

YEG MAGNETOSTRICTIVE LEVEL TRANSMITTER

YEG series Magnetostrictive Level Transmitter is built based on the principle of magnetic field strength of two different directions sending out a signal to determine the exact level of the medium. Therefore, even if there is a power failure and reconnection is needed, it will not affect the previous setting parameters. So there is no reconfiguration involved. Moreover, medium is not in contact to the sensing element. There will be no wear and tear to the sensing element during repeat operation.

As Magnetostrictive Level Transmitter gives direct signal output, additional output interface is not needed. As the resolution is very accurate and reliable, it will reduce the malfunction of the product. Moreover, due to the durability of the sensing element, lifespan is exceptionally long. Minimal maintenance is needed, thus stocking up on replacement parts for maintenance is not needed.

For PC connection, it enables long distance monitoring of one YEG transmitter (use RS232/RS485 communication port) or multiple YEG transmitters (use RS485).
(RS 232 / RS485 are optional accessories).

FEATURES

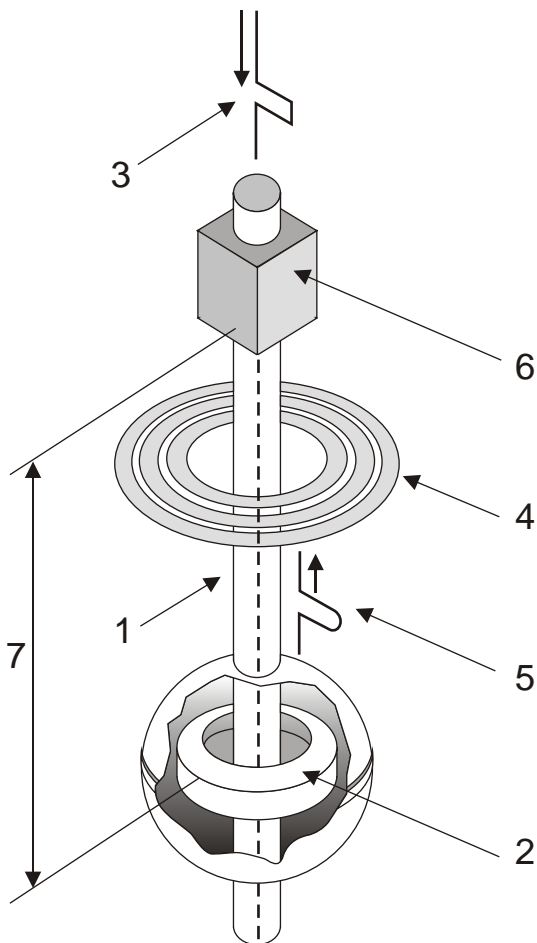
- ★ High performance.
- ★ Absolute position output
- ★ Short response time.
- ★ High stable & high reliable.
- ★ Non contact & long operation life span.
- ★ Multi output selection.
- ★ Easy installation & no periodic maintenance
- ★ High resolution & high precision.
- ★ Durable structure & IP66.

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 YEG series Magnetostrictive sensor consists of (1) a magnetostrictive waveguide sensing element (wire) in the stem; (2) and an external permanent magnet inside the float; (3) when the sensing wire pulses a current signal at stem in fixed time intervals; (4) and create one magnetic field; (5) travel along with the waveguide tube, on the other hand, the moving float's permanent magnet will create another magnetic field following the liquid up/down change, those two magnetic fields will be intersected and 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 housing of sensing elements; (7) then it will convert the received mechanical torsion into an electrical return pulse by measuring the elapsed time between the start and return pulse, then converts it into a 4~20mA output proportional to level being measured.



