

# MAGNETIC LEVEL GAUGE M-SERIES

The M series magnetic level gauge, level switch consists of an un-magnetic chamber, magnetic float and with a built-in magnet strips, a vertical chamber connected a tank with two end. The float rises or falls in the chamber. It turns to the indicative strips to provide a indication of the tank level. This series also provide accessories such as switch and measuring sensor with converter turn to a 4~20mA (2-wires) DC output signal. To provide a liquid level control function.

## Technical Data

**Application for Chemical and Petrol Chemical process, Boilers and other industries.**

**Connection:** From ½" to 3" flange type, JIS, ANSI, DIN rating available; special size on request

**Pressure Limited:**

5 kg/cm<sup>2</sup> for Plastic chamber type (PVC, PP);  
7 kg/cm<sup>2</sup> for Plastic chamber type (PVDF);  
20 kg/cm<sup>2</sup> for Metal chamber type (Stainless Steel), and up to 50 kg/cm<sup>2</sup> on request;  
Special option: up to 100 kg/cm<sup>2</sup> for Titanium float

**Temperature Limited:**

0~50°C for Plastic chamber type (PVC, PP);  
-30~100°C for Plastic chamber type (PVDF);  
-20~150°C for Metal chamber type (Stainless Steel);  
-20~300°C for Metal chamber type (Stainless Steel) on request (for this special type, if your operating temperature is ≥250°C, the Sp.Gr. must be ≥0.8)

**Center to Center Length:** maximum 5500mm

**Accuracy:** ±4mm (Transmitter type: standard ±12mm; and ±6mm on request)

**Indicating Case Material:** SS304 standard;

or SS304+PC (Hermetically Sealed) for protection class IP68 on request

**Indicating Strips Material:** Plastic (PBT); Brass w/painting available;  
the colors are Red & White (standard), and other colors option available

**Switch Track Material:** Aluminum

**Indicating Float Material:** Aluminum

**Specific Gravity:** for standard type: 500~2900 kg/m<sup>3</sup> (for special type with high temp. ≥250°C, the Sp.Gr. must be ≥800kg/m<sup>3</sup>)

**Indicating Gauge Orientation Adjustable**

**Chamber Size:** ø50 or ø60mm

**HART® Communication:** Available

**Two Wire Transmitter with HART® Protocol:**

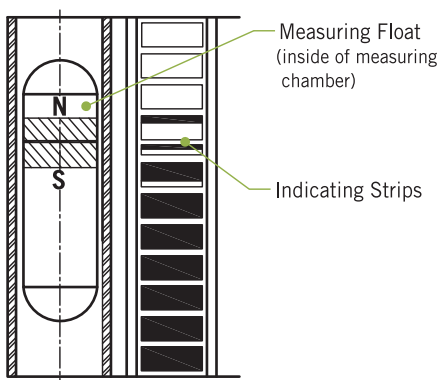


—Galvanic Isolation

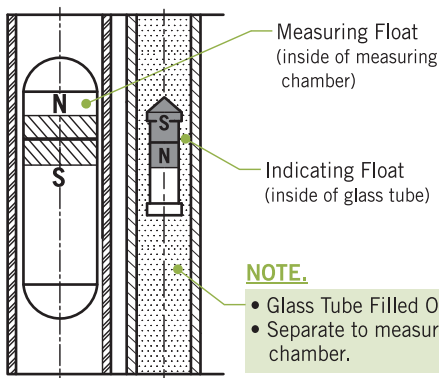
—Suitable for application in SIL 2 installations

