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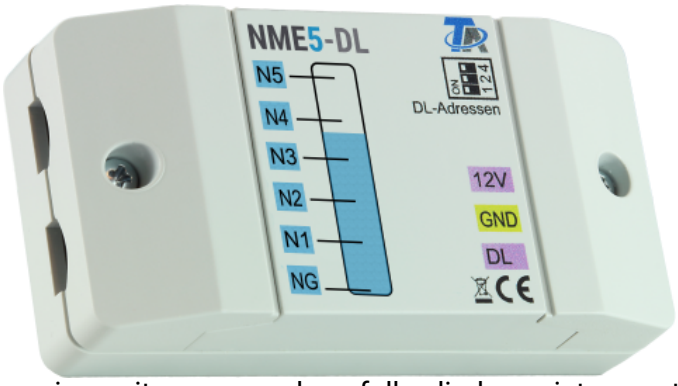
NME5-DL

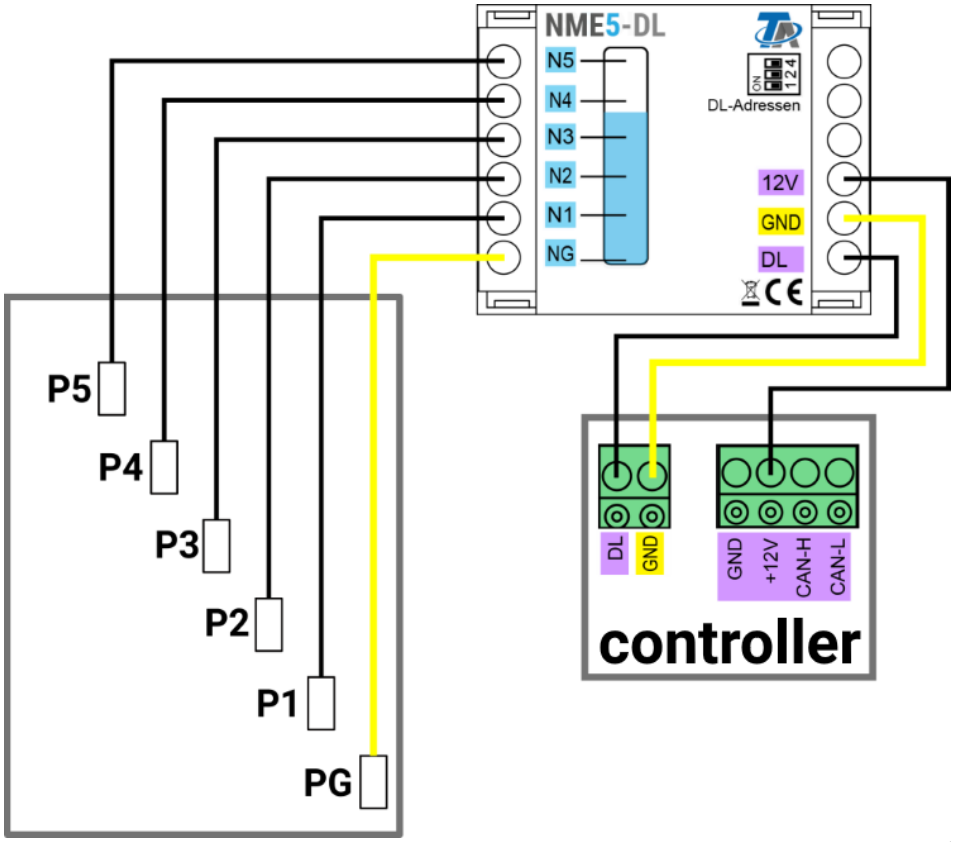
Vers. 1.01

Level measuring unit



The **NME5-DL** level measuring unit measures how full cylinders, cisterns, etc. are using the current flow between an emitter (connection **PG**) and up to 5 probes (**P1-P5**). **The device is only compatible with controllers with x2 technology.**

Connection and installation



The probes are placed in the cylinder in ascending order, with the emitter (**PG**) in the lowest position. The probes must not touch each other in the cylinder. All probes are identical in construction – they only differ in connection and installation position.

When the fill level reaches probe **P1**, **PG** and **P1** are immersed in water and current flows between them. This bridge allows the water level to be detected accordingly. As the water level rises, more probes are immersed, and current flows between them too.

The probes are electrically isolated from the DL bus and the controller.

The principles of DL bus cabling are described extensively in the installation instructions for the freely programmable controllers.

Index

The NME5-DL forwards values to the DL bus via 11 indices.

