

JUMO GmbH & Co. KG
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JUMO Process Control, Inc.
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Internet: www.jumousa.com



JUMO hydroTRANS S20

Humidity and temperature transmitter with optional CO₂ module, wall-mounted version

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 (CO₂)

Interfaces

- RS485
- USB
- Single Pair Ethernet (SPE)

Areas of application

- Building automation, home automation, smart home
- Climate monitoring
- Ventilation systems
- Freight forwardings, storage

Special features

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



Type 907042 without and with display



Single Pair Ethernet

Type 907042 with display

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Approval marks and certificates



Certificates for approved device versions are available for download on the manufacturer's website.

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 version 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	
Cable diameter	4.5 to 10 mm with M16 × 1.5 cable fitting
Conductor cross section	
Without ferrule	0.2 to 1.5 mm ²
With ferrule	0.25 to 1.5 mm ²
Stripping length	
Without ferrule	8 mm
With ferrule	10 mm
Temperature resistance	≥ 80 °C
For UL applications	
Approved cables ^a	CYJV2/8, CYJV/7, PVVA2/8, PVVA/7

^a The cables must be suitable for the voltage, current and temperature used.

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Device version 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	
Cable diameter	4.5 to 10 mm with M16 × 1.5 cable fitting
Conductor cross section	
Without ferrule	0.2 to 1.5 mm ²
With ferrule	0.25 to 1.5 mm ²
Stripping length	
Without ferrule	8 mm
With ferrule	10 mm
Temperature resistance	≥ 80 °C
For UL applications	
Approved cables ^a	CYJV2/8, CYJV/7, PVVA2/8, PVVA/7

^a The cables must be suitable for the voltage, current and temperature used.

Device version 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, shielded
Bandwidth	≥ 20 MHz
Line length	≤ 500 m (≥ AWG 22 at ≥ DC 24 V supply voltage into the cable)
DC loop resistance	< 59 Ω
Temperature resistance	≥ 80 °C

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Inputs

Measurands

Relative humidity

Measuring range	0 to 100 % RH
With CO ₂ module	0 to 95 % RH
Accuracy	
Stabilization time after initial startup	≥ 60 h
Typical	±2.0 % RH
Max.	±2.5 % RH
Reference conditions	
Humidity	≥ 30 % RH
Sampling rate	1 s

Temperature

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

Carbon dioxide (CO₂)

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

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Outputs

Device version with analog output

Current output	
Function	Output of measurands
Measured values	Relative humidity, temperature, optional: carbon dioxide (CO ₂)
Calculated values	Dew point, frost point, wet-bulb temperature, absolute humidity, mixing ration, partial water vapor pressure, specific enthalpy
Signal range	4 to 20 mA
Output signal limits	0 to 22 mA
Accuracy	≤ ±0.1 % 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	
Function	Output of measurands
Measured values	Relative humidity, temperature, optional: carbon dioxide (CO ₂)
Calculated values	Dew point, frost point, wet-bulb temperature, absolute humidity, mixing ration, partial water vapor pressure, specific enthalpy
Signal range	0 to 10 V
Output signal limits	0 to 11 V
Accuracy	≤ ±0.1 % 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

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 ^a 8-1-odd 8-1-even 8-2-none
Data transfer rate	9600 baud 19200 baud 38400 baud ^a 57600 baud 115200 baud
Minimum response time	0 to 500 ms
Device address	1 to 254

^a Default setting

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

SPE

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

Display

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

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Environmental influences

Admissible ambient temperature	-40 to +80 °C
With CO ₂ module	-10 to +60 °C
With display	-20 to +60 °C
Admissible storage temperature	-40 to +80 °C
With CO ₂ module	-30 to +70 °C
With display	-30 to +60 °C
Protection type	DIN EN 60529
Housing	IP65
Max. site altitude	5,300 m above sea level
Climatic conditions	DIN EN 60721-3-3
Climate class	3K24
Air temperature	-25 to +55 °C
Relative humidity	≤ 100 % (95 % with CO ₂ module), non-condensing
Electromagnetic compatibility (EMC)	DIN EN IEC 61326-2-3:2022
Interference emission	Class B ^a
Interference immunity	Industrial requirement
Oscillation ^b	DIN EN 60068-2-6
Amplitude	0.15 mm at 10 to 58.1 Hz
Acceleration	20 m/s ² at 58.1 to 150 Hz
Shock ^b	DIN EN 60068-2-27
Peak acceleration	150 m/s ²
Shock duration	11 ms

^a The product is suitable for industrial use as well as for households and small businesses.

