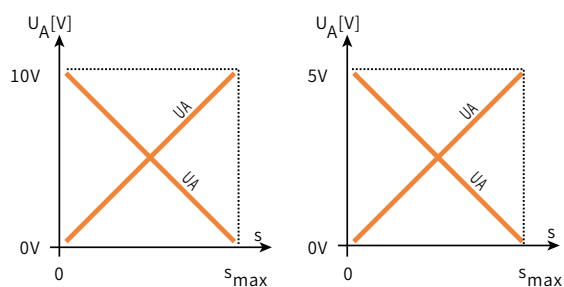


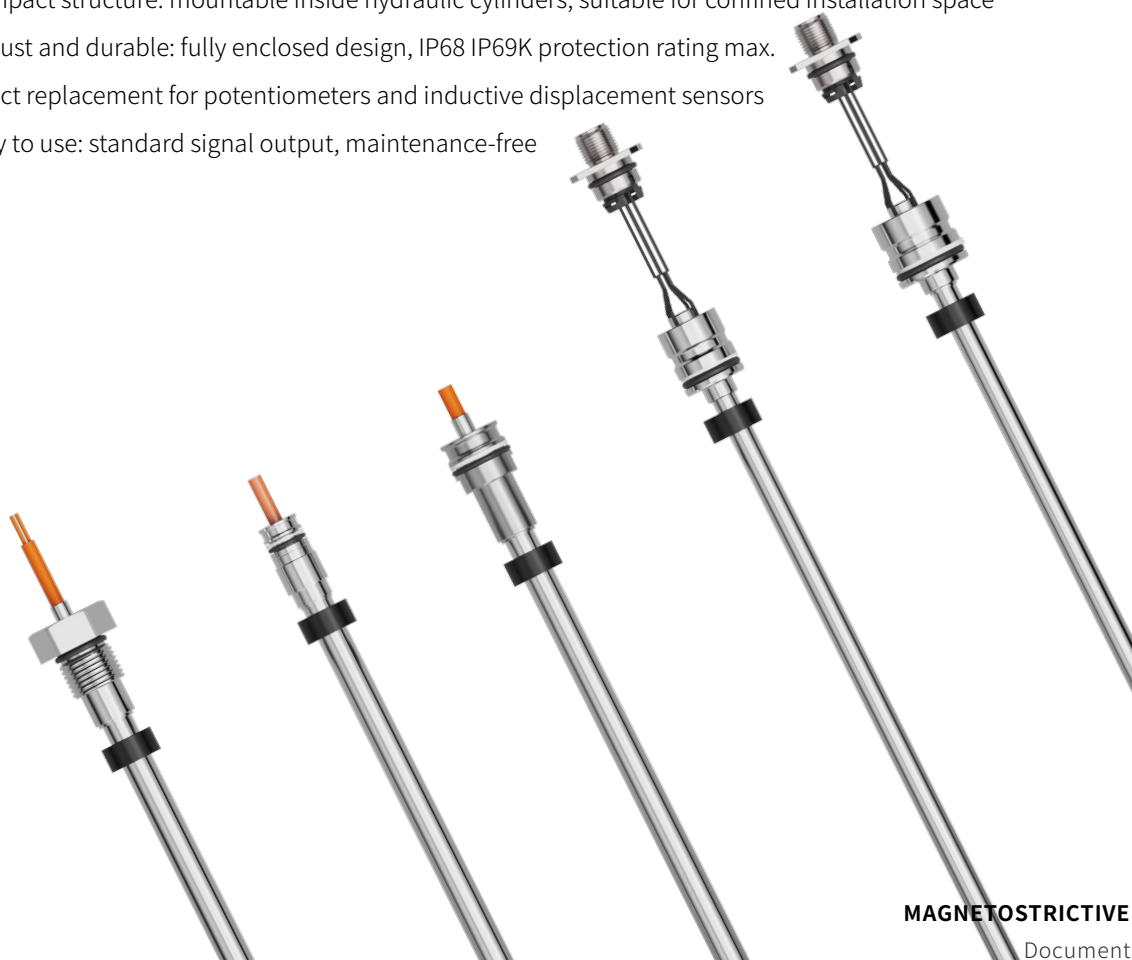


MS - Analog

MS-pressure resistant outer tube



- + Non-contact measurement, no wear
- + High reliability, absolute value output, linear measurement
- + Compact structure: mountable inside hydraulic cylinders, suitable for confined installation space
- + Robust and durable: fully enclosed design, IP68 IP69K protection rating max.
- + Direct replacement for potentiometers and inductive displacement sensors
- + Easy to use: standard signal output, maintenance-free



