

# Electronic Pressure Switches

## Catalogue

### Electronic Pressure Switches



Overview

Control  
Control  
every move

**Barksdale**<sup>®</sup>  
CONTROL PRODUCTS  
CRANE Barksdale, Inc./Barksdale GmbH  
A Subsidiary of Crane Co.

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# Overview



Model	UPA 2	UPA 2 - Ex	Series 600
Measuring ranges	-1...0 to 0...800 bar gauge 0...1 bar 0...10 bar absolute pressure	0...1 bar to 0...600 bar gauge	0...1 bar to 0...400 bar
Output signals	4... 20 mA (2-wire) 0... 10 VDC (3-wire)	4... 20 mA (2-wire)	4... 20 mA (2-wire)
Process connection	G1/4 M or G1/2 M (flush) stainless steel	G1/4 M or G1/2 M (also flush diagram), stainless steel 1/2" NPT or 1/4" NPT M, stainless steel	G1/4 M
Electrical connection	Plug, DIN EN 175 301-803-A (prev. DIN 43650)	Plug, DIN EN 175 301-803-A (prev. DIN 43650)	M12x1-plug, DIN EN 175 301-803-C (prev. DIN 43650)
Media temperature range	-25 °C... +100 °C	-25 °C... +100 °C	-40 °C... +85 °C
System of protection	IP67 with PG / IP65 with plug	IP65	NEMA 4X, IP65 / IP67
Sensor element	Piezoresistive silicone measuring cell with internal or flush stainless steel diaphragm	Polysilicone-thinfil sensor with internal or flush stainless steel diaphragm	Ceramic sensor technology
Features	Absolute pressure and gauge, variety of measuring ranges	Also with flush diaphragm, high long-term stability, intrinsically safe version acc. to ATEX EEx ibIIC T5/T6	Compact size
Applications	OEM applications, Hydraulic and pneumatic systems, measuring and testing equipment, shipbuilding and offshore applications	Process and chemical technology, pharmaceutical and food industry, machine and apparatus construction	OEM applications, Hydraulic and mobile hydraulics, pneumatic
Linearity error	typ. < 0.2% f.s. max. < 0.5% f.s.	typ. < 0.5% f.s. max. < 1.0% f.s.	typ. ≤ ± 0.5% f. s. max. ≤ ± 1.0% f. s.
Display	---	---	---
Switching outputs	---	---	---
Options	on request	on request	on request

## Overview



Model	BPS3000	UDS1 V2	UDS 3 - V3
Measuring ranges	0...0.2 bar to 0...600 bar gauge	0...10 bar to 0...600 bar gauge	-1...0 to 0...600 bar gauge 0...1 bar 0...10 bar absolute pressure
Output signals	4...20 mA 0...10 V DC	---	4...20 mA 0...10 V DC
Process connection	G1/4" M, G1/2" flush diaphr., 1/4" NPT M, 1/2" NPT flush diaphr., 40x40 Cetop, 7/16-20 UNS (SAE) M, 7/16-20 UNF (37° JIC) M	G1/4 M	G1/4 female thread, bottom entry optional: G1/4" NPT female thread
Electrical connection	Plug M12 x 1, 4-pin/5-pin/8- pin	Plug M12 x 1, 4-pin	Screw terminals 14-pin; 1 x PG13.5 side entry
Media temperature range	-25 °C... +100 °C	-25 °C... +100 °C	-25 °C... +100 °C
System of protection	IP65, IP67	IP65	IP65
Sensor element	Ceramic sensor optional: piezoresistive sensor	Piezoresistive silicone or ceramic measuring cell	Piezoresistive silicone measuring cell with internal stainless steel diaphragm
Features	Compact dual pressure switch, rotatable 320° display & electrical connection	Compact construction, housing 320° rotatable	Pressure switch with 4 relay outputs and one analog output
Applications	Machine tool industry, Hydraulic & Pneumatic, Infection moulding machines, Lubrication monitoring	OEM applications in hydraulic and pneumatic systems, press construction, lubricant monitoring, machine tool industry, injection molding machine	OEM applications, hydraulic and pneumatic systems, heavy industry and plant construction, automobile industry
Linearity error	max. < 0.5% v. f. s.at +25°C	repeatability 1 % f. s.	max. < 0.5% f.s.
Display	4-digit 14-segment LED display	---	8-digit 14-segment LCD display, digit height 12 mm, green, bargraph

# Overview



Model	UAS 7	UAS 3 - V3	UAD 3 - V3
Measuring ranges	Display -9999... +9999, Current input 4...20 mA, Voltage input 0... 10 VDC	Display -9999... +9999, Current input 4... 20 mA, Voltage input 0... 10 VDC	Display -9999... +9999, Current input 4... 20 mA, Voltage input 0... 10 VDC
Output signals	4...20 mA 0... 10 VDC	4...20 mA 0... 10 VDC	4...20 mA 0... 10 VDC
Process connection	Plug M12 x 1; 4-pin for analog input	Plug 3-pin, DIN EN 175 301-803-A (prev. DIN 43650), incl. plug connector	2 x plug 3-pin, DIN EN 175 301-803-A (prev. DIN 43650)
Electrical connection	Plug M12 x 1, 4-pin or 5-pin	Screw terminals 14-pin; 1 x PG13.5 side entry	Screw terminals 16-pin; 1 x PG13.5 side entry
Media temperature range	---	---	---
System of protection	IP65	IP65	IP65
Sensor element	---	---	---
Features	Universal digital display with analog input/ output and 2 transistor switching outputs	Rugged, universal digital display with analog input/output and 4 relay contacts	Rugged, universal digital display with two analog inputs, two outputs and 4 relay outputs
Applications	OEM applications, hydraulic and pneumatic systems, test bed and apparatus engineering, heavy industry	OEM applications, hydraulic and pneumatic systems, test bed and apparatus engineering, heavy industry	OEM applications, hydraulic and pneumatic systems, test bed and apparatus engineering, heavy industry
Linearity error	max.< 0.2% f.s.	max. < 0.2 % f.s.	max. < 0.2 % f.s.
Display	4-digit 7-segment LED display, red, digit height 10 mm	8-digit 14-segment LCD display, digit height 12 mm, green, bargraph	2 x 8-digit 14-segment LCD display, digit height 12 mm, red and green, bargraph
Switching outputs	2x solid state output, pnp NO/NC (programmable), adjustable switching time delay 0... 10 s	4 x switching outputs with SPDT relays, adjustable switching time delay 0... 10 s	4 x switching outputs with SPDT relays, adjustable switching time delay 0... 10 s
Hysteresis / Deadband	freely adjustable	---	---
Options	on request	on request	on request

# Electronic Pressure Transducers

**UPA2**

Electronic pressure transducers for general measuring tasks,  
with internal or flush  
stainless steel diaphragm,  
linearity error 0.5% and 0.25% f. s.

## Features

Variety of measuring ranges  
Absolute and gauge pressure ranges  
Rugged stainless steel construction  
GL approval (German Lloyd)

## Measuring ranges

-1...0 bar to 0...800 bar gauge  
0...1 bar 0...10 bar absolute pressure

## Applications

OEM applications  
Hydraulic and pneumatic systems,  
test beds,  
shipbuilding and offshore applications

