

## INTRODUCTION

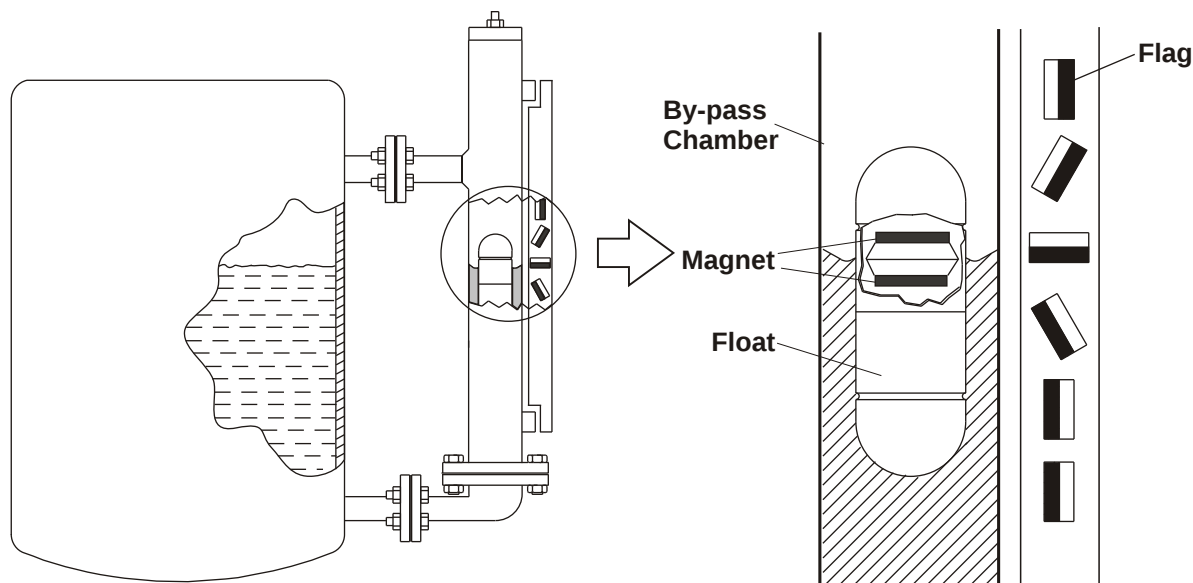
The By-Pass Level Indicator is installed outside of a vessel or tank. The liquid level in the tank can easily be observed from the change of the flag color. Optional devices of magnetic switch and level transducer can be added for electrical signal output and level transmitting.

## PRINCIPLE

Fine-Tek's By-Pass indicator utilizes hydrostatic principle to show the liquid level in the tank. A float with a magnet inside rises and drops according to the liquid level change. Magnetic flags will flip as float passes through to indicate liquid level based on magnetic attraction method.

## APPLICATIONS AND FEATURES

- Applicable in environment with high temp., high pressure, strong acid, strong alkaline and hazardous locations. The structure is simple but durable and reliable. It is also available with various options for upgrade.
- A level transducer or magnetic switch can be installed and adjusted during operation.
- It is not operated by electricity thus it will not be affected by power failure.
- Multiple applications for textile dyeing, sewage water processing, power generating, boiler and petrochemical industries.



# PRODUCT WITH PATENT RECOMMENDATION

## 1.) Magnetic Switch

- \* The plastic miniature magnetic switch is anti-corrosive and with IP67 rating. It is the smallest magnetic switch in the current market.
- \* The magnetic switch is easy to set up and has real time adjustment.

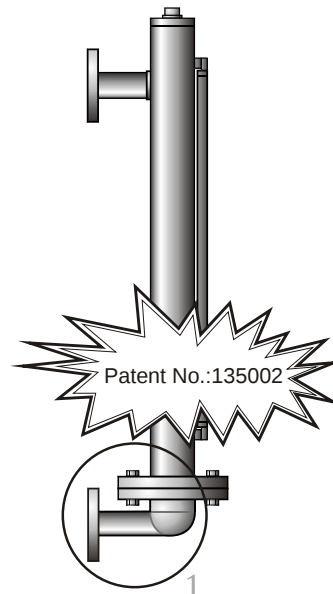
## 2.) Innovative Design For Bottom End Flange and the Connecting Flange

- \* The lower center duct is at the bottom end of the chamber. When the liquid drains in the tank, there will be no residue in the chamber unit.
- \* This is suitable for production that requires frequent liquid change and mixture is not allowed during the process.

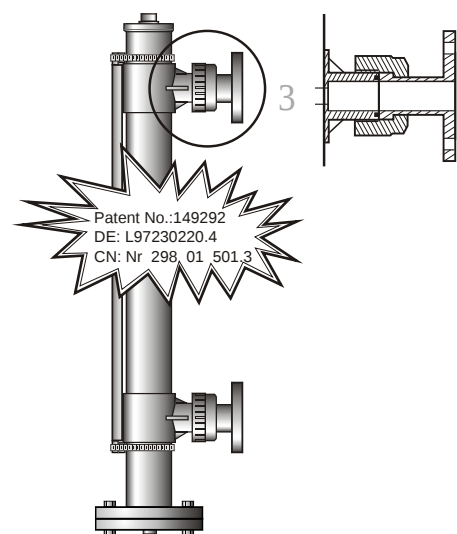
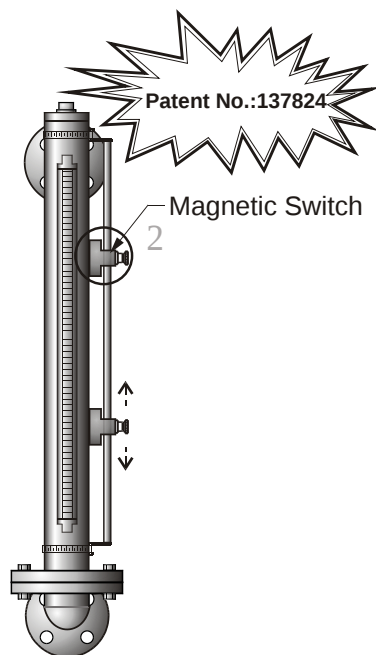
## 3.) Removable Duct and Connecting Flange

- \* The flange setting is close to the two ends of the chamber, therefore the "C-C" distance is maximized.
- \* It is strengthened in the structure by a large phase weld.
- \* During the installation, adjust the flange to the fitting mounting holes.

TYPE: EF-□-B1L



Innovative Bottom End Flange and the Connecting Flange

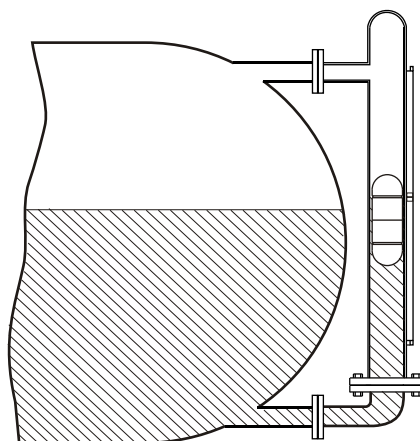
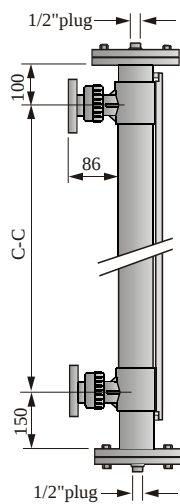


| Plastic Standard Type                    |                                          |                                          |                                          |
|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
| Order No. EF□□□B1H<br>Model No. BP□□□B1H | Order No. EF□□□B1K<br>Model No. BP□□□B1K | Order No. EF□□□B2K<br>Model No. BP□□□B2K | Order No. EF□□□B7H<br>Model No. BP□□□B7H |
|                                          |                                          |                                          |                                          |

