Differential pressure indicator – switch
Model 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

Fig. Differential pressure indicator, model 120

Description

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.

Specifications

Basic information	
Case	■ 304 SS for model 120 ■ Nylon (Glass filled) for model 122
Dial nominal size	■ 150 mm for model 120 ■ 65 mm for model 122
Dial	Aluminium, white, black lettering
Scale	Non linear
Window material	■ Toughened safety float glass for model 120 ■ Acrylic for model 122
Wetted parts	■ Anodized aluminium ■ CF8M (316 SS) ■ 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
Migration of fluid from HP to LP	Will not exceed 15 SCFH

Accuracy class (includes linearity)	
Accuracy	■ ±2% FSR ascending CF8M, CF3M sensor housing ■ ±3% FSR ascending anodised aluminium sensor housing
Hysteresis	■ 5%: CF8M, CF3M sensor housing ■ 10%: Anodized aluminium sensor housing

Output signal	
Scale ranges	→ See table 1
Maximum working pressure	■ 100 bar: Aluminium measuring cell ■ 400 bar: CF8M, CF3M measuring cell
Response time	<1 second
Pointer travel	120 degree angular
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

Process connection	
Type	■ Rear: Model 120 / 122 ■ Bottom: Model 120/122 ■ Side: Model 122 (only for aluminium wetted parts)
Size	■ 1/4" NPT(F) per ASME B1.20.1 standard ■ Others through adaptor

Operating condition	
Permissible ambient temperature	-10°C ... +60°C [14 ... 140°F]
Permissible medium temperature	100°C with Buna-N sealing (mandatory to use impulse piping when process temperature is above 80°C)
Mounting	Flush panel (standard)
Ingress protection	■ IP66 as per IEC 60529 category-2 for model 120 ■ IP65 as per IEC 60529 category-2 for model 122

Table 1: Range

Code	Kg / Cm²	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

Table 2: Electrical entry

Size	Single entry					Dual entry				
	Model 120		Model 122			Model 120		Model 122		
	Bottom	Rear	Bottom	Rear	Side	Bottom	Rear	Bot-tom	Rear	Side
DIN connector	O	O	O	O	O	-	NO	-	NO	NO
1/2" NPT(F) per ASME B1.20.1 external terminal box	A	A	-	-	-	-	N	-	-	-
M16 per ISO724	F	F	-	-	-	-	FB	-	-	-
Flying lead 0.5 Mtrs.	J	J	J	J	J	-	JB	-	JB	JB

Ordering matrix

Differential pressure gauge
Model 120: 6" (150 mm) — **120**
Model 122: 2½" (65 mm) — **122**

Scale ranges
Refer table 1 — □□□

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

Wetted parts
316 SS — **2**
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" NPT(F) per ASMI B1.20.1 — **S1**
Others through adaptor — **S3**

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

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

Electrical entry
Without switch — **ZZ**
With switch: Refer table 2 — □

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
For available other options refer page 5

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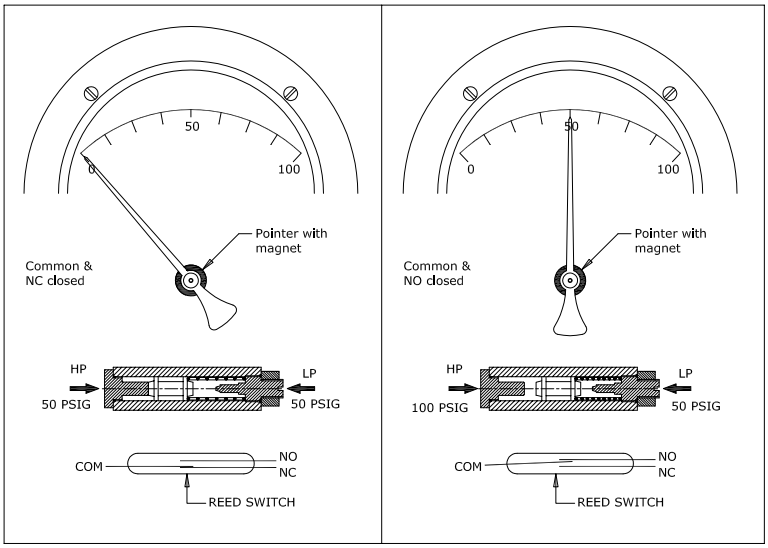
Options for model 120 / 122

