

Temposonics®

Magnetostrictive, Absolute, Non-contact
Linear-Position Sensor Accessories



Includes Installation, Mounting and Application References

Document Part Number
550929 Revision D

Current Production and Retrofit Options for
R-Series, G-Series and E-Series Sensors



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Models RH, RF and RD4 Rod-Style Sensors Mounting and Cylinder Installation References

Model RH Rod-Style sensor mounting

The position magnet requires minimum distances away from ferrous metals to allow proper sensor output. The minimum distance from the front of the magnet to the cylinder end cap is 15 mm (0.6 in.).

The minimum distance from the back of the magnet to the piston head is 3.2 mm (0.125 in.). However, a minimum distance of at least 5 mm (0.197 in.) is preferred for added performance margin. The non-ferrous spacer (part no.: 400633) provides this minimum distance when used along with the standard ring magnet (part no.: 201542-2), as shown in 'Figure 1'.

 For applicable magnet selections, refer to 'Magnet Selections'.

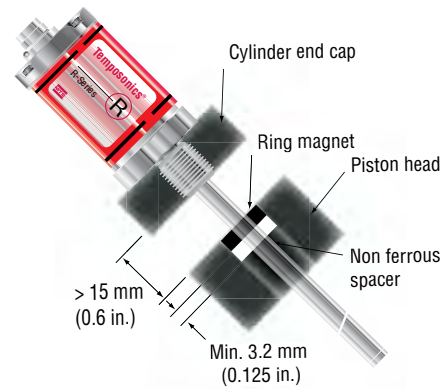


Figure 1. Model RH rod-style mounting

MODEL RH CYLINDER INSTALLATION

When used for direct-stroke measurement in fluid cylinders, the sensor's high pressure, stainless steel rod installs into a bore in the piston head/rod assembly as illustrated. This method guarantees a long-life and trouble-free operation.

The sensor cartridge can be removed from the flange and rod housing while still installed in the cylinder. This procedure allows quick and easy sensor cartridge replacement, without the loss of hydraulic pressure.

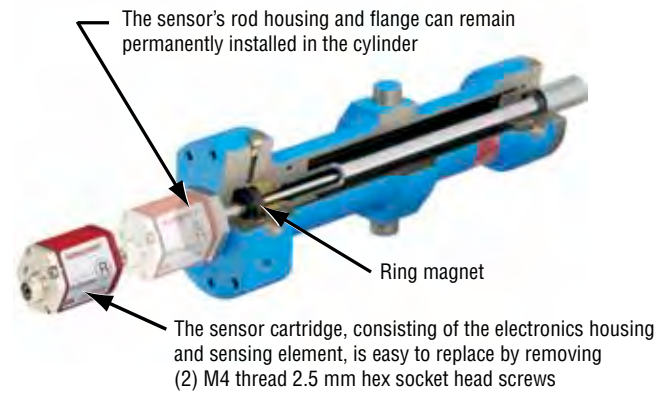



Figure 2. Fluid cylinder installation

Model GH rod-style sensor mounting

The position magnet requires minimum distances away from ferrous metals to allow proper sensor output. The minimum distance from the front of the magnet to the cylinder end cap is 15 mm (0.6 in.).

The minimum distance from the back of the magnet to the piston head is 3.2 mm (0.125 in.). However, a minimum distance of at least 5 mm (0.197 in.) is preferred for added performance margin. The non-ferrous spacer (part no.: 400633) provides this minimum distance when used along with the standard ring magnet (part no.: 201542-2), as shown in 'Figure 3'.

 For applicable magnet selections, refer to 'Magnet Selections'.

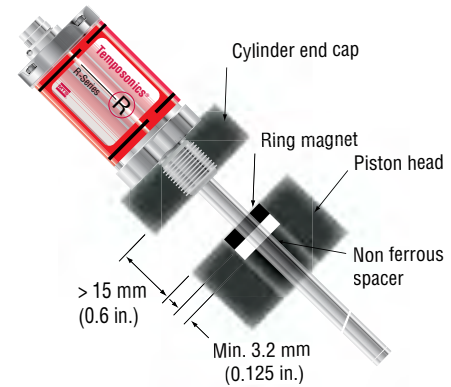


Figure 3. Model GH rod-style mounting

MODEL GH CYLINDER INSTALLATION

When used for direct-stroke measurement in fluid cylinders, the sensor's high pressure, stainless steel rod installs into a bore in the piston head/rod assembly (See 'Figure 4'). This method guarantees a long-life and trouble-free operation.

The sensor cartridge can be removed from the flange and rod housing while still installed in the cylinder. This procedure allows quick and easy sensor cartridge replacement, without the loss of hydraulic pressure.

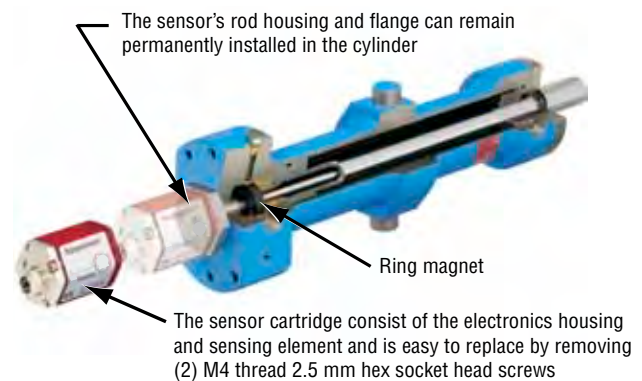
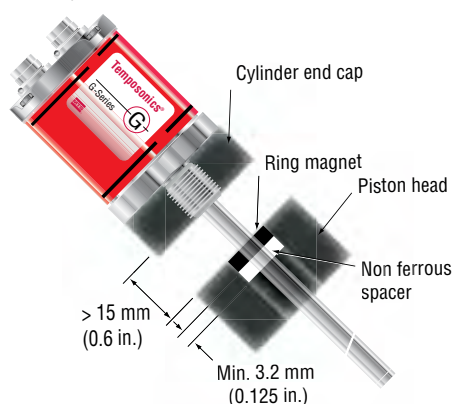


Figure 4. Fluid cylinder installation

Models GT2/GT3 rod-style sensor mounting

The position magnet requires minimum distances away from ferrous metals to allow proper sensor output. The minimum distance from the front of the magnet to the cylinder end cap is 15 mm (0.6 in.).

The minimum distance from the back of the magnet to the piston head is 3.2 mm (0.125 in.). However, a minimum distance of at least 5 mm (0.197 in.) is preferred for added performance margin. The non-ferrous spacer (part no.: 400633) provides this minimum distance when used along with the standard ring magnet (part no.: 201542-2), as shown in 'Figure 5'.



 For applicable magnet selections, refer to 'Magnet Selections'.

Figure 5. Models GT2/GT3 rod-style mounting

MODELS GT2/GT3 CYLINDER INSTALLATION

When used for direct-stroke measurement in fluid cylinders, the sensor's high pressure, stainless steel rod installs into a bore in the piston head/rod assembly (See 'Figure 6'). This method guarantees a long-life and trouble-free operation.

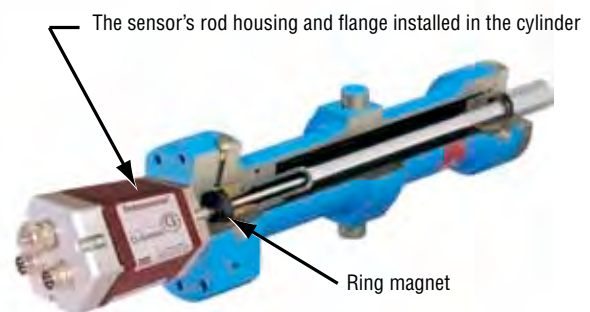


Figure 6. Fluid cylinder installation example

Note:

Unlike the G-Series Model GH sensor (shown in figure 4), GT2/GT3 redundant sensor models do not have a replaceable sensor cartridge feature.

**Models RP and GP Profile-Style Sensor
Mounting References**

Models RP and GP sensor mounting references

PROFILE-STYLE SENSOR MOUNTING

Temposonics models RP and GP profile-style sensors offer two basic mounting methods; side grooves for use with mounting feet or a bottom groove that accepts a special T-Slot nut (part no.: 401602). Both the mounting feet and T-Slot nuts can be positioned along the sensor extrusion to best secure the sensor for each particular application.

Notes:

1. Models RP and GP sensors include two mounting feet, (part no. 400802) for sensors stroke lengths up to 1250 mm (50 in.)
2. One additional mounting foot is included for stroke lengths over 1250 mm (50 in.) and for each additional 500 mm (20 in.), thereafter.
3. MTS recommends using 10-32 cap screws (customer supplied) at a maximum torque of 44 in. lbs. when fastening mounting feet.
4. The T-Slot nut (part no.: 401602) requires a **customer supplied** M5 threaded stud and nut.

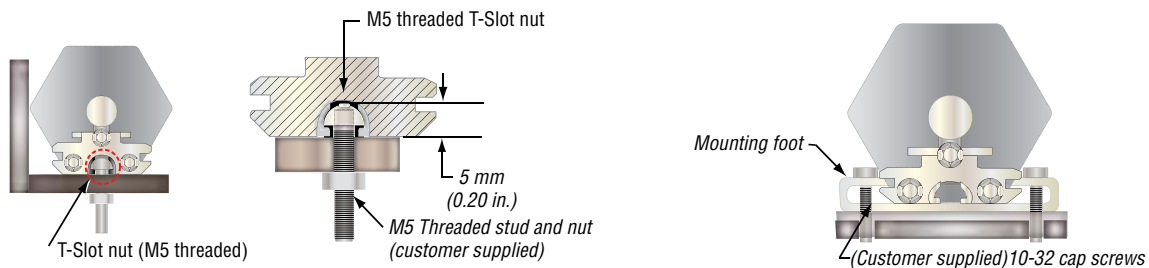
 For applicable magnet selections, refer to 'Magnet Selections'.

Models RP and GP profile-style sensor mounting and installation references




T-Slot nut (M5 threaded)

Nut for mounting model RP and GP sensors.

Mounting feet and screws



**Mounting
Models RP/GP**

Models RP and GP sensor mounting and installation accessory reference	Description	Part number
 <p>4 Holes 5.3 mm (0.21 in.) dia.</p> <p>28 mm (1.1 in.)</p> <p>9 mm (0.36 in.)</p> <p>2 mm (0.08 in.)</p> <p>50 mm (1.97 in.)</p> <p>68 mm (2.68 in.)</p> <p>9 mm (0.36 in.)</p> <p>(Width = 14.5 mm (0.57 in.))</p>	<p>Mounting feet, standard (304 SS) Profile-style sensor mounting for sensor models RP and GP</p>	400802
 <p>5 mm (0.196 in.) I.D.</p> <p>28 mm (1.1 in.)</p> <p>9 mm (0.36 in.)</p> <p>2 mm (0.08 in.)</p> <p>50 mm (1.97 in.)</p> <p>68 mm (2.68 in.)</p> <p>9 mm (0.36 in.)</p> <p>(Width = 14.5 mm (0.57 in.))</p>	<p>Mounting feet, Insulated (304 SS) Profile-style sensor mounting for sensor models RP and GP. Nylon washers and cloth tape on the bottom provide electrical isolation.</p>	252004
 <p>M5 threaded T-Slot nut</p> <p>5 mm (0.20 in.)</p> <p>M5 Threaded stud and nut (customer supplied)</p>	<p>T-Slot nut (M5 threaded) Nut for mounting model RP and GP sensors.</p>	401602

Model EH Rod-Style sensor mounting

MODEL EH SENSOR MOUNTING

The model EH sensor is designed for direct stroke measurement inside prepared hydraulic cylinders. At the head of the sensor, a threaded flange and O-Ring provides for mounting and sealing the sensor into a port opening in the cylinder end cap. The sensor's pressure resistant rod fits into a bore drilled through the center of the piston head and rod assembly. The sensor's position magnet is mounted on the top of the piston head or installed in a shallow counter-bore inside the piston head.

