

Electronic pressure switch

Type HEDE 10

RE 30277

Edition: 2017-02

Replaces: 2016-06



- ▶ Component series 3X
- ▶ Maximum operating pressure 600 bar



Features

- ▶ Suitable for measuring pressures in hydraulic systems as well as for transforming the measured values into electronic signal values
- ▶ Sensor thin film measuring cell
- ▶ Connection cable with 4-pole M12 connector on the housing
- ▶ Accuracy class 1.0
- ▶ Male thread or internal thread G1/4"
- ▶ Components in contact with the media made of stainless steel and FKM
- ▶ Compact design
- ▶ One switching output and one analog output or two switching outputs
- ▶ IO link V1.1

Contents

Features	1
Ordering code	2
Technical data	3 ... 5
Dimensions	5
Operating and display elements	6
Electrical connection	6 ... 7
Mating connectors	7
Accessories	8
Further information	8

Ordering code

01	02	03	04	05	06	07
HEDE10	-	3X	/	/	/-	*

01	Hydro-electric pressure switch	HEDE10
02	Component series 30 ... 39 (30 ... 39: unchanged installation and connection dimensions)	3X
03	Pressure rating maximum 100 bar	100
	Pressure rating maximum 250 bar	250
	Pressure rating maximum 400 bar	400
	Pressure rating maximum 600 bar	600

Output		
04	1 switching and 1 analog output	1
	2 switching outputs	2

Hydraulic connection		
05	Internal thread G1/4	Gi
	Male thread G1/4	Ga

Electrical connection		
06	Individual connection	
	Without mating connector; connector M12 DIN EN 61076-2-101 without cable with M12 connector, A-coded	K35 ¹⁾

Seal material		
07	FKM seals	V
	Without seal (with internal thread)	0
	Observe compatibility of seals with hydraulic fluid used! (other seals on request)	
08	Further details in the plain text	*

¹⁾ Mating connectors, separate order, see accessories

Accessories

- ▶ Mating connectors for the electrical connection see page 7.
- ▶ Mounting clamp and protective cap see page 8.

Technical data

(For application outside these values, please consult us!)

general	
Weight	kg 0.26
Installation position	Any
Ambient temperature range	°C -25 ... +80
Storage temperature range	°C -40 ... +100
Sine test according to DIN EN 60068-2-6:1996-05	10...2000 Hz, max. 20 g, 10 double cycles
Transport shock according to DIN EN 60068-2-27:1995-03	Half-sine 50 g / 11 ms, 3 x in positive direction, 3 x negative direction (a total of 18 single shocks)
Noise test according to DIN EN 60068-2-64: 1995-08	20...2000 Hz, 10 g _{RMS} , 24 h
Conformity	<p>► CE</p> <p>DIN EN 60947-1: 2007 / A1: 2011 / A2: 2014 DIN EN 60947-5-1: 2004 / A1: 2009 DIN EN 61058-1: 2002 / A2: 2008 DIN EN 60529: 1991 / A2: 2013</p> <p>► UL</p> <p>UL, 508 17th edition File No E223220 (up to 350 bar)</p>
Protection class according to DIN EN 60529	IP 65 / IP 67 with mating connector mounted and fitted
Protection class according to EN 50178	III

hydraulic					
Pressure rating (measurement range)	bar	100	250	400	600
Admissible overload pressure	bar	300	500	800	800
Bursting pressure	bar	400	1000	1600	2500
Switching point	bar	1.0 ... 100	2 ... 250	4 ... 400	6 ... 600
Switch-back point, rP	bar	0.5 ... 99.5	1 ... 249	2 ... 398	3 ... 597
in steps of	bar	0.5	1	2	3
Hydraulic fluid ¹⁾		See table below			
Hydraulic fluid temperature range (at the working port of the pressure switch)	°C	-25 ... +80			
Viscosity range	mm ² /s	10 ... 800			
Maximum admissible degree of contamination of the hydraulic fluid; Cleanliness class according to ISO 4406 (c)		Class 20/18/15 ¹⁾			
Material in contact with medium		V4A (1.4542), FKM (with male thread)			
Pressure port	<p>► Internal thread "Gi"</p> <p>► Male thread "Ga"</p>	G1/4			

¹⁾ The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.

For the selection of the filters, see www.boschrexroth.com/filter.

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM, low-temperature seals	DIN 51524	90220
Bio-degradable	► Insoluble in water	HETG	ISO 15380	90221
		HEES		
	► Soluble in water	HEPG	ISO 15380	
Flame-resistant	► Water-free	HFDU, HFDR	ISO 12922	90222
	► Containing water	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	ISO 12922	90223

Technical data

(For application outside these values, please consult us!)



