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# JUMO hydroTRANS S20

## Humidity and temperature transmitter with optional CO<sub>2</sub> module, wall-mounted version

### Areas of application

- Facility management
- Climate monitoring
- Ventilation systems
- Storage rooms

### Special features

- Ease of assembly
- Robustness
- Multisensor
- Plastic sinter filter (optional)

### Description

The humidity and temperature transmitter monitors the ambient air quality.

The device is suitable for wall mounting in indoor areas and weather-proofed outdoor areas.

### Measurands

- Relative humidity
- Temperature
- Optional: carbon dioxide (CO<sub>2</sub>)

### Interfaces

- USB
- RS485
- Single Pair Ethernet (SPE)



Type 907042 without and with display



Single Pair Ethernet

Type 907042 with display

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## Technical data

### Electrical safety

Requirements	DIN EN IEC 61010-1:2020 The device must be equipped with an electrical circuit that meets the requirements for "Limited-energy circuits".
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### Electrical data

#### Device with analog output

Voltage supply	DC 24 V, -33 %/+33 %, SELV, PELV
Power consumption	≤ 2.4 W
Overvoltage category	II
Pollution degree	2
Protection rating	DIN EN 61140, class III (protective low voltage)
Electrical connection	
Connection elements	Spring-cage terminal
Connecting cable	
Conductor cross section	AWG 28 to AWG 14
Without ferrule	0.2 to 1.5 mm <sup>2</sup>
With ferrule	0.25 to 1.5 mm <sup>2</sup>
Stripping length	
Without ferrule	8 mm
With ferrule	10 mm
Temperature resistance	≥ 80 °C

#### Device with RS485

Voltage supply	DC 24 V, -58 %/+33 %, SELV, PELV
Power consumption	≤ 2.4 W
Overvoltage category	II
Pollution degree	2
Protection rating	DIN EN 61140, class III (protective low voltage)
Electrical connection	
Connection elements	Spring-cage terminal
Connecting cable	
Conductor cross section	AWG 28 to AWG 14
Without ferrule	0.2 to 1.5 mm <sup>2</sup>
With ferrule	0.25 to 1.5 mm <sup>2</sup>
Stripping length	
Without ferrule	8 mm
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Temperature resistance	≥ 80 °C

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**Device with SPE**

Voltage supply	DC 18 to 30 V, PELV
Current consumption	≤ 100 mA
Power consumption	≤ 1.8 W
Overvoltage category	II
Pollution degree	2
Protection rating	DIN EN 61140, Class III (protective low voltage)
PoDL class	Class 11, IEEE 802.3cg
PoDL classification	SCCP or Forced Mode
Electrical connection	
Connection element	M12 plug connection
M12 plug connector	IEC 63171-5
Version	2-pole, shielded
Protection type	IP67
Connecting cable	IEC 61156-13, IEC 61156-14
Version	2-core, copper, shielded
Bandwidth	≥ 20 MHz
Line length	≤ 500 m (AWG22 at DC 24 V)
DC loop resistance	< 59 Ω
Temperature resistance	≥ 80 °C

**Inputs**

**Measurands**

**Relative humidity**

Measuring range	0 to 100 % RH
With CO <sub>2</sub> module	0 to 95 % RH
Accuracy	
Typical	±2.0 % RH
Max.	±2.5 % RH
Sampling rate	1 s

**Temperature**

Measuring range	-40 to +80 °C
With CO <sub>2</sub> module	-10 to +60 °C
Accuracy	
Typical	±0.2 °C
Max.	±0.4 °C
Sampling rate	1 s

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## Carbon dioxide (CO<sub>2</sub>)

Optional for devices with analog output and RS485, per default for devices with SPE.

