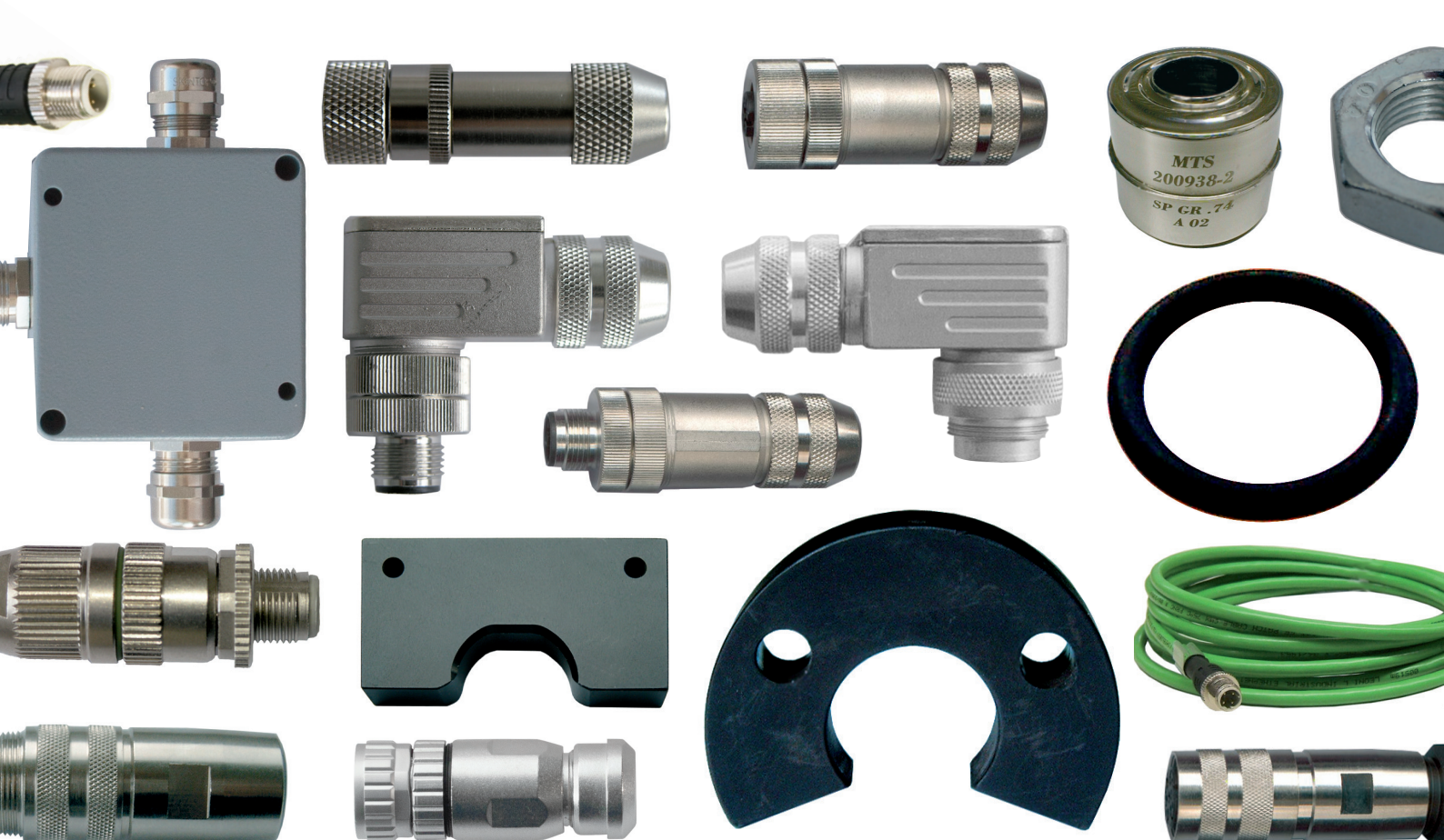


Tempsonics®

Absolute, Non-Contact Position Sensors

ACCESSORIES

Industrial Sensors



The Measurable Difference

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Mounting and Cylinder Installation References for Rod Sensors (EH, GB, GH, GT, RD4, RF, RH)

The rod style models are designed for direct stroke measurement inside prepared hydraulic cylinders. At the head of the sensor, a threaded flange and O-ring provide 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 that is 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.

The minimum distance from the back of the magnet to the piston head is 5 mm. However, a minimum distance of at least 8 mm is recommended for added performance margin.

For applicable magnet selection, see section "Magnet Selection" on page 7 and following.

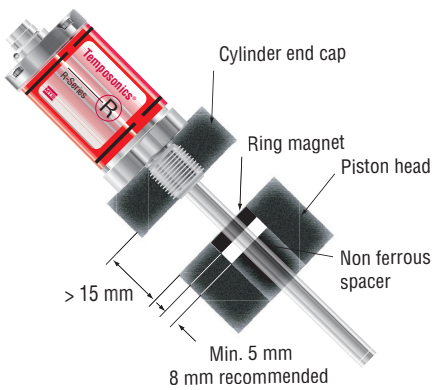


Fig. 1: Model RH rod style mounting

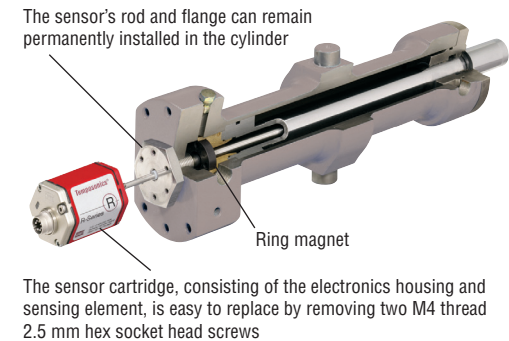


Fig. 2: Fluid cylinder installation with models RH, RF, GH (Only possible with sensors without the shock and vibration option.)

The magnet is usually secured using nonferrous 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 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. For the EH model the recommended minimum size for this bore is 10 mm when using the 7 mm diameter sensor rod.

EH, GB, GH, GT, RD4, RH: Likewise, the recommended minimum size of 13 mm 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 fluoroelastomer material, brass or bronze) to prevent wear on the magnet and sensor rod (customer supplied).

