Differential pressure indicator – switch
Model 180

Applications

- Lube oil filter
- Oil & gas filtration
- Strainers
- Valves

Special features

- Elastomer diaphragm operated
- Single or dual switch option
- Unique magnetic pointer movement
- Media isolated gauge case
- SS case
- 6" Dial
- Centre zero range

Differential pressure indicator, model 180

180 Differential pressure indicator has a rugged design for industrial use to measure the differential pressure in a filtration system which indicates directly on a single gauge dial.

A specially designed magnetic movement allows the instantaneous sensing of both pressures while completely isolating the gauge function from the pressure chamber without the use of mechanical seals.

Unlike ordinary differential pressure gauges, these instruments can be supplied with switching facility through a microswitch or reed switch to initiate an alarm signal or system shutdown. One (microswitch) or two (reed switch) switches can be provided to open or close on either rising or falling differential pressure. Switch setting is easily done through an external adjustment for reed switch option.

Standard version

Case
304 SS

Dial nominal size in mm
150

Dial
Aluminium, white, black lettering

Scale
Non linear

Window material
Toughened safety float glass

Accuracy
±2% FSR ascending

Hysteresis
5% FSR

Scale ranges
–250 ... 250 mmWC to 0 ... 1.6 bar

Maximum working pressure
10 Kg/Cm^2 (150 psi)

Permissible ambient temperature
–10 ... +60°C

Permissible medium temperature
100°C with Buna-N sealing (Mandatory to use impulse piping when process temperature is above 80°C)

Ingress protection
IP66 as per IEC 60529 category-2

Pointer travel
90 degree angular

Process element
- Nitrile diaphragm
- Viton diaphragm

Measuring cell
304 SS

Magnet
Barium ferrite

Range Spring
304 SS

Process entry
Sides

Process connection
- 1/4" NPTF standard
- Others through adaptor

On-off Switching differential
- Reed switch: Within 10% FSR
- Microswitch: Within 20% FSR

Switch rating
- SPDT microswitch for one setpoint
  AC: 3A 250V AC, 5A 125V AC Res.
  2A 250V AC, 3A 125V AC Ind.
  DC: 4A 30V DC, 0.4A 125V DC, 0.2A 250V DC Res
  3A 30V DC, 0.4A 125V DC, 0.2A 250V DC Ind
- Reed swtich for two independent setpoint
  DC: 0.25A Res / 3W, 120V

Switch setting adjustable
Between 10% (falling) to 90% (raising) FSR

Electrical connection

Cable entry size	Microswitch	Reed switch
M16 Nylon cable gland to suit 8 mm cable OD	✓	✓
1/2" NPT	✓	✓
0.5 mtr. flying lead, 3 core, 4.5 mm OD, PVC cable	X	✓

Mounting
Flush panel (standard)

Options
- 205°C with Viton® sealing
- 125°C with EPDM sealing
- 316 SS measuring cell
- Model 150 power relay for high electrical rating in reed switch or for DPDT option or wide band adjustable differential
- Wall mounting
- 2" pipe mounting

