	112.0 [4.41]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-150A-00-10S</a>	\$402.00	<a href="#">PDF</a>	150 [6.0]	165.1 [6.50]	0 - 10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE13-200A-00-10S</a>	\$427.00	<a href="#">PDF</a>	200 [8.0]	215.9 [8.50]	0 - 10 VDC	1 [3.2]	Stainless steel

## LZE13 LVIT Inductive Linear Position Sensor Specifications

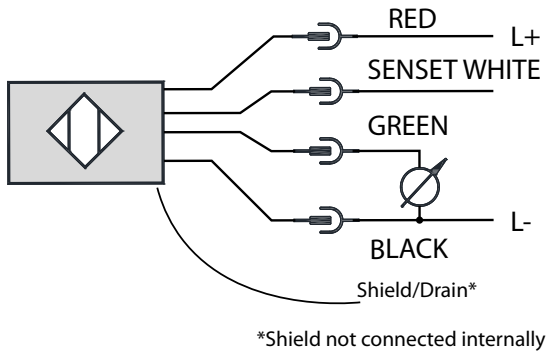
<b>Analog I/Os</b>	0-10 VDC output; 12-30V input, 35mA max
<b>Measuring Ranges</b>	2.5 to 200 mm [0.1 to 8 in]
<b>Linearity Error</b>	± 0.15% of Full Scale Output (FSO) typical, ±0.25% FSO max
<b>Resolution</b>	0.025% of FSO
<b>Bandwidth</b>	300Hz nominal
<b>Operating Temperature</b>	-20 to +105°C [-40 to +221°F]
<b>Temperature Coefficient</b>	≤ 0.015% of FSO/K
<b>Vibration</b>	5-20 Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	1m [3.2 ft] cable, 316L stainless steel 28 AWG
<b>Mounting</b>	M4 x 0.7 [mount for target rod]
<b>Agency Approval *</b>	CE

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



# LZE13 LVIT Inductive Linear Position Sensors

## Wiring Diagram



Wiring Table	
<i>I/O Function</i>	<i>Cable Color</i>
+ Power Input	Red
Ground	Black
Analog Output	Green
SenSet™	White
Shield/Drain *	Shield

\*Shield not connected internally

# LZE19/LZI19 LVIT Inductive Linear Position Sensors



LZE19-100A-00-10S



The LZ19 Series of LVIT (Linear Variable Inductance Transducer) position sensors are contactless devices designed for use in factory automation or assembly machinery applications where space is a premium, as well as for external mounting on pneumatic cylinders to sense rod position. The LVIT is offered in nominal full scale ranges from 2.5 to 375 mm [0.10 to 15 in] with an excellent stroke to-body-length ratio. The sensor has a 19mm [3/4 in] outside diameter stainless steel body with a 1m [3.2 ft] axial cable for I/O connections. The 6mm [0.236 in] diameter through-bore of an LZ-19 provides clearance for its 5.2 mm [0.200 in] diameter, PVDF-sheathed moving rod, which is made of the same material as its housing. This through-bore feature also means that the sensor is not subject to damage from typical mechanical overstroking.

## Features

- LVIT Technology™ (Linear Variable Inductance Transducer)
- Contactless operation prevents internal wearout from dithering or rapid cycling
- Full-scale ranges from 2.5 to 375 mm [0.10 to 15 in]
- Through-bore design eliminates mechanical overstroking
- DC in / DC out operation with built in electronics
- For applications requiring superior stroke-to-body-length ratio
- Proprietary SenSet™ field adjustable range scaling



