

Differential pressure indicator – switch Model 180

Switzer data sheet DPI-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/Cm² (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 switch 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

Differential pressure indicator	180									
Scale ranges										
Refer range table		□	□	□						
Dial scale										
Single									S	
Dual (with two different pressure units)									D	
Measuring cell										
304 SS										4
316 SS										2
316 LSS										3
Seal material										
Buna-N										OB
Viton										OV
EPDM - Mandatory for ammonia service										OE
Switching										
No switch										0
One SPDT microswitch										1
Two SPDT reed switches										02
Mounting										
Panel, standard (only with 304 ss stud and nut)										P
Surface / wall mounting										W
2" Pipe Mounting										2
Mounting material										
Mild Steel										C
304 SS										4
316 SS										2
Electrical entry										
Without switch										ZZ
Single entry through M16										F
Dual entry through M16										FB
Single entry through 1/2" NPTF external terminal box										A
Dual entry through 1/2" NPTF external terminal box										N
Flying lead single entry 0.5 Mtrs.										J
Flying lead dual entry 0.5 Mtrs.										JB
Power relay (refer to model 150 catalogue for separate ordering code)										
Required – When switching needs higher electrical rating										A
Not required										Z

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 / Cm ²	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

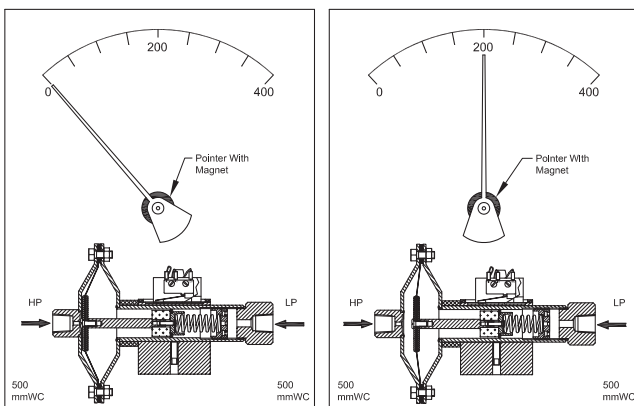
Design and operation

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.

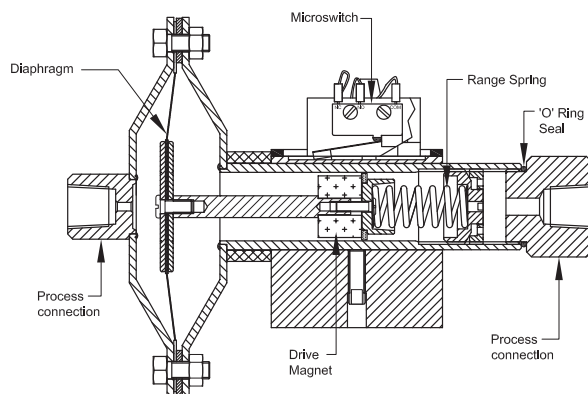
Switching is achieved by locating Micro Switch and Reed Switch adjacent to the pressure chamber. The switches are activated when the field of the linear magnet interacts at a preset point with the reed switch armature. Switch activation point is adjustable over the top 90% of the gauge range.

Pointer position with ZERO DP

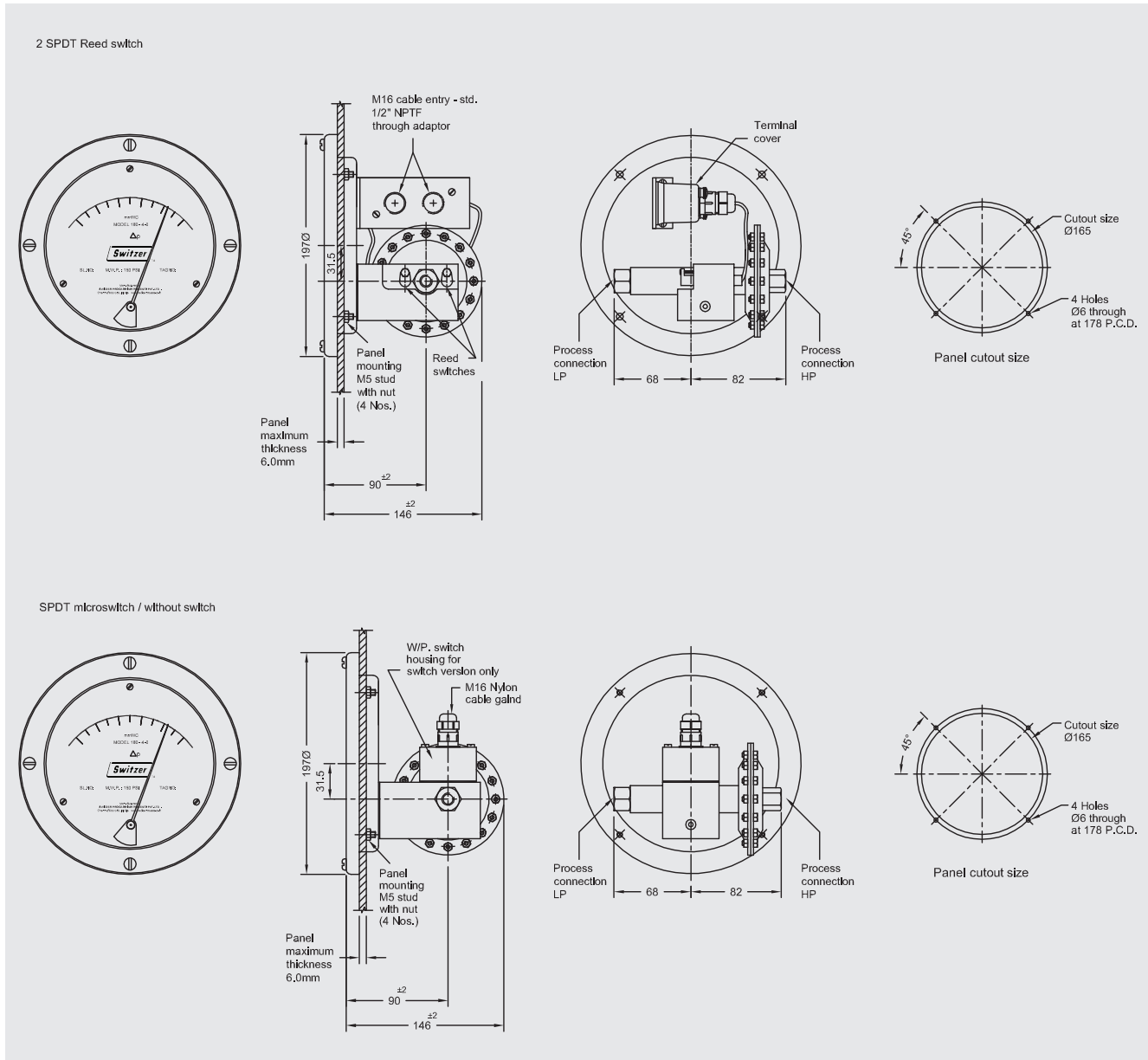
Pointer position with DP



180 Body Construction



Dimensions in mm



Ordering information

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

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