SpaceLogic KNX

Push-Button Interface Basic/Pro

Product information

This document is based on the installation instructions of the device and provides you with further information, e.g. about functions and operation, etc.

MTN6002-0002S, MTN6002-0004S, MTN6002-0008S, MTN6002-0108S

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Safety information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that accompany this symbol to avoid possible injury or death.

⚠ ⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Additonal notes

You will find additional information here to make your work easier.

Table of contents

1 For your safety

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Safe electrical installation must be carried out only by skilled professionals. Skilled professionals must prove profound knowledge in the following areas:

- Connecting to installation networks.
- Connecting several electrical devices.
- Laying electric cables.
- Safety standards, local wiring rules and regulations.

Failure to follow these instructions will result in death or serious injury.

1.1 Safety instructions

Electrical devices may be mounted and connected only by electrically skilled persons.

Danger of electric shock. During installation and cable routing, comply with the regulations and standards which apply for SELV circuits.

Danger of electric shock on installation. Lines that carry FELV, PELV or mains voltage are not permitted in the installation area. The SELV potential on the bus line will no longer be available.

Danger of electric shock on installation. Do not connect any external voltage to the inputs. The device can become damaged, and the SELV potential on the bus line will no longer be available.

These instructions are an integral part of the product, and must remain with the customer.

2 System information

System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite for proper understanding.

The function of this device depends upon the software. Detailed information on software versions and the respective scope of functions as well as the software itself can be obtained from the manufacturer's product database.

The device is **KNX Data Secure** capable. **KNX Data Secure** offers protection against manipulation in building automation and can be configured in the ETS project. Detailed technical knowledge is a prerequisite. A device certificate, which is attached to the device, is required for safe commissioning. During mounting, the device certificate must be removed from the device and stored securely.

Planning, installation and commissioning of the device are carried out with the aid of the ETS, version 5.7.7 and higher or 6.1.0

3 Intended use

- Inputs for polling of conventional, potential-free contacts in KNX systems and for sending telegrams to the KNX bus for signalling of statuses, meter readings, operation of loads, etc.
- Outputs for activation of LEDs
- Mounting in appliance box with dimensions according to DIN 49073 in combination with a suitable cover
- When mounting behind switch inserts and push-button inserts, use an appliance box with sufficient installation depth

4 Product characteristics

- Depending on the variant, two, four or eight independent channels, which work as inputs or as outputs, depending on the ETS configuration
- Common reference potential for all channels
- Disabling of individual channels
- Supply via KNX bus, no additional supply voltage necessary

Outputs

- Connection of LEDs
- Short-circuit resistant, overload-protected and reverse-polarity protected
- Switching outputs in parallel possible, for loads with higher energy consumption

Inputs

- Connection of potential-free contacts such as push-buttons, switches or Reed contacts
- Impulse current for avoiding contact fouling (image an oxide layer) at the connected contacts
- Operating functions: switching, dimming, controlling of Venetian blinds, scenes or room temperature
- Value transmitter for dimming, colour temperature, RGBW, temperature and brightness values
- Transmission of the current input state after bus voltage failure

Additionally for Pro variant inputs

- Connection of door or window contacts for the evaluation of the status open, closed, tilted and grip position
- Connection of temperature sensors
- Pulse counter with main counter and intermediate counter
- Combination of adjacent input channels for connection of push-button, door contact and window contact
- Logic functions

5 Mounting and electrical connection

Mount device

In secure operation (prerequisites):

– Secure commissioning has been activated in the ETS.

– Device certificate entered/scanned or added to the ETS project. A high resolution camera should be used to scan the QR code.

– Document all passwords and keep them safe.

■ In secure operation: device certificate must be removed from the device and stored securely.

■ Mounting in suitable appliance box. Observe cable routing and spacing

Bus connection

■ Connect bus with a KNX device connection terminal to KNX connector (1) (see figure 1).

