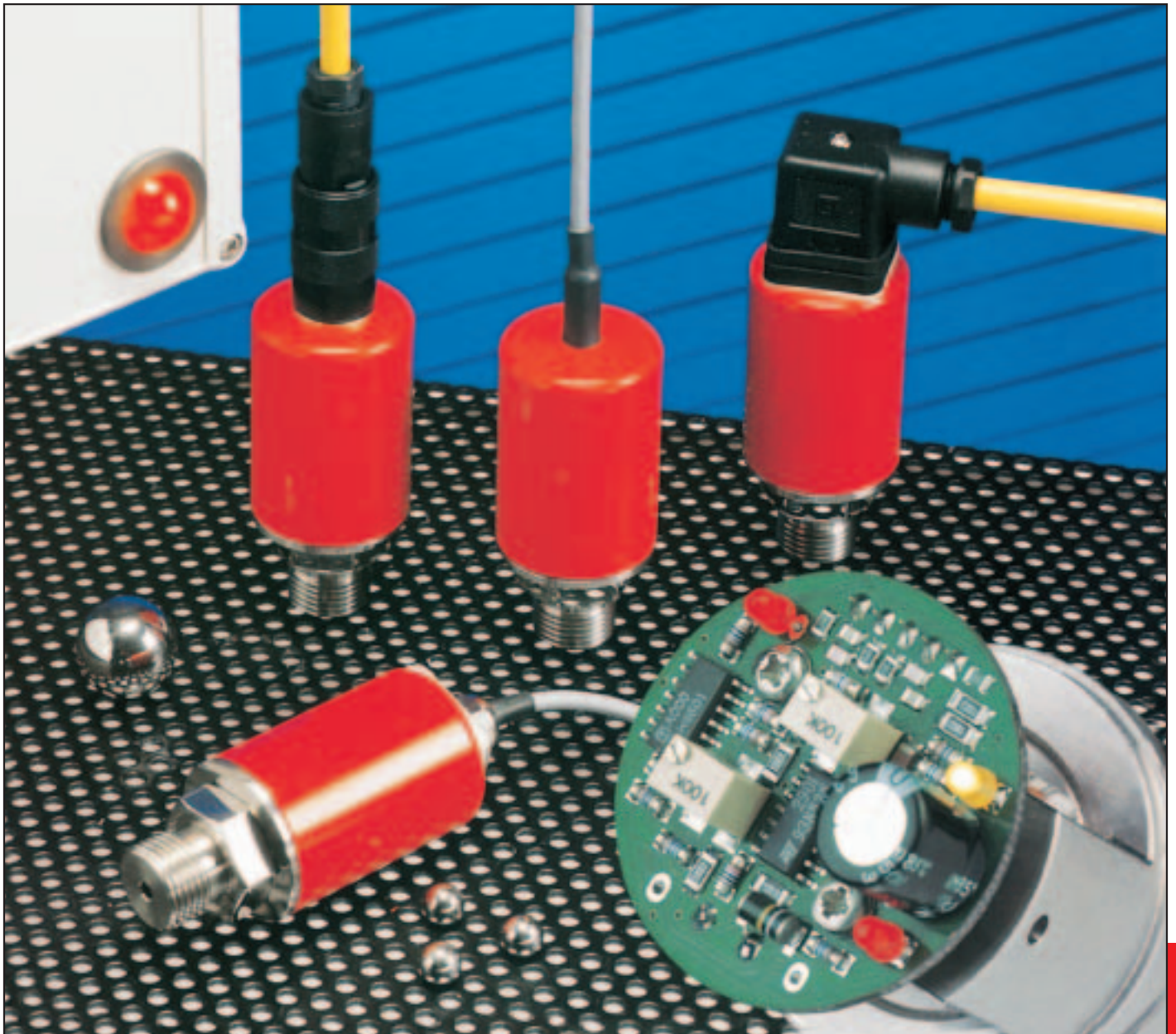


615

**Electronic
pressure switch**
Relative -1 to +600 bar
Absolute 0 to 16 bar



EDITION 05/2001

HUBA-REGISTERED TRADE MARK

Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT



Output

Open collector switch output for max. 100 mA at maximum supply voltage.
 Short circuit proof and protected against polarity reversal. Each connection against other with max. +/- supply voltage.
Electromagnetic compatibility: CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-1, EN 50081-2 and EN 50082-2.

