JUMO Wtrans probe
RTD temperature probe with wireless transmission of the measured values

- For measured temperatures from -30 ... +260°C or -200 ... +600°C
- For mobile or stationary temperature measurement
- Open air range 300m
- No wiring work due to modern radio technology
- Fail-safe transmission with telegram coding

Wtrans probes are used in connection with corresponding Wtrans receivers for the mobile or stationary temperature measurement within the application range of -30 ... +260°C or -200 ... +600°C. The ambient handle temperature must be between -30 ... +85°C. The measured temperature value is transmitted wireless to the receiver of the Wtrans system, displayed on the system and provided on the Wtrans receiver as a digital RS485 interface and analog outputs and/or relay outputs. The radio frequency within the ISM band (Industrial, Scientific and Medical Band) is 868.4 MHz or 915 MHz. These frequencies are almost insensitive to external interferences and allow transmission even in a rough industrial environment. When using the antenna wall holder with the 3m long cable for the receiver, the maximum open air range is 300m.

The RTD temperature probe transmitter is fitted in the oil-resistant and acid-proof handle. The system has a shakeproof design. The protection class is IP67. The stainless steel thermowell is available with flat, oblique or concentric insertion tip. The fitting length is between 50 ... 1000mm.

The measuring insert is equipped with a Pt 1000 temperature probe according to EN 60 751, class A in 3-wire-circuit as a standard. The 902930/50 ... type is additionally equipped with a stainless steel neck tube and is available with an M12 connection for Pt 1000 RTD temperature probes.

A lithium battery with 3.6V, 2.1Ah is used to supply voltage to the Wtrans probe.

**Block diagram**

**Analogue input**
- Pt 1000, Class A in 3-wire-circuit; operating temperature -30 to +260 °C
- or machine connector M12x1, 4-pin according to IEC 60947-5-2; operating temperature -200 to +600 °C

**Voltage supply**
- Lithium battery 3.6V, 2.1Ah

**Transmitter unit**
- Transmission frequency 868.4 MHz or 915 MHz

**Wtrans probe**

**Interface**
- Setup

**Matching Wtrans receivers**
- Max. 16 Wtrans probes per Wtrans receiver
- Low wiring work due to modern radio technology
- Radio frequency 868.4 MHz or 915 MHz; in the 915 MHz frequency band, ten frequencies can be configured
- Interface RS485 with Modbus protocol
- Four analog outputs 0(4) ... 20mA/0 ... 10V or two analog outputs (0)4 ... 20mA/0 ... 10V and two relay outputs AC 230V
- For installation on top hat rail 35mm x 7.5mm according to EN 60 715

For further information please refer to data sheet 90.2931

**Approval/approval marks** (see Technical Data)

2009-03-18/00473250
Technical Data

### Analog input

- **Measuring input**: Pt 1000 according to EN 60 751, in 3-wire-circuit
- **Operating temperature range**: Type 902930/10 ... and 902930/12 ... -30 ... +260°C, type 902930/50 ...: -200 ... +600°C (relating to the thermowell up to approx. 20mm below the handle)
- **Temperature probe accuracy**: Class A ±(0.15K + 0.002 x ItI)°K
- **Probe lead resistance**: ≤11 Ohm per lead with 3-wire-circuit
- **Probe current**: ≤500µA
- **Measuring circuit monitoring**: Detection of probe break and short-circuit

### Output (radio transmission)

- **Probe detection (probe ID)**: max. 5-digit ID, factory-set, can be configured customer-specific
- **Transmission interval**: adjustable from 1 ... 3600s (ex-factory 10s)
- **Transmission frequency**: ISM band 868.4 MHz (Europe) or 915 MHz (America, Australia, Canada and New Zealand); in the 915 MHz frequency band, ten frequencies can be configured
- **Transmission capacity**: +10dBm
- **Open air range**: max. 300m when using the antenna wall holder of the receiver and 3m long antenna cable. When installing the antenna directly onto the receiver, a reduced range of approx. 40% must be taken into account.
- **Output signal**: 882.2 ... 1977.1 ohm /H11470 -30 … +260°C; 185.2 ... 3137.1 ohm /H11470 -200 … +600°C;
- **Response time of the complete probe**: t₀,₉ ≤10s
- **Calibration accuracy of the electronic components**: ± ≤0,05%¹
- **Configurable parameters**: Probe ID (max. 5-digit ID), transmission interval, transmission frequency (with 915 MHz only)

### Voltage supply

- **Lithium battery**: Voltage: 3.6V, rated capacity: 2.1Ah
- **Operating life**: approx. 1 year with the factory-set values and at room temperature (a fast transmission interval and a high or low ambient temperature reduce the battery operating life)
- **Battery change**: only use the pre-converted lithium battery available as accessories