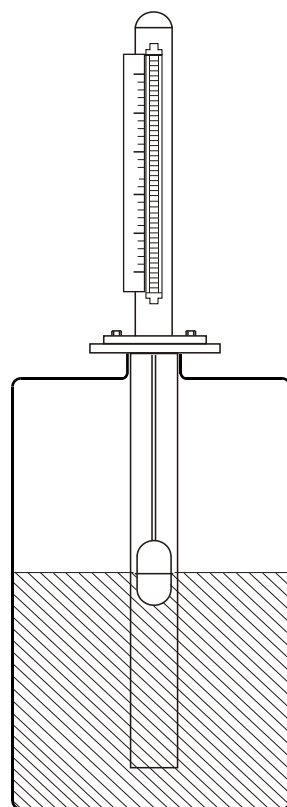
## SPECIFICATIONS:

| Order No.          | EF□□□B1H                                                  | EF□□□B1K                            | EF□□□B2K             | EF□□□B7H                                |
|--------------------|-----------------------------------------------------------|-------------------------------------|----------------------|-----------------------------------------|
| Description        |                                                           |                                     |                      |                                         |
| Top End            | Flat top with 1/2"PT plug                                 |                                     |                      |                                         |
| Bottom End         | Dual flange with 1/2"PT plug                              | Dual flange with 1/2"PT drain valve |                      | Dual flange with 1/2"PT plug            |
| Connecting         | 3/4" x10kg/cm <sup>2</sup> (Flange)                       |                                     | 3/4" or 1"PT (Screw) | 3/4" x10kg/cm <sup>2</sup> (Ball Valve) |
| C-C Distance       | Min. 150mm; Max. 3800mm                                   |                                     |                      |                                         |
| Operation Pressure | 5kg/cm <sup>2</sup>                                       |                                     |                      |                                         |
| Operation Temp.    | PP: 80°C, PVDF: 120°C                                     |                                     |                      |                                         |
| Chamber            | PP: $\phi 60.5 \times 3.8t$ , PVDF: $\phi 63 \times 3.2t$ |                                     |                      |                                         |
| Float Type         | EFB-2500 (PVDF) / 2510 (PP) (see page 9)                  |                                     |                      |                                         |
| Material           | PP / PVDF                                                 |                                     |                      |                                         |
| Flag Indicator     | EFB-0700 (see page 11)                                    |                                     |                      |                                         |
| Ruler              | Option (see page 14)                                      |                                     |                      |                                         |

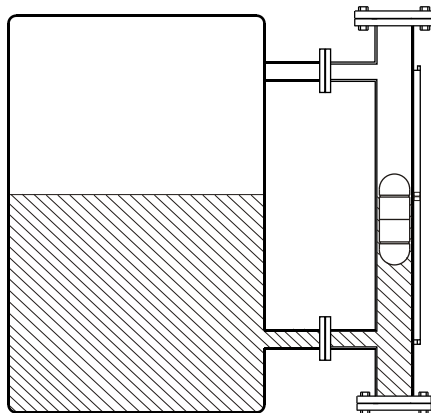
Order No. EF    C1H  
Model No. BP    C1H



STYLE A1L (ANGLE PIPE)



STYLE A5M (TANK TOP)



STYLE CIH (SIDE FLANGE)

EF    C1H

Dual flange  
with 1/2"PT plug

Dual flange  
with 1/2"PT plug

3/4" x10kg/cm<sup>2</sup> (Flange)

Min. 150mm;  
Max. 3800mm

5kg/cm<sup>2</sup>

PP: 80°C, PVDF: 120°C

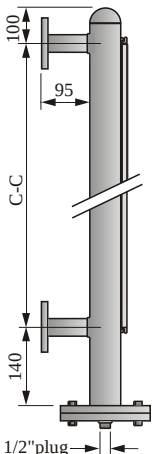
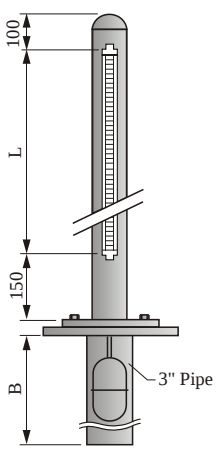
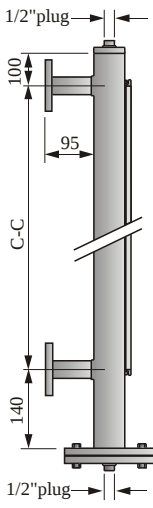
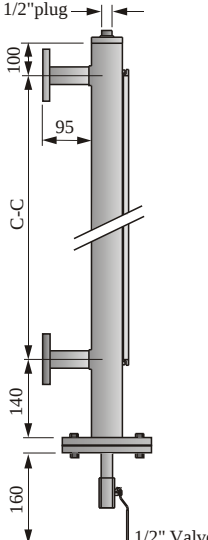
PP:  $\phi 60.5 \times 3.8t$ ,  
PVDF:  $\phi 63 \times 3.2t$

EFB-250(PVDF) / 2510(PP)  
(see page 9)

PP / PVDF

EFB-0700  
(see page 11)

Option (see page 14)

| Metal Standard Type                                                               |                                                                                   |                                                                                    |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Order No. EF□□□A1H<br>Model No. BP□□□A1H                                          | Order No. EF□□□A5M<br>Model No. BP□□□A5M                                          | Order No. EF□□□B1H<br>Model No. BP□□□B1H                                           | Order No. EF□□□B1K<br>Model No. BP□□□B1K                                            |
|  |  |  |  |

## SPECIFICATIONS:

| Order No.                              | EF□□□A1H                                                   | EF□□□A5M                        | EF□□□B1H                            | EF□□□B1K                                               |
|----------------------------------------|------------------------------------------------------------|---------------------------------|-------------------------------------|--------------------------------------------------------|
| Description                            | Cap                                                        |                                 | Flat top with 1/2"PT plug           |                                                        |
| Top End                                | Cap                                                        |                                 | Flat top with 1/2"PT plug           |                                                        |
| Bottom End                             | Dual flange with 1/2"PT plug                               | Dual flange with 3" shield pipe | Dual flange with 1/2"PT plug        | Dual flange with 1/2" drain valve                      |
| Bottom Flange                          | 1-1/2" x 5kg/cm <sup>2</sup>                               | 3-1/2" x 5kg/cm <sup>2</sup>    | 1-1/2" x 5kg/cm <sup>2</sup>        |                                                        |
| Connecting                             | 3/4" x10kg/cm <sup>2</sup> (Flange)                        | 3" (Hole)                       | 3/4" x10kg/cm <sup>2</sup> (Flange) |                                                        |
| C-C Distance<br>Flag Display Length(L) | Min. 150mm;<br>Max. 5,800mm                                | Min. 150mm;<br>Max. 2,000mm     | Min. 150mm; Max. 5.800mm            |                                                        |
| Operation Pressure                     | 25kg/cm <sup>2</sup> (Max. 50kg/cm <sup>2</sup> )          |                                 |                                     | 20kg/cm <sup>2</sup>                                   |
| Operation Temp.                        | SUS304: 140°C, 200°C, 400°C<br>SUS316: 140°C, 200°C, 400°C |                                 |                                     | SUS304: 140°C,200°C,350°C<br>SUS316: 140°C,200°C,350°C |
| Chamber                                | φ60.5 x 2.8t                                               |                                 |                                     |                                                        |
| Float Type                             | EFB-2580 (see page 10)                                     |                                 |                                     |                                                        |
| Material                               | SUS304 / SUS316                                            |                                 |                                     |                                                        |
| Flag Indicator                         | EFB-0700 Max. 200°C, EFB-0740 Max. 400°C (see page 11)     |                                 |                                     |                                                        |
| Ruler                                  | Option (see page 14)                                       |                                 |                                     |                                                        |

| Metal Standard Type                      |                                          |                                          |                                          |
|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
| Order No. EF□□□B2K<br>Model No. BP□□□B2K | Order No. EF□□□B7H<br>Model No. BP□□□B7H | Order No. EF□□□C1H<br>Model No. BP□□□C1H | Order No. EF□□□C8H<br>Model No. BP□□□C8H |
|                                          |                                          |                                          |                                          |