The position magnet requires minimum distances away from ferrous metals to allow proper sensor output. The minimum distance from the front of the magnet to the cylinder end cap is 15 mm (0.6 in.).

The minimum distance from the back of the magnet to the piston head is 3.2 mm (0.125 in.). However, a minimum distance of at least 5 mm (0.197 in.) is preferred for performance margin. The non-ferrous spacer (part no. 400633), provides this minimum distance when used along with the standard ring magnet (part no. 201542-2), as shown in 'Figure 7'.

The magnet is usually secured using non-ferrous fastening material (customer supplied). Screws must be made of nonmagnetic stainless steel or brass. In the event that a ferrous circlip or retaining ring will be used to secure the magnet in a counter-bore then an additional non-ferrous spacer (> or = 3.2 mm) must be placed between the circlip or retaining ring and the front side of the magnet.

The cylinder's design ratings for hydraulic pressure and piston velocity will determine the appropriate size for the bore that is drilled through the center of the piston head and rod assembly. The recommended minimum size for this bore is 10 mm (0.39 in.) when using the 7 mm (0.27 in.) diameter sensor rod.

Likewise, the recommended minimum size of 13 mm (0.51 in.) should be used when installing the 10 mm diameter sensor rod. Some applications using long sensor rods may benefit by adding a bushing (e.g. made of flourelastomer material) to prevent wear on the magnet and sensor rod (customer supplied).

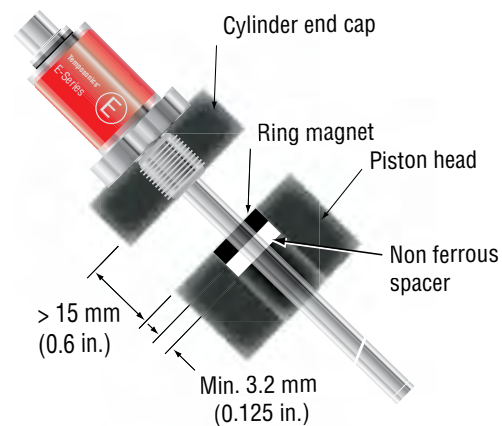


Figure 7. Model EH rod-style mounting

Mounting
Models EH/EP/EL


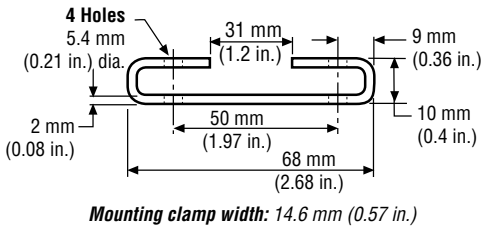
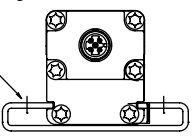
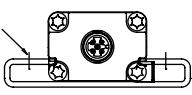
Sensor mounting (Models EP and EL)

SENSOR MOUNTING CLAMPS

E-Series models EP and EL sensors are mounted onto the machine with moveable mounting clamps. Mounting clamps slide into side grooves and should be evenly distributed along the sensor extrusion to best secure the sensor for each particular application.

Notes:

1. Models EP and EL sensors include two mounting clamps, (part number 403508), for stroke lengths up to 1250 mm (50 in.). One additional mounting clamp is included for longer stroke lengths.
2. MTS recommends using 10-32 cap screws (customer supplied) at a maximum torque of 44 in. lbs. when fastening mounting clamps.

Models EP and EL sensor mounting and installation reference		Mounting method	Part number
		<p>Mounting clamp Sensor mounting for sensor models EP and EL</p>	<p>403508</p>
<p>Model EP mounting</p> 	<p>Model EL mounting</p> 		

Sensor Mounting
Models ER and EP2
Sensor mounting (Model ER)

SENSOR MOUNTING CLAMPS

The E-Series model ER sensor is mounted onto the machine with moveable mounting clamps. Grooves for mounting clamps are available on three sides of the sensor housing, allowing versatile mounting orientations for the sensor's connector and extension cable. The rod is then attached to the moving machine part. Optional rod ends can be used to simplify sensor installation design and facilitate articulated motion sensing. Using dual rod ends the model ER sensor can be mounted between two independent moving points, such as swinging door applications. Please note for model ER sensors having stroke lengths over 750 mm (30 in.) only the first 90% of the stroke length can be used for articulated type applications when the weight of the sensor is supported only by rod ends.

Notes:

1. Mounting clamps are ordered separately. Two mounting clamps, (part number 403508) are required for stroke lengths up to 750 mm (30 in.). A least one additional mounting clamp is required for longer stroke lengths.
2. MTS recommends using 10-32 cap screws (customer supplied) at a maximum torque of 44 in. lbs. when fastening mounting clamps.

Model ER sensor mounting and installation reference	Mounting method	Part number
	<p>Mounting clamp Sensor mounting for sensor model ER</p>	403508
	<p>Three possible mounting configuration using mounting clamp and screws</p>	<p>Mounting clamp, part number 403508</p>

Sensor mounting

MODEL EP2 SENSOR MOUNTING

Temposonics model EP2 profile-style sensors are mounted onto a flat straight surface of the machine with moveable mounting feet. A pair (2) mounting feet are provided with each sensor. Two additional mounting feet (part no. 400802) are included for measurement stroke lengths greater than 48 inches. Mounting feet slide into side grooves and should be evenly distributed along the sensor extrusion to best secure the sensor for each particular application.

Notes:


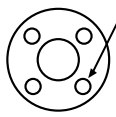

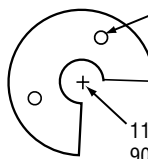

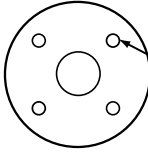

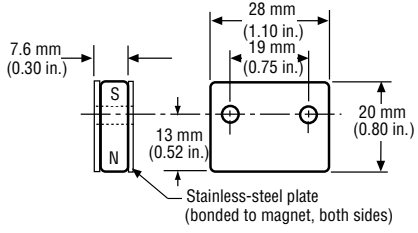

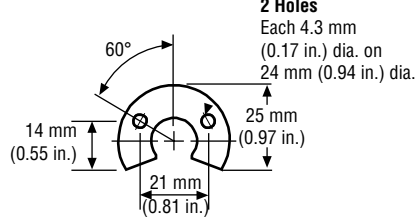
1. Additional mounting feet can be ordered separately.
2. MTS recommends using 10-32 cap screws (customer supplied) at a maximum torque of 44 in. lbs. when fastening mounting feet.

Profile-Style sensor mounting and installation reference	Mounting method	Part number
	<p>Mounting feet, standard (304 SS) Profile-style sensor mounting for sensor model EP2 (Width = 14.5 mm (0.57 in.))</p>	400802
	<p>Mounting feet and screws Profile-style sensor foot installation <i>Secure mounting feet with customer supplied 10-32 Cap screws. (recommended)</i></p> <p>Block magnet, Style L mounting Magnet installs on a mounting plate (customer supplied) or flat surface of the machine's moving part.</p>	<p>Mounting feet, part number 400802</p> <p>Block magnet, style L part number 252887</p>

Magnet selections

The standard ring magnet (part number 201542-2) is suitable for most applications.


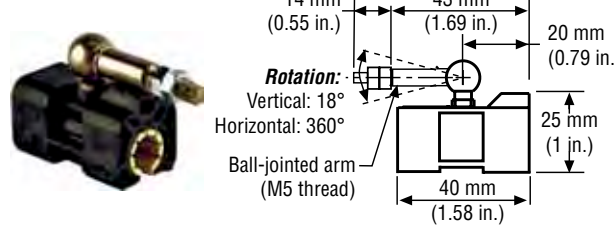

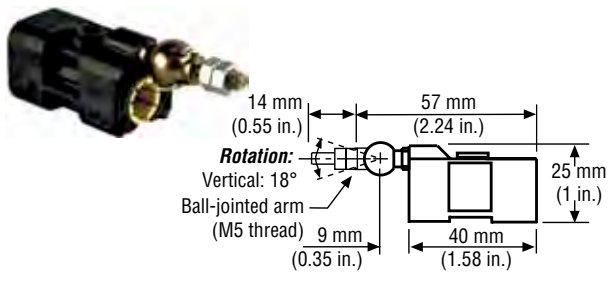

POSITION MAGNET SELECTIONS (Magnet must be ordered separately) (Drawing dimensions are for reference only)

Magnet and magnet dimensions	Description and specifications	Sensor model reference			Part number
  <p>4 Holes Each 4.3 mm (0.17 in.) dia. 90° apart on 24 mm (0.94 in.) dia.</p>	<p>Standard ring magnet Material: Composite PA ferrite GF20 I.D.: 13.5 mm (0.53 in.) O.D.: 33 mm (1.3 in.) Thickness: 8 mm (0.3 in.) Weight: Approx. 14g Operating temperature: -40 °C to +100 °C</p>	<p>RH RF RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>201542-2</p>
  <p>1 of 2 holes each, 4.5 mm (0.18 in.) dia. 120° apart on 41.3 mm (1.625 in.) dia. 11.2 mm (0.44 in.) opening 90° Cut out</p>	<p>Large open-ring magnet Material: PA 66-GF30 Magnet slugs potted with epoxy. I.D.: 15.9 mm (0.625 in.) O.D.: 63.25 mm (2.49 in.) Thickness: 9.5 mm (0.375 in.) Weight: Approx. 26g Operating temperature: -40 °C to +75 °C</p>	<p>RH RF RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>201553</p>
  <p>1 of 4 holes each 4.6 mm (0.18 in.) dia. 90° apart on 41.3 mm (1.625 in.) dia.</p>	<p>Large ring magnet Material: PA 66-GF30 Magnet slugs potted with epoxy. I.D.: 19.05 mm (0.75 in.) O.D.: 63.25 mm (2.49 in.) Thickness: 9.3 mm (0.375 in.) Weight: Approx. 35g Operating temperature: -40 °C to +75 °C</p>	<p>RH RF RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>201554</p>
  <p>7.6 mm (0.30 in.) 28 mm (1.10 in.) 19 mm (0.75 in.) 13 mm (0.52 in.) 20 mm (0.80 in.) Stainless-steel plate (bonded to magnet, both sides)</p>	<p>Bar magnet, Style L Material: Stainless-steel plate Plates bonded to both magnet sides. Magnet installs on a mounting plate (customer supplied) or flat surface of the machine's moving part. This magnet may influence the sensor performance specifications for some applications.</p>	<p>RH RP RF RD4</p>	<p>GH GP GT</p>	<p>EP EH EL</p>	<p>251298-2</p>
  <p>2 Holes Each 4.3 mm (0.17 in.) dia. on 24 mm (0.94 in.) dia. 60° 14 mm (0.55 in.) 25 mm (0.97 in.) 21 mm (0.81 in.)</p>	<p>Open-ring magnet, Style M Material: Composite PA ferrite GF20 I.D.: 13.5 mm (0.53 in.) O.D.: 33 mm (1.3 in.) Thickness: 8 mm (0.3 in.) Weight: Approx. 11g Operating temperature: -40 °C to +100 °C This magnet may influence the sensor performance specifications for some applications.</p>	<p>RH RF RD4 RP</p>	<p>GH GT GP</p>	<p>EP EH EL</p>	<p>251416-2</p>

Magnet Selections

Rod and Profile-Style Position Sensor Magnet Selections


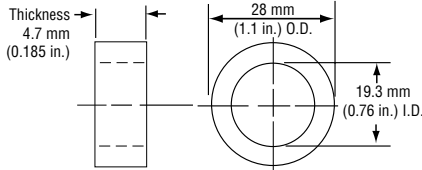

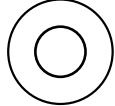

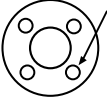

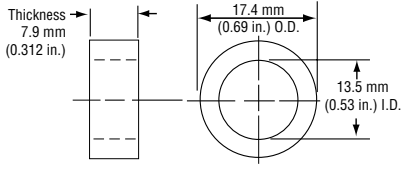

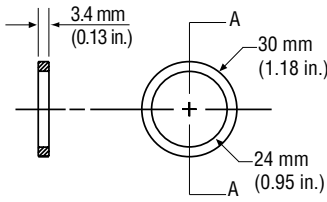

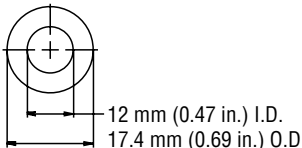
POSITION MAGNET SELECTIONS (Magnet must be ordered separately) (Drawing dimensions are for reference only)

