



Thermocouple with measurement amplifier



The measurement amplifier for the thermocouple was developed for measuring high temperatures in conjunction with Technische Alternative controllers. For example, it is suitable for measuring the flue gas temperature in a flue pipe.

The **measurement amplifier** provides the **DL bus** with the sensor, overall and ambient temperatures, as well as the overall temperature reduced by a factor of 10 (e.g. 230 °C is displayed as 23.0 °C).

The **overall temperature** (thermocouple + PT1000 ambient temperature) must be utilised to achieve the most accurate possible measurement of the flue gas temperature, because the thermocouple alone only measures the difference in temperature between the measuring point and the ambient temperature.

All thermocouples of type "K" can be connected to the measurement amplifier.

Properties of the supplied thermocouple

- Thermocouple of type K
- Measurements possible up to 600 °C
- Maximum temperature on the sensor lead: 300 °C

DL bus (address, index)

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

Suitable controllers:

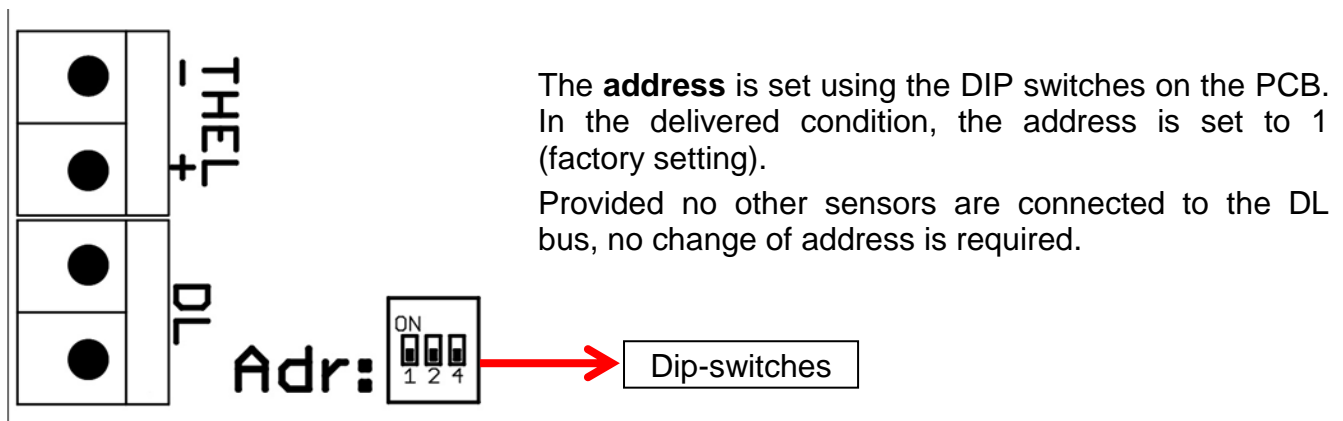
ESR21, ESR31, UVR63

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 measurement amplifier and **index** of the measurement.



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

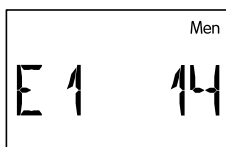
Example: Required address 6 = 1 (from factory setting) + 1 + 4
= DIP switches 1 and 4 must be set to **ON**.

The **index** of the measurement is fixed:

Index:	Measurement:	Sensor type
1	Overall temperature [0.1 °C]	Thermocouple of type K + PT1000 – only for devices with X2-technology
2	Ambient temperature [0.1 °C]	PT1000
3	Thermocouple alone [0.1 °C]	Thermocouple of type K - apparaten met X2-technologie
4	Overall temperature / 10 [0.1 °C]	Thermocouple of type K + PT1000

ESR21, ESR31, UVR61-3, UVR63, UVR63H: The measurement is imported as "External sensor" (setting in the menu "EXT DL"), with the address and index specified.

Example:



Here the external sensor **E1** has been assigned the sensor value of **Address 1** with **Index 4**.

UVR16x2 and devices with X2: The measurements are set as DL inputs in the "DL bus" menu.

