

The 17 series non-contact absolute position transducer is specially designed for hydraulic cylinder to provide precise, direct and absolute position feedback. Hydraulic body is made by stainless steel; it can be inserted directly into hydraulic cylinder. Electronic component and hydraulic body are modular design which can be detached easily.

The transducer is rated for IP65 which offers full protection against outside agents for use in harsh environments with high contamination and presence of dust. The connector is common for use in hydraulic device and easy for field connection. Besides for hydraulic system, it is also suitable for machine installation. The absence of electrical contact eliminates all wear and guarantees almost unlimited mechanical life expectancy.

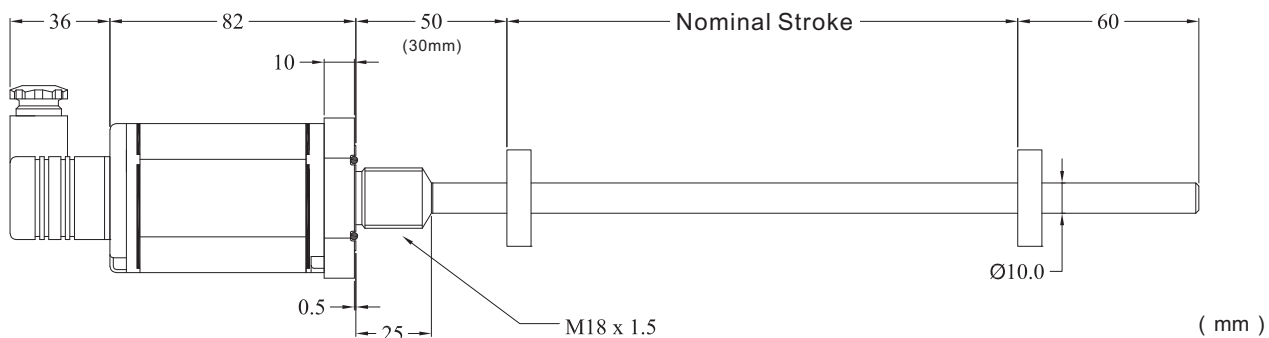


#### Specifications

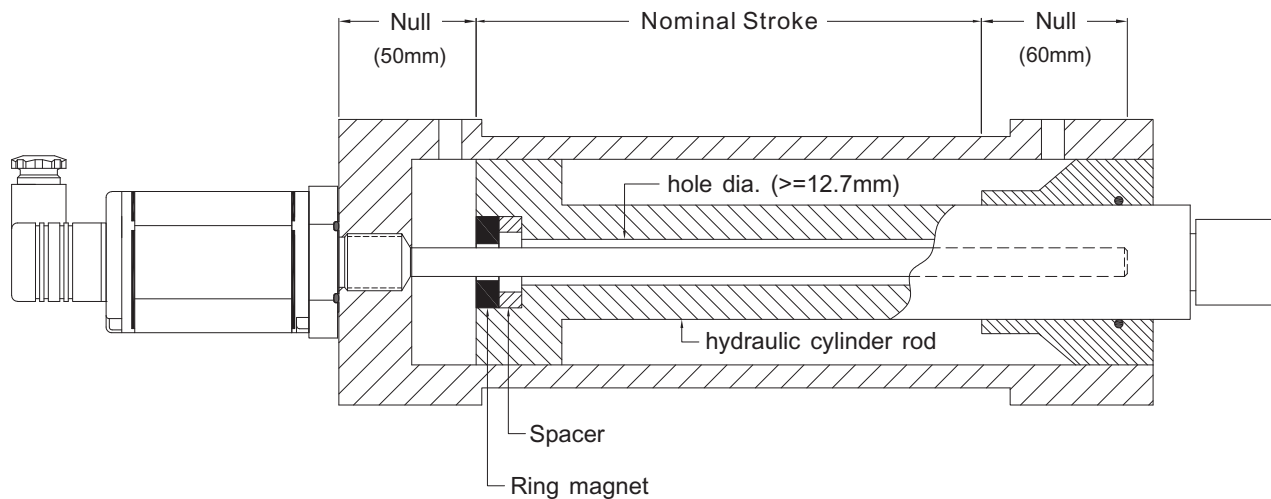
| Order Code          | 170  | 171       | 172       | 174       | 175       | 173                  |
|---------------------|--|-----------|-----------|-----------|-----------|----------------------|
| Output              | 0 - 10 V<br>10 - 0 V   | 0 - 20 mA | 20 - 0 mA | 4 - 20 mA | 20 - 4 mA | Start/Stop           |
| Measurement Type    | Linear displacement  |           |           |           |           |                      |
| Resolution          | Infinite, restricted by output ripple  |           |           |           |           | 0.1 / 0.01 / 0.005mm |
| Input Voltage       | +24Vdc (20.4 - 28.8Vdc)  |           |           |           |           |                      |
| Input Protection    | Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc                        |           |           |           |           |                      |
| Current Consumption | 50-140mA (stroke range dependent)  |           |           |           |           |                      |
| Dielectric Strength | 500Vdc (DC ground to machine ground)   |           |           |           |           |                      |
| Repeatability       | < ±0.005% of full scale  |           |           |           |           |                      |
| Non-Linearity       | < ±0.02% of full scale (minimum ±90µm)   |           |           |           |           |                      |
| Update Time         | 0.5 ms up to 1200 mm / 1.0 ms up to 2500 mm  |           |           |           |           |                      |
| Operation Temp.     | -40 to 75°C, Humidity 90% non-condensing   |           |           |           |           |                      |
| Sealing             | IP65 (with 4 pin connector) / IP67 (with D60 and M12 connectors)                             |           |           |           |           |                      |
| Vibration Rating    | 15g / 10-2000Hz / IEC standard 68-2-6  |           |           |           |           |                      |
| Shock Rating        | 100g single hit per IEC standard 68-2-27   |           |           |           |           |                      |
| EMC                 | Emission EN 61000-6-3, Immunity EN 61000-6-2<br>EN 61000-4-2/3/4/6                           |           |           |           |           |                      |
| Pressure Rating     | 350 bar / 600 bar peak   |           |           |           |           |                      |
| Mounting            | M18 x 1.5  |           |           |           |           |                      |
| Housing Material    | Anodized aluminum sensor cartridge, Stainless steel tube and flange, Plastic cartridge cover |           |           |           |           |                      |