Adjustment of switching points

The upper and lower switching point can be freely selected between 5 and 100 % fs. Recommended spacing between upper and lower switching points: > 2 % fs (factory-set at 5 and 100 % unless switching point is specified).

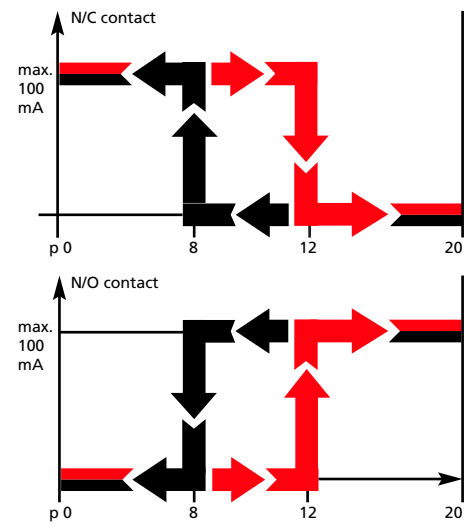
Electrical connection / Protection class

Cable 1.5 meters, IP 67.
 Cable 1.5 meters, IP 65.
 Round plug connector DIN 41524, 3-pole, IP 65.
 Connector DIN 43650-A, IP 65.

Operation / Switch status indication

N/C contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the collector will disconnect the applied load as soon as the upper switching point is reached. As the pressure falls ($p_{max} \rightarrow p_0$) the collector will connect the load as soon as the lower switching point is reached.
N/O contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the collector will connect the applied load as soon as the upper switching point is reached. With a fall in pressure ($p_{max} \rightarrow p_0$) the collector will disconnect the load as soon as the lower switching point is reached.
Switch status indication: LED in DIN connector (see accessories).

Example: pfs 20 bar.
 Upper switching point 12 bar.
 Lower switching point 8 bar.



EDITION 05/2001

Technical overview

The type 615 electronic absolute and relative pressure switches measure pressure by means of highly resistant ceramic elements. An open collector (transistor) output accommodates loads up to 100 mA. Either an N/C or N/O contact may be used, and the upper and lower switching point can be freely selected in the range 5 to 100 % fs. Various electrical and pressure connections are available to suit given applications.

Pressure types

Relative pressure (measurement of differential pressure to ambient pressure). Absolute pressure.

Overload

2x measuring range (fs)

Rupture pressure

3x measuring range (fs)

Accuracy

Repeatability < +/- 0.5 % fs.
 Accuracy of switching point adjustments < 1 % fs.

Materials of housing in contact with the medium

Ceramic/Inox 1.4305
 Ceramic / PVDF on request
 Max. pressure/overpressure see order code selection table «pressure ranges».

The distinct advantages

- Ideal for frequent switching cycles
- Long service life and long-term stability due to lack of moving parts (unlike mechanical pressure switches)
- Very low susceptibility to temperature
- Modular system for easy implementation of individual applications

Sealing material: optionally FPM, EPDM, NBR, silicone according to order code selection table.

Temperature influences

Medium and ambient temperature -15°C to +80°C
 Medium and ambient temperature -40°C only with CR seal and on request.
 TC zero point < +/- 0.05 % fs/°C
 TC sensitivity typically < +/- 0.02 % fs/°C

Load cycle

< 50 Hz

Mechanical rating

Resistant to vibration up to 15 g.

Dynamic response

Suitable for static and dynamic measurements.
 Response time < 5 ms

Pressure connections

Inside thread G 1/4
 Outside thread G 1/8, G 1/4, G 1/2
 Connection fitting sealed at front or at back (option).
 7/16-20 UNF / 1/4-18 NPT / 1/2-14 NPT
 See order code selection table.

Weight

Inside thread:	
G 1/4	200 grams
Outside thread:	
G 1/8 / 7/16-20 UNF	212 grams
G 1/4 / 1/4-18 NPT	245 grams
G 1/2 / 1/2-14 NPT	280 grams

Installation arrangement

Unrestricted.