## Principle

### ■ Indicating Strips Type ■

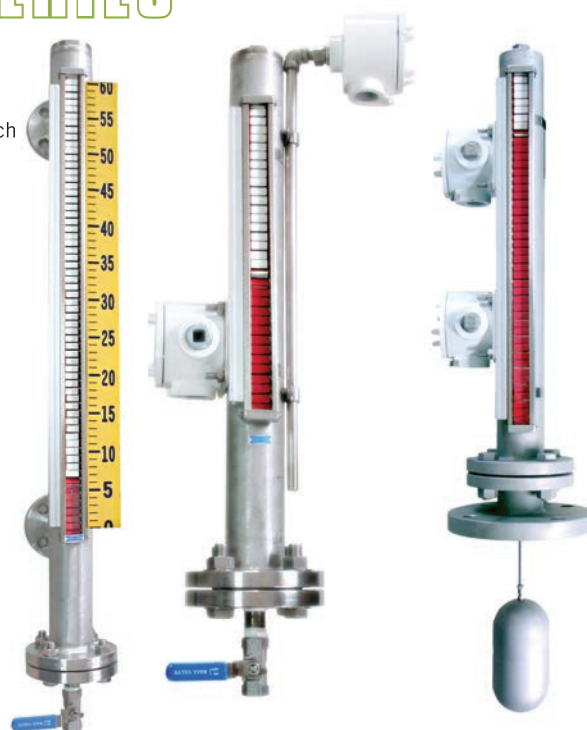


### ■ Indicating Float Type ■



#### NOTE.

- Glass Tube Filled Oil.
- Separate to measuring chamber.



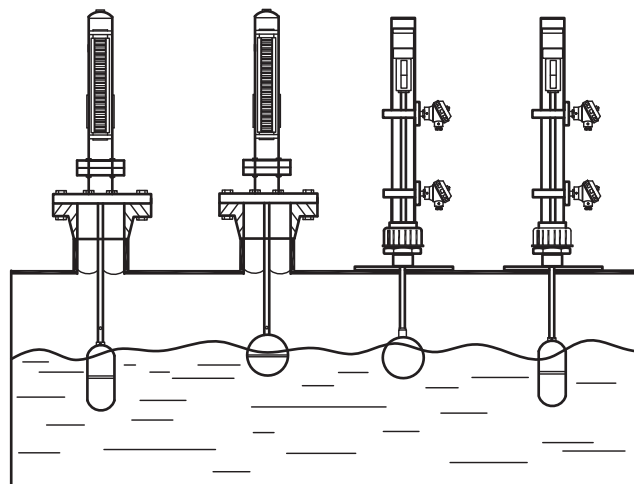
## Approvals:



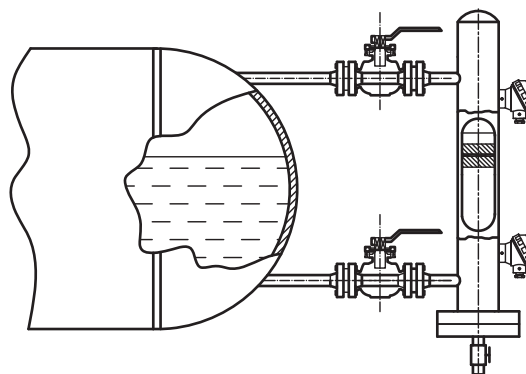
Switches with UL & CSA Recognized and File No. E41515.

## Installation

### (A) Top Mounting



### (B) Side Mounting



## Switch Function

### Micro Switch Type

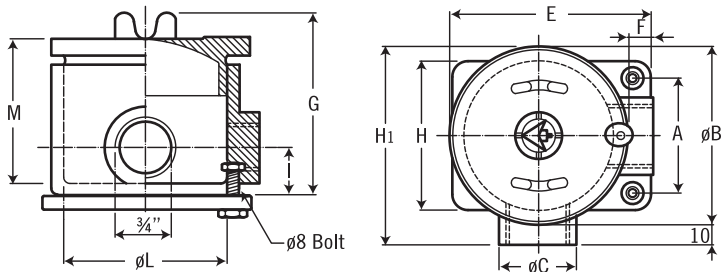
**Type:** MS-1: Weather Proof Type, IP66

MWS: Explosion Proof Type, (Taiwan Explosion Proof Certification): Ex d IIB + H2 T6 Gb