Measuring range	400 to 10000 ppm
Accuracy	±(50 ppm + 5 % of the measured value)
Reference conditions	
Ambient temperature	25 °C
Air pressure	1013 hPa
Humidity	50 % RH
Measuring range	400 to 1000 ppm
Sampling rate	30 s

## Outputs

### Device with analog output

#### Current output

Signal range	4 to 20 mA
Output signal limits	0 to 22 mA
Accuracy	≤ ±0.05 % in relation to the end of the signal range (20 mA)
Temperature influence	±50 ppm/K
Burden influence	≤ ±0.02 % per 100 Ω
Burden	≤ 500 Ω

#### Voltage output

Signal range	0 to 10 V
Output signal limits	0 to 11 V
Accuracy	≤ ±0.05 % in relation to the end of the signal range (10 V)
Temperature influence	50 ppm/K
Load influence	≤ ±15 mV
Load	≥ 10 kΩ

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## Interfaces

### USB

Function	Transfer of configuration data and device information
Communication	Via end device and setup software
Transmission standard	USB 2.0
Connector type	Micro-B
Power requirement	≤ 500 mA
Cable length	≤ 5 m

### RS485

Function	Transfer of process data, configuration data, and device information
Communication	Via Modbus master
Galvanic isolation	Functional
Data transmission	Serial
Transmission protocol	Modbus RTU
Data format	8-1-none <sup>a</sup> 8-1-odd 8-1-even 8-2-none
Data transfer rate	9600 baud 19200 baud 38400 baud <sup>a</sup> 57600 baud 115200 baud
Minimum response time	0 to 500 ms
Device address	1 to 254

<sup>a</sup> Default setting

### SPE

Function	Transfer of process data, configuration data, and device information, voltage supply via PoDL
Communication	Via end device and JUMO Cloud, Modbus master
SPE standard	10BASE-T1L
Transmission protocol	Modbus TCP, integrated JUMO Cloud gateway
Data transfer rate	10 Mbit/s

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## Display

Type	TFT display
Size	
Display range	35.04 mm × 28.03 mm
Screen size (diagonal)	1.77"
Resolution	128 × 160 px RGB
Brightness	11 levels (configurable)

## Environmental influences

Admissible ambient temperature	-40 to +80 °C
With CO <sub>2</sub> module	-10 to +60 °C
With display	-20 to +60 °C
Admissible storage temperature	-40 to +80 °C
With CO <sub>2</sub> module	-30 to +70 °C
With display	-30 to +60 °C
Protection type	DIN EN 60529 IP65
Max. site altitude	5,300 m above sea level
Climatic conditions	DIN EN IEC 60721-3-3
Climate class	3K24
Relative humidity	≤ 100 % (95 % with CO <sub>2</sub> module), non-condensing
Electromagnetic compatibility (EMC)	DIN EN IEC 61326-2-3:2022
Interference emission	Class B <sup>a</sup>
Interference immunity	Industrial requirement
Oscillation <sup>b</sup>	DIN EN 60068-2-6
Amplitude	0.15 mm at 10 to 58.1 Hz
Acceleration	20 m/s <sup>2</sup> at 58.1 to 150 Hz
Shock <sup>b</sup>	DIN EN 60068-2-27
Peak acceleration	150 m/s <sup>2</sup>
Shock duration	11 ms

<sup>a</sup> The product is suitable for industrial use as well as for households and small businesses.

<sup>b</sup> The CO<sub>2</sub> module is sensitive to vibrations. In the event of vibrations, the measurement results could change on account of the design.