Recommended bore-diameter overview (minimum)	
10 mm	EH (Ø 7 mm)
13 mm	EH (Ø 10 mm), RH, GH, RD4, GB, GT
18 mm	RF, RHJ, GBJ

When used for direct stroke measurement in fluid cylinders, the sensor's high pressure, stainless steel rod must be installed into a bore in the piston rod assembly as illustrated in figure 1. This method guarantees a long life and trouble-free operation. The sensor cartridge can be removed while the flange and the rod remain installed in the cylinder. This procedure allows quick and easy sensor cartridge replacement without the loss of hydraulic pressure.

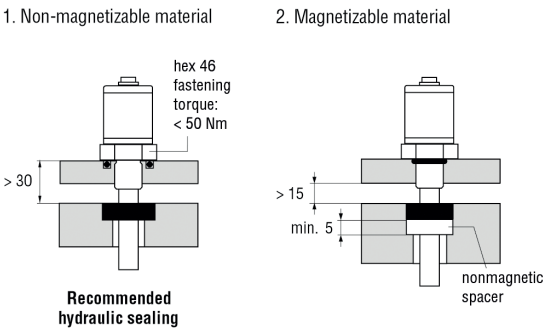


Fig. 3: Minimum assembly distance

All dimensions in mm

Mounting References for Profile Sensors (GP, RP)

Temposonics® RP and GP profile sensor models offer two basic mounting methods: side grooves for use with mounting clamps (part no. 400 802) or a bottom groove that accepts a special T-slot nut (part no.: 401 602). Both the mounting clamps and T-slot nuts can be positioned along the sensor profile to best secure the sensor for each particular application.

 For applicable magnet selection, see section “Magnet Selection” on page 7 and following.

NOTES

- 1. Temposonics® RP and GP sensors include two mounting clamps, (part no. 400 802) for sensor stroke lengths up to 1250 mm
- 2. One additional mounting clamp is included for stroke lengths over 1250 mm and for each additional 500 mm, thereafter.
- 3. MTS recommends using M5 screws (customer supplied) at a maximum fastening torque of 5 Nm when fastening mounting clamps.
- 4. The T-slot nut (part no.: 401 602) requires a customer supplied M5 threaded stud and nut.

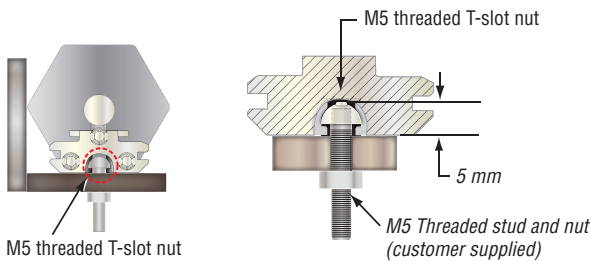


Fig. 4: T-slot nut (M5 threaded), Nut for mounting model RP and GP sensors.

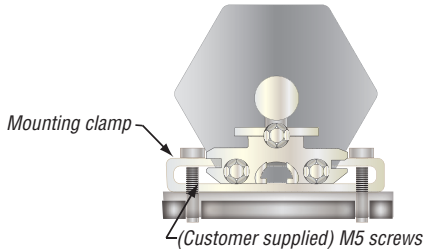


Fig. 5: Mounting clamp and screws

ID	Technical drawing	Description
Mounting clamp 400 802		standard (304 stainless steel) clamp for sensor models RP and GP
T-slot nut 401 602		(M5 threaded) nut for RP and GP

All dimensions in mm

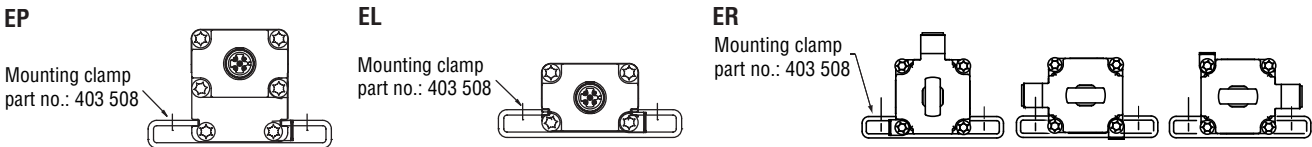
Mounting References for Profile Sensors (EL, EP, ER)

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

For the E-Series model ER 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 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 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.

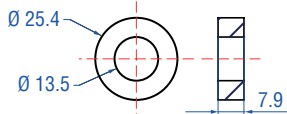
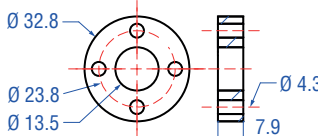
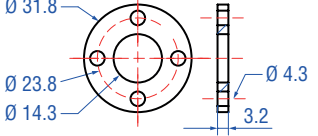
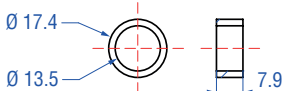
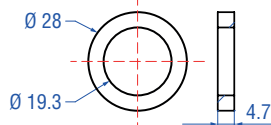
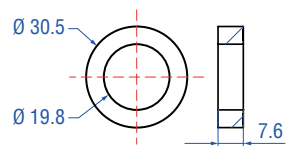
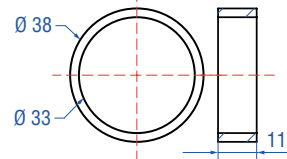
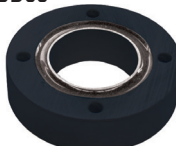
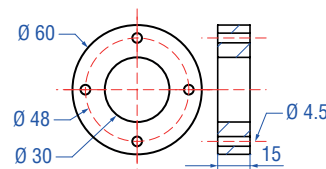
NOTES

- 1. Temposonics® EL and EP sensors include two mounting clamps, (part no. 403 508) for sensor stroke lengths up to 1250 mm
- 2. One additional mounting clamp is included for stroke lengths over 1250 mm and for each additional 500 mm, thereafter.
- 3. MTS recommends using M5 screws (customer supplied) at a maximum fastening torque of 5 Nm when fastening mounting clamps.
- 4. ER: Mounting clamps are ordered separately. Two mounting clamps, (part number 403 508) are required for stroke lengths up to 750 mm. A least one additional mounting clamp is required for longer stroke lengths.