Power supply

10 ... 33 VDC
 24 VAC +/-15 %



- A – Outside thread G 1/4
- B – Outside thread G 1/2
- C – Inside thread G 1/4
- D – Outside thread G 1/4
- E – Cable connection IP 65
- F – Female connector DIN 43650-A
- G – Round plug connector IP 65
- H – Mounting bracket

Versions

Order code selection table

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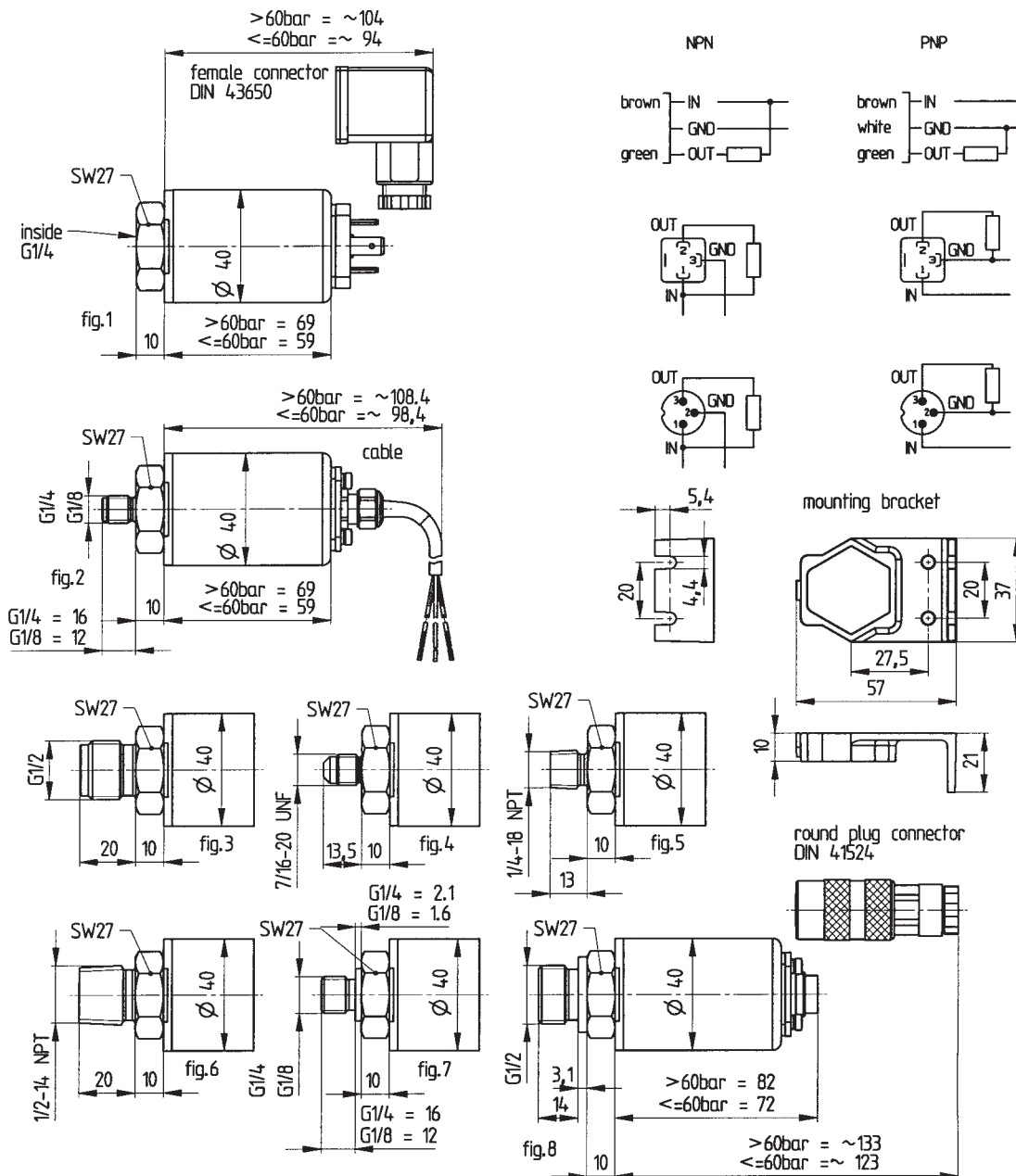
		X	X	X	X	X	X	X	X				
		9											
		5											
Pressure ranges ¹ (bar)	-1... 0	9	0	0									
	-1... + 0.6	9	0	1									
	-1... + 1	9	0	2									
	-1... + 1.5	9	0	3									
	-1... + 3	9	0	4									
	-1... + 5	9	0	5									
	-1... + 9	9	0	6									
	0... + 0.3 (Absolute 0.1 ... 0.3)	2	6										
	0... + 0.6 (Absolute 0.1 ... 0.6)	1	0										
	0... + 1	1	1										
	0... + 1.6	1	2										
	0... + 2.5	1	4										
	0... + 4	1	5										
	0... + 6	1	7										
	0... + 10	3	0										
	0... + 16	3	1										
	0... + 25	9	3	2									
	0... + 40	9	3	3									
	0... + 60	9	4	0									
	0... + 100	9	4	1									
	0... + 160	9	4	2									
0... + 250	9	4	3										
0... + 400 seal only FPM	9	5	4	0									
0... + 600 seal only FPM (overpressure max. 1 000 bar)	9	5	5	0									
Sealing materials ²	FPM Fluoro-elastomer							0					
	EPDM Ethylene propylene							1					
	NBR Nitrile butadiene							2					
	MVQ Silicone polymer							3					
Switching points (specify on order form)	Factory-set							0					
	Not factory-set (only IP 65)							1					
Switch contact	Normally open NPN non-floating							0					
	Normally closed NPN non-floating							1					
	Normally open PNP non-floating							2					
	Normally closed PNP non-floating							3					
Electrical connections ³	Cable, 1.5 meters, Pg 7 (Protection class IP 65)							0					
	Cable, 1.5 meters, Pg 7 (Protection class IP 67)							2					
	Connector DIN 43650-A (Protection class IP 65)							1					
	Round plug connector DIN 41524, 3-pole (Protection class IP 65)							3					
Pressure connections ⁴	Inside thread G 1/4 fig. 1								0				
