HYDAC INTERNATIONAL

Pressure switches
EDS 3100

Features

- IO-Link interface
- Parameterisation and cyclical transmission of process and service data
- Simplifies installation and commissioning
- With display
- The display can be moved in two planes.
- Any installation position

Description

The EDS 3100 with IO-Link communication interface is a compact electronic pressure switch with integrated digital display for absolute pressure measurement in the low pressure range.
The instrument has a switching output and an additional output that can be configured as switching or analogue (4 .. 20 mA or 0 .. 10 V).

IO-Link is the communication between the sensor/actuator (IO-Link device) and an IO-Link master based on a point-to-point interface.
The advantages:

- Process data, parameters and diagnostic information of the pressure switch can be transmitted via a standard cable (SDCI mode). The integrated LED display provides information on the operating mode and the switching statuses.
- Simple exchange: The IO-Link master is able to save the parameters of the connected pressure sensor and to transmit them to the newly connected pressure sensors when replaced. Thus, time-consuming new parameterisations will no longer be required.

If IO-Link is not used, depending on the settings, the sensor functions as a pressure switch with two switching outputs or with 1 switching output and 1 analogue output (SIO mode).

To create customer-specific small series or to duplicate sensor settings across the system, the sensor can also be adjusted very conveniently outside the system to suit the particular application, by means of the HYDAC programming device HPG P1-000, the HYDAC programming adapter ZBE P1-000 or by means of the portable measuring unit HMG 4000.

Application fields

Typical fields of application for EDS 3100 IO-Link are machine tools, handling and assembly automation, intralogistics or the packaging industry.

The bidirectional communication with the sensors and actors on the lowest field level via IO-Link enables new services such as remote diagnosis, remote service, condition-based predictive maintenance.

EN 18.370.1.2/11.21

Technical details

Input data			
Measurement ranges	bar	1	2.5
Overload pressures	bar	3	8
Burst pressure	bar	5	12
Mechanical connection		See model code	
Tightening torque, recommended		20 Nm (G1/4); 45 Nm (G1/2)	
Parts in contact with fluid		Mechanical connection stainless steel sensor element Ceramic Seal: Copper (G1/2) / FKM / EPDM (as per model code)	
Output variables			
Output signals		Output 1: switching output Output 2: configurable switching output or as analogue output	
Switching outputs		PNP Transistor switching output Switching current: SP1:max. 1.2 A / SP2: max. 0.25 A Switching cycles: > 100 million	
Analogue output, permitted load resistance		Selectable: 4 .. 20 mA 0 .. 10 V	 load resist.: max. 500 Ω load resist.: min. 1 kΩ
Accuracy acc. to DIN 16086, terminal based		≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.	
Temperature compensation zero point		≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.	
Temperature compensation span		≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.	
Repeatability		≤ ± 0.25 % FS max.	
Reaction time		< 10 ms	
Long-term drift		≤ ± 0.3 % FS typ. / year	
Ambient conditions			
Compensated temperature range		-10 .. +70 °C	
Operating temperature range		-25 .. +80 °C (-25 to +60 °C acc. to UL spec.)	
Storage temperature range		-40 .. +80 °C	
Fluid temperature range		-25 .. +80 °C	
CE mark		EN 61000-6-1 / 2 / 3 / 4	
cULus mark [1]		Certificate no.: E318391	
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz		≤ 10 g	
Shock resistance acc. to DIN EN 60068-2-27 (11 ms)		≤ 50 g	
Protection class acc. to DIN EN 60529 [2]		IP 67	
IO-Link-specific data			
IO-Link revision		V1.1 / support V1.0	
Transmission rate, baud rate [3]		38.4 kBaud (COM2)	
Minimum cycle time		2.5 ms	
Process data width		16 bit	
SIO Mode Supported		Yes	
M-sequence capability		PREOPERATE = TYPE_0 OPERATE = TYPE_2_2 ISDU supported	
Download the IO Device Description (IODD) from:		https://ioddfinder.io-link.com/#/	
Other data			
Supply voltage when applied acc. to UL specifications		9 .. 35 V DC, if PIN 2 = SP2 18 .. 35 V DC, if PIN 2 = analogue output -limited energy – according to 9.3 UL 61010; Class 2; UL 1310 / 1585; LPS UL 60950	
Residual ripple of supply voltage		≤ 5 %	
Current consumption		≤ 1.485 A with active switching outputs ≤ 35 mA with inactive switching output ≤ 55 mA with inactive switching output and analogue output	
Display		4-digit, LED, 7 segment, red, height of digits 7 mm	
Weight		~ 120 g	

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

FS (**F**ull **S**cale) = relative to complete measuring range

[1] Environmental conditions according to 1.4.2 UL 61010-1; C22.2 no. 61010-1

[2] With mounted mating connector in corresponding protection type

[3] Connection with unscreened standard sensor line possible up to a max. line length of 20 m.

Setting options

All terms and symbols used for setting the EDS 3100 as well as the menu structure comply with the specifications in the VDMA Standard for pressure switches.