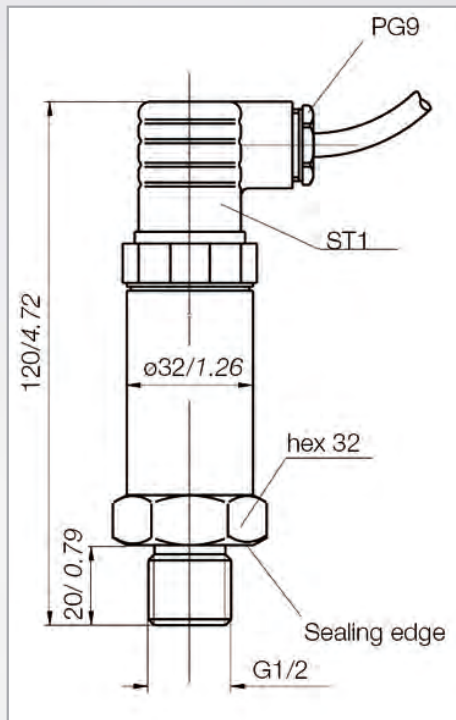


## Technical Data

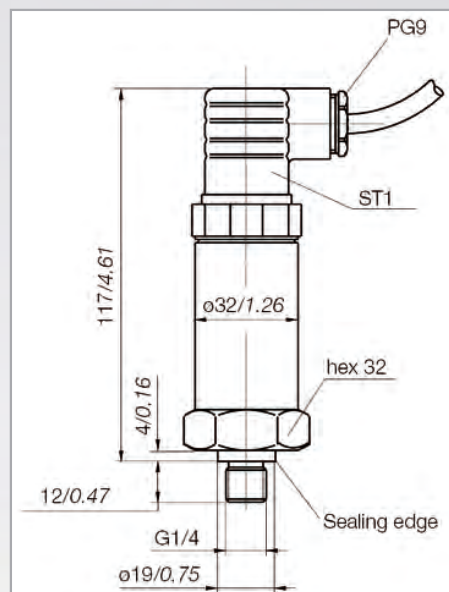
<b>Sensor element:</b>	Piezoresistive silicon measuring cell					
<b>Materials:</b>	Stainless steel, mat. no. 1.4301					
Wetted parts:	Stainless steel, mat. no. 1.4301					
Electronics housing:	Stainless steel, mat. no. 1.4301					
Seals:	FKM, EPDM					
<b>System of protection:</b>	IP67 with PG / IP65 with plug					
<b>Protection class:</b>	III					
<b>Process connection:</b>	G1/4 M, G1/2 M manometer connection or quasi flush diaphragm					
<b>Dimensions:</b>	Ø32 x approx. 120 mm (with plug connector)					
<b>Weight:</b>	250 g					
<b>Measuring ranges [bar]:</b>	-1... 0	-1...+1	0.2	0.4		
<b>Overpressure [bar]:</b>	2.5	2.5	2.5*	2.5		
<b>Measuring ranges [bar]:</b>	0.6	1	2	5	10	50
<b>Overpressure [bar]:</b>	2.5	3	4	7	15	75
<b>Measuring ranges [bar]:</b>	100	200	400	600	800	
<b>Overpressure [bar]:</b>	150	300	500	700	1000	
<b>Linearity error:</b>	≤±0.5 % f. s. (Option: ≤±0.2 % f. s.)					

<b>Electrical connection:</b>	Plug 4-pin, DIN EN 175 301-803-A (prev. DIN 43650)
<b>Temperature influence:</b>	≤±0.2 % f. s. / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	≤±0.1 % v. f. s.
<b>Temperature range:</b>	Medium: -25 °C... +100 °C Electronics: -25 °C... +80 °C Storage: -40 °C... +100 °C
<b>Output signals:</b>	4...20 mA (2 wire) 0...10 V DC (3 wire)
<b>Power supply:</b>	8... 30 V DC, 13... 30 V DC at 0... 10 V, reversed polarity protection (SELV, PELV)
<b>Power consumption:</b>	max. 25 mA at current output max. 5 mA at voltage output
<b>Load:</b>	≤(U <sub>B</sub> -10 V) / 20 mA
<b>Delay:</b>	≤1 ms
<b>Accessories:</b>	Damping screw to limit pressure peaks
<b>Approval:</b>	GL optional

## Dimensions (mm / inch)



## UPA2 G1/4



## Electrical Connection

Connection	Current output 4... 20 mA (2-wire)			Voltage output 0... 10 V (3-wire)		
	Plug	Cable	GL cable	Plug	Cable	GL cable
+ Supply	1	brown	blue 1	1	brown	blue 1
- Supply	2	white	blue 2	2	blue	blue 2
+ Signal	---			3	white	white 1
- Signal	---			---		

## Order Numbers

Standard pressure reducer DIN 43650, 4... 20 mA			
Measuring ranges [bar] relative pressure	Overpressure [bar]	Order No.	
		G1/2", flush	G1/4" M
10	15	0431-032	0431-017
50	75	0431-043	0431-441
100	150	0431-036	0431-315
200	300	0431-042	0431-010
400	600	0431-038	0431-314
600	780	0431-464	0431-238

Further measuring ranges on request

## Accessories

Order Number	Description
926-0420	Plug connector, 3-pin + PE, DIN EN 175 301-803-A (prev. DIN 43650)
907-0185	Plug connector, 5 pin M12 x 1, elbow
907-0177	Plug connector, 5 pin M12 x 1, straight
908-0361	Plug connector, 5 pin M12 x 1 incl. 2 m cable
998-9991	Manufacturer test certificate O DIN 55350 part 18 4.2.1
998-9992	Manufacturer test certificate M DIN 55350 part 18 4.2.2

# Electronic Pressure Transducers (Ex)

**UPA2-Ex**

Electronic pressure transducer for applications in explosion-proof areas, with internal or flush stainless steel diaphragm, linearity error 0.5% and 1% f. s.

## Features

Intrinsically safe EEx ibIIC T5/T6  
 High long-term stability  
 High shock and vibration stability  
 Flush diagram version available

## Measuring ranges

0...1 bar to 0...600 bar gauge

## Applications

Process and chemical technology  
 Machine and apparatus engineering



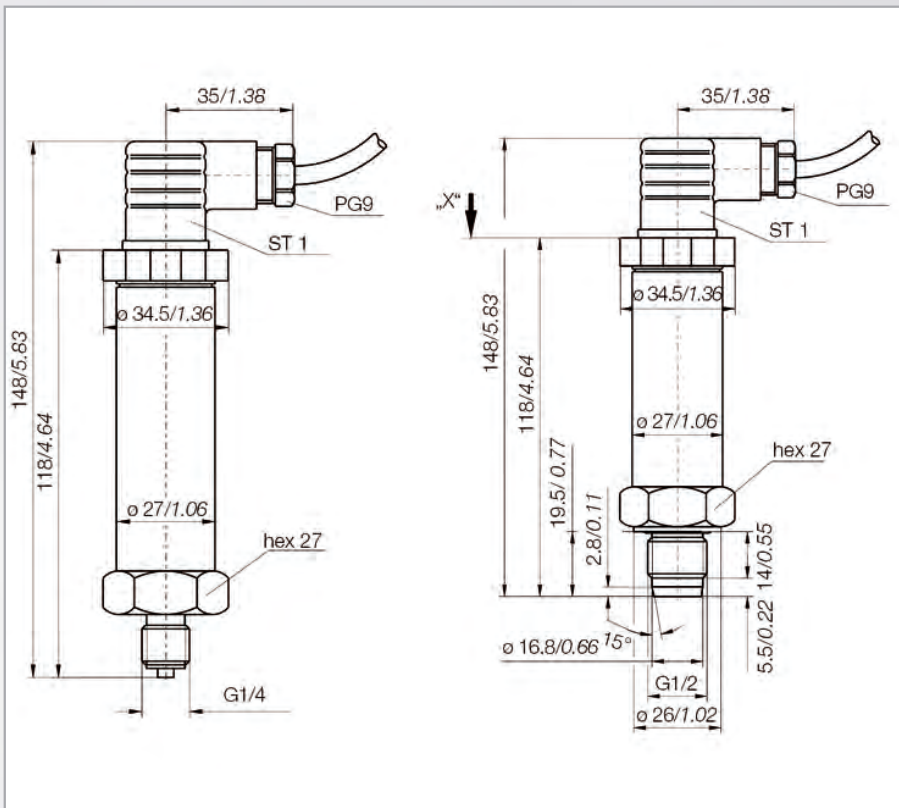
## Technical Data

<b>Sensor element:</b>	Polysilicone measuring cell				
<b>Materials:</b>					
Wetted parts:	Stainless steel, mat. no. 1.4571				
Electronics housing:	Stainless steel, mat. no. 1.4301				
Seals:	FKM, EPDM, sealing cone				
<b>System of protection:</b>	IP65				
<b>Protection class:</b>	---				
<b>Process connection:</b>	G1/4 M, G1/2 M manometer connection or flush diaphragm with sealing cone 1/4" NPT M, 1/2" NPT M				
<b>Dimensions:</b>	ø27 x approx. 115 mm (without plug connector)				
<b>Weight:</b>	approx. 250 g				
<b>Measuring ranges [bar]:</b>	1	2	5	10	50
<b>Proof pressure [bar]:</b>	6	6	14	20	120
<b>Measuring ranges [bar]:</b>	100	200	400	600	
<b>Proof pressure [bar]:</b>	200	500	640	900	
<b>Linearity error:</b>	≤±0.5 % v. f. s.				

<b>Electrical connection:</b>	PG7 incl. 1.5 m cable; plug 3-pin, DIN EN 175 301-803-A (prev. DIN 43650)
<b>Temperature influence:</b>	≤±0.3 % f. s. / 10K
<b>Compensation range:</b>	0 °C... +50 °C
<b>Repeatability:</b>	≤±0.1 % v. f. s.
<b>Temperature range:</b>	
Medium:	-20 °C... +50 °C at 0.9 W (T6 EExib)
Electronics:	-20 °C... +60 °C at 0.6 W (T6 EExib)
Storage:	-40 °C...+100 °C
<b>Output signal:</b>	4... 20 mA (2-wire)
<b>Power supply:</b>	12... 26 V DC unregulated max. 10 % residual ripple reversed polarity protected acc. to ATEX
<b>Power consumption:</b>	approx. 25 mA at current output
<b>Load:</b>	≤(U <sub>b</sub> -11.2 V) / 20 mA
<b>Delay:</b>	≤5 ms



## Dimensions (mm / inch)



## Electrical Connection

Connection	Current output 4... 20 mA (2-wire)	
	Plug	Cable
+ Supply	1	brown
- Supply	2	white
+ Signal	---	---
- Signal	---	---

