InBin-D
InPro-B...

Transmitter for
Temperature / humidity sensors

InBin - D
InBin - D - 2
InBin - ... - CT
InBin - ... - VA

Subject to change!

Electrical transmitters with InPro-B... sensors
24 VAC/DC supply voltage, potential free relay output

Compact. Easy installation. Universal. Cost effective. Safe.

Type	Sensors (compulsory)	Function of sensors	Supply	Output	Wiring diagram	Installation area
InBin- D	**InPro-B...** (see below)	°C, % rH, °C+% rH	24 VAC/DC	Relay contact	SB 1.0	Safe area
InBin- D - 2	as above with additional relay switching output			2 × Relay contact	SB 2.0	Safe area
InBin- D... - CT	Types as above with aluminium housing and seawater resistant coating (cable glands M16 brass nickel-plated, screws in stainless steel)					
InBin- D... - VA	Types as above with stainless steel housing for aggressive ambient (cable glands M20 brass nickel-plated, screws in stainless steel)					

Type	Function	Range	Sensor length	Connection	Installation area sensor
InPro-BT-...	Temperature sensor	−40...+125 °C*	50 / 100 / 150 / 200 mm	Plug and socket to InCos-D...	Safe area
InPro-BF-...	Humidity sensor	0...100 % rH	50 / 100 / 150 / 200 mm	Plug and socket to InCos-D...	Safe area
InPro-BTF-...	Combination sensor	−40...+125 °C* / 0...100 % rH	50 / 100 / 150 / 200 mm	Plug and socket to InCos-D...	Safe area
Sensor length		* at 50 mm length −40...**+80** °C			

Product views and applications

Figures ...Bin-D-2

...Bin-D... transmitter

InPro-B... sensors

...Bin-D...-CT

...Bin-D...-VA

Duct or room sensor

Description

The InBin-D... transmitter generation with directly coupled InPro-B... sensors is a revolution for measuring temperature and/or humidity in HVAC systems, in chemical, pharmaceutical, industrial and offshore/onshore plants.
IP66 protection, small dimensions, universal functions and technical data guarantee safe operation even under difficult environmental conditions. All sensors are programmable on site without any additional tools. The switching points are scalable within the maximum ranges. The integrated display (can be switched off as needed) is for parametrisation and an actual value indication at working mode.
...Bin-D-2 transmitter are additionally equipped with a second switching output, which can be parameterized independently.

Highlights

- ▶ For industrial use
- ▶ Power supply 24 VAC/DC
- ▶ Scalable, potential free switching contact
- ▶ Integrated terminal box
- ▶ Optional second switching output
- ▶ Display with backlight, can be switched off
- ▶ Password locking
- ▶ Down to −20 °C ambient temperature applicable
- ▶ Compact design and small dimension
- ▶ Robust aluminium housing (optional with seawater resistant coating) or in stainless steel
- ▶ IP66 protection

