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JUMO Wtrans B

Programmable head transmitter with radio transmission

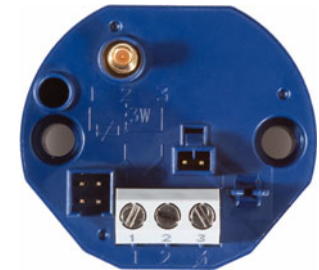
Brief description

The head transmitter, type "Wtrans B", designed for industrial applications consists of the transmitter including transmission unit and an antenna-battery case. The transmitter is designed for the integration into the connection heads, form B. Integration into customer-specific connection heads is also possible. The antenna-battery case is installed on the connection head via a thread (M20x1.5).

The measured value is transmitted wireless to the receiver of the Wtrans system, displayed on the LCD display and provided on the receiver via the RS485 interface as well as an analog output. The radio frequency within the ISM band (Industrial, Scientific and Medical Band) is 868.4 MHz. This frequency is almost insensitive to external interferences and allows transmission even in a rough industrial environment. When using the antenna wall holder with the 3 meter long cable for the receiver, the maximum open air range is 300m.

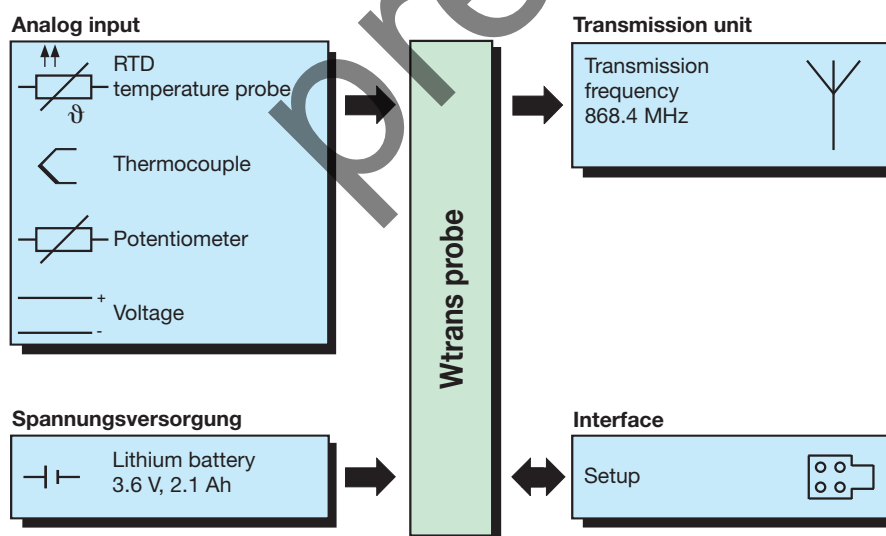
A lithium battery (3.6 V, 2.1 Ah) is used for the transmitter power supply.

Transmitter (probe) and receiver can be configured with the optional setup program (probe ID, transmission interval, measuring range and, if necessary, probe type). The configuration data can be archived on data carriers and printed. Changed parameters can be overwritten again with the factory settings at any time. The connection between transmitter and PC is established via a PC interface (USB/TTL or TTL/RS232 converter).



Type 707060/...

Block diagram



Special features

- ISM band 868.4 MHz
- Measuring input for RTD temperature probe, thermocouple, potentiometer and voltage
- Configurable probe ID
- Battery status monitoring
- Easy battery change
- Configurable via setup program
- Customer-specific linearisation (value pairs in tables or fourth order number), can be configured on the receiver
- Online chart of the measured values via setup program and receiver