## Order Numbers

Standard pressure transducer DIN 43650, 4...20 mA, G1/4 AG		
Measuring ranges [bar] rel. pressure	Overpressure [bar]	Order No.
10	20	0431-124
50	120	0431-173
100	200	0431-460
200	500	0431-313
400	640	0431-122
600	900	0431-198

others measuring ranges on request

# Electronic Pressure Transducer

## Series 600

for OEM applications

### Features

Compact size  
Rugged stainless steel construction  
Ceramic sensor technology

### Measuring ranges

0...10 bar to 0...400 bar

### Applications

OEM applications  
Stationary and mobile hydraulics  
Pneumatics



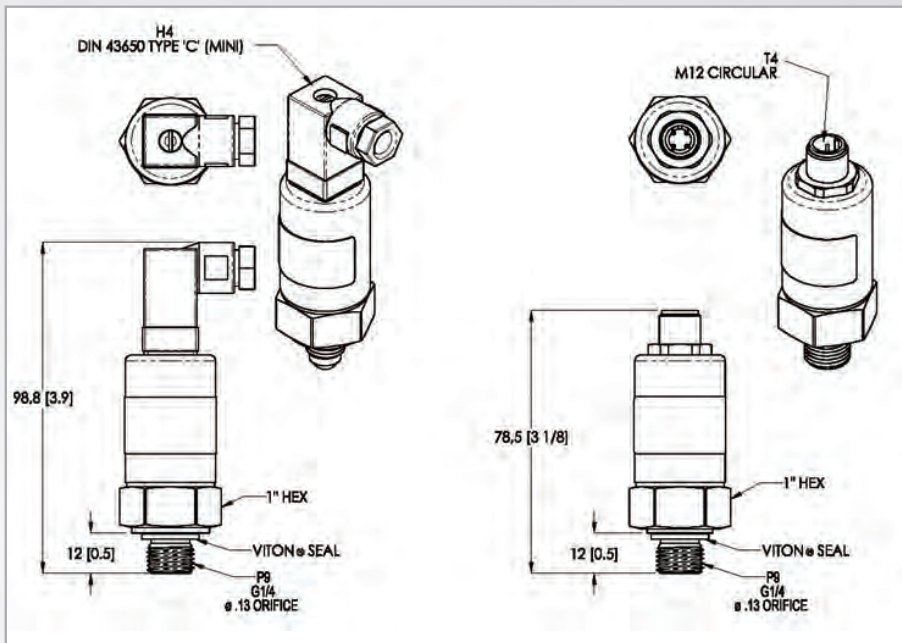
### Technical Data

<b>Linearity error:</b>	≤±1 % f.s. ≤±0.5 % typical f.s.
<b>Typical Life Cycle:</b>	100 million cycles
<b>Proof Pressure:</b>	2 times rated pressure, or 600 bar max., whichever is less.
<b>Power Supply:</b>	8...30 V DC, reversed polarity protection (SELV, PELV)
<b>Output:</b>	4-20 mA (2-wire), other on request
<b>Wetted Parts:</b>	316 Stainless steel, ceramic and FKM O-ring
<b>Protection class:</b>	NEMA 4X IP65, IP67 (based on electrical connection)*
<b>Process Connection:</b>	G1/4", other on request

<b>Electrical Connection:</b>	M12x1-plug DIN-EN 175 301-803-C (prev. DIN43650)
<b>Temperature Ranges:</b>	Media: -40°C to +85°C Electronics: 0°C to +55°C Storage: -40°C to +85°C
<b>Temperature influence:</b>	±0,06% FS/K over operating temperature range
<b>Vibration:</b>	15 g, 10-2000 Hz, MIL-STD 202
<b>Shock:</b>	50 g, 11 ms, MIL-STD 202 Method 213, Cond. G.,
<b>Weight:</b>	145 grams

\* Mating connector must be properly installed to preserve enclosure rating

## Dimensions (mm / inch)



## Wiring code

Electrical Termination	Current Output	
	H4 / T4	DIN-C
1	Power Supply	+ Excitation
2	Not used	Common
3	Common	Not used
4	Case Ground	Case Ground

## Order Numbers

Pressure range [bar] relative pressure	Electrical Connection DIN43650 C	Electrical Connection M12x1
10	0437-010	0437-018
20	0437-011	0437-019
50	0437-012	0437-020
60	0437-013	0437-021
100	0437-014	0437-022
200	0437-015	0437-023
250	0437-016	0437-024
400	0437-017	0437-025

# Electr. Dual Pressure Switch

# BPS3000

## Features

- ▶ Measuring ranges: 0...0.2 bar to 0...600 bar gauge (switchable to psi + MPa)
- ▶ Suitable for indoor or outdoor usage
- ▶ max. 2 switch points
- ▶ Analogue output 4 - 20 mA or 0 - 10 V
- ▶ Rotatable 320° display & electrical connection
- ▶ Menu navigation refers to VDMA standard

## Applications

- ▶ Machine tool industry
- ▶ Hydraulic & Pneumatic
- ▶ Injection moulding machines
- ▶ Lubrication monitoring



## Technical Data

<b>Sensor element:</b>	Ceramic sensor optional: piezoresistive sensor
<b>Materials:</b> Wetted parts:	Stainless steel, mat. no. 1.4301, brass MS58*
<b>Electronics housing:</b> Seals:	Stainless steel, mat. no. V2A, PA / PC FKM, EPDM
<b>Operating elements:</b>	3 easy-response pushbuttons
<b>System of protection:</b>	IP65, IP67
<b>Protection class:</b>	III
<b>Electrical connection:</b>	Plug M12 x 1, 4-pin / 5-pin / 8-pin (depending on output code)
<b>Process connection:</b>	see order code
<b>Dimensions:</b>	110 x 41 mm (without plug connector)
<b>Weight:</b>	approx. 300 g
<b>A/D converter:</b> Resolution:	12 bit (4096 steps per measuring span)
Scanning rate:	1000 / s
<b>Linearity error:</b>	< ± 0.5 % v. f. s. at +25 °C
<b>Temperature influence:</b>	TC zero < ±0.2 % FSO / 10K TC span < ±0.3 % FSO / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	±0.1 % FSO
<b>Temperature range:</b> Medium: Electronics: Storage:	-25 °C... +100 °C -10 °C... +70 °C -30 °C... +80 °C
<b>Power supply:</b>	15... 32 V DC, output code 6: 20... 32 V DC reversed polarity protected (SELV, PELV)
<b>Digital display:</b>	4-digit 14-segment LED display, red, digit height 9 mm
<b>Error display:</b>	LED red and alphanumeric display
<b>Power consumption:</b>	approx. 50 mA (without load) output code 6: approx. 80 mA

<b>Analog output:</b> Current output: Scanning rate: Voltage output: Rating: Adjustment range:	4...20 mA 2 ms 0...10 V DC max. 10 mA 25 %... 100 % f. s.
<b>Relay output:</b>	Rel. 1 normally closed, Rel. 2 normally open
<b>Load:</b>	max. 1A, max. 60V, max. 30W
<b>Transistor switching outputs PNP:</b>	
<b>Switching function:</b>	Normally open/normally closed, standard / window mode and diagnosis function adjustable
<b>Adjustment range for switching point and hysteresis:</b>	0 %... 125 % f. s.
<b>Switching frequency:</b>	max. 100 Hz
<b>Load</b>	max. 500 mA, short-circuit proof
<b>Delay</b>	0.0 s ... 50 s adjustable
<b>Status display(s):</b>	LED(s) red
<b>Approvals:</b>	
<b>EMV</b>	EN 61000-4-2 ESD 4 kV CD / 8 kV AD EN 61000-4-3 HF radiated 10 V/m EN 61000-4-4 Burst 2 kV EN 61000-4-5-Surge 1/2 kV EN 61000-4-6 HF conducted 10 V
<b>Shock resistance</b>	DIN EN 60028-2-27 50 g (11 ms)
<b>Vibrations resistance</b>	DIN EN 60028-2-26 20 g (10...2000 Hz)
<b>cULus (not output code 6)</b>	E42816

\* In the pressure inlet a damping screw made of brass is mounted. This screw can be removed of required, e.g. in case of soiled medium or material incompatibility, using a slotted screw driver (max. width 3 mm). The pressure switch is less resistant to pressure peaks when the damping screw has been removed.

