

Differential pressure indicator – switch Model 120 / 122

Switzer data sheet DPI-120/122

Applications

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

Special features

- High static pressure
- Metallic piston operated
- Single or dual switch option
- Unique magnetic pointer movement
- Media isolated gauge case
- SS case 6" dial
- Nylon case 2½" dial



Differential pressure indicator, model 120

120 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 reed switch to initiate an alarm signal or system shutdown. One or two switches can be provided to open or close on either rising or falling differential pressure. Switch setting is easily done through an external adjustment.

Standard version

Case

- Model 120: 304 SS
- Model 122: Nylon (Glass filled)

Dial nominal size in mm

- Model 120: 150
- Model 122: 65

Dial

Aluminium, white, black lettering

Scale

Non linear

Window material

- Model 120: Toughened safety float glass
- Model 122: Acrylic

Accuracy

- $\pm 2\%$ FSR ascending CF3M measuring cell
- $\pm 3\%$ FSR ascending anodised aluminium measuring cell

Hysteresis

- 5%: CF3M measuring cell
- 10%: Anodized aluminium

Scale ranges

0 ... 0.6 Kg/Cm² to 0 ... 7.0 Kg/Cm²

Maximum working pressure

- 200 bar: CF3M measuring cell
- 100 bar: Aluminium measuring cell

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 for model 120
- IP65 as per IEC 60529 category-2 for model 122

Pointer travel

120 degree angular

Process element

316 SS piston

Wetted parts

- Anodized aluminium
- CF3M (316L SS)
- Monel

Magnet

Barium ferrite

Range Spring

- 304 SS for Aluminium body
- 304 SS with PTFE coated for 316L SS and monel body

Process entry

- Rear: Model 120 / 122
- Bottom: Model 120/122
- Side: Model 122

Process connection

- 1/4" NPTF standard
- Others through adaptor

Migration of fluid from HP to LP

Will not exceed 15 SCFH

On-off Switching differential

Reed switch: Within 10% FSR

Switch rating

SPDT form reed switch (one / two)
DC: 0.25A Res, 3W, 120V

Switch setting adjustable

Between 10% (falling) to 90% (raising) FSR

Electrical connection

0.5 meter flying lead – 3 core, 4.5 mm OD, PVC cable

Mounting

Flush panel (standard)

Options

- Viton sealing
- Silicone sealing
- EPDM sealing
- Model 150 power relay for high electrical rating in reed switch or for DPDT option or wide band adjustable differential.
- DIN 43650 connector
- Integral terminal housing with M16 or 1/2" NPTF (for model 120 only)
- Wall mounting
- 2" pipe mounting
- Ammonia service
- Oxygen service

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Ordering matrix

Differential pressure gauge

Model 120: 6" (150 mm) ————— 120
 Model 122: 2½" (65 mm) ————— 122

Scale ranges

Refer range table ————— □ □ □

Dial scale

Single ————— S
 Dual (with two different pressure units) ————— D

Wetted parts

316L SS ————— 3
 Aluminium (model 122 only) ————— A
 Monel ————— M

Sealing

Buna-N ————— OB
 Viton ————— OV
 Silicon ————— OS
 EPDM (Mandatory for ammonia service) ————— OE

Gauge switching

No switch ————— 0
 One SPDT reed switch ————— 01
 Two SPDT reed switch (Not available in bottom connection) ————— 02

Process connection type

Rear ————— 5
 Side (model 122 only) ————— 1
 Bottom ————— 2

Process connection

1/4" NPTF ————— S1
 Others through adaptor ————— S3

Mounting

Panel, standard (only with 304 SS stud and nut) ————— P
 Wall ————— W
 2" Pipe ————— 2

Mounting Material

304 SS (Panel mounting only) ————— 4
 Mild Steel ————— C
 316 SS ————— 2

Electrical entry

Without switch ————— ZZ
 Single entry through DIN connector ————— 0
 Dual entry through DIN connector (not applicable for bottom connection) ————— NO
 Single entry through 1/2" NPTF external terminal box (120 only) ————— A
 Dual entry through 1/2" NPTF external terminal box (120 only) ————— N
 Dual entry through M16 (120 only) ————— FB
 Single entry through M16 (120 only) ————— F
 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)

