HYDAC ELECTRONIC

Electronic Pressure Switch EDS 1600

APPLICATION:

The electronic pressure switch EDS 1600 is a combination of pressure transducer, digital display and 4 adjustable relay outputs.

The EDS 1600 is the ideal replacement for mechanical pressure switches or manometers with critical value contacts and provides clear, digital pressure display with high accuracy on site. In many cases, the analogue output replaces the otherwise necessary pressure transducer and is ideal for linking with computer controls.

The use of stainless steel for parts in contact with the medium ensures that the unit is suitable for a wide range of applications in hydraulics and process engineering. Special models for specific plastics in the fluid state are available on request.

One of the main applications for the EDS 1600 is critical value reports of pressure in hydraulics, process controls and monitoring equipment. Due to the adjustable hysteresis it can be fitted directly onto accumulator charging circuits, pump and compressor controls.

SPECIAL FEATURES:

- built-in pressure sensor with DMS on stainless steel membrane
- accuracy class 0.5 % or 1 %
- 3-digit display in bar or psi
- 4 critical value relays, individually adjustable
- adjustable switch-back differential 0.5 ... 20 %
- analogue output 4 ... 20 mA or 0 ... 10 V
- all adjustments and enquiries can be carried out without opening the unit.

Construction:

The housing of the EDS 1600 consists of a special aluminium extrusion with plastic cover plates and a membrane keyboard front panel. The sensor is calibrated and compensated for the particular application range by a highly integrated electronic circuit. The pressure connection contact is a G 1/4 internal thread; all parts in contact with the medium are in stainless steel.

Electrical connection is by means of a terminal strip with 14 connections inside the mounting plate.

Adjustments:

Display of switching and switch–back points

On pressing the switching point keys 1 ... 4 on the front panel, the EDS 1600 displays the pressure value at which the change of the relay condition takes place. This means that if the critical value is not activated (the switching point LED is dark), the EDS 1600 displays the switch–on value. If the critical value is activated (the LED lights up), the switch–off value is displayed. This function also allows the switch–back value to be read accurately. If no key is pressed, the EDS 1600 always displays the current pressure value.

If the measured value is below the accuracy class of the unit (0.5 % on the P version, 1 % on the N version), 0 is always displayed.

Adjustment of switching points

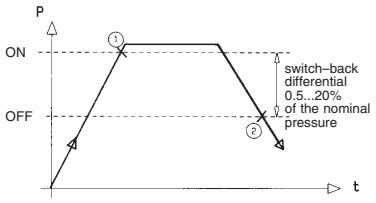
In order to adjust the switching points, the plastic slide on the left of the housing cover is pulled out. In the closed position the slide engages and with a little force can be pulled out against a stop. When the slide is pulled out, the arrangement of the potentiometers becomes visible and the openings for adjustment accessible. The switching points can be adjusted via a multi–turn potentiometer.

During adjustment the setting can be checked by pressing the appropriate switching point keys.

The pressure switch can be adjusted during operation.

Switch–back differential

Irrespective of the switching point adjustment, the switch–back differential is common for all 4 switching points. When the keys for switching point 1 and switching point 2 are pressed simultaneously the switch–back differential is displayed and can be set via the HY potentiometer.



① With increasing pressure, the switching output is activated when the pre–set switching point is reached

② With decreasing pressure, the switching output is switched to “inactive” when the pre–set switch–back differential is exceeded

The setting range is approx 0.5 ... 20 % of the nominal pressure of the unit.

Anti–clockwise turning decreases the switch–back differential, clockwise turning increases it.

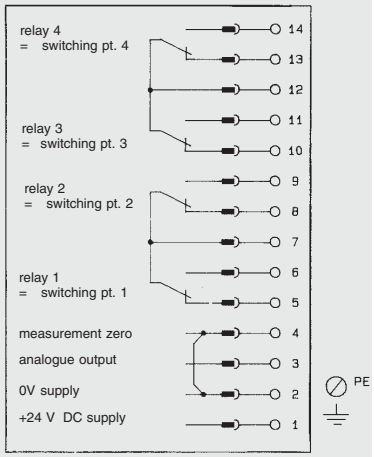
The unit is set by the manufacturers to an average value.

Note: When setting the unit always use the screwdriver supplied with the unit. A screwdriver with too wide a blade can destroy the adjustment potentiometer.

Contact connections:

Relay outputs

Terminal strip



Mounting:

The pressure switch EDS 1600 should always be mounted on rubber buffers (DIN vibration mounts). Hydraulic connection should be via hose or Minimess line for decoupling. It is not permitted to use rigid piping to install the EDS 1600.

