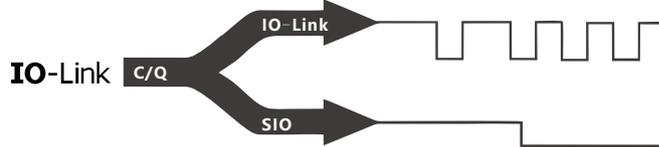
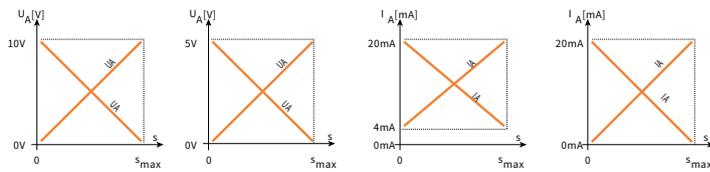




DH-Analog(+IO-Link)

DH-Series Data Sheet



- + Durable: fully enclosed design with maximum IP68 protection
- + Easy to use, standard signal output, maintenance-free
- + Non-contact measurement, no attrition
- + Miniaturized compact design, more suitable for space limited hydraulic cylinder
- + Output Analog+IO-Link



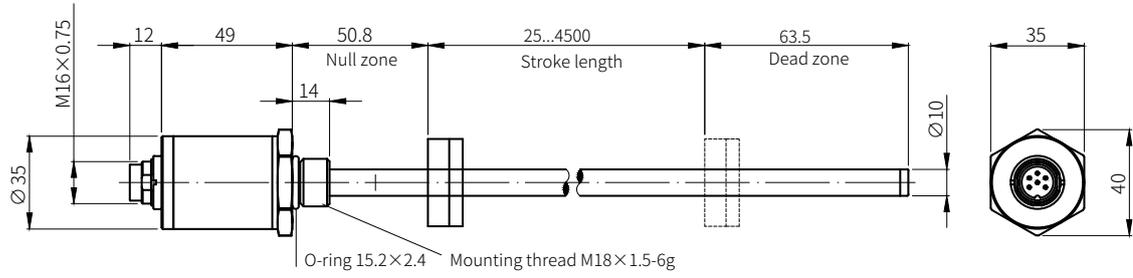
TECHNICAL PARAMETER

TECHNOLOGY PERCEIVES THE FUTURE

Input									
Measured data	Position								
Measurement range	25...4500mm								
Output									
Voltage	0...10VDC, 10...0VDC, 0...5VDC, 5...0VDC (Controller min. load impedance >5K Ω)+IO-Link								
Current	4...20mA, 20...4mA, 0...20mA, 20...0mA (min./max. load 0/750 Ω)+IO-Link								
Transmission rate (IO-Link)	<table border="1"> <thead> <tr> <th>Rate(bit/s)</th> <th>4800</th> <th>38400</th> <th>230400</th> </tr> </thead> <tbody> <tr> <td>Port</td> <td>COM1</td> <td>COM2</td> <td>COM3*</td> </tr> </tbody> </table>	Rate(bit/s)	4800	38400	230400	Port	COM1	COM2	COM3*
Rate(bit/s)	4800	38400	230400						
Port	COM1	COM2	COM3*						
Resolution									
Position resolution	<table border="1"> <thead> <tr> <th>Analog</th> <th>16 bit D/A</th> </tr> </thead> <tbody> <tr> <td>IO-Link</td> <td>1/2/5*/10/20/50/100μm</td> </tr> </tbody> </table>	Analog	16 bit D/A	IO-Link	1/2/5*/10/20/50/100 μ m				
Analog	16 bit D/A								
IO-Link	1/2/5*/10/20/50/100 μ m								
None-Linearity	< $\pm 0.02\%$ F.S. (min. $\pm 50\mu$ m)								
Repeatability	< $\pm 0.002\%$ F.S. (min. $\pm 20\mu$ m)								
Update time	<table border="1"> <thead> <tr> <th>Stroke length</th> <th>≤ 1200mm</th> <th>≤ 2400mm</th> <th>≤ 4500mm</th> </tr> </thead> <tbody> <tr> <td>Update time</td> <td>0.5ms</td> <td>1ms</td> <td>2ms</td> </tr> </tbody> </table>	Stroke length	≤ 1200 mm	≤ 2400 mm	≤ 4500 mm	Update time	0.5ms	1ms	2ms
Stroke length	≤ 1200 mm	≤ 2400 mm	≤ 4500 mm						
Update time	0.5ms	1ms	2ms						
Temperature coefficient	< 30ppm/ $^{\circ}$ C								
Mounting									
Mounting direction	Any								
Thread	Metric M18x1.5, metric M20x1.5, 3/4"-16UNF-3A								
Design/Material									
Electronics housing	Stainless steel 304								
Measuring rod	Stainless steel 304/316L								
Operating pressure ratings	$\Phi 10$ measuring rod : 35MPa (continuous) ,70MPa (peak) $\Phi 7$ measuring rod : 30MPa (continuous) ,45MPa (peak)								
Electrical connection									
Wiring connection	8 pin M16 aviation plug								
Operating voltage	+24VDC(-15/+20%)								
Polarity protection	Up to -36VDC								
Overvoltage protection	Up to +36VDC								
Power consumption	< 70mA (varies with range size)								
Dielectric strength	500 VDC (DC ground to machine ground)								
Operating conditions									
Magnet speed	Any								
Operating temperature	-40...85 $^{\circ}$ C								
Humidity	90 % relative humidity, no condensation								
Ingress protection	IP67(when connector is fitted)								
Shock	100 g (single shock) IEC standard 60068-2-27								
Vibration	15g/10...2000 Hz, IEC standard 60068-2-6 (resonant frequencies excluded)								
EMC	Electromagnetic emission according to EN 61000-6-3 Electromagnetic immunity according to EN 61000-6-2								