## Mechanical features

Material	
Housing	PC
Display cover	PMMA
Weight	Approx. 200 g

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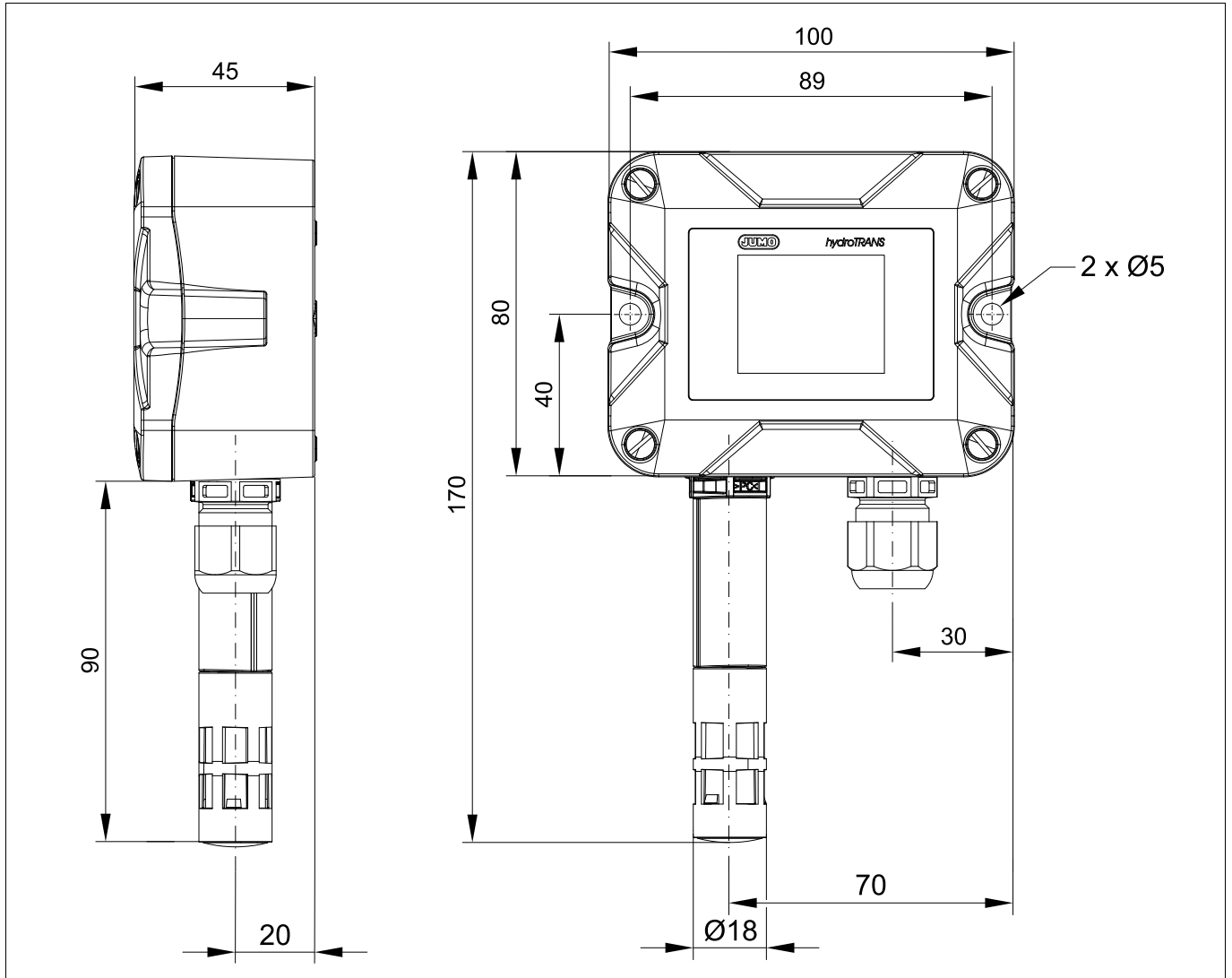
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## Dimensions