## SPECIFICATIONS:

| Order No.<br>Description | EF□□□B2K                                                   | EF□□□B7H                                | EF□□□C1H                                                 | EF□□□C8H                             |
|--------------------------|------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------|--------------------------------------|
| Top End                  | Flat top with 1/2"PT plug                                  |                                         | Dual flange with 1/2"PT plug                             |                                      |
| Bottom End               | Dual flange with 1/2" drain valve                          | Dual flange with 1/2"PT plug            |                                                          |                                      |
| Bottom Flange            | 1-1/2" x 5kg/cm <sup>2</sup>                               |                                         |                                                          | 2-1/2" x 5kg/cm <sup>2</sup>         |
| Connecting               | 3/4"PT or 1"PT (Screw)                                     | 3/4" x10kg/cm <sup>2</sup> (Ball Valve) | 3/4" x10kg/cm <sup>2</sup> (Flange)                      | 1-1/4"x10kg/cm <sup>2</sup> (Flange) |
| C-C Distance             | Min. 150mm; Max. 5,800mm                                   |                                         |                                                          |                                      |
| Operation Pressure       | 20kg/cm <sup>2</sup>                                       | 10kg/cm <sup>2</sup>                    | 25kg/cm <sup>2</sup> (Max. 50kg/cm <sup>2</sup> )        |                                      |
| Operation Temp.          | SUS304: 140°C, 200°C, 350°C<br>SUS316: 140°C, 200°C, 350°C |                                         | SUS304: 140°C, 200°C,400°C<br>SUS316: 140°C, 200°C,400°C |                                      |
| Chamber                  | φ60.5 x 2.8t                                               |                                         |                                                          | Jacket φ76 x 3.0t<br>1/2"PT plug     |
| Float Type               | EFB-2580 (see page 10)                                     |                                         |                                                          |                                      |
| Material                 | SUS304 / SUS316                                            |                                         |                                                          |                                      |
| Flag Indicator           | EFB-0700 Max. 200°C, EFB-0740 Max. 400°C (see page 11)     |                                         |                                                          |                                      |
| Ruler                    | Option (see page 14)                                       |                                         |                                                          |                                      |

| Metal Standard Type                                                                                            | Antiseptic Type                                            | Removable Insulation                                       |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
| Order No. EF□□□B1L<br>Model No. BP□□□B1L                                                                       | Order No. EF□□□C1H<br>Model No. BP□□□C1H                   | Order No. EF□□□C1H<br>Model No. BP□□□C1H                   |
| <p>EF□□□B1L</p> <p>1/2" plug</p> <p>100</p> <p>75</p> <p>C-C</p> <p>150</p> <p>1-1/2" x 5kg/cm<sup>2</sup></p> | <p>EF□□□C1H</p> <p>100</p> <p>95</p> <p>C-C</p> <p>150</p> | <p>EF□□□C1H</p> <p>100</p> <p>95</p> <p>C-C</p> <p>150</p> |

## SPECIFICATIONS:

| Order No.<br>Description | EF□□□B1L                                          | EF□A/B□C1H                                 | EF□□□C1H                                                   |
|--------------------------|---------------------------------------------------|--------------------------------------------|------------------------------------------------------------|
| Top End                  | Flat top with 1/2"PT plug                         | Dual flange                                | Dual flange with 1/2"PT plug                               |
| Bottom End               | Dual flange with Angle pipe                       | Dual flange                                | Dual flange with 1/2"PT plug                               |
| Connecting               | 3/4" x10kg/cm <sup>2</sup> (Flange)               |                                            |                                                            |
| C-C Distance             | Min. 150mm; Max. 5800mm                           |                                            |                                                            |
| Operation Pressure       | 25kg/cm <sup>2</sup> (Max. 50kg/cm <sup>2</sup> ) |                                            |                                                            |
| Operation Temp.          | SUS304: 140°C, 200°C<br>SUS316: 140°C, 200°C      | PP: 80°C<br>PTFE:120°C                     | SUS304: 140°C, 200°C, 400°C<br>SUS316: 140°C, 200°C, 400°C |
| Chamber                  | φ60.5 x 2.8t                                      | φ76.3 x 2.8t Coating PP or PTFE            | φ60.5 x 2.8t Removable Insulation                          |
| Float Type               | EFB-2580 (see page 10)                            | EFB-2500/EFB-2510<br>(see page 10)         | EFB-2580 (see page 10)                                     |
| Material                 | SUS304 / SUS316                                   |                                            |                                                            |
| Flag Indicator           | EFB-0700 Max. 200°C                               | EFB-0700 Max. 200°C<br>EFB-0740 Max. 400°C |                                                            |
| Ruler                    | Option (see page 14)                              |                                            |                                                            |

| High Pressure Type                                     | Heating Type                                           |
|--------------------------------------------------------|--------------------------------------------------------|
| <b>Order No. EF□□□C1H</b><br><b>Model No. BP□□□C1H</b> | <b>Order No. EF□□□B1H</b><br><b>Model No. BP□□□B1H</b> |
|                                                        |                                                        |

## SPECIFICATIONS:

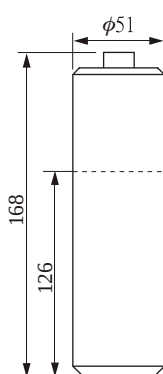
| Order No.          | EF□□□C1H                                                              | EF□□□B1H                        |
|--------------------|-----------------------------------------------------------------------|---------------------------------|
| Description        |                                                                       |                                 |
| Top End            | Dual flange with 1/2"PT plug                                          | Flat top with 1/2"PT plug       |
| Bottom End         | Dual flange with 1/2"PT plug                                          |                                 |
| Connecting         | 3/4" x10kg/cm <sup>2</sup> (Flange)                                   |                                 |
| C-C Distance       | Min. 150mm; Max. 5800mm                                               |                                 |
| Operation Pressure | 100kg/cm <sup>2</sup> (300°C down)<br>60kg/cm <sup>2</sup> (300°C up) | 20kg/cm <sup>2</sup>            |
| Operation Temp.    | SUS304: 140°C<br>SUS316: 140°C                                        | SUS304: 100°C<br>SUS316: 100°C  |
| Chamber            | φ 76.3 x 3.5t                                                         | φ 65 x 3.5t φ130 Heating type   |
| Float Type         | EFB-2641 (see page 10)                                                | EFB-2580 (see page 10)          |
| Material           | SUS304 / SUS316                                                       |                                 |
| Flag Indicator     | EFB-0740 Max. 200°C (see page 11)                                     | EFB-0700/EFB-0740 (see page 11) |
| Ruler              | Option (see page 14)                                                  |                                 |

# PLASTIC FLOAT SPECIFICATIONS

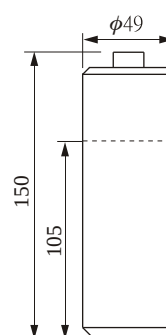
## SPECIFICATIONS:

| Order No. | Spec.<br>Order No. | Operation Temp. | Max. Pressure        | Dimension | S.G. | Water<br>Immersion Line | Material | Weight |
|-----------|--------------------|-----------------|----------------------|-----------|------|-------------------------|----------|--------|
| 1         | EFB-2500           | -10~120 °C      | 5 kg/cm <sup>2</sup> | φ51x168   | 0.75 | 126 mm                  | PVDF     | 256 g  |
| 2         | EFB-2510           | -10~80 °C       | 5 kg/cm <sup>2</sup> | φ49x150   | 0.7  | 105 mm                  | PP       | 188 g  |

\*Specified S.G. is available made to order.