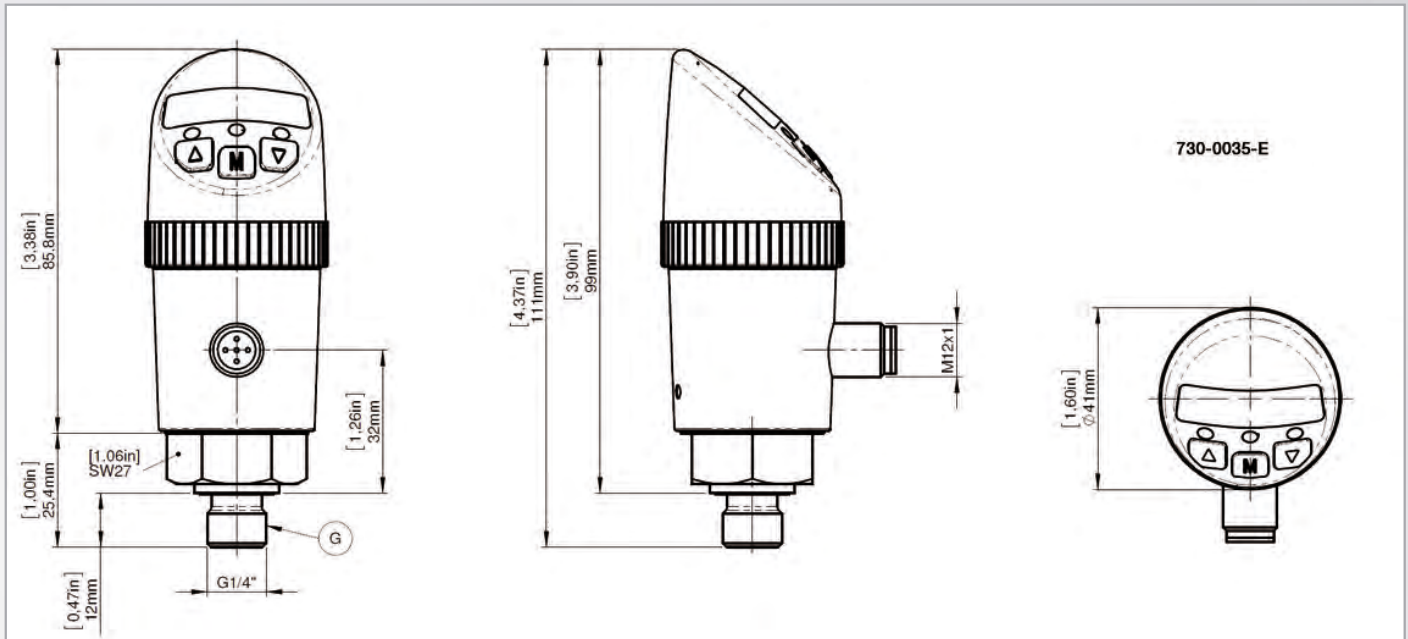
## Accessories

Order Number	Description
907-0357	Plug connector M12 x 1, 4-pin, with screw terminals, angled (IP65)
907-0185	Plug connector M12 x 1, 5-pin, with screw terminals, angled (IP65)
908-0361	Plug connector M12 x 1, 5-pin, with sharpened cable, (IP67)

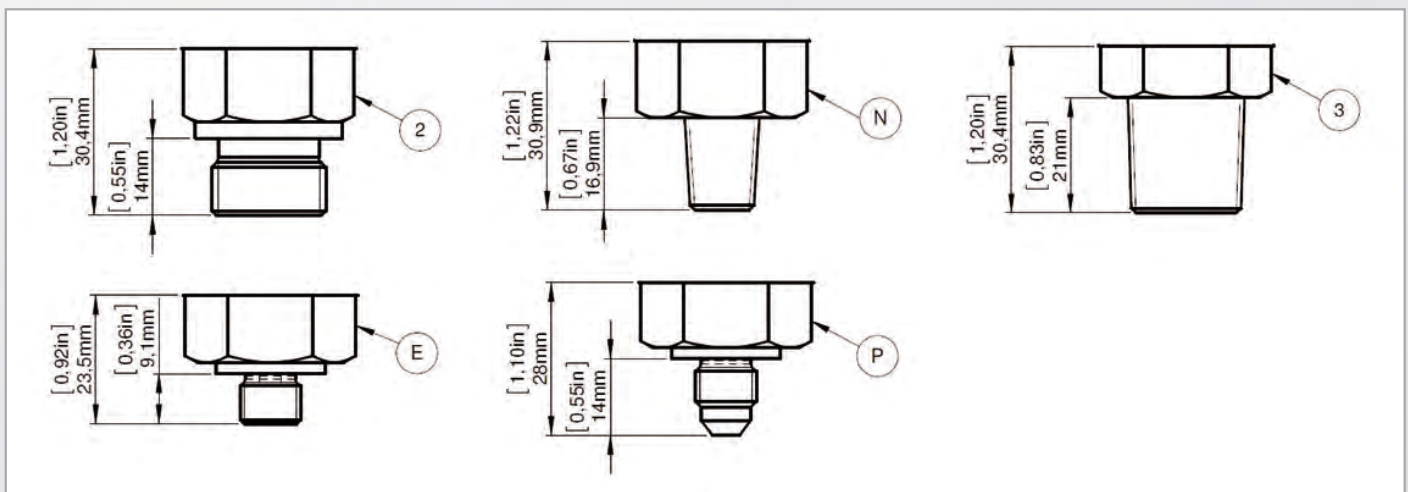
# Electr. Dual Pressure Switch

# BPS3000

## Dimensions (mm / inch)



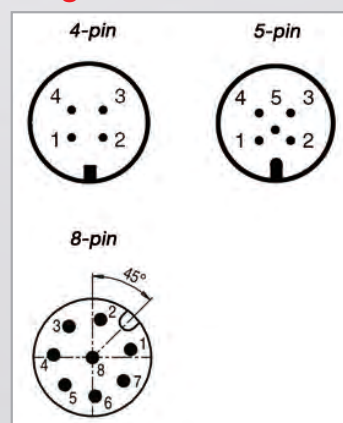
## Process connection



## Legend

G	G1/4" Ceramic
N	1/4" NPT Ceramic
2	G1/2" flush diaphragm
3	1/2" NPT flush diaphragm
E	7/16-20 UNF (SAE)
P	7/16-20 UNF (JIC)

## Plug



## Electrical Connection

Pin	Signal Output Code 1	Signal Output Code 2, 3	Signal Output Code 4, 5	Signal Output Code 6
1	+Ub	+Ub	+Ub	+Ub
2	SP2	Signal	Signal	SP1a
3	0V	0V	0V	SP1b
4	SP1	SP1	SP1	0V
5	-	-	SP2	SP2a
6	-	-	-	SP2b
7	-	-	-	-
8	-	-	-	Housing

### Order Code

<b>BPS3000</b>	
<b>BPS3</b>	<b>Base Model</b>
<b>Output</b>	
1	2 switch points
2	4...20mA - 1 switch point
3	0...10V - 1 switch point
4	4...20mA - 2 switch points
5	0...10V - 2 switch points
6	2 relais switch points (1 x NO SPST / 1 x NC SPST) (requires piezoresistive sensor / code P)*
<b>Process Connection</b>	
<b>G</b>	G1/4" ext. threat
<b>2</b>	G1/2" flush diaphr. (requires piezoresistive sensor / code P* /10-600 bar only)
<b>N</b>	1/4"NPT ext. threat
<b>3</b>	1/2"NPT flush diaphr. (requires piezoresistive sensor / code P* / 10-600 bar only)
<b>1</b>	40x40 Cetop/Manifold - on request
<b>E</b>	7/16-20 UNF (SAE4) ext. threat
<b>P</b>	7/16-20 UNF(37° JIC) ext. threat
<b>Sealing</b>	
<b>V</b>	FKM
<b>E</b>	EPDM
<b>Electrical Connection</b>	
<b>M</b>	M12
<b>Range</b>	
0 0 0 1 B A	0 - 1 bar absolute (requires piezoresistive sensor / code P)*
0 0 0 5 B A	0 - 5 bar absolute (requires piezoresistive sensor / code P)*
0 0 1 0 B A	0 - 10 bar absolute (requires piezoresistive sensor / code P)*
0 0 . 2 B	0 - 0.2 bar (requires piezoresistive sensor / code P)*
0 0 . 5 B	0 - 0.5 bar (requires piezoresistive sensor / code P)*
0 0 0 1 B	0 - 1 bar (requires piezoresistive sensor / code P)*
0 0 0 2 B	0 - 2 bar (requires piezoresistive sensor / code P)*
0 0 0 5 B	0 - 5 bar (requires piezoresistive sensor / code P)*
0 0 1 0 B	0 - 10 bar
0 0 5 0 B	0 - 50 bar
0 1 0 0 B	0 - 100 bar
0 2 0 0 B	0 - 200 bar
0 4 0 0 B	0 - 400 bar
0 6 0 0 B	0 - 600 bar (requires piezoresistive sensor / code P)*
	Others on request
<b>Sensor</b>	
Blank	Standard ceramic sensor
P	*Piezoresistive sensor
<b>Example:</b>	
BPS3	4 G V M 0 2 0 0 B

### Special Design on re

Special designs on request

# Notes

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# Electronic Pressure Switch

## UDS1V2

Electronic pressure switch for pressure control with internal stainless steel diaphragm, with 2 solid state outputs or 1 solid state output with adjustable hysteresis.

