MAGNETOSTRICTIVE LEVEL TRANSMITTER

http: //www.fine-tek.com
e-mail: info@fine-tek.com
Tel: 886-2-22696789 Fax: 886-2-22686682

EG series Magnetostrictive Level Transmitter was created from the principle of magnetic field strength of two different directions thus sending out a signal to determine the exact level of the medium. Therefore even if there should be a power failure and reconnection is needed, it will not affect the previous setting parameters so there is no reconfiguration involved. Moreover there is no contact of the sensing element which is internally in the stem itself, so even if during repeat operation, there will be no damage done to the sensing element that might caused due to wear and tear.

As Magnetostrictive Level Transmitter signal output was directed, therefore additional installation of output interface was not needed thus any transfer interface. As the resolution was very accurate and reliable, this will enable to reduce the malfunction of the product and cause production down time of the company. Moreover, due to the durability of the sensing element, lifespan is exceptionally long, minimal maintenance and correction is needed, thus stocking up on replacement parts for maintenance is not needed.

For PC connection to enable distant monitoring of one EG transmitter (use RS232 / RS485 communication port) or multiple EG transmitters (use RS485).
(RS 232 / RS485 are optional accessories).

FEATURES

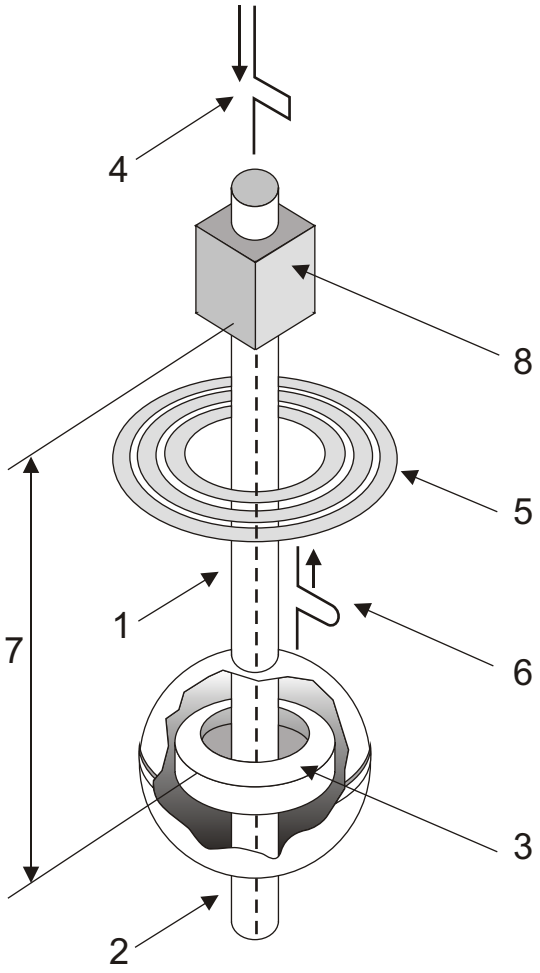
★ High performance.
★ Absolute position output
★ Short response time.
★ High stable & high reliable.
★ Non contact & long operation life span.
★ Multi output selection.
★ Easy installation & no periodic maintenance
★ High resolution & high precision.
★ Durable structure & IP66.

APPLICATION

■ Natural gas liquid medium.
■ Pharmaceutical / beverages
■ Water Dam / barrier.
■ Water / Wastewater Treatment.
■ Chemical Process.
■ Crude oil / Oil industry.
■ Normal liquid environment.

OPERATING PRINCIPLE

The EG series Magnetostrictive sensor consisted of a magnetostrictive waveguide sensing element(wire) (1) in the stem (2) and a external permanent magnet inside the float (3) ,when the sensing wire pulsed a current signal (4) at stem fixed time intervals and create one magnet field (5) travel along with the waveguide tube, in the other hand, the moving float's permanent magnet will create another magnet field following the liquid up/down change, those two magnet field will be intersected and result to produce a torsion stress wave (6) (waveguide twist) to be induced in the wire, the torsion wave propagates along the wire at a sonic speed until the pulse is detected at the housnig of sensing elements (8), then it will convert the received mechnical torsion into an electrical return pulse by measuring the elapsed time (7) between the start and return pulse, then converts it into a 4~20mA output proportional to level being measured.