- 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.
- Integral terminal housing with M16 per ISO724 or 1/2" NPT(F) per ASME B1.20.1 (for model 120 only)
- Ammonia service
- Oxygen service

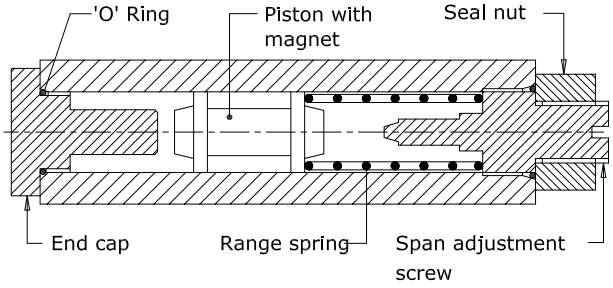
Design and operation

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.

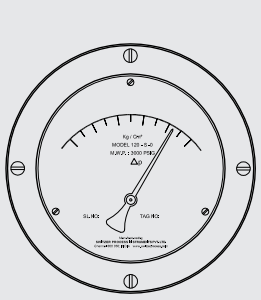


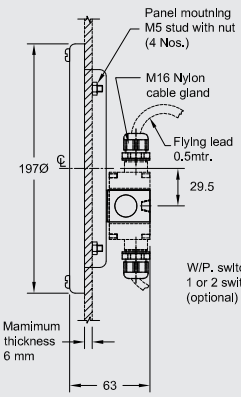
120 / 122 Body construction

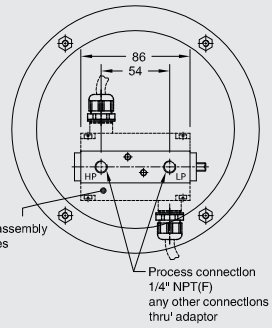


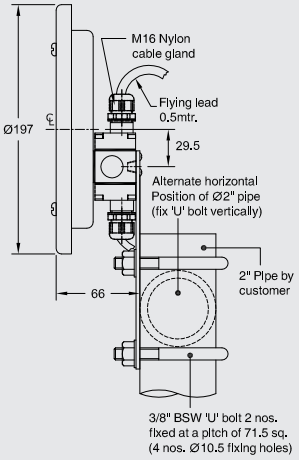
Dimensions in mm

Model 120 rear connection

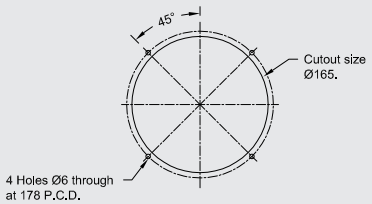