UVR1611: The measurements are set as **analogue** network inputs:

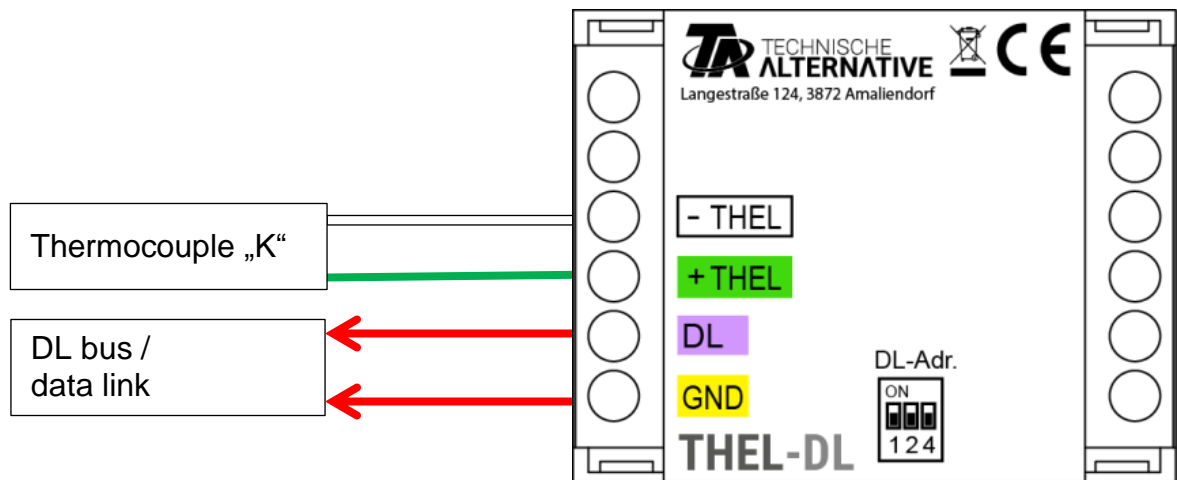
Network node: Sensor address (above example: 1)

Analogue NW output: The measurement index (above example: 4)

Source: DL

An as yet unused network input variable must be selected for each new value.

Connection, installation and technical data



The **sensor lead** connections on the measurement amplifier must **not** be reversed:

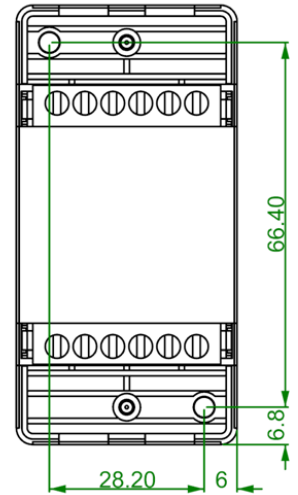
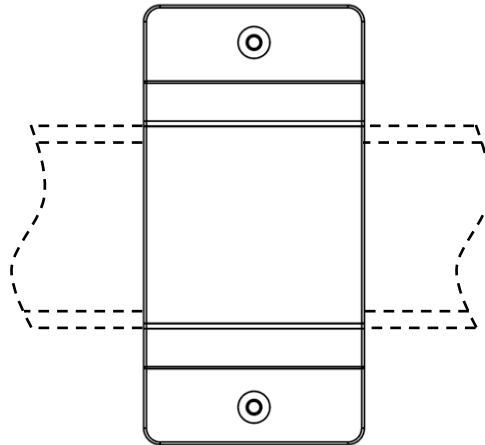
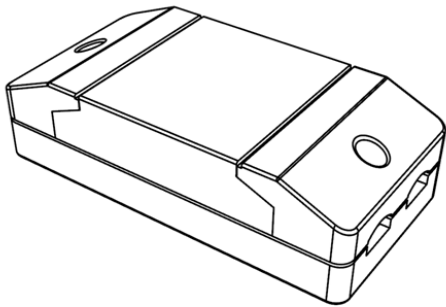
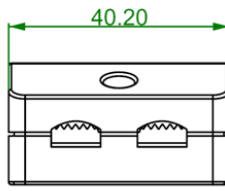
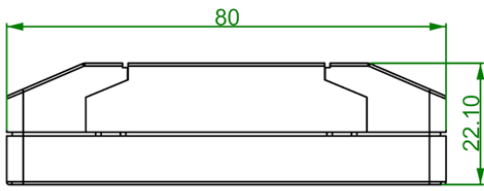
- = White

+ = Green

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

The measurement amplifier must be installed in a dry location with an ambient temperature of no more than 45 °C. The sensor lead of the thermocouple must not be shortened or extended.

Dimensions in mm



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

Technical data	
Measuring range of the measurement amplifier	Up to 1200 °C
Measuring range of the supplied thermocouple	Up to 600 °C
Maximum temperature on the sensor lead	300 °C
Bus load	13 %
Dimensions of sensor tube	Length: 95 mm Diameter: 4 mm
Length of sensor lead	THEL 1.63-DL: 163 cm THEL 2.50-DL: 250 cm
Terminal area	max. 1.5 mm ²
Measurement amplifier IP rating	IP 40
Maximum ambient temperature for the measurement amplifier	45 °C