

Hydraulic and  
Electronic Devices  
Special Plug Connections

## Pressure Switch HS-30\*

### Technical Specifications



### General Information

Our mechanical pressure switches are entirely "Made in Germany". Hydrostar's extensive and long product experience along with continuous improvements in hydraulic pressure measurements enables the production of high-quality, accurate and reliable mechanical pressure switches. These properties have proven themselves consistently worldwide.

The core of the pressure switch line is the special extreme long-lasting sealing combined with the piston-spring-principle and its exceptionally accurate and reliable change-over switch. The minimum switching path with an additional throttle bore allows for a lengthy and durable life cycle.

Another special feature is the potential adjustability of the pressure switch on client-side, even after the installation.

- ⚡ **Mechanical piston pressure switch for pressure monitoring**
- ⚡ **Pressure range 5 to 600 bar**

### Special Features

- ⚡ **Precise and Reliable**
- ⚡ **For hard conditions**
- ⚡ **Change-over switch**
- ⚡ **High overpressure security**



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### Technical Specifications



#### Technical Information

- ⚡ **Aluminium housing** black-painted
- ⚡ **Mounting position** variable
- ⚡ **Process-Fitting** G 1/4" or Flange connection
- ⚡ **Reliable accuracy** < 1% (depending on usage)
- ⚡ **Hydraulic contact components** piston (stainless steel), body material (brass) and rod seal
- ⚡ **Rod seal** NBR-70 (standard)
- ⚡ **Acceptable temperature** - 40 ... + 90 °C (standard)
- ⚡ **Hydraulic Fluids** mineral oil based, Flame resistant and environmentally friendly. Additional fluids on request.
- ⚡ **Weight** approx. 0,5 kg
- ⚡ **Electrical connection** EN 175301-803-A socket PG11 (clamping area 8 bis 10 mm) or M12-A male connector (only for DC)
- ⚡ **Protection class** IP65, optional IP68
- ⚡ **Voltage** AC 250 V  
Maximum ohm resistant load AC 5 A  
Maximum inductive load AC 1 A
- ⚡ **Voltage** DC 24 V  
Maximum ohm resistant load DC 5 A  
Maximum inductive load DC 4 A

#### Nominal range for positive pressure

⚡ Pressure ranges	⚡ Piston-Ø	⚡ Maximum pressure
50 - 600 bar	3 mm	800 bar
50 - 420 bar	3 mm	600 bar
20 - 350 bar	4 mm	600 bar
40 - 240 bar	4 mm	500 bar
20 - 150 bar	5 mm	500 bar
10 - 100 bar	5 mm	400 bar
5 - 55 bar	6 mm	300 bar



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### Technical Specifications



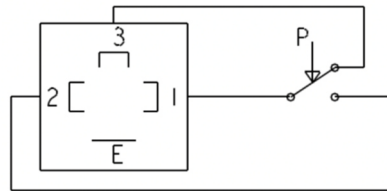
## Terminal Assignment

### HS-302 (N/O contact)

At the connector pin assignment, when pressure rises up to switching point, contact 1-2 closes while contact 1-3 opens.

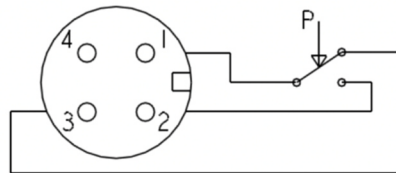
#### 1. Connector pin assignment HS-302

For unit plug EN175301-803-A (unpressurized)



#### 2. Connector pin assignment HS-302

For cable plug M12-A (unpressurized)

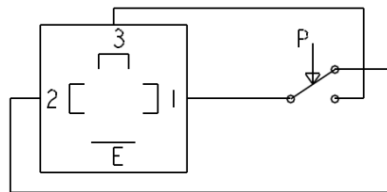


### HS-307 (N/C contact)

At the connector pin assignment, when pressure rises up to switching point, contact 1-3 closes while contact 1-2 opens.

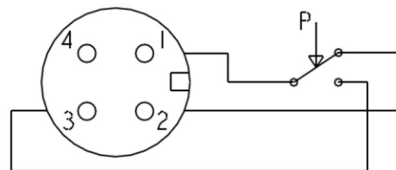
#### 1. Connector pin assignment HS-307

For unit plug EN175301-803-A (unpressurized)



#### 2. Connector pin assignment HS-307

For cable plug M12-A (unpressurized)



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### Special Function For M12x1 terminal

#### Status indication

Depending on the status of the pressure switch, the transparent connector casing will be illuminated in red or green through integrated LEDs. Therefore, the current state of the pressure switch is immediately visible.

