



IDS 201P

Electronic Pressure Switch

Pressure Port With
Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770:
0.5 % FSO

Nominal pressure

from 0 ... 60 bar up to 400 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
- ▶ rotatable and configurable display
module

Optional versions

- ▶ **IS-version**
Ex ia = intrinsically safe for gases
- ▶ cooling element up to 300 °C
- ▶ customer specific versions

The electronic pressure switch IDS201P is the
successful combination of

- ▶ intelligent pressure switch
- ▶ digital display

and is designed for universal applications in the
mechanical engineering and other industries
where a flush stainless steel diaphragm is nec-
essary. This can be the case, for example, with
higher viscous or slightly contaminated fluids.
For usage with higher media temperature op-
tionally a cooling element up to 300 °C is avail-
able.

Preferred areas of use are



Plant and Machine Engineering



Food Industry

Preferred used for



Viscous and pasty media



Input pressure ranges					
Nominal pressure gauge/abs. [bar]	60	100	160	250	400
Overpressure [bar]	100	200	400	400	600
Burst pressure \geq [bar]	120	250	500	500	650

Contact ¹	
Standard	1 PNP contact
Options	2 independent PNP contacts 4 independent PNP contacts (possible with M12x1, 8-pin for 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request)
Max. switching current	4 ... 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; $V_{\text{switch}} = V_S - 2V$ 0 ... 10 V / 3-Leiter: contact rating 125 mA, short-circuit resistant
Accuracy of contacts ²	$\leq \pm 0.5\%$ FSO
Repeatability	$\leq \pm 0.2\%$ FSO
Switching frequency	max. 10 Hz
Switching cycles	$> 100 \times 10^6$
Delay time	0 ... 100 sec

¹ max. 1 contact for 2-wire current signal with plug ISO 4400 as well as 2-wire current signal with Ex-protection no contact possible with 3-wire in combination with plug ISO 4400

² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Analogue output (optionally) / Supply	
2-wire current signal	4 ... 20 mA / $V_S = 13 \dots 36 V_{DC}$ permissible load: $R_{\text{max}} = [(V_S - V_{S,\text{min}}) / 0.02 \text{ A}] \Omega$ response time: < 10 msec
2-wire current signal with Ex-protection	4 ... 20 mA / $V_S = 15 \dots 28 V_{DC}$ permissible load: $R_{\text{max}} = [(V_S - V_{S,\text{min}}) / 0.02 \text{ A}] \Omega$ response time: < 10 msec
3-wire current signal	4 ... 20 mA / $V_S = 19 \dots 30 V_{DC}$ adjustable (turn-down of span max. 1:5) ³ permissible load: $R_{\text{max}} = 500 \Omega$ response time: < 0.5 sec
3-wire voltage signal	0 ... 10 V / $V_S = 15 \dots 36 V_{DC}$ permissible load: $R_{\text{min}} = 10 \text{ k}\Omega$ response time: < 10 msec
without analogue output	$V_S = 15 \dots 36 V_{DC}$
accuracy ²	$\leq \pm 0.5\%$ FSO

³ with turn-down of span the analogue signal is adjusted automatically to the new measuring range

Thermal error (offset and span) ⁴ / Permissible temperatures	
Thermal error	$\leq \pm 0.2\%$ FSO / 10 K
in compensated range	-20 ... 85°C
Permissible temperatures ⁵	medium: -40 ... 125 °C for filling fluid silicone oil -10 ... 125 °C for filling fluid food compatible oil electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Permissible temperature medium for cooling element 300°C	filling fluid silicone oil overpressure: -40 ... 300 °C vacuum: -40 ... 150 °C filling fluid food compatible oil overpressure: -10 ... 250 °C vacuum: -10 ... 150 °C

⁴ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions

⁵ max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °

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	5 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27

Filling fluids	
Standard	silicone oil
Optional	food compatible oil with FDA approval (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request

Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Display housing	PA 6.6, Polycarbonate
Seals	standard: FKM (for media temperature ≤ 200 °C) option: FFKM ⁶ (for media temperature > 200 °C) others on request
Diaphragm	stainless steel 1.4435
Media wetted parts	pressure port, seals, diaphragm

