

DIAPHRAGM INSTRUMENTS



Manometer India manufactures quality differential pressure instruments designed to measure the difference in pressure between two points in a system and show it on a single dial instrument. A magnetic movement senses the differential pressure. The instrument has separate pressure and indicating chambers.

These diaphragm instruments can indicate small values of differential pressure even when used at high line pressures. They provide instantaneous and continuous information regarding system conditions helping in eliminating premature servicing of equipment, avoid unscheduled down time of costly processes and detect abnormal system conditions.

Switching Facility : Instruments can be supplied with reed switches to initiate alarms, activate other equipment, or shut the system down. Two switches are used when high and low limits are desired. Gauge-switch models provide the user with both, gauge readout and switch operation.

APPLICATIONS :

Monitor filter conditions, set filter by-pass, or initiate filter cleaning cycle. Determine obstructions in process lines. Check condition of pumps, heat exchangers, and other processing equipment. Detect abnormal and reverse flow conditions. Measure flow rates with venturi, orifice, or pitot tube. Balance and adjust flow rates in piping system. Monitor liquid levels in tanks.

300 DGC

Small Convoluted Diaphragm Instruments

SALIENT FEATURES

Cost effective and reliable.
Simple and compact design.
Easy to read dial gauge eliminates the accumulated errors of two instrument installations.

Working pressure up to 100 bar.

Differential pressure range up to 4bar.

Adjustable reed contact switching.
Indicating mechanism isolated from pressure chamber.

Wide applications in air, gas and liquid media.

Zero migration between high and low pressures.

Only switch is also available.

Manufactured in ISO 9002 certified plant.

Exported worldwide.



MANOMETER (INDIA) Pvt. Ltd.
MANU MANSION,
16, SHAHID BHAGATSINGH ROAD,
MUMBAI - 400 023.
Tel. : 2266 2076 / 2266 2942
Fax: 91 - 22 - 2266 2397
E-mail: manometer@vsnl.com
www.manometerindia.com

MAGNETIC PRINCIPLE

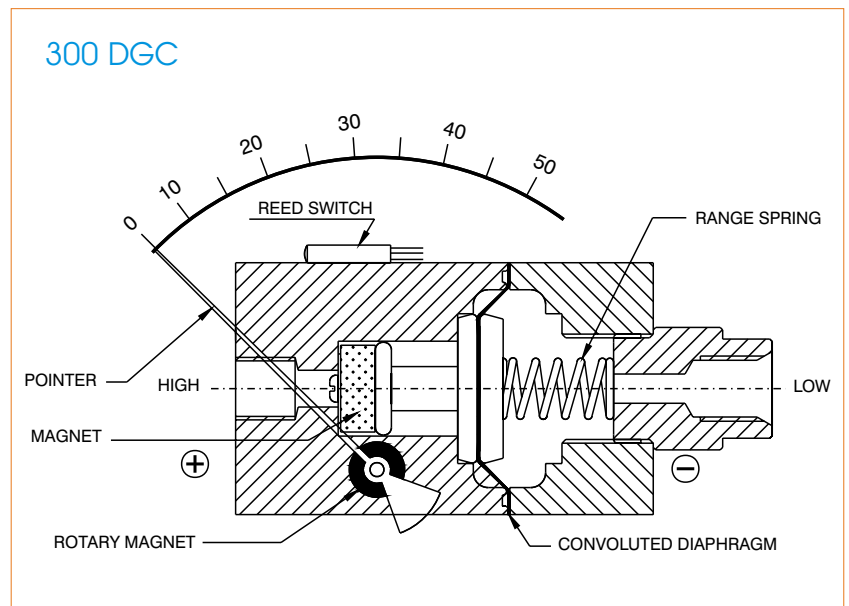


OPERATING PRINCIPLE

High and Low pressures are separated by a sensor assembly consisting of a magnet, diaphragm, and a range spring. The difference in pressure causes the sensor assembly to move in proportion to the change against a range spring.

A rotary magnet, located in a separate body cavity and isolated from the acting pressures, is rotated by magnetic coupling as per the linear movement of the sensor assembly. A pointer attached to the rotary magnet indicates differential pressure on the dial.