ID	Technical drawing	Description
Mounting clamp 403 508		Sensor mounting for sensor models EL, EP and ER
Rod end 254 210		Optional, male M6 threads for sensor model ER

All dimensions in mm

ID	Technical drawing	Description	Sensor models			
Ring magnet OD25.4 400 533 		Material: PA ferrite Weight: ca. 10 g Operating temperature: -40...+100 °C Surface pressure: max. 40 N/mm²	RD4 RH	GB GH GT	EE EH	Rod
Standard ring magnet 201 542-2 		Material: PA ferrite GF20 Weight: ca. 14 g Operating temperature: -40...+100 °C Surface pressure: max. 40 N/mm² Fastening torque for M4 screws: max. 1 Nm	RD4 RH	GB GH GT	EE EH	Rod
Magnet spacer 400 633 		Material: non ferrous Weight: ca. 5 g Surface pressure: 20 N/mm² Fastening torque for M4 screws: max. 1 Nm	RD4 RH	GB GH GT	EE EH	Rod
				Use with ring magnet part no.: 201 542-2		
Ring magnet OD17.4 401 032 		Material: PA neobind Weight: ca. 5 g Operating temperature: -40...+100 °C Surface pressure: max. 20 N/mm²	RD4 RH	GH GT	EE EH	Rod
Large ring magnet 400 424 		Material: composite PA ferrite GF20 Weight: ca. 6 g Operating temperature: -40...+100 °C Surface pressure: 20 N/mm²	RD4 RF RH	GH	EE EH	Rod
Ring magnet 402 316 		Material: PA ferrite coated Weight: ca. 13 g Operating temperature: -40...+100 °C Surface pressure: 20 N/mm²	RD4 RF RH	GH GT	EE EH	Rod
Large ring magnet 401 468 		Material: PA ferrite Weight: ca. 17 g Operating temperature: -40...+100 °C Surface pressure: 20 N/mm²	RD4 RF RH			Rod
				Contact application engineering for handling guidelines		
Ring magnet OD60 MT0162 		Material: Al CuMgPb, Magnets compound-filled; Weight: ca. 90 g Operating temperature: -40...+75 °C Surface pressure: 20 N/mm² Fastening torque for M4 screws: max. 1 Nm	RD4 RF RH			Rod



Recommended accessories are marked with the following sign:



All dimensions in mm

NOTES

If your application requires a magnet that is not shown, please contact the MTS “Application Support” (Tel. +49 2351-9587-0) for custom or additional non-standard magnet options.

Magnet Selection – Rod Sensors

Magnet must be ordered separately

ID	Technical drawing	Description	Sensor models			
U-magnet OD63.5 201 553		Material: PA 66-GF30, Magnets compound-filled; Weight: ca. 26 g Operating temperature: -40...+75 °C Surface pressure: 20 N/mm ² Fastening torque for M4 screws: max. 1 Nm	RD4 RF RH	GH GT	EE EH	Rod
Large ring magnet 201 554		Material: PA 66-GF30, Magnet slugs potted with epoxy; Weight: ca. 35 g Operating temperature: -40...+75 °C Surface pressure: 20 N/mm ² Fastening torque for M4 screws: max. 1 Nm	RD4 RF RH	GH GT	EE EH	Rod
System magnet 253 928		Material: composite POM Weight: 14 g Operating temperature: -40...+75 °C Surface pressure: 20 N/mm ²	RD4 RH	GH GT	EE EH	Rod
Multipole magnet 254 012		Material: composite neobonded Weight: 8.5 g Operating temperature: -40...+75 °C Surface pressure: 20 N/mm ²	RD4 RH	GH GT	EE EH	Rod

Magnet Selection – Profile Sensors

Magnet must be ordered separately

ID	Technical drawing	Description	Sensor models			
Magnet slider S 252 182		Material: GFK, magnet hard ferrite Weight: ca. 35 g Operating temperature: -40...+75 °C	RP	GP	EL EP	Profile
Magnet slider N, longer ball-jointed arm 252 183		Material: GFK, magnet hard ferrite Weight: ca. 35 g Operating temperature: -40...+75 °C	RP	GP	EL EP	Profile
Magnet slider V 252 184		Material: GFK, magnet hard ferrite Weight: ca. 35 g Operating temperature: -40...+75 °C	RP	GP	EL EP	Profile

Recommended accessories are marked with the following sign:

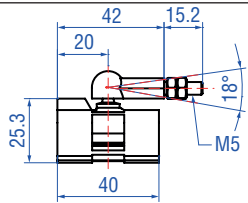
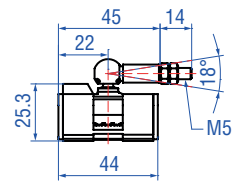
All dimensions in mm

NOTES

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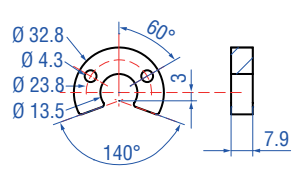
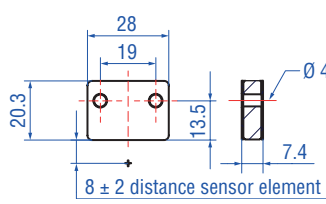
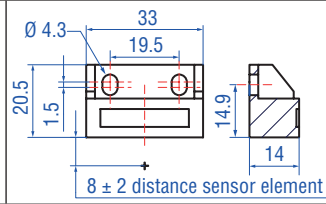
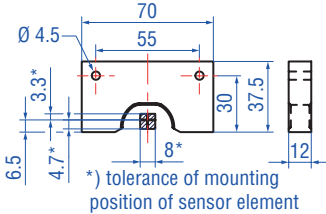
Magnet Selection – Profile Sensors

Magnet must be ordered separately

ID	Technical drawing	Description	Sensor models			
Magnet slider G 253 421 		Material: GFK, magnet hard ferrite Weight: ca. 25 g Operating temperature: -40...+75 °C	RP	GP	EL EP	Profile
Magnet slider P 253 673 		Material: GFK, magnet hard ferrite Weight: ca. 38 g Operating temperature: -40...+75 °C	RP	GP	EL EP	Profile