With – When switching needs higher electrical rating ————— A
 Without ————— Z

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

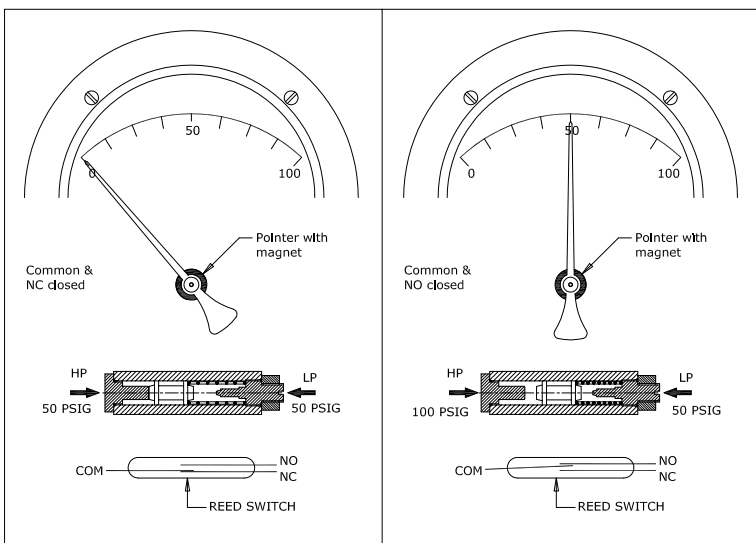
Range table

Code	Kg / Cm ²	Code	PSID	Code	kPa	Code	Bar
K020	0 ... 0.6	---	---	---	---	B081	0 ... 0.6
K022	0 ... 0.7	D006	0 ... 10	---	---	B082	0 ... 0.7
K023	0 ... 1	D007	0 ... 15	P002	0 ... 100	B004	0 ... 1
K047	0 ... 1.4	---	---	---	---	B083	0 ... 1.4
K024	0 ... 1.6	D008	0 ... 20	P003	0 ... 160	B005	0 ... 1.6
K025	0 ... 1.75	D009	0 ... 25	---	---	B084	0 ... 1.7
K026	0 ... 2	D010	0 ... 30	---	---	B006	0 ... 2
K027	0 ... 2.5	---	---	P004	0 ... 250	B007	0 ... 2.5
K028	0 ... 3.5	D011	0 ... 50	---	---	B008	0 ... 3.5
K029	0 ... 4	D012	0 ... 60	P005	0 ... 400	B056	0 ... 4
K048	0 ... 5	D013	0 ... 75	---	---	B009	0 ... 5
K030	0 ... 6	---	---	P006	0 ... 600	B057	0 ... 6
K031	0 ... 7	D014	0 ... 100	P007	0 ... 700	B010	0 ... 7

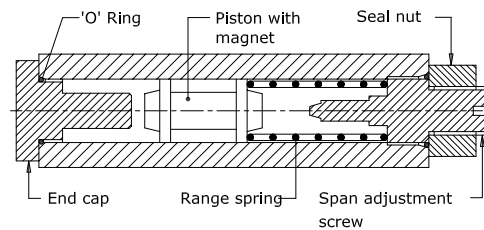
Design and operation

In models 120 / 122 differential pressure instruments work on the difference between two pressures acting on opposite side of a pressure sensor (piston). Variation in pressure difference will cause the pressure sensor and linear magnet to move in proportion to this change. A rotary pointer magnet, located in a 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 reed switches 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 actuation point is adjustable over the top 80% of the gauge ranges.