## LZE19/LZI19 LVIT Inductive Linear Position Sensors

Part Number	Price	Drawing Link	Stroke mm [in]	Body Length mm [in]	Output	Connection m [ft]	Housing Material
<b>0-10 VDC models</b>							
<a href="#">LZE19-2.5A-00-10S</a>	\$327.00	<a href="#">PDF</a>	2.5 [0.10]	35.0 [1.38]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-6.4A-00-10S</a>	\$331.00	<a href="#">PDF</a>	6.4 [0.25]	35.0 [1.38]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-12.7A-00-10S</a>	\$336.00	<a href="#">PDF</a>	12.7 [0.50]	35.0 [1.38]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-025A-00-10S</a>	\$347.00	<a href="#">PDF</a>	25 [1.0]	35.0 [1.38]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-050A-00-10S</a>	\$367.00	<a href="#">PDF</a>	50 [2.0]	60.5 [2.38]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-100A-00-10S</a>	\$392.00	<a href="#">PDF</a>	100 [4.0]	111.1 [4.38]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-150A-00-10S</a>	\$418.00	<a href="#">PDF</a>	150 [6.0]	165.1 [6.50]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-200A-00-10S</a>	\$443.00	<a href="#">PDF</a>	200 [8.0]	215.9 [8.50]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-250A-00-10S</a>	\$469.00	<a href="#">PDF</a>	250 [10.0]	266.7 [10.50]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-300A-00-10S</a>	\$494.00	<a href="#">PDF</a>	300 [12.0]	317.5 [12.50]	0-10 VDC	1 [3.2]	Stainless steel
<a href="#">LZE19-375A-00-10S</a>	\$545.00	<a href="#">PDF</a>	375 [15.0]	400.0 [15.75]	0-10 VDC	1 [3.2]	Stainless steel
<b>4-20 mA models</b>							
<a href="#">LZI19-2.5A-00-20S</a>	\$327.00	<a href="#">PDF</a>	2.5 [0.10]	35.0 [1.38]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-6.4A-00-20S</a>	\$331.00	<a href="#">PDF</a>	6.4 [0.25]	35.0 [1.38]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-12.7A-00-20S</a>	\$336.00	<a href="#">PDF</a>	12.7 [0.50]	35.0 [1.38]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-025A-00-20S</a>	\$347.00	<a href="#">PDF</a>	25 [1.0]	35.0 [1.38]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-050A-00-20S</a>	\$367.00	<a href="#">PDF</a>	50 [2.0]	60.5 [2.38]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-100A-00-20S</a>	\$392.00	<a href="#">PDF</a>	100 [4.0]	111.1 [4.38]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-150A-00-20S</a>	\$418.00	<a href="#">PDF</a>	150 [6.0]	165.1 [6.50]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-200A-00-20S</a>	\$443.00	<a href="#">PDF</a>	200 [8.0]	215.9 [8.50]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-250A-00-20S</a>	\$469.00	<a href="#">PDF</a>	250 [10.0]	266.7 [10.50]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-300A-00-20S</a>	\$494.00	<a href="#">PDF</a>	300 [12.0]	317.5 [12.50]	4-20 mA	1 [3.2]	Stainless steel
<a href="#">LZI19-375A-00-20S</a>	\$545.00	<a href="#">PDF</a>	375 [15.0]	400.0 [15.75]	4-20 mA	1 [3.2]	Stainless steel

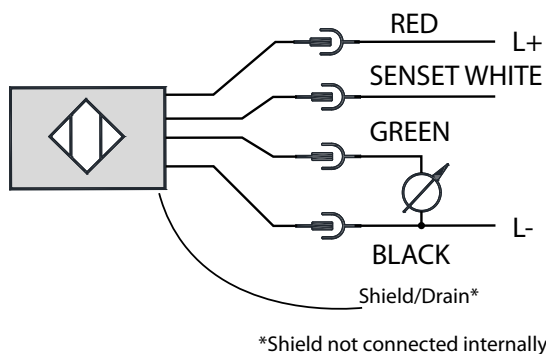
# LZE19/LZI19 LVIT Inductive Linear Position Sensors

