



Technische Alternative RT GmbH

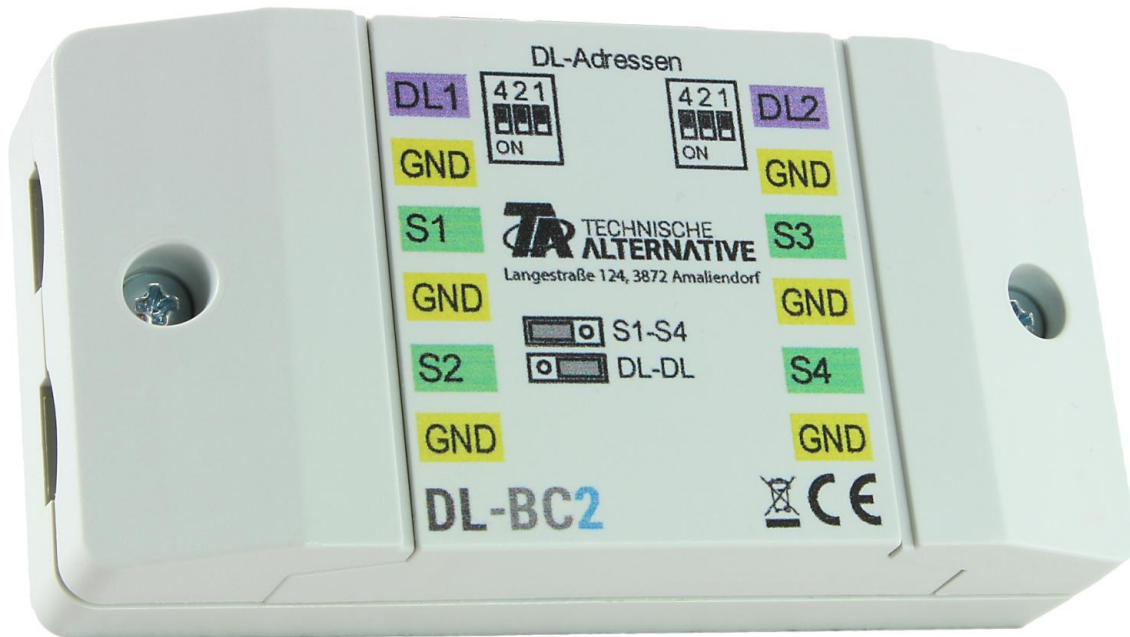
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DL-BC2

Vers. 1.00 EN

## DL bus coupler / sensor extension



The DL bus coupler DL-BC2 is able to import measurements over the data link of one controller and make them available as a value to a second controller via its data link. Transfer of measurements takes place in both directions, i.e. also from the second to the first controller.

Moreover, there is an option to connect up to 4 temperature sensors (PT1000 or RAS PT) and transfer the measurements over the two data links to the controllers.