TRANSFER EQUATION

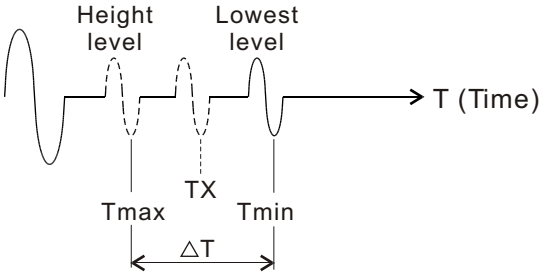
The relation of △D & 4~20mA output

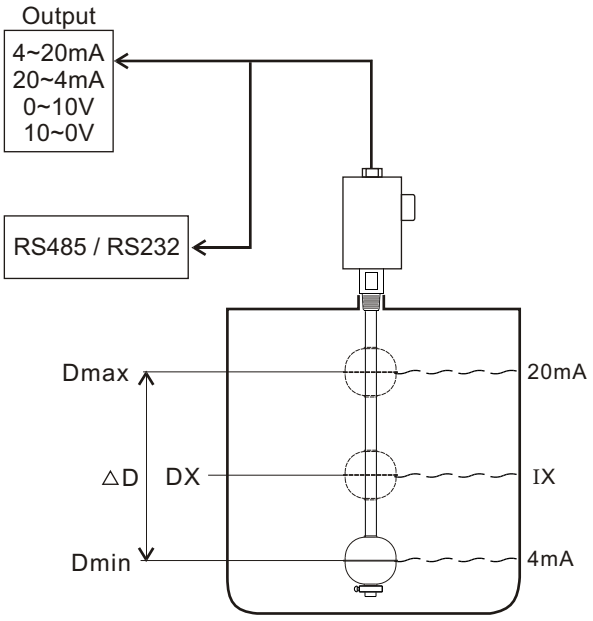
$$\frac{IX}{(20\text{-}4)mA}\,(\text{Current output}) = \frac{TX}{\triangle T}\,(\text{Time})$$

$$= \frac{DX}{\triangle D}\,(\text{Distance})$$

$$\frac{IX}{16mA} = \frac{TX}{\triangle T} = \frac{DX}{\triangle D}$$

$$\Rightarrow IX = \frac{16xDX}{\triangle D}\,(\text{The relative current})$$





△D: The level difference

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SPECIFICATIONS

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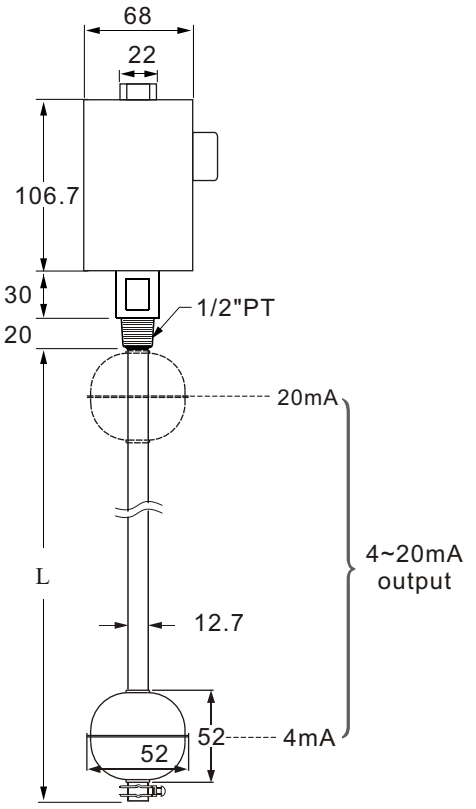
Resolution: ±0.01% FS
Linearity: 0.1% FS
Repeatability: ±0.01% FS
Operation pressure: 30BAR
Ambient temp.: -10 C ~ 55 C
Operation temp.: -20 C ~ 70 C
Temp. Accuracy: ±1.5 C
Output: 4 ~ 20 mA (std.)
20~4mA(Maximum Load 600
0 ~ 10V, 10~0V(Maximum Load 2 mA)
RS232-TTL (option)
RS485 Modbus protocol RTU or ASCII model
Power supply: 24Vdc±20%
Power consumption: ≤ 80mA(min load condition)
Enclosure: IP66
Material: SUS304 (SUS316 option)
Connection: Screw 1/2" PT (by order)
If installing directly(without removing float),the dimension of connection must be bigger than the external radius of the float (>1-1/2")
Float spec.: (52 52 (S4) S.G. >0.5)