Magnet and magnet dimensions	Description and specifications	Sensor model reference			Part number
	<p>Magnet float (Level sensing applications) Material: Stainless steel Weight: Approx. 42 ± 3g Density: 720 kg/m³ Specific gravity: 0.70 maximum Pressure: 870 psi maximum (This float is used with Rod-style sensors for hydraulic fluid or fresh water applications only)</p>	RH RD4	GH GT	EH	251447
	<p>Captive-sliding magnet, Style S Material: GFK, magnet hard ferrite Weight: Approx. 30g Operating temperature: -40 °C to +75 °C</p>	RP	GP	EP EL	252182
	<p>Captive-sliding magnet, Style N with longer ball-jointed arm Material: GFK, magnet hard ferrite Weight: Approx. 30g Operating temperature: -40 °C to +75 °C</p>	RP	GP	EP EL	252183
	<p>Captive-sliding magnet, Style V Material: GFK, magnet hard ferrite Weight: Approx. 30g Operating temperature: -40 °C to +75 °C</p>	RP	GP	EP EL	252184
	<p>Block magnet, Style L Material: Magnet hard ferrite with stainless-steel carrier Weight: Approx. 20g ± 2g Operating temperature: -40 °C to +100 °C This magnet may influence the sensor performance specifications for some applications.</p>	RP RH RD4 RF	GH GP GT	EP EP2 EL EH	252887

Magnet Selections

Rod and Profile-Style Position Sensor Magnet Selections

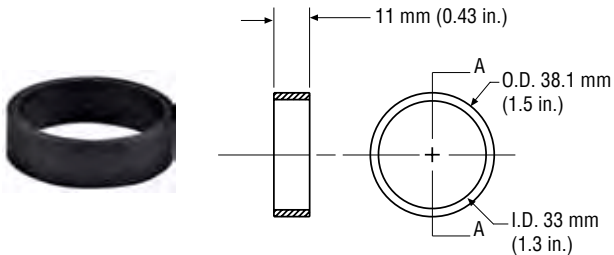
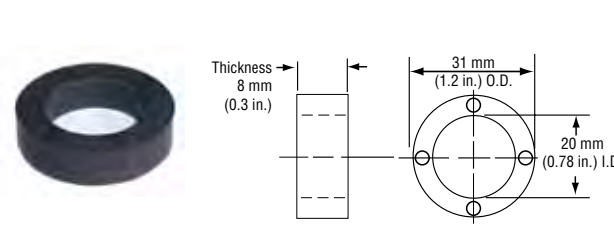

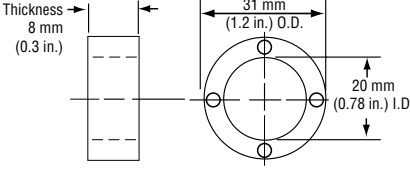

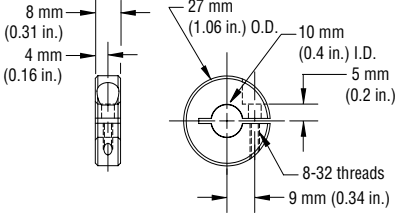
POSITION MAGNET SELECTIONS (Magnet must be ordered separately) (Drawing dimensions are for reference only)

Magnet and magnet dimensions	Description and specifications	Sensor model reference			Part number
 	<p>Large Ring magnet</p> <p>Material: Composite PA ferrite GF20 I.D.: 19.3 mm (0.76 in.) O.D.: 28 mm (1.1 in.) Thickness: 4.7 mm (0.185 in.) Weight: Approx. 11g Operating temperature: - 40 °C to +100 °C</p>	<p>RF RH RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>400424 Replaces 401467</p>
 	<p>Small ring magnet</p> <p>Material: PA ferrite coated Weight: Approx. 10g I.D.: 13.5 mm (0.53 in.) O.D.: 25.4 mm (1 in.) Thickness: 8 mm (0.3 in.) Operating temperature: - 40 °C to +100 °C</p>				
 	<p>Magnet spacer (Non-ferrous, use with ring magnet part no.: 201542-2)</p> <p>I.D.: 14 mm (0.56 in.) O.D.: 32 mm (1.25 in.) Thickness: 3.2 mm (0.125 in.)</p>	<p>RH RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>400633</p>
 	<p>Small ring magnet</p> <p>Material: PA surface coated Weight: Approx. 10g I.D.: 13.5 mm (0.53 in.) O.D.: 17.4 mm (0.69 in.) Thickness: 7.9 mm (0.312 in.) Operating temperature: - 40 °C to +100 °C</p>				
 	<p>Large ring magnet</p> <p>Material: PA ferrite Weight: Approx. 10g I.D.: 24 mm (0.95 in.) O.D.: 30 mm (1.18 in.) Thickness: 3.4 mm (0.13 in.) Operating temperature: - 40 °C to +100 °C Contact applications engineering for handling guidelines</p>				<p>401467 Replaced with 400424</p>
 	<p>Ring magnet (Use with Model EH sensors having a 7 mm O.D. rod)</p> <p>I.D.: 12 mm (0.47 in.) O.D.: 17.4 mm (0.69 in.) Thickness: 10.5 mm (0.41 in.) Operating temperature: - 40 °C to +100 °C</p>				

Magnet Selections

Rod and Profile-Style Position Sensor Magnet Selections

POSITION MAGNET SELECTIONS (Magnet must be ordered separately) (Drawing dimensions are for reference only)

Magnet and magnet dimensions	Description and specifications	Sensor model reference			Part number
 	<p>Large ring magnet Material: PA ferrite Weight: Approx. 10g I.D.: 33 mm (1.3 in.) O.D.: 38.1 mm (1.5 in.) Thickness: 3.4 mm (0.13 in.) Operating temperature: - 40 °C to +100 °C Contact applications engineering for handling guidelines</p>	<p>RH RF RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>401468</p>
 	<p>Ring magnet Material: Weight: I.D.: 19.8 mm (0.78 in.) O.D.: 31 mm (1.2 in.) Thickness: 8 mm (0.3 in.)</p>	<p>RH RF RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>402316</p>
 	<p>Collar Provides end of stroke stops for magnet float (part no.: 251447)</p>	<p>RH RD4</p>	<p>GH GT</p>	<p>EH</p>	<p>560777</p>

Notes:

If your application requires a magnet that is not shown, contact the Factory and consult Applications Engineering for custom or additional non-standard magnet options.

Cable length limitations (bus and serial communications industry standards)

Please apply good industry practices for long cable runs. Cables must be kept away from high-power AC lines and all motor drive cables.

R-SERIES SENSORS



SSI	CANbus	DeviceNet	Profibus	Baud rate	Maximum cable or bus length	
●				1.0 MBd	10 ft.	3 m
●				400 kBd	160 ft.	50 m
●				300 kBd	320 ft.	100 m
●				200 kBd	650 ft.	200 m
●				100 kBd	1300 ft.	400 m
	●			1.0 MBd	80 ft.	25 m
	●			500 kBd	320 ft.	100 m
	●			250 kBd	820 ft.	250 m
	●			125 kBd	1640 ft.	500 m
		●		500 kBd	420 ft.	130 m
		●		250 kBd	800 ft.	270 m
		●		125 kBd	1730 ft.	530 m
			●	12 MBd	330 ft.	100 m
			●	1.5 MBd	650 ft.	200 m
			●	500 kBd	1300 ft.	400 m
			●	187.5 kBd	3280 ft.	1000 m
			●	≤ 93.75 kBd	3940 ft.	1200 m

G-SERIES SENSORS



Analog (Voltage/Current) Outputs	Digital (PWM or Start/Stop) Outputs	Neuter (Start/Stop) Output	Maximum Cable Length	
●			150 ft.	45 m
	●		300 ft. Δ	90 m
		●	250 ft. \dagger	75 m

Δ 300 ft.. maximum when using the \pm differential pair for the interrogation or **Start** signal and for the gate or **Stop** signal.

\dagger 250 ft. maximum when using the single-ended interrogation or **Start** signal. The unused differential signal **MUST** be terminated to ground at the control box.

EXTENSION CABLE OPTION AND SENSOR MODEL COMPATIBILITY REFERENCE

Extension Cable with Connection types	R-Series	G-Series	E-Series
Standard 6-pin (D60)	Analog, CANbus	Analog, Digital-pulse	
6-pin (D63)	Profibus		
7-pin DIN (D70)	SSI		
10-pin MS (MS0)	SSI	Analog, Digital-pulse	
Continued on next page			

Cable Length Limitations

Extension Cable with Connector / Ordering Information
D6 (D60) Connection Type Options

Extension Cables
Std. 6-pin (D60)

Extension Cable with Connection types	R-Series	G-Series	E-Series
5-pin M12 (D54)	CANbus		
5-pin M12 (D53)	Profibus		
4-pin M12 (D56)	EtherCAT, EtherNet/IP		
5-pin M12 (D34)			Analog
8-pin M12 (D84)			Digital-pulse

EXTENSION CABLE WITH CONNECTORS FOR D6 (D60) CONNECTION TYPES (R-SERIES AND G-SERIES SENSORS)

Extension Cable and Connector	Description	Connection type
	Female Connector, Straight Exit with Standard PVC Jacket Cable (Assembly Includes D6 Connector, Part No.: 560700 and Cable, Part No.:530026)	D6
	Female Connector, 90° Exit with Standard PVC Jacket Cable (Assembly Includes D6 Connector, Part No.: 560778 and Cable, Part No.:530026)	DA
	Female Connector, Straight Exit with Black Polyurethane Jacket Cable (for higher resistance to moisture, oil and cold temperatures) (Assembly Includes D6 Connector, Part No.: 560700 and Cable, Part No.:530052)	DJ
	Female Connector, 90° Exit with Black Polyurethane Jacket Cable (for higher resistance to moisture, oil and cold temperatures) (Assembly Includes D6 Connector, Part No.: 560778 and Cable, Part No.:530052)	DK

Ordering Information
Extension Cable with Connector for D6 (D60) Connection Types



SENSOR CONNECTION TYPES

- D6** = Female connector, straight exit (part no. 560700), and PVC jacket cable (part no. 530026)
- DA** = Female connector, 90° exit (part no. 560778), and PVC jacket cable (part no. 530026)
- DJ** = Female connector, straight exit (part no. 560700), and black polyurethane jacket cable (part no. 530052)
- DK** = Female connector, 90° exit (part no. 560778), and black polyurethane jacket cable (part no. 530052)

CABLE LENGTHS

For standard length cables up to 100 ft.

- 005** = 5 ft.
- 015** = 15 ft.
- 025** = 25 ft.
- 050** = 50 ft.
- 100** = 100 ft.

For custom length cables over 100 ft.

--- = Cable length (maximum cable length is dependent on the output selected; consult MTS Applications Engineering)

CABLE TERMINATION

- P0** = Pigtail cable without connector (2 digit code)
- D6M** = D6 male connector (straight exit). Only available with the **D6** option above.
- D6F** = D6 female connector (straight exit). Only available with the **D6** option above.
- DAF** = D6 female connector (90° exit). Only available with the **DA** option above.