TRANSFER EQUATION

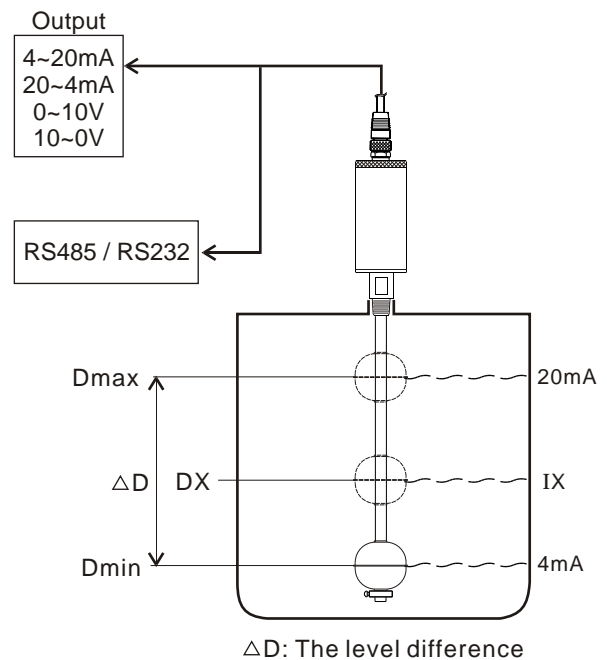
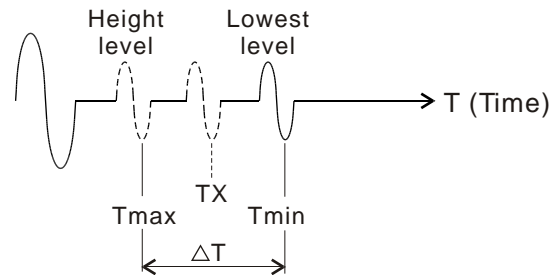
The relation of ΔD & 4~20mA output

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

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

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

$$\Rightarrow IX = \frac{16 \times DX}{\Delta D} \text{ (The relative current)}$$

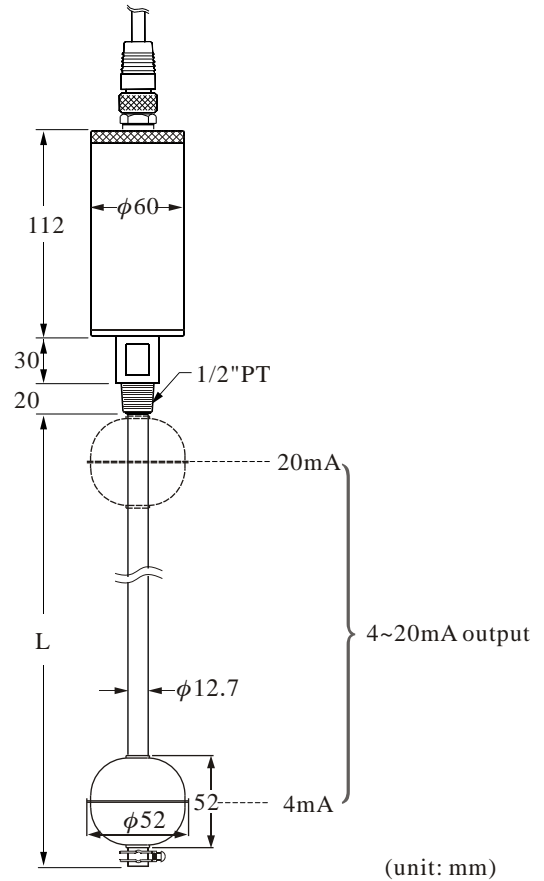


SPECIFICATIONS

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- Resolution: $\pm 0.01\%$ FS
- Linearity: 0.1% FS
- Repeatability: $\pm 0.01\%$ FS
- Operation pressure: 30BAR
- Ambient temp.: $-10^{\circ}\text{C} \sim 55^{\circ}\text{C}$
- Operation temp.: $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Temp. Accuracy: $\pm 1.5^{\circ}\text{C}$
- Output: 4 ~ 20 mA (std.)
 - 20~4mA(Maximum Load 600W)
 - 0 ~ 10V, 10~0V(Maximum Load 2 mA)
 - RS232-TTL (option)
 - RS485 Modbus protocol RTU or ASCII mode
- Power supply: 24Vdc $\pm 20\%$
- Power consumption: $\leq 80\text{mA}$ (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.: ($\phi 52 \times 52$ (S4) S.G. >0.5)

DIMENSIONS

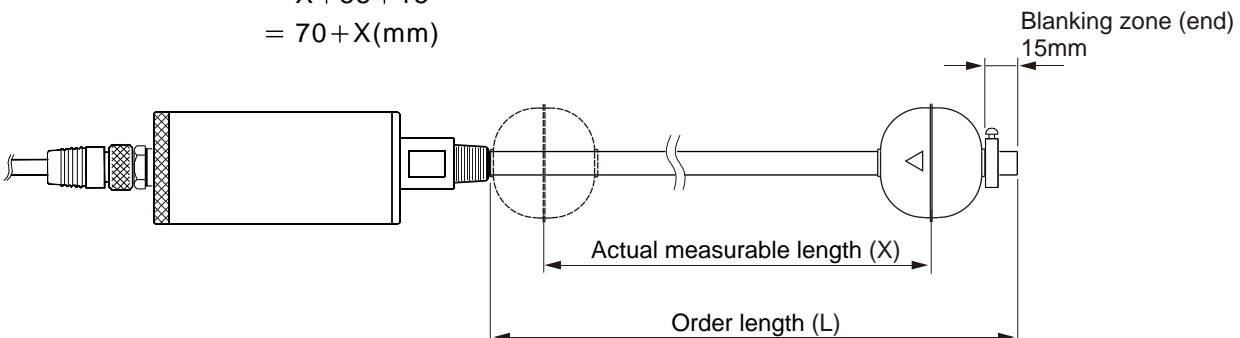


※ Also combine with Panel Meter series of our company.