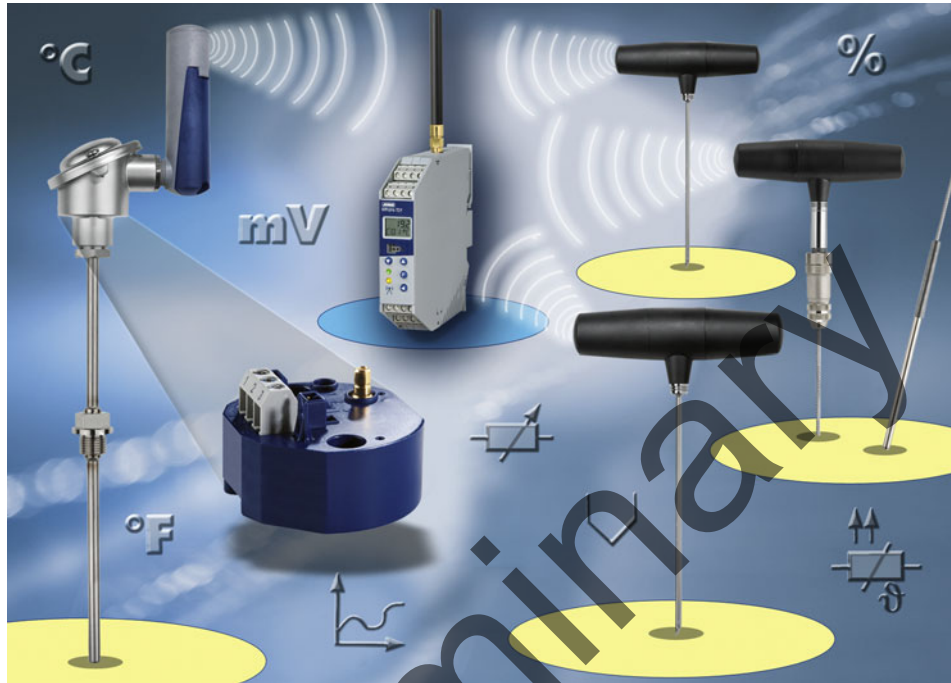
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JUMO Wtrans



The JUMO Wtrans device series also includes the receivers 902931/... and the probes 902930/... in addition to the head transmitter 707060/...

Technical data

Analog inputs

Thermocouples

Designation	Standard	Measuring range	Measuring accuracy
Fe-CuNi „L“	DIN 43710	-200 ... +900 °C	± 0.1 %
Fe-CuNi „J“	DIN EN 60584	-210 ... +1200 °C	± 0.1 % from -100 °C
Cu-CuNi „U“	DIN 43710	-200 ... +600 °C	± 0.1 % from -150 °C
Cu-CuNi T	DIN EN 60584	-270 ... +400 °C	± 0.1 % from -150 °C
NiCr-Ni K	DIN EN 60584	-270 ... +1372 °C	± 0.1 % from -80 °C
NiCr-CuNi „E“	DIN EN 60584	-270 ... +1000 °C	± 0.1 % from -80 °C
NiCrSi-NiSi „N“	DIN EN 60584	-270 ... +1300 °C	± 0.1 % from -80 °C
Pt10Rh-Pt „S“	DIN EN 60584	-50 ... +1768 °C	± 0.15 %
Pt13Rh-Pt „R“	DIN EN 60584	-50 ... +1768 °C	± 0.15 %
Pt30Rh-Pt6Rh „B“	DIN EN 60584	0 ... 1820 °C	± 0.15 % from 400 °C
W5Re-W26Re „C“		0 ... 2320 °C	± 0.15 % from 500 °C
W3Re-W25Re „D“		0 ... 2495 °C	± 0.15 % from 500 °C
W3Re-W26Re		0 ... 2400 °C	± 0.15 % from 500 °C
Chromel-Copel		-200 ... +800 °C	± 0.15 % from -80 °C
Chromel-Alumel		-200 ... +1372 °C	± 0.1 % from -80 °C
PLII (Platinel II)		0 ... 1395 °C	± 0.15 %
MoRe5-MoRe41		0 ... 2000 °C	± 0.15 % from 500 °C
Cold junction		Pt1000 internal	
Cold junction accuracy		± 1 K	

