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DDS-DL

Vers. 2.02 EN

Differential pressure sensor

The differential pressure sensor DDS-DL is based on the principle of two silicon membranes rotated at 90° relative to each other so that they deflect under the differential pressure. The ohmic resistance which changes as a result of the deflection is captured as the measured variable. The displacement of the membranes relative to each other guarantees, even at the least pressure, position-independent signal accuracy.

A microprocessor converts the differential pressure signal into a serial digital signal suitable for the DL bus (data link).

The sensor has the following features:

- Differential pressure measurement between - 100 and + 100 Pascal (1 bar = 10^5 Pa)
- Measurement output over the DL bus
- Power supply via the DL bus
- Measurement processing and output using four different averaging periods

DL bus (address, index)

The sensor is supplied with power from the DL bus (data link) and returns the relevant measurement to the controller upon request.

Suitable controllers:

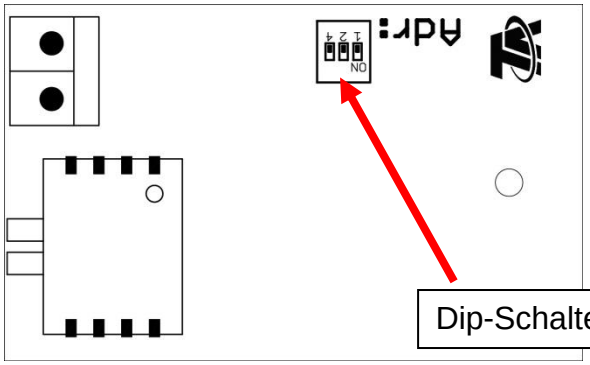
ESR21, ESR31, UVR63

UVR61-3 and UVR63-H from version 5.0

UVR1611 from version A3.00 and serial number 13286

UVR16x2 and all CAN bus devices with x2 and DL connection

The request is made up of the **address** of the sensor and **index** of the measurement.



The **address** is set using the DIP switches on the PCB. In the delivered condition, the address is set to 1 (factory setting).

Provided no other sensors are connected to the DL bus, no change of address is required.

The effective address is derived from address 1 (= factory setting) plus the sum of all the values of the selected DIP switch settings.

Example: Required address 6 = 1 (from factory setting) + 1 + 4

= DIP switches 1 and 4 must be set to **ON**.

The index number is used to access different signal mathematical averages of the measurement:

Index	***Measurement***	***Unit***
1	Differential pressure with average = 4 seconds	°C
2	Differential pressure with average = 16 seconds	°C
3	Differential pressure with average = 64 seconds	°C
4	Differential pressure with average = 256 seconds	°C
5	Differential pressure with average = 4 seconds	Pascal
6	Differential pressure with average = 16 seconds	Pascal
7	Differential pressure with average = 64 seconds	Pascal
8	Differential pressure with average = 256 seconds	Pascal

If a quick pressure change takes place, the **average time** (= time constant **τ**) indicates the increase of the output value to 63 % of the final value. Averaging must therefore take place over a considerably longer time before the actual final value can be calculated (approx. 99 % of the final value = 5 **τ**).

In devices with **x2 technology**, the measurement can be applied in the correct unit of **Pascal**.

In all other controllers, the measurement is given in **°C** and can be further processed as per temperatures in the controller (e.g. 50.0 pascals = 50.0 °C)

ESR21, ESR31, UVR61-3, UVR63, UVR63H: The desired measured values are imported as "External sensors" (setting in the menu "**EXT DL**"), where address and index are specified.

Example:

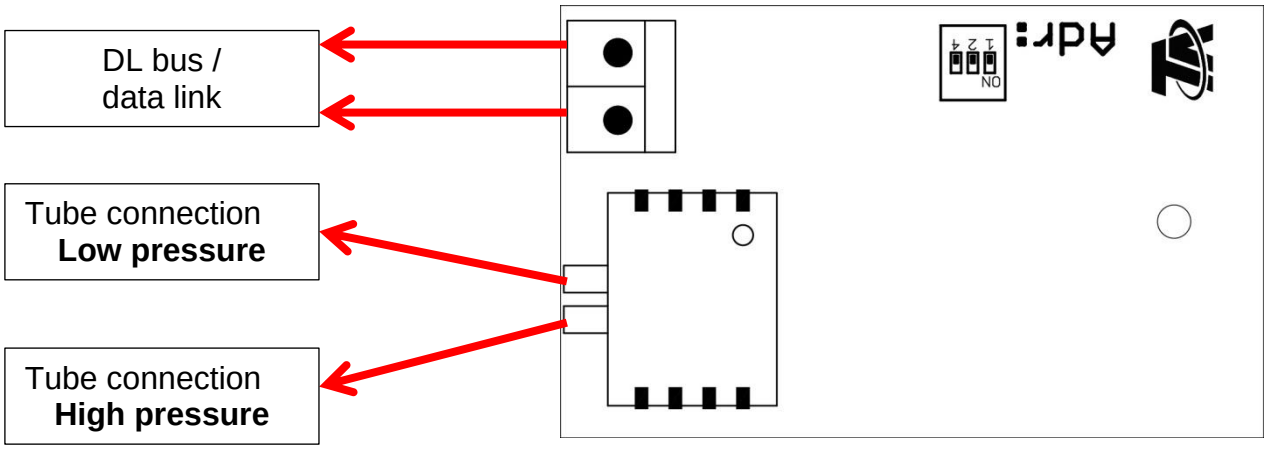
Here the external sensor **E3** has been allocated the sensor value of **address 1** with **index 3**, that is the differential pressure average = 64 seconds.