## LZE19/LZI19 LVIT Inductive Linear Position Sensor Specifications

<b>Analog I/Os</b>	0–10 VDC output; 12–30V input, 35 mA max 4 – 20 mA (3-wire) output; 18–30V input, 60 mA max. [75° C max]
<b>Measuring Ranges</b>	2.5 to 750 mm [0.100 to 30 in] full scale
<b>Linearity Error</b>	$\leq \pm 0.15\%$ of Full Scale Output (FSO) typical, $\pm 0.25\%$ max
<b>Resolution</b>	0.025% of FS
<b>Update Rate</b>	300Hz nominal
<b>Operating Temperature</b>	Current output: -20 to +85°C; [-40 to +185°F]; Voltage output: -40 to 105°C [-40 to 221°F]
<b>Temperature Coefficient</b>	$\leq \pm 0.015\%$ of FS/C
<b>Vibration</b>	5-20 Hz, 0.5 in peak-to-peak; 20-2000 Hz, 4.2 g peak-to-peak
<b>Shock</b>	1000g, 11ms
<b>Terminations</b>	IEC IP-67
<b>Humidity</b>	95% RH, non-condensing
<b>Connection</b>	1m [3.2 ft] cable, PUR, 28AWG
<b>Mounting</b>	M5 x 0.8 [mount for target rod]
<b>Agency Approval *</b>	CE

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

## Wiring Diagram



## Wiring Table

I/O Function	Cable Color
+ Power Input	Red
Ground	Black
Analog Output	Green
SenSet™	White
Shield/Drain *	Shield

\*Shield not connected internally

# GIB Inclination Sensors

## Single/Dual Axis Entry-Level Tilt Sensors (Z/XY)

### Overview

The entry-level tilt sensors offer a space-saving, high performance, and easy installation. Along with a high IP protection level, resistance to shock and vibration, and high electromagnetic compatibility, this product is suitable for mobile hydraulics applications, agricultural machines, construction machines and material handling equipment.

### Features

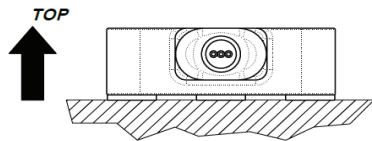
- Voltage or current analog output
- 8 models available
- 2m axial cable
- IP67/IP69K rated
- PKIT312-1QJ Magnetic Pen included with Dual Axis GIB models
- 3-year warranty



**GIB-XY-015-V-2A**



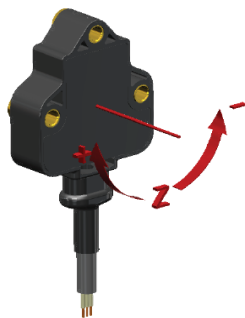
GIB Inclination Sensors							
Part Number	Price	Number of Axis	Measuring Range	Accuracy	Output	Connection	Drawing Link
<a href="#">GIB-Z-360-V-2A</a>	\$198.00	1	+/- 180 degrees	+/-0.5 degrees	0-10 VDC	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-Z-360-A-2A</a>	\$195.00	1	+/- 180 degrees	+/-0.5 degrees	4-20 mA	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-XY-015-V-2A</a>	\$198.00	2	+/- 15 degrees	+/-0.5 degrees	0-10 VDC	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-XY-015-A-2A</a>	\$195.00	2	+/- 15 degrees	+/-0.5 degrees	4-20 mA	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-XY-045-V-2A</a>	\$198.00	2	+/- 45 degrees	+/-0.5 degrees	0-10 VDC	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-XY-045-A-2A</a>	\$195.00	2	+/- 45 degrees	+/-0.5 degrees	4-20 mA	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-XY-085-V-2A</a>	\$198.00	2	+/- 85 degrees	+/-0.5 degrees	0-10 VDC	pigtail: 6.5ft/2m	<a href="#">PDF</a>
<a href="#">GIB-XY-085-A-2A</a>	\$195.00	2	+/- 85 degrees	+/-0.5 degrees	4-20 mA	pigtail: 6.5ft/2m	<a href="#">PDF</a>



