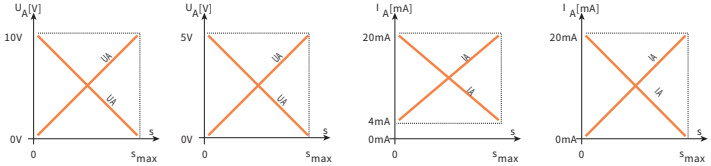
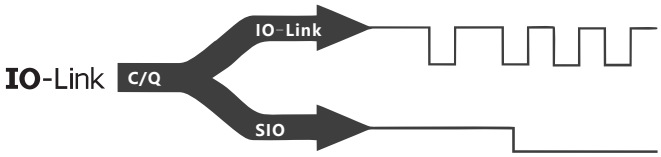
GA-Analog(+IO-Link)

GA-pressure resistant outer tube





- Compact structure: flat structure design, flange mounting, suitable for use inside U-shaped and other space-limited hydraulic cylinder
- Durable: fully enclosed design with maximum IP67 protection
- Linear displacement, absolute value output
- Easy to use, standard signal output, maintenance-free
- Maximum durability, continuous non-contact
- Full scale adjustable, 100% adjustable zero and full scale
- Output Analog+IO-Link

Document Number:
GA-AIO(V1.5)-EN

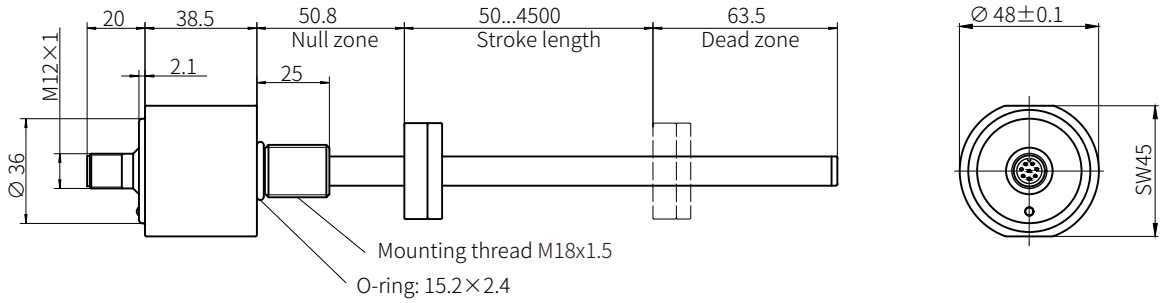
TECHNICAL PARAMETER

Input	
Measured data	Position/Speed
Measurement range	50mm...4500mm
Output	
Voltage	0...10VDC, 10...0VDC, 0...5VDC, 5...0VDC (Controller min. load impedance >5KΩ)+IO-Link
Current	4...20mA, 20...4mA, 0...20mA, 20...0mA (min./max. load 0/750Ω)+IO-Link
Transmission rate (IO-Link)	Rate(bit/s) 4800 38400 230400 Port COM1 COM2 COM3*
Resolution	
Position resolution	Analog 16 bit D/A IO-Link 1/2/5/10/20/50/100μm
None-Linearity	＜ ±0.02%F.S. (min. ±50μm)
Repeatability	＜ ±0.005%F.S. (min. ±10μm)
Update time	Stroke length ⩽ 1200mm ⩽ 2400mm ⩽ 4800mm Update time 0.5ms 1ms 2ms
Temperature coefficient	＜ 30ppm/°C
Mounting	
Mounting direction	Any
Thread	Metric M18x1.5
Design/Material	
Electronics housing	Stainless steel 304
Measuring rod	Stainless steel 304、316L
Operating pressure ratings	35MPa (continuous) ,70MPa (peak)
Electrical connection	
Wiring connection	8 pin M12 connector, 8 pin M16 connector
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°C
Humidity	90 % relative humidity, no condensation
Ingress protection	IP67
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

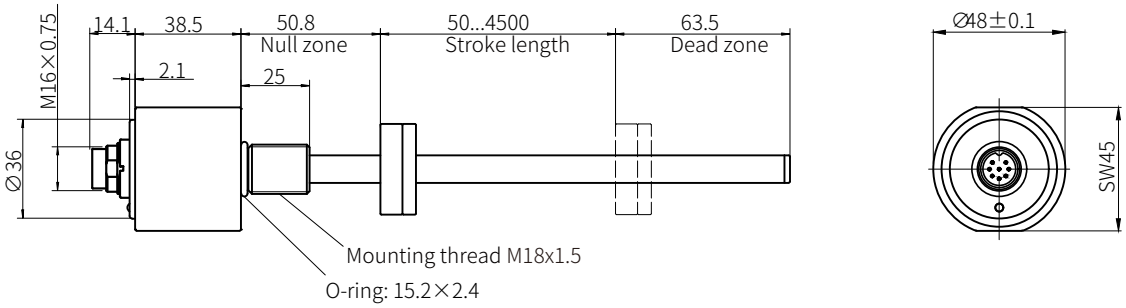
Note: “*” as default

TECHNICAL DRAWING

8 pin M12 connector



8 pin M16 connector



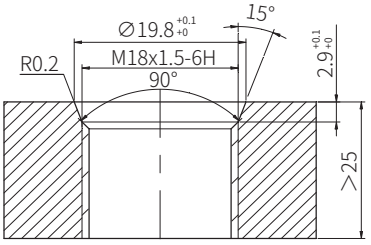
For selection of supporting magnetic rings and non-permeable gaskets, please refer to the attachment for details.