**TYPE: EFB-2500 (PVDF)**

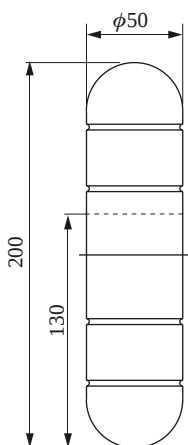


**TYPE: EFB-2510 (PP)**

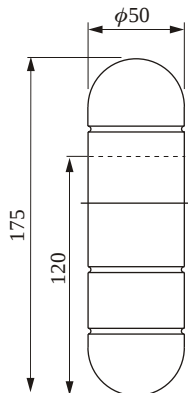
# METAL FLOAT SPECIFICATIONS

## SPECIFICATIONS:

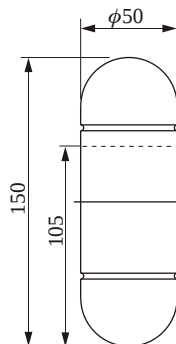
| Order No. | Spec. Type | Operation Temp. | Max. Pressure          | Dimension | S.G. | Water Immersion Line | Material | Weight |
|-----------|------------|-----------------|------------------------|-----------|------|----------------------|----------|--------|
| 3         | EFB-2540   | -20~400°C       | 30 kg/cm <sup>2</sup>  | φ50x200   | 0.7  | 140 mm               | SUS316   | 234 g  |
| A         | EFB-2560   | -20~400°C       | 30 kg/cm <sup>2</sup>  | φ50x175   | 0.75 | 131 mm               | SUS316   | 220 g  |
| C         | EFB-2580   | -20~400°C       | 40 kg/cm <sup>2</sup>  | φ50x150   | 0.87 | 130 mm               | SUS316   | 207 g  |
| I         | EFB-2592   | -20~200°C       | 60 kg/cm <sup>2</sup>  | φ50x230   | 0.72 | 166 mm               | SUS316   | 284 g  |
| J         | EFB-2641   | -20~300°C       | 100 kg/cm <sup>2</sup> | φ67x390   | 0.65 | 253 mm               | Titanium | 830 g  |
| D         | EFB-2600   | -20~400°C       | 40 kg/cm <sup>2</sup>  | φ50x300   | 0.68 | 204 mm               | SUS316   | 330 g  |
| E         | EFB-2620   | -20~400°C       | 15 kg/cm <sup>2</sup>  | φ50x140   | 0.6  | 84 mm                | Titanium | 148 g  |
| G         | EFB-2630   | -20~400°C       | 20 kg/cm <sup>2</sup>  | φ50x210   | 0.51 | 107 mm               | Titanium | 183 g  |



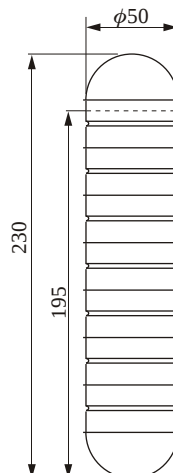
Order No. EFB-2540  
Model No. BPB-2540



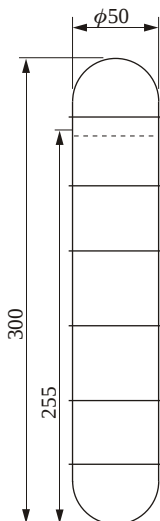
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Model No. BPB-2560



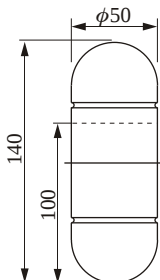
Order No. EFB-2580  
Model No. BPB-2580



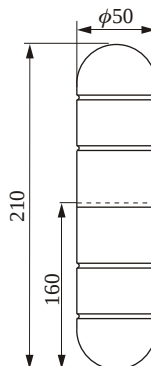
Order No. EFB-2592  
Model No. BPB-2592



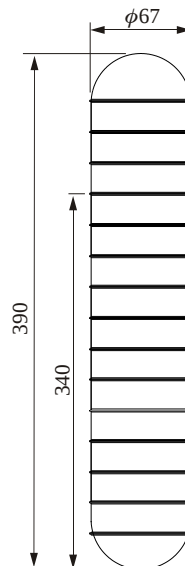
Order No. EFB-2600  
Model No. BPB-2600



Order No. EFB-2620  
Model No. BPB-2620



Order No. EFB-2630  
Model No. BPB-2630



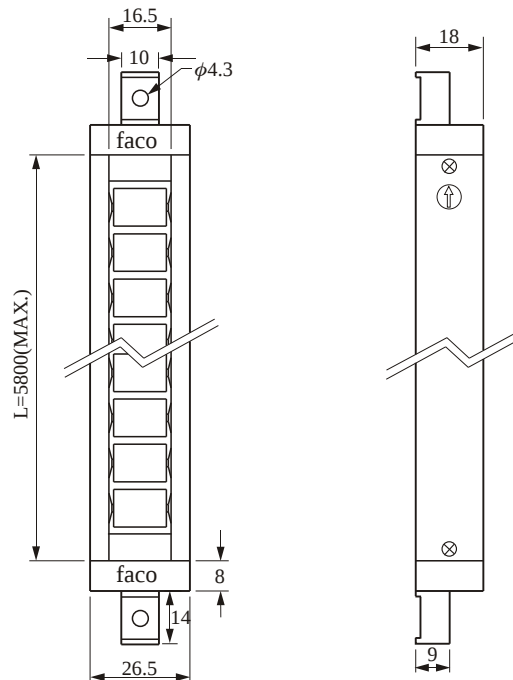
Order No. EFB-2641  
Model No. BPB-2641

\*The dotted line is the Magnet location.

# FLAG DISPLAY

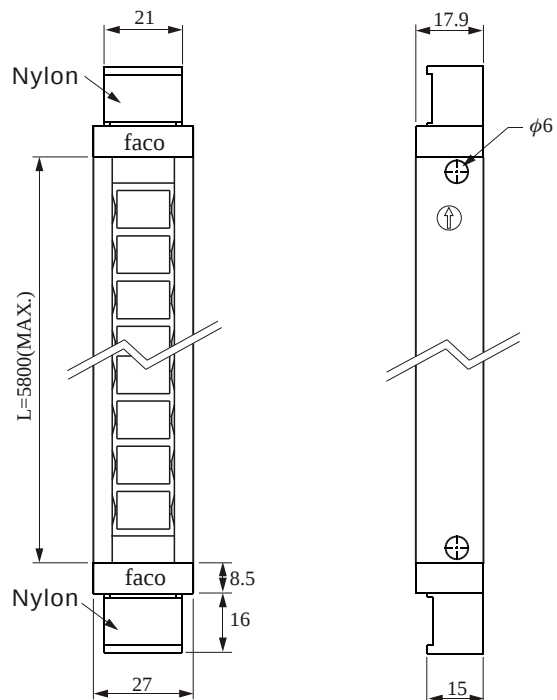
## Order No. EFB-0700 Model No. BPB-0700

1. Housing material : SUS 304
2. Flag Material : Engineering plastic
3. Flag Color : Red / White; Green / White
4. Cover Material : Engineering plastics
5. Operation Temp. : -20~200°C
6. Standard Unit : 50mm



## Order No. EFB-0740 Model No. BPB-0740

1. Housing material : SUS 304
2. Flag Material : Ceramic
3. Flag Color : Red / White; Green / White
4. Cover Material : Glass
5. Operation Temp. : -20~400°C
6. Standard Unit : 50mm

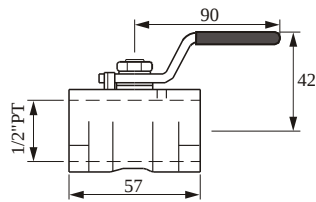


## Order No. EFB-0750 Model No. BPB-0750

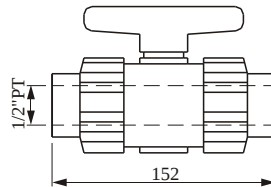
1. Housing material : SUS 304
2. Flag Material : Engineering plastic
3. Flag Color : Red / White; Green / White
4. Cover Material : Engineering plastics
5. Operation Temp. : -20~140°C
6. Standard Unit : 50mm

# BALL VALVE

TYPE: LN-010

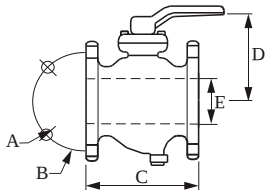


TYPE: LN-02



| PART            | LN-010               | LN-021              | LN-022 |
|-----------------|----------------------|---------------------|--------|
| 1 Body Material | SUS316               | PP                  | PVDF   |
| 2 Working Temp. | 150°C                | 80°C                | 120°C  |
| 3 Working Pres. | 1/2"PT               | 1/2"PT              |        |
| 4 Connection    | 20kg/cm <sup>2</sup> | 5kg/cm <sup>2</sup> |        |

