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**JUMO Process Control, Inc.**  
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# JUMO Wtrans RF-Series Wireless temperature probe T01.G1



Type 902930/10 ...

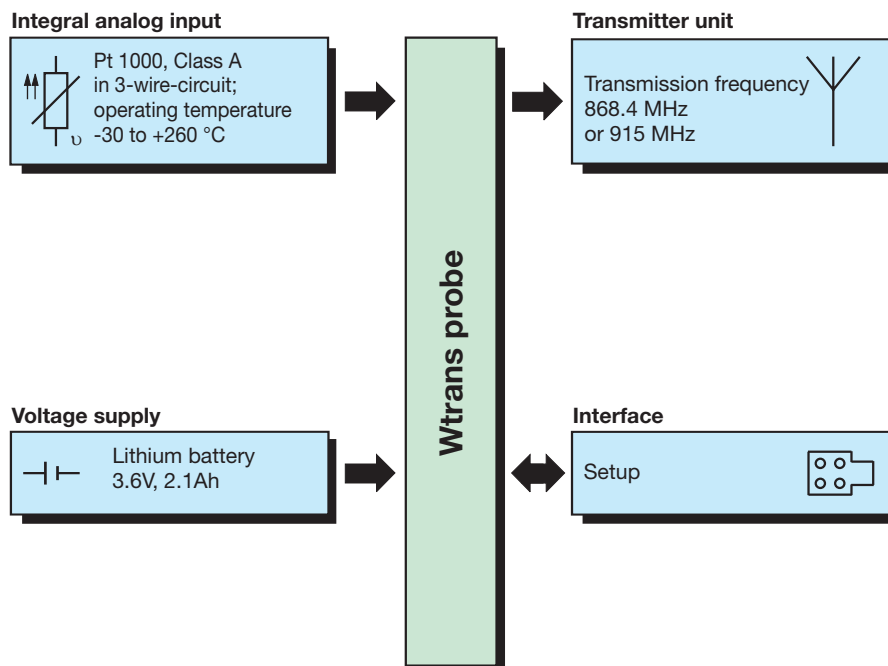
- For operating temperatures of -30 to +260°C
- For mobile or stationary temperature measurements
- Open-air range 300m
- No wiring cost thanks RF-technology
- Safe transmission through telegram frame coding

In connection with suitable Wtrans receivers, the Wtrans probe is used for the mobile and stationary measurement of temperatures within the range of -30 to +260°C. The ambient temperature of the electronic components in the handle may be -30 to +85°C. The measured temperature value is transmitted wireless to the receiver of the Wtrans system. The radio frequency within the ISM band is 868.4 MHz or 915 MHz. These frequencies are largely insensitive with regard to external perturbations and enable transmissions in rough industrial conditions. If the recommended antenna wall mounting is used the maximum open air range is 300m.

The handle contains the transmitter of the resistance thermometer. The unit is designed to be resistant against vibrations, oils and acids.

The protection class is IP67. The stainless steel thermowell is available with a flat, concentric or oblique insertion tip. The fitting length extends from 50 to 1000mm. The measuring insert contains a serial Pt 1000 temperature sensor to EN 60 751, Class A in 3-wire-circuit.

## Block structure



## Suitable Wtrans receiver

- Max. 16 Wtrans probes per Wtrans receiver
- Lower wiring cost thanks to modern radio technology
- Radio frequency 868.4 MHz or 915 MHz; within the frequency band 915 MHz, ten frequencies can be configured
- Interface RS485 with Modbus protocol
- 4x outputs 0(4) to 20mA/0 to 10V
- For mounting on DIN rail 35mm x 7.5mm to EN 60 715

More information  
 see data sheet 90.2931

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## Technical data

### Analog input

Measuring input	Pt 1000 to EN 60 751, Class A in 3-wire-circuit
Operating temperature range	-30 to +260 °C (relating to the thermowell unit, approx. 22mm below the handle)
Accuracy of the temperature sensor	$\leq \pm 0.15K \pm 0.002K \cdot t$