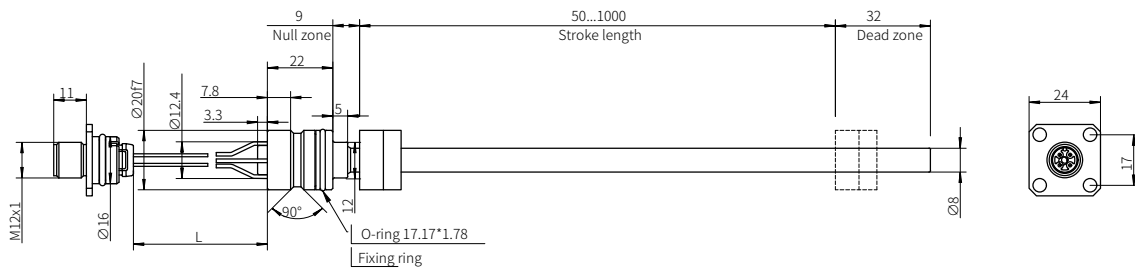
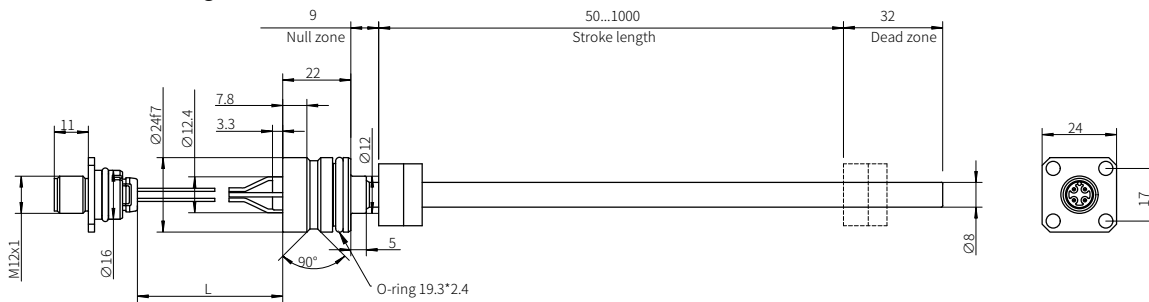
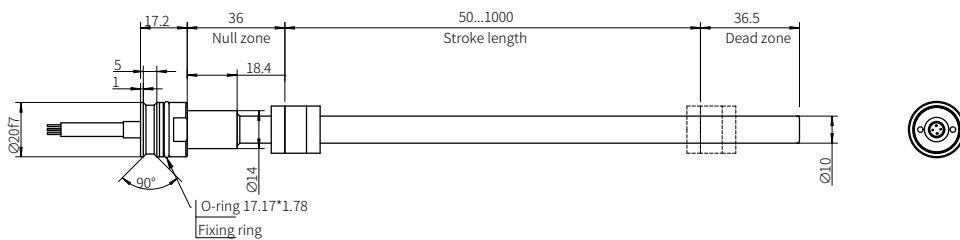
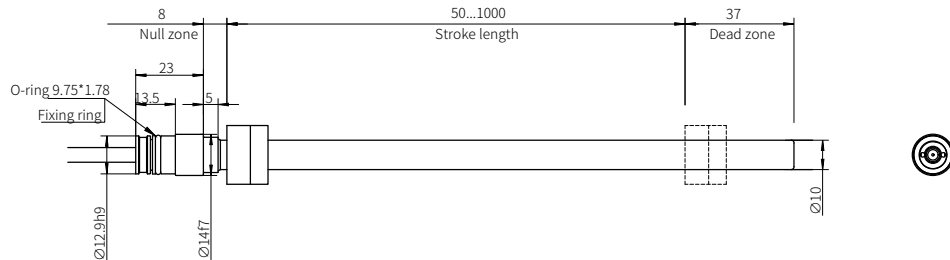
MAGNETOSTRICTIVE SENSOR

Document Number:

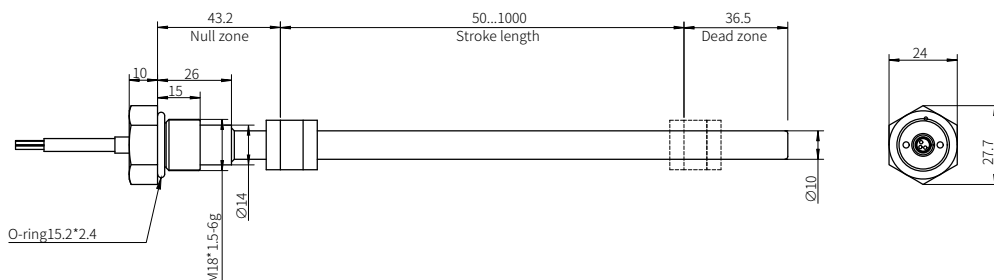
MS-A(V1.1)-EN

TECHNICAL PARAMETER

Input							
Measured data	Position						
Measurement range	50...1000mm						
Output							
Voltage	0...10VDC, 10...0VDC, 0...5VDC, 5...0VDC, 0.25...0.75VDC, 0.5...4.5VDC, 0.25...4.75VDC, 4.75...0.25VDC, 4.5...0.5VDC (Controller min. load impedance >5KΩ)						
Resolution							
Position resolution	14 bit D/A						
None-Linearity	< ±1%F.S. (min. 0.1mm)						
Repeatability	±0.1mm						
Update time	5ms						
Temperature coefficient	< 30ppm/°C						
Mounting							
Mounting position	Any						
Mounting	Press-bt mounting (Type D/E/T/H), Metric thread M18 (Type M)						
Design/Material							
Electronics housing	Stainless steel 304						
Measuring rod	Stainless steel 304、316L						
Magnet	Standard magnet						
Electrical connection							
Wiring connection	Straight out cable, aviation plug						
Operating voltage	8...32VDC						
Polarity protection	Up to -200VDC						
Overvoltage protection	Up to +200VDC						
Power consumption	< 50mA (varies with range size)						
Dielectric strength	500 VDC (DC ground to machine ground)						
Operating conditions							
Magnet velocity	Any						
Operating temperature	-40~105°C						
Humidity	90 % relative humidity, no condensation						
Operating pressure ratings	30MPa (continuous) , 45MPa (peak)						
Ingress protection	IP68, IP69K (Straight out cable)						
Shock	100 g (11 ms) single shock per axis, IEC 60068-2-27 50 g (6 ms) at 1000 shocks per axis, IEC 60068-2-29						
Vibration	Operational sine vibration test IEC 60068-2-6 15 g (5...2000 Hz)(resonant frequencies excluded) Survival random vibration test IEC 60068-2-64 20 g RMS (10...2000 Hz) 12 h per axis(resonant frequencies excluded)						
EMC	Compliant with: ISO 14982: Agricultural and Forestry Machinery ISO 16750-2: Road vehicles						
	<table border="1"> <tr> <td>Anti-interference</td><td>ISO 11452-2 (200V/m Antenna) ISO 11452-4 (200mA BCI)</td></tr> <tr> <td>Transient pulse</td><td>ISO 7637-1/2</td></tr> <tr> <td>E.S.D.</td><td>ISO/TR 10605</td></tr> </table>	Anti-interference	ISO 11452-2 (200V/m Antenna) ISO 11452-4 (200mA BCI)	Transient pulse	ISO 7637-1/2	E.S.D.	ISO/TR 10605
Anti-interference	ISO 11452-2 (200V/m Antenna) ISO 11452-4 (200mA BCI)						
Transient pulse	ISO 7637-1/2						
E.S.D.	ISO/TR 10605						

MS-T Type (Press-fit mounting, $\Phi 20$)MS-H Type (Press-fit mounting, $\Phi 24$)MS-D Type (Press-fit mounting, $\Phi 20$)MS-E Type (Press-fit mounting, $\Phi 12.9$)

MS-M Type (M18 thread mounting)



For selection of supporting magnetic rings and non-permeable gaskets, please refer to the attachment for details.