= D **1 - 2**

= **3 - 5**

= **6 - 8**

Extension Cable with Connector / Ordering Information R-Series Profibus D6 (D63) Connection Type Options

EXTENSION CABLE WITH CONNECTORS FOR R-SERIES PROFIBUS SENSORS WITH (D63) CONNECTION TYPES

Extension cable and connector assemblies	Description	Connection type
	Hybrid Profibus Bus Cable, straight exit, 6-pin DIN female connector, with PG9 strain relief for (D63) sensor connection types <i>(Assembly Includes D63 Connector, Part no.: 370423 and Cable, Part no.:530040)</i>	DF
	Hybrid Profibus Bus Cable, straight exit, 6-pin DIN male connector with PG9 strain relief for (D63) sensor connection types <i>(Assembly Includes D63 Connector, Part no.: 370427 and Cable, Part no.:530040)</i>	DG

ORDERING INFORMATION - EXTENSION CABLE WITH CONNECTORS FOR R-SERIES PROFIBUS SENSORS WITH (D63) CONNECTION TYPES



SENSOR CONNECTION TYPES

- DF** = Female connector, straight exit (part no. 370423), and Profibus cable (part no.: 530040) with (D63) type connector
DG = Female connector, 90° exit (part no. 560778), and Profibus cable (part no.: 530040) with (D63) type connector

CABLE LENGTHS

For standard length cables up to 100 ft.

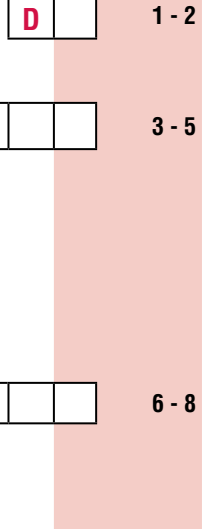
- 005** = 5 ft.
015 = 15 ft.
025 = 25 ft.
050 = 50 ft.
100 = 100 ft.

For custom length cables over 100 ft.

- = Cable length (maximum cable length is dependent on baud rate).

CABLE TERMINATION

- P0** = Pigtail cable without connector (2-digit code)
DFM = Male connector, (Straight exit). For daisy-chain connections of Profibus sensors with D63 connector.
DGM = Male connector, (90° exit). For daisy-chain connections of Profibus sensors with D63 connector.

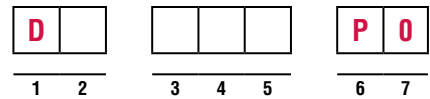


Extension Cable with the Standard 7-pin DIN Connector / Ordering Information
R-Series SSI D7 (D70) Connection Type Options

EXTENSION CABLE WITH CONNECTORS FOR R-SERIES SENSORS WITH THE 7-PIN DIN (D70) CONNECTION TYPE

Extension cable and connector assemblies	Description	Connection Type
	Female Connector, Straight Exit and Orange Polyurethane Jacket Cable with High-Performance Shielding <i>(Assembly Includes D7 Connector, Part No.: 560701 and Cable, part no.: 530029)</i>	D7
	Female Connector, 90° Exit and Orange Polyurethane Jacket Cable with High-Performance Shielding <i>(Assembly Includes D7 Connector, Part No.: 560779 and Cable, part no.: 530029)</i>	DR
	Female Connector, Straight Exit and Standard PVC Jacket Cable <i>(Assembly Includes D7 Connector, Part No.: 560701 and Cable, part no.: 530026)</i>	DS
	Female Connector, 90° Exit and Standard PVC Jacket Cable <i>(Assembly Includes D7 Connector, Part No.: 560779 and Cable, part no.: 530026)</i>	DT
	Female Connector, Straight Exit and Black Polyurethane Jacket Cable (for higher resistance to moisture, oil and cold temperatures) <i>(Assembly Includes D7 Connector, Part No.: 560701 and Cable, part no.: 530052)</i>	DU
	Female Connector, 90° Exit and Black Polyurethane Jacket Cable (for higher resistance to moisture, oil and cold temperatures) <i>(Assembly Includes D7 Connector, Part No.: 560779 and Cable, part no.: 530052)</i>	DV

ORDERING INFORMATION - EXTENSION CABLE WITH CONNECTORS FOR R-SERIES SENSORS WITH THE (D70) CONNECTION TYPE



- SENSOR CONNECTION TYPES** _____ =

D	
---	--

 1 - 2
- D7** = Female connector, straight exit (part no. 560701), and orange polyurethane jacket cable (*part no.: 530029*)
- DR** = Female connector, 90° exit (part no. 560779), and orange polyurethane jacket cable (*part no.: 530029*)
- DS** = Female connector, straight exit (part no. 560701), and PVC jacket cable (*part no. 530026*)
- DT** = Female connector, 90° exit (part no. 560779), and PVC jacket cable (*part no.: 530026*)
- DU** = Female connector, straight exit (part no. 560701), and black polyurethane jacket cable (*part no. : 530052*)
- DV** = Female connector, 90° exit (part no. 560779), and black polyurethane jacket cable (*part no.: 530052*)
- CABLE LENGTHS** _____ =

--	--	--


 3 - 5
- For standard length cables up to 100 ft.**
- 005** = 5 ft.
- 015** = 15 ft.
- 025** = 25 ft.
- 050** = 50 ft.
- 100** = 100 ft.
- For custom length cables over 100 ft.**
- = Cable length (maximum cable length is dependent on baud rate).
- CABLE TERMINATION** _____ =

P	0
---	---

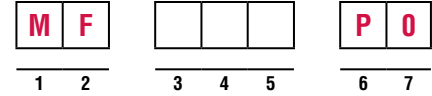
 6 - 7
- P0** = Pigtail cable without connector

Extension Cable with 10-pin Connector / Ordering Information G-Series and R-Series MS (MS0) Connection Type Options

EXTENSION CABLE WITH CONNECTORS FOR G-SERIES AND R-SERIES (SSI OUTPUT) SENSORS WITH MS (MS0), CONNECTION TYPES

Extension cable and connector assemblies	Description	Connection Type
	Female Connector, Straight Exit and Black Polyurethane Jacket Cable (for higher resistance to moisture, oil and cold temperatures) <i>(Assembly Includes MS Connector with adapter and boot, Part No.: 370418 and Cable, part no.: 530052)</i>	MF


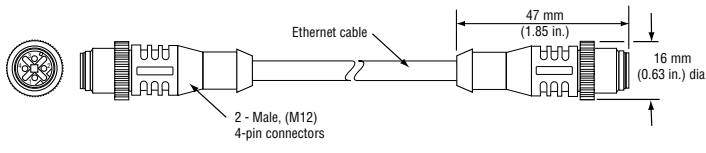

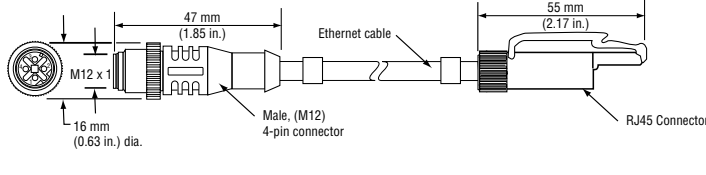

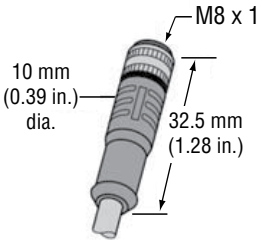
ORDERING INFORMATION - EXTENSION CABLE WITH CONNECTORS FOR G-SERIES RETROFITS AND R-SERIES SENSORS (SSI OUTPUT) WITH THE (MS0) CONNECTION TYPE



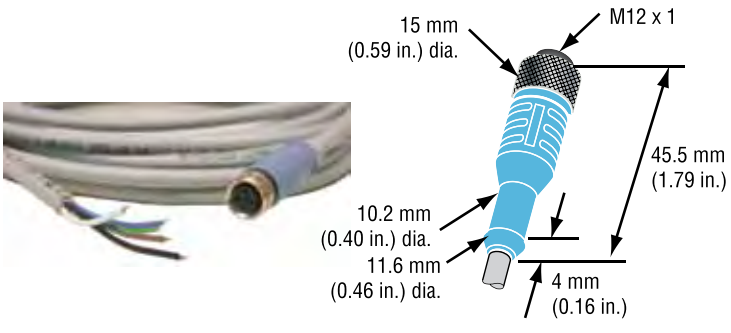
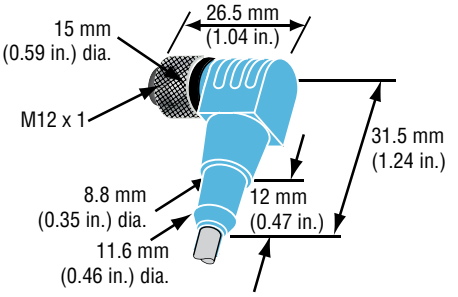
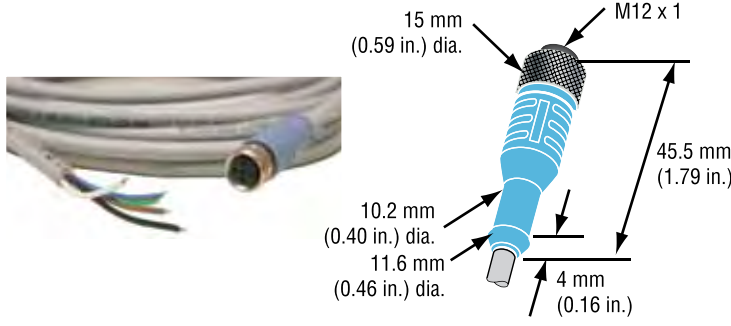
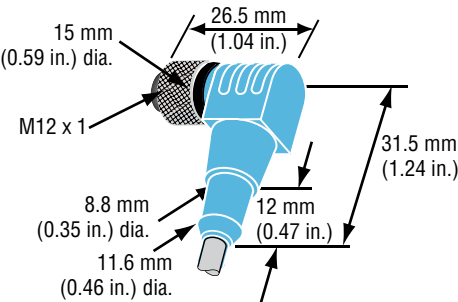
MF	SENSOR CONNECTION TYPES _____ = D 	1 - 2
= Female connector, straight exit with adapter and boot (part no. 370418), and black polyurethane jacket cable (part no. 530052)		
	CABLE LENGTHS _____ = 	3 - 5
For standard length cables up to 100 ft.		
005	= 5 ft.	
015	= 15 ft.	
025	= 25 ft.	
050	= 50 ft.	
100	= 100 ft.	
For custom length cables over 100 ft.		
---	= Cable length (maximum cable length is dependent on baud rate).	
	CABLE TERMINATION _____ = P 0	6 - 7
P0	= Pigtail cable without connector	

Connector and Bus Cable Assembly Options For Industrial Ethernet Sensors

BUS CABLE WITH CONNECTORS FOR R-SERIES ETHERNET SENSOR MODELS WITH (D56) CONNECTION TYPES

Bus Cable Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description / Specifications	Sensor Model	Cable Length	Part number
<p>Bus cable connector option</p>   <p>2 - Male, (M12) 4-pin connectors</p>	<p>Industrial Ethernet cable (Cat 5e Es) D-Coded Connector type: Two Male, 4-pin (M12) Cable jacket: PUR cable jacket (green) Installation: Field installable</p>	<p>RP/RH RF, RD4 EtherCAT EtherNet/IP</p>	<p>5 m</p>	<p>530064</p>
  <p>M12 x 1 16 mm (0.63 in.) dia. Male, (M12) 4-pin connector RJ45 Connector</p>	<p>Industrial Ethernet cable (Cat 5e Es) D-Coded Connector type: One RJ45 connector and one male, 4-pin (M12) Cable jacket: PUR cable jacket (green) Installation: Cables using the RJ45 connector provide convenient sensor connection to a PC for setup and programming but are not recommended for factory floor installations.</p>	<p>RP/RH RF, RD4 EtherCAT EtherNet/IP</p>	<p>5 m</p>	<p>530065</p>
<p>Power Cable Connector and Dimensions <i>(Drawing dimensions are for reference only)</i></p>   <p>M8 x 1 10 mm (0.39 in.) dia. 32.5 mm (1.28 in.)</p>	<p>Power cable, Female 4-pin (M8) and cable with pigtail termination Input: 24 Vdc Wire gage: 4x0.25 mm² shielded Cable jacket: PUR</p>	<p>RP/RH RF, RD4 EtherCAT EtherNet/IP</p>	<p>Cable Length 5 m 10 m 15 m</p>	<p>Part number 530066 530096 530093</p>