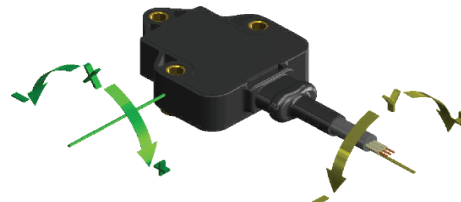
**SINGLE AXIS**

<b>ANALOG CONNECTIONS DUAL AXIS X-Y</b>		<b>ANALOG CONNECTIONS SINGLE AXIS Z</b>	
BLACK	GROUND	BLACK	GROUND
RED	+ SUPPLY	RED	+ SUPPLY
YELLOW	OUTPUT X	YELLOW	OUTPUT Z
GREEN	OUTPUT Y	GREEN	n.c.
BLUE	n.c.	BLUE	n.c.
WHITE	n.c.	WHITE	n.c.

ITEMS MARKED "n.c." MUST NOT BE CONNECTED



**DUAL AXIS**



## GIB-XY Inclination Sensor Accessory

Accessory		
Part Number	Price	Description
<a href="#">PKIT312-1QJ</a>	\$35.00	Gefran magnetic pen, for use with Gefran GIB-XY inclination sensors.



# GEFRAN GIB Inclination Sensors

BEYOND TECHNOLOGY

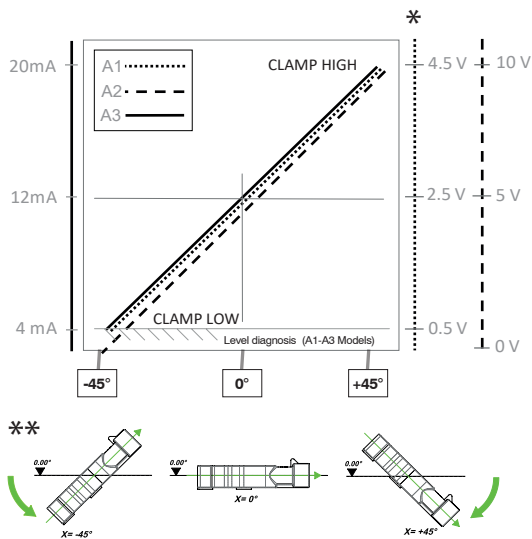
## Specifications

GIB Inclination Sensor Specifications	
Specification	
<b>Measurement Range</b>	$\pm 15^\circ \pm 45^\circ \pm 85^\circ$ (single axis Z for analog output-dual axis XY) 360° ( $\pm 180^\circ$ ) single axis Z only
<b>Supply Voltage</b>	+10 to +36 VDC
<b>Output Signal</b>	0-10 VDC; 4-20mA
<b>Electrical Connections</b>	PUR cable 22 AWG
<b>Resolution</b>	12 bit
<b>Accuracy (Factory Verification @ 25 °C)</b>	< $\pm 0.5\%$ FS
<b>Response Time</b>	~650 ms
<b>Working Temperature</b>	-40 to +85°C [-40 to 185°F]
<b>Temperature Coefficient at 0-deg inclination</b>	Typical < $\pm 0.006$ deg/°C
<b>Long Term Repeatability</b>	Single Axis: Typical < $\pm 0.5$ deg in the range of $\pm 180$ deg Dual Axis: Typical < $\pm 0.5$ deg in the range $\leq \pm 60$ deg, $\pm$ deg otherwise
<b>Vibrations</b>	20g 10Hz to 2000Hz IEC 60068-2-6
<b>Shock</b>	Impulsive on 3 axis: 50g 11ms IEC 60068-2-27
<b>Electromagnetic Compatibility</b>	2014/30/EU Electromagnetic Compatibility (EMC)
<b>IP Protection Level</b>	IP67-IP69X
<b>Housing Material</b>	PBT [Polybutylene Terephthalate]
<b>Autozero Function</b>	Dual Axis models only
<b>Agency Approval</b>	CE