Non-contact technology ...

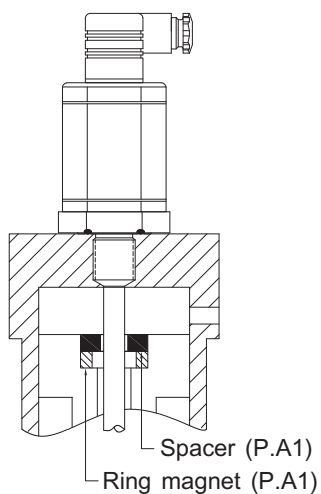
## Dimension



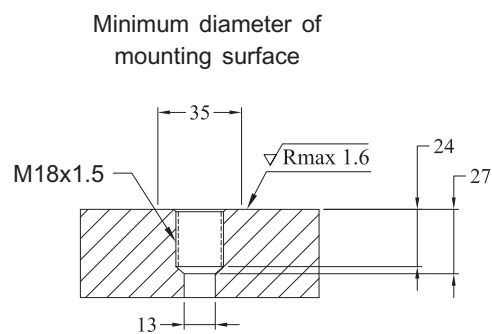
## Installation



## Magnet installation



## Mounting surface requirement



### Remarks:

Mounting screw must be made of non-magnetizable materials. If cylinder is made of magnetizable materials, ring spacer must be installed

## Order Code

1 7 X X X X X X X X X X X X

### Output

0 = 0 - 10 Vdc and 10 - 0 Vdc

1 = 0 - 20 mA

2 = 20 - 0 mA

3 = Start/Stop

4 = 4 - 20 mA

5 = 20 - 4 mA

### Connector (Voltage / Current)

0 = 4 pins connector (IP65)

3 = 4 pins connector (IP67)

4 = 5 pins M12 connector (not include 5 pins female connector)

8 = Cable outlet (P.A4 to select cable length)

9 = D60 armor sensor cartridge

### Connector (Start/Stop)

0 = 4 pins connector (IP65, in use with module)

6 = 8 pins M12 connector (not include M12 female connector)

9 = D60 armor sensor cartridge

### Mounting thread

1 = 3/4" 16 - UNF 3A

2 = M18 x 1.5

3 = Raised-face 3/4" 16 - UNF 3A

### Magnet Type (P.A1)

1 = Dia. 33mm ring

4 = Dia. 60mm ring

2 = Dia. 25mm ring

5 = Dia. 32mm ring

3 = Floating ball

6 = Large floating

### Stroke Length

0 0 7 5 , 0 1 0 0 , 0 1 2 5 , 0 1 5 0 , 0 1 7 5 , 0 2 0 0 , 0 2 2 5

0 2 5 0 , 0 2 7 5 , 0 3 0 0 , 0 3 2 5 , 0 3 5 0 , 0 3 7 5 , 0 4 0 0

0 4 2 5 , 0 4 5 0 , (25mm increment after and up to 2500mm)

### Option

BF = 30mm front dead zone

## Sensor cartridge replacement

O-ring face seal provide an ease of machining on the machine.