⚡ HS-302 (N/O contact) = Unpressurized, status indication red, changing to green

⚡ HS-307 (N/C contact) = Unpressurized, status indication green, changing to red

Separate terminal assignment  
and electrical data applies:

- ⚡ Electronic connection M12-A
- ⚡ Rated operating voltage 6 ... 24 VDC
- ⚡ Max. resistive load 4A
- ⚡ Surrounding temperature -25°C ... 85 °C
- ⚡ Reverse polarity protection yes
- ⚡ Output voltage ca. 2,5 VDC

#### Fail-safe-System

The Namur diagnostic Function allows the easy identification of the switch whether it is "open" or "closed" along with the identification of cable breakage and short-circuit (DIN EN 60947-5-6) through two ports. The function of the change-over contact does not apply.

#### Diagnostic Function Fail-safe

⚡ HS-302, pressure-operated	Contact 1-2	closed	open	Cable breakage	Short-circuit
	Resistor	1 kΩ	11 kΩ	∞	0 kΩ
⚡ HS-307, unpressurized	Contact 1-2	closed	open	Cable breakage	Short-circuit
	Resistor	1 kΩ	11 kΩ	∞	0 kΩ



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### Order Information

HS-30\*

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#### Basic Type HS-307 oder HS-302

#### 1. Nominal range:

Pressure range	Maximum pressure	Special sealing SS
5 - 55 bar	P <sub>max</sub> = 300 bar	P <sub>max</sub> = 200 bar
10 - 100 bar	P <sub>max</sub> = 400 bar	P <sub>max</sub> = 200 bar
20 - 150 bar	P <sub>max</sub> = 500 bar	P <sub>max</sub> = - bar
40 - 240 bar	P <sub>max</sub> = 500 bar	P <sub>max</sub> = 400 bar
20 - 350 bar	P <sub>max</sub> = 600 bar	P <sub>max</sub> = 400 bar
50 - 420 bar	P <sub>max</sub> = 600 bar	P <sub>max</sub> = - bar
50 - 600 bar	P <sub>max</sub> = 800 bar	P <sub>max</sub> = - bar

#### Factory pre-setting of fixed switching point in bar:

S = increasing F = decreasing

**unmarked** = Pipe installation

**F** = Flange connection

**B** = Mounting plate

**AUX** = Microswitch with golden ports

**MS** = Brass casing

**S** = FKM - Seal

**SS** = Low-Friction special sealing (only For 55, 100, 240 and 350 bar)

**V2** = Adjustment cap with scale

**PO** = Stopped cap (not for V2)

**unmarked** = Socket connection EN 175301-803, type A, Pg9 (on request Pg11)

**M12** = M12x1 (4-pin socket)

**LED** = LED - status indication (M12 x 1)

**n** = Fail - safe - system, Namur (M12 x 1)

Additional special specifications available on request.



