



# DS 214

## Electronic Pressure Switch for very high pressure

Thinfilmm Sensor

accuracy according to IEC 60770:  
standard: 0.35 % FSO

### Nominal pressure

from 0 ... 600 bar up to 0 ... 2200 bar

### Contacts

1, 2 or 4 independent PNP contacts,  
freely configurable

### Analogue output

2-wire: 4 ... 20 mA  
3-wire: 4 ... 20 mA / 0 ... 10 V  
others on request

### Special characteristics

- ▶ indication of measured values on a 4-digit LED display
- ▶ pressure sensor welded
- ▶ extremely robust and excellent long-term stability

### Optional versions

- ▶ adjustability of span and offset (4 ... 20 mA / 3-wire)
- ▶ customer specific versions

The electronic pressure switch DS 214 for very high pressure up to 2200 bar has been designed especially for use in plant and machine engineering as well as in mobile hydraulics.

The DS 214 has one 1 contact with standard version, this can optionally be upgraded up to four independent contacts.

Via the rotatable modul with an integrated 4-digit display the DS 214 can be programmed easily and comfortably.

### Preferred areas of use are



Plant and Machine Engineering



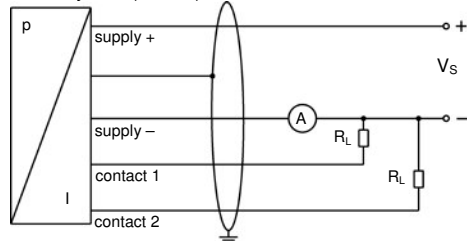
Commercial Vehicles and Mobile Hydraulics



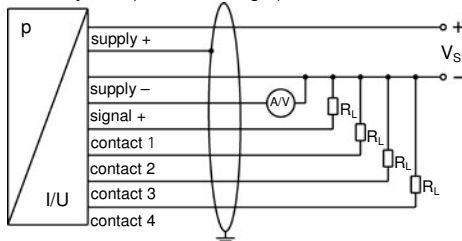
Input pressure range						
Nominal pressure gauge	[bar]	600 <sup>1</sup>	1000	1600	2000	2200
Overpressure	[bar]	800	1400	2200	2800	2800
<sup>1</sup> only available with pressure port G1/2" EN 837						
Contact <sup>2</sup>						
Standard	1 PNP contact					
Options	2 independent PNP contacts 4 independent PNP contacts (possible with M12x1, 8-pin for 4 ... 20 mA/3-wire)					
Max. switching current	4 ... 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; V <sub>switch</sub> = V <sub>S</sub> – 2V 0 ... 10 V / 3-wire: contact rating 125 mA, short-circuit resistant					
Accuracy of contacts <sup>3</sup>	standard: ≤ ± 0.35 % FSO					
Repeatability	≤ ± 0.1 % FSO					
Switching frequency	max. 10 Hz					
Switching cycles	> 100 x 10 <sup>6</sup>					
Delay time	0 ... 100 sec					
<sup>2</sup> max. 1 contact for 2-wire current signal with plug ISO 4400 no contact possible with 3-wire in combination with plug ISO 4400						
Analogue output (optionally) / Supply						
2-wire current signal	4 ... 20 mA / V <sub>S</sub> = 13 ... 36 V <sub>DC</sub> permissible load: R <sub>max</sub> = [(V <sub>S</sub> – V <sub>S,min</sub> ) / 0.02 A] Ω response time: < 10 msec					
3-wire current signal	4 ... 20 mA / V <sub>S</sub> = 19 ... 30 V <sub>DC</sub> adjustable (turn-down of span 1:5) <sup>4</sup> permissible load: R <sub>max</sub> = 500 Ω response time: < 3 sec					
3-wire voltage signal	0 ... 10 V / V <sub>S</sub> = 15 ... 36 V <sub>DC</sub> permissible load: R <sub>min</sub> = 10 kΩ response time: < 3 msec					
without analogue output	V <sub>S</sub> = 15 ... 36 V <sub>DC</sub>					
Accuracy <sup>3</sup>	standard: ≤ ± 0.35 %FSO IEC 60770					
<sup>3</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) <sup>4</sup> with turn-down of span the analogue signal is adjusted automatically to the new measuring range						
Thermal effects (Offset and Span)						
Thermal error	[% FSO]	≤ ± 0.25 / 10 K				
in compensated range	[°C]	-20 ... 85				
Permissible temperatures						
Permissible temperatures	medium: -40 ... 140 °C electronics / environment: -25 ... 85 °C storage: -40 ... 100 °C					
Electrical protection						
Short-circuit protection	Permanent					
Reverse polarity protection	no damage, but also no function					
Electromagnetic compatibility	emission and immunity according to EN 61326					
Mechanical stability						
Vibration	10 g RMS (25 ... 2000 Hz)					
Shock	100 g / 11 msec					
Materials						
Pressure port	stainless steel 1.4542 (17-4 PH)					
Housing	stainless steel 1.4404 (316 L)					
Display housing	PA 6.6, polycarbonate					
Seals (media wetted)	none (welded version)					
Diaphragm	stainless steel 1.4542 (17-4 PH)					
Media wetted parts	pressure port, diaphragm					
Miscellaneous						
Display	4-digit, red 7-segment-LED display, digit height 7 mm, range of indication -1999 ... +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 ... 30 sec (programmable); measured value update 0.0 ... 10 sec (programmable)					
Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output current: approx. 45 mA 3-wire signal output voltage: approx. 7 mA + signal current					
Ingress protection	IP 65					
Installation position	any					
Weight	min. 200 g (depending on mechanical connection)					
Operational life	> 100 x 10 <sup>6</sup> cycles					
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A)					