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RTD temperature probe

Designation	Standard	Measuring range	Measuring accuracy
Pt100 (TK value = 3.85×10^{-3} 1/K)	DIN EN 60751	-100 ... +200 °C -200 ... +600 °C	± 0.1 K ± 0.2 K
Pt500 (TK value = 3.85×10^{-3} 1/K)	DIN EN 60751	-100 ... +200 °C -200 ... +600 °C	± 0.1 K ± 0.2 K
Pt1000 (TK value = 3.85×10^{-3} 1/K)	DIN EN 60751	-100 ... +200 °C -200 ... +600 °C	± 0.1 K ± 0.2 K
Ni 100 (TK value = 6.18×10^{-3} 1/K)	DIN 43760	-60 ... +250 °C	± 0.2 K
Ni 500 (TK value = 6.18×10^{-3} 1/K)	DIN 43760	-60 ... +150 °C	± 0.2 K
Ni 1000 (TK value = 6.18×10^{-3} 1/K)	DIN 43760	-60 ... +150 °C	± 0.2 K
Pt100 (TK value = 3.917×10^{-3} 1/K)	JIS 1604	-100 ... +200 °C -200 ... +600 °C	± 0.1 K ± 0.2 K
Pt50 (TK value = 3.91×10^{-3} 1/K)	ST RGW 1057 1985	-100 ... +200 °C -200 ... +600 °C	± 0.1 K ± 0.2 K
Pt100 (TK value = 3.91×10^{-3} 1/K)	GOST 6651-94 A.1	-100 ... +200 °C -200 ... +600 °C	± 0.1 K ± 0.2 K
Cu50 (TK value = 4.26×10^{-3} 1/K)	GOST 6651-94 A.4	-50 ... +200 °C	± 0.2 K
Cu100 (TK value = 4.26×10^{-3} 1/K)	GOST 6651-94 A.4	-50 ... +200 °C	± 0.2 K
Connection type		2-wire or 3-wire circuit	
Sensor lead resistance 2-wire circuit 3-wire circuit		Measuring resistance + ≤ 22 Ω Total lead resistance 11 Ω per line	
Probe current		< 0.5 mA	
Lead compensation		Not required for three wire circuit (max. admissible 11 Ω per line). Can be configured on the probe with 2-wire circuit (≤ 22 Ω).	

Potentiometer

Designation	Measuring range	Measuring accuracy
Potentiometer	< 400 Ω ≥ 400 Ω ... ≤ 4000 Ω > 4000 Ω ... ≤ 10000 Ω	± 400 mΩ ± 4 Ω ± 10 Ω
Connection type		2-wire or 3-wire circuit
Sensor lead resistance 2-wire circuit 3-wire circuit		≤ 22 Ω ≤ 11 Ω per line

Voltage input

Designation	Measuring range	Measuring accuracy
Voltage input	0 ... 50 mV	± 0.2 %

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Output (radio transmission)

Probe ID	max. 5-digit ID, factory-set, can be configured customer-specific
Transmission interval	adjustable from 5 ... 3600 s (ex-factory 15 s)
Transmission frequency	ISM band 868.4 MHz (Europe)
Transmission capacity	+10 dBm
Open air range	Max. 300 m when using the antenna wall holder of the receiver and 3 m long antenna cable. When installing the antenna directly onto the receiver, a reduced range of approx. 40% must be taken into account.
Output signal Thermocouple RTD temperature probe Potentiometer Voltage	Voltage (mV) resistance (Ω) Percent (%) and resistance (Ω) Voltage (mV)
Configuration	with setup program
Configurable parameters	Probe ID (max. 5-digit ID) and transmission interval

Electrical data

Voltage supply Lithium battery Size	Rated voltage: 3.6 V, rated capacity: 2.1 Ah AA
Operating life	approx. 1 year with the factory-set values (transmission interval = 15s) and at room temperature (fast transmission interval and high or low ambient temperature reduce the battery operating life)
Battery change	only use the lithium battery available as accessories

Environmental influences

Transmitter in the B head with antenna-battery case

Ambient temperature range	-30 ... +85 °C
Storage temperature range / storage humidity	-40 ... +85 °C / rel. humidity \leq 95 %
Temperature coefficient ^a Thermocouple RTD temperature probe Potentiometer Voltage	$\leq \pm 0.005$ % / K deviation from 22 °C plus accuracy of the cold junction $\leq \pm 0.005$ % / K deviation from 22 °C $\leq \pm 0.01$ % / K deviation from 22 °C $\leq \pm 0.005$ % / K deviation from 22 °C
Climate class	10 cycles with 10 °C / 80 °C, as per IEC 68-2-30, rel. humidity 95 %, during operation
Vibration resistant	as per GL characteristic line 2
Admissible mechanical shock resistance	10 g / 6 ms, as per DIN IEC 68-2.29
Electromagnetic compatibility (EMC) Interference emission Interference resistance Radio frequency spectrum	as per DIN EN 61326-1 Class B Industrial requirement ETSI EN 300 220-1 (V 2.3.1) and ETSI EN 300 220-2 (V 2.3.1)

^a All accuracy values in % refer to the maximum measuring range.