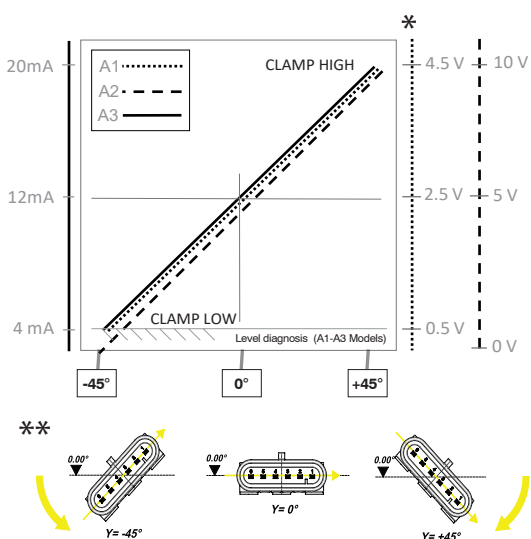
To obtain the latest agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

## FUNCTIONS: SENSOR OUTPUT GRAPH

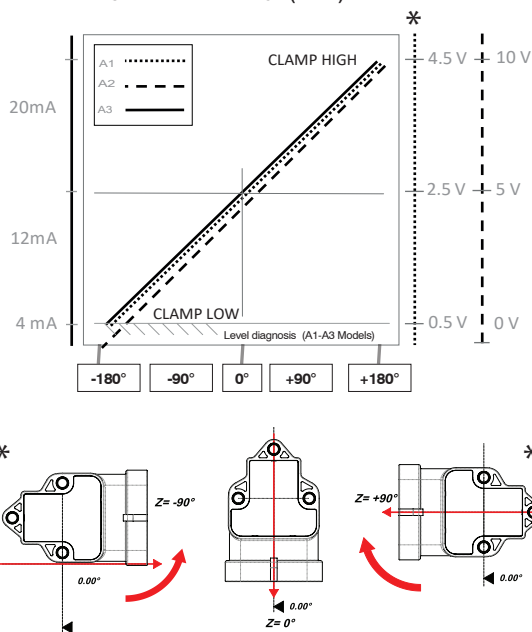
DUAL AXIS TILT SENSOR (XY) - X AXIS



DUAL AXIS TILT SENSOR (XY) - Y AXIS



SINGLE AXIS TILT SENSOR ( $\pm 180^\circ$ ) - Z AXIS



**LOAD CONDITIONS**

- \* +0.5 VDC to +4.5 VDC output with power, +10 to 36 VDC and +0 to 10 VDC output with power +11 to 36 VDC: load resistance > 100 kohm
- \* +0.5 VDC to +4.5 VDC output with power +5 VDC: load resistance > 100 kohm
- +4 to 20mA output with power < 15 VDC up to 10 VDC: the maximum load resistance is admissible 200 ohm
- +4 to 20mA output with power > 15 VDC up to 36 VDC: the maximum load resistance is admissible 500 ohm

\* 0-5V models are not offered by AutomationDirect at this time.

\*\* Rotation drawings shown with AMP Superseal 6P connections. AutomationDirect does not currently carry these models however, the cabled versions operate in the same fashion.

# GIG Inclination Sensors

## Single/Dual Axis General Tilt Sensors (Z/XY)

### Overview

High performance, high IP rating, resistance to shock and vibrations, and high electromagnetic compatibility make this sensor suitable for mobile hydraulic applications.

Developed to guarantee a robust, high-performance solution for applications such as agricultural vehicles, earth-moving machines, and hoisting equipment.

The GIG Inclination series offers two independent but redundant sensors and outputs to provide ultimate reliability.