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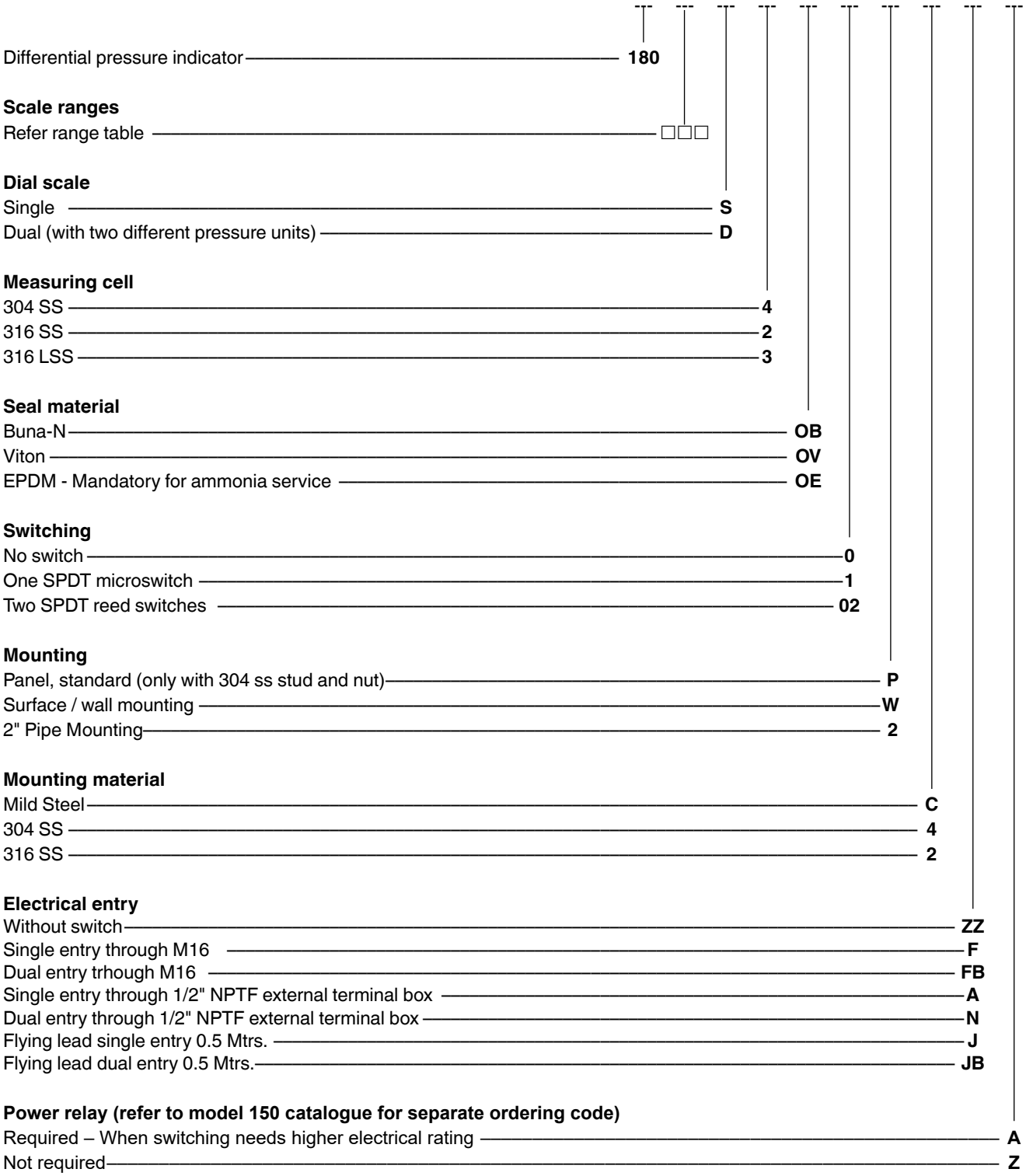
Ordering matrix



Below "options " are available, consult sales

304 SS tag plate

Wetted parts material conformation with NACE compliance (316L SS)

Full vacuum withstandability

Note: Standard single cable entry for one switch and dual cable entry for two switches.