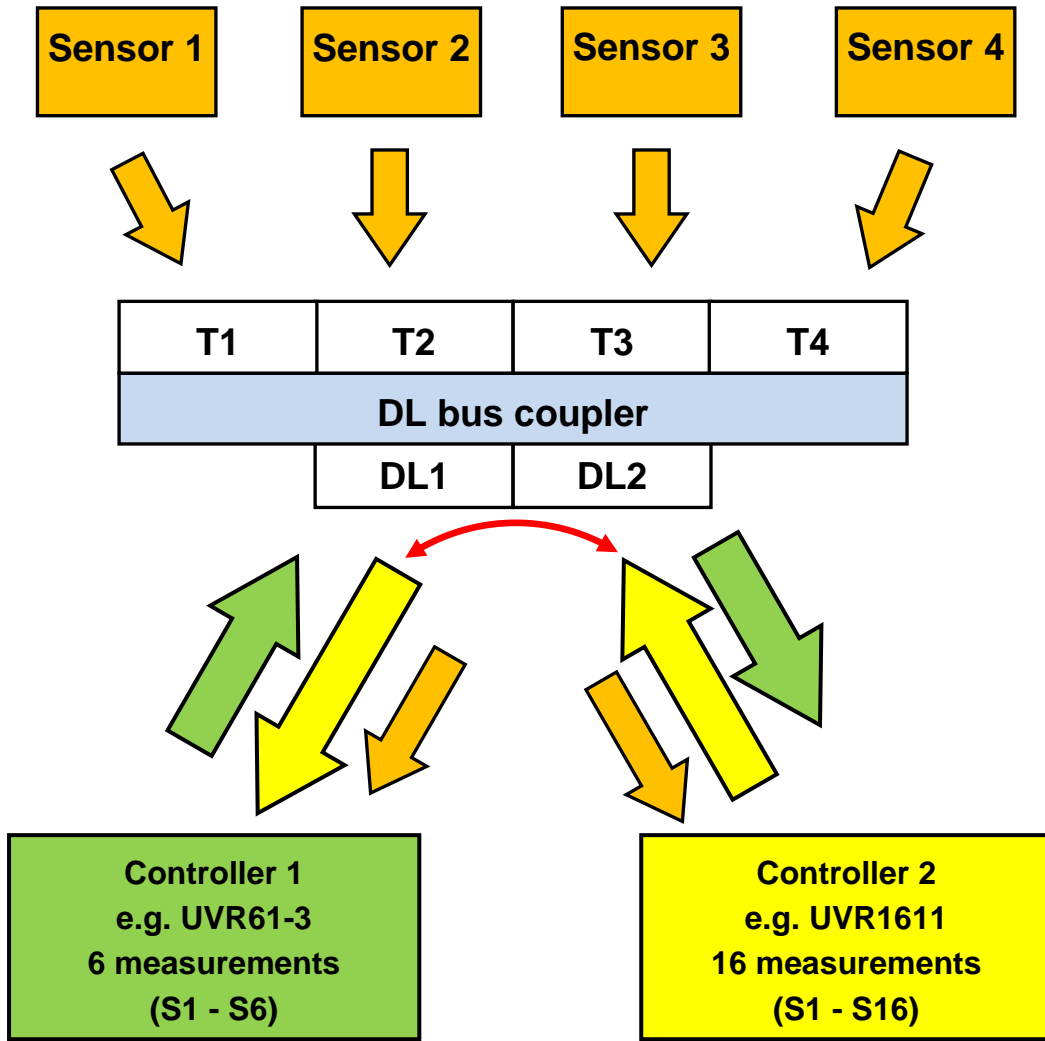
### Minimum controller version:

**ESR21, UVR61-3, UVR63-H:** From version 5.0

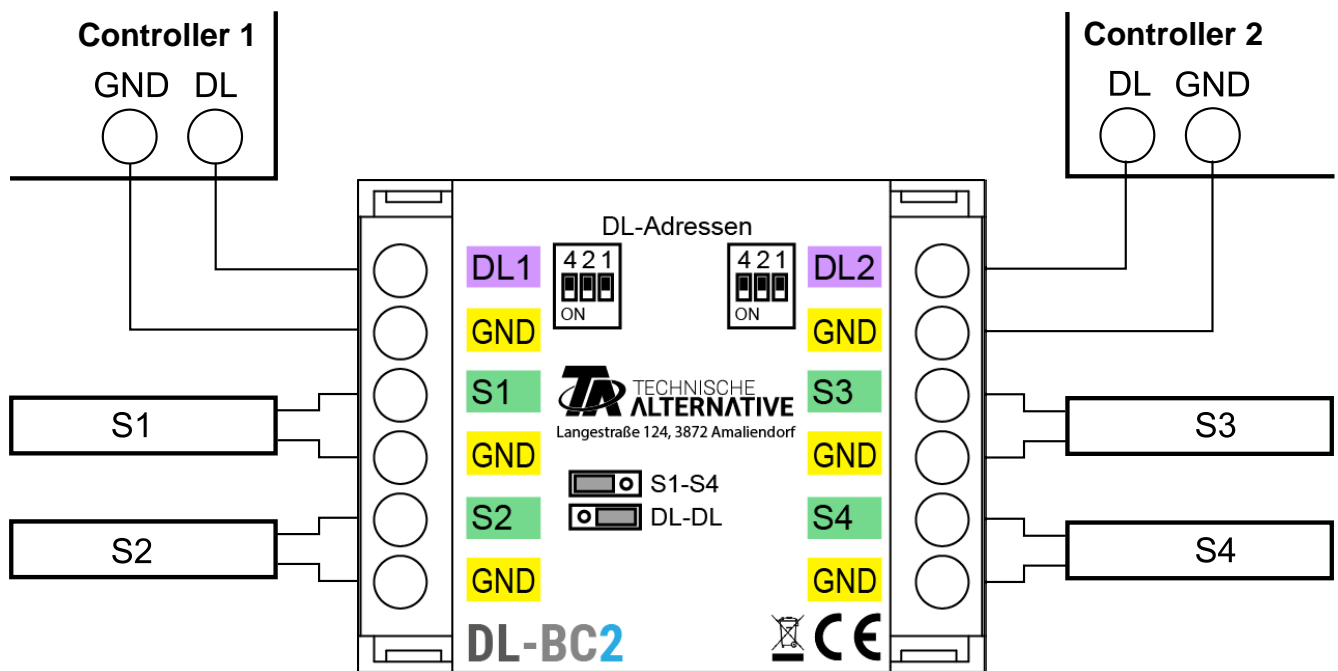
**UVR1611:** From version 3.0 **and** serial number 13286