### Features

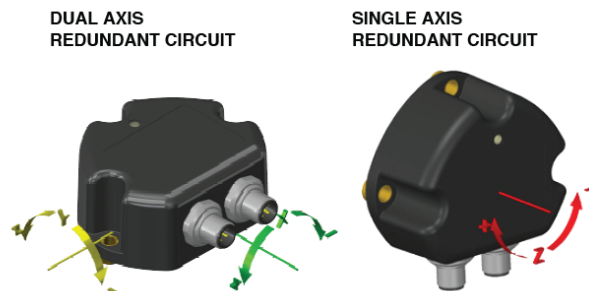
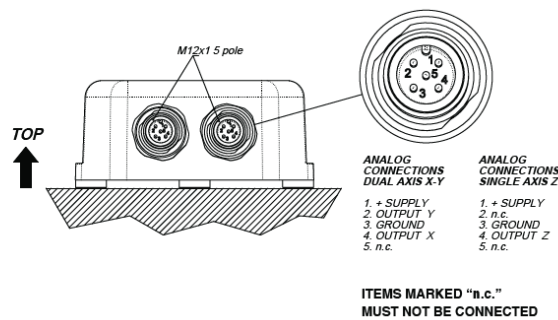
- Voltage or current analog output
- 8 models available
- M12 quick-disconnect model (purchase cable separately)
- IP67/IP69K rated
- 3-year warranty



**GIG-XY-015-V-M12**



GIG Inclination Sensors							
Part Number	Price	Number of Axis	Measuring Range	Accuracy	Output	Connection	Drawing Link
<a href="#">GIG-Z-360-V-M12</a>	\$319.00	1	+/- 180 degrees	+/-0.5 degrees	redundant 0-10 VDC	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-Z-360-A-M12</a>	\$309.00	1	+/- 180 degrees	+/-0.5 degrees	redundant 4-20 mA	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-XY-015-V-M12</a>	\$319.00	2	+/- 15 degrees	+/-0.5 degrees	redundant 0-10 VDC	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-XY-015-A-M12</a>	\$309.00	2	+/- 15 degrees	+/-0.5 degrees	redundant 4-20 mA	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-XY-045-V-M12</a>	\$319.00	2	+/- 45 degrees	+/-0.5 degrees	redundant 0-10 VDC	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-XY-045-A-M12</a>	\$309.00	2	+/- 45 degrees	+/-0.5 degrees	redundant 4-20 mA	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-XY-085-V-M12</a>	\$319.00	2	+/- 85 degrees	+/-0.5 degrees	redundant 0-10 VDC	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>
<a href="#">GIG-XY-085-A-M12</a>	\$309.00	2	+/- 85 degrees	+/-0.5 degrees	redundant 4-20 mA	(2) 5-pin M12 quick-disconnect	<a href="#">PDF</a>



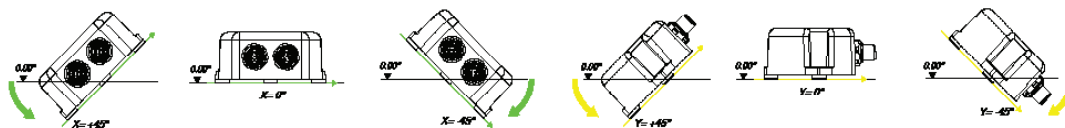
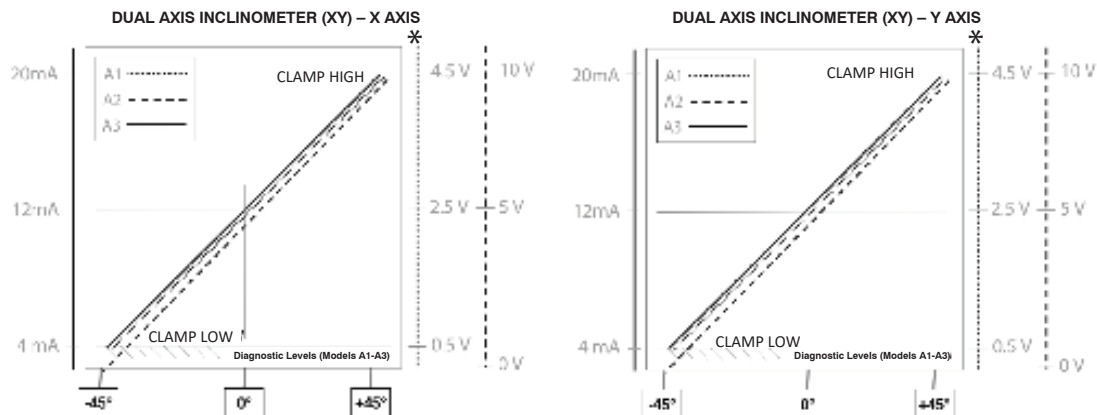
## Specifications