### Output (radio transmission)

Probe ID	max. 5-digit ID, factory setting, can be configured by the customer
Transmission interval	configurable from 1 to 3600 s (factory setting 10 s)
Transmission frequency	ISM band 868.4 MHz (Europe) or 915 MHz (America, Australia, Canada and New Zealand); within the frequency band 915 MHz, ten frequencies may be configured
Transmission power	minimum (-10 dBm), low (-2 dBm), high (+6 dBm) and maximum (+10 dBm)
Open-air range	max. 300m, if the antenna wall mounting and 3m antenna cable are used on the receiver side
Output signal	882.2 to 1977.1 ohms $\Delta$ -30 to +260 °C (resolution 17 bit)
Response time	$t_{0.9} \leq 10s$
Calibration accuracy of the electronic components	$\leq \pm 0.05\% ^1$
Configuration	with setup program
Configurable parameters	Probe ID (max. 5-digit ID), transmission interval, transmission power

### Voltage supply

Lithium battery	Voltage: 3.6V, nominal capacity: 2.1Ah
Service life	approx. 1 year with factory setting and at room temperature (high transmission power, short transmission intervals and high or low ambient temperature reduce the service life of the battery)
Battery replacement	only use Lithium batteries in original packaging

### Ambient factors

Ambient temperature range	-30 to +85 °C (handle including electronic components)
Storage temperature range	-40 to +85 °C (handle including electronic components)
Storage humidity	relative humidity $\leq 95\%$ , without condensation
Temperature influence	$\leq \pm 0.0025\% ^1 / K$ ; per K deviation from the reference temperature 22 °C ( $\pm 3K$ )
Climatic conditions	relative humidity 95%, without condensation according to IEC 68-2-30
Vibration resistance	max. 2g at 10 to 2000Hz (relating to handle with electronic components) according to IEC 60 068-2-6
Permitted mechanical shock resistance	25g/6ms (relating to handle with electronic components) IEC 68-2.29 per 1000 cycles
EMC	EN 61 326
- interference emission	Class A
- Immunity to interference	Industrial requirement
- radio frequency range	ETSI EN 300 220-1, V 1.3.1

### Housing

Material	PEI (Polyetherimide)
Flammability class	UL 94 HB
Dimensions	Diameter $\varnothing$ approx. 32mm, length approx. 126mm, Installation length of the thermowell 50 to 1000mm
IP-protection	IP67 to EN 60 529
Mounting position	any
Weight	approx. 120g

<sup>1</sup> All accuracy details in % from the measuring range of 290 °C.

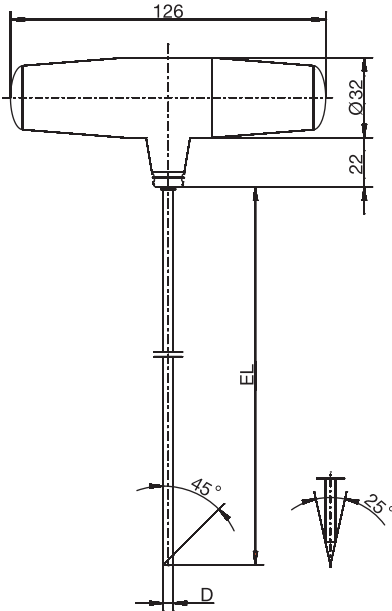
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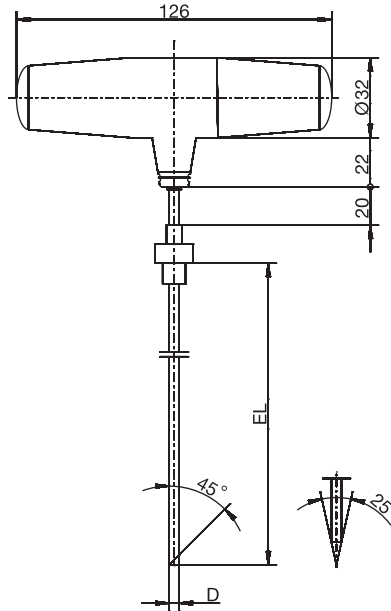
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## Dimensions



Type 902930/10 ...



Type 902930/10 ... with process connection

## Setup program

The setup program may be used to configure probes and receivers with a PC.

The configuration data can be stored on data carriers and printed out.

