

## MTW1



### Wireless Temperature Transmitter

The Universal Wireless Temperature Transmitter MTW1 is specifically designed to meet the most rigorous requirements of operation in the industrial process environments. Due to its reduced dimensions, it may be installed in the DIN Form B Sensor connection head, in place of the traditional terminal blocks or current loop temperature transmitter. In its high RF power mode, it can communicate over a long distance range (up to 4 km line of sight). It accepts the most commonly used temperature sensors.

<b>Dimensions</b>	45ø x 23 mm
<b>Weight</b>	50g (approx.)
<b>Material</b>	Nylon 66
<b>Protection Index</b>	IP40

### Features

- **Universal Sensor Input**  
Resistance Thermometers, Thermocouples and DC Voltage Sources
- **Up To 4km Or 2km Distance (Los)**  
Transmission Up to 4km Distance (LOS) 868 MHZ  
Transmission Up to 2km Distance (LOS) 2,4 GHZ
- **Real Time Transmission**  
Process and Ambient Temperature, RF Signal  
Strength and Battery Status
- **Ultra Low Power Mode**  
Long Battery Life
- **Wide Supply Voltage Range**  
5 TO 24 V DC
- **Compact Design**  
DIN Form B Connection Head Mounting

## TECHNICAL SPECIFICATIONS

INPUT RESISTANCE THERMOMETER (RTD)		
Measured variable	Temperature	
Sensor type	PT100, PT500, PT1000	
Units	°C or °F	
Connection	1 Resistance thermometer (RTD) in 2-wire, 3-wire or 4-wire system	
Sensor current	<0.05 mA (50µA)	
Response time	<500 ms	
Open-circuit monitoring	Always active (cannot be disabled)	
Short-circuit monitoring	Always active (cannot be disabled)	
Measuring range	See "Digital measuring accuracy thermometer" table	
INPUT THERMOCOUPLES (TC)		
Measured variable	Temperature	
Sensor type	E, J, K, N, R, S, T	
Units	°C or °F	
Connection	1 Thermocouple	
Sensor current	<0.05 mA (50µA)	
Response time	<500 ms	
Open-circuit monitoring	Always active (cannot be disabled)	
Short-circuit monitoring	Not available	
Cold junction compensation (CJC)	Integrated resistance thermometer	
Measuring range	See "Digital measuring accuracy thermocouples" table	
RADIO SPECIFICATIONS		
	868 MHz	2,4 GHz
Range <sup>1</sup>	Up to 4km LoS, 27 dBm (500mW)	Up to 2km LoS, 10 dBm (10mW)
Frequency band	868 to 870 MHz <sup>2</sup>	2,4 to 2,5 GHz <sup>2</sup>
Number of channels	16	
Reception sensitivity	-97 to -109 dBm <sup>2</sup>	-91 to -108 dBm <sup>2</sup>
Transmit power	0 to 27 dBm <sup>2</sup>	-10 to 18 dBm <sup>2</sup>
Communication period	Adjustable from 1 second to 24h	
OUTPUT (RF TRANSMISSION)		
Output signals		
Sensor value (Temperature / mV)	Temperature °C (°F) / mV	
Internal Temperature	Temperature °C (°F)	
RSSI	Absolute value	
Power supply voltage	Voltage V	
Configurable parameters	Sensor type, Communication period	

OPERATING ENVIRONMENT		868 MHz	2,4 GHz
Ambient temperature range		-40 to 80 °C [-40 to 176 °F]	-20 to 80 °C [-4 to 176 °F]
Storage temperature range		-40 to 80 °C [-40 to 176 °F]	-20 to 80 °C [-4 to 176 °F]
Relative humidity		≤ 95 %, without condensation	
<b>POWER SUPPLY</b>			
Voltage Range		5 to 24 V DC	
Measurement accuracy		± 100mV	
Power consumption (sleep)		< 0,2 mA	
Battery Life		For a 9V battery, with 1200 mAh with a transmission interval of 2 minutes, the battery life is higher than 2 years	
<b>CASING</b>			
Material		Nylon 66	
Weight		Approx. 50g	
Dimensions		See "Dimensional drawings"	
Cross section		2.5 mm	
Protection type		IP40	
<b>FACTORY DEFAULT SETTINGS</b>			
Sensor		Thermocouple K	
Measuring range		0...100°C [32...212°F]	
Transmission interval		300s	
Wireless transmitter ID		0	
Wireless network ID		0	
<b>CERTIFICATIONS AND APPROVALS</b>			
EN 61326		Electrical equipment for measurement, control and laboratory use. EMC requirements.	
IEC 61000-4-2		Electrostatic discharge immunity test	
IEC 61000-4-3		Radiated, radio-frequency, electromagnetic field immunity test	
IEC 61000-4-4		Electrical fast transient/burst/immunity test	
IEC061000-4-5		Surge immunity test	
EN 300 228		Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive	
EN 300 440		Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive	
<b>MEASURING ACCURACY</b>			
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Reference conditions			
Auxiliary power		9V DC ± 1%	
Ambient temperature		23°C [73,4°F]	
Warm-up time		>5min	
Error due to internal cold junction		<0.5°C [0.9°F]	

Influence of ambient temperature	
with resistance thermometers	0.06°C (0.11°F)/10°C (18°F)
with thermocouples	0.6°C (1.1°F)/10°C (18°F)

**ACCURACY RESISTANCE THERMOMETER (RTD)**

Sensor	Range °C (°F)	Digital accuracy °C (°F)
PT100	-200 to 850 (-328 to 1562)	0,1 (0,18)
PT500	-200 to 850 (-328 to 1562)	0,2 (0,36)
PT1000	-200 to 350 (-328 to 662)	0,2 (0,36)