⁶ for pressure ranges $P_N \leq 100$ bar

Explosion protection (only for 4 ... 20 mA / 2-wire)

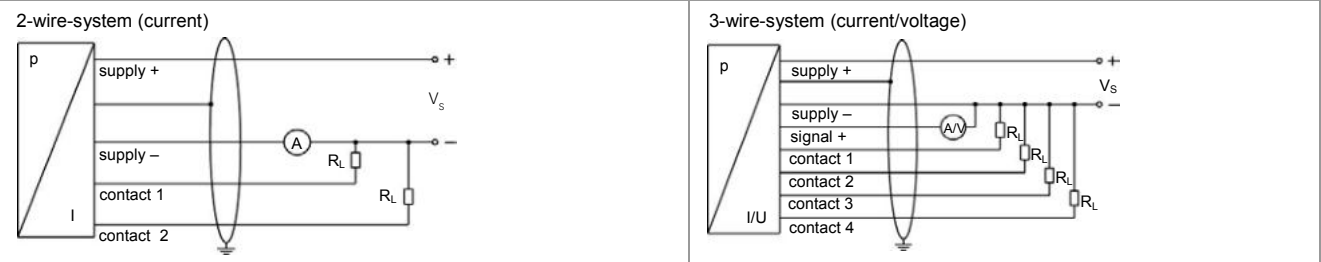
Approval AX14-DS 201P	IBExU06ATEX1050 X zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cable)
Safety technical maximum values	$U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C \approx 0 \text{ nF}$, $L_i \approx 0 \text{ }\mu\text{H}$
Max. switching current ⁷	70 mA
Max. temperatures for environment	-25 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 100 pF/m cable inductance: signal line/shield also signal line/signal line: 1 $\mu\text{H}/\text{m}$

⁷ the real switching current in the application depends on the power supply unit

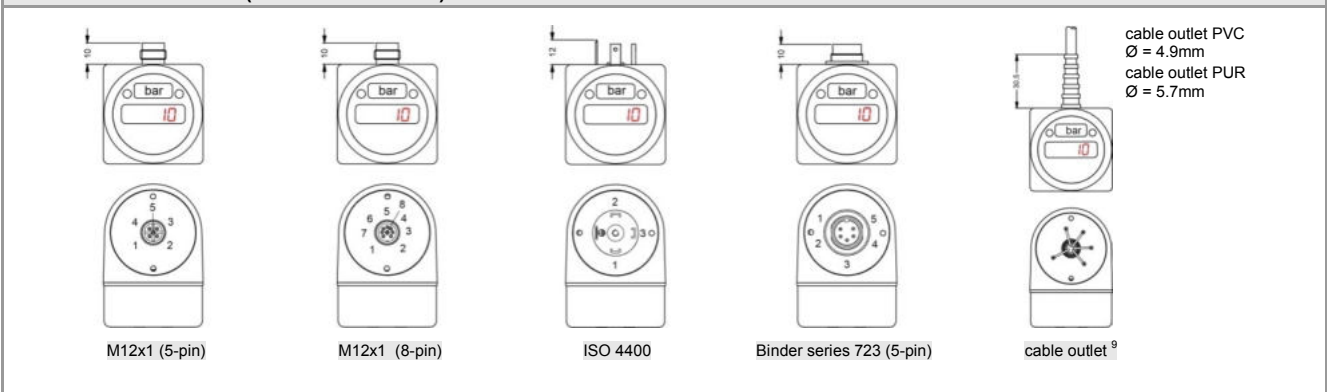
Miscellaneous

Display	4-digit, red 7-segment-LED display, digit height 7 mm, range of indication -1999 ... +9999; accuracy 0.1 % \pm 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 + signal current 3-wire signal output voltage: approx. 45 mA	
Ingress protection	IP 65	
Installation position	any (standard calibration in a vertical position with the pressure port connection down)	
Weight	min. 200 g (depending on mechanical connection)	
Operational life	$> 100 \times 10^6$ cycles	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 97/23/EC (module A) ⁸
ATEX Directive	94/9/EC	

⁸ This directive is only valid for devices with maximum permissible overpressure $> 200 \text{ bar}$.