DETERMINE THE LENGTH DURING ORDERING INSTRUCTION

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

$$\begin{aligned}
 \text{Order length (L)} &= \text{Actual measurable length (X)} + \text{Length of float} + \text{Blanking zone (end)} \\
 &= X + 55 + 15 \\
 &= 70 + X(\text{mm})
 \end{aligned}$$



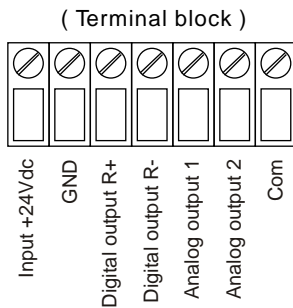
WIRING

INSTALLATION

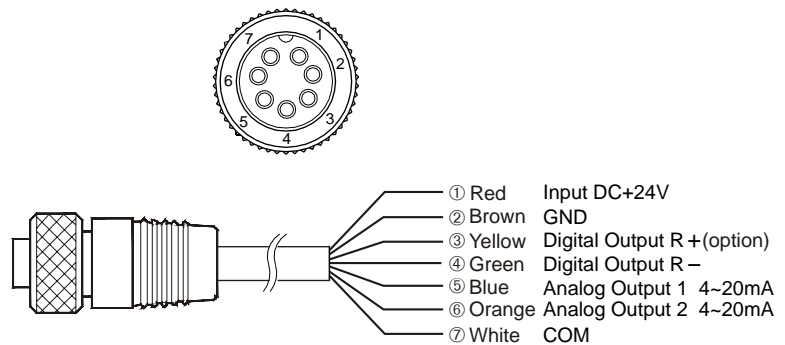
- After mounting, please make sure that the float arrow (Δ) is facing the same direction as before due to the removing of float for installation. (There is an arrow (Δ) sign indicating up or down) on the float.
- Do not attempt to replace the type or model of the float by yourself to avoid malfunction 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

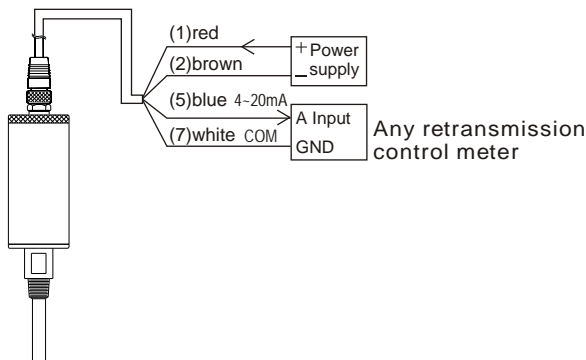


Cable Type

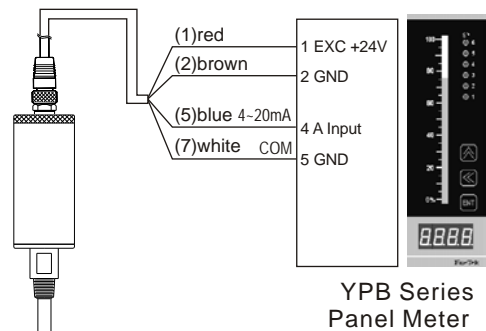


CONNECTIONS

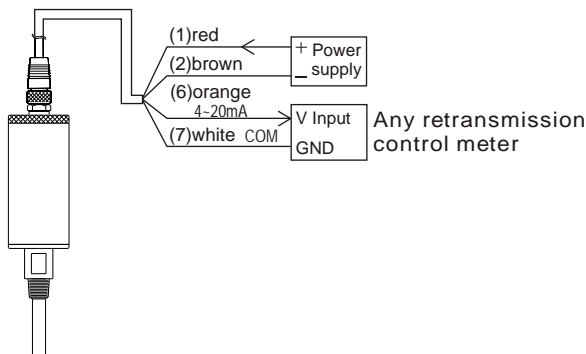
(A) 4~20mA connection



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



(C) 0~10V connection



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