InPro-B – see additional data sheet

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Technical data	...Bin- D	...Bin- D- 2
Supply voltage, frequency	24 VAC/DC ±20 % (19,2...28,8 VAC/DC), 50/60 Hz	
Current, power consumption	150 mA, ~ 4 W, internal fuse 500 mAT, without bracket, not removable	
Galvanic isolation	Supply for relay output min. 1,5 kV	
Electrical connection	Terminals 0,14...2,5 mm² at integrated terminal box, stripping length 9 mm, torque 0,4...0,5 Nm, equipotential bonding 4 mm²	
Cable glands	2 × M16 × 1,5 mm, for cable diameter ~ Ø 5...9 mm	
Cable glands ...-CT	2 × M16 × 1,5 mm, brass nickel-plated, for cable diameter ~ Ø 6...10 mm	
...-VA	2 × M20 × 1,5 mm, brass nickel-plated, for cable diameter ~ Ø 6...13 mm	
Protection class	Class I (grounded)	
Display	Matrix LCD, backlit, for configuration, user guidance, parameter and actual value indication. Status indicator via LEDs	
Control elements	3 buttons for configuration	
Housing material	Aluminium die casting, coated. Optional with seawater resistant coating (...-CT) or	
	stainless steel V4A / AISI 316 Cd / DIN EN 1.4581 (...-VA)	
Dimensions (L × W × H)	Aluminium housing ~ 180 × 107 × 66 mm, stainless steel housing ~ 195 × 127 × 70 mm (each without connectors)	
Weight	~ 950 g aluminium housing, stainless steel version ~ 2,5 kg	
Ambient temperature	−20...+50 °C, storage temperature −35...+70 °C	
Ambient humidity	0...95 % rH, non condensing	
Sensor connection	**For InPro-B... sensor only!** Via plug-and-socket connection at front side (for room mounting) or at back side (for duct mounting).	
	Attention: Only 1 InPro-B... sensor per transmitter can be connected!	
InPro-B... sensors	More information of connectable InPro-B... sensors see separate data sheet	
Measuring range	−40...+125 °C / 0...100 % rH, non condensed	
Response time of sensor	T90 / ~ 3 s	
Relay output accuracy Temperature	±0,1 °C resolution + accuracy of ...Pro-B... sensor	
Humidity	±0,05 % resolution + accuracy of ...Pro-B... sensor	
Setting range hysteresis	+0,5...+20,0 °C (factory setting +1,0 °C) / 0,5...20,0 % rH (factory setting 5,0 % rH)	
Start delay	5 s	
Stability	Long term stability < 0,2 %/year, temperature influence < 0,02 %/K, supply voltage influence < 0,01 %	
Output	Potential free switching contact – breaking/making contact, adjustable per menu	
max. rating load	0,5 A (30 VAC/DC) – 0,1 A (250 VAC) – 0,1 A (220 VDC). Power 40 W, 10 W per channel	
min. rating load	10 mW / 0,1 V / 1 mA	
Additional relay output (Type ...-2)	–	as above
Duration of life Mechanical	10×10^6	
Electrical (rated load)	100×10^3	
Wiring diagram	SB 1.0	SB 2.0
Scope of delivery	Transmitter, 3 self-tapping screws 4,2 × 13 mm resp. in stainless steel (with ...CT and ...VA versions)	

Approbations

CE identification	CE
EMC directive	2004/108/EC
Enclosure protection	IP66 in acc. with EN 60529

Special solutions and accessories

...-CT	Types in aluminium housing with seawater resistant coating, parts nickel-plated
...-VA	Types in stainless steel housing, parts nickel-plated
MKR	Mounting bracket for round ducts up to Ø 600 mm
Kit-S8-CBR	2 cable glands M16 × 1,5 mm, Ex-e, brass nickel-plated, for cable Ø 5...10 mm

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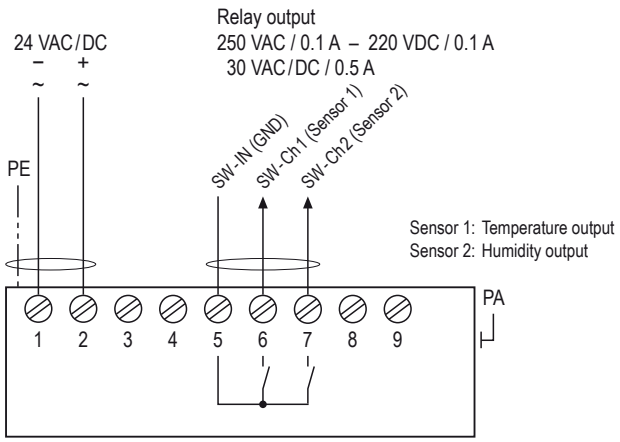
Electrical connection

All transmitters require a 24 VAC/DC power supply. The electrical wiring must be realized via the integrated terminal box.
Attention: Before opening the terminal box cover, the supply voltage must be shut off!
The supply has to be connected at terminals 1 (−/~) and 2 (+/~).

⚠ At different relay and supply voltages (24 VAC/DC) the cable installation must be considered (see "Information for Installation")! ⚠