Magnet Selection – Rod and Profile Sensors

Magnet must be ordered separately

ID	Technical drawing	Description	Sensor models			
U-magnet OD33 251 416-2 		Material: PA ferrite GF20 Weight: ca. 11 g Operating temperature: -40...+100 °C Surface pressure: max. 40 N/mm ² Fastening torque for M4 screws: max. 1 Nm	RD4 RF RH RP	GB GH GP GT	EE EH EP	Profile Rod
Bar magnet 251 298-2 		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. Weight: ca. 22 g Surface pressure: 20 N/mm ² Fastening torque for M4 screws: max. 1 Nm	RF RH RP	GH GP	EH EL EP	Profile Rod
This magnet may influence the sensor performance specifications for some applications.						
Block magnet L 403 448 		Material: hard ferrite Weight: ca. 20 g Operating temperature: -40...+75 °C Fastening torque for M4 screws: max. 1 Nm	RF RH RP	GP GH	EH EL EP	Profile Rod
This magnet may influence the sensor performance specifications for some applications.						
U-magnet 252 185 		Material: AlMg4.5Mn, black anodised; magnets compound-filled Weight: ca. 125 g Operating temperature: -40...+75 °C Surface pressure: 20 N/mm ² Fastening torque for M4 screws: max. 4 Nm	RF RH RP	GH GP	EH EP	Profile Rod
This magnet may influence the sensor performance specifications for some applications.						

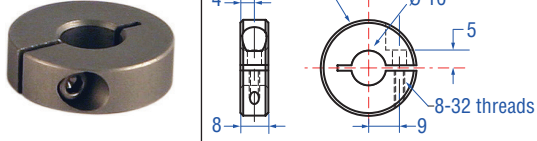
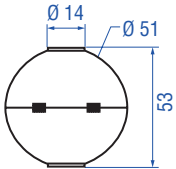
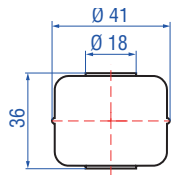
 Recommended accessories are marked with the following sign:

R

All dimensions in mm

NOTES

If your application requires a magnet that is not shown, please contact the MTS “Application Support” (Tel. +49 2351-9587-0) for custom or additional non-standard magnet options.

ID	Technical drawing	Description	Sensor model			
Collar 560 777		Material: 304 SST Provides end of stroke stops for magnet float (part no.: 251447) Weight: ca. 30 g Hex key $\frac{7}{64}$ required	RD4 RH	GH GT	EE EH Ø 10	Rod
Magnet float 251 447		Material: stainless steel Weight: ca. 42 ± 3 g Density: 720 kg/m^3 Pressure: max. 60 bar	RD4 RH	GH GT	EE EH	Rod
This float is used with rod style sensors for hydraulic fluid or fresh water applications only.						
Float 41 mm 200 938-2		Material: 1.4404 stainless steel Weight: 20 ± 2 g Density: 740 kg/m^3 Pressure: max. ≤ 8 bar	RD4 RH	GH GT	EE EH	Rod
This float is used with rod style sensors for hydraulic fluid or fresh water applications only.						

All dimensions in mm

NOTES

If your application requires a magnet that is not shown, please contact the MTS “**Application Support**” (Tel. **+49 2351-9587-0**) for custom or additional non-standard magnet options.

Cable Configurator

a Company name

b	Output type	
A	Analog	A
R	Start/Stop	R
C	CAN	C
S	SSI	S
E	EtherCAT, Profinet	E
P	Profibus (D53)	P
P	Profibus (D63)	P
Z	Power supply	Z

 The complete order code consists of the following sections (20 figures):

- a) Company name
- b) Output type
- c) Connector type
- d) Cable length
- e) Cable type

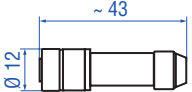
c Connector type								
Output	Type	Style	Ordering code					
M8								
Z D53,D54,D56	4 pin female	straight	3	7	0	5	0	4
M12								
P D53	3 pin male	straight	5	6	0	8	8	4
P D53	3 pin female	straight	5	6	0	8	8	5
E D56,D58	4 pin male	straight	3	7	0	5	2	3
A D34 C D34,D54	5 pin female	straight	3	7	0	6	7	7
A D34 C D34,D54	5 pin female	angled	3	7	0	6	7	8
P D53	5 pin female	angled	3	7	0	5	1	4
P D53	5 pin male	angled	3	7	0	5	1	5
R D84 S D84	8 pin female	straight	3	7	0	6	9	4
R D84 S D84	8 pin female	angled	3	7	0	6	9	9
M16								
P D63	6 pin male	angled	3	7	0	6	2	1
P D63	6 pin male	straight	3	7	0	4	2	7
A D60 R D60 C D60,D62 P D63	6 pin female	straight	3	7	0	4	2	3
A D60 R D60 C D60,D62 P D63	6 pin female	angled	3	7	0	4	6	0
S D70	7 pin female	straight	3	7	0	6	2	4
S D70	7 pin female	angled	5	6	0	7	7	9

d Cable length

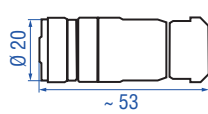
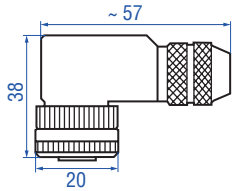
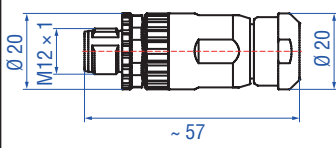
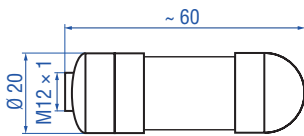
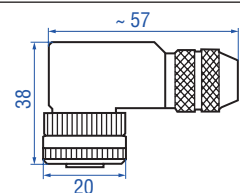
Length step size depending on total length, unit cm

e	Cable type						
Output	Jacket	Style	Ordering code				
A R S	PVC	gray	5	3	0	0 3	2
A R C S	PUR	orange	5	3	0	0 5	2
A R S	PUR	gray	5	3	0	1 1	6
A R C S	Teflon®	black	5	3	0	1 1	2
P D53	PUR	purple	5	3	0	1 0	9
P D63	PVC	petrol/purple	5	3	0	0 4	0
C S	PUR	orange	5	3	0	0 2	9
E	PUR	green	5	3	0	1 2	5
Z		power cable	5	3	0	1 0	8