GIG Inclination Sensor Specifications	
<i>Specification</i>	
<b>Measurement Range</b>	$\pm 15^\circ \pm 45^\circ \pm 85^\circ$ (single axis Z for analog output-dual axis XY) 360° ( $\pm 180^\circ$ ) single axis Z only
<b>Supply Voltage</b>	+10 to +36 VDC
<b>Output Signal</b>	0-10 VDC; 4-20mA
<b>Electrical Connections</b>	(2) 5 Pole M12 Connector
<b>Resolution</b>	12 bit
<b>Accuracy (Factory Verification @ 25°C)</b>	< $\pm 0.5\%$ FS
<b>Response Time</b>	~650 ms
<b>Working Temperature</b>	-40 to +85°C [-40 to 185°F]
<b>Temperature Coefficient at 0-deg inclination</b>	Typical < $\pm 0.006$ deg/°C
<b>Long Term Repeatability</b>	Single Axis: Typical < $\pm 0.5$ deg in the range of $\pm 180$ deg Dual Axis: Typical < $\pm 0.5$ deg in the range $\leq \pm 60$ deg, $\pm 2$ deg otherwise
<b>Vibrations</b>	20g 10Hz to 2000Hz IEC 60068-2-6
<b>Shock</b>	Impulsive on 3 axis: 50g 11ms IEC 60068-2-27
<b>Electromagnetic Compatibility</b>	2014/30/EU Electromagnetic Compatibility (EMC)
<b>IP Protection Level</b>	IP67-IP69X
<b>Housing Material</b>	PBT [Polybutylene Terephthalate]
<b>Agency Approval</b>	CE

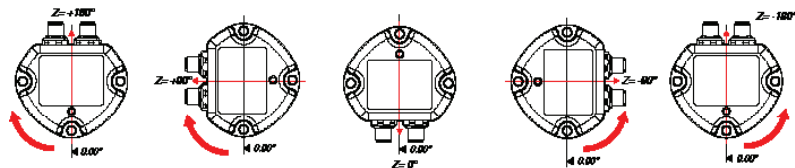
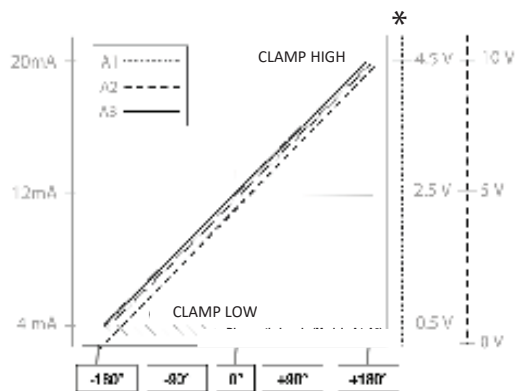
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## OPERATING SPECIFICATIONS: OUTPUT SIGNAL GRAPHS



### SINGLE AXIS INCLINOMETER ( $\pm 180^\circ$ ) – Z AXIS



#### LOAD CONDITIONS

- \* +0.5 VDC to +4.5 VDC output with supply +10 to 36 VDC and +0 to 10 VDC output with supply +11 to 36 VDC: apply a load resistance > 100k ohm
- \* +0.5 VDC to +4.5 VDC output (with supply +5 VDC): apply a load resistance > 100k ohm
- 4 to 20mA output (with supply < 15 VDC to 10 VDC): maximum allowed load resistance is 200 ohm
- 4 to 20mA output (with supply > 15 VDC to 36 VDC): maximum allowed load resistance is 500 ohm

\* 0-5V models are not offered by AutomationDirect at this time.