**Case Housing Material:** Aluminum alloy for MS-1 & MWS. (SS316 for MWS available)

**Micro Switch:** 1 x SPDT ; 2 x SPDT (one setting point) available

**Rating:** 3A/250VAC, 5A/125VAC, 4A/30VDC

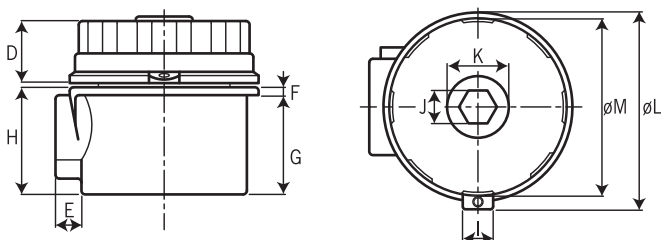


**MS-1**



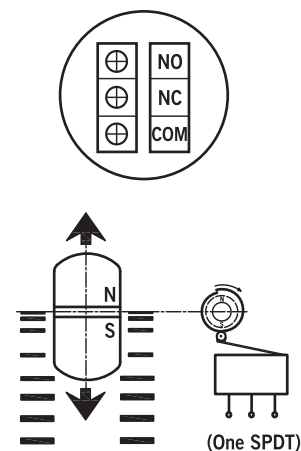
**MWS**

Type	Dimensions										Terminal Block (on request)	
	A	øB	øC	E	F	G	H	H1	I	øL		M
MS-1	68	100	38	110	13	80	92	100	24	88	68	4x4 mm <sup>2</sup>



Type	Dimensions										unit:mm
	D	E	F	G	H	I	J	K	øL	øM	
MWS	33	13.8	4.2	52.8	57	13.5	17.5	32.8	102.8	94.5	

### Wire Drawing



(Two SPDT)

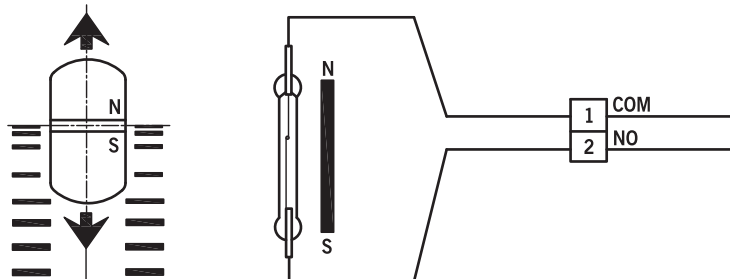
NC	6
NO	5
COM	4
NC	3
NO	2
COM	1

Option: 2 SPDT switch on request

### Reed Switch Type (SPST)

**Alarm Switch:** Form A N.O. Type Bistable Switch

**Rating:** AC 125V 0.5A / DC 100V 10W /  
Max. DC 250V < 40mA



### Transmitter Type

**Potentiometer I/P**

**Output Signals:** 4~20mA DC,  
Load resistance  $R_L$  (max)=( $V_S$ -10) x 50Ω (2-wire)

**Input Range:** 100Ω to 45KΩ (3-wire)

**Output Adjustment Range:** Zero adjustment 0~15%

**Accuracy:** ±0.1% F.S (at 23°C)

**Linearity:** ±0.1% F.S

**Supply Voltage:** 10~30V DC

**Temp. Coefficient:** ±0.02% / °C

**Operating Temp.:** -5~+70 / °C

**Operating Humidity:** 0~90% RH

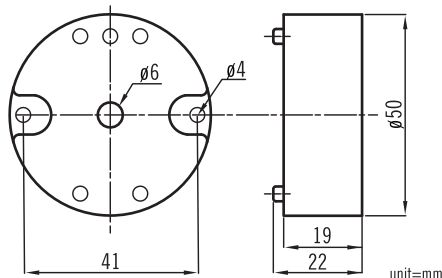
**Terminal:** DIN Type

**Installation:** Head and Wall Mounting

**Case Material:** Nylon 6 resin (Black)

**Weight:** about 50 grams

### Dimensions

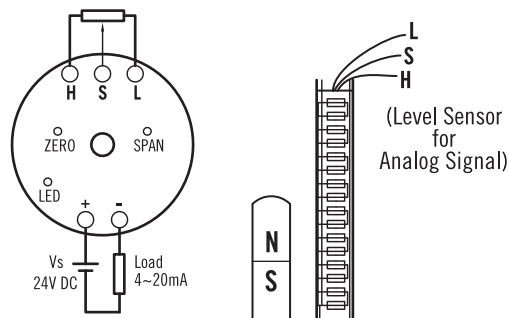


**\*HART® Communication:** Available  
**Two Wire Transmitter with HART® Protocol**  
- Galvanic Isolation  
- Suitable for application in SIL 2 installations