Important information on hydraulic fluids:

- ▶ For more information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us!
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- ▶ The flash point of the hydraulic fluid used must be 40 K higher than the maximum solenoid surface temperature.

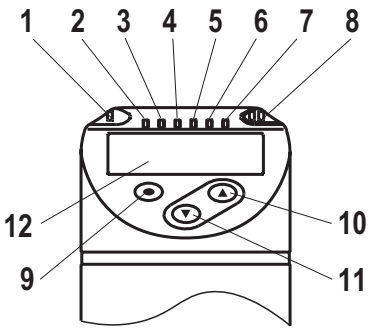
▶ Flame-resistant – containing water:

- Maximum pressure differential per control edge 50 bar
- Pressure pre-loading at the tank port >20% of the pressure differential, otherwise increased cavitation
- Life cycle as compared to operation with mineral oil HL, HLP 50 to 100%

- ▶ **Bio-degradable and flame-resistant:** When using hydraulic fluids that are simultaneously zinc-solvent, zinc may accumulate (700 mg zinc per pole tube).

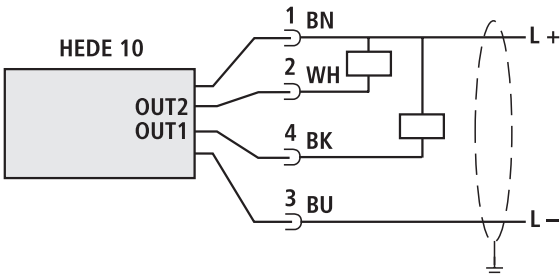
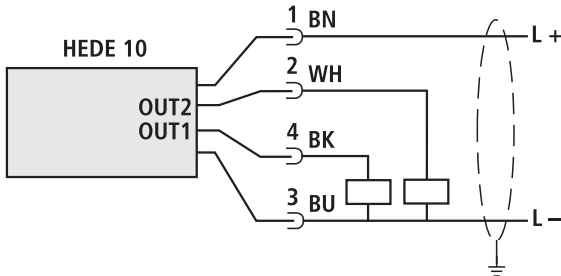
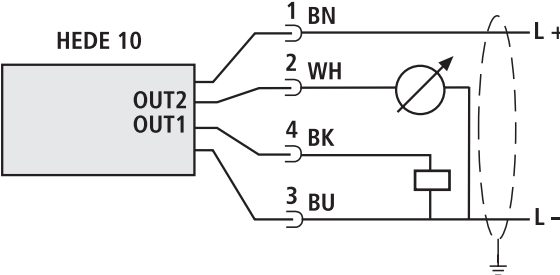
electric			
Electrical connection			M12 plug-in connection, gold-plated contacts
Input variables			
Supply voltage		U_B	18 to 30 VDC
Current consumption		I	< 50 mA
Isolation resistance		mΩ	>100 (500 VDC)
Output parameters			
Analog output	▶ Current carrying capacity	U	0 ... 10 VDC (minimum load 2000 Ω)
	▶ Voltage	I	4 ... 20 mA (max. load $(U_B - 10) \times 50 \Omega$)
	▶ Rise time (10 to 90 %)	t	3 ms
Switching output	▶ Output function		Normally open contact / normally closed contact programmable
	▶ Current carrying capacity	I	150; 200 (...60 °C); 250 (...40 °C) mA
	▶ Voltage drop	U	< 2.5 V short-circuit protection clocked
	▶ Overload-resistant		Yes
	▶ Switching frequency	f	≤ 170 Hz
Accuracy / variations			
Characteristic curve deviation: (according to end point setting DIN16086)			< ±0.5 %
Temperature coefficient in nominal temperature range	▶ largest TK of the zero point		0.2 % / 10 k
	▶ largest TK of the range		0.2 % / 10 k
Hysteresis			< ± 0.25 %
Switching point accuracy			< ± 0.5 %
Repetition accuracy			0.1 %
Programming options			Hysteresis / window; normally open contact / normally closed contact; activation, deactivation delay; damping; indicator unit / diagnosis output
Long-term drift under reference conditions (6 months)			0.05 %
EMC	▶ EN 61000-4-2 ESD	kV	4 / 8
	▶ EN 61000-4-3 HF radiated	V/m	10
	▶ EN 61000-4-4 Burst	kV	2
	▶ EN 61000-4-5 Surge	kV	1
	▶ EN 61000-4-6 HF conducted	V	10
Reaction times			
Readiness delay time		s	0.3
Min. reaction time switching output		ms	< 3
Adjustable delay time dS, dr		s	0...50
Damping switching output (dAP)		s	0...4
Damping analog output (dAA)		s	0...4
Rise time analog output		ms	< 3
Watchdog integrated			Yes
Switching cycles min.			100 million / 50 million with pressure rating 600 bar