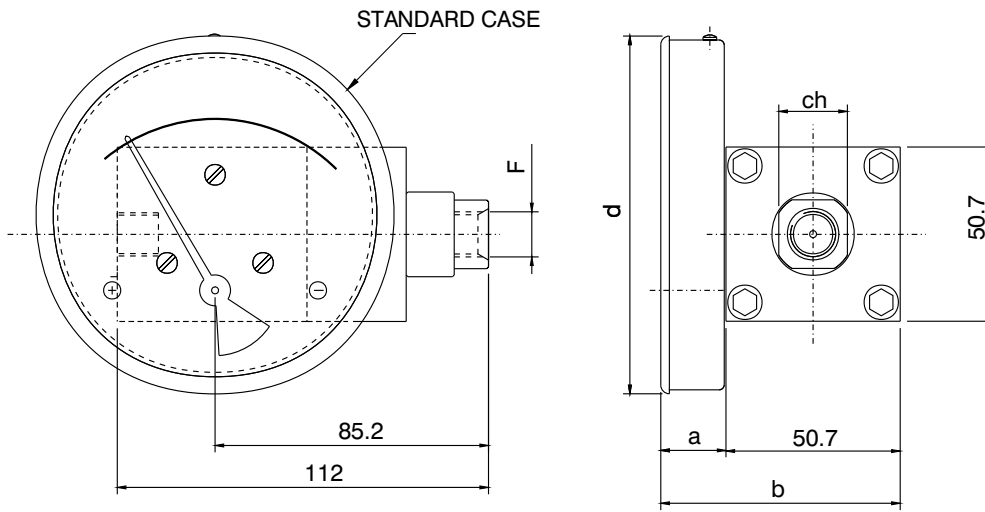
Switch : Reed switches are located adjacent to the pressure chamber and are activated by the magnetic field of the sensor assembly



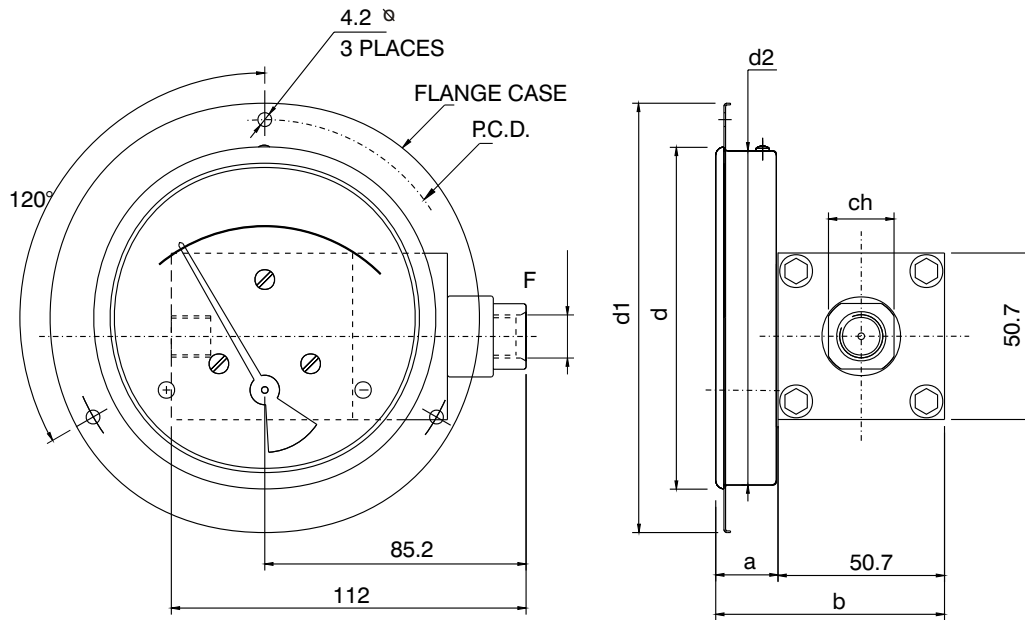
TECHNICAL DATA (MODEL 300 DGC)