Range table

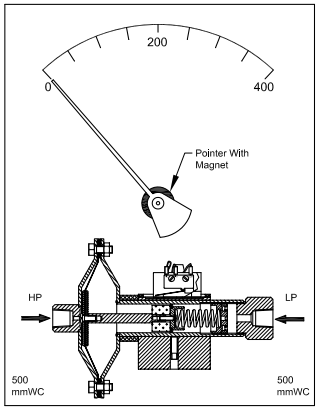
Code	Kg / Cm²	Code	PSID	Code	kPa	Code	Bar	Code	mmWC
								W147	–100 ... +250
								W010	–250 ... +250
								W009	–350 ... +350
								W008	–500 ... +500
								W012	0 ... 250
								W015	0 ... 400
								W016	0 ... 500
								W083	0 ... 600
								W017	0 ... 640
K008	0 ... 0.07	D001	0 ... 1					W019	0 ... 700
K009	0 ... 0.10							W021	0 ... 1000
K010	0 ... 0.12							W087	0 ... 1200
K011	0 ... 0.15	D002	0 ... 2					W023	0 ... 1500
K012	0 ... 0.20	D003	0 ... 3					W025	0 ... 2000
K013	0 ... 0.25							W026	0 ... 2500
K015	0 ... 0.35	D004	0 ... 5					W028	0 ... 3500
								W031	0 ... 4500
K019	0 ... 0.50	D005	0 ... 8			B090	0 ... 0.5	W032	0 ... 5000
K020	0 ... 0.60					B081	0 ... 0.6	W148	0 ... 6000
K023	0 ... 1.0	D007	0 ... 15	P002	0 ... 100	B004	0 ... 1.0	W036	0 ... 10000
K024	0 ... 1.6	D009	0 ... 25	P003	0 ... 160	B005	0 ... 1.6	W041	0 ... 16000

Design and operation

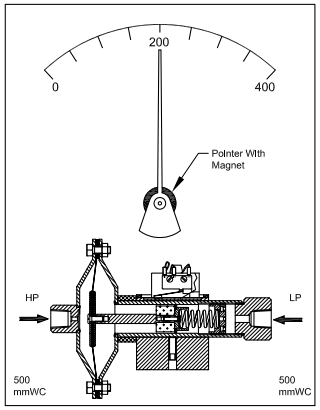
Model 180 Differential pressure instruments work on the difference between two pressures acting on opposite sides of a elastomer diaphragm. Variation in pressure difference will cause the diaphragm and magnet to move linearly in proportion to this change. A rotary pointer magnet, located in separate body cavity, follows the linear movement of the pressure sensor magnet and indicates the differential pressure on the gauge scale.

Switching is achieved by locating Micro Switch and Reed Switch adjacent to the pressure chamber. The switches are activated when the field of the linear magnet interacts at a preset point with the reed switch armature. Switch activation point is adjustable over the top 90% of the gauge range.