### Features

- Teach & Go
- Compact construction
- Housing 320° rotatable

### Measuring ranges

0 ...10 bar to 0...600 bar

### Applications

OEM applications in hydraulic and pneumatic systems, press construction, lubricant monitoring, apparatus engineering, machine/machine tool industry, automobile industry, injection molding machines



### Technical Data

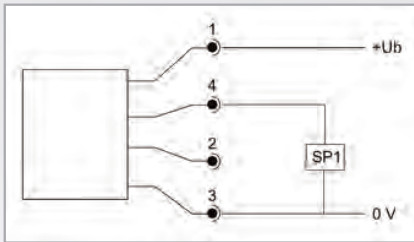
<b>Sensor element:</b>	Ceramic sensor optional: piezoresistive sensor; at 600 bar: only piezoresistive sensor
<b>Materials:</b> Wetted parts: Electronics housing: Seals:	Steel, pass., Al2O3 PA 6.6 FKM
<b>Operating elements:</b>	2 easy response push buttons
<b>System of protection:</b>	IP65
<b>Protection class:</b>	III
<b>Process connection:</b>	G 1/4" AG Others on request
<b>Dimensions:</b>	approx. Ø 28 x 100 mm (without plug connector)
<b>Measuring ranges:</b>	0...10 bar to 0...600 bar 0...150 to 0...9000 PSI
<b>Electrical connection:</b>	Plug M12x1, 4-pin

<b>Temperature influence:</b>	± 0.2 % f.s./10K
<b>Compensation range:</b>	-10 °C...+70 °C
<b>Repeatability:</b>	+/- 1 % f.s.
<b>Temperature range:</b> Medium: Electronics: Storage:	-25 °C...+100 °C -25 °C...+80 °C -30 °C...+80 °C
<b>Power supply:</b>	15...32 V DC, reversed polarity protected (SELV, PELV)
<b>Transistor switching outputs PNP:</b> Adjustment range for switching point- and hysteresis*: frequency: current rating:	0 % ...100 % f.s.  Max. 100 Hz Max. 200 mA, short-circuit proof
<b>Vibration</b>	10 g/20...2000 Hz
<b>Shock</b>	100 g/11 ms

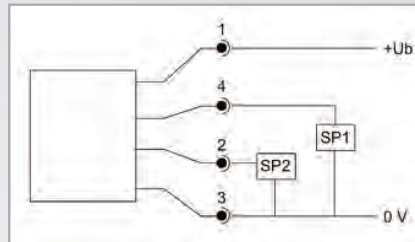
\* only 1SP version (2SP version 15% hysteresis)



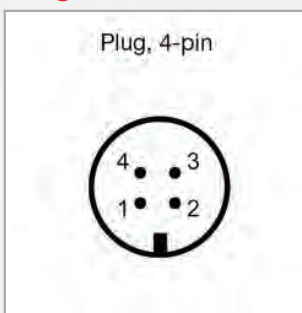
## Connection Diagram 1



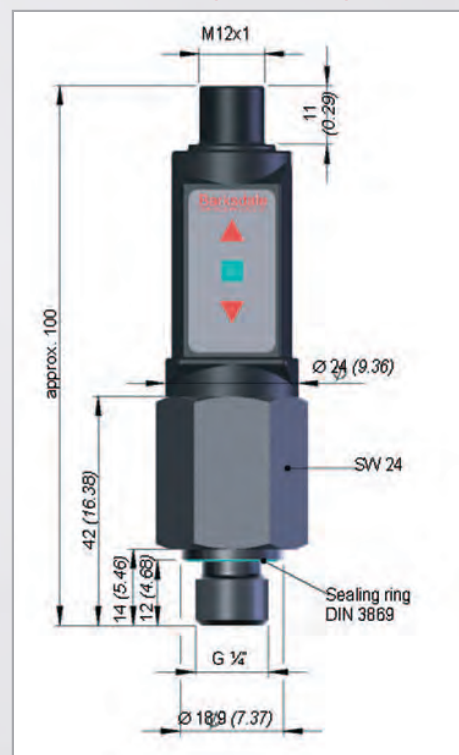
## Connection Diagram 2



## Plug



## Dimensions (mm / inch)



## Order Numbers

Pressure range	0...10 bar	0...100 bar	0...400 bar	0...600 bar
1 switching output with adjustable hysteresis	0421-060	0421-061	0421-062	0421-063
2 switching outputs with 15% hysteresis	0421-064	0421-065	0421-066	0421-067

## Accessories

Order Number	Description
907-0357	Plug connector M12x1, 4-pin, with screw terminals, angled
907-0344	Plug connector M12x1, 4-pin, with screw terminals, straight

# Electr. Pressure Switch

**UDS3V3**

Electronic pressure switch for pressure control with internal stainless steel diaphragm, digital display, 4 switching outputs and 1 analog output, linearity error f. s.

## Features

8-digit 14-segment LCD display with Bargraph and trend indication, microprocessor controlled, self monitoring, all parameters are configured by keypad, display unit selectable, adjustable keypad lock, high accuracy, quick scanning rate (1000/s)

## Measuring ranges

0...1 bar 0...10 bar, absolute pressure  
-1...0 bar to 0...600 bar gauge

## Applications

OEM applications  
hydraulic and pneumatic systems,  
heavy industry and plant engineering,  
automobile industry

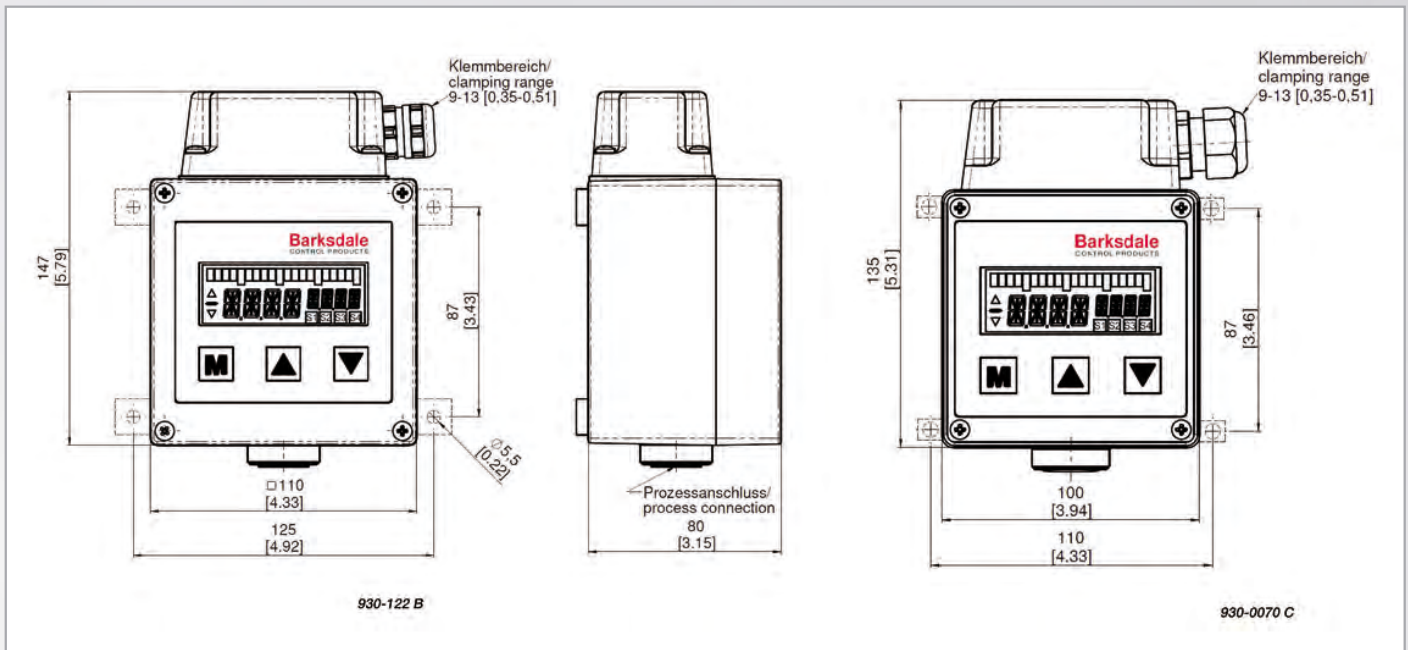


## Technical Data

<b>Sensor element:</b>	Piezoresistive silicon measuring cell					
<b>Materials:</b>	Stainless steel, material no. 1.4301					
Wetted parts:	Cast aluminum G AL SI 12					
Electronics housing:	FKM, optionally: EPDM					
Seals:	Polyester					
Keypad:						
<b>Operating elements:</b>	Keypad with easy-response pushbuttons					
<b>System of protection:</b>	IP65					
<b>Protection class:</b>	I					
<b>Process connection:</b>	G1/4 female thread, bottom entry Option: 1/4" NPT female thread					
<b>Dimensions:</b>	100 x 135 x 80 mm (W x H x D)					
<b>Weight:</b>	approx. 1080 g					
<b>Measuring ranges [bar]:</b>	10	50	100	200	400	600
<b>Proof pressure [bar]:</b>	15	75	150	300	600	800
<b>Linearity error:</b>	±0.5 % f. s. at 25 °C					
<b>A/D converter:</b>	12 bit					
Resolution:	(4096 steps per measuring span)					
Scanning rate:	1000 / s					
<b>On-status display:</b>	8-digit 14-segment LCD display, digit height 12 mm, green					
Bargraph:	20-segment for current value					
Trend arrows:	last changes					
Display range:	-9999... 9999					
Display rate:	4 / s					
Display unit:	bar / psi / psi x 10 / hPa / mbar switchable					
<b>Electrical connection:</b>	14-pin screw terminal for 1.5 mm <sup>2</sup> AWG14, plug-in type					
<b>Cable gland:</b>	1 x PG13.5 side entry					