Wiring diagrams

Pin configuration

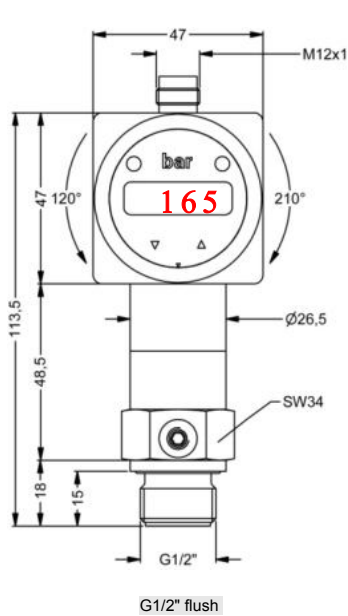
Electrical connection	M12x plastic (5-pin)	M12x metal (5-pin)	M12x plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (DIN 47100)
Supply +	1	1	1	1	1	wh (white)
Supply -	3	3	3	2	3	bn (brown)
Signal + (only for 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	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)


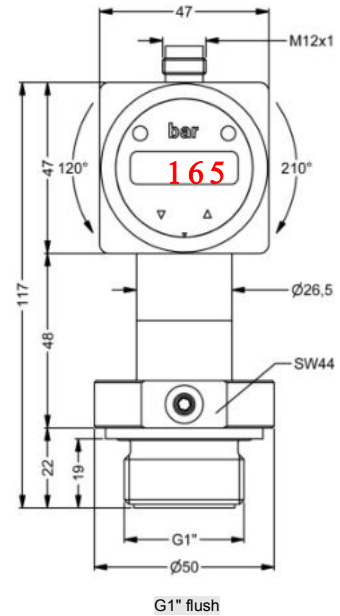
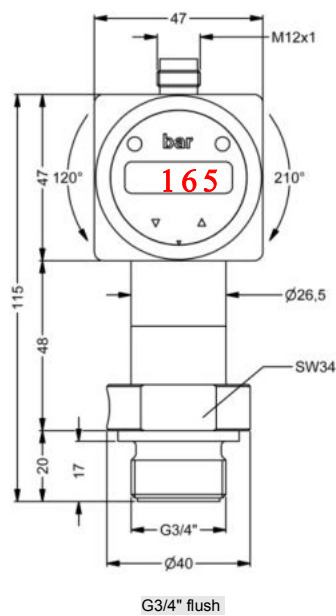
⁹ different cable types and lengths available, permissible temperature depends on kind of cable; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70°C)

Mechanical connection (dimensions in mm)

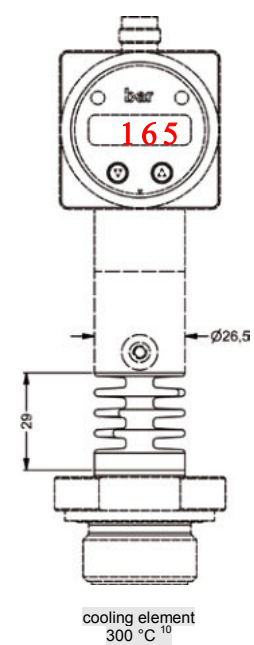
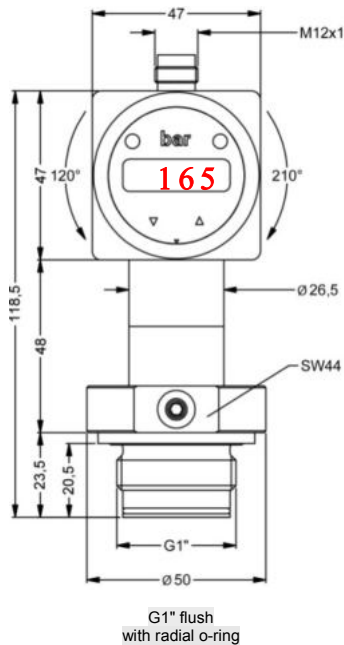
Standard



Optional



Optional



⇒ metric threads and other versions on request

¹⁰ for pressure ranges $P_N \leq 160$ bar