### Device with analog output/RS485



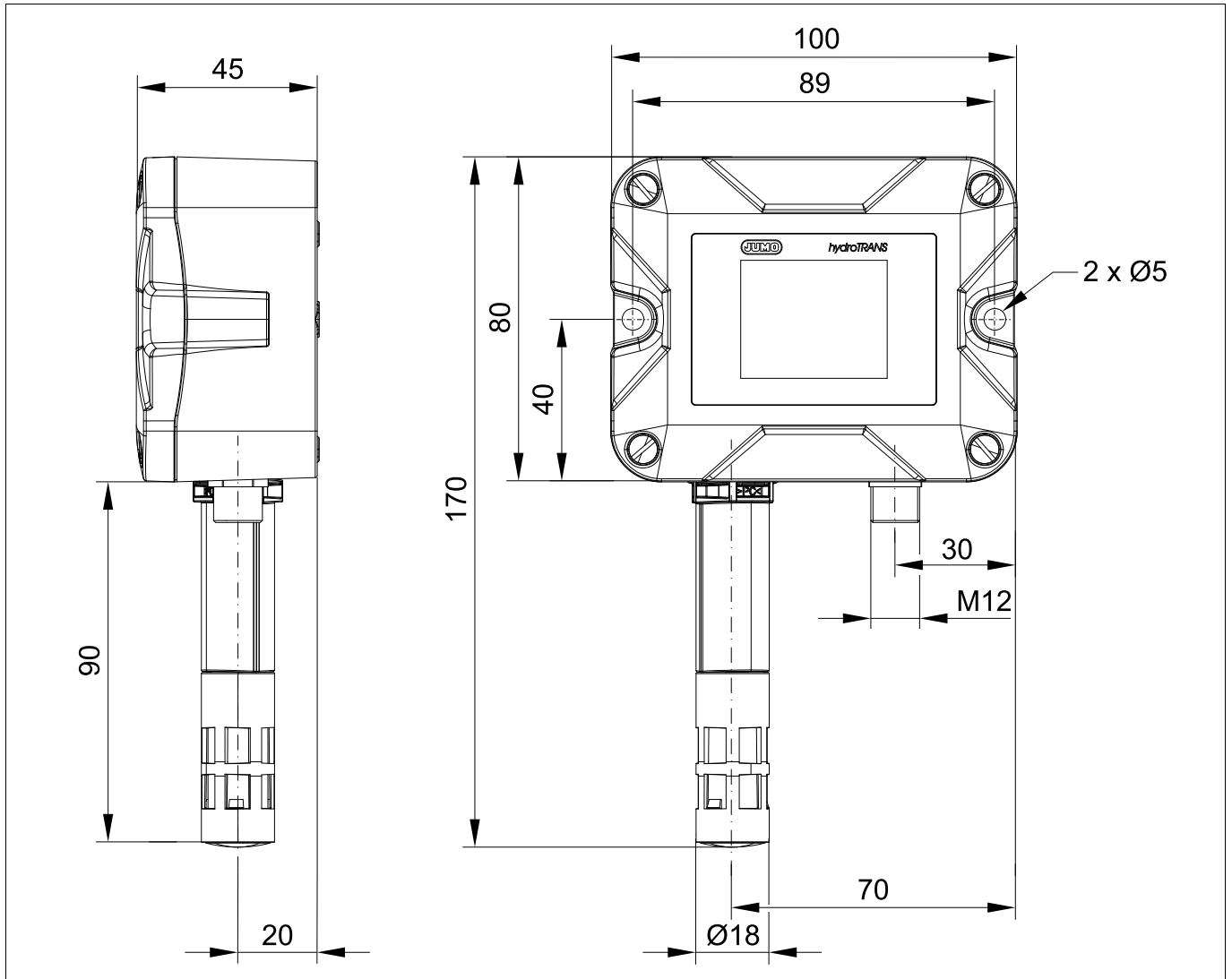
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**Device with SPE**