### Environmental influences

- **Ambient temperature range**: Type 902930/10 ... , 902930/12 ... and 902930/50 ...: -30 ... +85°C (handle incl. electronic components)
- **Storage temperature range**: Type 902930/10 ... , 902930/12 ... and 902930/50 ...: -40 ... +85°C (handle incl. electronic components)
- **Temperature influence**: ±≤0.0025%1/K; per K deviation from the reference temperature 22°C (±3K) (handle)
- **Ambient conditions**: rel.humidity ≤95% w/o condensation according to IEC 68-2-30
- **Vibration resistance**: max. 2g at 10 ... 2000Hz (referred to the handle with electronic components) acc.to DIN IEC 60 068-2-6
- **Admissible mechanical shock resistance**: 25g/6ms (relating to the handle including electronic components) IEC 68-2.29 per 1000 cycles

### EMC

- **- emitted interference**
- **- interference resistance**
- **- radio frequency spectrum**: DIN EN 61 326 Class B, Industrial requirements ETSI EN 300 220-1, V 1.3.1

### Case

- **Material**: PEI (Polyetherimid)
- **Flammability class**: UL 94 HB
- **Dimensions**: Diameter Ø approx. 32mm, length approx. 126mm, thermowell fitting length 50 ... 1000mm, 50 ... 10000mm for type 902930/12 ...
- **Protection class**: IP67 acc.to DIN EN 60 529 for type 902930/10 ... and 902930/12 ..., for type 902930/50 ... with M12 connection screwed-on only
- **Installation position**: any
- **Weight**: approx. 120g

¹ All accuracy specifications in % relating to the measuring range of 290K.
Approval/approval marks

<table>
<thead>
<tr>
<th>Approval marks</th>
<th>Inspection authority</th>
<th>Certificates/inspection numbers</th>
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<tr>
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<td>RSS210 Issue 7</td>
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<td>E201387-A1-UL-1</td>
<td>UL 61010-1</td>
<td>3.6V, type 902930/10</td>
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</table>

Dimensions

Connection diagram

- **Machine connector M12x1, 4-pin according to IEC 60 947-5-2**
- **Electrical connection assignment**
  - RTD temperature probes in 3-wire-circuit (input)
  - For a safe, interference free device operation, only connect shielded measuring inserts with shielded cables and connected shielding on both sides (shielding connected to thermowell and to machine connector M12).
Setup program

The setup program serves to configure transmitters and receivers by means of a PC. The configuration data can be archived on data carriers and printed.

Configurable parameters:
- Probe detection (probe ID)
- Transmission interval
- Transmission frequency (with 915 MHz only)

Factory-set values:
- Probe detection (probe ID) consecutively
- Transmission interval (10s)
- Transmission frequency (868.4 MHz or 915.4 MHz)

The setup program can be used to overwrite changed parameters with the factory settings at any time. The connection between probe and PC is established via a PC interface (USB/TTL or TTL/RS232 converter).
Order details: JUMO Wtrans probe T01.G1 Insertion temperature probe

(1) Basic type

902930/10  Wtrans probes T01.G1
           RTD insertion temperature probes

(2) Operating temperature range in °C
x  596  -30 ... +260°C
x  1006

(3) Measurement insert
x  1x Pt 1000 in 3-wire-circuit
x  2x Class A

(4) Tolerance class per DIN EN 60 751
x  1.9 Ø 1.9mm (particularly fast response) stepped down from Ø 4mm to Ø 1.9mm,
   only available with flat insertion tip
x  4 Ø 4mm
x  4.5 Ø 4.5mm
x  6 Ø 6mm

(5) Probe diameter D in mm
x  100 100mm
x  150 150mm
x  200 200mm
x  . . . Specification in plain text (50mm steps)

(7) Insertion tip
x  1 Flat
x  2 Concentric, angled at 25°
x  3 Oblique, angled at 45°

(8) Transmission frequency
x  10 ISM band 868.4 MHz (Europe)
x  20 915 MHz (America, Australia, Canada and New Zealand)

(9) Process connection
x  000 None
x  103 Screw connection (thread) G 3/8
x  104 Screw connection (thread) G 1/2
x  253 Thermowell screw connection G 3/8 (for a 6mm diameter only)
x  254 Thermowell screw connection G 1/2 (for a 6mm diameter only)

(10) Extra codes
x  000 None
x  778 Customer-specific transmission interval, factory setting 10s (specification in plain text between 1 ... 3600s)

Order code
Order example 902930/10 - 596 - 1006 - 2 - 4 - 100 - 2 - 10 - 000 / 000
**Scope of delivery**

1 device in the version ordered  
1 pre-converted lithium battery 3.6V, 2.1Ah with 2 black seals  
4 colour rings made of silicone (white, green, red, blue) for visual probe identification  
1 operating manual B 90.2930.0