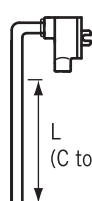
**GL-T**

### Sketch Terminal & Level Indicating Strip



### Level Sensor Unit

Model: LTG



TD0400TJ  
工電(2016)第00298號  
(ITRI)2017第07-00184號

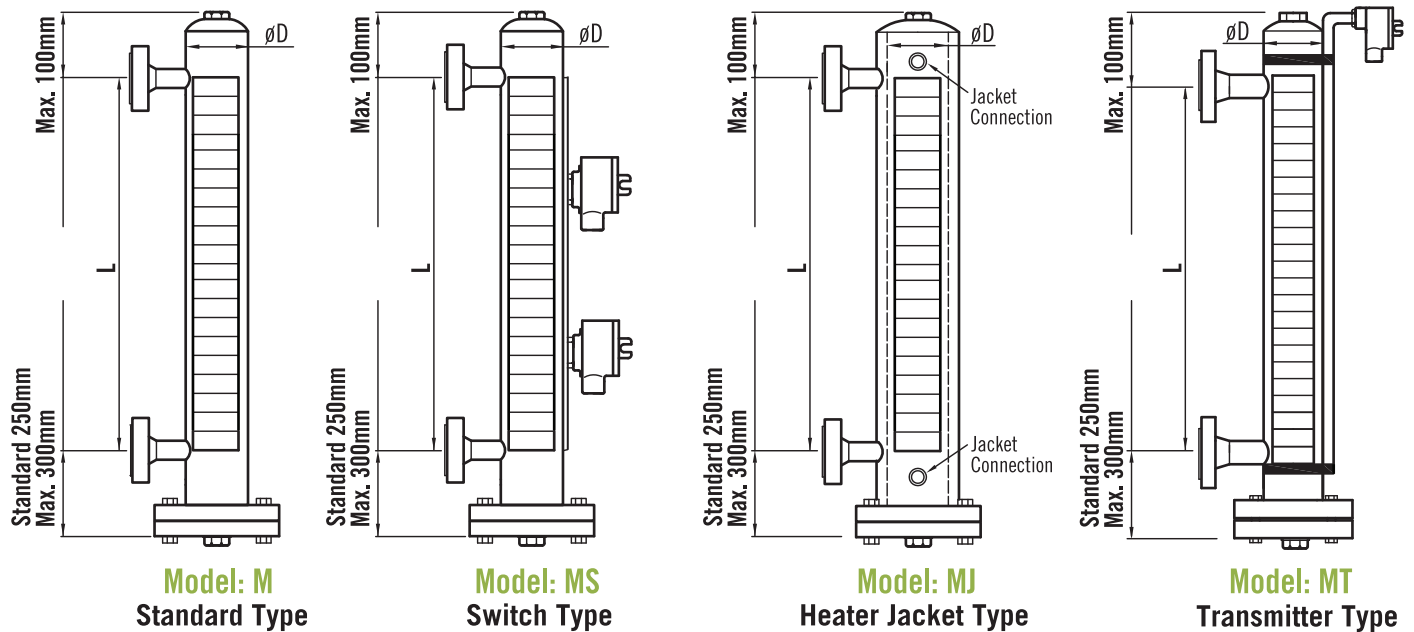
### Features

- ISO 9001 and CE certificate
- High immunity to external noise
- LED indication and DC power polarity protection
- High reliability, lasting durability and low cost

### Application

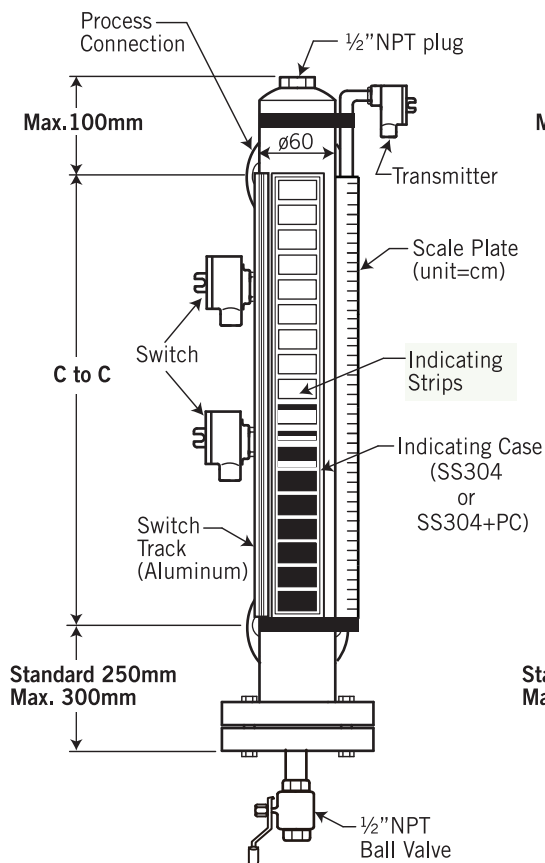
- Position of valve, damper and other devices