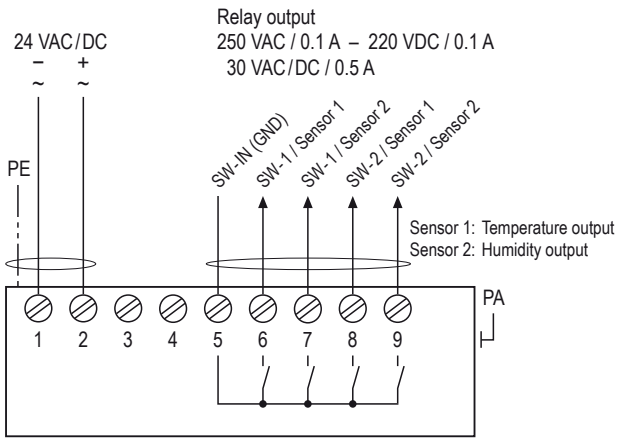
Depending on the ...Pro-B-... sensor's type you can measure either temperature (...Pro-BT...) or humidity (...Pro-BF...) at the time or combined with a ...Pro-BTF... Simultaneous measurings are not possible, use only one transmitter at the time.
Before starting parametrisation of ...Bin-D... transmitter a ...Pro-B... sensor must be connected, which can be mounted either to the front or the back side of the transmitter. The protective cap must be removed.
Unused connectors must be covered with the original protective cap to avoid mechanical damage and dirt!
Depending on the sensor's type you need to set parameters for one or two measuring ranges and their related data.

InBin-D SB 1.0



Switching function normally open or closed can be selected via menu only.

InBin-D-2 SB 2.0



Switching function normally open or closed can be selected via menu only.

Electric characteristics – For external InPro-B... sensor

U ≤ 10 V
I ≤ 10 mA
P ≤ 20 W

Important information for installation and operation

A. Installation, commissioning, maintenance

All national and international standards, rules and regulations must be complied with.
Apparatus must be installed in accordance with manufacturer instructions.
If the equipment is used in a manner not specified by the manufacturer, the safety protection provided by the equipment may be impaired.

⚠ **Attention:** Apply all rules and regulation before opening the internal terminal box. Do not open cover when circuits are live!

Draw the wiring cables through the cable glands. For connection use the internal terminal box and connect equipotential bonding.
After connection install the cables in a fixed position and protect them against mechanical and thermical damage. Close all openings and ensure IP protection (min. IP66).
Avoid temperature transfer and ensure not to exceed max. ambient temperature! For outdoor installation a protective shield against sun, rain and snow should be applied.
Sensors are maintenance free. An annual inspection is recommended. Clean with damp cloth only.
Sensors must not be opened and repaired by the end user.

B. Long cabling

We recommend using shielded signal wires and to connect one end of the shield to the ...Bin-... terminal box.

C. Separate ground wires

For supply and signal wires use separate grounds.

D. Relay output

Wires for safety extra-low voltage must be installed separately from other circuits. At 24 VAC/DC only supply and signal wires are permitted in one cable, in all other cases use separate or double isolated cables. An over-current protection fuse < 10 A has to be provided by the installer.

E. InPro-B... sensors

The InPro-B... sensor is supplied by the transmitter's circuit. Unused connectors must be covered with a protective cap.

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Display, buttons and parameters

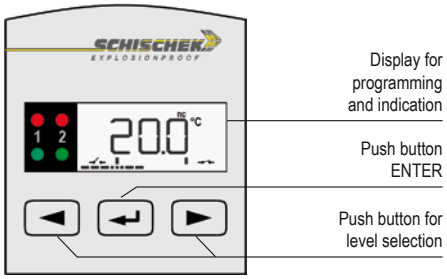

Fig. ...Bin-D-2

Change operation – parametrisation mode
To change from operation to parametrisation mode and vice versa, push ↵ ENTER button for minimum of 3 seconds. Back to operation mode with menu "save".

Indication of data logging
The flashing unit symbol (°C) shows that data is received and the device is working.

Sensor malfunction
A sensor malfunction is indicated by a red flashing LED and the text "SENS" in the display. The switching outputs will indicate that, too. In this case the connection between the tranducer and the sensor should be checked first.

Password input
The default/delivery setup is 0000. In this configuration the password input is not activated. To activate the password protection (menu 15) change the 4 digits into your choosen numbers (e.g. 1234) and press ENTER.
Please keep your password in mind for next parameter change! Due to a new parameter setup the password is requested.

Parametrisation and commissioning

To change from operation to parametrisation mode
push the "ENTER" button ↵ for minimum 3 seconds.
If password protected: type password and push ↵.
Skip menu with ►, back to operation mode with menu "save".