M12 CORD SETS AND (M16) ADAPTER CABLE OPTIONS (Photo and drawing dimensions are for reference only)

Cord set and dimensions	Description	Sensor Model	Part number
	<p>M12 Cord set, female connector, Straight exit 5-Pin (M12) mates with standard male (D34) integral connector Ingress protection: IP67 Cable: 5 m, shielded, pigtail end</p>	<p>EH EP EL ER Analog</p>	<p>370673</p>
<p>(Image not available)</p> 	<p>M12 Cord set, female connector 90° exit 5-Pin (M12) mates with standard male (D34) integral connector Ingress protection: IP67 Cable: 5 m, shielded, pigtail end</p>	<p>EH EP EL ER Analog</p>	<p>370675</p>
	<p>M12 Cord set, female connector, straight exit 8-Pin (M12) mates with standard male (D84) integral connector Ingress protection: IP67 Cable: 5 m, shielded, pigtail end</p>	<p>EH EP EL ER Start/Stop</p>	<p>370674</p>
<p>(Image not available)</p> 	<p>M12 Cord set, Female, Connector 90° Exit 8-Pin (M12) mates with standard male (D84) integral connector Ingress protection: IP67 Cable: 5 m, shielded, pigtail end</p>	<p>EH EP EL ER Start/Stop</p>	<p>370676</p>

Adapter Cable Retrofit Options
Temposonics® I and II, L-Series Sensor

CABLE RETROFITS WHEN REPLACING TEMPOSONICS II AND L-SERIES MODEL LH SENSORS WITH INTEGRAL RB CONNECTORS

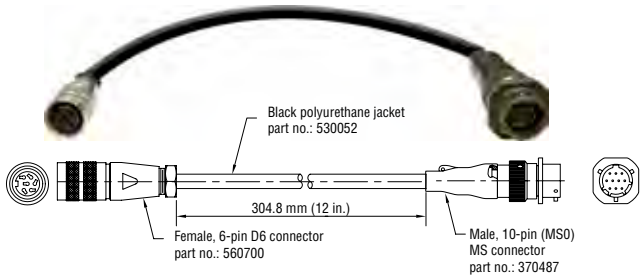
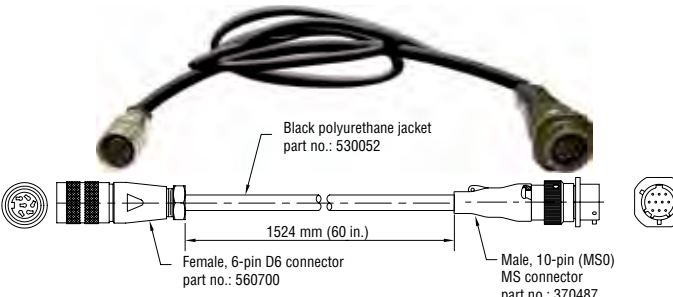
Adapter Cable Retrofit Options

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part number
		1 ft.	5 ft.	
Female, straight exit D6 to male RB cable connections 	GH/GP Analog	●		253243-1
	GH/GP Digital-pulse or Neuter	●		253243-2
Female, straight exit D6 to male RB cable connections 	GH/GP Analog		●	253244-1
	GH/GP Digital-pulse and Neuter		●	253244-2

CABLE RETROFITS WHEN REPLACING TEMPOSONICS II SENSORS WITH INTEGRAL RC CONNECTORS

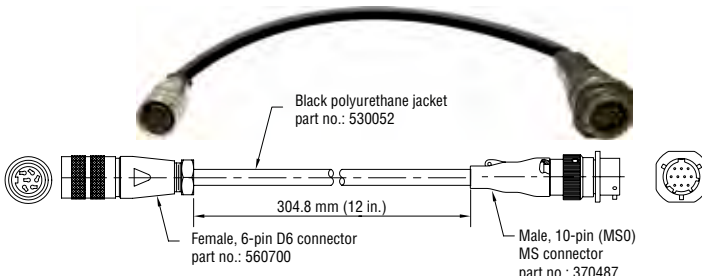
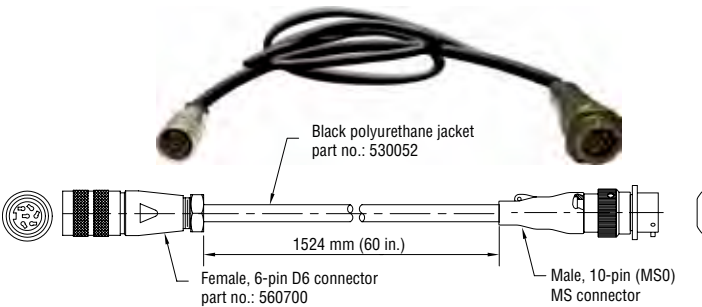
Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part number
		1 ft.	5 ft..	
Female, straight exit D6 to male RC cable connections 	GH/GP Analog	●		201612-1
	GH/GP Digital-pulse and Neuter	●		201612-2
Male RC to female RB cable connections 	Adapter RC to RB		6 in.	401327

CABLE RETROFITS WHEN REPLACING MODEL LH SENSORS WITH IN-LINE 10-PIN MS CONNECTORS

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part number
		1 ft.	5 ft.	
Female, straight exit D6 to male MS cable connections  <p>Black polyurethane jacket part no.: 530052 304.8 mm (12 in.) Female, 6-pin D6 connector part no.: 560700 Male, 10-pin (MS0) MS connector part no.: 370487</p>	GH/GP Analog	●		253245-1
	GH/GP Digital-pulse and Neuter	●		253245-2
 <p>Black polyurethane jacket part no.: 530052 1524 mm (60 in.) Female, 6-pin D6 connector part no.: 560700 Male, 10-pin (MS0) MS connector part no.: 370487</p>	GH/GP Analog		●	253246-1
	GH/GP Digital-pulse or Neuter		●	253246-2

Adapter Cable Retrofit Options

CABLE RETROFITS WHEN REPLACING TEMPOSONICS II AND L-SERIES MODEL LH SENSORS WITH IN-LINE 10-PIN MS CONNECTORS WIRED FOR R1, R2 OR R3 CONNECTION TYPES

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part number
		1 ft.	5 ft.	
Female, straight exit D6 to MS (R1, R2 or 10-pin male) cable connections  <p>Black polyurethane jacket part no.: 530052 304.8 mm (12 in.) Female, 6-pin D6 connector part no.: 560700 Male, 10-pin (MS0) MS connector part no.: 370487</p>	10-pin R3 Connection using GH/GP Digital-pulse	●		253245-3
 <p>Black polyurethane jacket part no.: 530052 1524 mm (60 in.) Female, 6-pin D6 connector part no.: 560700 Male, 10-pin (MS0) MS connector part no.: 370487</p>	10-pin R3 Connection using GH/GP Digital-pulse		●	253246-3

Adapter Cables, Retrofit Options

CABLE RETROFITS WHEN REPLACING TEMPOSONICS II AND L-SERIES MODEL LH SENSORS WITH IN-LINE 10-PIN MS CONNECTORS WIRED FOR R1, R2 OR R3 CONNECTION TYPES

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part number
		1 ft.	5 ft.	
<p>Black polyurethane jacket part no.: 530052</p> <p>1524 mm (60 in.)</p> <p>Female, 6-pin D6 connector part no.: 560700</p> <p>Female, 6-pin (R1/R2/R3) MS connector part no.: 370015</p>	R1 Connection using GH/GP with Positive interrogation		●	253302-1
	R2 Connection for GH/GP with negative interrogation		●	253302-2

CABLE RETROFITS WHEN REPLACING R-SERIES AND L-SERIES SENSOR MODELS LH AND LP WITH INTEGRAL RG CONNECTORS

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part number
		1 ft.	5 ft.	
Female, straight exit D6 to male RG cable connections <p>304.8 mm (12 in.) / 1524 mm (60 in.)</p> <p>Standard cable with PVC jacket, part no.: 530026</p> <p>Female, D6 connector part no.: 560700</p> <p>Male, 7-pin RG Integral connector part no.: 402616</p>	RH/RP Analog GH/GP Analog and Digital-pulse	●		253248-1
	RH/RP Analog GH/GP Analog and Digital-pulse			●
Female, straight exit D7 to male RG cable connections <p>304.8 mm (12 in.) / 1524 mm (60 in.)</p> <p>Standard cable with PVC jacket, part no.: 530026</p> <p>D7 connector, female</p> <p>RG Integral connector, male</p>	RH/RP SSI	●		253315-1
	RH/RP SSI			●

CABLE RETROFITS WHEN REPLACING MODEL LP SENSORS WITH INTEGRAL C-STYLE OR IN-LINE H OR J STYLE CONNECTORS

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part Number	
		1 ft.	7 ft.		
Female, straight exit D6 to male AMP cable connections <p>Standard cable with PVC jacket, part no.: 530026</p> <p>304.8 mm (12 in.) / 2133.6 mm (84 in.)</p> <p>Female, 6-pin D6 connector part no.: 560700</p> <p>Male, 8-pin AMP connector</p>	GH/GP Analog	●		253247-1	
	GH/GP Digital-pulse	●		253247-2	
	GH/GP Analog			●	253247-3
	GH/GP Digital-pulse			●	253247-4
	GH/GP Reverse-acting Analog	●			253710-1

CABLE RETROFITS WHEN REPLACING MODEL LP SENSORS WITH INTEGRAL C-STYLE OR IN-LINE H OR J STYLE CONNECTORS

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length		Part Number
		1 ft.	7 ft.	
5-pin Female (M12) to 8-pin male AMP cable connections 	EP/ER Analog		●	254259
8-pin Female (M12) to 8-pin male AMP cable connections 	EP/ER Start/Stop		●	254261

CABLE RETROFITS WHEN REPLACING E-SERIES WITH INTEGRAL 6-PIN (D60) CONNECTORS

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length 300 mm	Part number
5-pin female (M12) to 6-pin male D60 cable connections 	E-Series 2011	●	254257
8-pin female (M12) to 6-pin male D60 cable connections 	E-Series 2011	●	254258

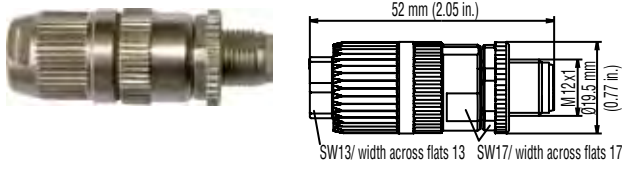

CABLE RETROFIT WHEN REPLACING L-SERIES SENSORS WITH REVERSE-ACTING OUTPUT

Adapter Cable Description and Specifications	Sensor Replacement	Cable Length	Part number
Female, straight exit D6 to male D6 cable connections 	GH/GP Reverse-acting Analog	1 ft.	253411

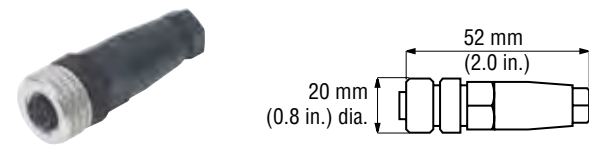
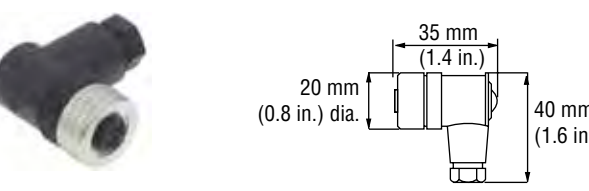
Adapter Cable Retrofit Options

R-Series Sensor Connectors, Industrial Ethernet and E-Series Cable Connector Options