**ACCURACY THERMOCOUPLES (TC)**

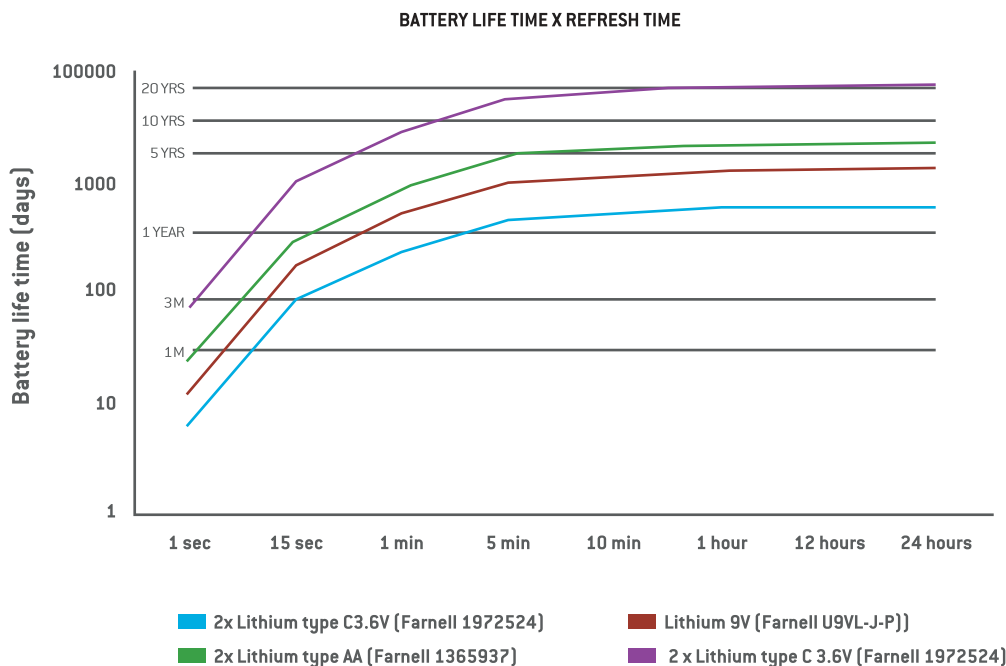
Sensor	Range °C (°F)	Digital accuracy °C (°F)
E	-200 to 1000 (-328 to 1832)	1 (1,8)
J	-210 to 1200 (-346 to 2192)	1 (1,8)
K	-230 to 1370 (-382 to 2498)	1 (1,8)
N	-200 to 1300 (-328 to 2372)	1 (1,8)
R	-50 to 1760 (-58 to 3200)	2 (3,6)
S	-50 to 1760 (-58 to 3200)	2 (3,6)
T	-200 to 400 (-328 to 752)	1 (1,8)

**DIGITAL MEASUREMENT ACCURACY MV**

Sensor	Range (mV)	Accuracy
mV	- 8 to 100 mV	<40 μV

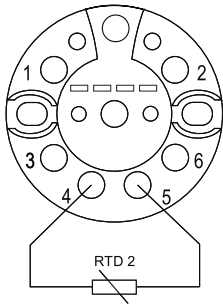
**TECHNICAL DRAWINGS AND INFORMATION**

**BATTERY LIFE TIME**

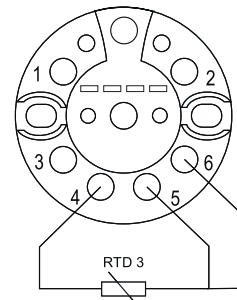
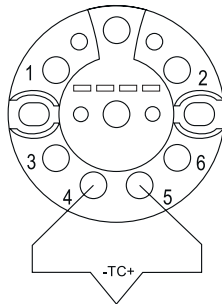


ELECTRICAL CONNECTIONS

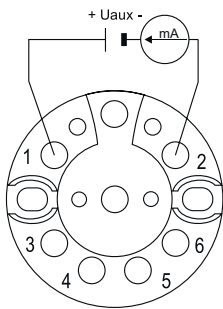
RESISTANCE THERMOMETER



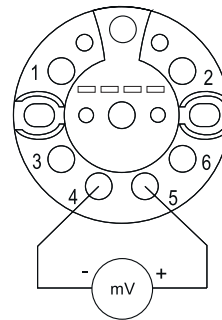
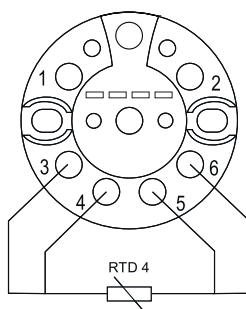
THERMOCOUPLE



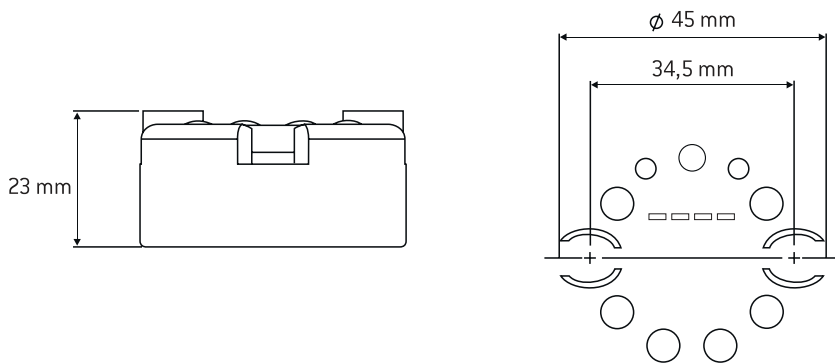
POWER SUPPLY (Uaux)



mV SENSOR



DIMENSIONAL DRAWINGS



LED INDICATION IN CONNECTION AND CONFIGURATION