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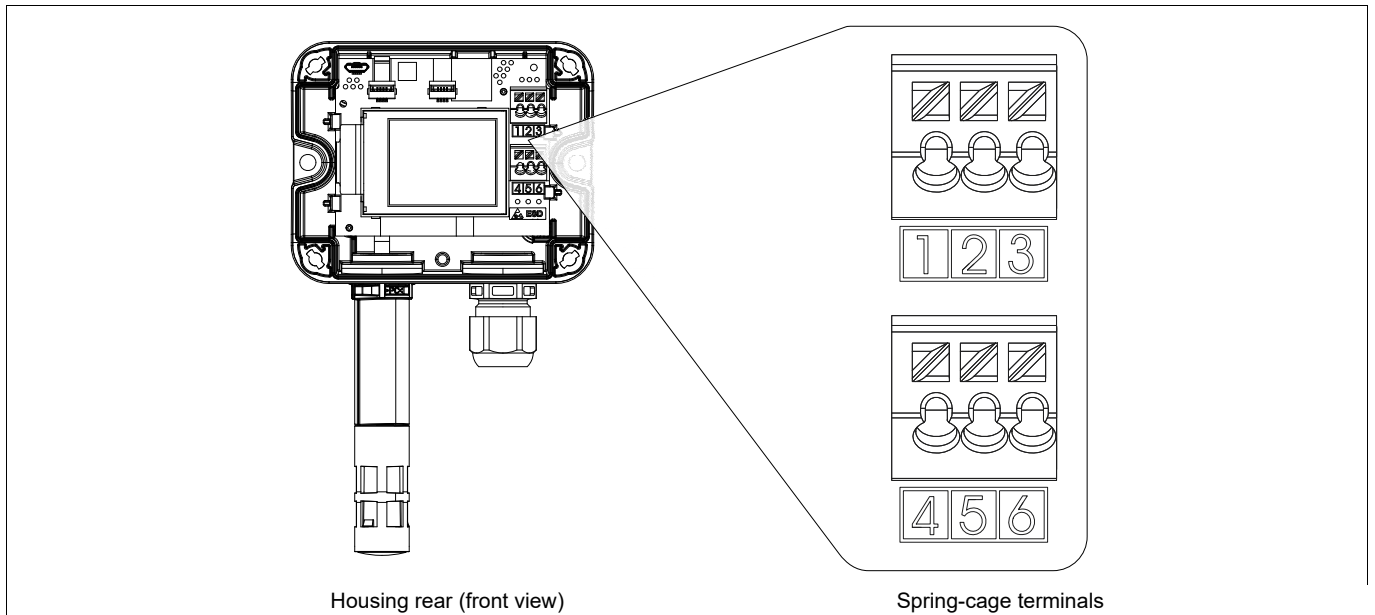


## Connection elements

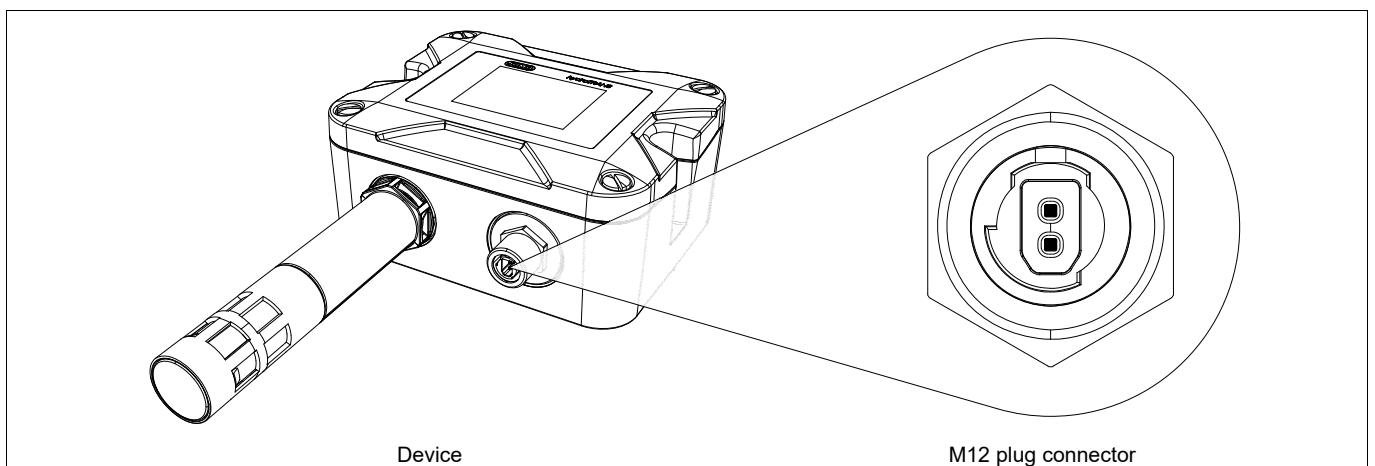
The connection elements in the data sheet provide information on product selection.