**Accessories**

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<th>No.</th>
<th>Description</th>
<th>Sales No.</th>
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<td>1</td>
<td>Set-up program on CD-ROM, multilingual</td>
<td>90/00488887</td>
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<td>2</td>
<td>Pre-converted lithium battery 3.6V, 2.1Ah with 2 black seals</td>
<td>90/00489044</td>
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<td>3</td>
<td>Colour rings made of silicone (white, green, red, blue) for visual probe identification</td>
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<td>4</td>
<td>Colour cap set made of PEI (Polyetherimid) (content 10 caps, grey) for visual probe identification</td>
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<td>Wall holder for Wtrans probe with thermowell diameter 4.5mm</td>
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**Stock version**

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</table>
Order details: JUMO Wtrans probe T01.G1 Mineral insulated temperature probe

(1) Basic type

Wtrans probes T01.G1
902930/12
Mineral insulated temperature probe
with flexible thermowell

(2) Operating temperature range in °C

-30 ... +260°C

(3) Measurement insert

1x Pt 1000 in 3-wire-circuit

(4) Tolerance class per DIN EN 60 751

Class A

(5) Probe diameter D in mm

Ø 1.9 mm
Ø 3 mm
Ø 6 mm

(6) Fitting length EL in mm (100 ≤ EL ≤ 10000)

100 mm
150 mm
...
Specification in plain text (50 mm steps)

(7) Insertion tip

Flat

(8) Transmission frequency

ISM band 868.4 MHz (Europe)
915 MHz (America, Australia, Canada and New Zealand)

(9) Process connection

None
Thermowell screw connection G 1/4 (for a 6mm diameter only)
Thermowell screw connection G 3/8 (for a 6mm diameter only)
Thermowell screw connection G 1/2 (for a 6mm diameter only)
Thermowell screw connection G 3/4 (for a 6mm diameter only)
Thermowell screw connection M 8x1 (for a 3mm diameter only)
Thermowell screw connection M 10x1 (for a 6mm diameter only)
Thermowell screw connection 1/2-14NPT (for a 6mm diameter only)
Metal flange (for a thermowell diameter of 6mm only)

(10) Extra codes

None
Customer-specific transmission interval, factory setting 10s (specification in plain text between 1 ... 3600s)

Order code

902930/12 - 596 - 1006 - 2 - 3 - 100 - 1 - 10 - 000 / 000

Scope of delivery

1 device in the version ordered
1 pre-converted lithium battery 3.6V, 2.1Ah with 2 black seals
4 colour rings made of silicone (white, green, red, blue) for visual probe identification
1 Operating Manual 90.2930.0

Accessories

1 Set-up program on CD-ROM, multilingual 90/00488887
1 pre-converted lithium battery 3.6V, 2.1Ah with 2 black seals 90/00489044
4 colour rings made of silicone (white, green, red, blue) for visual probe identification 90/00489047
1 colour cap set made of PEI (Polyetherimid) (content 10 caps, brown) for visual probe identification 90/00525951
1 colour cap set made of PEI (Polyetherimid) (content 10 caps, green) for visual probe identification 90/00525952
1 colour cap set made of PEI (Polyetherimid) (content 10 caps, blue) for visual probe identification 90/00525953
1 PC interface with USB/TTL converter, adapter (socket connector) and adapter (pins) 70/00456352
1 PC interface with TTL/RS232 converter and adapter (socket connector) 70/00350260
1 Wall holder for Wtrans probe with thermowell diameter 4mm 90/00503317
1 Wall holder for Wtrans probe with thermowell diameter 4.5mm 90/00503326
1 Wall holder for Wtrans probe with thermowell diameter 6mm 90/00503328
1 Wall holder for Wtrans probe with thermowell diameter 12mm 90/00503329
Order details: JUMO Wtrans probe T01.G2 with M12 connection

(1) Basic type
902930/50
Wtrans probes T01.G2
with M12 connection
for RTD temperature probes

(2) Operating temperature range in °C
x 150 -200 ... +600°C

(3) Measuring input
x 1006 1x Pt 1000 in 3-wire-circuit

(4) Transmission frequency
x ISM band 868.4 MHz (Europe)
x 915 MHz (America, Australia, Canada and New Zealand)

(5) Extra codes
x 000 None
x 778 Customer-specific transmission interval, factory setting 10s (specification in plain text between 1 ... 3600s)

Order code
---/
Order example
902930/50 - 150 - 1006 - 10 / 000

Scope of delivery
1 device in the version ordered
1 pre-converted lithium battery 3.6V, 2.1Ah with 2 black seals
4 colour rings made of silicone (white, green, red, blue) for visual probe identification
1 Operating Manual 90.2930.0

Accessories

Push-in RTD temperature probe with Pt 1000 temperature probe and machine connector M12x1
1 Type 902105/30-386-1006-2-6-100-80-2500/315, 317
Thermowell diameter 6mm, fitting length 100mm, connection cable length 2500mm
1 Type 902105/30-386-1006-2-6-200-80-2500/315, 317
Thermowell diameter 6mm, fitting length 200mm, connection cable length 2500mm

Note: For screw-connections and flanges, refer to type sheet 90.9725

Stock version

Sales No.:

902930/50 - 150 - 1006 - 10 / 000 90/00506791