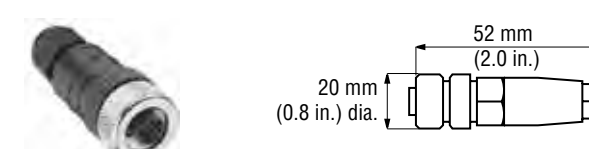
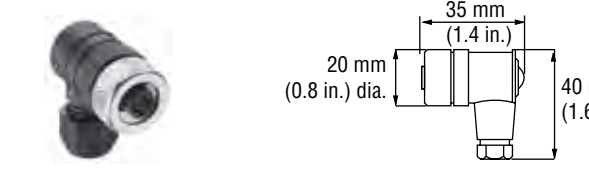
4-PIN STYLE CABLE CONNECTOR FOR R-SERIES INDUSTRIAL ETHERNET SENSOR CONNECTIONS

Cable Connector and Dimensions	Description / Specifications	Sensor Model Reference	Part number
<p>Female, straight exit cable connections</p> 	<p>Bus Cable Connector, Male Style: 4-pin (M12) Housing: Zinc nickel plated Termination: D-coded with insulation displacement technology Installation: Field installable</p>	<p>RP/RH EtherCAT EtherNet/IP</p>	<p>370523</p>
	<p>Connector end cap (Unused connectors should be covered by this protective cap)</p>	<p>RP/RH EtherCAT EtherNet/IP</p>	<p>370537</p>

MATING CABLE CONNECTOR OPTIONS FOR (D34) CONNECTOR TYPES (Photo and drawing dimensions are for reference only)

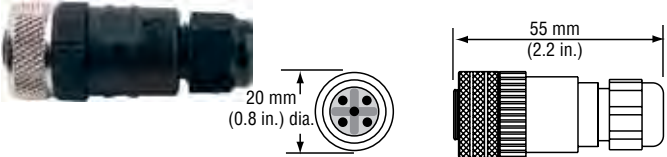
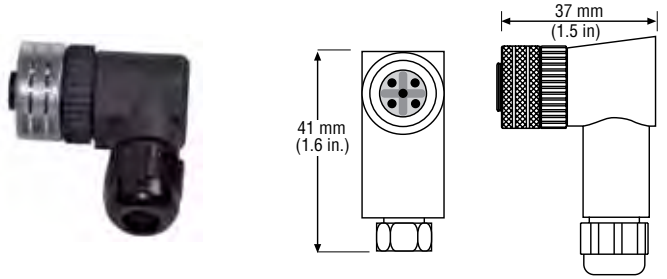
Connector and dimensions	Description	Sensor Model Reference	Part number
	<p>Female cable connector, straight exit (Field installable) 5-Pin (D34) Mates with standard male (M12) integral connector Termination: Screw terminals Cable gland: PG9 for 6-8 mm dia. cable Ingress protection: IP67</p>	<p>EP/ER/EH/EL Analog</p>	<p>370618</p>
	<p>Female cable connector, 90° exit (Field installable) 5-Pin (D34) Mates with standard male (M12) integral connector Termination: Screw terminals Cable gland: PG9 for 6-8 mm dia. cable Ingress protection: IP67</p>	<p>EP/ER/EH/EL Analog</p>	<p>370619</p>

MATING CABLE CONNECTOR OPTIONS FOR (D84) CONNECTOR TYPES (Photo and drawing dimensions are for reference only)

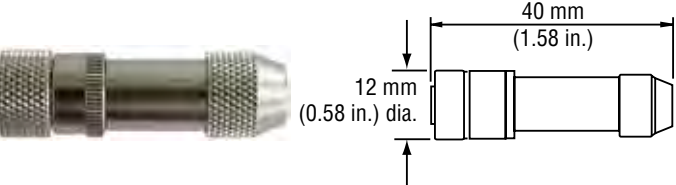
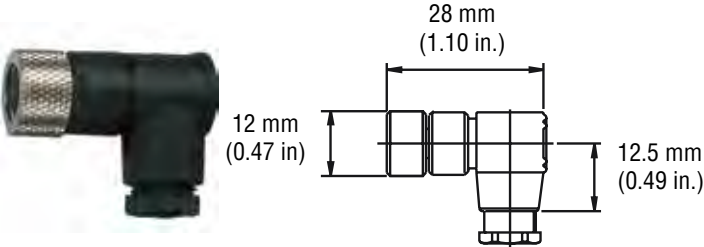
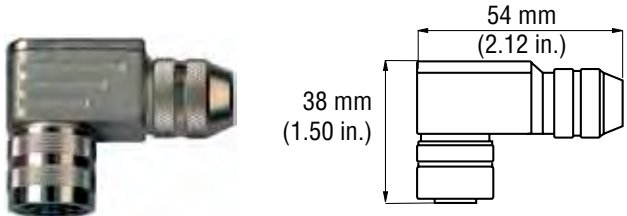
Connector and dimensions	Description	Sensor Model Reference	Part number
	<p>Female cable connector, straight exit (Field installable) 8-Pin (D84) Mates with standard male (M12) integral connector Termination: Screw terminals Cable gland: PG9 for 6-8 mm dia. cable Ingress protection: IP67</p>	<p>EP/ER/EH/EL Start/Stop</p>	<p>370671</p>
	<p>Female cable connector, 90° exit (Field installable) 8-Pin (D84) Mates with standard male (M12) integral connector Termination: Screw terminals Cable gland: PG9 for 6-8 mm dia. cable Ingress protection: IP67</p>	<p>EP/ER/EH/EL: Start/Stop</p>	<p>370672</p>

R-Series Sensor Connectors For DeviceNet (D51) and Profibus (D53) Connection Types

5-PIN STYLE CONNECTOR OPTIONS FOR R-SERIES DEVICENET SENSORS WITH (D51) CONNECTION TYPES

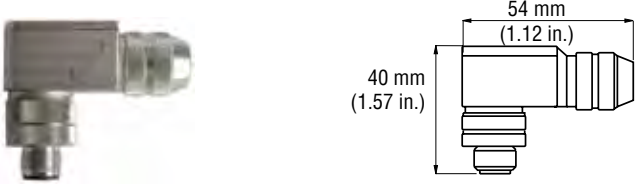
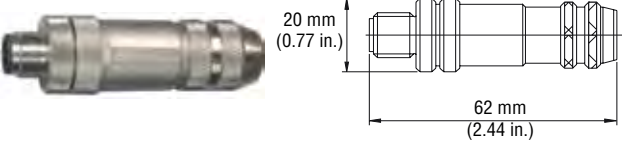
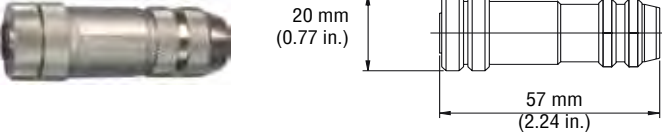
Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description and Specifications	Sensor Model Reference	Part Number
	<p>Cable connector, female, straight exit Style: 5-pin (D51) Installation: Field installable</p>	<p>RP/RH DeviceNet</p>	<p>370375</p>
	<p>Cable connector, female, 90° exit Style: 5-pin (D51) Installation: Field installable</p>	<p>RP/RH DeviceNet</p>	<p>370376</p>

5-PIN CABLE CONNECTOR OPTIONS FOR R-SERIES PROFIBUS SENSORS WITH (D53) CONNECTION TYPES

Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description and Specifications	Sensor Model Reference	Part Number
	<p>Cable connector, female, straight exit Style: 4-pin (M8) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Input Power: 24 Vdc Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>370504</p>
	<p>Cable connector, female, 90° exit Style: 4-pin (M8) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Input voltage: 24 Vdc Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>560886</p>
	<p>Cable connector, female, 90° exit Style: 5-pin (M12) Housing: Zinc nickel plated Termination: Screw Contact insert: Silver plated Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>370514</p>


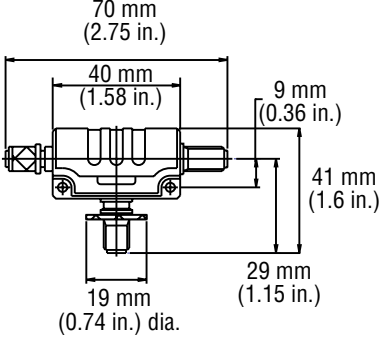
R-Series Sensor Connectors
For Profibus (D53) Connection Types

5-PIN CABLE CONNECTOR OPTIONS FOR R-SERIES PROFIBUS SENSORS WITH (D53) CONNECTION TYPES

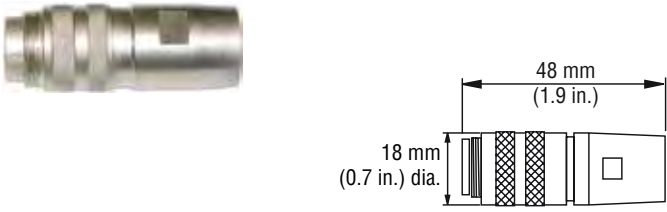
Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description and Specifications	Sensor Model Reference	Part number
	<p>Cable connector, male, 90° exit Style: 5-pin (M12) Housing: Zinc nickel plated Termination: Screw Contact insert: Silver plated Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>370515</p>
	<p>Cable connector, male, straight exit Style: 5-pin (M12) Housing: Zinc nickel plated Termination: Screw Contact insert: Silver plated Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>560884</p>
	<p>Cable connector, female, straight exit Style: 5-pin (M12) Housing: Zinc nickel plated Termination: Screw Contact insert: Silver plated Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>560885</p>

**R-Series Sensor Connectors
For Profibus (D53) Connection Types**

5-PIN CABLE CONNECTOR OPTIONS FOR R-SERIES PROFIBUS SENSORS WITH (D53) CONNECTION TYPES

Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description and Specifications	Sensor Model Reference	Part Number
	<p>5-pin Profibus (M12) T connector Style: 5-pin (M12) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>560887</p>
	<p>Profibus Bus Terminator, male, straight exit Style: 5-pin (M12) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Installation: Field installable, (D53) connection types</p>	<p>RP/RH Profibus</p>	<p>560888</p>

6-PIN DIN (D60) STYLE CABLE CONNECTOR OPTIONS

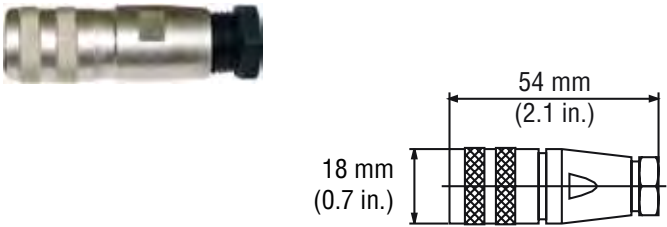
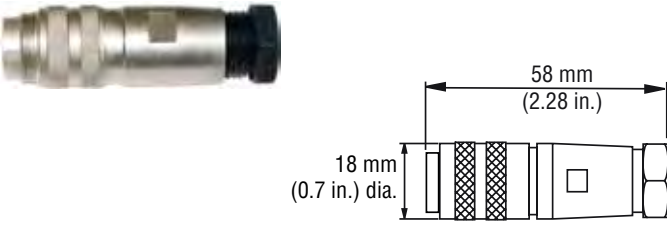
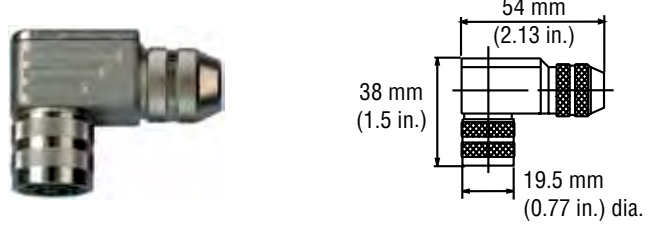
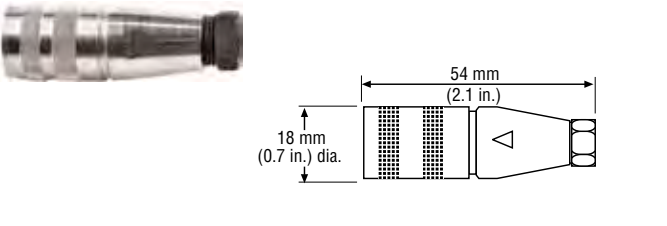
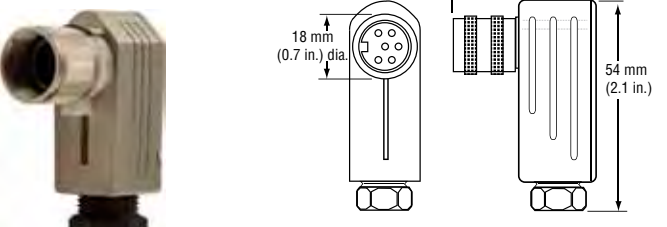

Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description / Specifications	Sensor Model Reference	Part number
	<p>Profibus bus terminator for male cable connector type Style: (STA09131H06) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Installation: Field installable, Mates with standard male connector</p>	<p>RP/RH Profibus</p>	<p>252347</p>

Connectors

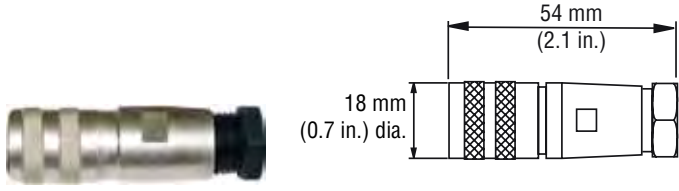
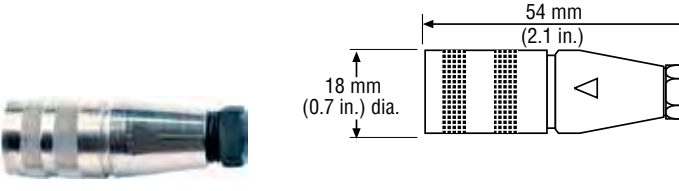
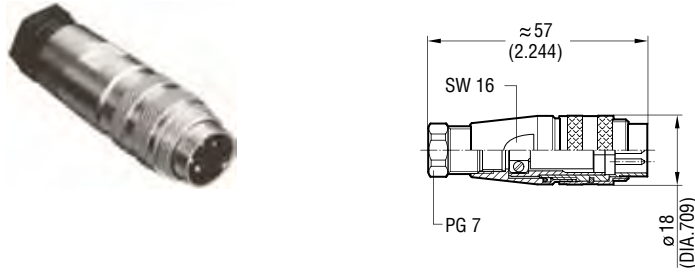
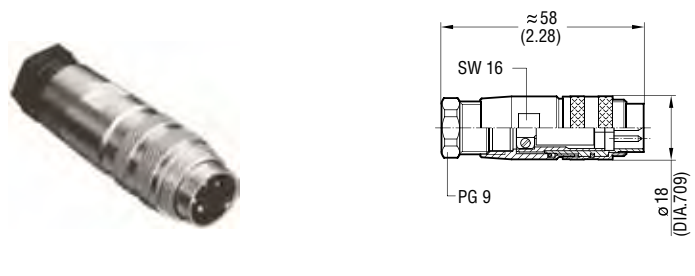
**Connectors for Sensors
with (D63/D60) Connection Types**

6-PIN DIN (D60) STYLE CABLE CONNECTOR OPTIONS

Connectors

Connector and Dimensions <i>(Drawing dimensions are for reference only)</i>	Description and Specifications	Sensor Model Reference	Part number
	<p>Cable connector, female, straight exit Style: 6-pin DIN (D6) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG9 Installation: Field installable (D63) connection types. Cable dia. 8 mm max.</p>	<p>RP/RH Profibus</p>	<p>370423</p>
	<p>Cable connector, male, straight exit Style: 6-pin DIN (D6) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG9 Installation: Field installable (D63) connection type Cable dia. 8 mm max.</p>	<p>RP/RH Profibus</p>	<p>370427</p>
	<p>Cable connector, male, 90° exit Style: 6-pin DIN (D6) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG9 Installation: Field installable (D63) connection types. Cable dia. 8 mm max.</p>	<p>RP/RH</p>	<p>370460</p>
	<p>Cable connector, female, straight exit Style: 6-pin DIN (D6) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable, Mates with standard male (D60) integral connector</p>	<p>RP/RH GP/GH</p>	<p>560700</p>
	<p>Cable connector, female, 90° exit Style: 6-pin DIN (D6) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable, Mates with standard male (D60) integral connector</p>	<p>RP/RH GP/GH</p>	<p>560778</p>
	<p>Cable connector, male, straight exit Style: 6-pin DIN (D6) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable</p>	<p>RP/RH GP/GH</p>	<p>370372</p>

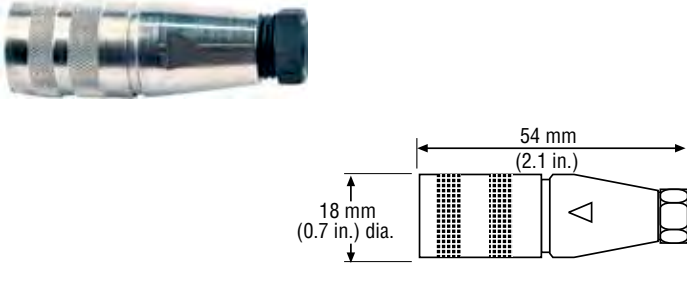
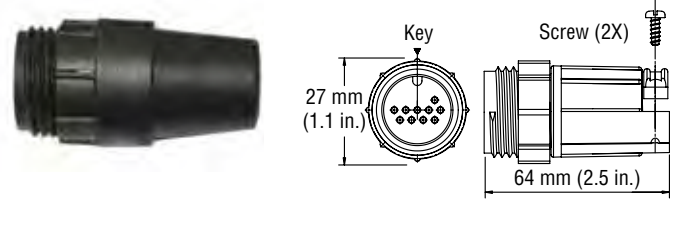
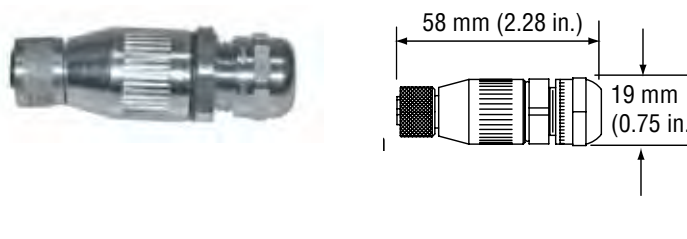
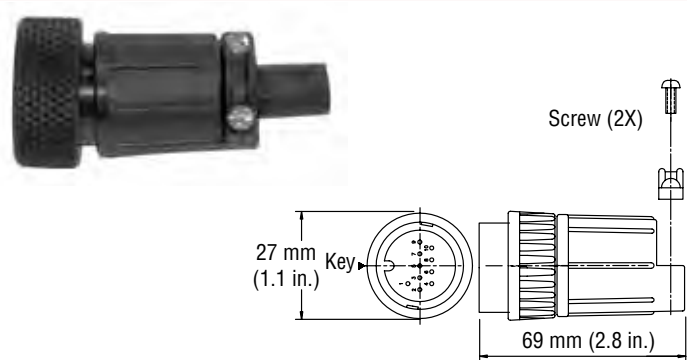
7-PIN STYLE CABLE CONNECTOR OPTIONS FOR R-SERIES SENSORS WITH (D70) CONNECTION TYPES

Cable Connector and Dimensions	Description and Specifications	Sensor Model Reference	Part number
	<p>Cable connector, female, straight exit Style: 7-pin (D7) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG9 Installation: Field installable for (D70) connection types. Cable dia. 8 mm max.</p>	<p align="center">RP/RH SSI</p>	<p align="center">370516</p>
	<p>Cable connector, female, straight exit Style: 7-pin (D7) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable (D70) connection types. Cable dia. 6 mm max.</p>	<p align="center">RP/RH SSI</p>	<p align="center">560701</p>
	<p>Cable connector, male, straight exit Style: 7-pin (D7) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable for (D70) connection types. Cable dia. 6 mm max.</p>	<p align="center">RP/RH SSI</p>	<p align="center">370565</p>
	<p>Cable connector, male, straight exit Style: 7-pin (D7) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG9 Installation: Field installable (D70) connection types. Cable dia. 8 mm max.</p>	<p align="center">RP/RH SSI</p>	<p align="center">370566</p>

Connectors

Connector Retrofit Options
R-Series, G-Series and L-Series Sensors

CABLE CONNECTOR OPTIONS FOR R-SERIES G-SERIES AND L-SERIES LEGACY SENSOR MODELS

Cable Connector and Dimensions	Description and Specifications	Sensor Model Reference	Part number
	<p>Cable connector, female, straight exit Style: (D8) Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable for (D80) connection types.</p>	<p>L-SERIES</p>	<p>370391</p>
	<p>Cable connector, male, RB straight exit Style: 10-pin Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable</p>	<p>GP/GH</p>	<p>370486</p>
	<p>Cable connector, female, RG straight exit Style: RG Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable</p>	<p>RP/RH L-SERIES</p>	<p>401366</p>
	<p>Cable connector, female, RB/RC straight exit Style: RB/RC retrofit Housing: Zinc nickel plated Termination: Solder Contact insert: Silver plated Cable clamp: PG7 Installation: Field installable</p>	<p>GP/GH</p>	<p>400755-3</p>

Legacy Connectors

Ordering Information Pressure Pipe

H	H						
1	2	3	4	5	6	7	8

SENSOR MODELS RH AND GH _____ =

H	H
---	---

 1-2

PRESSURE PIPE AND FLANGE STYLES _____ =

--

 3

- T** = US customary threads, raised-faced flange and pressure pipe, standard
- S** = US customary threads, flat-faced flange and pressure pipe, standard
- M** = Metric threads, flat-faced flange and pressure pipe, standard

STROKE LENGTH _____ =

--	--	--	--	--

 4-8

----- **M** = Millimeters
(Encode in 5 mm increments)


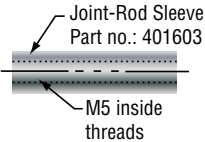

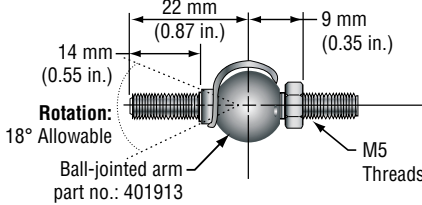

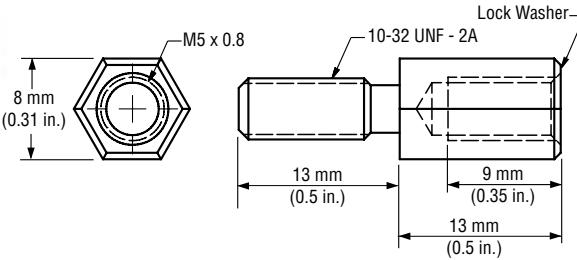

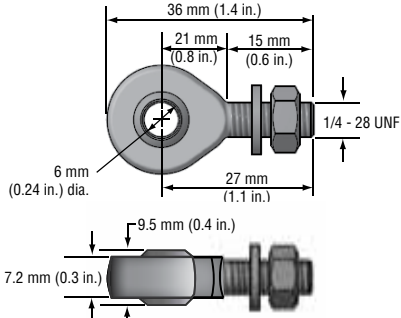

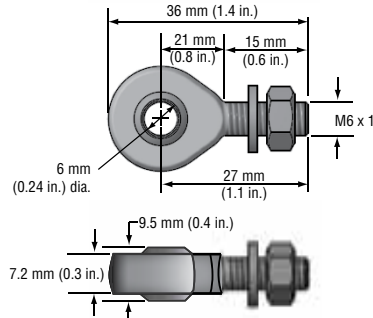

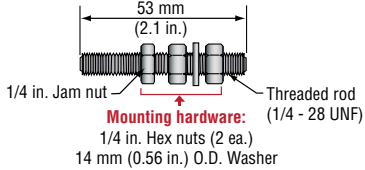
----- **U** = Inches and tenths
(Encode in 0.1 in. increments)

Stroke Length Notes:

1. R-Series RH stroke length = 25 mm (1 in.) to 7620 mm (300 in.)
2. G-Series GH stroke length = 50 mm (2 in.) to 7620 mm (300 in.)