M8 Cable Connector

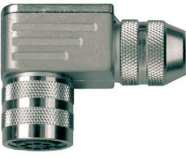
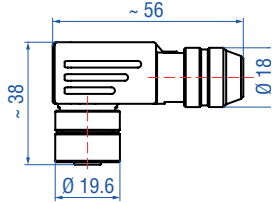
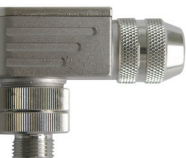
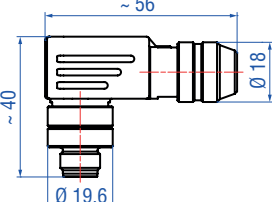
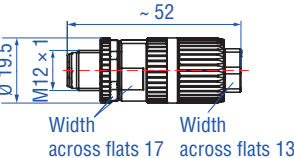
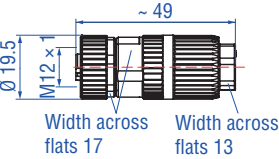
ID	Technical drawing	Description	Sensor models			Conn. type
Female, straight, 4 pin 370 504 		Housing: zinc nickel plated Termination: solder 0.25 mm ² Contact insert: silver plated Cable Ø: 3.5...5 mm	RD4			D53 D54 D56
			RF			
			RH			
			RP			

M12 Cable Connector Type A

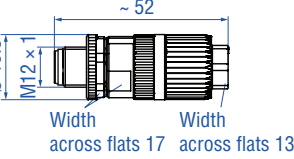
ID	Technical drawing	Description	Sensor models			Conn. type
Female, straight, 5 pin 370 677 		Housing: GD-Zn, Ni / IP67 Termination: screw; max. 0.75 mm ² Contact insert: CuZn Cable Ø: 4...8 mm	RD4		EE	D34
			RF		EH	D54
			RH		EL	D58
			RP		EP	
					ER	
Female, angled, 5 pin 370 678 		Housing: GD-Zn, Ni / IP67 Termination: screw; max. 0.75 mm ² Contact insert: CuZn Cable Ø: 5...8 mm	RD4		EE	D34
			RF		EH	D54
			RH		EL	
			RP		EP	
					ER	
Male, straight, 5 pin 561 665 		Housing: GD-Zn, Ni / IP67 Termination: screw; max. 0.75 mm ² Contact insert: CuZn Cable Ø: 4...8 mm			EH	D34
					EL	
					EP	
Female, straight, 8 pin 370 694 		Housing: GD-ZnAL / IP67 Termination: screw; 0.75 mm ² Contact insert: CuZn Cable Ø: 4...9 mm			EH	D84
					EL	
					EP	
					ER	
Female, angled, 8 pin 370 699 		Housing: GD-ZnAL / IP67 Termination: screw; max. 0.5 mm ² Contact insert: CuZn Cable Ø: 6...8 mm			EH	D84
					EL	
					EP	
					ER	

All dimensions in mm

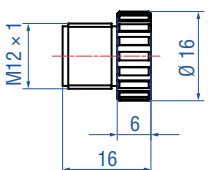
M12 Cable Connector Type B

ID	Technical drawing	Description	Sensor models	Conn. type
Female, angled, 5 pin 370 514 		Housing: zinc nickel plated Termination: screw; 0.75 mm ² Contact insert: silver plated (D53) connection types Cable Ø: 6...8 mm	RD4 RF RH RP	D53
Male, angled, 5 pin 370 515 		Housing: zinc nickel plated Termination: screw; 0.75 mm ² Contact insert: silver plated (D53) connection types Cable Ø: 6...8 mm	RD4 RF RH RP	D53
Male, straight, 5 pin 560 884 		Number of contacts: 3 pin Housing: zinc nickel plated Termination: insulation displacement Contact insert: silver plated (D53) connection types Wire: 0.34 mm ² (AWG22) Cable Ø: 7...8.8 mm	RD4 RF RH RP	D53
Cable 530 109 recommended				
Female, straight, 5 pin 560 885 		Number of contacts: 3 pin Housing: zinc nickel plated Termination: insulation displacement Contact insert: silver plated (D53) connection types Wire: 0.34 mm ² (AWG22) Cable Ø: 7...8.8 mm	RD4 RF RH RP	D53
Cable 530 109 recommended				

M12 Cable Connector Type D

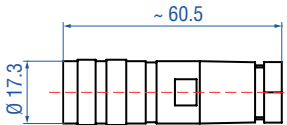
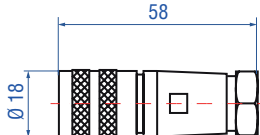
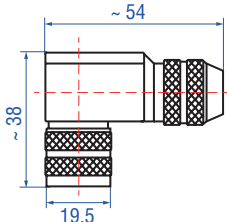
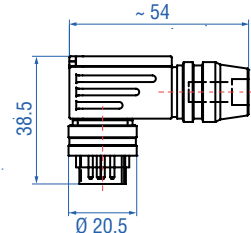
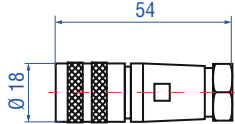
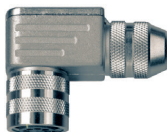
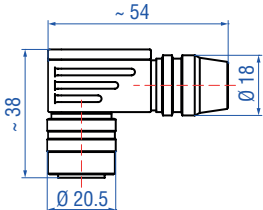
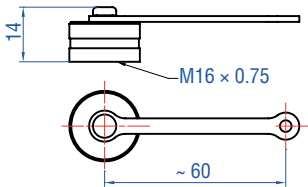
ID	Technical drawing	Description	Sensor models	Conn. type
Male, straight, 4 pin 370 523 		Housing: zinc nickel plated Termination: isolation displacement Wire: AWG24- AWG22 Cable Ø: 5.5...7.2 mm	RD4 RF RH RP	D56 D58
Cable 530 125 recommended				