<b>Temperature influence:</b>	±0.2 % v. f. s. / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	±0.1 % v. f. s.
<b>Temperature range:</b>	
Medium:	-25 °C... +100 °C
Electronics:	-10 °C... +70 °C
Storage:	-30 °C... +80 °C
<b>Power supply:</b>	18... 32 V DC, reversed polarity protected (SELV, PELV)
<b>Power consumption:</b>	approx. 350 mA at Ub = 24 V DC (without load)
<b>Analog output:</b>	
Current output:	4...20 mA
Load:	max. RI = (Ub-12 V) / 20 mA RI = 600 Ohm at Ub = 24 V DC
Load influence:	0.3 % / 100 Ohm
Scanning rate:	1 ms
Voltage output:	0...10 V DC
Rating:	max. 10 mA, short-circuit proof
Adjustment range:	25 %... 100 % f. s.
<b>4x relay output(s) - change-over contacts (SPDT):</b>	
Switching voltage:	max. 120 V DC / 250 V AC
Switching power:	max. 12 W / 1250 VA
Cycles:	1 mio. at 24 V DC / 2 A
Switching rate:	max. 20 / s
Delay:	0.0 s ... 9.9 s adjustable
Operation time:	1 ms
Status display:	S1... S4 on LCD display
<b>Accessories:</b>	Damping screw 0.2 mm; mounting traverse; vibration damper
<b>Approval:</b>	cULus: file no. E42816

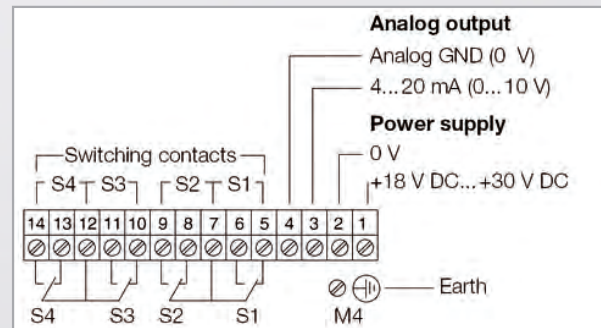
## Dimensions (mm / inch)



## Order Numbers

Pressure switch with digital display and 4 relays, G1/4 female		
Measuring ranges [bar]	Analog Output	Order No.
10	---	0423-129
10	4...20 mA	0423-117
10	0...10 V	0423-118
50	---	0423-130
50	4...20 mA	0423-119
50	0...10 V	0423-120
100	---	0423-131
100	4...20 mA	0423-121
100	0...10 V	0423-122
200	---	0423-132
200	4...20 mA	0423-123
200	0...10 V	0423-124
400	---	0423-133
400	4...20 mA	0423-125
400	0...10 V	0423-126
600	---	0423-134
600	4...20 mA	0423-127
600	0...10 V	0423-128

## Electronic connections



## Accessories

Order Number	Description
901-0677	Damping screw M4 x 0.2 for UDS 3, UDS 7, Switch 2000, material: brass
903-0681	Mounting traverse (1 set = 2 pcs)
914-0107	Vibration damper (1 pack = 4 pcs)

# Electronic Display

**UAS7**

Trip amplifier for all physical quantities with digital display,  
2 switching outputs and  
1 analog output,  
Linearity error 0.2 % f. s.

## Features

4-digit 7-segment LED display, microprocessor-controlled, self monitoring, all parameters are configured by Keypad, display unit selectable, adjustable keypad lock, high accuracy, quick scanning rate (1 ms)

## Display range

freely scalable: -9,999...+9,999

## Applications

OEM applications,  
Hydraulics and pneumatics,  
test bed and apparatus engineering,  
heavy industry

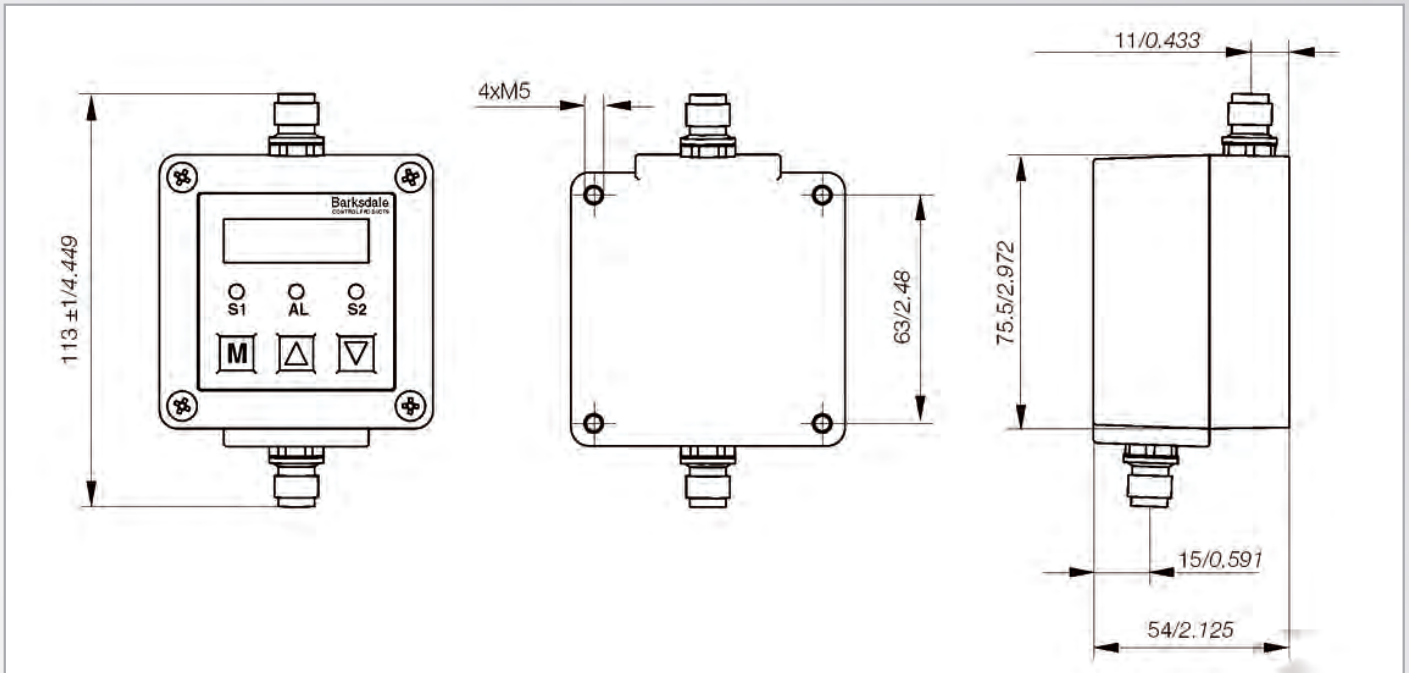


## Technical Data

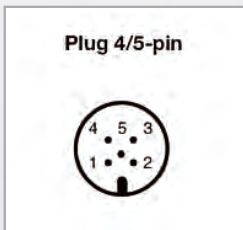
<b>Measuring principle:</b>	Amplifier with 10 bit A/D converter
<b>Materials:</b>	
Electronics housing:	Aluminum die-cast
Housing seal:	NBR
Keypad:	Polyester
<b>Operating elements:</b>	Keypad with easy-response pushbuttons
<b>Protection system/class</b>	IP65 / III
<b>Dimensions:</b>	75 x 75 x 55 mm (W x H x D)
<b>Weight:</b>	approx. 330 g
<b>Analog measuring inputs:</b>	
Current input:	4... 20 mA
Voltage input:	0... 10 V DC
<b>Linearity error:</b>	< ±0.2 % v. f. s. at 25 °C
<b>A/D converter:</b>	
Resolution:	10 bit (1024 steps per measuring span)
Scanning rate:	200 / s
<b>On-status display:</b>	4-digit 7-segment LED display, red, digit height 10 mm
Display range:	-9,999... +9,999
Display rate:	2 / s
Display unit:	all technical units
<b>Sensor connection:</b>	Plug M12 x 1, 4-pin
<b>Electrical connection:</b>	Plug M12 x 1, 4-pin or 5-pin

<b>Temperature influence:</b>	< 0.05 % v. f. s. / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	≤±0.05 % v. f. s.
<b>Temperature range:</b>	
Electronics:	-10 °C... +70 °C
Storage:	-30 °C... +80 °C
<b>Power supply:</b>	15... 32 V DC, reversed polarity protected (SELV, PELV)
<b>Power consumption:</b>	approx. 50 mA (without load)
<b>Analog output:</b>	
Current output:	4...20 mA
Load:	max. RI = (Ub-12 V) / 20 mA RI = 600 Ohm at Ub = 24 V DC
<b>Load influence:</b>	0.3 % / 100 Ohm
<b>Scanning rate:</b>	5 ms
<b>Voltage output:</b>	0...10 V DC
<b>Rating:</b>	max. 10 mA
<b>Adjustment range:</b>	25 %... 100 % f. s.
<b>Transistor switching outputs PNP:</b>	
Switching function:	Normally open / normally closed, standard / window mode and diagnosis function adjustable
Adjustment range:	0 %... 125 % f. s.
Switching frequency:	max. 100 Hz
Current rating:	max. 500 mA, short-circuit proof
Delay:	0.0 s ... 9.9 s adjustable
Status display(s):	LED(s) green
<b>Accessories:</b>	Plug connector

