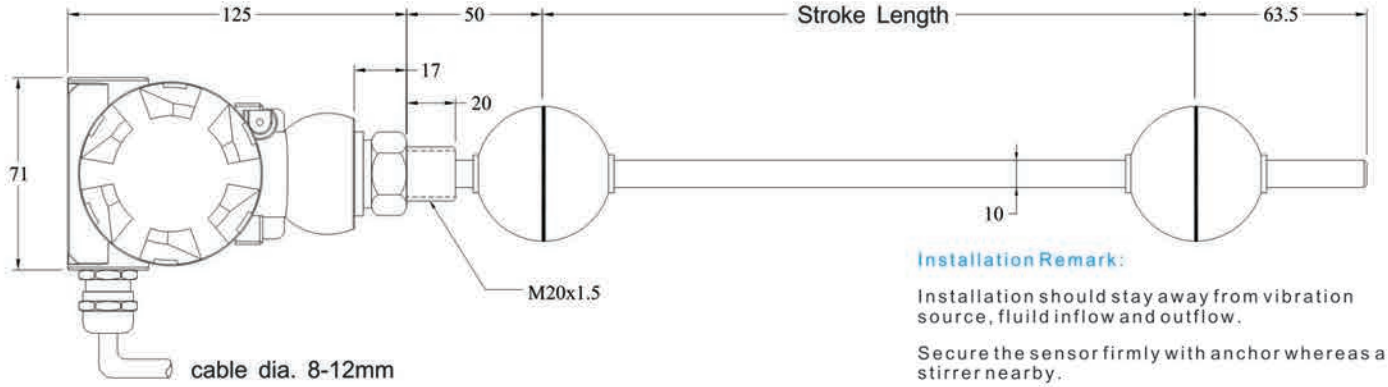
15 series is the safe and reliable approach to level application in hazardous location. It is designed according to the explosion protection regulation. (GB3836.1-2000, Electrical Apparatus for Explosive Gas Atmospheres Part1:Genersal Requirements; GB3836.2-2000, Electrical Apparatus for Explosive Gas Atmospheres Part2: Flameproof enclosure "d")

It adopts the non-contact magnet-rostrictive to provide feedback of fluid level and multi-interface level of a storage tank or process vessel. The non-contact feature provides exceptional ease of installation and guarantees almost unlimited mechanical life expectancy. The high versatile IP67 profile housing offers full protection against outside agents for use in harsh environments with high contamination and presence of dust.

Specifications

Order Code	150	151 / 152
Output	Voltage(0-10V)	Current (0-20mA, 4-20mA)
Measurement Type	Linear displacement	
Resolution	16 Bit D/A, 0.0015% (minimum 1μm)	
Repeatability	< ±0.001% of full scale (minimum ±2.5μm)	
Non-Linearity	< ±0.01% of full scale (minimum ±40μm)	
Update Time	0.5 ms up to 1200 mm / 1.0 ms up to 2400 mm	
	2.0 ms up to 4800 mm / 5.0 ms up to 7600 mm	
Input Voltage	+24Vdc (20.4 - 28.8Vdc)	
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc	
Power Consumption	100mA (stroke range dependent)	
Dielectric Strength	500Vdc (DC ground to machine ground)	
Connector Type	Internal wire terminal	
Pressure Rating	100 bar	
Operation Temp.	-40 to 75℃, Humility 90% non-condensing	
Sealing	IP 67	
Vibration Rating	15g / 10-2000Hz / IEC standard 68-2-6	
Shock Rating	100g single hit per IEC standard 68-2-27	
EMC	Emission EN 68000-6-3, Immunity EN 61000-6-2, EN 61000-4-2/3/4/6	
Explosion Rating	Explosion protection only apply to stainless steel rod type GB3836.1-2000, Electrical Apparatus for Explosive Gas Atmospheres Part1:Genersal Requirements; GB3836.2-2000, Electrical Apparatus for Explosive Gas Atmospheres Part2: Flameproof enclosure "d"	