| | | |
|----------------------|---|--|
| Ranges | : | 0-0.075 to 0-4 bar |
| Units of calibration | : | Kg/cm ² , mbar, mm H ₂ O, IN H ₂ O, psi |
| Operating principle | : | Magnetic coupling with a convoluted diaphragm sensor. |
| Working pressure | : | 100 bar / 1500 psi |
| Accuracy | : | ± 2 % of FSD (Ascending) |
| Dial sizes | : | 2.5"(63 mm), 3.5"(80 mm), 4"(100 mm), 4.5"(115 mm)& 6"(150 mm) |
| Body Material | : | Aluminium, Brass & SS-316. |
| Temperature | : | 80°C Max. for the media. |
| Protection | : | IP 65 for gauge |
| Migration of media | : | Zero migration between high and low pressures. |
| Connections | : | 1/4" NPT(Female) or 1/4" BSP(Female-on request). |
| Wetted parts | : | Diaphragm, ceramic magnet, SS 304 spring. Other internal parts in Aluminium, Brass, or SS-316 as per the gauge body. |
| Seals | : | Buna-N, (Standard), Viton |
| Porting | : | In line (standard), Bottom or Back. |
| Switch | : | SPST or SPDT, one or two. Switches are field adjustable. The set points can be increased or decreased externally with simple screwdriver adjustments. When two switches are used, either switch can be adjusted independently. |
| Dial case | : | Stainless steel case and flange |
| Window | : | Glass (Standard), Acrylic, Toughened glass on request. |
| Other options | : | Glycerine filling, red resettable follower pointer, dual scale, strainer in (+) connection |

STANDARD DIMENSIONS (MODEL 300 DGC)



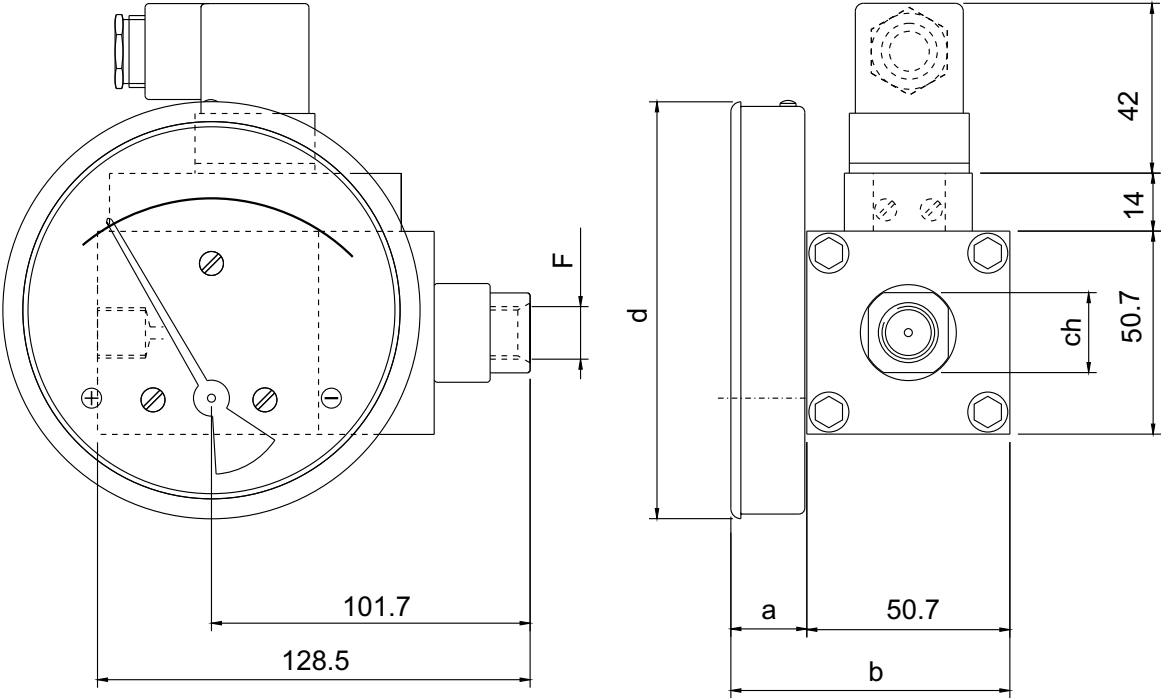
| DIAL Ø | F | a | b | d | ch |
|-----------|-------------------|----|------|-------|----|
| 63 (2.5") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 66 | 20 |
| 80 (3.5") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 83 | 20 |
| 100 (4") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 104.3 | 20 |
| 115(4.5") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 119.7 | 20 |
| 150(6") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 154.3 | 20 |