Operation → Parametrisation
push ↵ for min. 3 s

Menu	Function	ENTER	Indication	Select	ENTER	Next indication	Select	ENTER	Next menu
Menu 1	no function – menu skip								
Menu 2	**Unit sensor** Select physical unit	Unit ↵	°C	°C, °F					►
Menu 3	**set 1, sensor 1** Select switching point 1 (temperature)	SEt 1 ↵	20.0 °C	enter temperature					►
Menu 4	**set 2, sensor 1 (optional) *** Select switching point 2 (temperature)	SEt2 ↵	30.0 °C	enter temperature					►
Menu 5	**hysteresis, sensor 1** Select hysteresis	HYSt ↵	1.0 °C	enter degrees					►
Menu 6	**mode, sensor 1** Select switching properties (break contact, make contact)	ModE ↵	UP	Up, Down, Mid *		NC	nc, no		►
Menu 7	**Unit sensor** Select physical unit	Unit ↵	%rF	% rF, % rH					►
Menu 8	**set 1, sensor 2** Select switching point 1 (humidity)	SEt 1 ↵	50.0 %rF	enter humidity %					►
Menu 9	**set 2, sensor 2 (optional) *** Select switching point 2 (humidity)	SEt2 ↵	80.0 %rF	enter humidity %					►
Menu 10	**hysteresis, sensor 2** Select hysteresis	HYSt ↵	5.0 %rF	enter humidity %					►
Menu 11	**mode, sensor 2** Select switching properties (break contact, make contact)	ModE ↵	Mid	Up, Down, Mid *		NC	nc, no		►
Menu 12	no function – menu skip								
Menu 13	**display setting** Select display	LAMP ↵	ON	on, off					►
Menu 14	no function – menu skip								
Menu 15	**security** Select password protection	SECU ↵	0000	enter password					►
Menu 16	**save** Select: save data, discard, back to menu, factory setting	SAVE ↵	YES	Yes, no, menu, dset (default setting)		(operation mode after "save")			

*** for ...Bin-D-2 only (2-stage)**

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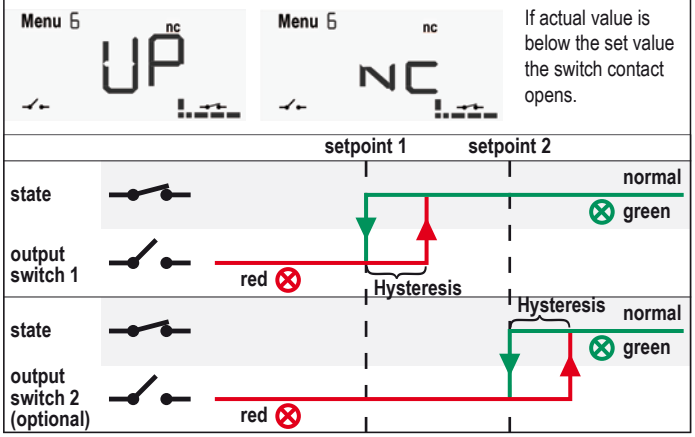
Menu 6 “mode” – Switching properties

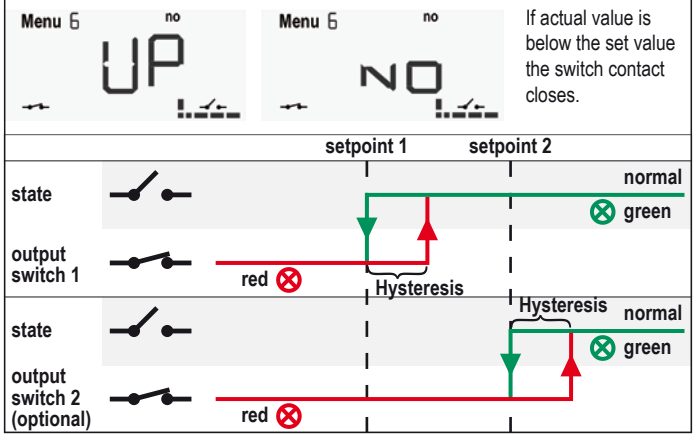
1. Define the device’s normal range first:
   The device should indicate (green LED) when the temperature / humidity is
   - above the setpoints – mode „up-range“ has to be selected.
   - below the setpoints – mode „down-range“ has to be selected.
   - between the setpoints – mode „mid-range“ has to be selected.
     This mode is available for 2-stage devices only (...Bin-D-2).