Non-permeable gasket

Wiring

DG (1-3-4) wiring

4 pin M12 connector



View on sensor

PIN	Color	Function
1	Brown	VDC
2	-	NC
3	White	GND
4	Gray	Signal output

DH (1-2-3) wiring

4 pin M12 connector



View on sensor

PIN	Color	Function
1	Brown	VDC
2	Green	Signal output
3	White	GND
4	-	NC

DE (2-3-4) wiring

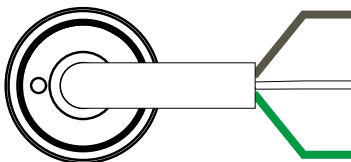
4 pin M12 connector



View on sensor

PIN	Color	Function
1	-	NC
2	Green	VDC
3	White	GND
4	Gray	Signal output

Straight out cable



Color	Function
Brown	VDC
White	GND
Green	Signal output

ORDER CODE

Aviation plug

MS- - - - M- - - -			
Measuring rod	Stroke length	Connection type	Output
T Press-fit mounting(Φ20), Rod Φ8mm	0050...1000mm	DGP/T__ Cable length __×10 mm, with 4-pin connector, pin assignment: 1-3-4	(Output Code)
H Press-fit mounting(Φ24), Rod Φ8mm	(5mm increments)	DHP/T__ Cable length __×10 mm, with 4-pin connector, pin assignment: 1-2-3	
D Press-fit mounting(Φ20), Rod Φ10mm		DEP/T__ Cable length __×10 mm, with 4-pin connector, pin assignment: 2-3-4	
E Press-fit mounting(Φ12.9), Rod Φ10mm			
M Metric M18x1.5, Rod Φ10mm			
(P= high performance cable , T=high temperature cable)			
(Unit: 10 mm. 01=10 mm, 02=20 mm...99=990 mm)			

Straight-out cable

MS- - - - M- - - -			
Measuring rod	Stroke length	Connection type	Output
T Press-fit mounting(Φ20), Rod Φ8mm	0050...1000mm	RP__ Straight out __m high performance cable	(Output Code)
H Press-fit mounting(Φ24), Rod Φ8mm	(5mm increments)	RT__ Straight out __m high temperature cable	
D Press-fit mounting(Φ20), Rod Φ10mm		(Fill in zero if less than 2 places)	
E Press-fit mounting(Φ12.9), Rod Φ10mm			
M Metric M18x1.5, Rod Φ10mm			

Analog Output Code [1][2][3]

[1][2] Output type and direction	[3] Ring number
V0 0...10V (forward)	V4 0.25...0.75V (forward)
V1 10...0V (reverse)	V5 0.5...4.5V (forward)
V2 0...5V (forward)	V6 0.25...4.75V (forward)
V3 5...0V (reverse)	V7 4.75...0.25V (reverse)
	V8 4.5~0.5V (reverse)

K=Anti-vibration program (Note: for special request, fill in last digit)

Note: forward, data grows larger when the magnet is distant from the electronics housing;
reverse, data grows larger when the magnet approaches the electronics housing.

Model

Model: MS-D-C-0600M-RP05-V01

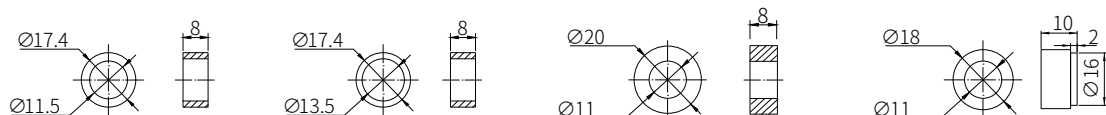
Explanation: MS series, press-fit mounting (Φ20), rod diameter Φ10 mm, measuring range 600 mm, 5m straight high-performance cable, 0~10V voltage output (forward), single magnet ring.

■ For more customizable products,
please contact us.



ACCESSORIES

Analog



Name	Ring magnet	Ring magnet	Ring magnet	Ring magnet
Operating temperature	-40~125°C			
Order code	12-1020	12-1032	12-1185	12-1195
Fitting non-permeable gasket				
Name	Non-permeable gasket		Non-permeable gasket	
Operating temperature	-40~125°C			
Order code	12-1037		12-1186	/



Connector	5 pin M12 female connector	5 pin female connector (90 degree angle)
Name	Integral cable	Integral cable
Cable	5 wire 0.25mm ² shielded cable	5 wire 0.25mm ² shielded cable
Color/Diameter	Orange/ Ø 6	Orange/ Ø 6
Plug surface	1-Brown 2-Green 3-White 4-Gray 5-Yellow	1-Brown 2-Green 3-White 4-Gray 5-Yellow
Length	5...30M	5/10/15/20/30M
Order code	16-1035	16-1040

Building 6, Dazu Enterprise Bay,
8th yard of Liangshuihe 2nd street, BDA P.R.China

Tel: +86 10-67948976 67948916
Fax: +86 10-67948979

Beijing Tebeifu Electronic Technology Co., Ltd.

TECHNOLOGY PERCEIVES THE FUTURE

Felix-Wankel-Str.1 1.OG 85221 Dachau, Germany

Tel: +49(0)8131 3375780
E-mail: info@tbfsensor.com

TBF Electronic Technology GmbH

www.tbfsensor.com