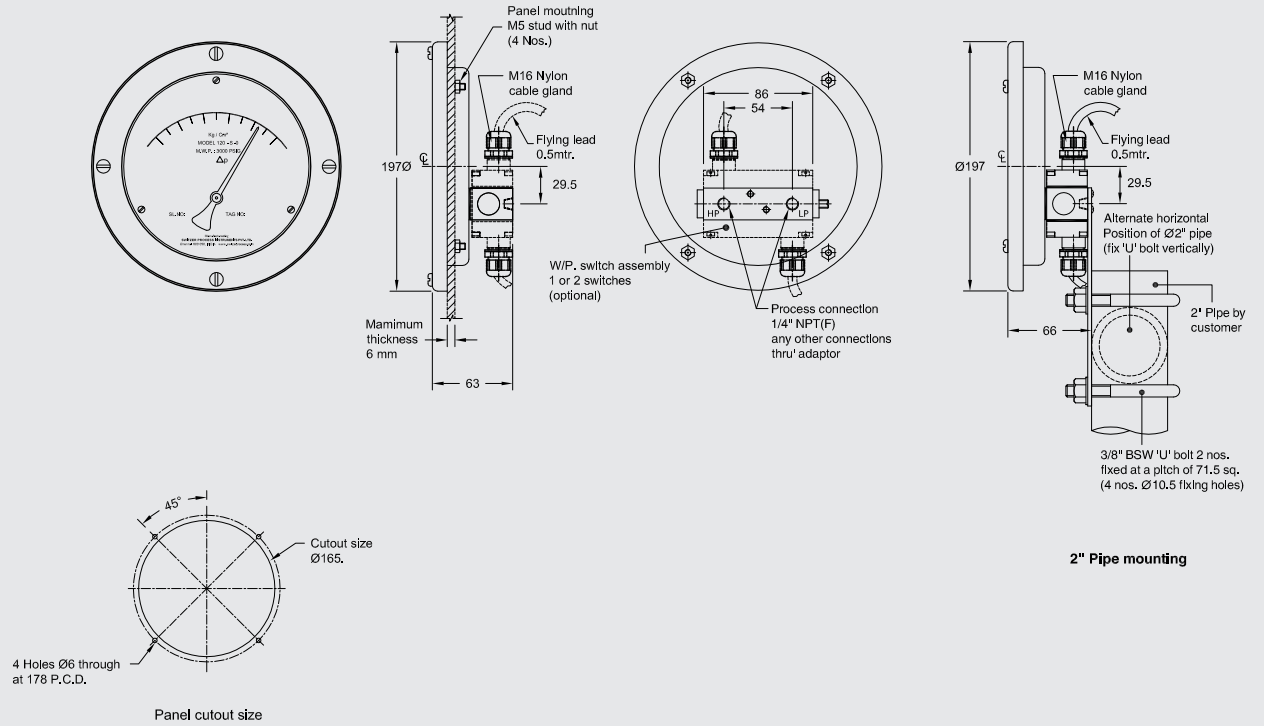


120 / 122 Body construction

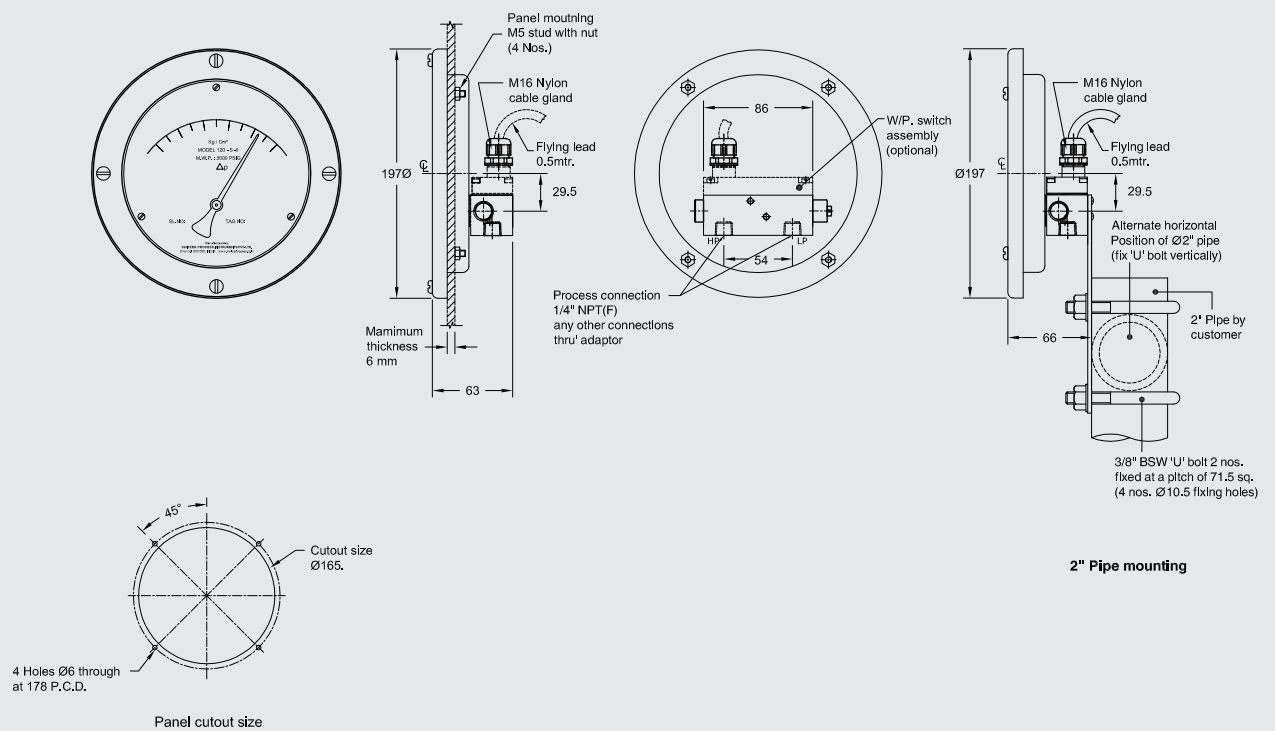


Dimensions in mm

Model 120 rear connection

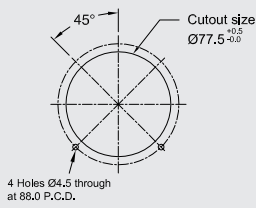
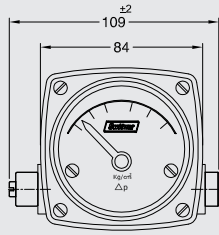