Accessory for M12 Cable Connector

ID	Technical drawing	Description	Sensor models	Conn. type
Connector end cap 370 537 		Female connectors should be covered by this protective cap	RD4 RF RH RP	D53 D56 D58

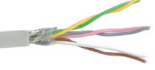
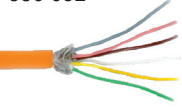
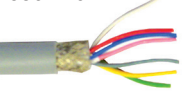
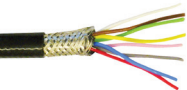
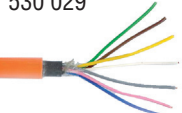
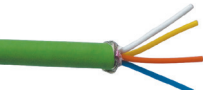
All dimensions in mm

M16 Cable Connector

ID	Technical drawing	Description	Sensor models			Conn. type
Female, straight, 6 pin 370 423 		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable clamp: PG9 Cable Ø: 6...8 mm	RD4 RF RH RP	GB GH GP GT		D60 D62 D63
Male, straight, 6 pin 370 427 		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable clamp: PG9 Cable Ø: 6...8 mm	RD4 RF RH RP			D63
Female, angled, 6 pin 370 460 		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable Ø: 6...8 mm	RD4 RF RH RP	GB GH GP GT		D60 D62 D63
Male, angled, 6 pin 370 621 		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable Ø: 6...8 mm	RD4 RF RH RP			D63
Female, straight, 7 pin 370 624 		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable clamp: PG9 Cable Ø: 6...8 mm	RD4 RF RH RP	GB		D70
Female, angled, 7 pin 560 779 		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable Ø: 6...8 mm	RD4 RF RH RP	GB		D70
Metal protection cap for connector M16 403 290 		Material: brass, nickel plated	RD4 RF RH RP	GB GH GP		D60 D62 D63 D70

All dimensions in mm

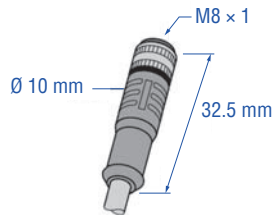
Cables

ID	Description	Characteristics	Outputs
Cable 530 032 	Dimensions: $3 \times 2 \times 0.14 \text{ mm}^2$ Cable Ø: 6 mm Material: PVC jacket; gray Operating temperature: $-10 \dots +80 \text{ }^\circ\text{C}$ Twisted pair shielded	Standard	Analog Start/Stop SSI
Cable 530 052 	Dimensions: $3 \times 2 \times 0.25 \text{ mm}^2$ Cable Ø: 6.4 mm Material: PUR jacket; orange Operating temperature: $-30 \dots +80 \text{ }^\circ\text{C}$ Twisted pair shielded	Halogen free Oil-resistant High flexible	Analog Start/Stop CAN SSI
Cable 530 116 	Dimensions: $4 \times 2 \times 0.25 \text{ mm}^2$ Cable Ø: 8 mm Material: PUR jacket; gray Operating temperature: $-30 \dots +90 \text{ }^\circ\text{C}$ Twisted pair shielded	Water proof wires Halogen free Flexible	Analog Start/Stop SSI
Cable 530 112 	Dimensions: $4 \times 2 \times 0.25 \text{ mm}^2$ Cable Ø: 7.6 mm Material: Teflon® jacket; black Operating temperature: $-100 \dots +180 \text{ }^\circ\text{C}$ Twisted pair shielded	Wide temperature range Chemical resistance	Analog Start/Stop CAN SSI
Cable 530 029 	Dimensions: $7 \times 0.14 \text{ mm}^2$ Cable Ø: 6.5 mm Material: TMPU jacket; orange Operating temperature: $-20 \dots +70 \text{ }^\circ\text{C}$	Additional EMC protection	CAN SSI
Cable 530 040 	Dimensions: $1 \times 2 \times 0.65 \text{ mm}^2$ $3 \times 1 \times 0.75 \text{ mm}^2$ Cable Ø: 8 mm Material: PVC jacket; petrol Operating temperature: $-30 \dots +80 \text{ }^\circ\text{C}$	Hybrid cable Profibus and power supply feed in	Profibus
Cable 530 109 	Dimensions: $1 \times 2 \times 0.64 \text{ mm}^2$ (AWG24) Cable Ø: 8 mm Material: PUR jacket; violett Operating temperature: $-30 \dots +70 \text{ }^\circ\text{C}$	High flexible	Profibus
Cable 530 125 	Dimensions: $2 \times 2 \times 0.75 \text{ mm}^2$ (AWG22/7) Cable Ø: 6.5 mm; 4 wires + shield Material: PUR jacket; green Operating temperature: $-40 \dots +70 \text{ }^\circ\text{C}$ Twisted pair shielded	High flexible	EtherCAT Ethernet/IP Profinet
Cable 530 108 	Dimensions: $3 \times 0.34 \text{ mm}^2$ Cable Ø: 4.9 mm; 3 wires + shield Material: PVC jacket; gray Operating temperature: $-30 \dots +80 \text{ }^\circ\text{C}$	Flexible	Power supply

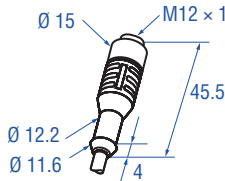
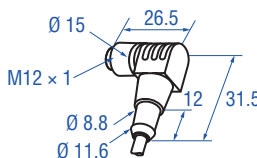
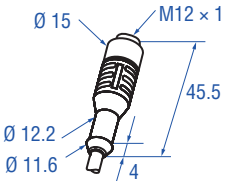
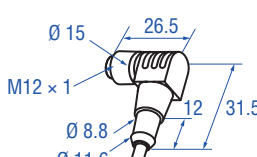
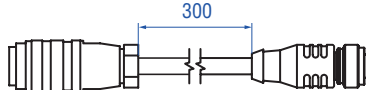
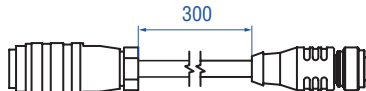
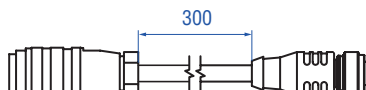
Bus Cables with Connectors