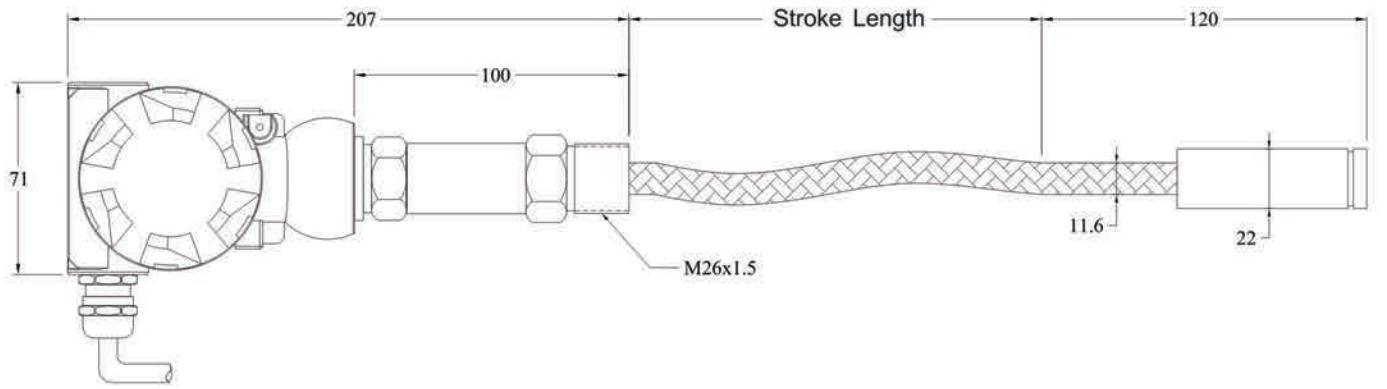
Installation



Installation Remark:

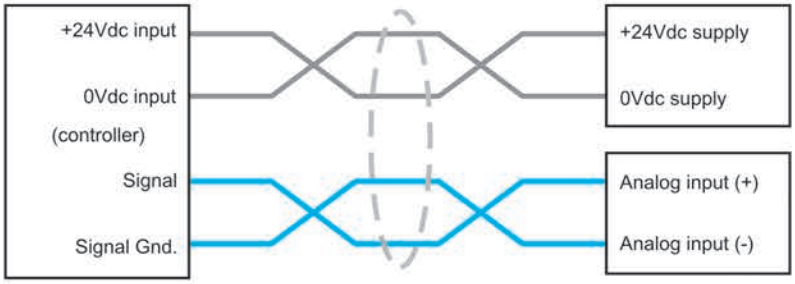
Installation should stay away from vibration source, fluild inflow and outflow.

Secure the sensor firmly with anchor whereas a stirrer nearby.