**ESR31, UVR63, X2 devices:** All versions

# Schematic diagram of the DL bus coupler



# Wiring diagram



# DL bus (address, index)

## Addressing

Requests from the two controllers are sent to the DL bus coupler **address**, along with the **index** of the measurement stored or captured there.

**Separate addresses must be specified for each of the two data links.**

**Base address A** is defined for each controller with the DIP switches.

Subject to the jumper position in the DL-BC2, the bus coupler **only** occupies **base address A** or **two further addresses**. Ensure that no other DL bus devices have the same address(es).

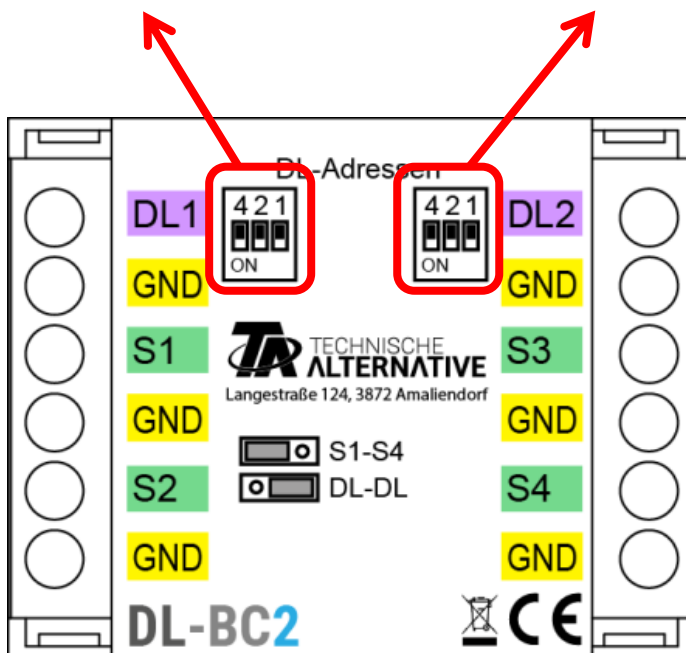
In the delivered condition, both base addresses **A** are set to 1. As long as no other sensors with address 1 (or 2 or 3) are connected to the DL bus in question, then it is not necessary to change the address.

The effective base 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**.

DIP switches for DL address **A**  
of controller 1

DIP switches for DL address **A**  
of controller 2



## List of indices

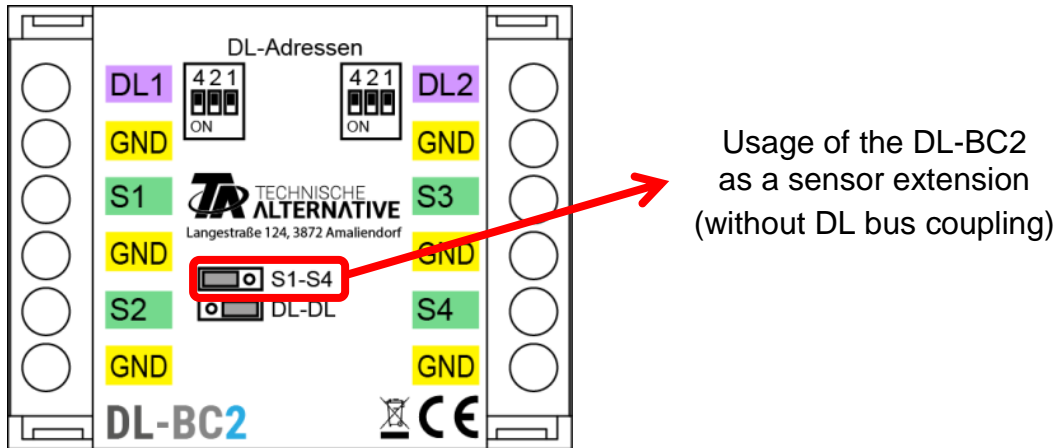
The index of a measurement can only be between 1 and 8. The maximum of 24 possible indices are therefore split across 3 addresses for use as a DL bus coupler.