ID	Description	Sensor models	Conn. type
Industrial Ethernet cable (Cat 5e Es) d-coded 530 064 	Connector type: two male, 4 pin (M12) Cable jacket: PUR cable jacket; green Operating temperature: -40...+70 °C Cable length: 5 m	RD4 RF RH RP	D56 D58
Industrial Ethernet cable (Cat 5e Es) d-coded 530 065 	Connector type: RJ45 connector male, 4 pin (M12) Cable jacket: PUR cable jacket; green Operating temperature: -40...+70 °C Cable length: 5 m Cables using the RJ45 connector provide convenient sensor connection to a PC for setup and programming but are not recommended for factory floor installations.	RD4 RF RH RP	D56 D58

Power Cable Connector

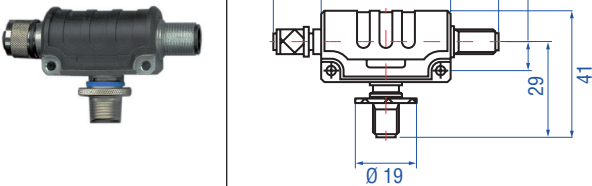
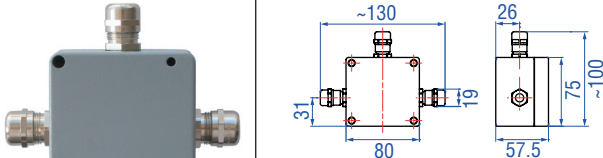
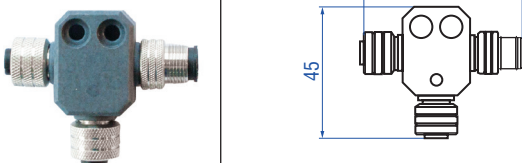
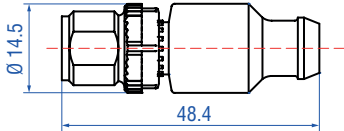
ID	Technical drawing	Description	Sensor models	Conn. type
Power cable, female 4 pin (M8) and cable with pigtail termination 5 m: 530 066 10 m: 530 096 15 m: 530 093 		Wire gage: 4 × 0.25 mm ² shielded Cable jacket: PUR; gray Max. cable Ø: 8 mm	RD4 RF RH RP	D53 D54 D56

Cord Sets and Adapter Cables

ID	Technical drawing	Description	Sensor models			Conn. type
M12 female connector, 5 pin straight 370 673		Ingress protection: IP67 Cable: shielded, pigtail end Cable length: 5 m	RD4 RF RH RP	EE EH EL EP ER	D34 D58	
M12 female connector, 5 pin angled 370 675		Ingress protection: IP67 Cable: shielded, pigtail end Cable length: 5 m		EE EH EL EP ER	D34	
M12 female connector, 8 pin straight 370 674		8 pin (M12) mates with standard male (D84) integral connector Ingress protection: IP67 Cable: shielded, pigtail end Cable length: 5 m		EH EL EP ER	D84	
M12 female connector, 8 pin angled 370 676		Ingress protection: IP67 Cable: shielded, pigtail end Cable length: 5 m		EH EL EP ER	D84	
5 pin female to 6 pin male D60 cable 254 206		E-Series retrofit with 6 pin D60 connector. Output: voltage Cable length: 300 mm		EP ER	D34	
5 pin female to 6 pin male D60 cable 254 270		E-Series retrofit with 6 pin D60 connector. Output: current Cable length: 300 mm		EP ER	D34	
8 pin female to 6 pin male D60 cable 254 207		E-Series retrofit with 6 pin D60 connector. Output: start/stop Cable length: 300 mm		EP ER	D84	

All dimensions in mm

Connection Accessories

ID	Technical drawing	Description	Sensor models		Conn. type
Profibus T connector, M12 b-code, 5 pin 560 887		Housing: zinc nickel plated Termination: solder Contact insert: silver plated Installation: field installable, (D53) connection types	RD4 RF RH RP		D53
Profibus bus terminator, male, M12 b-code, 5 pin 560 888		Contact insert: silver plated	RD4 RF RH RP		D53
Profibus bus terminator, male, M12, 6 Pin 370 620		Housing: zinc nickel plated Contact insert: silver plated	RD4 RF RH RP		D63
Profibus filter box 252 916		Application: EMC conformal feeding of 24 VDC operating voltage into the Profibus-DP hybrid cable	RD4 RF RH RP		D63
CANopen T-Connector, M12, 5 pin 370 691		Selfcuring coupling nut 2 × cable connector female 1 × cable connector male shielded	RD4 RF RH RP	EH EL EP	D34
CANopen bus terminator, male, M12, 5 pin 370 700		Housing: PUR Contact insert: Au	RD4 RF RH RP	EH EL EP	D34

All dimensions in mm

Optional Installation Hardware

ID	Technical drawing	Description	Sensor models		
O-ring 401 133		Material: Fluoroelastomer 75 ± 5 durometer Application: M-style housings	RH	GH	EH
O-ring 560 315		Material: Fluoroelastomer 75 ± 5 durometer Application: T- and S-style housings	RH	GH	EH
O-ring 560 853		Material: Fluoroelastomer 75 ± 5 durometer Application: GB-F style housings		GB	
O-ring 560 705		Material: Nitrile rubber Application: RD4-S style flange	RD4		
Back-up ring 561 115		Material: PTFE + 60 % bronze Application: GB-F style housings		GB	
Back-up ring 560 629		Material: Polymyte, 90 durometer Application: RD4-S style flange	RD4		