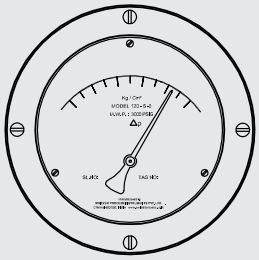


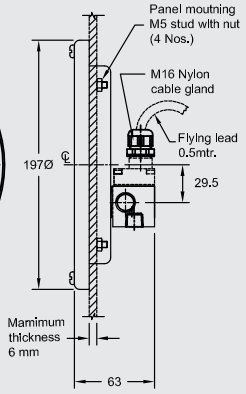
2" Pipe mounting

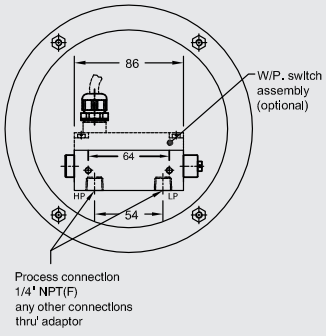


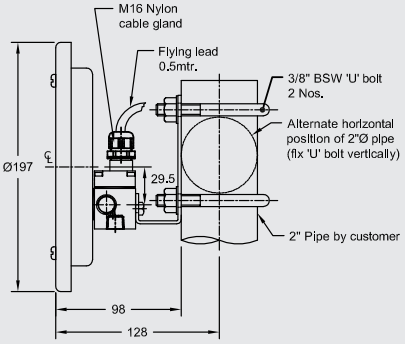
Panel cutout size

Model 120 bottom connection

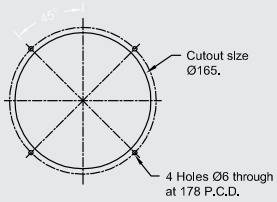








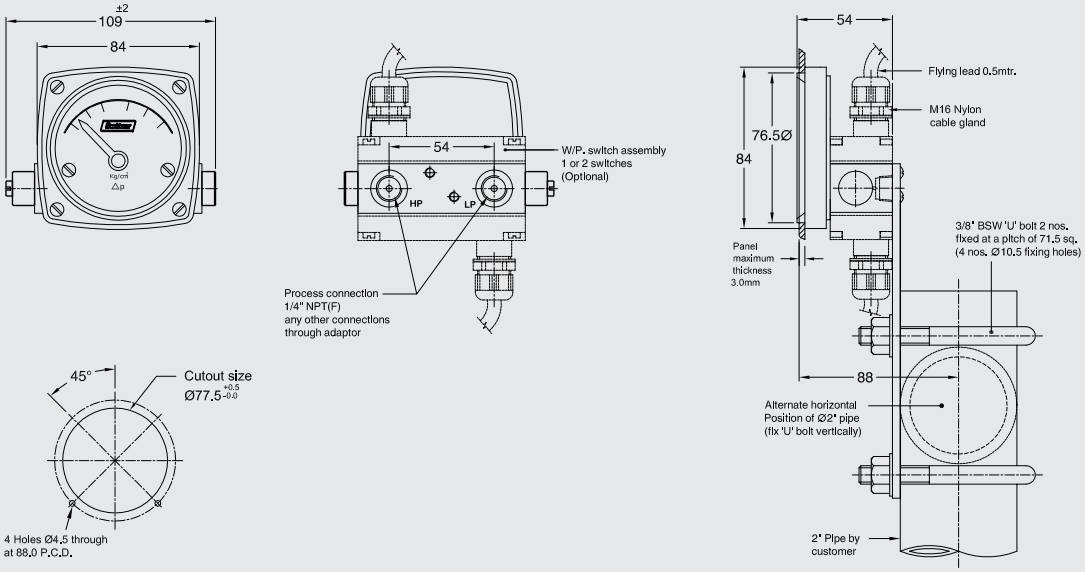
2" Pipe mounting



Panel cutout size

Dimensions in mm

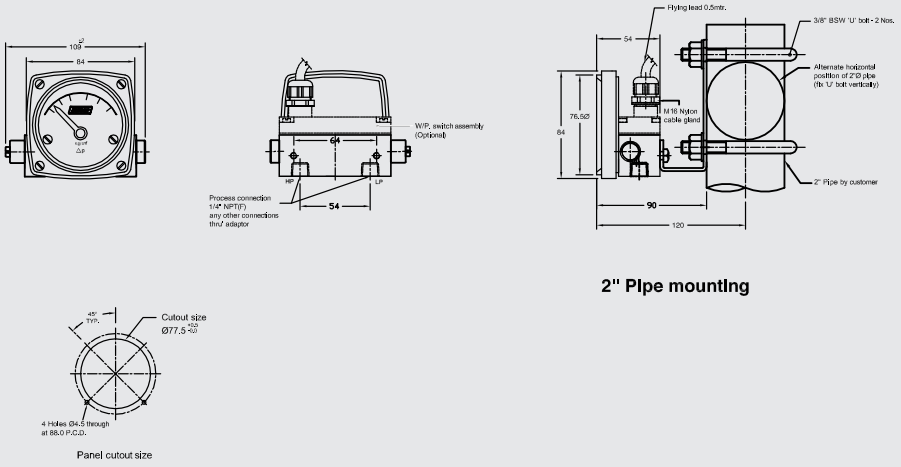
Model 122 rear connection



Panel cutout size

2" Pipe mounting

Model 122 bottom connection



2" Pipe mounting

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

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