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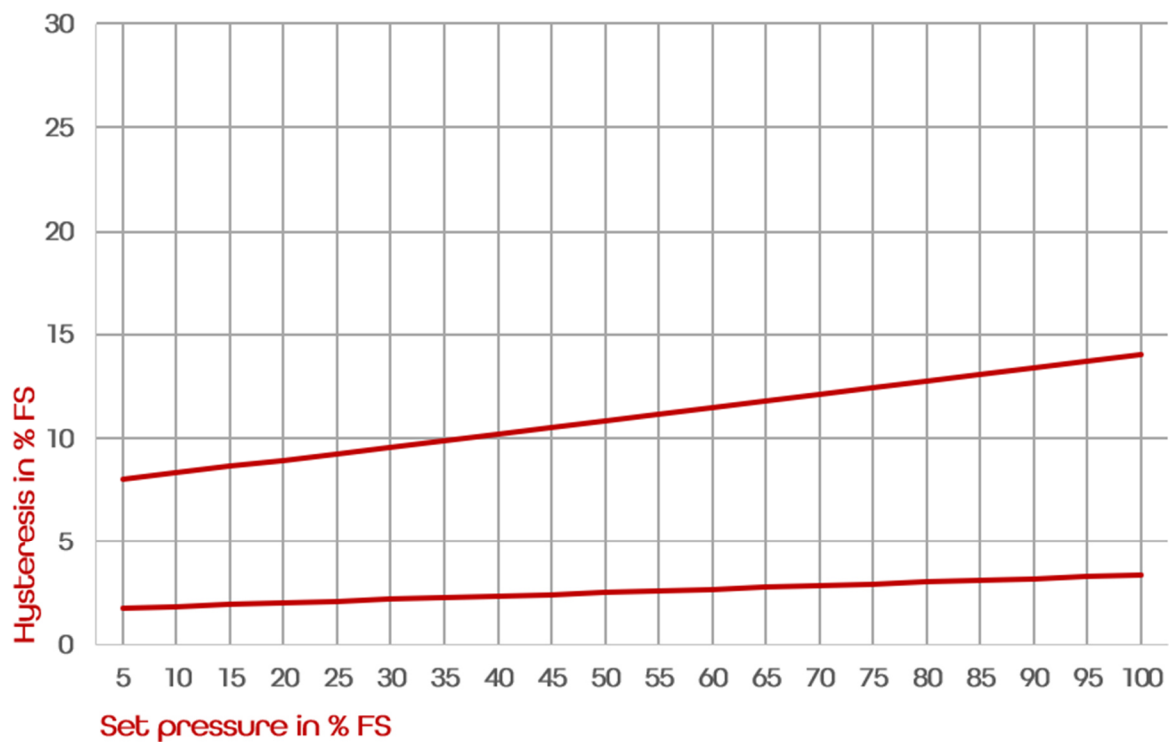
### Technical Specifications



### Hysteresis in mechanical pressure switch

The Hysteresis (reset differential pressure) of a mechanical pressure switch defines the pressure difference  $\Delta p$ , which applies in particular due to the inner friction between the increasing and decreasing switching point. Critical influence factors are the number of load changes, the quality of oil, temperature and viscosity.

Due to the physical nature, the Hysteresis increases with the pressure area and within the given settings. The upper line gives an orientation for the pressure range 5-55 bar, the bottom line for the pressure range with 50-600 bar.



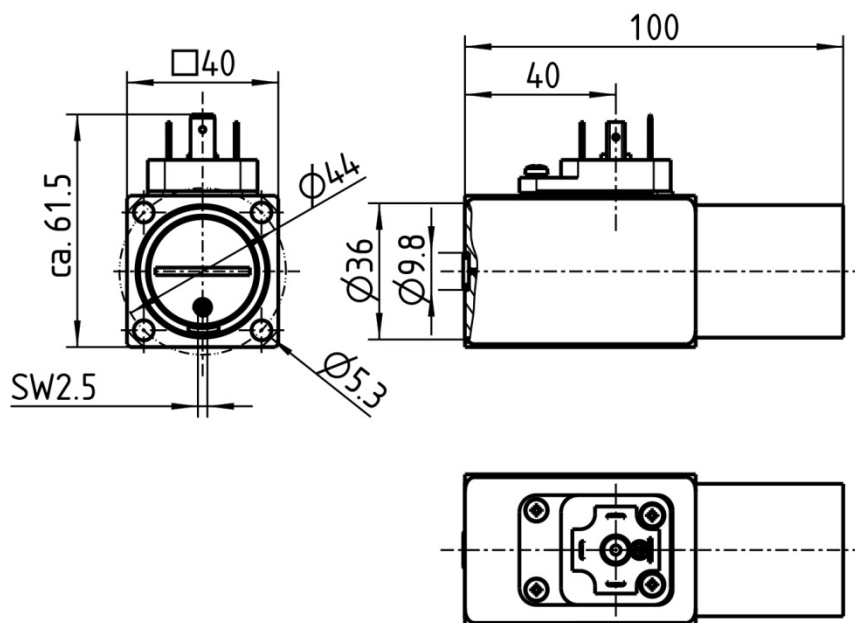
(This diagram shows only an alignment for usage of the standard sealing)

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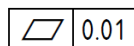
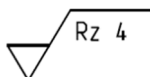
### Technical Specifications



### Dimensions 1:2 Type HS-30\*//F (Flange connection)



\* Required surface quality of the flange connection area:



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### Technical Specifications



### Dimensions 1:2 Type HS-30\* (pipe installation)