**Installation Hardware
Ordering Information**

MECHANICAL-END CONNECTOR SELECTIONS

Cable Connector and Dimensions	Description and Specifications	Sensor Model Reference	Part number
 	<p>Joint-rod sleeve</p>	<p>RP/GP EP/EL</p>	<p>401603</p>
 	<p>Ball-jointed arm</p>	<p>RP/GP EP/EL</p>	<p>401913</p>
 	<p>Threaded adapter Female M5 to male 10 - 32</p>	<p>RP/GP EP/EL</p>	<p>402849</p>
 	<p>Rod end US customary measurement Optional, male 1/4 - 28 threads</p>	<p>ER</p>	<p>254235</p>
 	<p>Rod end Metric measurement Optional, male M6 threads</p>	<p>ER</p>	<p>254210</p>
 	<p>Stud end Optional mounting hardware kit Hex nuts (2 pcs.), jam nut and washer</p>	<p>ER</p>	<p>251975</p>

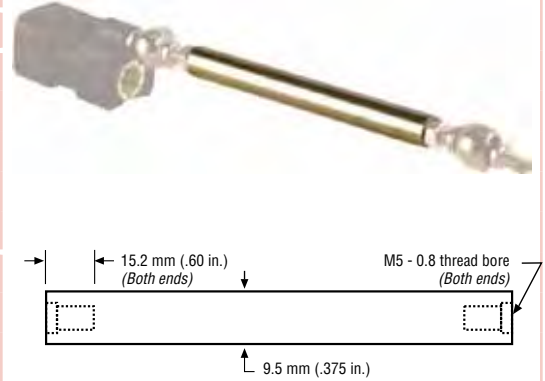
Installation Hardware

Optional extension rod quick reference chart

Sensor models with captive-sliding magnet

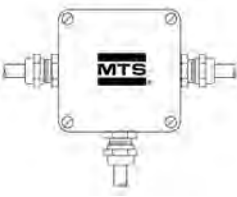
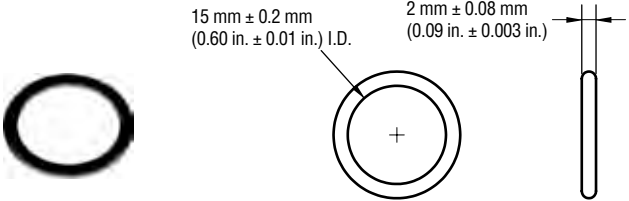
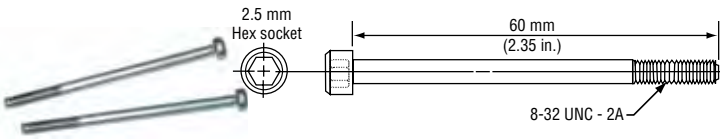


RP	GP	EP	Extension rod length	Part number
●	●	●	60.3 mm (2.375 in.)	401768-2
●	●	●	85.7 mm (3.375 in.)	401768-3
●	●	●	111.1 mm (4.375 in.)	401768-4
●	●	●	161.9 mm (6.375 in.)	401768-6
●	●	●	187.3 mm (7.375 in.)	401768-7
●	●	●	212.7 mm (8.375 in.)	401768-8
●	●	●	238.1 mm (9.375 in.)	401768-9
●	●	●	263.5 mm (10.375 in.)	401768-10
●	●	●	314.3 mm (12.375 in.)	401768-12
●	●	●	365.1 mm (14.375 in.)	401768-14
●	●	●	390.5 mm (15.375 in.)	401768-15
●	●	●	466.7 mm (18.375 in.)	401768-18
●	●	●	517.5 mm (20.375 in.)	401768-20
●	●	●	542.9 mm (21.375 in.)	401768-21
●	●	●	619.1 mm (24.375 in.)	401768-24
●	●	●	771.5 mm (30.375 in.)	401768-30
●	●	●	923.9 mm (36.375 in.)	401768-36
●	●	●	1076.3 mm (42.375 in.)	401768-42
●	●	●	1228.7 mm (48.375 in.)	401768-48
●	●	●	1533.5 mm (60.375 in.)	401768-60

Optional extension rod example

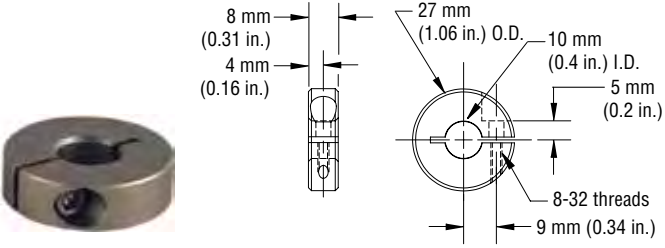
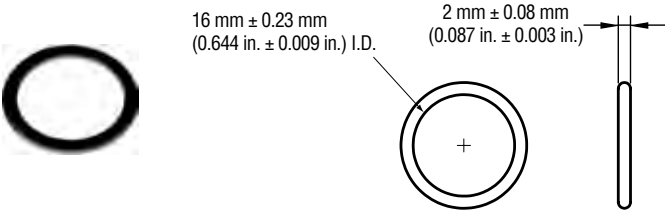
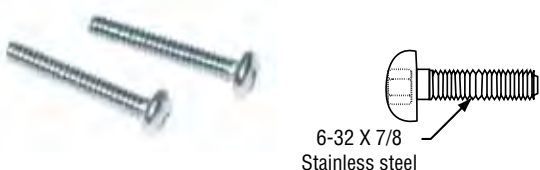
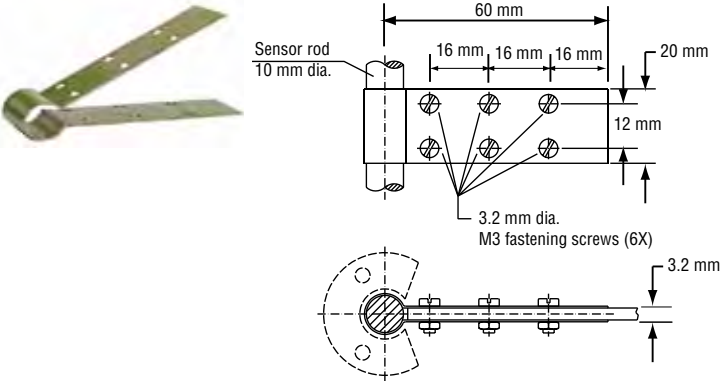


Installation Hardware
Ordering Information

OPTIONAL INSTALLATION HARDWARE






Hardware and Dimensions	Description and Specifications	Sensor Model Reference	Part number
	<p>Profibus filter box Dimensions: 80 mm (3.5 in.) X 75 mm (2.95 in.) 58 mm (2.28 in.) Application: EMC conformal feeding of 24 Vdc supply voltage into the Profibus-DP hybrid cable</p>	<p>RP/RH Profibus</p>	<p>252916</p>
	<p>O-Ring Material: Fluoroelastomer 75 ± 5 durometer Dimensions: Metric flange with M18 X 1.5 threads Application: Use with style M housings</p>	<p>GH/RH/EH</p>	<p>401133</p>
	<p>Electronics housing screw Type: 8-32 UNC - 2A Application: -Used to install sensor cartridge (RHB or GHB) into old LH or old RH pressure pipe/flange</p>	<p>GHB/RHB</p>	<p>402617</p>
	<p>Hex-jam nut Type: 3/4-16 UNF Material: Stainless steel with nylon insert Application: T and S style housings</p>	<p>GH/RH/EH</p>	<p>500015</p>
	<p>Hex-jam nut Type: M18 X 1.5 threads Material: Stainless steel Application: Use for M style housing</p>	<p>GH/RH/EH</p>	<p>500018</p>

OPTIONAL INSTALLATION HARDWARE






Hardware and Dimensions	Description and Specifications	Sensor Model Reference	Part number
 <p>8 mm (0.31 in.) 4 mm (0.16 in.) 27 mm (1.06 in.) O.D. 10 mm (0.4 in.) I.D. 5 mm (0.2 in.) 8-32 threads 9 mm (0.34 in.)</p>	<p>Collar Material: 304 Stainless steel Application: Pressure housing and float 251447</p>	<p>GH/RH /EH</p>	<p>560777</p>
 <p>16 mm ± 0.23 mm (0.644 in. ± 0.009 in.) I.D. 2 mm ± 0.08 mm (0.087 in. ± 0.003 in.)</p>	<p>O-Ring Material: Fluoroelastomer 75 ± 5 durometer Dimensions: Std. flange with 3/4-16 UNF threads Application: T and S style housings</p>	<p>GH/RH/EH</p>	<p>560315</p>
 <p>6-32 X 7/8 Stainless steel</p>	<p>Magnet mounting screws Type: 6-32 X 7/8 Material: Stainless steel Application: Standard ring magnet mounting (part no.: 201542-2) 4 required or open-ring magnet mounting (part no.: 251416-2) 2 required</p>	<p>RH/RP GH/GP EH/EP/EL</p>	<p>560357</p>
 <p>60 mm 16 mm 16 mm 16 mm 20 mm 12 mm Sensor rod 10 mm dia. 3.2 mm dia. M3 fastening screws (6X) 3.2 mm</p>	<p>Fixing clip Material: Brass, non magnetic Application: Used to secure sensor rod when using open-ring magnet</p>	<p>RH/GH/EH</p>	<p>561481</p>

Field Programming Accessories

PROGRAMMING TOOLS

Programming selections	Description and Specifications	Sensor Model Reference	Part number
	<p>R-Series Analog hand-held Programmer Application: Adjusting setpoints 1 and 2 for R-Series Analog output sensor models with single magnets</p>	<p>RP/RH Analog</p>	<p>253124</p>
	<p>R-Series Analog Cabinet Programmer Application: Adjusting setpoints 1 and 2 for R-Series Analog output sensor models with single magnets and features snap-in mounting on standard 35 mm DIN rail. This programmer can be permanently mounted in a control cabinet and includes a program/run switch.</p>	<p>RP/RH Analog</p>	<p>253408</p>
	<p>R-Series Analog Programming Kit Kit includes: Interface converter box, power supply, setup software and cabling. Application: Programming software for R-Series Analog output sensor models</p>	<p>RP/RH Analog</p>	<p>253309-1</p>
	<p>R-Series SSI Programming Kit Kit includes: Interface converter box, power supply, setup software and cabling. Application: Programming software for R-Series SSI output sensor models</p>	<p>RP/RH SSI</p>	<p>253310-1</p>
	<p>R-Series Profibus Node Address Programmer kit Application: Node address Programming for R-Series Profibus output sensor models</p>	<p>RP/RH Profibus</p>	<p>280640</p>

PROGRAMMING TOOLS

Programming selections	Description and Specifications	Sensor Model Reference	Part number
	<p>R-Series CANbus Field Address Programmer Application: Field address Programming for R-Series CANopen output sensor models</p>	<p>RP/RH CANopen</p>	<p>252382-D62</p>
	<p>G-Series Analog Hand-held Programmer Application: Programming for G-Series Analog output sensor models</p>	<p>GP/GH Analog</p>	<p>253853</p>
	<p>G-Series Analog PC Programming Kit Kit includes: Interface converter box, power supply, setup software and cabling. Application: Programming software for G-Series Analog output sensor models</p>	<p>GP/GH Analog</p>	<p>253311-1</p>
	<p>G-Series Digital-pulse PC Programming Kit Kit includes: Interface converter box, power supply, setup software and cabling. Application: Programming software for G-Series Digital-pulse output sensor models</p>	<p>GP/GH Digital-Pulse (PWM) (Start/Stop)</p>	<p>253312-1</p>
	<p>Profibus master simulator. Application: Function and diagnostic data verification and to perform slave address adjustments for R-Series Profibus output sensor models</p>	<p>RP/RH Profibus</p>	<p>401727</p>

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