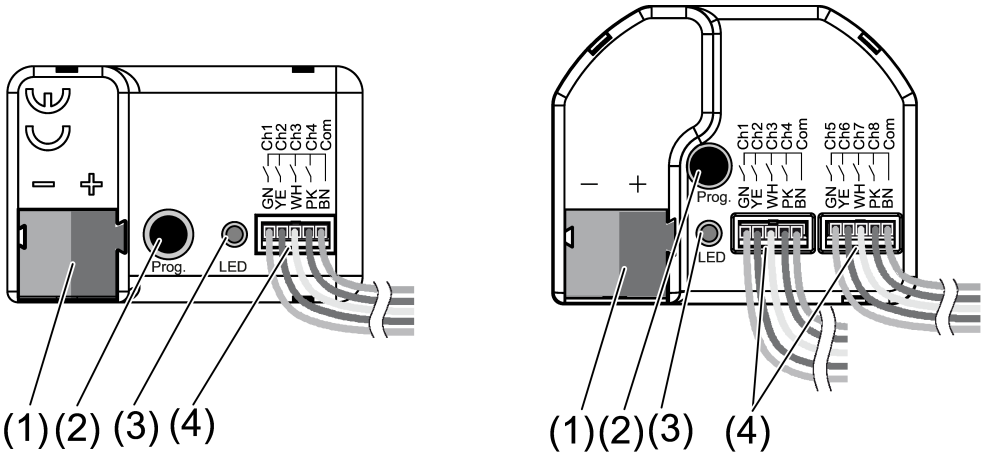

Image 1: Device components

Installation instructions

– To avoid interference from EMC radiation, the cables of the inputs should not be run in parallel to cables carrying mains voltage or to load cables.

– The voltage potentials of the connecting cables for the inputs and outputs are not galvanically isolated from the bus voltage.
The connecting cables actually lengthen the bus cable. The specification for the bus cable length (max. 1000 m) must be observed.

– Do not connect the **COM** connections of multiple push-button interfaces.

– No series resistance required for the connection of LEDs.
– Pro variant: Use channels **Ch1** and **Ch2** for NTC temperature sensors (siehe Kapitel "Accessories" ▸ Page 18). Alternatively, select a compatible NTC temperature sensor based on the characteristic curve of the NTC (see tables below).

$R_{25°C}$	33 kΩ
$B_{25/100}$	4300 K

Table 1: Characteristic curve of the NTC

T [°C]	R_T/R_{25}	α [%/K]	R_T [kΩ, rounded]
−30.0	21.56700	6.6	711.7
−10.0	6.29270	5.9	207.7
−5.0	4.70770	5.7	155.4
0.0	3.55630	5.5	117.4
5.0	2.71190	5.3	89.5
10.0	2.08600	5.1	68.8
15.0	1.62040	5.0	53.5
20.0	1.26830	4.8	41.9
25.0	1.00000	4.7	33.0
30.0	0.79420	4.6	26.2
35.0	0.63268	4.5	20.9
40.0	0.50740	4.3	18.9
45.0	0.41026	4.2	13.5
50.0	0.33363	4.1	11.0
55.0	0.27243	4.0	9.0
60.0	0.22370	3.9	7.4
70.0	0.15305	3.7	5.1
80.0	0.10677	3.5	3.5
90.0	0.07607	3.3	2.5

For the extension of the enclosed cable set (see figure 2), observe the maximum cable length **l** (siehe Kapitel "Technical data" ▸ Page 16). The following applies: the COM cable for each cable set must not exceed the total maximum length of **l**.