### Usage only as a sensor extension

If the DL bus coupler is **only** to be used as a sensor extension, the jumper can be used to ensure that the bus coupler **only** occupies **address A**. This means that the 2 subsequent addresses are available for other DL devices.

If 2 data links are connected, the sensor values are transmitted to both controllers.

The jumper must be set to position "S1-S4" (left).



The following values are assigned to the address and indices:

Address A (defined by DIP switches)		
Index	Sensor type	Connection
Index 1	Temperature PT1000	S1 - GND
2	Temperature PT1000	S2 - GND
3	Temperature PT1000	S3 - GND
4	Temperature PT1000	S4 - GND
5	Temperature RAS PT	S1 - GND
6	Temperature RAS PT	S2 - GND
7	Temperature RAS PT	S3 - GND
8	Temperature RAS PT	S4 - GND

## Usage as DL bus coupler between 2 controllers

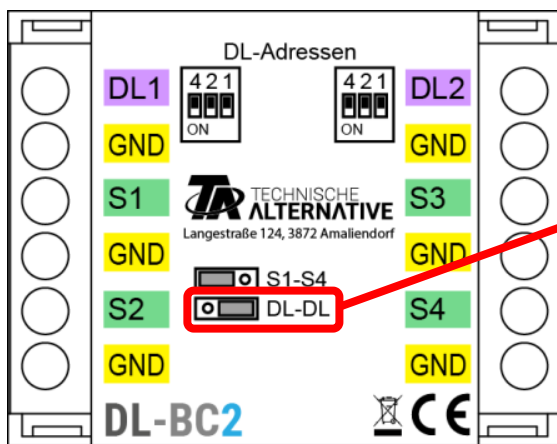
The data frames of UVR1611 and UVR16x2 contain 16 sensor values. Together with the 4 temperature sensors (PT1000, RAS PT = 8 indices), this gives up to 24 values. The indices of the controller values must therefore be divided over 2 further addresses (address **A+1**, address **A+2**). The sensor values from the sensor extension are always issued under **address A**.

Measurements from the simpler controllers (e.g. ESR21) require fewer index positions; the remaining indices do not yield any useful measurements.

**ESR21, ESR31, UVR61-3, UVR63 and UVR63-H:** If the bus coupler is allocated an address of higher than 6, then sensor values which have an address higher than 8 cannot be retrieved because "**external sensors**" can only be defined up to address 8 in these controllers.

Controllers with X2 technology (e.g. UVR16x2) and UVR1611 can retrieve sensor values with higher addresses.

The jumper must be set to position "**DL-DL**" (right).



Usage of the DL-BC2  
as a DL bus coupler

The following values are assigned to the address and indices:

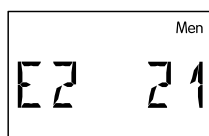
Address A (defined by DIP switches)			
	UVR16x2, UVR1611 UVR61-3, 63, 63-H <b>A</b>	ESR21, 31	UVR61-3, 63 <b>B</b>
Index	1	Temperature PT1000 - 1	Temp. PT1000 - 1
	2	Temperature PT1000 - 2	Temp. PT1000 - 2
	3	Temperature PT1000 - 3	Temp. PT1000 - 3
	4	Temperature PT1000 - 4	Temp. PT1000 - 4
	5	Temperature RAS PT - 1	Temp. RAS PT - 1
	6	Temperature RAS PT - 2	Temp. RAS PT - 2
	7	Temperature RAS PT - 3	Temp. RAS PT - 3
	8	Temperature RAS PT - 4	Temp. RAS PT - 4
Address A + 1			
Index	1	Sensor value 1	Sensor value 1
	2	Sensor value 2	Sensor value 2
	3	Sensor value 3	Sensor value 3
	4	Sensor value 4	Ext. value 1
	5	Sensor value 5	Ext. value 2
	6	Sensor value 6	Ext. value 3
	7	Sensor value 7	Ext. value 4
	8	Sensor value 8	Ext. value 5
Address A + 2			
Index	1	Sensor value 9	Ext. value 6
	2	Sensor value 10	
	3	Sensor value 11	
	4	Sensor value 12	
	5	Sensor value 13	
	6	Sensor value 14	
	7	Sensor value 15	
	8	Sensor value 16	