	Outside thread G 1/8 (up to 250 bar) sealed at front fig. 2								1				
	Outside thread G 1/4 sealed at front fig. 2								2				
	Outside thread G 1/2 sealed at front fig. 3								3				
	Outside thread 7/16-20 UNF fig. 4								4				
	Outside thread 1/4-18 NPT fig. 5								5				
	Outside thread 1/2-14 NPT fig. 6								6				
	Outside thread G 1/8 (up to 250 bar) sealed at back fig. 7 (NBR)								7				
	Outside thread G 1/4 sealed at back fig. 7 (NBR)								8				
Outside thread G 1/2 sealed at back fig. 8 (NBR)								9					
Housing material / Construction	Inox								1				
	Inox with 0.8 mm pressure tip orifice (standard from 100 bar)								3				
	Inox, free of oil and grease (seal only FPM, not compound-filled)								5				
Accessories	Female connector DIN 43650-A with seal (IP 65 when installed and latched)							1	0	3	5	1	0
	Female connector DIN 43650-A with LED display							1	0	3	5	2	8
	Round plug connector (coupling socket) DIN 41524							1	0	3	5	2	4
	Mounting bracket							1	0	4	9	5	4

¹ Other pressure ranges on request.

² According to ISO standard R 1629, other sealing materials on request.

³ Without female connector.

⁴ Other pressure connections on request.



Electromagnetic compatibility:
 CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-1, EN 50081-2 and EN 50082-2.

Type of interference/Interference susceptibility	Test standard	Effects
Electrostatic discharge ESD	IEC 1000-4-2 8 kV air discharge / 4 kV contact discharge	No failure (criterion B)
High-frequency electromagnetic radiation (HF)	ENV 50140 10 V/m / 80...1000 MHz	No effect (criterion A)
Conducted HF interference	ENV 50141 10 V/m / 0.15 ... 80 MHz	No effect (criterion A)
Fast transients (burst)	IEC 801-4 2 kV	No failure (criterion B)
Magnetic fields 50 Hz 30 A/m	EN 61000-4-8	No effect (criterion A)
Type of interference/Emitted interference	Test standard	Effects
Conducted interference	EN 55022 0.15...30 MHz	None
Radiation from housing	30...1000 MHz, 10 meters	None

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