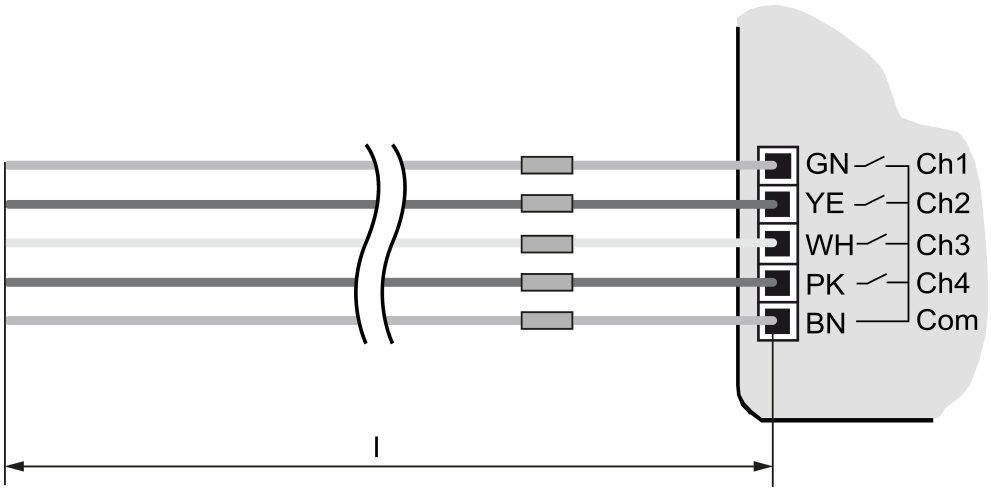

Image 2: Maximum cable length

⚠ ⚠ DANGER

Danger of electrical shock when mains voltage 230 V or other external voltages are connected!

Electric shocks can be fatal.

Device may be destroyed.

- Only connect potential-free push-buttons, switches or contacts.

- Connect push-buttons, switches, contacts, LED or NTC to enclosed connecting cables (4) according to the connection examples; (see figure 3) to (see figure 5). The connection examples show the use with inputs and outputs.