Index	Unit	Value
1	Digital ON/OFF	Fill level reached, probe **P1**
2	Digital ON/OFF	Fill level reached, probe **P2**
3	Digital ON/OFF	Fill level reached, probe **P3**
4	Digital ON/OFF	Fill level reached, probe **P4**
5	Digital ON/OFF	Fill level reached, probe **P5**
6	Dimensionless	Current flow between **PG** and probe **P1***
7	Dimensionless	Current flow between **PG** and probe **P2***
8	Dimensionless	Current flow between **PG** and probe **P3***
9	Dimensionless	Current flow between **PG** and probe **P4***
10	Dimensionless	Current flow between **PG** and probe **P5***
11	Dimensionless	Dimensionless number from 0-31, which outputs all probe statuses in binary**

* See chapter "**Example 2: Sensitivity of the probes**" on page 4

** See chapter "**Example 1: Binary decoder**" on page 4

For reading out the fill level, **indices 1-5** are used. Indices 6-11 are intended for special applications.

DL address

The NME5-DL has a default address of 1. This address can be changed using the DIP switches in the device. The final address is made up of the default 1 and the sum of the DIP switches that are set to "ON".

Example

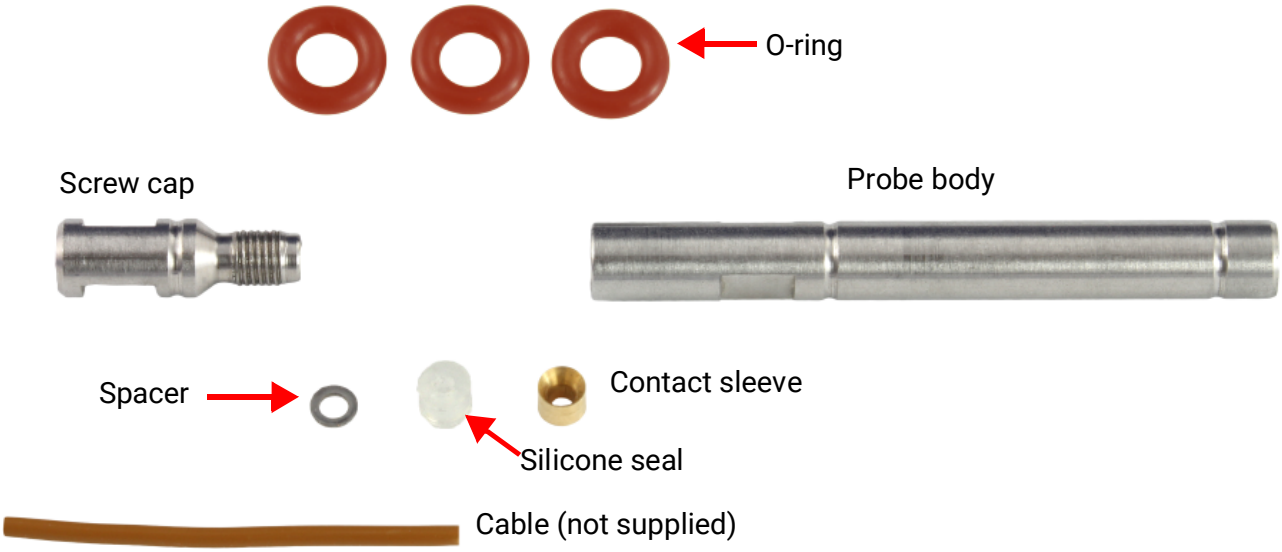
Required address	**6**
Default setting	1
DIP switches 1 and 4	+ 5
Sum = address	**= 6**

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

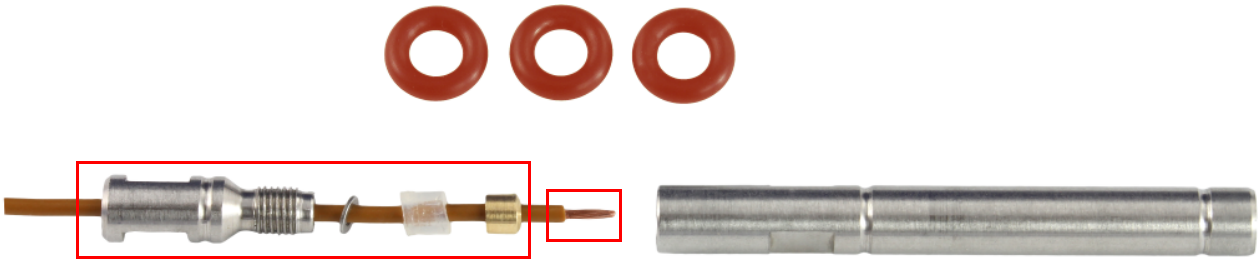
Position of DIP switches acc. to example.

