



Electronic Pressure Sensor



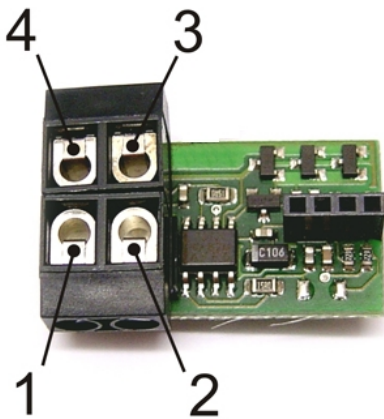
The electronic pressure sensor RPS0-6 is based on the principle of a silicon membrane which deflects when a differential pressure is applied to it. The change in an ohmic resistance which results from the deflection is recorded as a measured variable together with the medium temperature by a microprocessor and both are converted into precise voltages.

In the type RPS0-6**DL**, a second microprocessor converts the analogue measurements into a serial digital signal suitable for the DL bus (data link).

The sensor has the following features:

- Measurement of system pressure between 0 and 6 bar
- Measurement of medium temperature from 0 to 100°C
- Type RPS0-6: Output of the measurements as a radiometric voltage
- Type RPS0-6**DL**: Output of the measurements using the DL-bus
- Measurement of a second temperature (PT1000) by type RPS0-6DL
- The flow channel contains no moving parts
- Adapter PCB for easy connection to commercial cable cross sections
- Measurement principle insensitive to medium properties

Type RPS0-6:



- 1 Temperature signal (0.5 to 3.5 V for 0 to 100°C)
- 2 Pressure (0.5 V to 3.5 V for 0 to 6 bar)
- 3 Voltage supply +5 V DC - stabilised
- 4 Sensor and signal earth

Provided there is an available 5V supply voltage, the part can be connected to any analysis unit that has appropriate inputs for processing the output signal voltages.

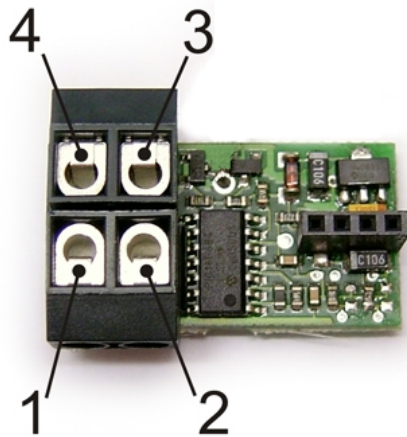
From version 5.0, the controller **ESR21** makes a +5 V connection available. Each input can be parameterised to the sensor signals.

For the controllers **UVR61-3** and **UVR63H**, the 0-10V output can be parameterised as a fixed 5V sensor supply value from version 5.0. All inputs can capture the sensor signals.

On the **UVR1611** controller, the 0-10 V output can be parameterised as a fixed value 5V sensor supply from version 2.26. Any desired input accepts the sensor signals.

Voltage must always be chosen as the measured variable and for pressure **scaling** a voltage of 0.5 V set for a pressure of 0 bar and 3.5 V for 6 bar. For temperature scaling, the settings are 0.5 V = 0°C and 3.5 V = 100°C.

Type RPS0-6DL:



- 1 Sensor temperature 2
- 2 Sensor temperature 2
- 3 DL-bus (data link)
- 4 DL-bus (data link)

The supplied adapter takes its power supply from the DL-bus (data link) and returns the corresponding measurement when requested by the controller (**ESR21**, **UVR61-3** and **UVR63H** from version 5.0 and **UVR1611** from version A3.00). The input "Temperature 2" on the adapter PCB permits measurement of an additional external temperature. This is only possible for sensors of type PT1000 and KTY (2000 Ohm at 25°C)! The polarity of the connections ("earth") is interchangeable, hence need not be observed.

The request is made up of the address of the sensor (adapter PCB) and index of a measurement recorded there.

The **address** is specified on the adapter by breaking the conductors which are labelled 1, 2 and 4. These are located on the rear side, at the outer edgeboard, close to the screw terminal. If none of the conductors are cut, the adapter is assigned address 1 (factory setting). Provided no other sensors are connected to the DL-bus, no change of address is required.

The new address is derived from address 1 (= factory setting) plus the sum of all the disconnected values.

Example: required address 6 = 1 (factory setting) + 1 + 4
 = conductors 1 and 4 must be cut.

The **index** of the respective measurements is fixed:

<i>Index:</i>	<i>Measurement:</i>	<i>Sensor type</i>
1	Volume flow [1/h]	VFS 2-40
2	Temperature [0.1°C]	VFS X-XX, RPS 0-6
3	Temperature 2 [0.1°C]	PT1000
4	Temperature 2 [0.1°C]	KTY
5	Pressure [0.01 bar]	RPS 0-6
6	Volume flow [1/h]	VFS 1-12
7	Volume flow [1/h]	VFS 1-20
8	Volume flow [1/h]	VFS 5-100

UVR1611: The measurements are parameterised as **analog** network inputs:

network node:	adress of the sensor
analog network oputput:	index of the measurement
source:	DL

The adapter PCB can also be used with other sensor types (see table) and is available independently as 01/SGF-DL.

Technical data:

Pressure measurement range:	0 to 6 bar
Output voltage: ¹	0.5 V to 3.5 V for 0 to 6 bar at +5 V (ratiometric ²)
Pressure measurement accuracy:	± 2.0% of the final value in the temperature range 25 to 80°C
Temperature measurement range:	0 to 100°C
Output voltage: ¹	0.5 V to 3.5 V for 0 to 100°C at +5 V (ratiometric ²)
Temperature measurement accuracy:	± 1K (25 - 80°C)
Bus load (DL-Bus)	32 %
Operating voltage: ¹	+ 5 V DC stabilised (± 5%), max 10 mA
Operating temperature range:	0 to 100°C / briefly 120°C
Burst pressure:	> 30 bar
Connection thread:	1/2"

¹ valid for type RPS0-6

² ratiometric: the signal changes in proportion with the supply voltage

We reserve the right to make any technical changes

© 2009