Magnetic ring Non-permeable gasket

MECHANICAL MOUNTING DIAGRAM

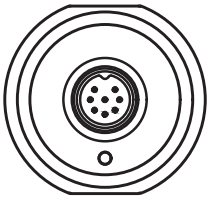
Thread fixation

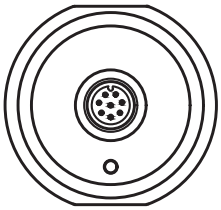
GA series built-in pressure resistant outer tube sensors are equipped with metric M18x1.5 threads to be fixed.



Metric M18x1.5, reference to the hole size

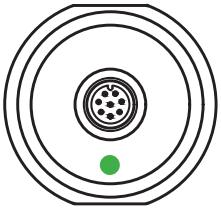
Wiring

8 pin M16 connector	PIN	Current	Voltage
  View on sensor	1	Output 1 (Current signal)	NC
	2	SGND	SGND
	3	Output 2 (Current signal)*	Output 2 (Voltage signal)*
	4	C/Q (communication line)	C/Q(communication line)
	5	NC	Output 1 (Voltage signal)
	6	GND	GND
	7	+24VDC (-15/+20%)	+24VDC (-15/+20%)
	8	NC	NC

8 pin M12 connector	PIN	Color	Function
  View on sensor	1	Pink	SGND 2*
	2	Yellow	SGND 1
	3	Gray	Signal output 2*
	4	Red	C/Q(communication line)
	5	Green	Signal output 1
	6	White	GND
	7	Brown	+24VDC(-15/+20%)
	8	-	NC

"*"adaptable for dual output signal connection

Enhanced monitoring and diagnostic functions



light	**Function**
Red	Magnetic ring can't be detected or the position is wrong.
Green	Normal work
OFF	Communication exception

The built-in LED indicator light provides basic fault feedback and fault alarm of the sensor.

ORDER CODE

GA - _ - _ _ _ _M-_ _ _ _ - _ _ _

Output
(Output Code)

Thread

M Metric M18x1.5, Rod Φ10mm
R Metric M18x1.5, Rod Φ10mm, with M4x6 thread at tail end

Stroke length

0050...4500mm (5mm increments)

Connection type

D812 8 pin M12 connector
D816 8 pin M16 connector

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

[1] System

L +IO-Link (COM3)

[2]Resolution

1 5μm*
2 2μm
3 10μm
4 50μm
5 100μm
7 20μm
8 1μm

[3] Output

1 Position
2 Position and speed*
3 2 positions
4 2 positions and 2 speeds
5 Configurable outputs

(Speed： μm/s)

[4][5] Current/Voltage

A0 4...20mA (forward)
A1 20...4mA (reverse)
A2 0...20mA (forward)
A3 20...0mA (reverse)
V0 0...10V (forward)
V1 10...0V (reverse)
V2 0...5V (forward)
V3 5...0V (reverse)

[6] Magnet

1 one magnet *
2 two magnets

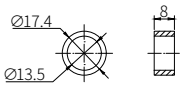
Note: forward, data grows larger when the magnet is distant from the electronics housing;
reverse, data grows larger when the magnet approaches the electronics housing.

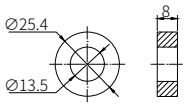
Model | GA-M-0390M-D812-L11-A01

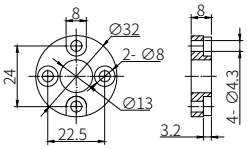
Explanation: GA series pressure resistance outer tube type, mounting thread metric M18x1.5, range 390mm, 8 pin M12 connector, Interface Analog+IO-Link, IO-Link resolution 5μm, position measurement, analog output of 4..20mA (forward), single magnet.

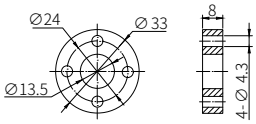
ACCESSORIES

Analog(+IO-Link)



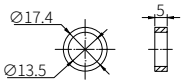


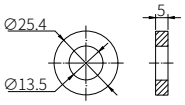


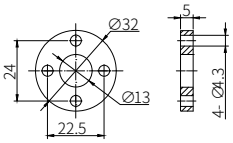


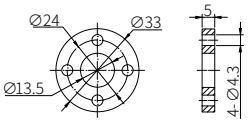
Name	Ring magnet	Ring magnet	Ring magnet	Ring magnet
Operating temperature	-40~125℃			
Order code	**12-1032**	**12-1019**	**12-1024**	**12-1001**

Non-magnetic gasket

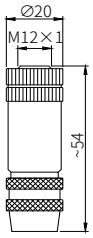


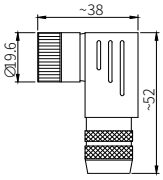


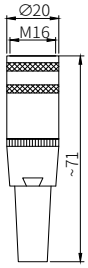


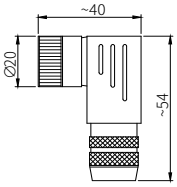


Name	Non-magnetic gasket	Non-magnetic gasket	Non-magnetic gasket	Non-magnetic gasket
Operating temperature	-40~125℃			
Order code	**12-1037**	**12-1021**	**12-1025**	**12-1008**









Name	8 pin M12 female connector	8 pin M12 female connector (90 degree angle)	8 pin M16 female connector	8 pin M16 female connector (90 degree angle)
End view drawing				
Material				
Fitting diameter	8...10mm	6...8mm	6...8mm	6...8mm
Connection	Threaded		Welding	
Order code	**18-5004**	**18-5005**	**18-5002**	**18-5003**

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