Operating and display elements

	1 ... 8: indicator LEDs	
	LED 1	Switching status OUT1 (is illuminated when output 1 is switched through)
	LED 8	Switching status OUT2 (is illuminated when output 2 is switched through)
	LED 2 ... 7 ¹⁾	System pressure in the specified unit of measurement
	9: Enter key [•]	
	Selection of the parameters and confirmation of the parameter values	
	10 and 11: Arrows up [▲] and down [▼]	
	Setting of the parameter values (permanent by continuous pressure; step-wise by pressing individually)	
	12: Alphanumerical display, 4-digit	
	Display of the current system pressure	
Display of the parameters and parameter values		

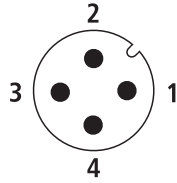
1) With variant 1 switching and 1 analog output, these LEDs don't have any function.

Electrical connection according to DIN EN 175301-803

"K35" two switching outputs	
n-switching (NPN)	p-switching (PNP)
	
OUT1: Switching output or IO-Link OUT2: Switching output Color marking according to DIN EN 60947-5-2	OUT1: Switching output or IO-Link OUT2: Switching output Color marking according to DIN EN 60947-5-2
"K35" one switching and one analog output:	
	
OUT1: Switching output or IO-Link OUT2: 4...20 mA / 0...10 V Color marking according to DIN EN 60947-5-2	

Electrical connection according to DIN EN 175301-803

Connector view at the device:



When establishing the electrical connection, the protective earthing conductor (PE \perp) must be connected correctly.

Mating connectors according to DIN EN 175301-803

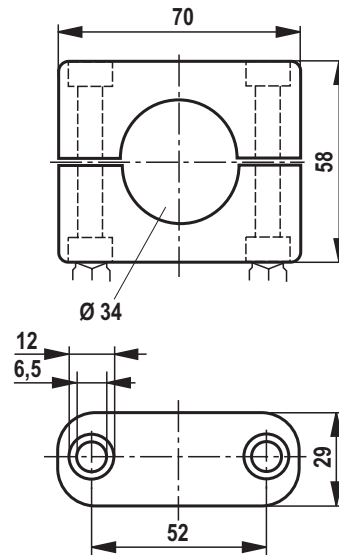
Technical data:	Designation	Material no.
<p>M 12x1</p>	04 POL (with 2 m cable)	R900773031
	04 POL (with 3 m cable)	R900064381
	04 POL (with 5 m cable)	R900779498
	04 POL (with 10 m cable)	R913005668
<p>M 12x1</p>	04 POL (with 2 m cable)	R900779504
	04 POL (with 5 m cable)	R900779503
	04 POL (with 10 m cable)	R913011722
<p>Connection:</p> <p>M12x1</p>	04 POL (without cable) ¹⁾	R900773042
	<p>M12x1</p>	04 POL (without cable) ¹⁾
		¹⁾ Protection class IP68

For more details and other lengths refer to RE8006 or upon request

Accessories

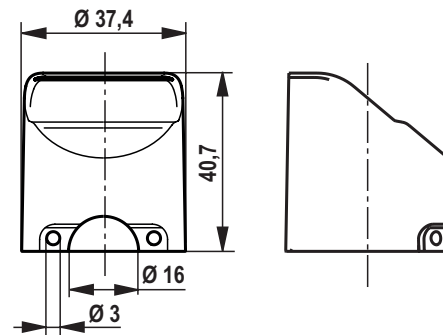
Mounting clamp for HEDE 10

Designation	Material no.
Mounting clamp	R900786138



Protective cap for HEDE 10

Designation	Material no.
Protective cap M12	R901453193



Further information

Notice:

For general information on safety, installation or commissioning, see operating instructions:

07600-B	Hydraulic valves for industrial applications
30277-01-B	HEDE10-3x with two switching outputs
30277-02-B	HEDE10-3x with switching output and analog output
30277-PA	Parameter description IO-Link

Bosch Rexroth AG
 Hydraulics
 Zum Eisengießer 1
 97816 Lohr am Main, Germany
 Telephone +49 (0) 93 52/18-0
 documentation@boschrexroth.de
 www.boschrexroth.de

© This document, as well as the data, specifications and other information set forth in it, are the exclusive property of Bosch Rexroth AG. It may not be reproduced or given to third parties without its consent. The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.