2. Select the switching charateristic of the output relay:
   When the measured value is in normal range, the corresponding relays shall
   - close – select “normally closed” (nc)
   - open – select “normally open” (no)

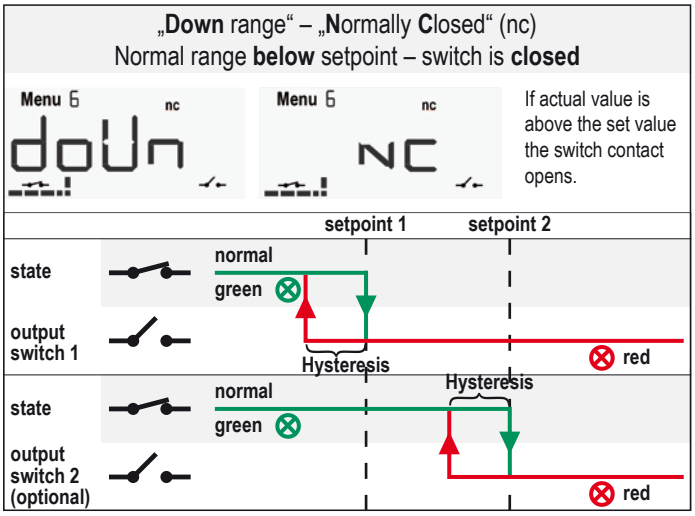
„UP range“ – „Normally Closed“ (nc)
Normal range **above** setpoint – switch is **closed**



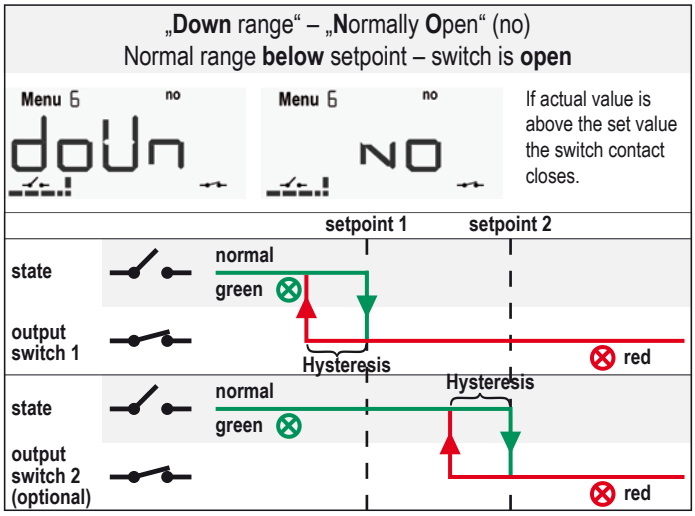
„UP range“ – „Normally Open“ (no)
Normal range **above** setpoint – switch is **open**



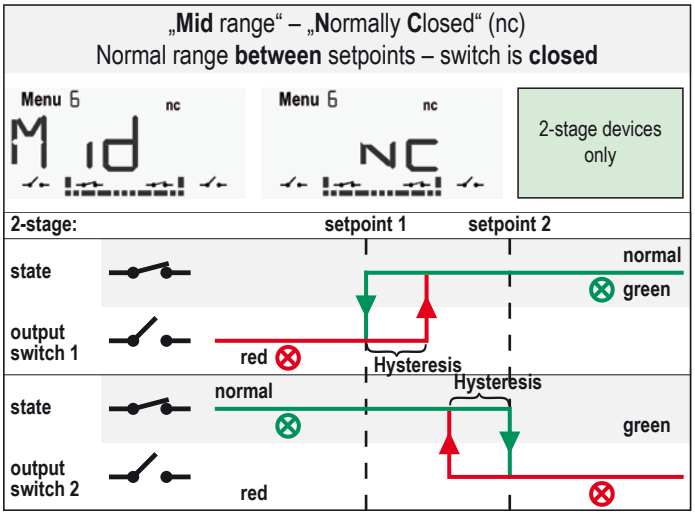
„Down range“ – „Normally Closed“ (nc)
Normal range **below** setpoint – switch is **closed**