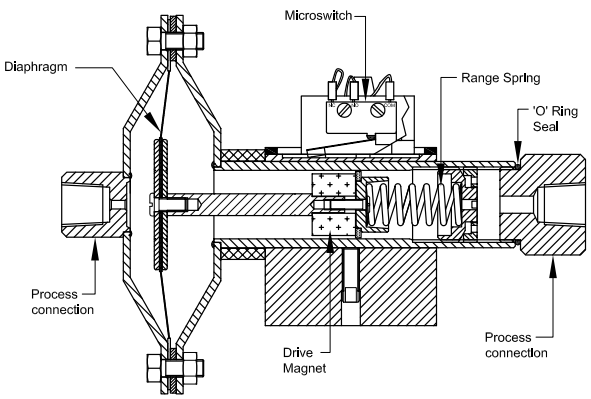
Pointer position with ZERO DP



Pointer position with DP

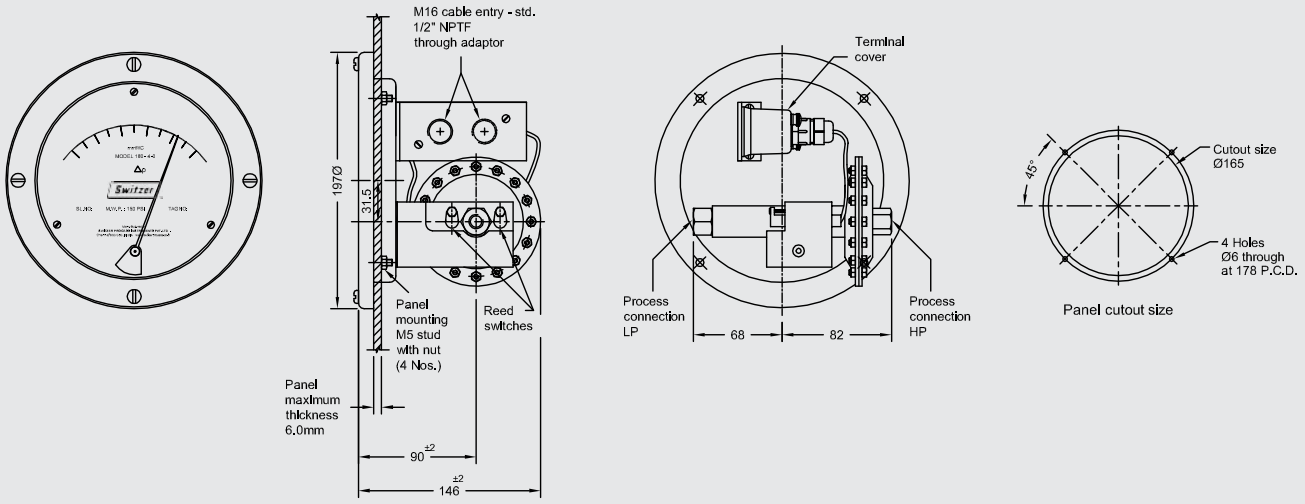


180 Body Construction

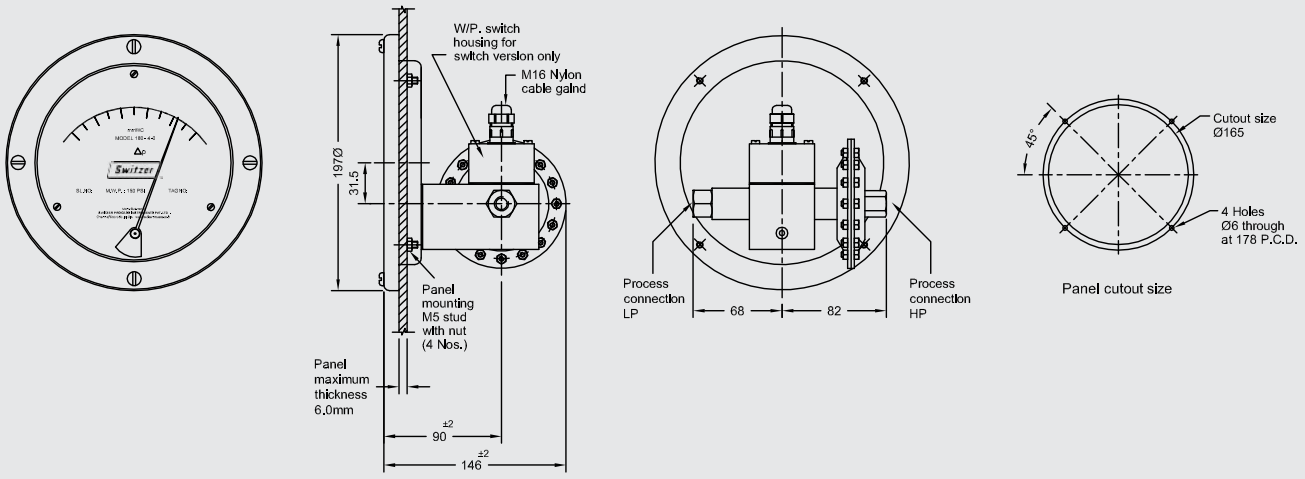


Dimensions in mm

2 SPDT Reed switch



SPDT microswitch / without switch



Ordering information

Model Number / Scale ranges / Dial scale / Measuring cell / Seal material / Switching / Mounting / Mounting material / Electrical entry / Power relay

WIKA Instruments India Pvt. Ltd.
128 SIDCO North Phase
Ambattur Industrial Estate, Chennai 600 098
Tel. +91 44 2625 2017 / 2018 / 9840919318
switch.sales@wika.com
www.wika.co.in