UVR16x2 and devices with x2: The measurements are set as DL inputs in the "**DL bus**" menu.

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

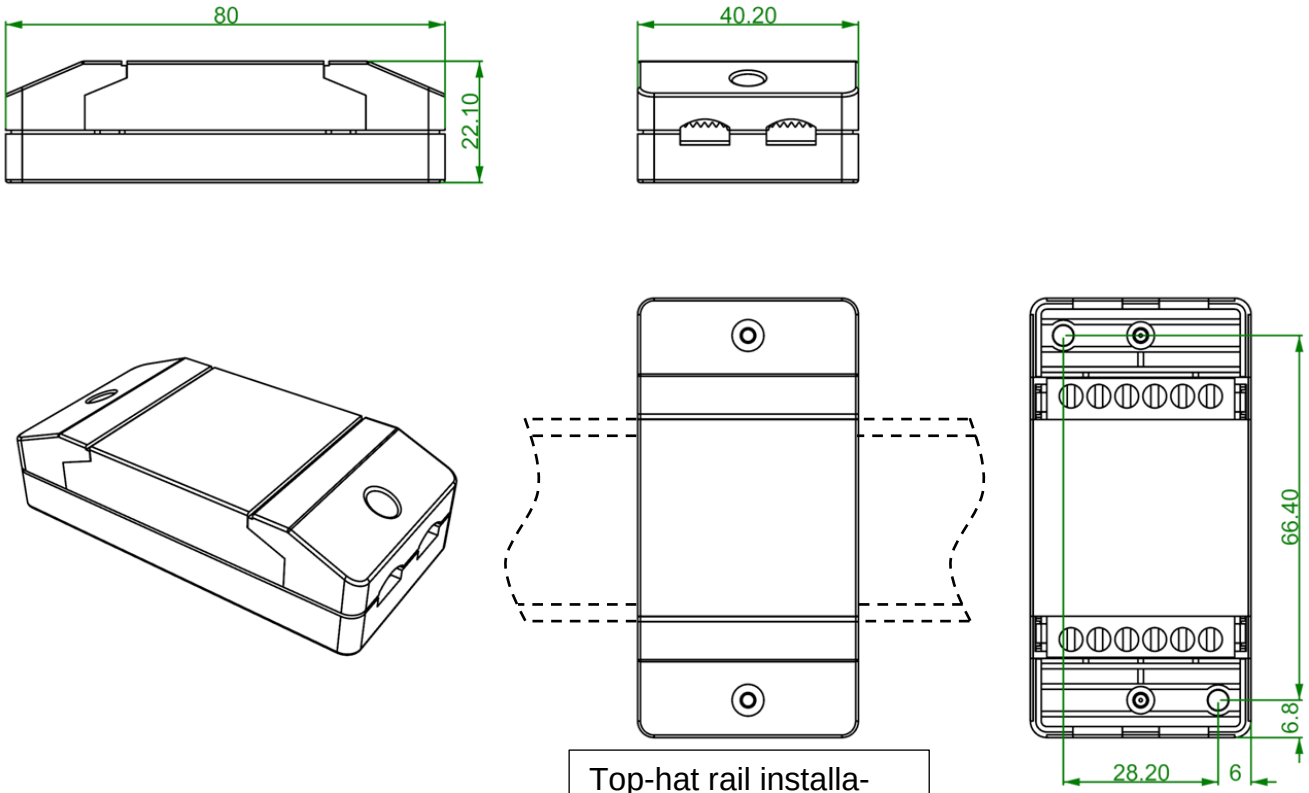
`NW.Node:`	Sensor address (above example: 1)
`Anal.NW.Outp.:`	Measurement value index (above example: 3)
`Source:`	**`DL`**

Connection, installation and technical data



The polarity of the **DL bus** connections is **reversible**; there is no required polarity to be observed.

Dimensions in mm



Top-hat rail installation
(support rail TS35
to standard EN 50022

Technical data	
Measurement range differential pressure	-100 Pascal to +100 Pascal, resolution 0.1 Pascal
Burst pressure differential	0.4 bar
Accuracy	± 2.0% of the final value / +- 2 Pascal
Bus load (DL bus)	38%
Terminal area	max. 1.5 mm²
IP rating	IP40
Maximum ambient temperature	45°C
Operating voltage	Direct supply via the DL bus
Tube connection	Tube internal diameter 1.6 mm
Standard delivery	Including tube with int. dia. = 1.6 mm / ext. dia. = 3 mm / length = 2000 mm and temperature-resistant chimney connection piece, consisting of silicone tube (L = 50 mm) and stainless steel tube 6 x 200 mm

We reserve the right to make any technical changes © 2018