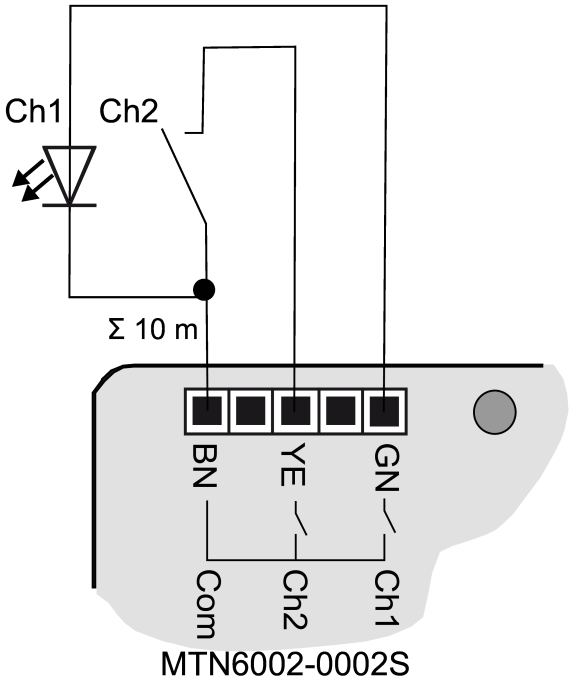

Image 3: Connection example Push-Button Interface Basic, 2ch

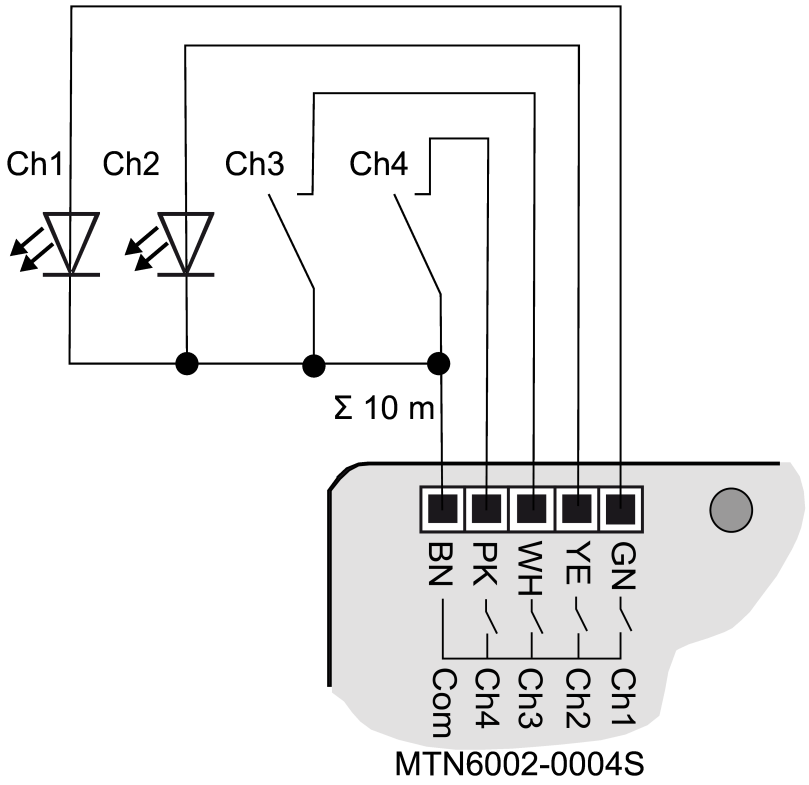

Image 4: Connection example Push-Button Interface Basic, 4ch

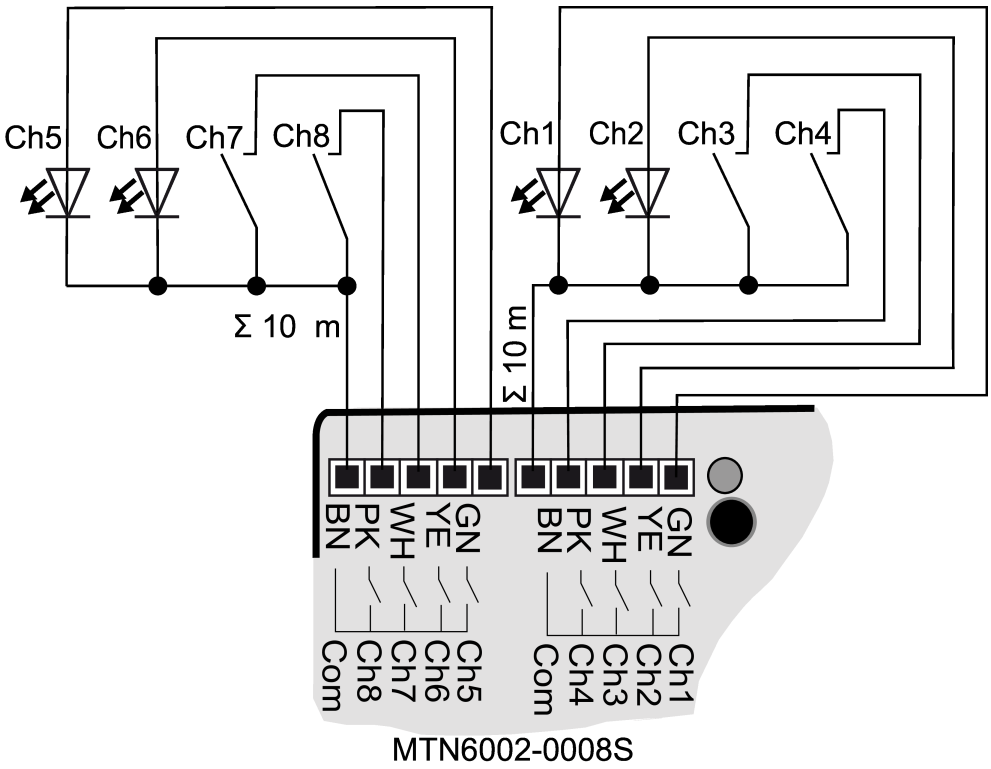

Image 5: Connection example Push-Button Interface Basic, 8ch

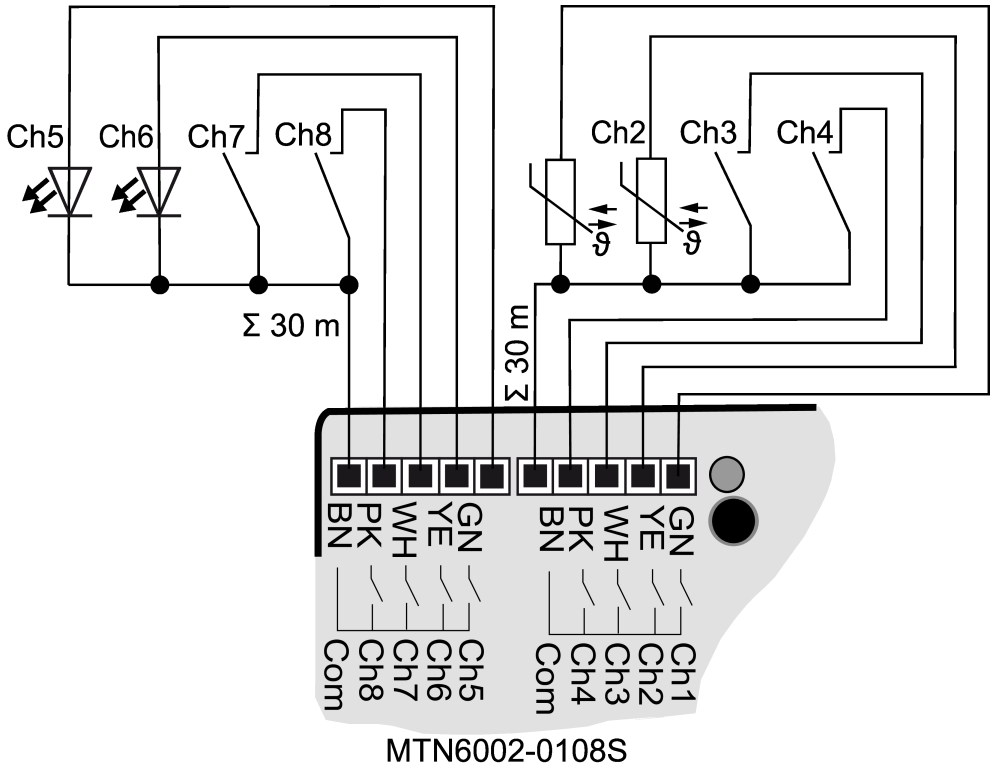

Image 6: Connection example Push-Button Interface Pro, 8ch

To increase the output current, outputs can also be switched parallel to each other with the same parameterization (see figure 7); in the example here, **Ch1-Ch3** are switched in parallel.

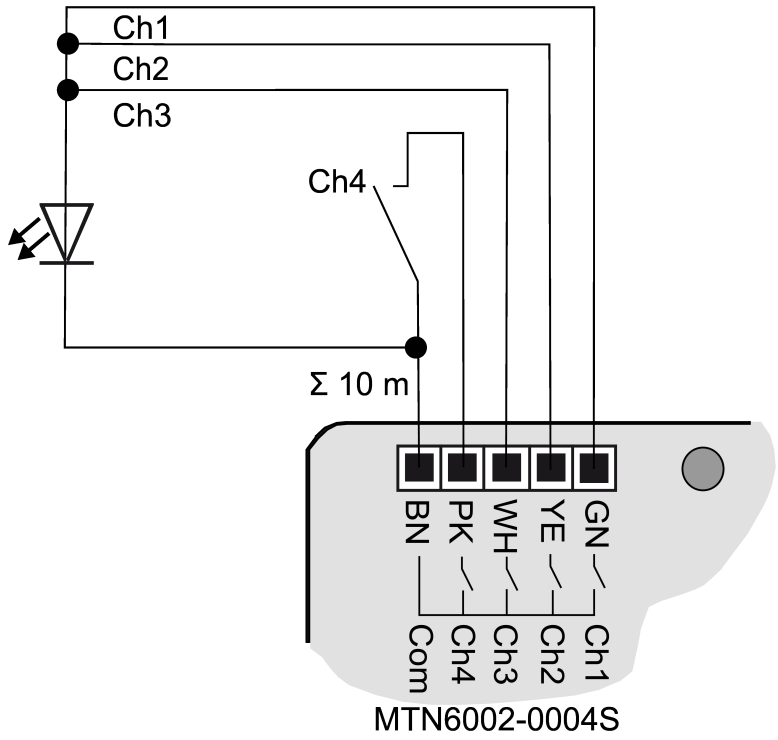

Image 7: Connection example Push-Button Interface Basic, 4ch with outputs switched in parallel

6 Commissioning

Programming the physical address and application program with ETS

- Switch on the bus voltage.
- Press the programming button (2).

  The programming LED (3) lights up.
- Programming the physical address.

  The programming LED goes out.
- Programming the application program.

6.1 Safe-state mode and master reset

Safe-state mode

The safe-state mode stops the execution of the loaded application program.

Only the system software of the device is still functional. ETS diagnosis functions and programming of the device are possible.

Activating safe-state mode

- Switch off the bus voltage or remove the KNX device connection terminal.
- Wait approx. 10 seconds.
- Press and hold down the programming button.
- Switch on the bus voltage or attach the KNX device connection terminal.
- Wait until the programming LED flashes slowly.
- Release the programming button.

  Safe-state mode is activated.

With a new brief press of the programming button, the programming mode can be switched on and off as usual also in the safe-state mode. The programming LED stops flashing if the programming mode is active.