※ **Also combine with Panel Meter series of our company.**

DIMENSIONS

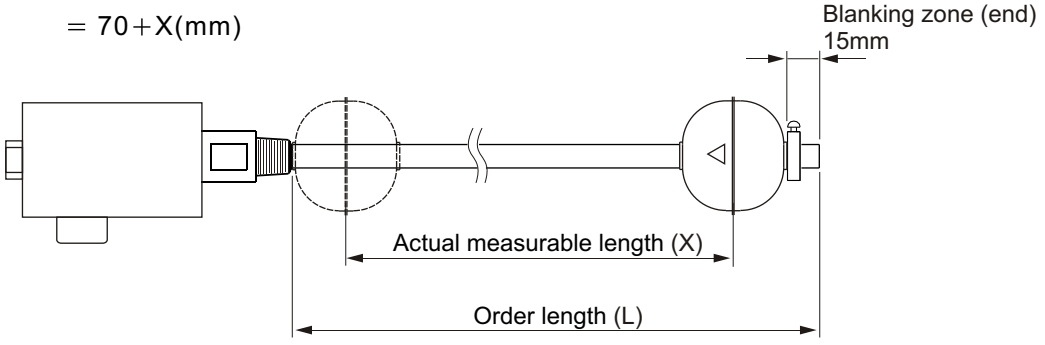


(unit: mm)

DETERMINE THE LENGTH DURING ORDERING INSTRUCTION

Please refer below diagram for actual length of stem and the measurable length of the stem:

Order length (L) = Actual measurable length (X) + Length of float + Blanking zone (end)
= X + 55 + 15
= 70 + X(mm)



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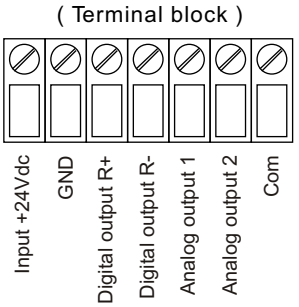
WIRING

INSTALLATION

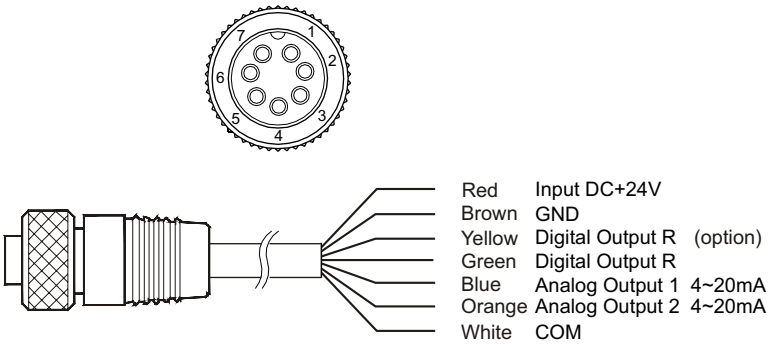
- After mounting, please make sure that the float arrow (△)is facing the same direction as before due to the removing of float for installation. (There is an arrow (△) sign indicating up or down)on the float.
- Do not attempt to replace the type or model of the float yourself to avoid causing malfunction to the products.
- As the Transmitter is a product of high precision instrument, please avoid any bents to the stem during installation as this might affect the precision of the instrument or even cause malfunction of the product.