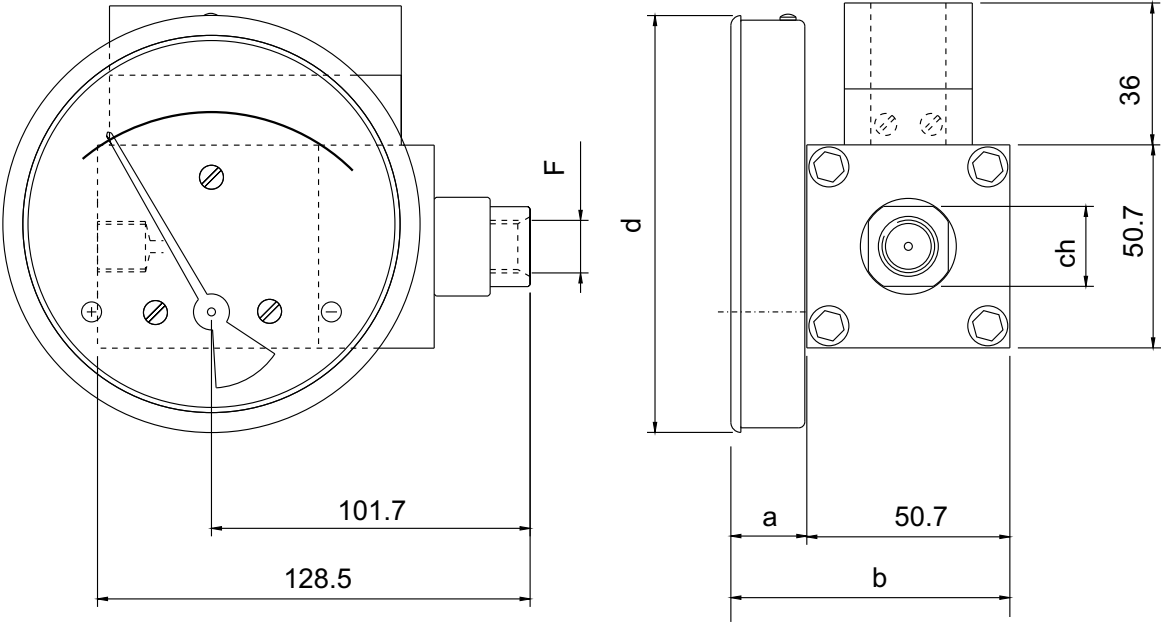
| DIAL Ø | F | a | b | d1 | d2 | ch | p.c.d. | d * |
|-----------|-------------------|----|------|-----|-------|----|--------|-------|
| 63(2.5") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 93 | 65 | 20 | 83 | 66 |
| 80(3.5") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 109 | 82 | 20 | 99 | 83 |
| 100(4") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 131 | 102 | 20 | 121 | 104.3 |
| 115(4.5") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 146 | 117 | 20 | 136 | 119.7 |
| 150(6") | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 181 | 152.5 | 20 | 171 | 154.3 |

* PANEL CUTOUT = d +1

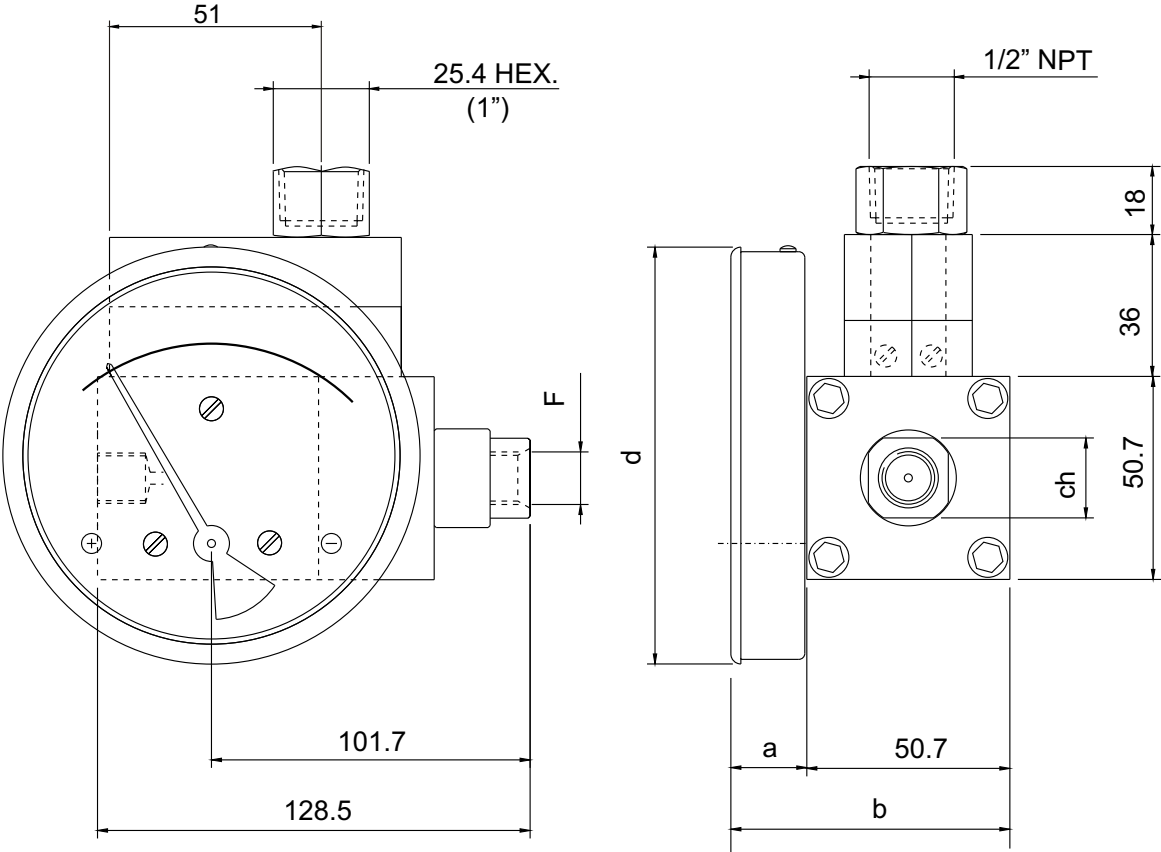
**GAUGE + SWITCH WITH REED CONTACTS WITH DIN PLUG AND TERMINAL STRIP
(MODEL 300 DGC)**