Wiring Connection

1	+24 Vdc
2	0 Vdc
3	Signal
4	Signal Gnd



Order Code

1	5	X	X	X	X	X	X	X	X

Output

0 = 0 - 10V

1 = 4 - 20mA

2 = 20 - 4mA

Local Display

0 = None

1 = Local Display

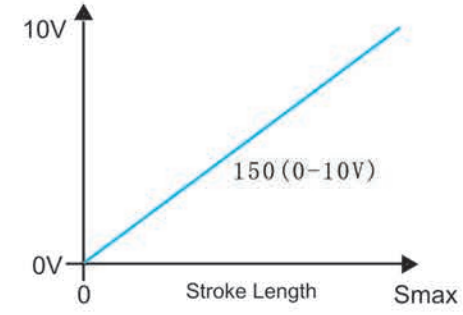
Type

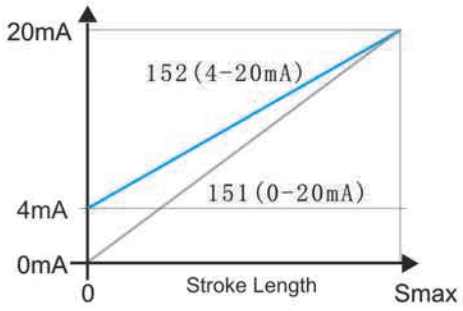
H = Hydraulic Rod

F = Flexible Stainless Steel Tube with Teflon Inlay

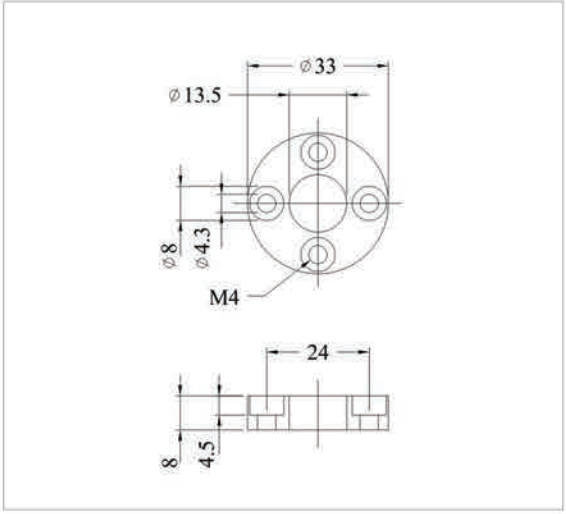
Stroke Length (mm)

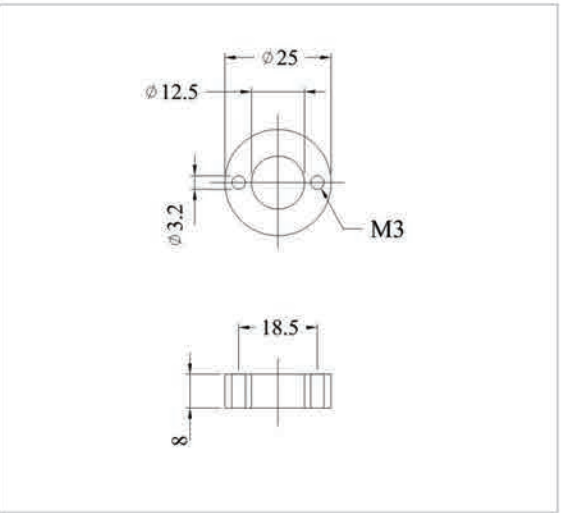
00500, 00525, 00550, 00575, 00600,
00625, 00650, 00675, 00700, 00725,
00750, 00775, 00800, (25mm increment after)





Discription	Dia. 33mm ring	Dia. 25mm ring
For series	12/17/19 Series	12/17/19 Series
Order Code	1700 951 001	1700 951 003