TYPE: LN- 30

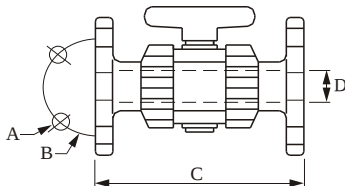


DIMENSIONS

| SIZE<br>CODE | 3/4"                 | 1"  |
|--------------|----------------------|-----|
| A, B         | ACCORDING TO JIS 10K |     |
| C            | 120                  | 130 |
| D            | 90                   | 90  |
| E            | 21.8                 | 25  |

| PART            | LN- 30                                     |
|-----------------|--------------------------------------------|
| 1 Body Material | SUS304                                     |
| 2 Working Temp. | 150°C                                      |
| 3 Working Pres. | 10kg/cm <sup>2</sup>                       |
| 4 Connection    | LN- 30<br>2: 3/4" JIS 10K<br>3: 1" JIS 10K |

TYPE: LN- 4



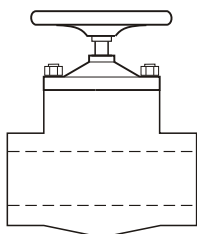
DIMENSIONS

| SIZE<br>CODE | 3/4"                 | 1"  |
|--------------|----------------------|-----|
| A, B         | ACCORDING TO JIS 10K |     |
| C            | 172                  | 187 |
| D            | 18                   | 23  |

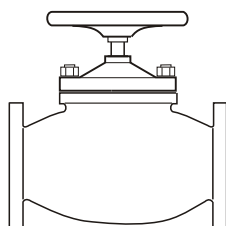
| PART            | LN- 41                                     | LN- 42 |
|-----------------|--------------------------------------------|--------|
| 1 Body Material | PP                                         | PVDF   |
| 2 Working Temp. | 80°C                                       | 120°C  |
| 3 Working Pres. | 5kg/cm <sup>2</sup>                        |        |
| 4 Connection    | LN- 49<br>2: 3/4" JIS 10K<br>3: 1" JIS 10K |        |

## High Temp. Control Valve

TYPE: LN- 50



TYPE: LN- 60



| PART            | LN- 50                         | LN- 60                                 |
|-----------------|--------------------------------|----------------------------------------|
| 1 Body Material | SUS316                         | SUS316                                 |
| 2 Working Temp. | 350°C                          | 350°C                                  |
| 3 Working Pres. | 25kg/cm <sup>2</sup>           | 25kg/cm <sup>2</sup>                   |
| 4 Connection    | LN- 50<br>2: 3/4"PT<br>3: 1"PT | LN- 60<br>2: DN15 PN16<br>3: DN20 PN16 |

## OPTIONS

As shown below the optional accessories can be installed on to a By-Pass Level Indicator to monitor and control the level of the liquid.

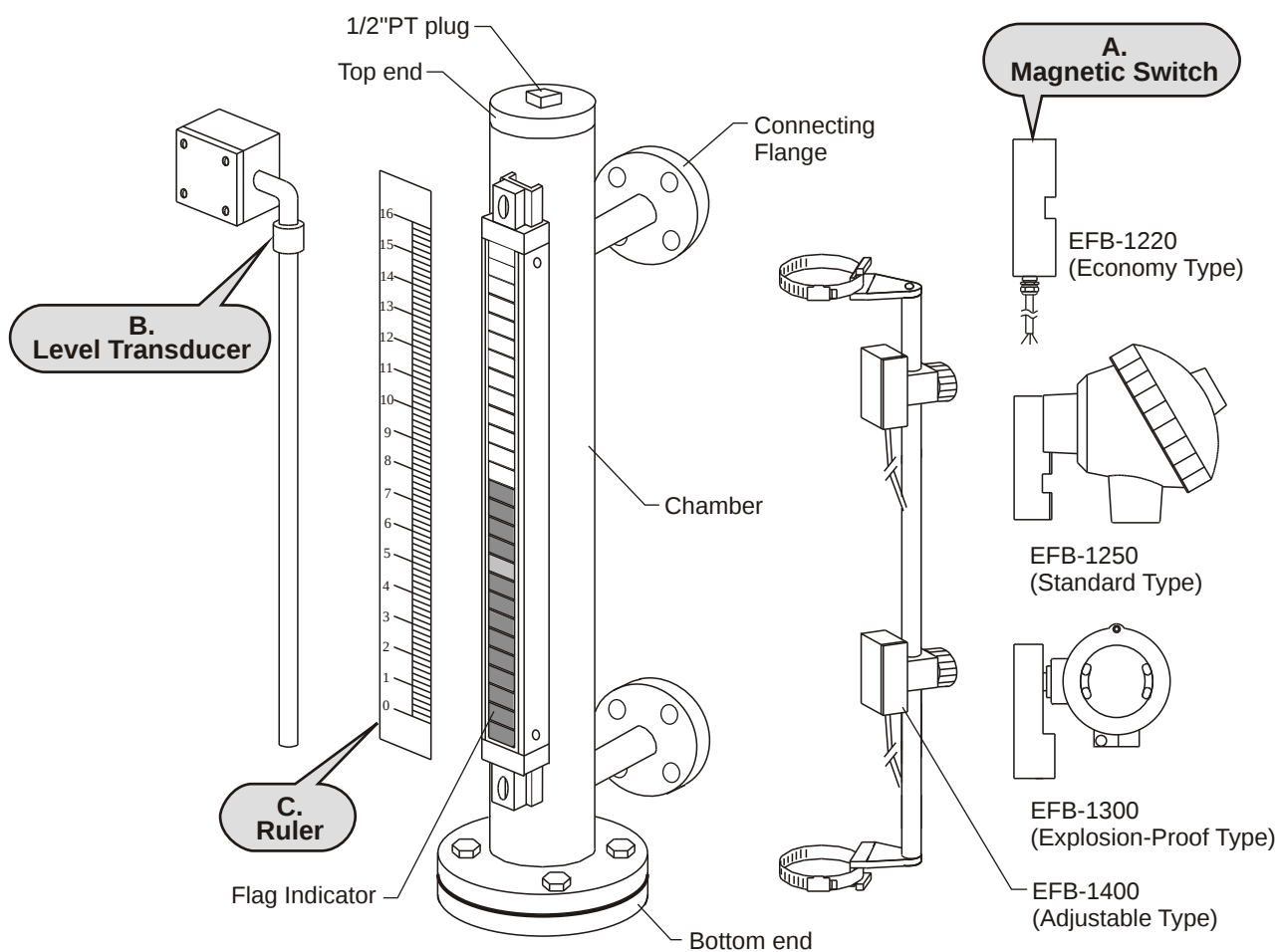
### A. Magnetic Switch (see page 15)

- 1) Economy Type : EFB-1220 series
- 2) Standard Type : EFB-1250 series
- 3) Explosion-proof Type : EFB-1300 series
- 4) Adjustable Type : EFB-1400 series

### B. Level Transducer (see page 16)

### C. Ruler (see page 14)

- 1) Stainless steel in cm : EFA-2110
- 2) Stainless steel in inch : EFA-2120
- 3) Plastic in cm : EFA-2130
- 4) Plastic in inch : EFA-2140



# RULER

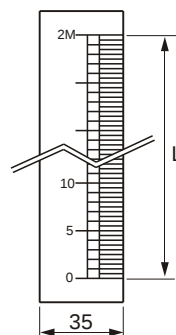
**Model No. BPA-2110** (unit: cm)

**Order No. EFA-2110**

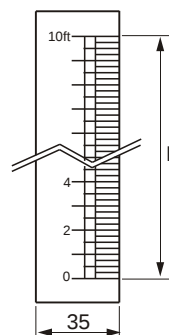
**Model No. BPA-2120** (unit: inch)

**Order No. EFA-2120**

1. Dimension : 35(W)x1.5(T)xL
2. Material : SUS 304
3. Color : Black word
4. Operation Temp. : -20~400°C
5. Length : 5.8M (228")



**EFA-2110**



**EFA-2120**

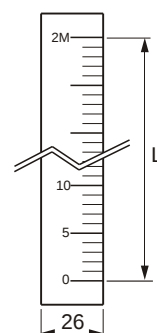
**Model No. BPA-2130** (unit: cm)

**Order No. EFA-2130**

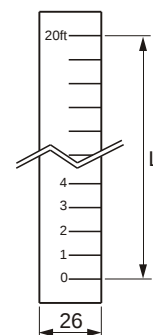
**Model No. BPA-2140** (unit: inch)

**Order No. EFA-2140**

1. Dimension : 26(W)x3(T)xL
2. Material : Plastic
3. Color : Red word
4. Operation Temp. : -20~80°C
5. Length : 5.8M (228")



**EFA-2130**



**EFA-2140**

\* Custom-made scale is available.