## M Standard Type—Side Mounting Series (\*D=ø50 or ø60mm available\*)

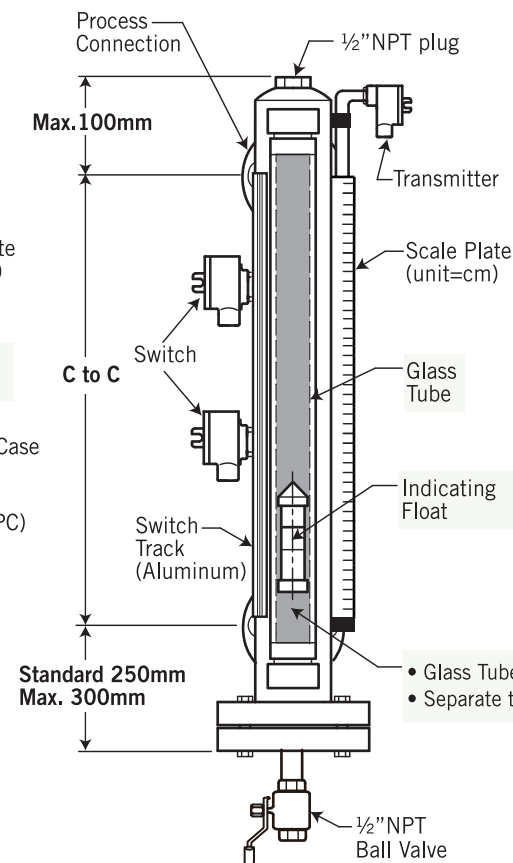


### Assembly Parts Drawing

#### ■ Strips Indicating Type ■



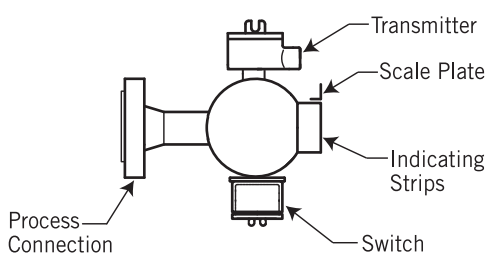
#### ■ Float Indicating Type ■



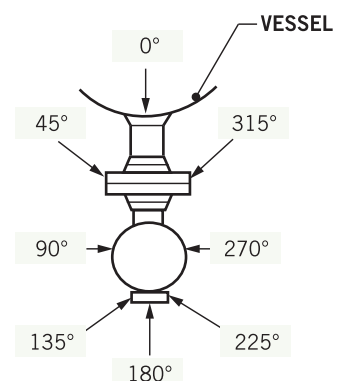
- The indicating float is sealed in the inside of the glass tube, and the inner filled with silicon oil.
- The indicating float is following with the measuring float to rise up or fall down which is based on the principle of magnetic coupling.
- This type has the advantage of a good isolation dust function.  
(Ex.: The level gauge installed at the chemical field, the indicating strips will be easily dirty by air dusts or erosion by corrosion fluid to damage. And, the float indicating type can avoid this situation.)

- Glass Tube Filled Silicon Oil.
- Separate to measuring chamber.