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Casing

Transmitter

Type	Plastic case to be installed in connection head, form B
Material	polycarbonate
Flammability class	UL 94 V2
Dimensions Diameter Height with/without connector	44 mm 31 mm / 27 mm
Protection type	IP65, when installed (with suitable head, form B)
Connections Probe Antenna Voltage supply Setup	3-pole connection terminal RM 5 mm, conductor cross-section 1.5 mm ² SMB connector 2-pole multi-pin connector RM 2.54 mm 4-pin connector
Weight	approx. 35 g

Antenna-battery case

Type	Plastic case with M20x1.5 thread for connection head, form B
Material	Polyetherimide
Flammability class	UL 94 HB or UL 94 V-0
Dimensions Diameter Height	30 mm 115 mm
Protection type	IP65, as per DIN EN 60529
Connection Antennae Battery connection	SMB inlet, 50 Ω 2-pole connector RM 2.54 mm
Operating position	preferably vertical (optimum alignment to the receiver antenna)
Weight (including battery)	approx. 80 g

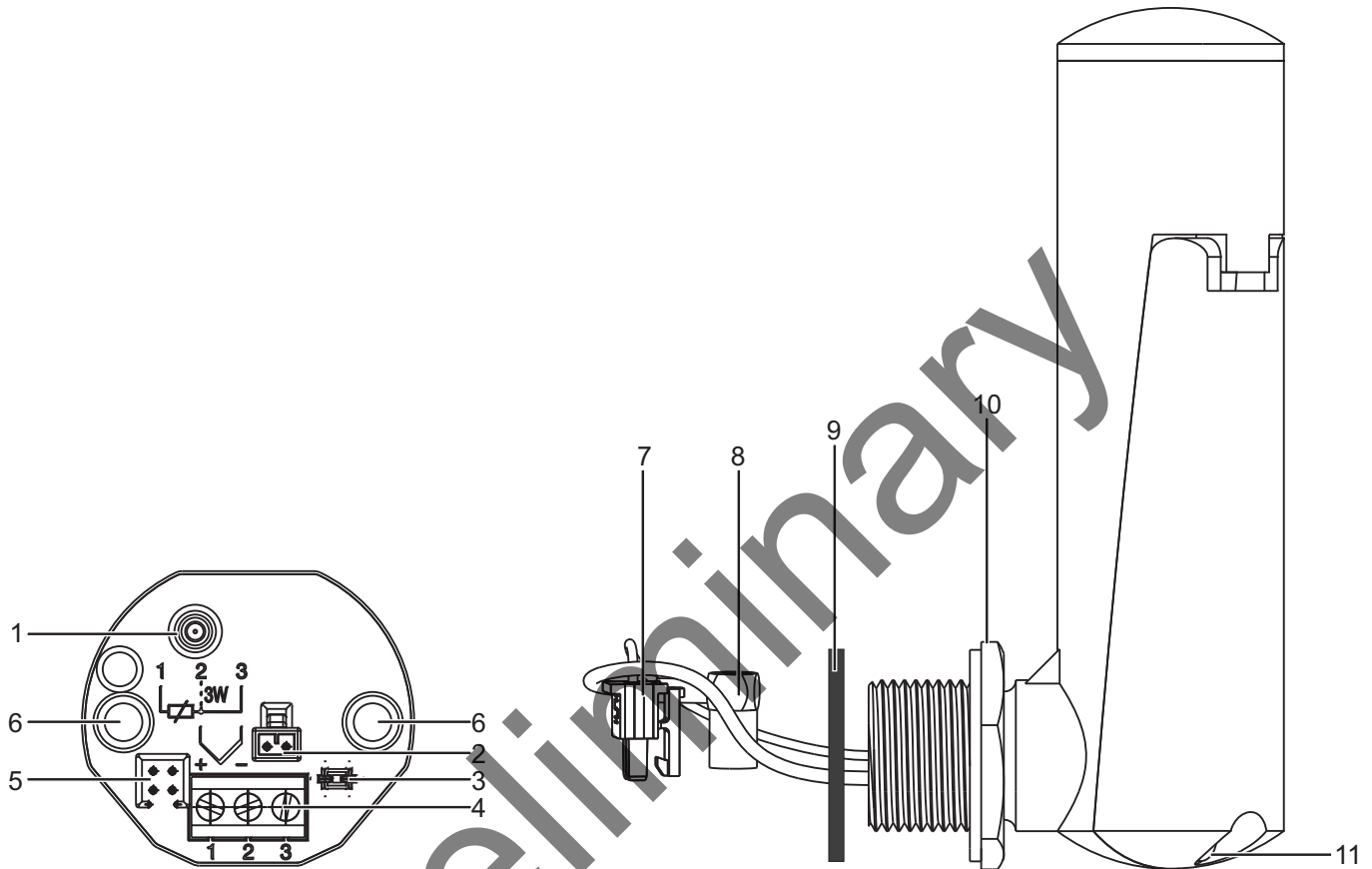
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Connection elements and connectors