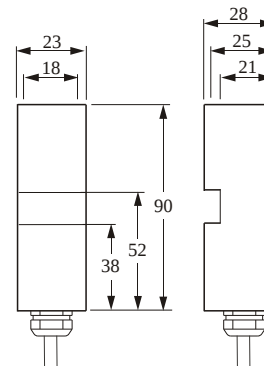
# MAGNETIC SWITCH

## [ ECONOMY TYPE ]

**Order No. EFB-1220/1230**

**Model No. BPB-1220/1230**

1. Contact Element : Reed Switch
2. Switch Form : EFB-1220, SPDT Hold type  
EFB-1230, SPDT Normal type
3. Contact Capacity : 1A /30W / 200Vdc /240Vac
4. Housing Material : Aluminum
5. Operation Temp. : -20~200°C
6. Protection : IP67
7. Cable Length : 1M (Silicon Cable)



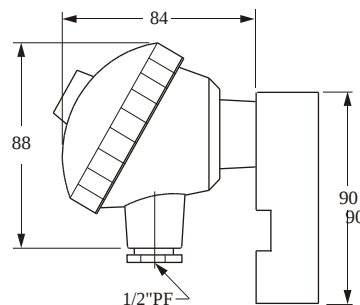
Contact wire color code :  
Black : COM  
Brown : NC  
Blue : NO  
Yellow/Green : GND

## [ STANDARD TYPE ]

**Order No. EFB-1250/1260**

**Model No. BPB-1250/1260**

1. Contact Element : Reed switch
2. Switch Form : EFB-1250, SPDT Hold type  
EFB-1260, SPDT Normal type
3. Contact Capacity : 1A /30W / 200Vdc /240Vac
4. Housing Material : Aluminum
5. Operation Temp. : -20~150°C(max. 250°C)
6. Protection : IP65

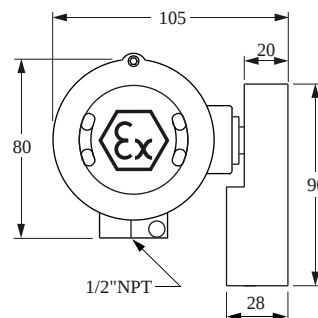


## [ ENCLOSURE EXPLOSION-PROOF TYPE ]

**Order No. EFB-1300/1310**

**Model No. BPB-1300/1310**

1. Contact Element : Reed switch
2. Switch Form : EFB-1300, SPDT Hold type  
EFB-1310, SPDT Normal type
3. Contact Capacity : 1A /30W / 200Vdc /240Vac
4. Housing Material : Aluminum
5. Operation Temp. : -20~85°C (max. 250°C)
6. Protection : EEx d IIC T6

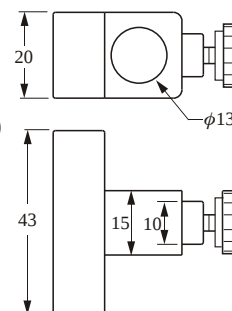


## [ ADJUSTABLE TYPE ]

**Order No. EFB-14□□**

**Model No. BPB-14□□**

1. Contact Element : Reed Switch
2. Switch Form : EFB-1400, SPST NO Hold type  
EFB-1410, SPST NO Normal type  
EFB-1420, SPDT Hold type  
EFB-1430, SPDT Normal type  
EFB-1450, SPST NO Hold type (LED display)
3. Contact Capacity : 1A /30W / 200Vdc /240Vac
4. Housing Material : PP
5. Operation Temp. : -20~140°C
6. Protection : IP67
7. Cable Length : 2M (PVC Cable)

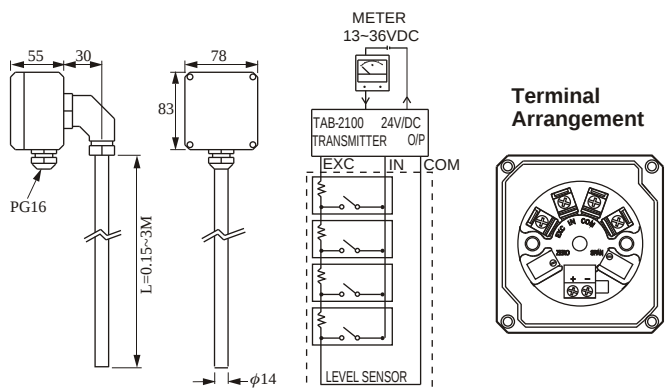


Contact wire color code :  
Red : COM,  
White : NO  
(EFB-1400/ 1410 / 1450)  
Black : COM  
Red : NC  
White : NO (EFB-1420 / 1430)

# LEVEL TRANSDUCER

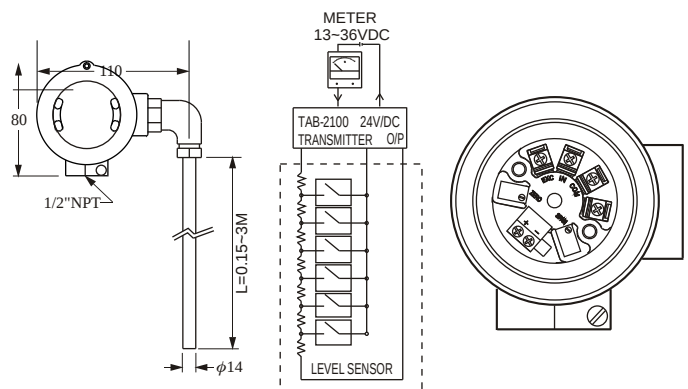
## TYPE: FGCG□0

1. Housing material : PC(IP65) 75(W)x80(H)x55(D)
2. Tube :  $\phi 14\text{mm}$  /  $\phi 17.2$  (length over 3M)  
SUS 304 or SUS 316
3. Accuracy : A6.35mm
4. Output : 4~20mA two-wire
5. Power : 13~36Vdc
6. Measuring Range : 0.15~3M / 3~5.8M ( $\phi 17.2$ )
7. Ambient Temp. : -10~80°C



## TYPE: FGCL□0

1. Housing material : Aluminum EEx d IIC T6
2. Tube :  $\phi 14\text{mm}$  /  $\phi 17.2$  (length over 3M)  
SUS 304 or SUS 316
3. Accuracy : A6.35mm
4. Output : 4~20mA two-wire
5. Power : 13~36Vdc
6. Measuring Range : 0.15~3M / 3~5.8M ( $\phi 17.2$ )
7. Ambient Temp. : -10~80°C



## ORDER INFORMATION

FG A G 4 0

### RESOLUTION

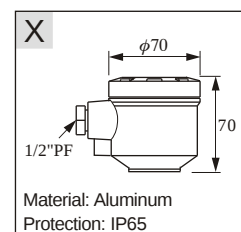
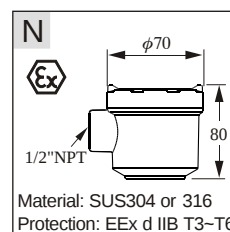
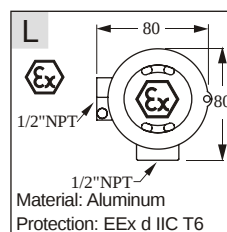
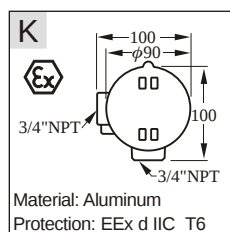
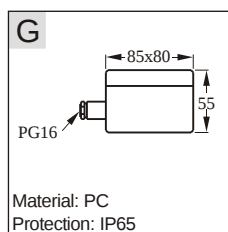
- A: 6.35mm (3-wire)
- C: 6.35mm (2-wire) with TAB-2100

### TERMINAL HOUSING

- G: PC (IP65)
- K: Aluminum (EEx d IIC T6)
- L: Aluminum (EEx d IIC T6)
- N: SUS304 or 316 (EEx d IIB T3~T6)
- X: Aluminum (IP65)