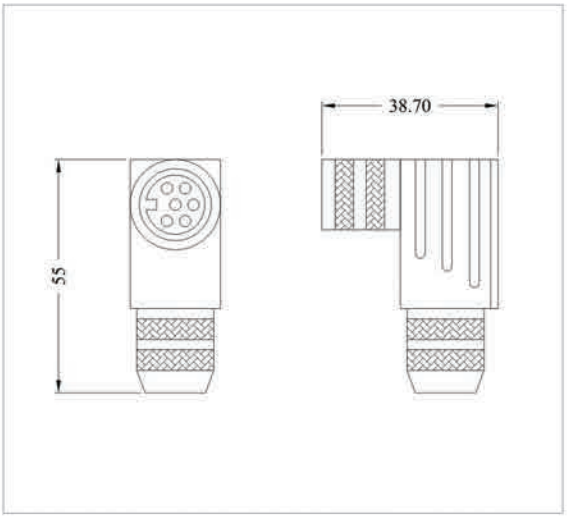


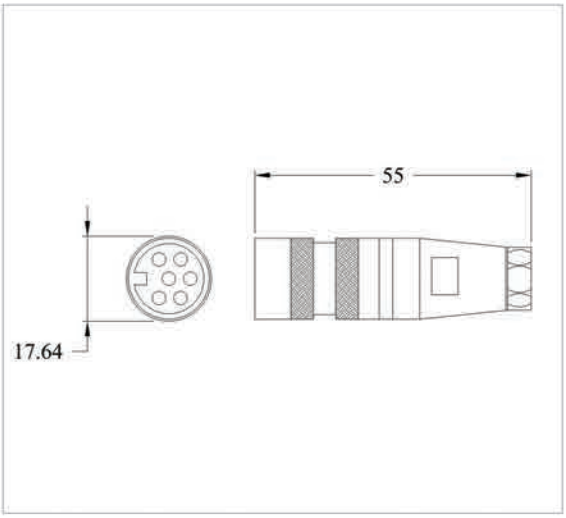


Material	Plastic	Plastic
Weight	~8g	~8g

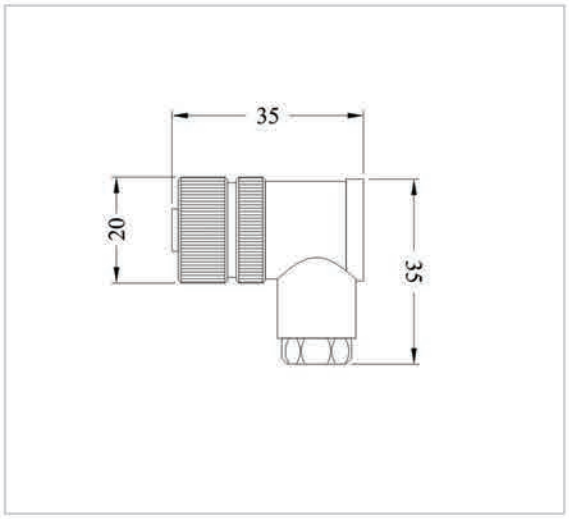
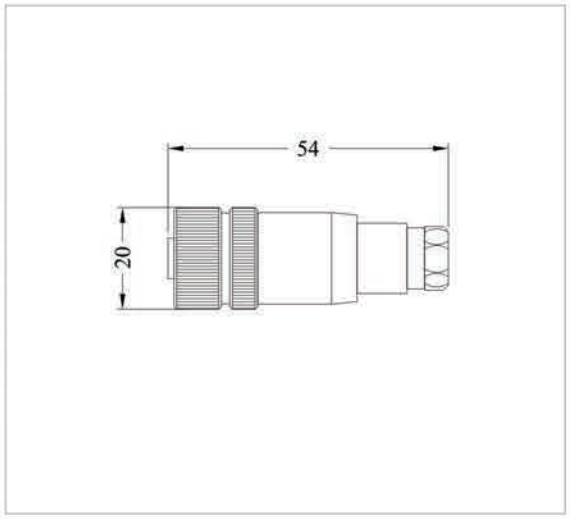
Discription	Dia. 33mm Spacer	Dia. 25mm Spacer
Order Code	1700 951 002	1700 951 004
Material	Plastic	Plastic

Discription	90Deg. 6/7pin. Connector (female)		6/7pin. Connector (female)	
Model	D60	D70	D60	D70





Order Code	1800 951 011	1800 951 013	1800 951 010	1800 951 012
Material	Housing: Zinc nickel platedl		Housing: Zinc nickel platedl	
Weight	~60g		~40g	

Discription	M12 90Deg 5pins Connector (Female)	M12 5pins Connector (Female)
Order Code	1800951018	1800951017
		
Material	Cu Zn / Plastic	Cu Zn / Plastic
Cable Diameter	6 - 8 m m	6 - 8 m m

Discription	Floating Ball	Floating Ball	Floating Ball	Floating Ball
Order Code	1700 951 005	1700 951 006	1700 951 007	1700 951 008
Material	304 SS	304 SS	304 SS	304 SS
Inside Dia. (ID)	15 mm	23 mm	23 mm	9 mm
Out Dia./Height	52 x 52 mm	75 x 70 mm	125 x 120 mm	28 x 28 mm
Density	0.7	0.7	0.7	0.7
Pressure Rating	40 bar	40 bar	40 bar	40 bar