Installing the probes

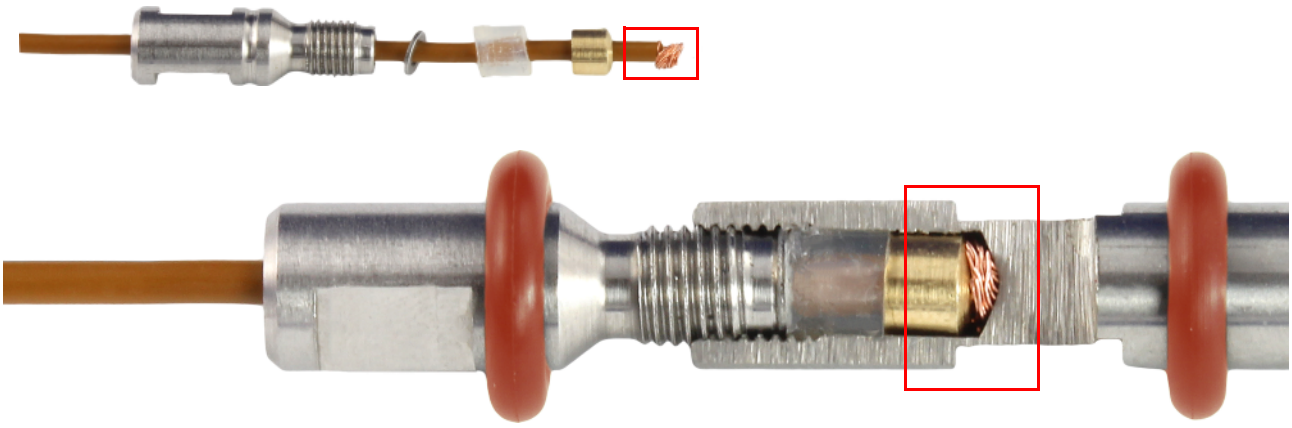
The level probes are delivered without cables. The cable cross-section and cable diameter according to the technical data on page 5 must be observed when selecting the cable.



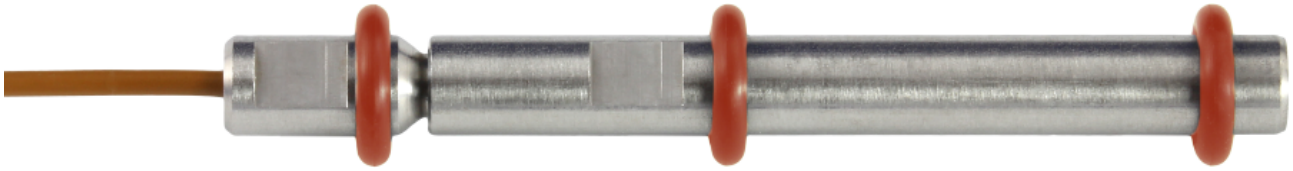
Guide the screw cap, spacer, silicone seal and contact sleeve onto the cable. Strip about 5-10 mm of insulation from the cable.



The wire must be twisted to adapt it to the cone of the contact sleeve and the inside of the probe body. The aim is to achieve maximum surface contact with the probe body.



Finally, the screw cap is attached and the O-rings are placed on the notches. This process is the same for all probes (including the emitter PG).



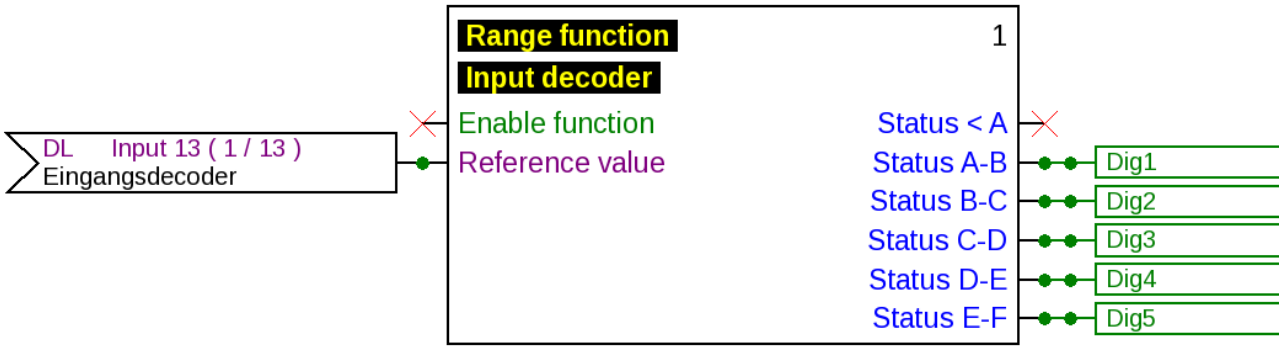
Programming in TAPPS2 (x2 devices only)

For reading out the fill level, indices 1-5 are used. Additional optional examples of use follow.

For further information on programming with TAPPS2, please refer to the instructions for freely programmable controllers.

Example 1: Binary decoder

To evaluate all 5 probe statuses using a single number/index, a range function in binary decoder mode is required.