#### Top View



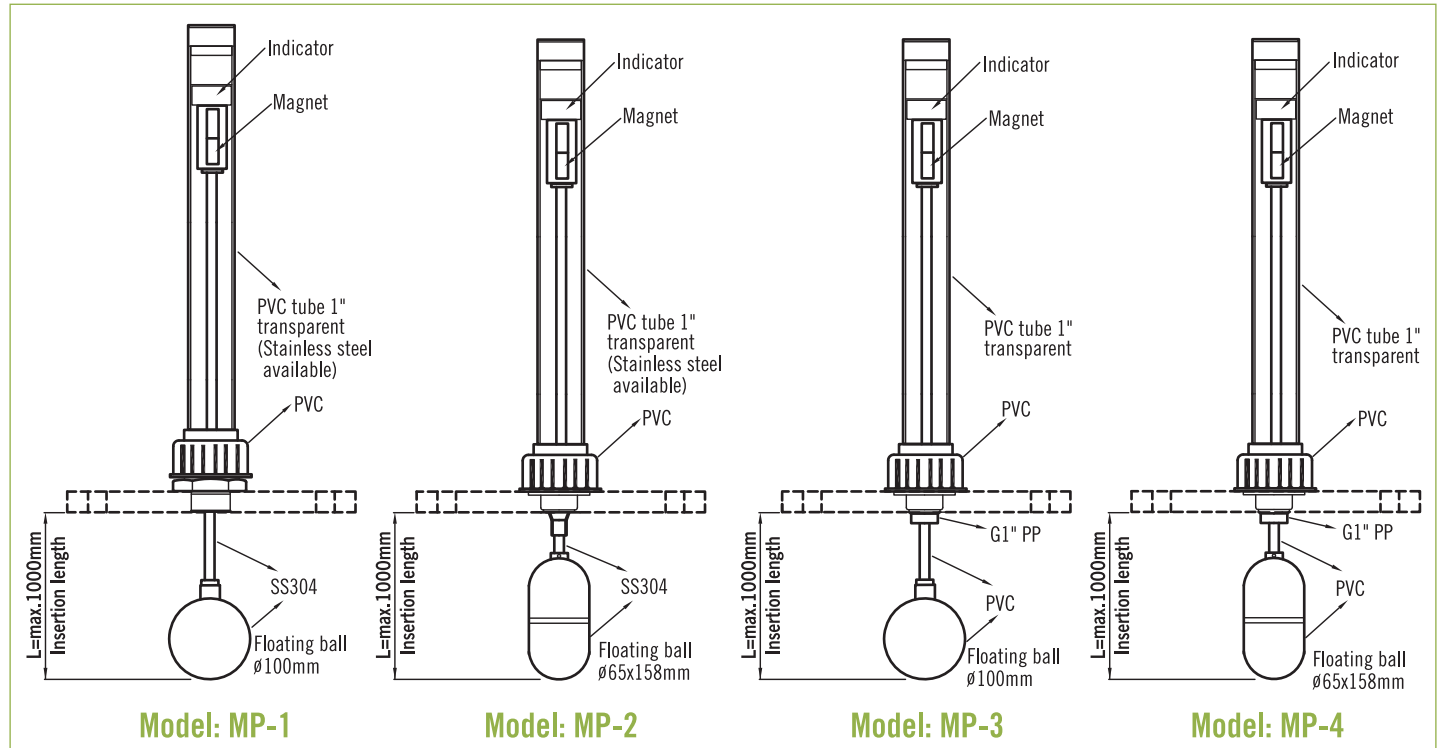
#### Orientations: Reference for Element (Indicator Strips, Transmitter, Switch)



## Ordering Information

M Type	Code	Model														
	M	Standard Type	MS	Switch Type				MJ	Heater Jacket Type							
	MT	Transmitter Type Indicating + 4~20mA						MTH	Indicating + HART (4~20mA)							
		Code	Connection													
		A	½"	B	¾"	C	1"	D	1½"	E	2"	F	3"	G	Option	
		Code	Connection Rating													
			(1) PTM (2) NPTM (3) JIS 10K (4) JIS 20K (5) ANSI 150# (6) ANSI 300# (7) PN16 (8) PN40 (9) Option													
		Code	Material of Wetted Parts													
			(A) SS304 (B) SS316 (C) SS316L (D) PVC (E) PP (F) PE (G) PVDF (H) Option													
		Code	Material of Indicating Case													
			(2) SS304 (3) Borosilicate Glass (only for indicating float type) (4) SS304+PC [Hermetically Sealed], Class IP68													
		Code	Material of Indicating Strips (or Float)													
		A	Plastic (PBT)				C	Brass w/painting								
		F	Aluminum Float (only for indicating float type)													
		Code	Switch Type													
		1	Reed Switch		2	Micro Switch		3	Option		O	Without Switch				
		Code	Switch Point													
			(A) 1 (B) 2 (C) 3 (D) 4 (O) Without													
		Code	Transmitter Type													
		1A	4~20mA Transmitter, Resolution Accuracy: ±12mm (standard)													
		1B	4~20mA Transmitter, Resolution Accuracy: ±6mm													
		2	Without													
		Code	Scale Plate													
		A	Yes		B	Without										
		Code	Protection Class for Switch or Transmitter Type													
		0	Without													
		1	Weather Proof, IP66													
		2	Explosion Proof (Ex. Certificate on Housing only)													
		2M	Explosion Proof: Ex d IIB + H2 T6 Gb (Model: MWS-Type Examination Certificate of Qualification)													
		2T	Explosion Proof: Ex d IIB + H2 T6 Gb (Model: LTG-Type Examination Certificate of Qualification)													
		Code	Specific Gravity													
			Please directly fill out the Sp.Gr. in the of liquid order code.													
		Code	Center to Center Length (L)													
			Please directly fill out the length you required.													
		Code	LCD Display (for MT and MTH)													
		D	With (D-1000, Ex. Type)													
		N	Without													
		Code	Setting Point & Switch Acting Functions													
			Please fill in the requested length and float rised ↑ON or fall down ↓ON. ℓ 1=___mm□ON ℓ 2=___mm□ON ℓ 3=___mm□ON ℓ 4=___mm□ON													
M Type																Complete Ordering Code