^b The CO₂ 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	~ 200 g

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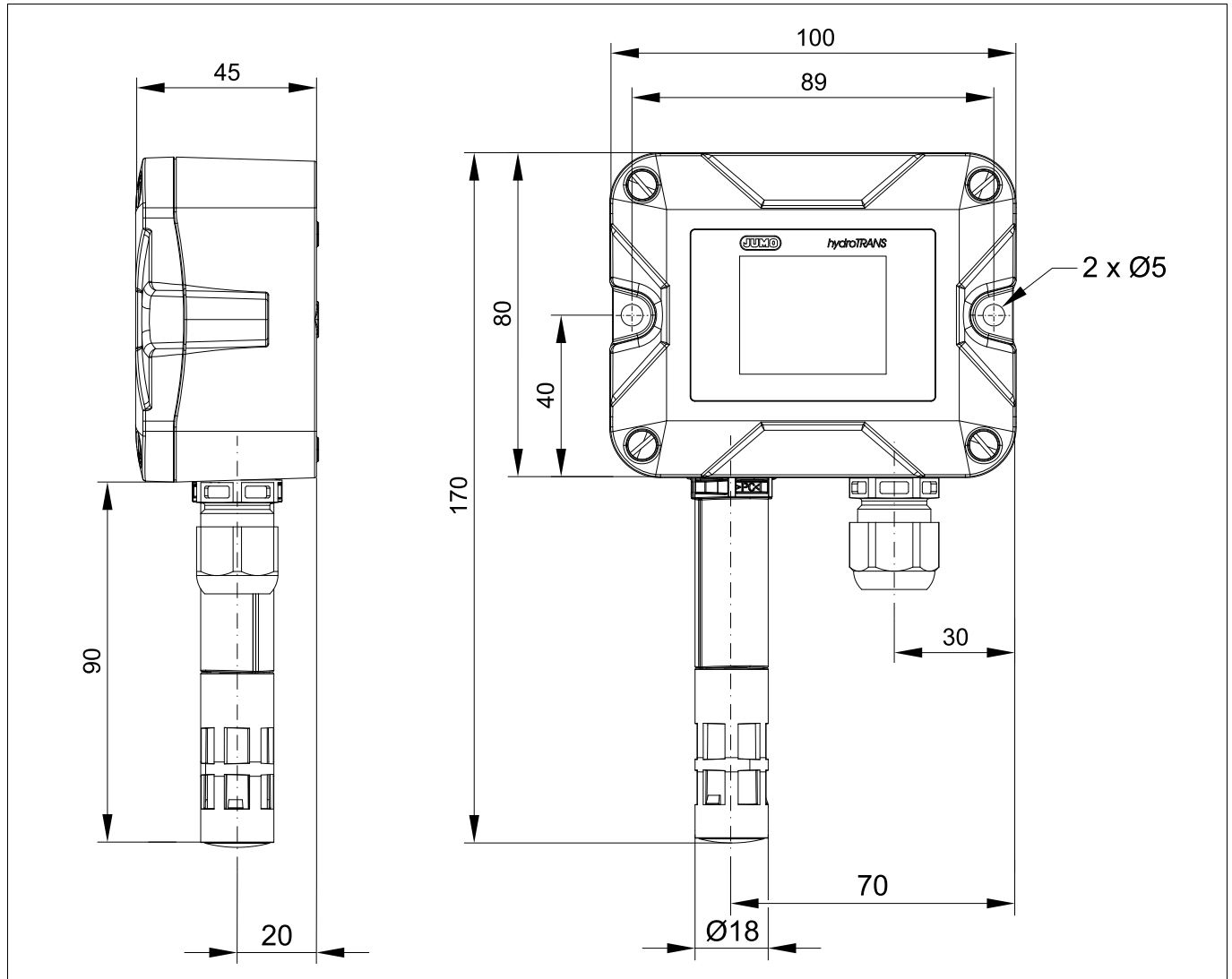
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**Dimensions****Device version with analog output/RS485**