- 1 SMB antenna connector (antenna connection)
- 2 Voltage supply connector (battery connection)
- 3 Cable guide for antenna cable and voltage supply
- 4 Probe connection
- 5 Setup connector
- 6 Fastening holes for installation in the connection head, form B
- 7 Voltage supply socket (battery connection)
- 8 SMB antenna socket (antenna connection)
- 9 Seal
- 10 Locknut
- 11 Battery lid screw

Connection diagram

The connection plan contained in the data sheet provides initial information about the connection possibilities. Only use the assembly instructions or the operating manual for the electrical connection. The knowledge and the correct technical execution of the safety information/instructions contained in these documents being prerequisite for installation, electrical connection and commissioning/start-up as well as for safety during operation.

Voltage supply

Connection	Connector	Terminals	Symbol and terminal designation
Lithium battery, DC 3.6 V	2		

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Analog inputs

Connection	Connector	Terminals	Symbol and terminal designation
Thermocouple	4	2 and 3	
RTD temperature probe 2-wire circuit	4	1 and 3	
RTD temperature probe 3-wire circuit	4	1 to 3	
Potentiometer 2-wire circuit	4	1 and 3	
Potentiometer 3-wire circuit	4	1 to 3	
Voltage (0 ... 50 mV)	4	2 and 3	

Output

Connection	Connector	Terminals	Symbol and terminal designation
Antenna connector	1		

Interface

Connection	Connector	Terminals	Symbol and terminal designation
Setup	5		

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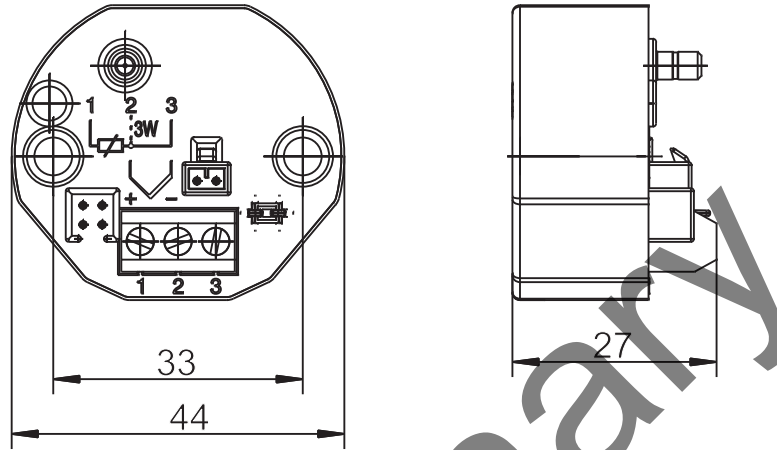
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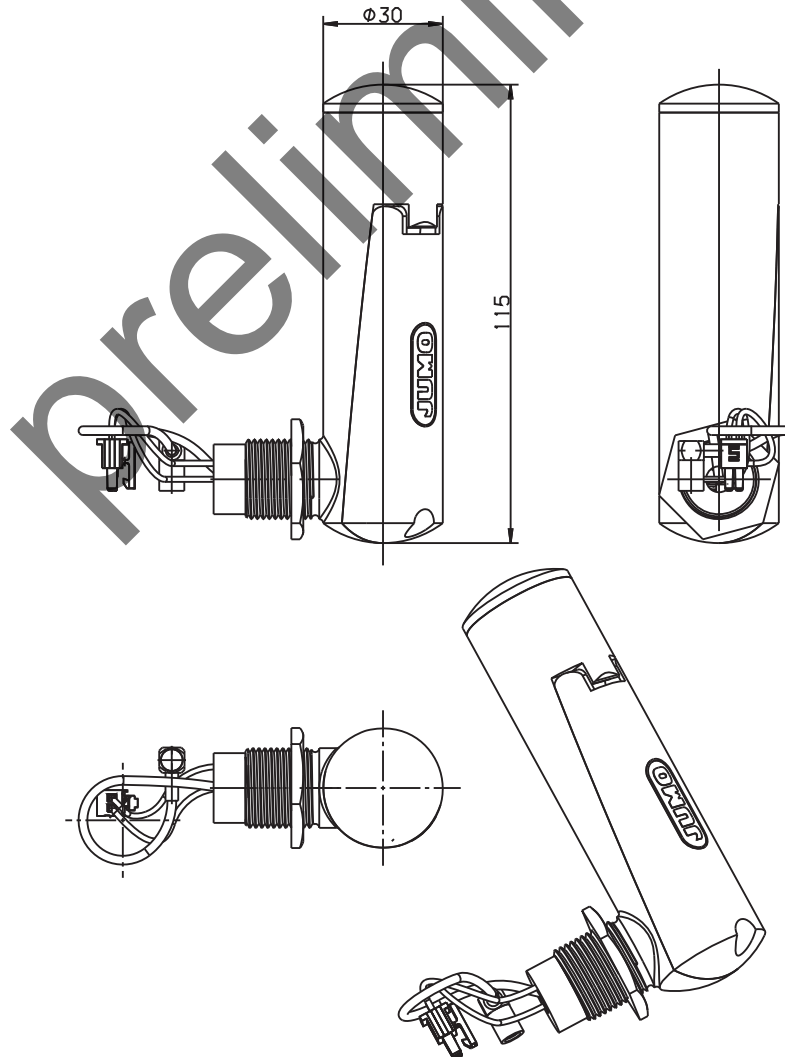