Discription	Floating Marker	Floating Marker	Floating Marker	Floating Marker
Order Code	1700 951 009	1700 951 010	1700 951 011	1700 951 012
Material	PP Plastic	PP Plastic	PP Plastic	PP Plastic
Inside Dia. (ID)	8 mm	8 mm	9 mm	9 mm
Out Dia./Height	18 x 8 mm	19 x 17 mm	24 x 10 mm	26 x 17 mm
Density	0.7	0.7	0.7	0.7

* use for special 7mm Stainless Steel tube

Discription	Floating Ball Stopper	Floating Ball Stopper
Order Code	1700 951 013	1700 951 014
Material	304 SS	304 SS
Inside Dia. (ID)	10 mm	7 mm
Out Dia./Height	20 x 13 mm	16 x 13 mm

D60 90Deg Connector

D60 Connector

3 Twisted Pairs Cable Order Code

1 8 0 0 9 5 1 1 X X

Cable Length

Please select the cable length in unit Meter
For example, 01 = 1 Meter
(Cable price not include connector)
If purchase the connector together, we can install the connector with cable for free of charge.

Color Code	D60	D70	4 Pins Voltage	4 Pins Current
Black	1	1	P3	N.C
White	2	2	P3 Gnd.	N.C
Yellow	3	3	P2	P2
Green	4	4	P2 Gnd.	P2 Gnd.
Red	5	5	P1	P1
Blue	6	6	P4	P4
		7 (N.C)		

Transducer on machine calibration

To make sure the nominal stroke length is fully covered, all analog position transducers' output signal were calibrated slightly wider than the stroke. After installation, the machine needs to go through calibration. The step is as follow.

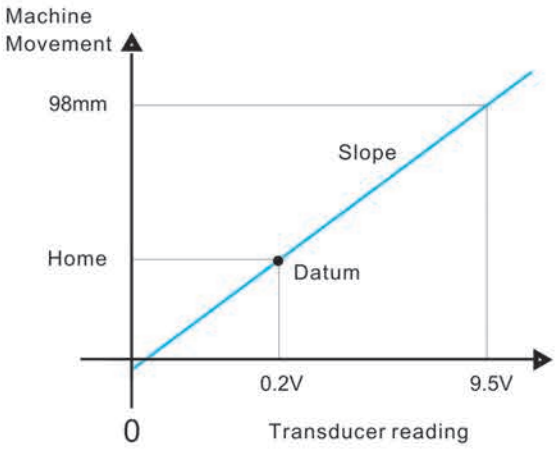
1) Move the machine to home position and record the transducer reading.
Example: at home, the transducer reading = 0.2V

2) Move the machine away from home position, measure the actual movement and record the transducer reading.
Example: actual movement = 98mm,
transducer actual movement reading = 9.5V

3) Calculate the "slope"
Slope = actual movement / (transducer actual movement reading - transducer home reading).
Example: slope = 98mm / (9.5V - 0.2V) = 10.537

4) Calculate the "datum"
Datum = slope x transducer home reading
Example: datum = 10.537 x 0.2V = 2.106

5) Machine position = (slope x transducer reading) - datum
Example: machine position = (10.537 x transducer reading) - 2.106



International Protection Rating (IP)

IP X X

Solid particle protection

4 = >1mm object size protected against

5 = Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment;

6 = No ingress of dust; complete protection against contact

Liquid ingress protection

0 = Not protected

5 = Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.

7 = Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).

Transducer may in touch with dust and water, having proper IP rating is needed. Potentiometer IP rating is IP 40 or 50 but non-contact position transducer IP rating is IP 65 or even 67.

Installation of floating magnet

Installation of floating magnet is very simple. Compared to captive magnet, floating magnet can truly demonstrate the advantage of non-contact sensing and eliminate the wear of captive magnet socket.