**A** = UVR61-3 to vers. 8.2; UVR63 to vers. 1.4; UVR63-H

**B** = UVR61-3 from vers. 8.3; UVR63 from vers. 1.5

### ESR21, ESR31, UVR61-3, UVR63, UVR63-H:

The required measurements are applied as "external sensors" (setting in the "EXT DL" menu), with the address and index of the required value specified



**Example:** Address **A** of the DL-BC2 was left as **1**.

External sensor **E2** has been assigned the sensor value of **address 2** (= **A + 1**) with **Index 1**.

This means that sensor value 1 from the other controller is applied.

**UVR16x2:** The measurements are programmed in the "DL bus" menu.

**Example: TAPPS2 – UVR16x2 programming:**



Des. group	Temperature actual value
Designation	T.outside
Des. index	
<b>General</b>	
Type	Analogue
Address	1
Index	1
<b>Unit</b>	
Measured variable	Automatic

Labels and arrows from the screenshot:

- Type: analogue
- DL address A of the DL-BC2
- Index of the required measurement

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

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

**Network node:** Address of the required sensor area of the DL bus coupler (example above: 2)

**Analogue network output:** Index of the required sensor value (example above: 1)

**Source:** DL

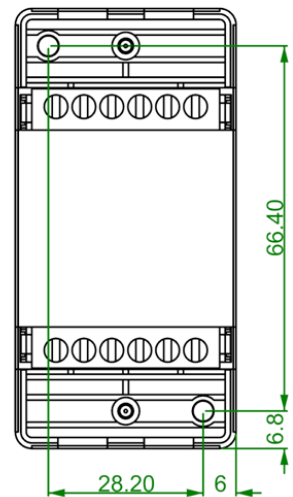
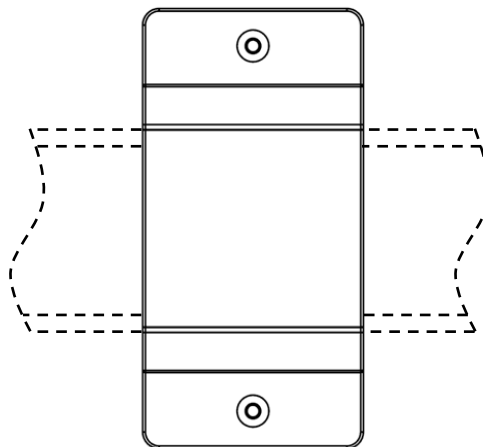
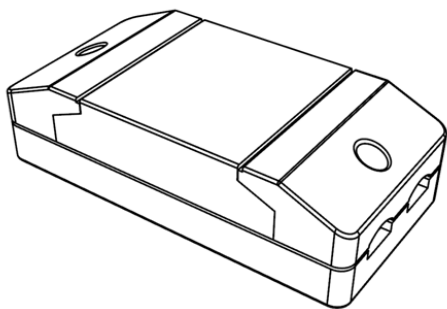
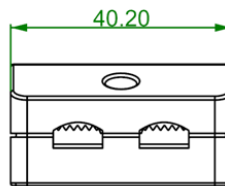
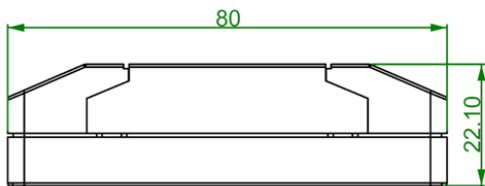
**TAPPS2 – UVR1611 programming:**

Labels and arrows from the screenshot:

- Output 14 = data link
- Analogue network input
- Source: DL
- DL address A of the DL-BC2
- Index of the measurement

Technical data	
DL bus load	13 %
Terminal area	Max. 1.5 mm <sup>2</sup>
Enclosure IP rating	IP 40
IP rating	IP 40
Permissible ambient temp.	+5 to +45 °C

## Dimensions in mm:



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

Subject to technical modifications

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