Pressure switch type 188

The rugged and hardwearing **pressure switches series 188** are used to control pressures in the range 0.1 to 1600 bar.

Operation (bellows operated units)
The pressure acts upon a spring loaded metal bellows. On reaching the adjusted set point, the bellows operates via a push rod the micro switch. In case of the explosionproof model, a permanent magnet fixed to the bellows acts on the explosionproof sealed contact located adjacent to the rising tube. In case of bellows breakage this model switches to the safe side thus staying sealed. The set point is either fixed or adjustable.

Operation (bourdon tube operated units)
The pressure acts upon a bourdon tube and moves its free end having constant reproducibility. Dependent on model the free end operates one or two inductive proximity sensors or metal encapsulated reed contacts. Set point fixed or adjustable.

Advantages
- Simple construction make the units highly reliable.
- High grade steel model for use with aggressive media or in aggressive environment.
- Models available in sea-water resistant gun metal for use in marine or tropical climates.
- Explosionproof models available to several standards.
- The units operate in any position.
- No maintenance needed.
- Long-term continuity of spares availability.

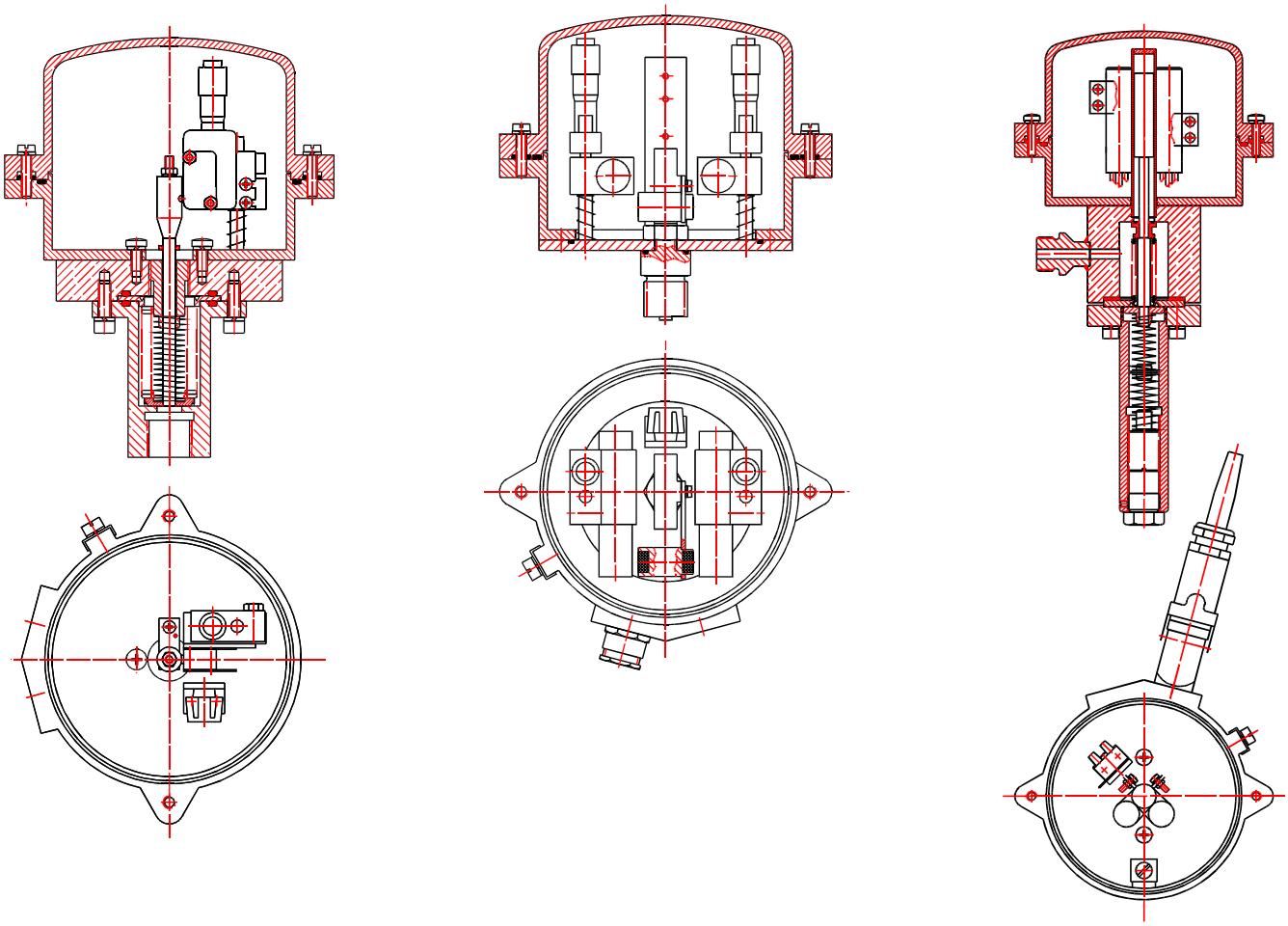
Suitability
- Pump pressure control.
- Air pressure control.
- Controlling of liquid levels under atmospheric pressure.
- High pressure gas control.
- Leakage control.
- Compressor control.