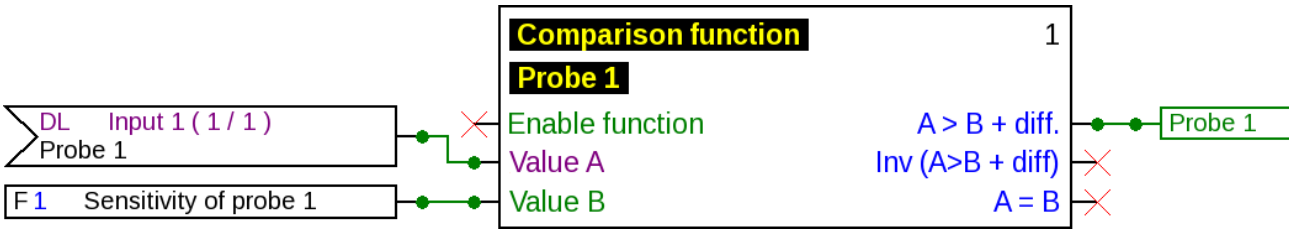
The DL input with **Index 11** outputs a number between 0 and 31, which is decoded by the binary decoder to produce a binary number with the input statuses. That DL input must therefore be linked to the input variable **Reference value** (as shown in the graphic).

The function thresholds must be defined from 0-4 (A = 0, B = 1, etc.).

Example 2: Sensitivity of the probes

The strength of the current flow between PG and the probes is output on indices 6-10. This number is only an interpretation of the current flow and is output as a dimensionless number. **0** means no current flow; a short circuit equals about **900.** The corresponding index (1-5) only switches to **ON** when the value is at least **80**. The sensitivity of the probes can therefore be adjusted by means of a comparison function.

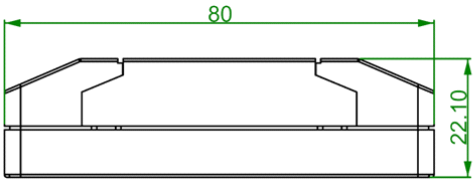
Example

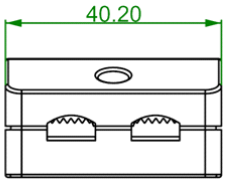


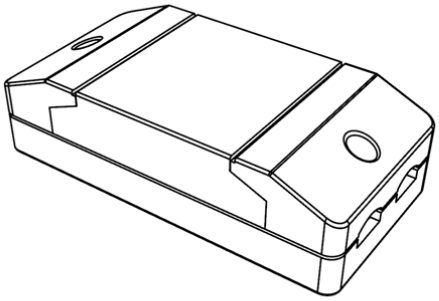
In the example, the first probe (**P1**) of an NME5-DL (address **1**) is compared with a fixed value. The comparison function does not output a digital value with **ON** until the value of the current flow exceeds the set fixed value **F1**.

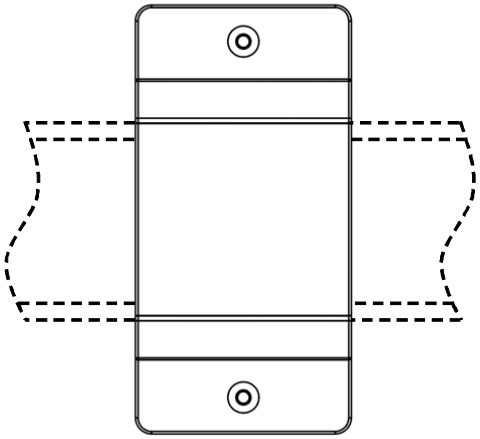
If several cables are laid parallel in one conduit, capacitive cross-interference can occur with a cable length of approx. 3 m or more. In this case, the **sensitivity of the probes** must be manually adjusted (as shown in **example 2**).

Dimensions in mm

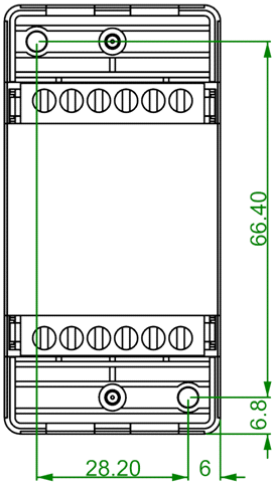








Hutschienenmontage
(Tragschiene TS35
nach Norm EN 50022)



Technical data	
DL bus load	5 %
Power consumption of 12 V	Max. 0.5 W
IP rating	IP 40
Cable cross-section	0.75 mm^2
Cable diameter (external)	1.8 - 2.2 mm (fine wire)
Max. ambient temperature	45 °C
Application area	Aqueous, conductive liquids
Material of level probes	NiRo 1.4305
Material of O-rings	Silicone

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Legal notice

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