| DIAL Ø | F | a | b | d | ch |
|--------|-------------------|----|------|-------|----|
| 63 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 66 | 20 |
| 80 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 83 | 20 |
| 100 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 104.3 | 20 |
| 115 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 119.7 | 20 |
| 150 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 154.3 | 20 |



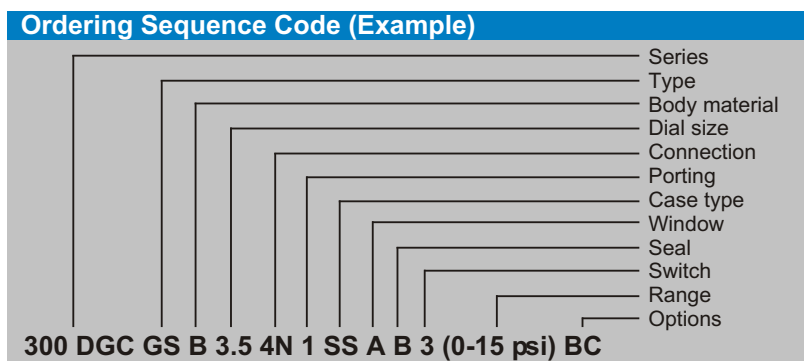
GAUGE + SWITCH WITH REED CONTACTS WITH TERMINAL STRIP & 1/2" NPT CONDUIT CONNECTION (MODEL 300 DGC)



| DIAL Ø | F | a | b | d | ch |
|--------|-------------------|----|------|-------|----|
| 63 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 66 | 20 |
| 80 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 83 | 20 |
| 100 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 104.3 | 20 |
| 115 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 119.7 | 20 |
| 150 | 1/4"BSP - 1/4"NPT | 19 | 69.7 | 154.3 | 20 |