O-ring Face Seal



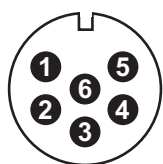
Modular Design

The sensor cartridge can be removed from the flange while still installed in the cylinder. This allows quick sensor cartridge replacement without the loss of hydraulic pressure.

Standard Magnet

A wide selection of ring magnet to choose from.

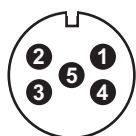
## Wiring



|   | Voltage       | Current       | Start/Stop |
|---|---------------|---------------|------------|
| 1 | 0-10V output  | Signal output | Stop (-)   |
| 2 | Pin 1 DC Gnd. | Signal Gnd    | Stop (+)   |
| 3 | 10-0V output  | N.C.          | Start (+)  |
| 4 | Pin 3 DC Gnd. | N.C.          | Start (-)  |
| 5 | +24 Vdc       | +24 Vdc       | +24 Vdc    |
| 6 | 0 Vdc         | 0 Vdc         | 0 Vdc      |

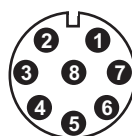
D60 connector  
(View toward sensor pins)

|   | Cable  | Voltage      | Current       |
|---|--------|--------------|---------------|
| 1 | Black  | 0-10V Output | Signal Output |
| 2 | White  | Pin 1 DC Gnd | Signal Gnd    |
| 3 | Yellow | 10-0V Output | N.C.          |
| 4 | Green  | Pin 3 DC Gnd | N.C.          |
| 5 | Red    | +24 Vdc      | +24 Vdc       |
| 6 | Blue   | 0 Vdc        | 0 Vdc         |



|   | Voltage      | Current       |
|---|--------------|---------------|
| 1 | +24Vdc       | +24Vdc        |
| 2 | 0-10V output | Signal output |
| 3 | 0 Vdc        | 0 Vdc         |
| 4 | 10-0V output | N.C.          |
| 5 | DC Gnd       | Signal Gnd    |

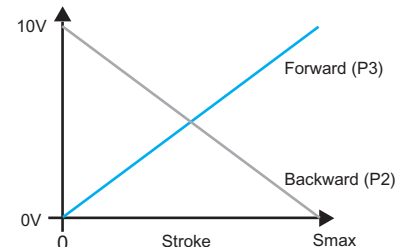
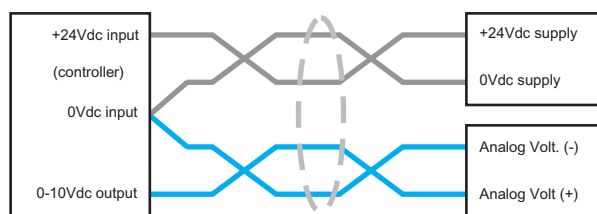
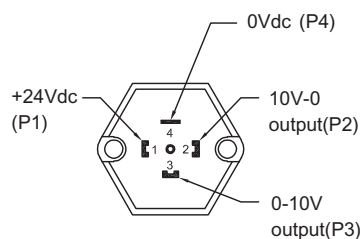
5 pins M12 connector  
(View toward sensor pins)



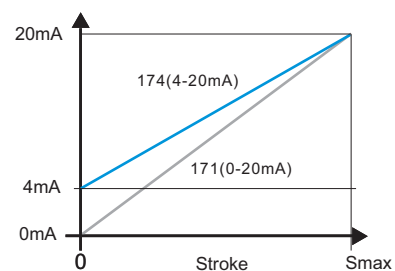
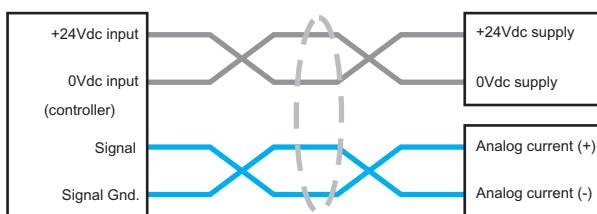
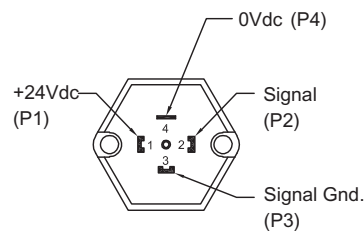
|   | Start /Stop |
|---|-------------|
| 1 | Start (+)   |
| 2 | Start (-)   |
| 3 | Stop (+)    |
| 4 | Stop (-)    |
| 5 | N.C.        |
| 6 | N.C.        |
| 7 | +24 Vdc     |
| 8 | 0Vdc        |

8 pins M12  
(View toward sensor pins)

### Analog voltage



### Analog current



### Start/Stop digital output