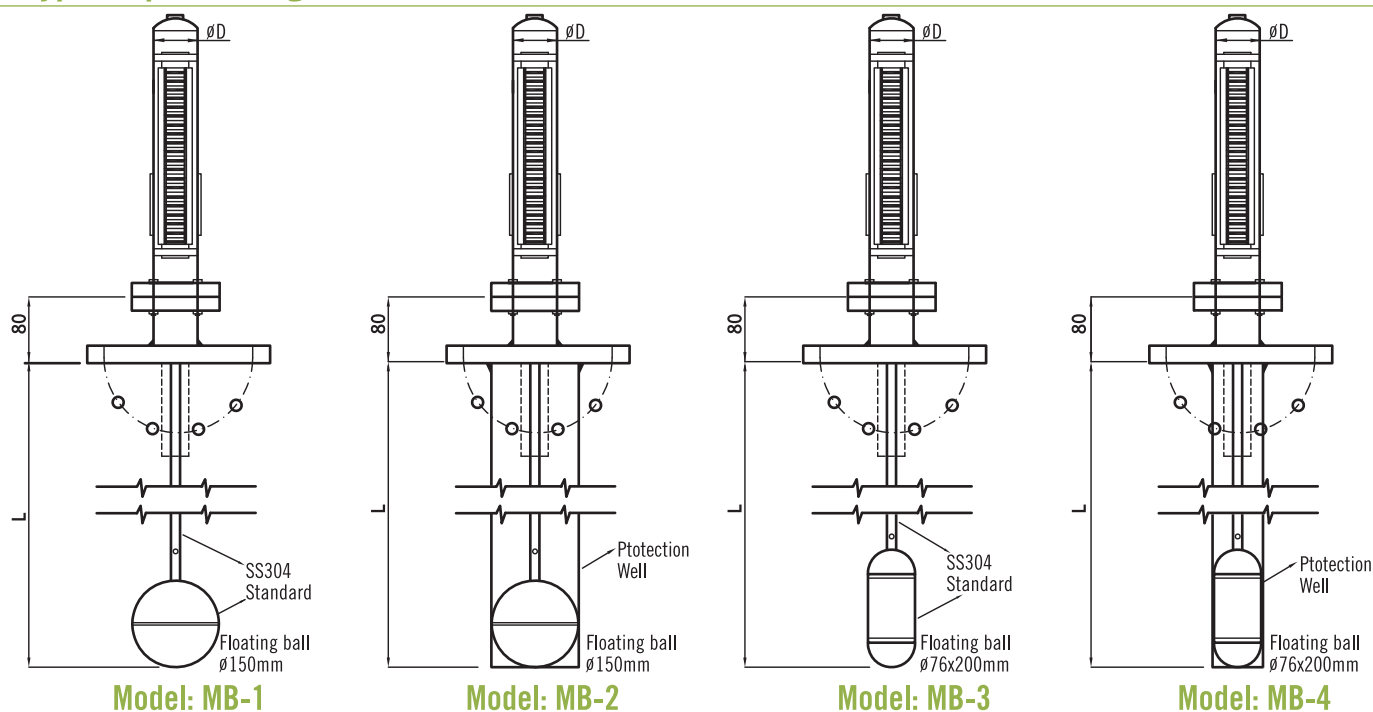
## MP Type—Top Mounting Transparent Series