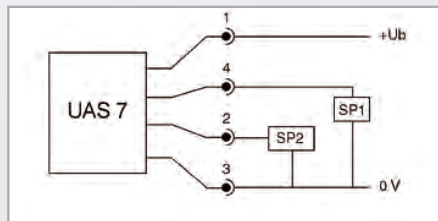
## Dimensions (mm / inch)



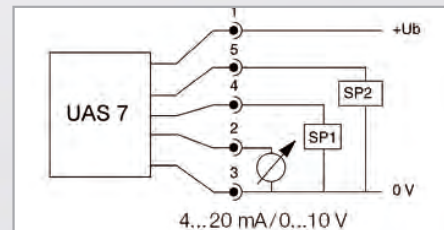
## Plug



## Connection Diagram 1



## Connection Diagram 2



## Sensor

**M12 x 1**

1 =  $+U_b$   
2 = Signal  
3 =  $-U_b$  (\*)

**Analog measuring input**

Optional:  
Current input:  $4...20 \text{ mA}$   
Voltage input:  $0...10 \text{ V DC}$

(\*) Pin 2 is not needed with 2-wire connection.

## Order Numbers

Electronic trip amplifier with 2 PNP outputs		
Analog Input	Analog Output	Order Number
$4...20 \text{ mA}$	---	0001-004
$4...20 \text{ mA}$	$4...20 \text{ mA}$	0001-002
$4...20 \text{ mA}$	$0...10 \text{ V}$	0001-003
$0...10 \text{ V}$	---	0001-007
$0...10 \text{ V}$	$4...20 \text{ mA}$	0001-005
$0...10 \text{ V}$	$0...10 \text{ V}$	0001-006

# Electronic Display

# UAS3V3

Trip amplifier for all physical quantities with digital display, 4 switching outputs and 1 analog output.  
Accuracy 0.2 % v. M. E.

## Features

8-digit 14-segment LCD display with bargraph and trend indication, microprocessor controlled, self monitoring, all parameters are configured by keypad, display unit selectable, adjustable keypad lock, high accuracy, quick scanning rate (1000/s)

## Display range

freely scalable: -9,999...+9,999

## Applications

OEM applications,  
Hydraulics and pneumatics,  
test bed and apparatus engineering,  
heavy industry

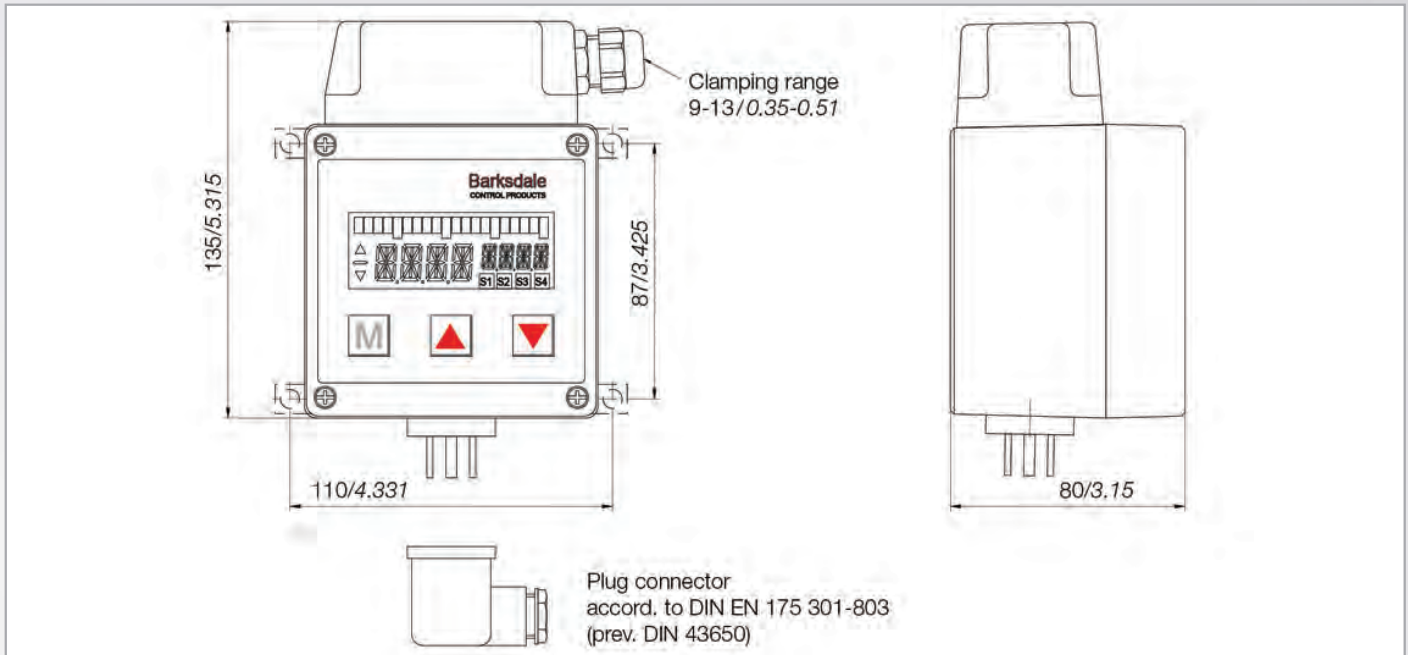


## Technical Data

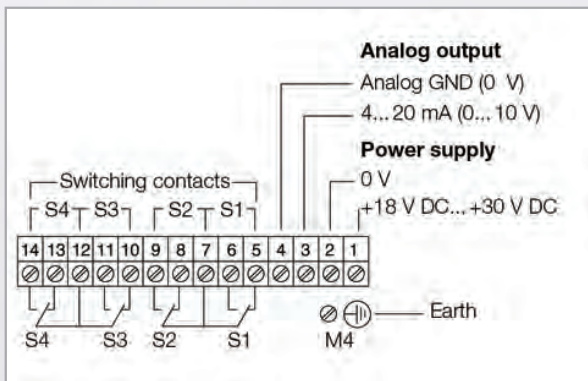
<b>Measuring principle:</b>	Amplifier with 12 bit A/D converter
<b>Materials:</b>	
Electronics housing:	Cast aluminum G AL SI 12
Housing seal:	CR
Keypad:	Polyester
<b>Operating elements:</b>	Keypad with easy-response pushbuttons
<b>System of protection:</b>	IP65
<b>Protection class:</b>	I
<b>Dimensions:</b>	100 x 135 x 80 mm (W x H x D)
<b>Weight:</b>	approx. 1080 g
<b>Analog measuring inputs:</b>	
Current input:	4...20 mA
Voltage input:	0...10 V DC
<b>Linearity error:</b>	< ±0.2 % v. f. s. at 25 °C
<b>A/D converter:</b>	
Resolution:	12 bit (4096 steps per meas. span)
Scanning rate:	1000 / s
<b>On-status display:</b>	8-digit 17-segment LCD display, digit height 12 mm, green
Bargraph:	20-segment for current value
Trend arrows:	last changes
Display range:	-9999... +9999
Display rate:	4/s
Display unit:	all technical units
<b>Sensor connection:</b>	Plug 3-pin, DIN EN 175 301-803-A (prev. DIN 43650), incl. plug connector
<b>Electrical connection:</b>	14-pin screw terminal for 1.5 mm <sup>2</sup> AWG14, plug-in type

<b>Cable gland:</b>	
Standard:	1 x PG13.5 side entry
Option:	2 x PG13.5 top entry
<b>Temperature influence:</b>	< 0.05 % v. f. s. / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	≤±0.01 % f. s.
<b>Temperature range:</b>	
Electronics:	-10 °C... +70 °C
Storage:	-30 °C... +80 °C
<b>Power supply:</b>	18... 32 V DC, reversed polarity protected (SELV, PELV)
<b>Power consumption:</b>	approx. 350 mA at U <sub>b</sub> = 24 V DC (without load)
<b>Analog output:</b>	
Current output:	4...20 mA
Load:	max. R <sub>I</sub> = (U <sub>b</sub> -12 V) / 20 mA R <sub>I</sub> = 600 Ohm at U <sub>b</sub> = 24 V DC
Load influence:	0.3 % / 100 Ohm
Scanning rate:	1 ms
Voltage output:	0...10 V DC
Rating:	max. 10 mA
Adjustment range:	25 %... 100 % f. s.
<b>4x relay output(s) - change-over contacts (SPDT):</b>	
Switching voltage:	max. 120 V DC / 250 V AC
Switching power:	max. 120 W / 1250 VA
Cycles:	1 mio. at 24 V DC / 2 A
Switching rate:	max. 20 / s
Delay:	0.0 s ... 9.9 s adjustable
Operation time:	1 ms
Status display:	S1... S4 on LCD display
<b>Accessories:</b>	Mounting traverse, vibration damper
<b>Approval:</b>	cULus: file no. E248549