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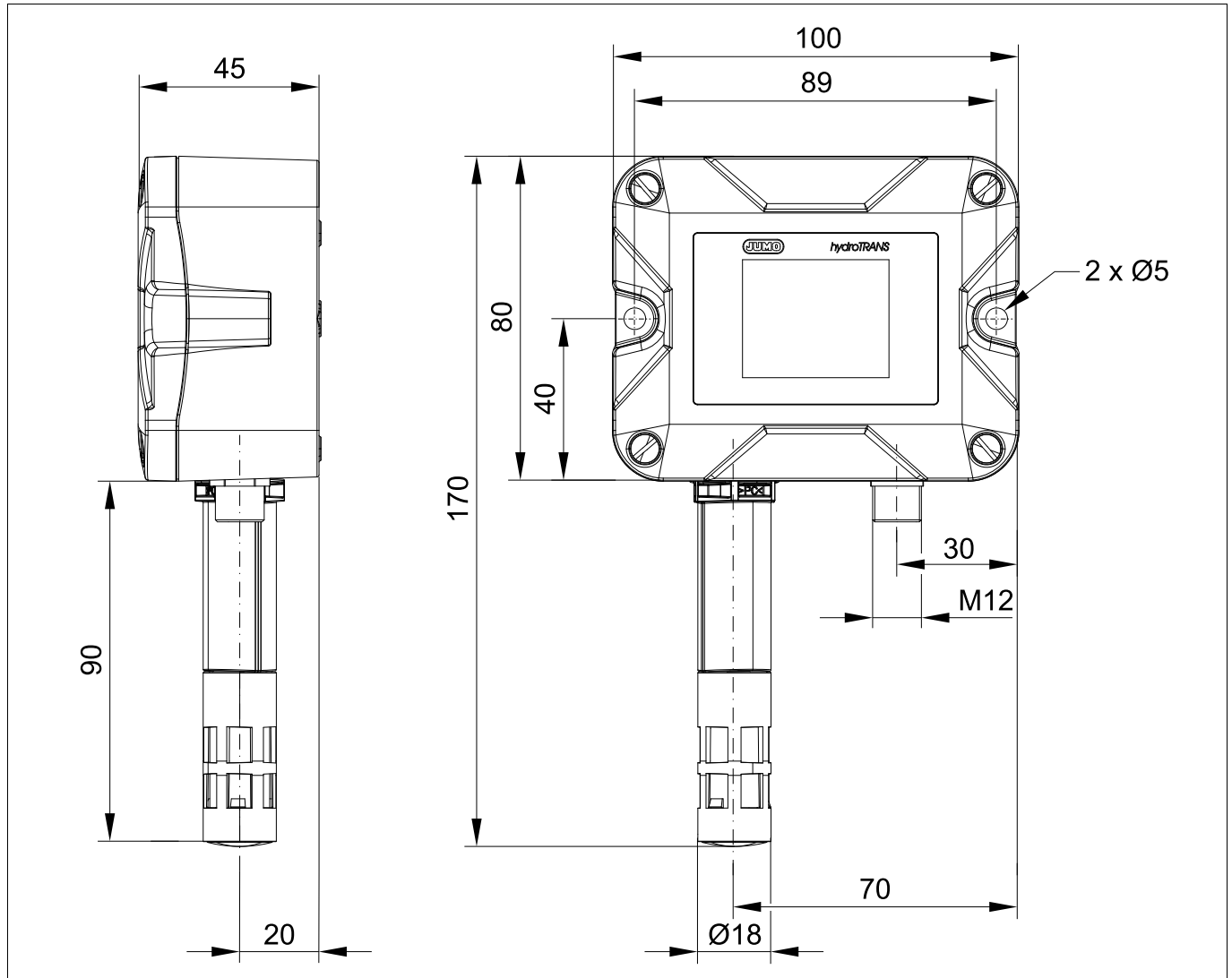
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**Device version with SPE**

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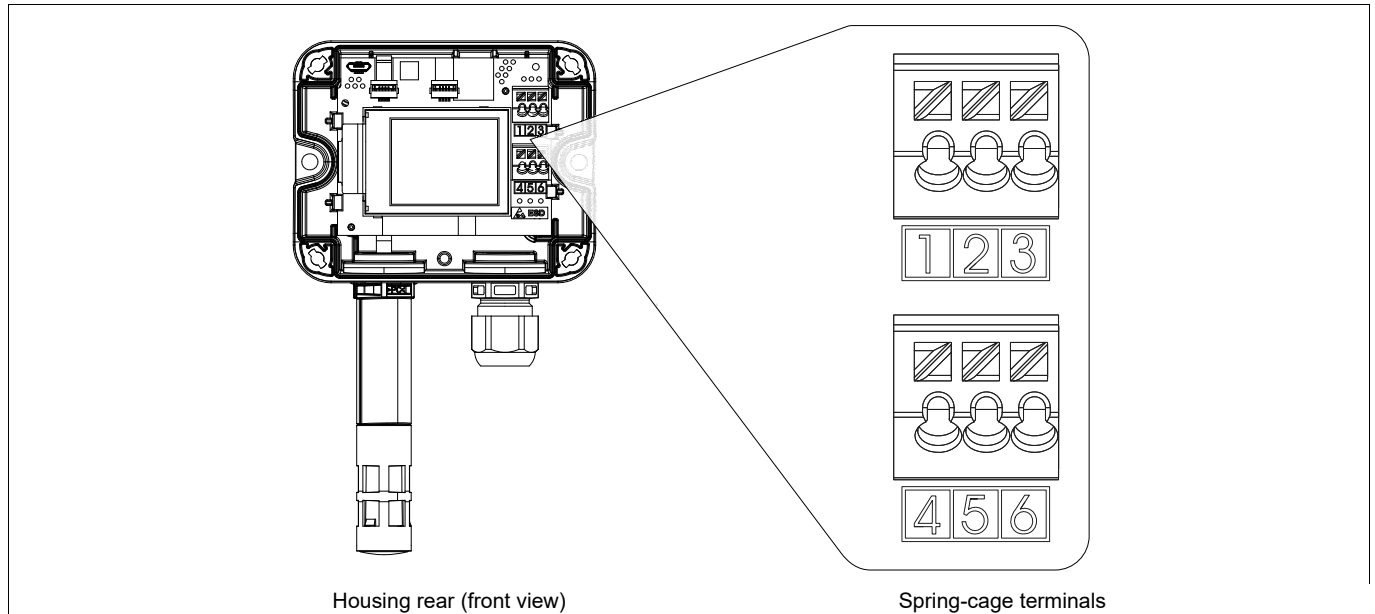