Deactivating safe-state mode

- Switch off bus voltage (wait approx. 10 seconds) or carry out ETS programming.

Master reset

The master reset restores the basic device settings (physical address 15.15.255, firmware remains in place). The device must then be recommissioned with the ETS.

In secure operation: A master reset deactivates device security. The device can then be recommissioned with the device certificate.

Performing a master reset

Prerequisite: The safe-state mode is activated.

- Press and hold down the programming button for > 5 s.

  The programming LED flashes quickly.
- Release the programming button.

  The device performs a master reset, restarts and is ready for operation again after approx. 5 s.

Executing the firmware update

Firmware updates are intended for security and function updates to ensure that the devices are always up to date. With the Device Firmware Update Tool (DFU Tool), you can easily update all devices with the new firmware.

7 Technical data

Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +75 °C
Degree of protection	IP20
Protection class	III
Number of channels	
MTN6002-0002S	2
MTN6002-0004S	4
MTN6002-0008S, MTN6002-0108S	8
Output voltage	
MTN6002-0002S, MTN6002-0004S, MTN6002-0008S	DC 3.3 V SELV
MTN6002-0108S	DC 5 V SELV
Output current per channel	
MTN6002-0002S, MTN6002-0004S, MTN6002-0008S	max. 3.3 mA
MTN6002-0108S	max. 3.2 mA
LED current (red LED with 1.7 V current voltage)	
MTN6002-0002S, MTN6002-0004S, MTN6002-0008S	1.6 mA per output
MTN6002-0108S	2.2 mA per output
Connection of channels	
MTN6002-0002S	3-core wiring harness
MTN6002-0004S	5-core wiring harness
MTN6002-0008S, MTN6002-0108S	2x 5-core wiring harness
Length, wiring harness	
MTN6002-0002S, MTN6002-0004S, MTN6002-0008S	25 cm, can be extended to max. 10 m
MTN6002-0108S	25 cm, can be extended to max. 30 m
Recommended cable	J-Y(St)Y 2×2×0.8
Dimensions (WxHxD)	
MTN6002-0002S, MTN6002-0004S	43.0 x 28.5 x 15.4 mm
MTN6002-0008S, MTN6002-0108S	43.5 x 35.5 x 15.4 mm
KNX medium	TP256
Commissioning mode	S mode
Rated voltage KNX	DC 21 ... 32 V SELV
Current consumption KNX	
MTN6002-0002S	4 ... 7 mA
MTN6002-0004S	4 ... 9 mA

MTN6002-0008S	4 ... 12 mA
MTN6002-0108S	5 ... 18 mA
Connection mode KNX	Device connection terminal

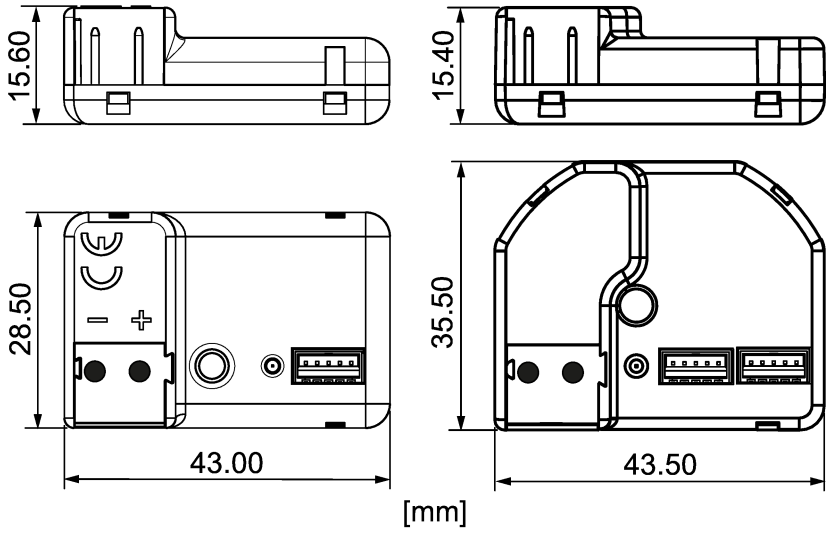

Image 8: Dimensioned drawing

8 Accessories

Remote sensor for room temperature measurement	616790

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.