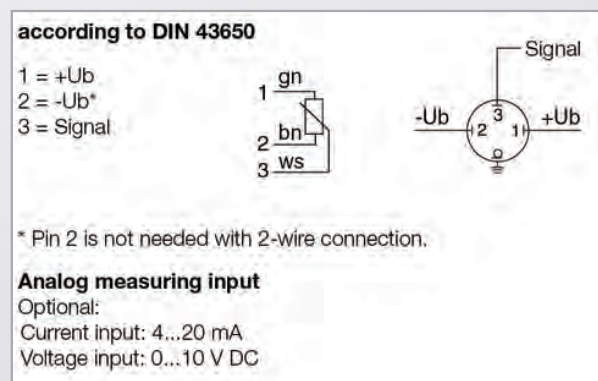
## Dimensions (mm / inch)



## Electronic connections



## Sensor Connection



## Order Numbers

Electronic trip amplifier with 4 relays, 1 input and multifunction display		
Analog Input	Analog Output	Order No.
4...20 mA	---	0003-026
4...20 mA	4...20 mA	0003-024
4...20 mA	0...10 V	0003-025
0...10 V	---	0003-032
0...10 V	4...20 mA	0003-030
0...10 V	0...10 V	0003-031

## Accessories

Order Number	Description
903-0681	Mounting traverse (1 set = 2 pcs)
914-0107	Vibration damper (1 pack = 4 pcs)

# Electronic Display

# UAD3V3

Trip amplifier for all physical quantities with digital display, 4 switching outputs and 2 analog outputs.  
Linearity error 0.2 % f. s.

## Features

Two 8-digit 14-segment LCD displays with bargraph and trend indication, microprocessor controlled, self monitoring, all parameters are configured by keypad, display unit selectable, adjustable keypad lock, high accuracy, quick scanning rate (1000/s)

## Display range

freely scalable: -9999...+9999

## Applications

OEM applications,  
hydraulic and pneumatic systems,  
test bed and apparatus engineering,  
heavy industry



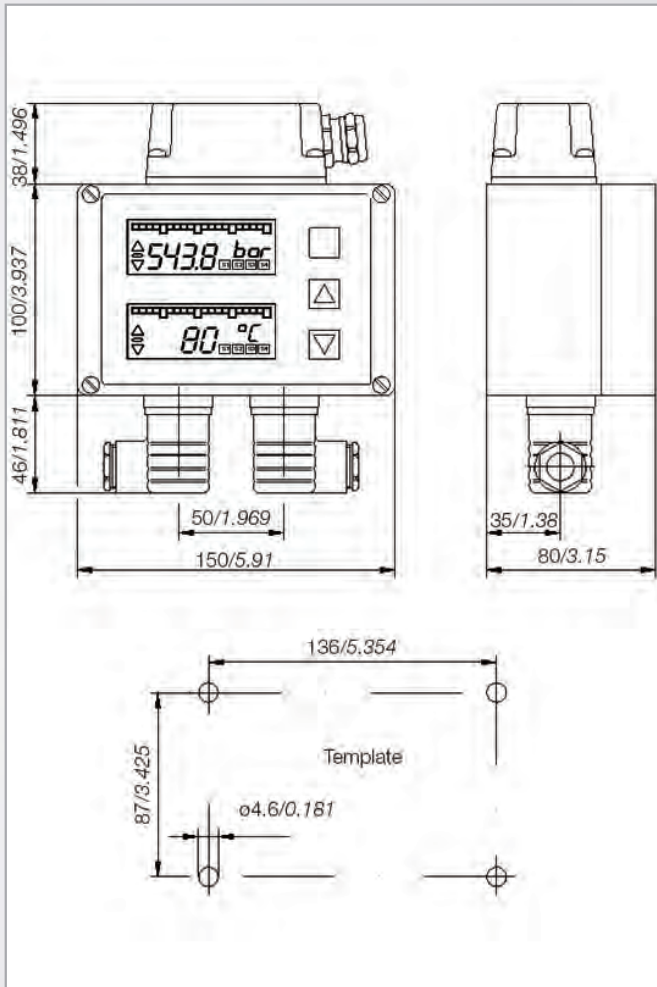
## Technical Data

<b>Measuring principle:</b>	Amplifier with 12 bit A/D converter
<b>Materials:</b>	
Electronics housing:	Cast aluminum G AL SI 12
Housing seal:	CR
Keypad:	Polyester
<b>Operating elements:</b>	Keypad with easy-response push-buttons
<b>System of protection:</b>	IP65
<b>Protection class:</b>	I
<b>Dimensions:</b>	100 x 150 x 80 mm (W x H x D)
<b>Weight:</b>	approx. 1080 g
<b>Analog measuring inputs:</b>	
Current input:	4... 20 mA
Voltage input:	0... 10 V DC
<b>Linearity error:</b>	< ±0.2 % v. f. s. at 25 °C
<b>A/D converter:</b>	
Resolution:	12 bit (4096 steps per measuring span)
Scanning rate:	1000 / s
<b>On-status display:</b>	Two 8-digit 14-segment LCD displays, digit height 12 mm, red and green
Bargraph:	20-segment for current value
Trend arrows:	last changes
Display range:	-9999... +9999
Display rate:	4 / s
Display unit:	all technical units
<b>Sensor connection:</b>	2 plugs 3-pin, DIN EN 175 301-803-A (prev. DIN 43650), incl. plug connector
<b>Electrical connection:</b>	16-pin screw terminal for 1.5 mm <sup>2</sup> AWG14, plug-in type

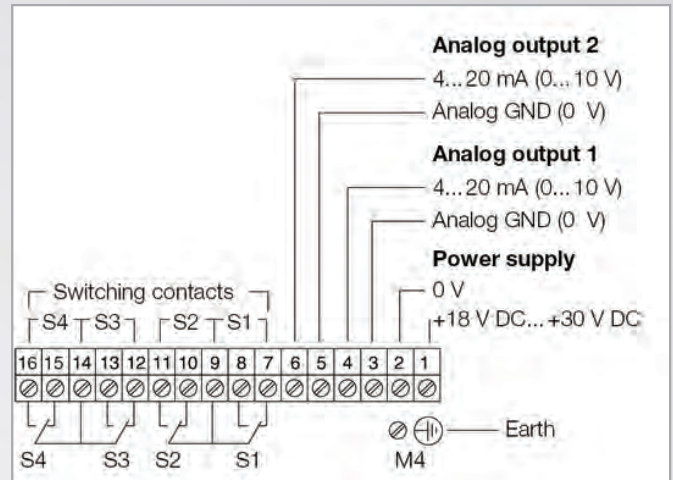
<b>Cable gland:</b>	
Standard:	1 x PG13.5 side entry
Option:	2 x PG13.5 top entry
<b>Temperature influence:</b>	< 0.1 % v. f. s. / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	≤±0.01 % v. f. s.
<b>Temperature range:</b>	
Electronics:	-10 °C... +70 °C
Storage:	-30 °C... +80 °C
<b>Power supply:</b>	18... 32 V DC, reversed polarity protected (SELV, PELV)
<b>Power consumption:</b>	approx. 250 mA at Ub = 24 V DC (without load)
<b>Analog output:</b>	
Current output:	4...20 mA
Load:	max. RI = (Ub-12 V) / 20 mA RI = 600 Ohm at Ub = 24 V DC
Load influence:	0.3 % / 100 Ohm
Scanning rate:	1 ms
Voltage output:	0...10 V DC
Rating:	max. 10 mA
Adjustment range:	25 %... 100 % f. s.
<b>4x relay output(s)-change-over contacts (SPDT):</b>	
Switching voltage:	max. 120 V DC / 160 V AC
Switching power:	max. 120 W / 1250 VA
Cycles:	1 mio. at 24 V DC / 2 A
Switching rate:	max. 20 / s
Delay:	0.0 s ... 9.9 s adjustable
Operation time:	1 ms
Status display:	S1... S4 on LCD display
<b>Accessories:</b>	Vibration damper



## Dimensions (mm / inch)



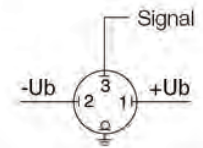
## Electronic connections



## Sensor Connection UAD3-V3

according to DIN 43650

- 1 = +Ub
- 2 = -Ub\*
- 3 = Signal



\* Pin 2 is not needed with 2-wire connection.

### Analog measuring input

Optional:  
Current input: 4...20 mA  
Voltage input: 0...10 V DC

## Order Numbers

Electronic trip amplifier with 4 relays, 2 inputs and multifunction display		
Analog Input	Analog Output	Order No.
4...20 mA	4...20 mA	0007-017
4...20 mA	0...10 V	0007-018
0...10 V	4...20 mA	0007-019
0...10 V	0...10 V	0007-020

## Accessories

Order Number	Description
914-0107	Vibration damper (1 pack = 4 pcs)





# Experts

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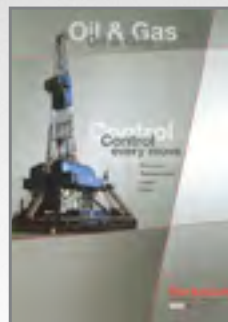
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