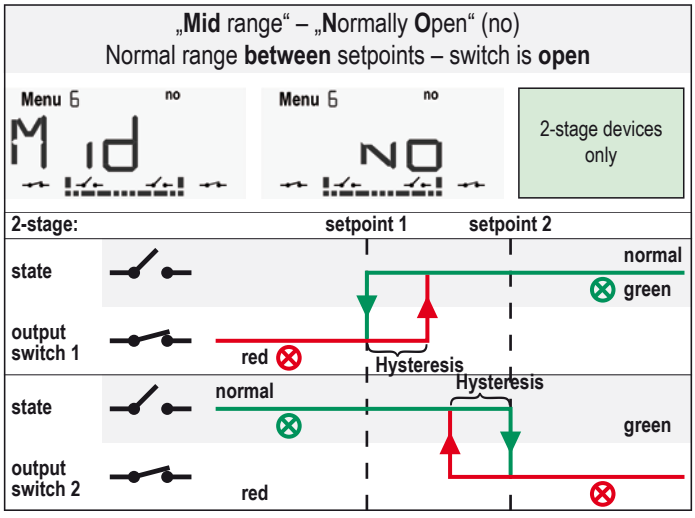
„Down range“ – „Normally Open“ (no)
Normal range **below** setpoint – switch is **open**



„Mid range“ – „Normally Closed“ (nc)
Normal range **between** setpoints – switch is **closed**



„Mid range“ – „Normally Open“ (no)
Normal range **between** setpoints – switch is **open**



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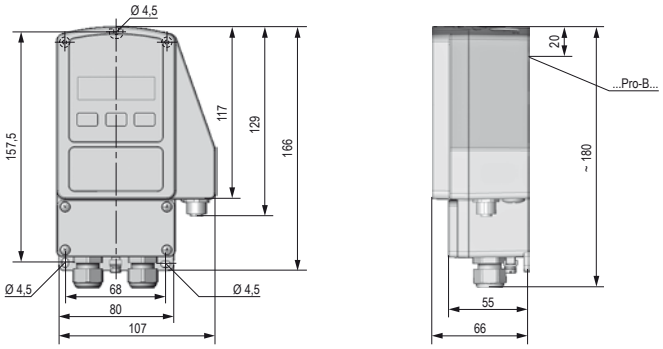
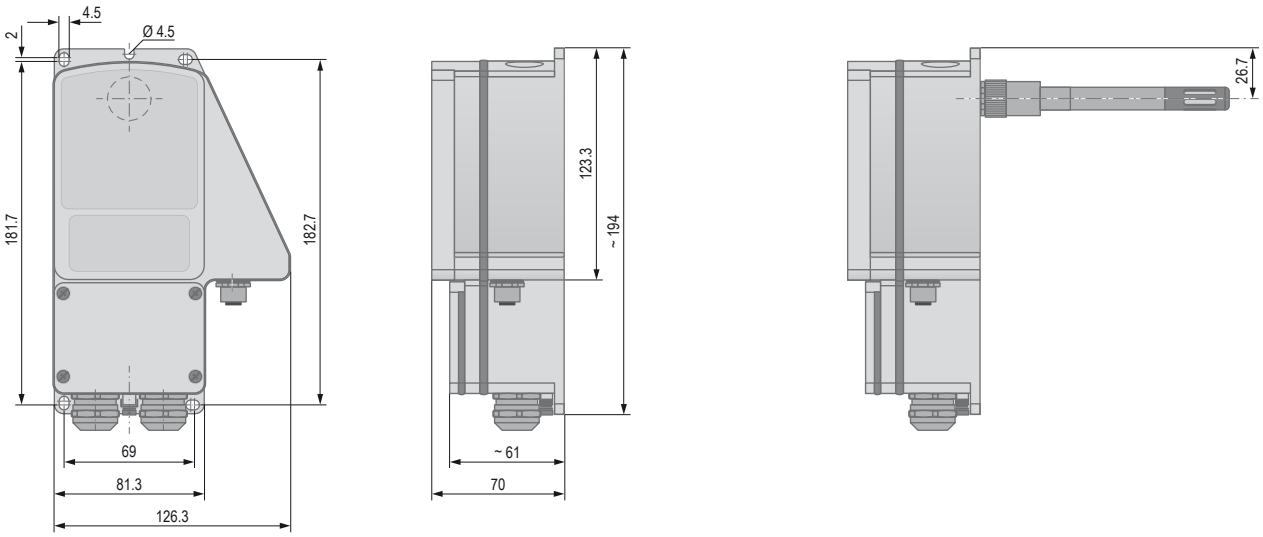
Dimensions [mm]

Aluminium housing



Stainless steel housing



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