All dimensions in mm

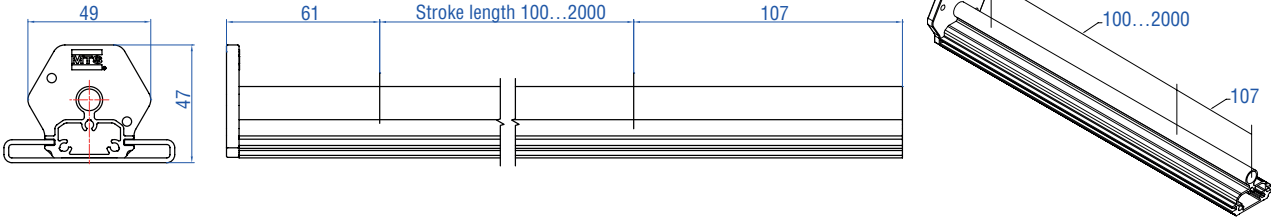
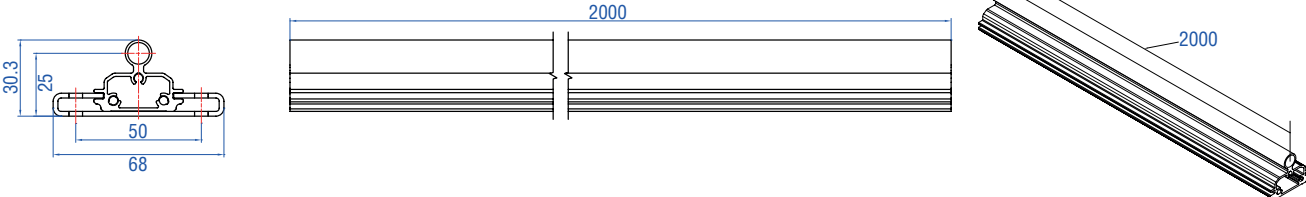
Optional Installation Hardware

ID	Technical drawing	Description	Sensor model		
Hex-jam nut M18 500 018		Type: M18 × 1.5 threads Material: steel, 2 zinc, plated Application: M-style housings	RH	GH	EH
Hex-jam nut 3/4" 500 015		Type: 3/4"-16 UNF Material: zinc plated with nylon insert Application: T- and S-style housings	RH	GH	EH
Fixing clip 561 481		Material: brass, nonmagnetic Application: used to secure sensor rod when using U-magnet	RH	GH	EH

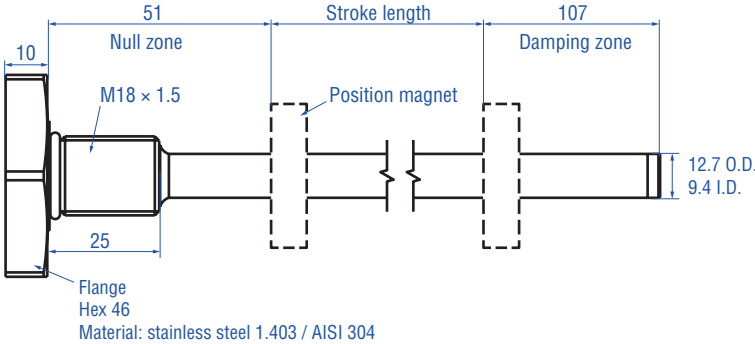
All dimensions in mm

Optional Installation Hardware

ID	Specifications	Sensor model
RF Profile HFP [length mm: XXXXX] M	 Profile with flange for Temposonics® RF max. 20,000 mm length. Ingress protection: IP30	RF
See “Product Flash RF Profile” (Document Part No.: 551 442) for further information		

Technical drawing		
Basic profile Once per article		
Extension profile 0...9 pieces, depending on ordered stroke length		

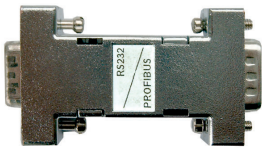
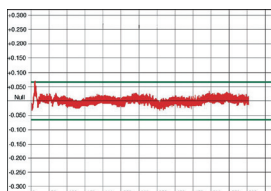
ID	Specifications	Sensor model
RF Pressure Rod HD [length mm: XXXX] M	 Pressure housing pipe OD 12.7 mm, 350 bar (700 bar peak) with flange for Temposonics® RF M18 × 1.5. max. 7500 mm length	RF
See “R-Series Catalog” (Document Part No.: 551 303) for further information		

Technical drawing		
 Material: stainless steel 1.403 / AISI 304		

All dimensions in mm

Programming Tools

ID	Description	Sensor models	
Analog handheld programmer – G-Series 253 853 	Programming for G-Series analog output sensor models		GP GH
Analog hand programmer – R-Series 253 124 	Easy teach-in-setups of stroke length and direction on desired zero/span positions. For the first output.	RD4 RF RH RP	
Analog cabinet programmer – R-Series 253 408 	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. For the first output.	RD4 RF RH RP	
Programming kit – G-/R-Series R-Analog: 253 134-1 R-SSI: 253 135-1 G-Analog: 253 145-1 G-Digital: 253 146-1 	Kit includes: interface converter box, power supply, setup software and cabling. Programming software for G-/R-Series sensors	RD4 RF RH RP	GH GP GT
CANopen address programmer Straight connector: 252 382-D62 Angled connector: 252 382-D62A 	Used for setting the node address to Temposonics® sensors with CANopen interface. The setup of the node address is normally done by the CAN Bus standard LMT-Service. Since some master systems do not support this standard, or the customer controller system can not handle it, this MTS service tool can be used for the direct setup of the sensor. All you need for using the programmer is a 24 VDC power supply to the sensor. The programming tool will be supplied by the Temposonics® position sensor.	RD4 RF RH RP	
Profibus node address programmer kit – R-Series 280 640 	Used for setting the slave address to Temposonics® sensors with Profibus-DP interface. The setup of slave address is normally done by the profibus standard service SetSlaveAddress. Since some master systems do not support this standard, or the customer controller system can not handle it, this MTS service tool can be used for the direct setup of the sensor. The programmer and the sensor will be supplied by the included power supply.	RD4 RF RH RP	

ID	Description	Sensor model	
Profibus master simulator – R-Series 401 727 	The master simulator can be used to check the sensors functions and to change the slave address. The magnet positions can be read out and the diagnostic data as well. Please order adapter cable separately: D53: 252 383; D63: 401 726	RD4 RF RH RP	
SSI display 6 digits IX 345 	Housing: 96 × 48 × 141 mm Cutout: 91 × 44 mm	RD4 RF RH RP	EH EL EP ER
Linearity diagram – R-Series 625 096 	DIN A4 printout with sensor data and graphic with the linearity gradient. This gradient can be used to choose a special linear segment or for linearity correction in sections.	RD4 RH RP	

Document Part Number:

551444 Revision A (EN) 11/2013

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