### TUBE TYPE & MATERIAL

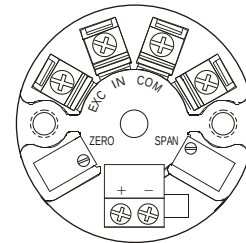
- 4:  $\phi 14$  (SUS)
- 7:  $\phi 17.2$  (SUS)
- 8:  $\phi 20$  (PVDF)



# TRANSDUCER & TRANSDUCER WIRING DIAGRAMS

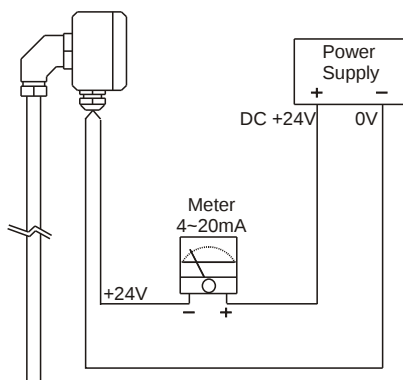
## MODEL: TAB-2100 Transducer

Voltage Supply : Loop power 12~32VDC  
 Output Current : 4~20mA  
 Load Resistance :  $R_L(\text{Max})=50(V_s-8)$   
 Operation Temperature : 0 °C~70 °C  
 Ambient Humidity : 0 °C~80 °C RH  
 Accuracy :  $\pm 0.1\%$ (25 °C)  
 Temperature Effect : 0.5%FS  
 Adjustment Range : Span Adjustment 20% FS  
                               Span Adjustment 5% FS

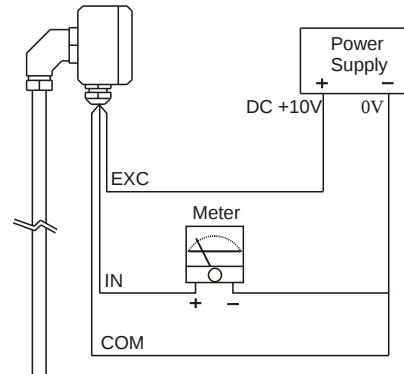


## TRANSDUCER WIRING DIAGRAMS

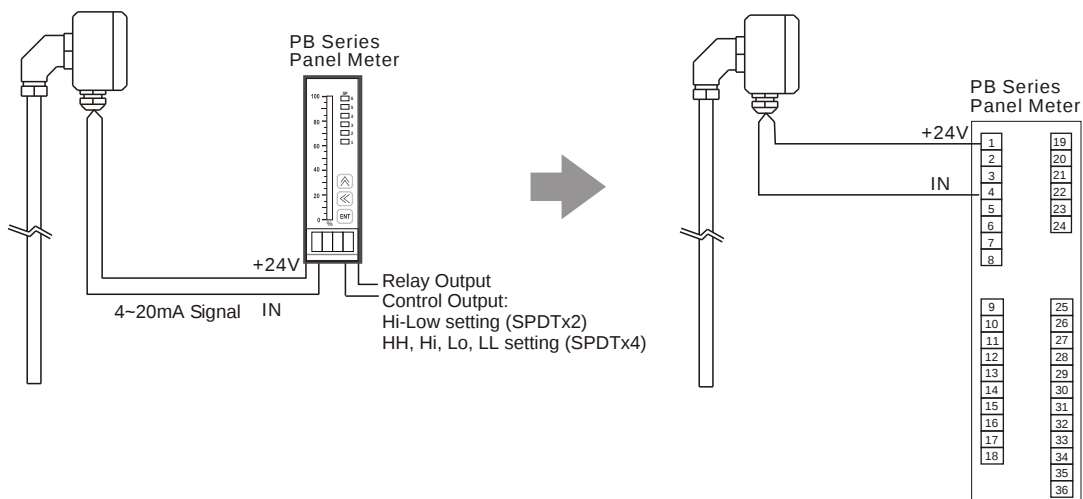
► Level transducer (resistance output) connected with analog meter for level monitoring.



► Level transducer (4~20mA output) connected with 4~20mA analog meter for level monitoring.



► Level transducer (4~20mA output) connected with digital meter (PB-Series) for level control.



## TYPICAL ASSEMBLY

---

1. By-pass Level indicator with the standard magnetic switches (Aluminum Alloy) and liquid level transmitter. With the housing protection IP65, it is suitable for outdoor or moist environment.

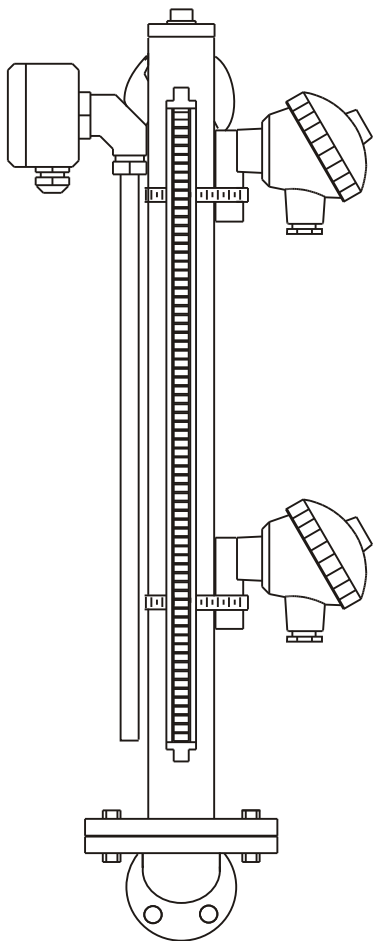


fig. 1

2. By-pass Level Indicator with explosion-proof magnetic switches. With its housing protection EEx d IIC T6, it is applicable for hazardous environments .

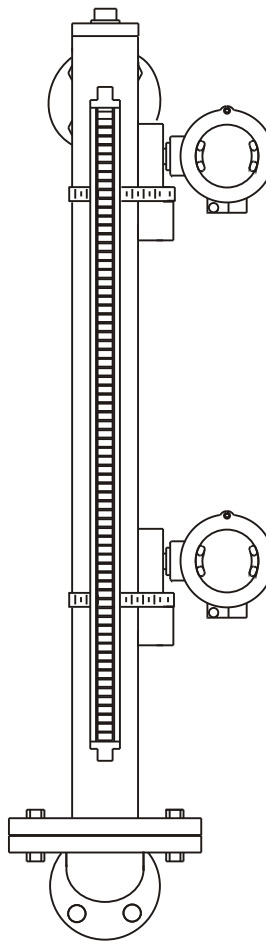


fig. 2

3. By-pass Level Indicator with adjustable magnetic switches and SUS304 ruler. It can be assembled with upward /downward movable multiple magnetic switches on a riding rod.

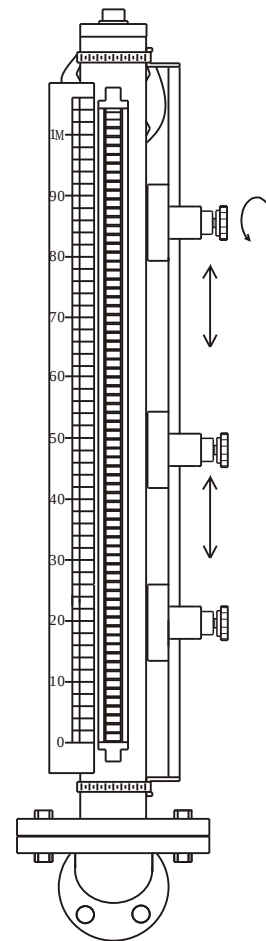


fig. 3

## CAUTIONS FOR INSTALLATION

1. Because the magnetic switch is a sensitive component, thus any extreme shock to the switch will cause malfunction.
2. Make sure there is no external magnetic field or source within 10 centimeters of the switch to avoid magnetic interference.
3. Make sure the wire of the magnetic switch is pointing downward.
4. Do not contact any high temperature material with unit's cables while wiring.
5. When using magnetic switch to control inductive or capacitive load, a RC protective circuit should be used to ensure long life of the switch contact.
6. The magnetic switch (EFB-12□□ & EFB-13□□) is to be fastened on the chamber with a hose clamp. (see fig.1A and page 19 - fig.1, fig.2) Positioning orientation of magnetic switches as fig.2A.
7. The magnetic switch must be located near the flag display and the surface of it is as close to the outer chamber wall as possible.
8. Before actuating, be sure all wirings are done correctly.
9. The magnetic switch (EFB-14□□ series) is to be placed on a riding rod, then fasten the riding rod to the chamber with two hose clamps. (see page 18 - fig.3)
10. See fig.3A for the installation direction of mounting holes