## Ordering Information

MP Type	Code	Model
		MP-1 MP-2 MP-3 MP-4
	<b>Code</b>	<b>Connection</b>
	A	3" B 4" C Option
	<b>Code</b>	<b>Connection Rating</b>
		(1) PTM (2) NPTM (3) JIS 10K (4) ANSI 150# (5) PN16
	<b>Code</b>	<b>Material of Wetted Parts</b>
	A	SS304 B SS316 C SS316L D PVC E PP F PE G PVDF H Option
	<b>Code</b>	<b>Material of Indicating Case</b>
	1	PVC Tube Transparent 2 Blind SS304 3 Blind SS316
	<b>Code</b>	<b>Switch Type</b>
	1	Reed Switch 2 Micro Switch 3 Option 0 Without Switch
	<b>Code</b>	<b>Switch Point</b>
		(A) 1 (B) 2 (C) 3 (D) 4 (O) Without
	<b>Code</b>	<b>Transmitter Type</b>
	1A	4~20mA Transmitter, Resolution Accuracy: $\pm 12$ mm (standard)
	1B	4~20mA Transmitter, Resolution Accuracy: $\pm 6$ mm
	2	Without
	<b>Code</b>	<b>Scale Plate</b>
	A	Yes B Without
	<b>Code</b>	<b>Switch or Transmitter Housing</b>
		(0) Without (1) Weather Proof, IP66 (2) Explosion Proof
	<b>Code</b>	<b>Specific Gravity</b>
		Please directly fill out the Sp.Gr. in the of liquid order code.
	<b>Code</b>	<b>Setting Point &amp; Switch Acting Functions</b>
		Please fill in the requested length and float rised $\uparrow$ ON or fall down $\downarrow$ ON. $\ell 1 = \underline{\hspace{1cm}}$ mm $\square$ ON $\ell 2 = \underline{\hspace{1cm}}$ mm $\square$ ON $\ell 3 = \underline{\hspace{1cm}}$ mm $\square$ ON $\ell 4 = \underline{\hspace{1cm}}$ mm $\square$ ON
MP Type		Complete Ordering Code

## MB Type-Top Mounting Series

\*D=  $\phi$ 50 or  $\phi$ 60

## Ordering Information

MB Type	Code	Model
		MB-1 MB-2 MB-3 MB-4 MBH (Indicating + HART (4~20mA), no alarm switch available)
	<b>Code</b>	<b>Connection</b>
	A	3" B 4" C Option
	<b>Code</b>	<b>Connection Rating</b>
		(1) JIS10K (2) JIS 20K (3) ANSI 150# (4) ANSI 300# (5) PN16 (6) PN40 (7) Option
	<b>Code</b>	<b>Material of Wetted Parts</b>
	A	SS304 B SS316 C SS316L D PVC E PP F PE G PVDF H Option
	<b>Code</b>	<b>Material of Indicating Case</b>
	2	SS304 4 SS304+PC (class IP68)
	<b>Code</b>	<b>Material of Indicating Strips</b>
	A	Plastic (PBT) C Brass w/painting
	<b>Code</b>	<b>Switch Type</b>
	1	Reed Switch 2 Micro Switch 3 Option O Without Switch
	<b>Code</b>	<b>Switch Point</b>
		(A) 1 (B) 2 (C) 3 (D) 4 (O) Without
	<b>Code</b>	<b>Transmitter Type</b>
	1A	4~20mA Transmitter, Resolution Accuracy: $\pm 12$ mm (standard)
	1B	4~20mA Transmitter, Resolution Accuracy: $\pm 6$ mm
	2	Without
	<b>Code</b>	<b>Scale Plate</b>
	A	Yes B Without
	<b>Code</b>	<b>Switch or Transmitter Housing</b>
		(0) Without (1) Weather Proof, IP66 (2) Explosion Proof
	<b>Code</b>	<b>Specific Gravity</b>
		Please directly fill out the Sp.Gr. in the of liquid order code.
	<b>Code</b>	<b>LCD Display (for MBH)</b>
	D	With N Without
	<b>Code</b>	<b>Setting Point &amp; Switch Acting Functions</b>
		Please fill in the requested length and float rised 10N or fall down 10N. $\ell 1 = \underline{\hspace{1cm}} \text{mm} \square \text{ON}$ $\ell 2 = \underline{\hspace{1cm}} \text{mm} \square \text{ON}$ $\ell 3 = \underline{\hspace{1cm}} \text{mm} \square \text{ON}$ $\ell 4 = \underline{\hspace{1cm}} \text{mm} \square \text{ON}$
MB Type		Complete Ordering Code