HOW TO ORDER A DIFFERENTIAL PRESSURE INSTRUMENT, MODEL 300 DGC

| Example | Code | Descriptions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|----------|--|--------------------|-------|------|-----|-----|------|-----|-----|-----|----|-----|---|---|---|-----|-------|------|---|-----|------|---|---|-----|---|-----|---|---|---|------|----|-----|---|---|-----|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|----|----|----|----|---|----|----|----|-----|---|----|---|----|----|-----|---|-----|-----|-----|-----|---|-----|
| Series | 300 DGC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type | GS | G S GS Gauge + Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Body material | B | A Aluminium (anodized semi hard) B Brass (Long delivery time) S SS-316 (Long delivery time) N Nylon (Long delivery time) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dial size | 3.5 | 2.5 2.5" (63 mm) 4.5 4.5" (115 mm) 3.5 3.5" (80 mm) 6.0 6.0" (150 mm) 4.0 4.0" (100 mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connection | 4N | 4B 1/4" BSP (Female)(on request) 4N 1/4" NPT (Female) ZZ Special connection sizes using adaptor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Porting | 1 | 1 In-line (Standard) 2 Rear / Back 3 Bottom 4 Bottom & Vent 5 Inline & Vent | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Case type | SS | SS SS 304 with a rubber ring (standard) SF SS 304 flange with a rubber ring (standard flange) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Window | A | F Glass (standard) A Acrylic T Toughened glass | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Seal | B | B Buna-N (standard) V Viton E EPDM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Switch | 3 | 0 None 1 One SPST, with a DIN plug* 2 One SPST, with a terminal strip 2A One SPST, with built in relay 3 Two SPSTs, with a DIN plug* 4 Two SPSTs, with a terminal strip 5 One SPDT, with a DIN plug* 6 One SPDT, with a terminal strip 7 Two SPDTs, with two DIN plugs* 8 Two SPDTs, with a terminal strip | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <p>SPST Specifications : 10 VA AC or DC (max) 150 V AC or DC (max) 0.5 Amp AC or DC (max)</p> <p>SPDT Specifications : 5 VA AC or DC (max) 175 V AC or DC (max) 0.25 Amp AC or DC (max)</p> <p>Built in relay : 230 V AC, 1 Amps.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <p>* DIN plug : we mount it on the top, on the plastic switch cover. However we can give it at the back as a request.</p> <p>Switch applicable for "S" & "GS" types only. Switches operate from 30 to 100% of the range & mounted at the back. Switches are in a plastic enclosure, they are factory set, field adjustable.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard Ranges | 0-15 psi | <table border="1"> <tr> <td>Kg/cm²</td> <td>0.075</td> <td>0.25</td> <td>-</td> <td>0.5</td> <td>0.75</td> <td>1</td> <td>-</td> <td>1.6</td> <td>2</td> <td>2.5</td> <td>3</td> <td>-</td> <td>4</td> </tr> <tr> <td>bar</td> <td>0.075</td> <td>0.25</td> <td>-</td> <td>0.5</td> <td>0.75</td> <td>1</td> <td>-</td> <td>1.6</td> <td>2</td> <td>2.5</td> <td>3</td> <td>-</td> <td>4</td> </tr> <tr> <td>Mbar</td> <td>75</td> <td>250</td> <td>-</td> <td>-</td> <td>750</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>psi</td> <td>1</td> <td>-</td> <td>5</td> <td>8</td> <td>-</td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> <td>-</td> <td>40</td> <td>50</td> <td>60</td> </tr> <tr> <td>kPa</td> <td>-</td> <td>25</td> <td>-</td> <td>50</td> <td>75</td> <td>100</td> <td>-</td> <td>160</td> <td>200</td> <td>250</td> <td>300</td> <td>-</td> <td>400</td> </tr> </table> <p>Other ranges on request.</p> | Kg/cm ² | 0.075 | 0.25 | - | 0.5 | 0.75 | 1 | - | 1.6 | 2 | 2.5 | 3 | - | 4 | bar | 0.075 | 0.25 | - | 0.5 | 0.75 | 1 | - | 1.6 | 2 | 2.5 | 3 | - | 4 | Mbar | 75 | 250 | - | - | 750 | - | - | - | - | - | - | - | - | psi | 1 | - | 5 | 8 | - | 15 | 20 | 25 | 30 | - | 40 | 50 | 60 | kPa | - | 25 | - | 50 | 75 | 100 | - | 160 | 200 | 250 | 300 | - | 400 |
| Kg/cm ² | 0.075 | 0.25 | - | 0.5 | 0.75 | 1 | - | 1.6 | 2 | 2.5 | 3 | - | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bar | 0.075 | 0.25 | - | 0.5 | 0.75 | 1 | - | 1.6 | 2 | 2.5 | 3 | - | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mbar | 75 | 250 | - | - | 750 | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| psi | 1 | - | 5 | 8 | - | 15 | 20 | 25 | 30 | - | 40 | 50 | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| kPa | - | 25 | - | 50 | 75 | 100 | - | 160 | 200 | 250 | 300 | - | 400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | BC | 0 None A Glycerine filling (Affects accuracy) B Red follower pointer on acrylic window (Affects accuracy) C Customer Logo D Dual scale E Colour band F Strainer in (+) connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Limitations for making combinations:
Glycerine filling will not have follower pointer. No follower pointer available in 6" (150 mm).

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing, modifications may take place and materials specified may be replaced by others without prior notice.