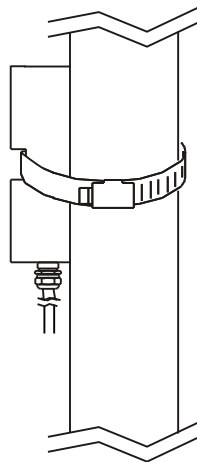


fig. 1A

### Position Orientation Of Magnetic Switches

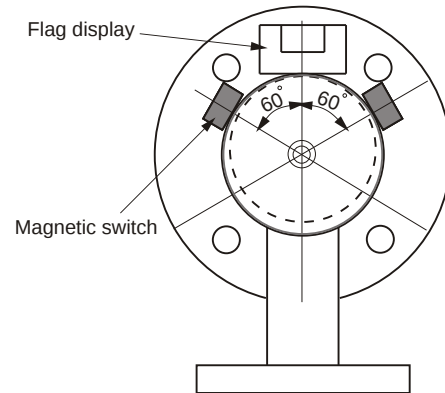


fig. 2A

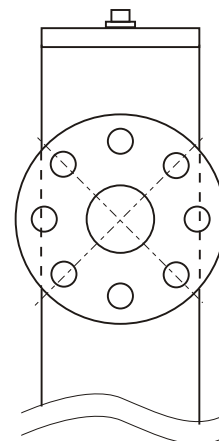
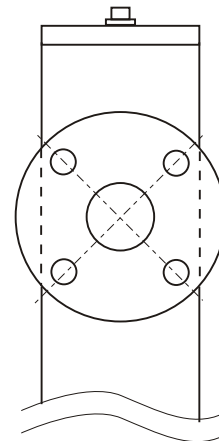
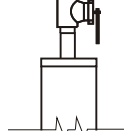
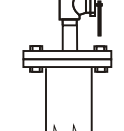
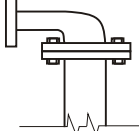


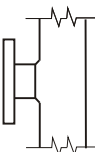
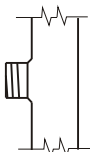
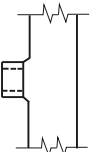
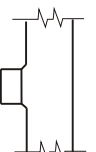
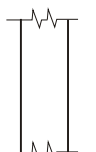
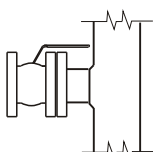
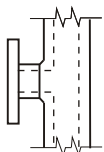
fig. 3A

## ORDER INFORMATION

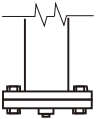
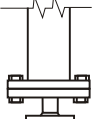
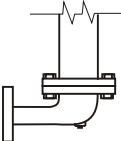
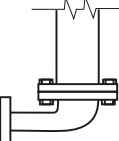
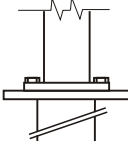
### Top End Type

|                                                                                   |                                                                                   |                                                                                    |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>A</b> Cap                                                                      | <b>B</b> Flat top<br>+Plug                                                        | <b>C</b> Dual flange<br>+Plug                                                      | <b>D</b> Flat top<br>+Top mounting flange                                           |
|  |  |  |  |
| <b>E</b> Dual flange<br>+Top mounting flange                                      | <b>F</b> Flat top<br>+Control valve                                               | <b>G</b> Dual flange<br>+Control valve                                             | <b>N</b> Dual flange<br>+Angle pipe                                                 |
|  |  |  |  |

### Connection

|                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>1</b> Flange                                                                     | <b>2</b> Screw<br>(bolt type)                                                       | <b>3</b> Screw<br>(nut type)                                                        | <b>4</b> Slip pipe                                                                  | <b>5</b> N/A                                                                         | <b>7</b> Control<br>value                                                             | <b>8</b> Jacket                                                                       |
|  |  |  |  |  |  |  |

### Bottom End Type

|                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>H</b> Dual flange+Plug                                                           | <b>I</b> Dual flange<br>+Top mounting flange                                        | <b>J</b> Dual flange<br>+Angel pipe+Plug                                             | <b>K</b> Dual flange<br>+Control valve                                                |
|  |  |  |  |
| <b>L</b> Dual flange<br>+Angle pipe                                                 | <b>M</b> Dual flange<br>+Top mounting pipe                                          |                                                                                      |                                                                                       |
|  |  |                                                                                      |                                                                                       |

## HOW TO MAKE YOUR ORDER

Order No. EF **C 1 1 A 1 H 1 (J 3) - 0 5 ( ) ( )**  
 Model No. BP **C 1 1 A 1 H 1 (J 3) - 0 5 ( ) ( )**

### Float type (see page 9, 10)

1: EFB-2500 (PVDF) D: EFB-2600 (SUS316)  
 2: EFB-2510 (PP) E: EFB-2620 (TITANIUM)  
 3: EFB-2540 (SUS316) G: EFB-2630 (TITANIUM)  
 A: EFB-2560 (SUS316) I: EFB-2592 (SUS316)  
 C: EFB-2580 (SUS316) J: EFB-2641 (TITANIUM)  
 S: Others -: None

### Material

1: SUS304 -- 140°C 8: SUS304 -- 200°C  
 2: SUS304 -- 400°C (350°C) 9: SUS316 -- 200°C  
 3: SUS316 -- 140°C A: PP Coating -- 80°C  
 4: SUS316 -- 400°C (350°C) B: PTFE Coating -- 120°C  
 6: PP -- 80°C C: Removable Insulation  
 7: PVDF -- 120°C 400°C  
 ※: (350°C) with valve D: Heating Type -- 100°C

### Flag Display (see page 11)

1: EFB - 0750 5: EFB - 0740 6: EFB - 0700 9: Other -: None

### End / Connection type (see page 20)

#### Top end Type

A: Cap  
 B: Flat top+Plug  
 C: Dual flange+Plug  
 D: Flat top  
 +Top mounting flange  
 E: Dual flange  
 +Top mounting flange  
 F: Flat top+Control valve  
 G: Dual flange+Control valve  
 N: Dual flange+angle pipe  
 S: other

#### Connection

1: Flange  
 2: Screw (bolt type)  
 3: Screw (nut type)  
 4: Slip pipe  
 5: N/A  
 7: Control valve  
 8: Jacket  
 S: other

#### Bottom end Type

H: Dual flange+Plug  
 I: Dual flange  
 +Top mounting flange  
 J: Dual flange+angel pipe  
 +Plug  
 K: Dual flange+control valve  
 L: Dual flange+angle pipe  
 M: Dual flange  
 +Top mounting pipe  
 S: other

### Operating Pressure range

1: -1~ 10kg/cm<sup>2</sup> 2: -1~ 25kg/cm<sup>2</sup> 3: -1~ 50kg/cm<sup>2</sup>  
 4: -1~100kg/cm<sup>2</sup> 5: 0~5kg/cm<sup>2</sup> (Plastic)

### Magnetic Switch (see page 15) Quantity 1~ 4

A: EFB -1220 D: EFB -1260 G: EFB -1400 J: EFB -1430 M: EFB -1350  
 B: EFB -1230 E: EFB -1300 H: EFB -1410 K: EFB -1450 N: EFB -1360  
 C: EFB -1250 F: EFB -1310 I: EFB -1420 L: EFB -1440

\*Omit these two codes if no magnetic switch required.

### Length (Unit:10cm)

005: 50cm(01~50) 10: 100cm(51~100) 15: 150cm(101~150) . . . ※ 50cm per Unit

### Transducer

Housing: G, K, L, N, X

\*Omit this code if no transducer required.

### Ruler

Metal: M Plastic: P

\*Omit this code if no ruler required.