Models

Type 188	Bellows operated unit, control range 0.1 to 15 bar. Process connection G 1/2 or 1/2“ NPT at the bottom.
Type 188(Ex)i	Same as type 188, but suitable for the use in intrinsically safe circuits.
Type 188(Ex)	Bellows operated unit with encapsulated reed contact, explosionproof (Ex) H 2 G EEx de II CT6 EG – design approved, certificate TÜV 03 ATEX 2163, control range 0.1 to 25 bar, set point adjustable. Process connection G 1/8 sideways.
Type 188 S	Bellows unit for low set point with high max. pressure.
Type 188ind.	Bourdon-tube operated unit with inductive proximity sensor, control ranges 1 to 1600 bar, Process connection G ½ or 1/2“ NPT at the bottom.
Type 188hv	Bourdon-tube operated unit with encapsulated reed contact, control ranges 1 to 1600 bar, Process connection G ½ or 1/2“ NPT at the bottom.

Option

An amplifier installed within the switch housing makes the type 188ind. suitable for power supply 230 V 50 Hz and switching current up to 7.5 A.



DOSCH MESSAPPARATE Wiener Str. 10 D-10999 Berlin Tel. (030) 720153-0 FAX (030) 720153-61

Technical data

Standard model
The wetted parts are made of corrosion and acid resistant stainless steel, type V4A, material no. 1.4571 (similar to AISI 316 TI); the switch housing is made of aluminium, the unit is painted light grey according to RAL 7001; the cable entry uses a Pg 11 connection or M 20 x 1.5 ISO; protection class according to DIN 40050 IP 54, one switch contact, either fixed or adjustable.

Alternative models
- Wetted parts made of Monel.
- Switch housing made of corrosion and acid resistant stainless steel, material no. 1.4408 (similar to AISI CF-8M).
- Protection class DIN 40050 IP 65.
- Model with diaphragm seal.
- Process connection to meet customers requirements.

Standard switching ranges for bellows operates units	0.1 to	0.3 bar
	0.3 to	0.9 bar
	0.5 to	1.5 bar
	1.0 to	3.0 bar
	2.0 to	6.0 bar
	3.0 to	9.0 bar
	5.0 to	15.0 bar
Standard switching ranges for bourdon tube operated units	1.0 to	10.0 bar
	2.0 to	20.0 bar
	4.0 to	40.0 bar
	40.0 to	400.0 bar
	100.0 to	1000.0 bar
	160.0 to	1600.0 bar

Admissible deviation of actual set point	+/- 5 of required set point.
Repeatability of adjusted set point	+/- 2 % of switching value.
Hysteresis	between on and off ≤ +/- 10 % of switching value.
Overload protection for bellows operated units	Standard 16 bar. Special model 40 bar.
Overload protection for bourdon tube operated units	1.3 x of max. measured value (continuously).
Operating temperature	Within the switch housing max. 100 °C, for higher temperatures the unit has to be installed such that the temperature inside the unit does not exceed 100 °C. Models for higher temperatures on request.
Ambient air temperature	-25 to +70 °C. -20 to +40°C (explosionproof model).

Switch contacts

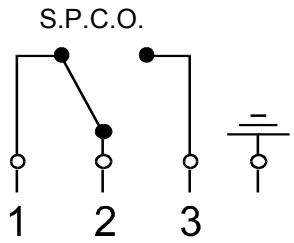
Metal encapsulated S.P.C.O. snap action reed contacts

- *Type GW with silver-palladium contacts.*
  Capacity: 250 V AC/1 A, p = max. 250 VA, or 250 V DC/1 A, p = max. 100 W.
- *Type GWW with AgSnO- contacts.*
  Capacity: 250 V AC/3 A, p = max. 750 VA, or 250 V DC/3 A p = max. 300 W.
- *Type GWG with gold contacts.*
  Capacity: 42 V AC/0.3 A, p = max. 13 VA, or 42 V DC/0.3 A, p = max. 13 W.
- *Type 177(Ex) GWW*
  Capacity: 250 V AC/2 A, p = max. 300 VA, or 250 V DC/2 A, p = max. 2 A.
- *Type 177(Ex) GWG*
  Capacity: 42 V AC/0.3 A, P = max. 13 VA, or 42 V DC/0.3 A, p = max. 13 W

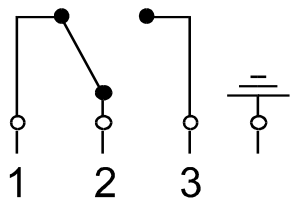
- *Inductive proximity sensor* (Namur or direct switching 2- and 3-wire performance).
- *Pneumatic contacts.*
- S.P.C.O. micro switch
  Capacity: 250 V AC/4 A. Higher values on request.

Wiring diagram for micro switches and reed contacts

Standard model micro switch



Explosion proof model with reed contact (S.P.C.O.)



DOSCH MESSAPPARATE Wiener Str. 10 D-10999 Berlin Tel. (030) 720153-0 FAX (030) 720153-61