DESCRIPTION

Terminal Type

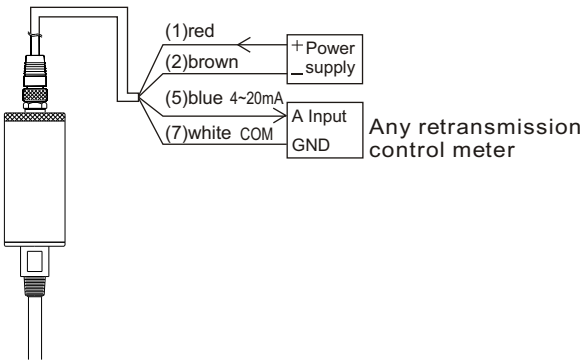


Cable Type

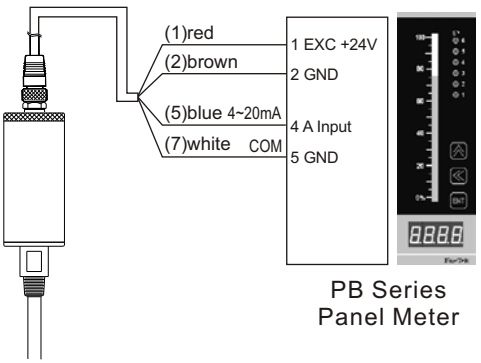


CONNECTIONS

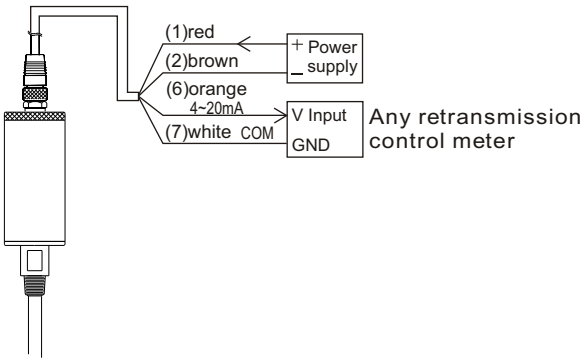
(A) 4~20mA connection



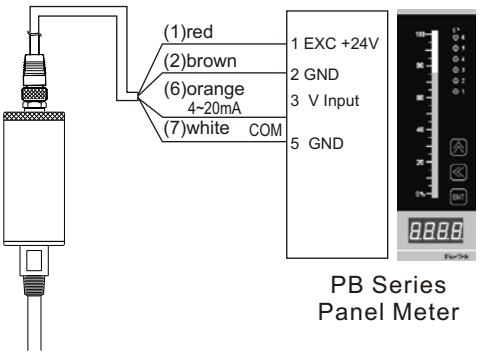
(B) 4~20mA connects to Panel Meter series meter



(C) 0~10V connection



(D) 0~10V connect to Panel Meter series meter



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ORDER INFORMATION

EG 110 A A 0 BQ S4 S4 1500

Model
- 110: Terminal Type (sed.)
- 111: Cable Type (sed.)
- 170: Terminal Type (Exd IIB T6)
- 171: Cable Type (Exd IIB T6)

Analog output 1
- 0:None
- A: 4~20mA
- B: 20~4mA
- C: 0~10V
- D: 10~0V

Analog output 2
- 0:None
- A: 4~20mA
- B: 20~4mA
- C: 0~10V
- D: 10~0V

Digital output
- 0: None
- 2: RS232-TTL
- 4: RS485

Connection
- BQ: 1/2"PT
- SS:others

※If installing directly(without removing float),the dimension of connection must be bigger than the external radius of the float(>1-1/2")

Model	Dimension (mm)	S.G.	Pressure (kg/cm²)
S3	45x55x15	E>0.65	12
S6	75x108x19	E>0.5	10
S4	52x52x15	E>0.55	30
S5	75x73x19	E>0.55	30
F2	42x44x14	E>0.8	5
F3	45x45x20	E>0.5	5
F4	48x70x18	E>0.8	5
PA	32.8x8x13.5	E>1	ATM
PB	32.8x8x13.5	E>1	ATM

Float 1

See reference table

Float 2

See reference table
If none, please select " 0 0 "

Length (L) unit: mm

Tolerance of the total product length is 5mm.

Characteristic, specifications and dimensions are subject to change without prior notice.

Please contact us for further informations.