**For the electrical connection, only use the installation instructions or the operating manual.**

### Device with analog output/RS485



### Device with SPE



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## Terminal assignment

### Spring-cage terminals

Designation	Description	Assignment
Analog output	Relative humidity <sup>a</sup>	1
	Temperature <sup>a</sup>	2
	CO <sub>2</sub> <sup>a</sup>	3
	Analog output GND	4
	DC 24 V	5
	GND	6

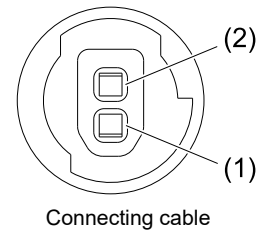
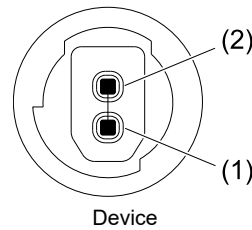
<sup>a</sup> Standard

<sup>b</sup> Optional extra

Designation	Description	Assignment
RS485	RS485 A (D+)	1
	RS485 GND <sup>b</sup>	2
	RS485 B (D-)	3
	-	4
	DC 24 V	5
	GND	6

### M12 plug connector

Designation	Description	Assignment
SPE	RxTx+/PoDL+	1 WH (white)
	RxTx-/PoDL-	2 BU (blue)



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## Order details

	<b>(1) Basic type</b>
907042	JUMO hydroTRANS S20 – Humidity and temperature transmitter with optional CO <sub>2</sub> module, wall-mounted version
	<b>(2) Basic type extension</b>
11	RH – T
12	RH – T – CO <sub>2</sub>
	<b>(3) Version</b>
0	Standard
	<b>(4) Measuring range</b>
15	0 to 100 % RH/-40 to +80 °C
17	0 to 95 % RH/-10 to +60 °C/10000 ppm
	<b>(5) Output</b>
009	4 to 20 mA (per default)/0 to 10 V combination output, configurable
530	RS485 Modbus
535	SPE with PoDL (Modbus TCP slave) <sup>a</sup>
	<b>(6) Extra code</b>
000	None
775	DAkkS (DKD) calibration (service), please state desired test points in plain text
994	Integrated display

<sup>a</sup> Only available with CO<sub>2</sub> module and display.

Order code                                    **(1)**                    **(2)**                    **(3)**                    **(4)**                    **(5)**                    **(6)**                    , ...<sup>a</sup>  
 Order example                                907042                /            12                -            0                -            17                -            009            /            994

<sup>a</sup> List extra codes in sequence and separate using commas.

## Stock versions

Order code	Part no.
907042/11-0-15-009/000	00770468
907042/11-0-15-009/994	00777380
907042/11-0-15-009/000	30048052
907042/11-0-15-009/994	30048452
907042/11-0-15-530/000	30048563
907042/12-0-17-535/994	30049027
907042/11-0-15-530/994	30049446
907042/12-0-17-009/000	30049454
907042/12-0-17-009/994	30049455
907042/12-0-17-530/000	30049456
907042/12-0-17-530/994	30049457

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## Accessories

### Device with analog output/RS485

Designation	Part no.
USB cable, A to Micro-B	00616250
Plastic sinter filter (Ø = 18 mm)	00754581
Plastic membrane filter (Ø = 18 mm)	30048149

### Device with SPE

Designation	Part no.
USB cable, A to Micro-B	00616250
Plastic membrane filter (Ø = 18 mm)	30048149

## Scope of delivery

### Device with analog output/RS485

Device in the ordered version
Brief instructions
Cable fitting
Thread sealing ring
2 Fastening screws (socket button self-tapping screw 4.8 × 38)

### Device with SPE

Device in the ordered version
Brief instructions
2 Fastening screws (socket button self-tapping screw 4.8 × 38)