Model 120 bottom connection

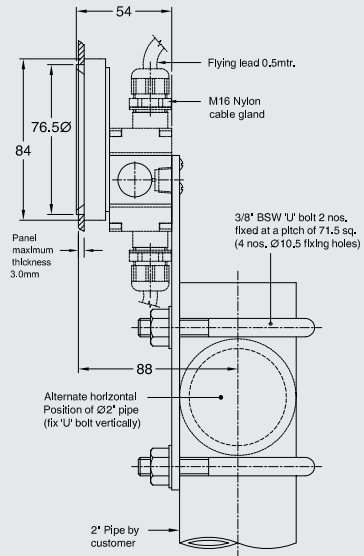
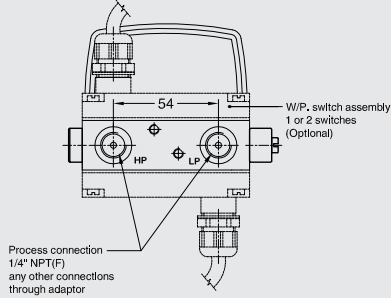


Dimensions in mm

Model 122 rear connection

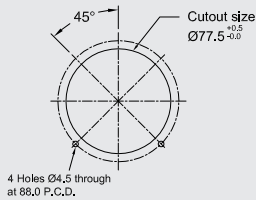
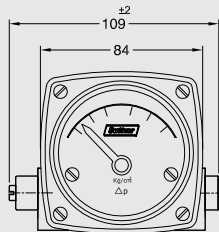


Panel cutout size

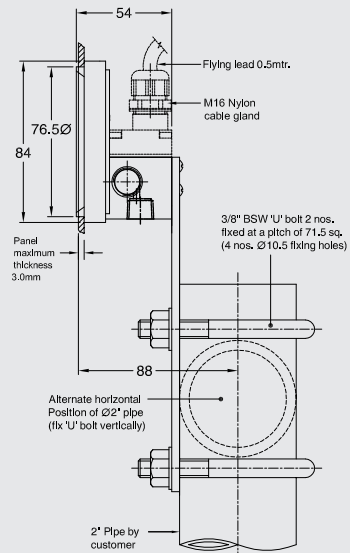
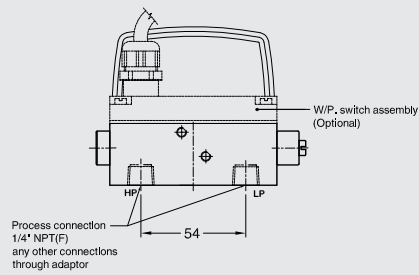


2" Pipe mounting

Model 122 bottom connection



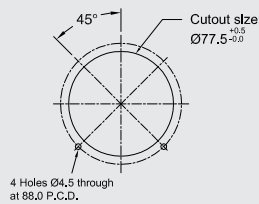
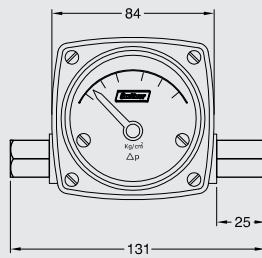
Panel cutout size



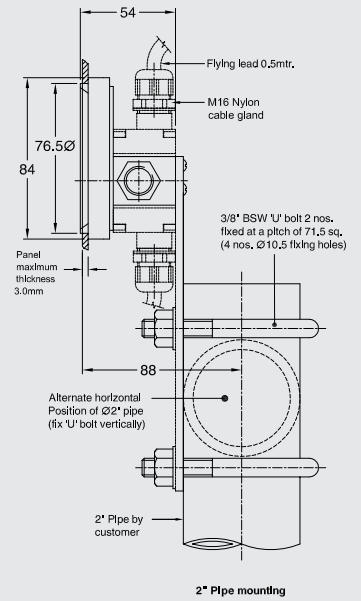
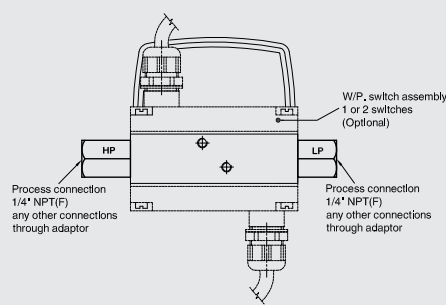
2" Pipe mounting

Dimensions in mm

Model 122 side connection



Panel cutout size



Ordering information

Model number / Scale ranges / Dial scale / Wetted parts / Sealing / Gauge switching / Process connection type / Process connection / Mounting / Mounting material / Electrical entry / Power relay

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