Configurable parameters are:

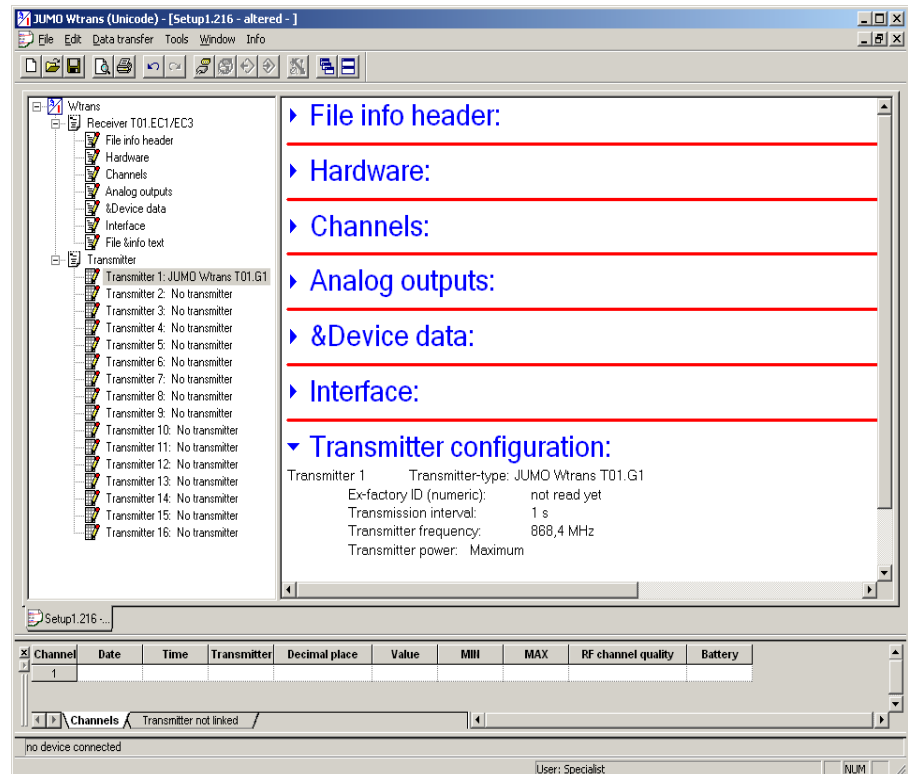
- Probe ID
- Transmission interval
- Transmission power
- Transmission frequencies (only at 915 MHz)

The factory settings are:

- Probe ID (continuous)
- Transmission interval (10s)
- Transmission frequency (868.4 MHz or 915.4 MHz)
- Maximum transmission power (+10 dBm)

The setup program allows to overwrite modified parameters with the factory setting at any time.

The connection between the probe and the PC is established using a PC interface (USB/TTL or TTL/RS232 converter).



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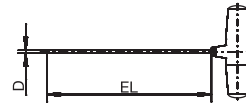
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**Order details: JUMO Wtrans RF-Series, wireless temperature probe T01.G1**

**(1) Basic type**

902930/10	JUMO Wtrans RF-Series wireless temperature probe T01.G1
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x	596	<b>(2) Operating temperature in °C</b> -30 to +260°C
x	1006	<b>(3) Measuring insert</b> 1x Pt 1000 in 3-wire-circuit
x	2	<b>(4) Tolerance class to EN 60 751</b> class A
x	4	<b>(5) Thermowell diameter D in mm</b> Ø 4mm
x	4.5	Ø 4.5mm
x	6	Ø 6mm
x	100	<b>(6) Fitting length EL in mm (50 ≤ EL ≤ 1000)</b> 100mm
x	150	150mm
x	200	200mm
x	...	please specify in plain text (50mm steps)
x	1	<b>(7) Insertion tip</b> flat
x	2	concentric, angled at 25°
x	3	oblique, angled at 45°
x	10	<b>(8) Transmission frequency</b> ISM band 868.4 MHz (Europe)
x	20	915 MHz (America, Australia, Canada and New Zealand)
x	000	<b>(9) Process connection</b> none
x	103	Screw connection G 3/8
x	104	Screw connection G 1/2
x	000	<b>(10) Extra codes</b> none
x	778	customer-specific transmission interval, factory setting 10s (please specify in plain text between 1 to 3600s)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
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Order example	902930/10	- 596	- 1006	- 2	- 4	- 100	- 2	- 10	- 000	/ 000

**Serial accessories**

Operating instructions 90.2930.0  
 Lithium battery 3.6V, 2.1Ah  
 Four colour rings from silicone (white, green, red, blue) for visual identification of the probe

**Accessories**

Setup program on CD-ROM, multilingual  
 Lithium-battery 3.6V, 2.1Ah  
 Four colour rings from silicone (white, green, red, blue) for visual identification of the probe  
 PC interface with USB/TTL converter, adapter (socket) and adapter (pins)  
 PC interface with TTL/RS232 converter and adapter (socket)

**Sales No.**

90/00488887  
 90/00489044  
 90/00489047  
 70/00456352  
 70/00350260

**Stock versions**

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