Setting ranges for the switching outputs

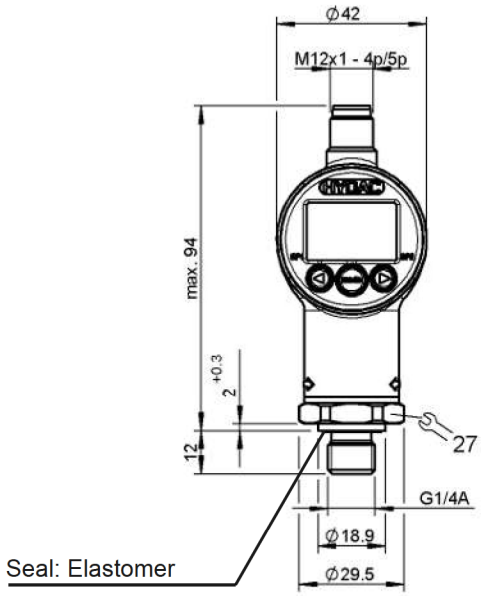
Measuring range in bar	Lower limit of RP / FL in bar	Upper limit of SP / FH in bar	Min. difference betw. RP and SP & FL and FH	Increment* in bar
0 .. 1	0.010	1.000	0.010	0.002
0 .. 2.5	0.025	2.500	0.025	0.005

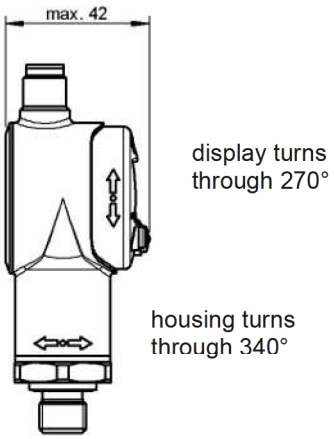
* All ranges shown in the table can be adjusted by the increments shown.
SP = switch point; RP = switch-back point
FL = temperature window lower value; FH = temperature window upper value

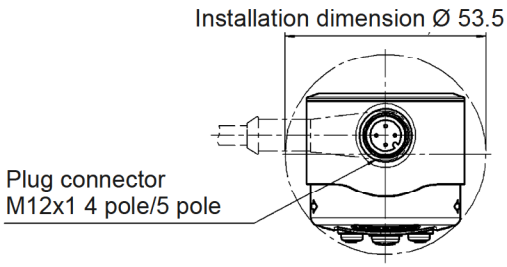
Additional functions

- Switching mode of the outputs adjustable (switch point function or window function)
- Switching direction of the switch outputs adjustable (N/C or N/O)
- Switch-on and switch-back delay adjustable from 0.00 .. 99.99 seconds
- Analogue output signal selectable 4 .. 20 mA or 0 .. 10 V
- Pressure can be displayed in bar, psi, MPa

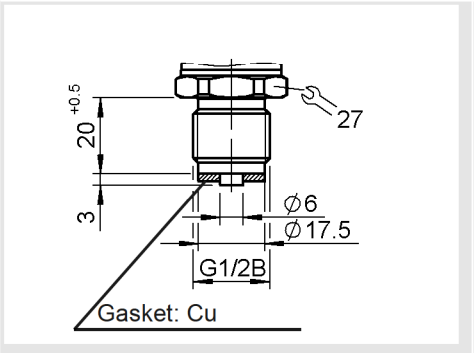
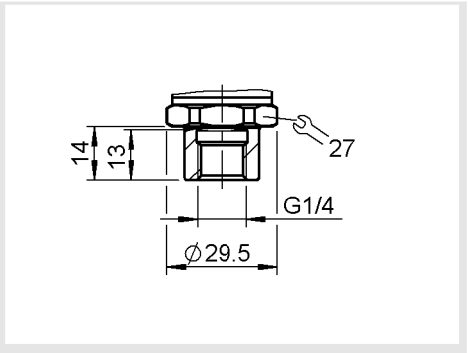
Dimensions



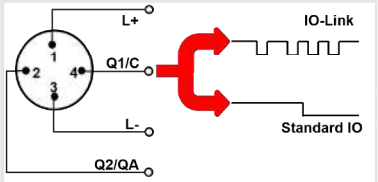




Mechanical Connection Variants

G1/2 B DIN EN 837 Tightening torque, recommended 45 Nm	Threaded port DIN 3852-G1/4 Tightening torque, recommended: 20 Nm
	

Pin connections

M12x1, 4 pole	Pin	Output signal: F31	
		Signal	Description
	1	L+	$+U_B$
	2	Q2/QA	Switching output (SP2) / analogue output
	3	L-	0 V
	4	Q1/C	Switching output (SP1) / IO-Link Communication

Model code

EDS 3 1 X 6 - F31 - XXXX - X00 - X 1

Mechanical connection
1 = G1/2 B DIN EN 837
4 = G1/4 A ISO 1179-2
9 = Threaded port DIN 3852-G1/4

Electrical connection
6 = Plug M12X1, 4 pole (mating connector not included)

Output
F31 = IO-Link interface

Measuring ranges in bar
01.0; 02.5

Modification number
000 = Standard

Seal material (parts in contact with fluid)
F = FKM seal (e.g. for hydraulic oils)
E = EPDM seal (e.g. for water, refrigerants)

Connection material (parts in contact with fluid)
1 = stainless steel

Accessories:
Appropriate accessories, such as mating connectors, can be found in the Accessories brochure.

Note

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.