An adapter kit enables the EDS 1600 to be mounted onto already existing bore holes of the EDS 1100 (see Other accessories).

Technical details:

Supply voltage:	24V ± 10% full bridge 3–phase bridge 24 ... 32 V DC battery voltage 24 ... 32 V
Fuse:	internal, 1 A delay action base has to be opened
Current consumption:	approx. 200 mA starting current approx. 1.2 A / 0.3 sec
Signal output: or:	4 ... 20 mA, ohmic resistance ≤ 400 Ohm ohmic resistance effect < 0.025 mA/ 100 Ohm 0...10 V, ohmic resistance ≥ 2 kOhm
Class accuracy: (Linearity, hysteresis)	EDS 169X–P 0.5% EDS 169X–N 1%
CE mark	EN 50081–1, EN 50081–2 EN 50082–1, EN 50082–2
Temperature range, medium:	–25 ... + 70 °C
Temperature range, electronics:	–25 ... + 60 °C
Compensated range:	+20 ... + 70 °C
Temperature effect in the compensated range:	EDS 169 X–P typ. 0.015 %/K zero point typ. 0.015 %/K range max. 0.030 %/K zero point, range EDS 169 X–N typ. 0.020 %/K zero point typ. 0.020 %/K range max. 0.040 %/K zero point, range
Pressure range/overload:	EDS 169 X–P 10 bar / 20 bar 50 bar / 100 bar 100 bar / 200 bar 200 bar / 400 bar 450 bar / 900 bar EDS 169 X–N 16 bar / 24 bar 100 bar / 150 bar 250 bar / 375 bar 400 bar / 600 bar
Burst pressure:	300 % FS
Switch–back differential:	approx. 0.5 ... 20 % FS
Torque for pressure connection:	25 Nm ± 5 Nm
Switching output:	0.1 ... 250 V 0.025 ... 2A 400 VA, 50 W (for inductive load: use varistor)
Life expectancy of contacts:	20 mill. min. without load 1 mill. min. at nominal load
Switching delay:	approx. 25 ms, bounce time approx. 3 ms
Connection:	14 pole, terminal strip insulation stripping length 7 mm connection cross section 1.5 mm^2
Safety type:	IP 65
Display:	3–digit LED, 7 segment height of digits 13 mm, red
Weight:	approx. 800 grammes
Compatibility of connection with pressure medium:	all gases and fluids which are compatible with steel, alternatively stainless steel 1.4435 and Viton/Teflon

Note: FS = Full Scale = relative to the full measuring range

Order Details:

EDS 169X – X – X – XXX – 000

Electronic pressure switch

Series no.
(determined by manufacturer)

Type of connection, mechanical
9 threaded port to DIN 3852 – G 1/4

Display
1 3–digit, bar
2 3–digit, psi
3 3–digit x 10 psi

Accuracy
P 0.5 %
N 1 %

Output signal
B 0 ... 10 V
C 4 ... 20 mA

Measuring ranges in bar

EDS 169X–P:	EDS 169X–N:
010	016
050	100
100	250
200	400
450	

Modification number
(determined by manufacturer)
000 standard

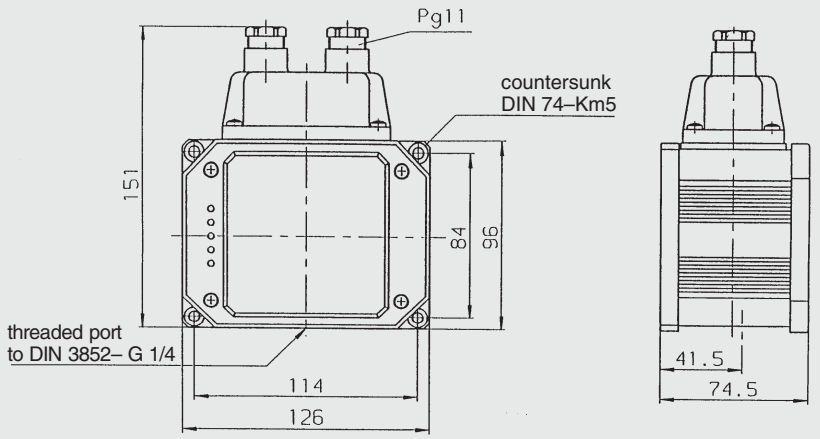
Accessories included:

PG 11 cable glands
4 mounting screws M5 x 20 mm
1 adjustment screwdriver

Other accessories:

mounting kit
(4 vibration mounts, 4 screws M5 x 6 mm)
adapter kit EDS 1600/EDS 1100
adapter kit EDS 1600/EDS 1100
with vibration mounts

Dimensions:



Please note:

All details in this brochure are subject to technical modifications.