## Wiring diagrams

### 2-wire-system (current)



### 3-wire-system (current / voltage<sup>5</sup>)

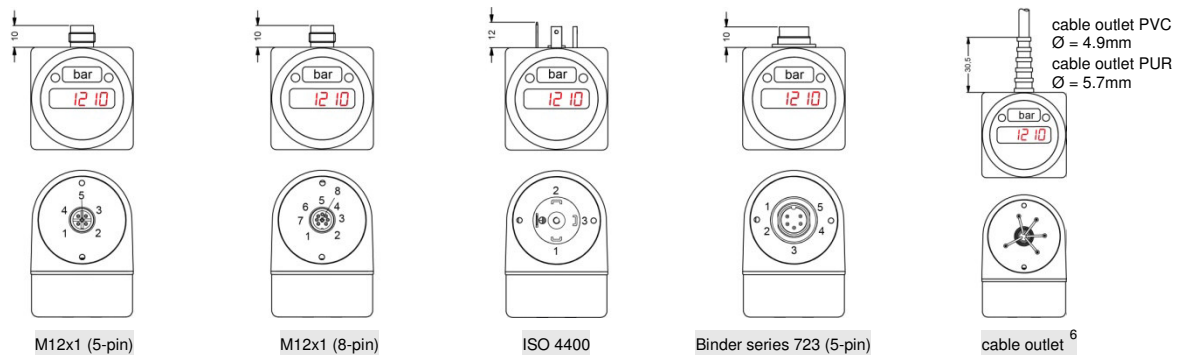


<sup>5</sup> max. 2 contacts possible

## Pin configuration

Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (DIN 47100)
Supply +	1	1	1	1	1	wh (white)
Supply -	3	3	3	2	3	bn (brown)
Signal + (only 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	bu (blue)
Contact 4	-	-	7	-	-	rd (red)
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground contact	plug housing/ pressure port	ye/gn (yellow / green)

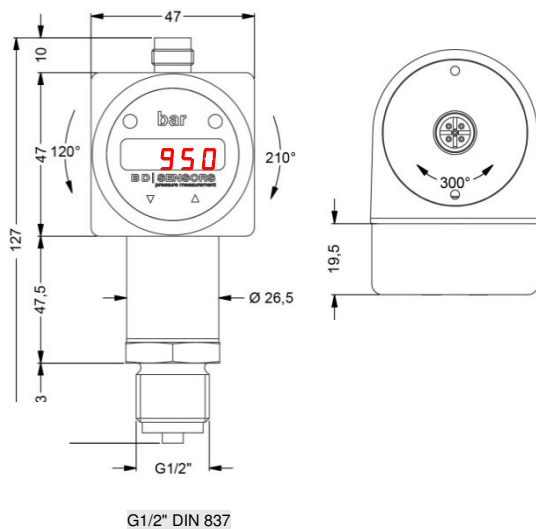
## Electrical connections (dimensions in mm)



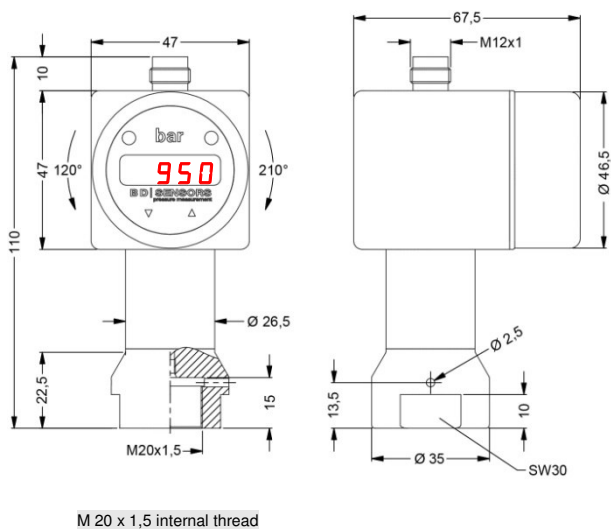
<sup>6</sup> different cable types and lengths available; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)

## Mechanical connections (dimensions in mm)

### standard



### option



The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.



DRUCK & TEMPERATUR Leitenberger GmbH  
Bahnhofstr. 33  
D – 72138 Kirchentellinsfurt

Telefon +49 (0) 7121 909 20-0  
Telefax +49 (0) 7121 909 20-99

www.druck-temperatur.de  
dt-info@leitenberger.de

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DS 214

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[illegible]

<sup>1</sup> only available with pressure port G1/2" EN 837

<sup>2</sup> with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

<sup>3</sup> 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request

<sup>4</sup> standard: 2 m PVC cable without ventilation tube, others on request

<sup>5</sup> According to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of  $R_e > 260 \text{ N/mm}^2$  in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!

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**PIC Engineering And Services (002110838-X)**

No. 72, Jalan Keluli AN7/AN,  
Pusat Perniagaan Bukit Raja, Seksyen 7  
40000 Shah Alam, Selangor D.E., Malaysia

Tel: +6019 338 8819 Fax: +603 3343 8819  
Email: [sales@picengineering.com.my](mailto:sales@picengineering.com.my)  
Website: [www.picengineering.com.my](http://www.picengineering.com.my)

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