Connection elements

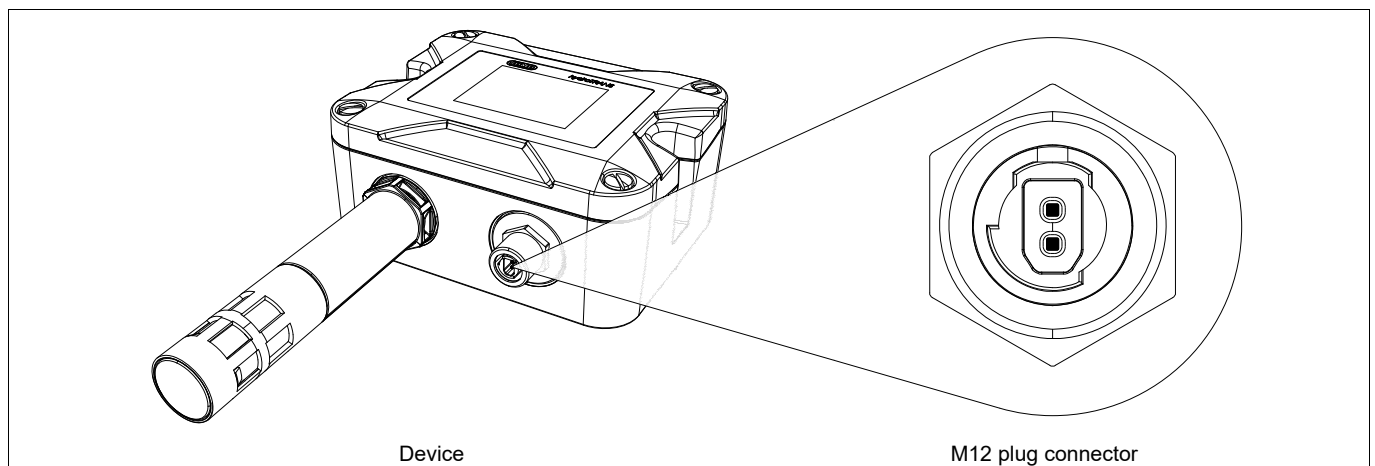
The connection elements in the data sheet provide information on product selection.

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

Device version with analog output/RS485



Device version with SPE



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Terminal assignment

Spring-cage terminals

Designation	Description	Assignment
Analog output	Relative humidity ^a	1
	Temperature ^a	2
	CO ₂ ^a	3
	Analog output GND	4
	DC 24 V	5
	GND	6

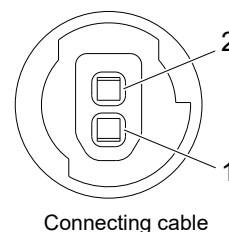
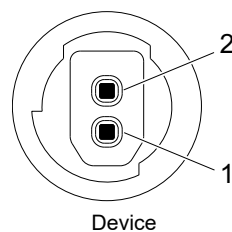
^a Standard

^b Optional extra

Designation	Description	Assignment
RS485	RS485 A (D+)	1
	RS485 GND ^b	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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Accessories

Without UL approval

Device version 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
JUMO hydroTRANS setup program	00775170

Device version with SPE

Designation	Part no.
USB cable, A to Micro-B	00616250
Plastic membrane filter (Ø = 18 mm)	30048149
JUMO hydroTRANS setup program	00775170
SPE network switch 4-port (10BASE-T1L)	30062113
SPE network switch 8-port (10BASE-T1L)	30062447
SPE network cable 10 m (with M12 connector)	30062455
SPE network cable 5 m (with M12 connector)	30062456
SPE network cable 2 m (with M12 connector)	30062457
SPE network cable 1 m (with M12 connector)	30062458
SPE connector according to IEC 63171-2 (IP20)	30062461
SPE data cable 2 × 0.35 GY shielded	30071873

Scope of delivery

Device version 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 version with SPE

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