Dimensions

Transmitter



Antenna-battery case



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Order details

	(1) Basic type	
	707060	JUMO Wtrans B programmable head transmitter with radio transmission
	(2) Input	
x	8	Standard, with factory settings
x	9	Customized programming according to specification ^a
	(3) Output (probe)	
x	10	Transmission frequency 868.4 MHz (Europe)
	(4) Extra codes	
x	000	no extra code

^a Please specify the probe ID, transmission interval, measuring range and, if necessary, the probe type in plain text.

	(1)	(2)	(3)	(4)
Order code	707060	/		-
Order example	707060	/	8	-
			10	/
				000

Delivery package

- 1 transmitter in the version ordered
- 1 antenna-battery case with reverse battery protection connection cables
- 1 Lithium battery 3.6 V, 2.1 Ah
- 1 Operating manual B70.7060.0

Accessories

Setup program on CD-ROM, multilingual	Sales No.:
Lithium battery 3.6 V, 2.1 Ah	70/00??????
PC interface with USB/TTL converter, adapter (socket connector) and adapter (pins)	??/00??????
PC interface with TTL/RS232 converter and adapter (socket connector)	70/00456352
	70/00350260

JUMO Wtrans - receiver/probe

		Data sheet
JUMO Wtrans receiver	Receiver (voltage supply AC 110 ... 240 V or AC/DC 20 ... 30 V)	90.2931
Type T01.EC1	4x analog outputs	
Type T01.EC3	2x analog outputs and 2x relay outputs	
JUMO Wtrans probe	Insertion RTD temperature probe	90.2930
Type T01.G1	Ambient temperature, handle: -30 ... +85 °C	
Type T02.G1	Ambient temperature, handle: -25 ... +125 °C	
JUMO Wtrans probe	Mineral insulated RTD temperature probe with flexible sheath	90.2930
Type T01.G1	Ambient temperature, handle: -30 ... +85 °C	
Type T02.G1	Ambient temperature, handle: -25 ... +125 °C	
JUMO Wtrans probe	With M12 connector for RTD temperature probe	90.2930
Type T01.G2	Ambient temperature, handle: -30 ... +85 °C	
Type T02.G2	Ambient temperature, handle: -25 ... +125 °C	
JUMO Wtrans B	Programmable head transmitter with radio transmission	70.7060