Note: “*” as default

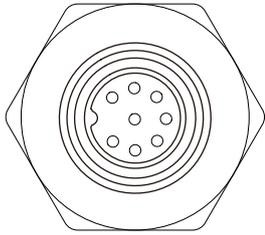
8 pin M16 connector



FUNCTION

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8 pin M16 connector	PIN	Current	Voltage
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View on sensor

1	Current signal (output)	NC
2	SGND	SGND
3	NC	NC
4	C/Q(communication line)	C/Q(communication line)
5	NC	Voltage signal (output)
6	GND	GND
7	24VDC(-15/+20%)	24VDC(-15/+20%)
8	NC	NC

DH - - - - M- - - - -

Thread	Stroke length	Connection type	Output (Output Code)
M Metric M18x1.5, Rod Φ 10mm	0025...4500mm (5mm increments)	D816 8 pin M16 connector	
V Metric M20x1.5, Rod Φ 10mm			
S 3/4"-16UNF-3A, Rod Φ 10mm			
R Metric M18x1.5, Rod Φ 10mm, with M4x6 thread at tail end			
K Metric M18x1.5, Rod Φ 7mm			
L 3/4"-16UNF-3A, Rod Φ 7mm			

Analog Output Code | [1][2][3]-[4] [5][6]

[1] System	[2] Resolution	[3] Output	[4][5] Current/Voltage	[6] Magnet	
L +IO-Link (COM3)	1 5 μ m*	1 Position	A0 4...20mA (forward)	V0 0...10V (forward)	1 one magnet *
	2 2 μ m		A1 20...4mA (reverse)	V1 10...0V (reverse)	
	3 10 μ m		A2 0...20mA (forward)	V2 0...5V (forward)	
	4 50 μ m		A3 20...0mA (reverse)	V3 5...0V (reverse)	
	5 100 μ m				
	7 20 μ m				
	8 1 μ m				

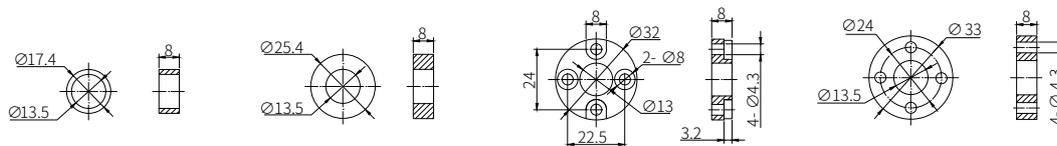
Note: forward, data grows larger when the magnet is distant from the electronics housing;
reverse, data grows larger when the magnet approaches the electronics housing.

Model selection | Model: DH-M-0800M-D816-L11-A01

Explanation: DH series, integrated pressure resistance outer tube type, mounting thread metric M18x1.5, Φ 10mm measuring rod, stroke length 800mm, 8 pin M16 connector, Interface Analog+IO-Link, IO-Link resolution 5 μ m, position measurement, analog output of 4..20mA (forward), single magnet.

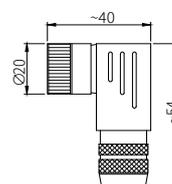
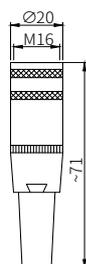
PARTS SELECTION

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Name	Ring magnet	Ring magnet	Ring magnet	Ring magnet
Operating temperature	-40...125°C			
Order code	12-1032	12-1019	12-1024	12-1001

Fitting non-permeable gasket				
Name	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket
Operating temperature	-40...125°C			
Order code	12-1037	12-1021	12-1025	12-1008



Name	8 pin M16 female connector	8 pin M16 female connector (90 degree angle)
End view drawing		
Material		
Fitting diameter	6...8mm	6...8mm
Connection		
Order code	18-5002	18-5003

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