

EPIC® SENSORS WLT 310
IoTKey® transmitter

Wireless LoRa transmitter

- Configurable, energy efficient LoRa 868 MHz (EU) transmitter for industrial grade wireless measuring and IoT systems using LoRaWAN protocol
- Three configurable sensor inputs
- Self adjusting transmit power
- Battery or external power supply
- Self diagnostics including battery monitoring
- Configurable measurement intervals and alarm limits.

The IoTKey® WLT 310 transmitter has two inputs for temperature and Lin.R measurements. A third analog input can be configured as voltage or current input, or as a humidity sensor input.

The main power supply is a C size Lithium primary cell battery, 3.6 V nominal 8.5 Ah. The device operates also on an external 12 or 24 V DC power supply.



Technical data

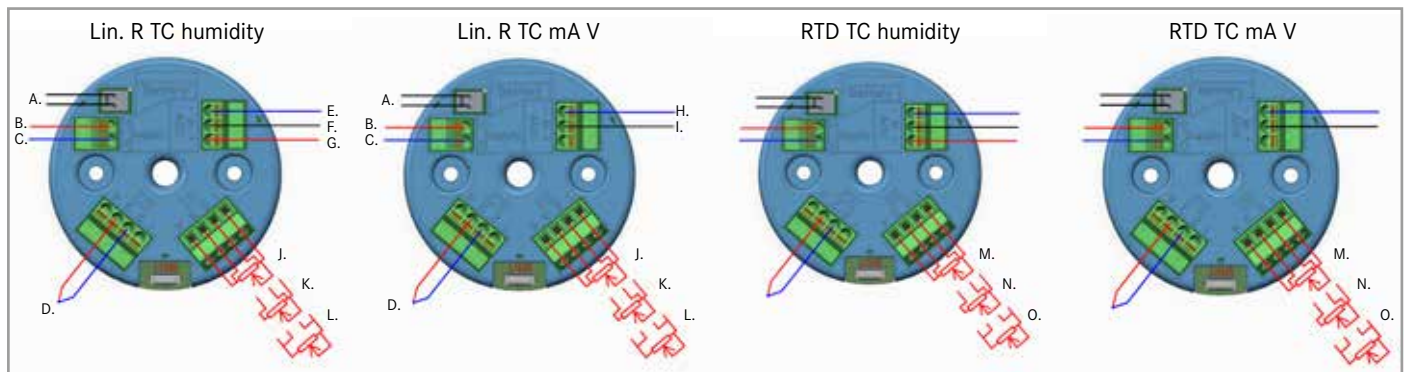
Weight	39 g
Height	25 mm
Diameter	57 mm
Wire size	1 x 1.0 mm ² stranded wire
The product is CE marked, and the compliance standards are:	
EMC	EN 61326-1:2013 and EN 301489
RF	EN 300 220-1 v2.4.1
Vibration	EN 60068-2-6
WLT 310 is a LoRaWAN Certified ^{CM} product.	

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IoTKey® Transmitter WLT 310 is a LoRaWAN® certified product.
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Assembly examples



Connection examples



- A. Battery
- B. Ext. Supply 12/24VDC
- C. Ext. Supply gnd
- D. TC

- E. Humidity sensor gnd
- F. Humidity sensor out
- G. Humidity sensor 5V/10V
- H. mA and V input gnd
- I. mA and V input +

- J. Lin.R 4wr
- K. Lin.R 3wr
- L. Lin.R 2wr

- M. RTD 4wr
- N. RTD 3wr
- O. RTD 2wr

NOTE! Channel S1 and S2 are identical

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Temperature sensor inputs

Pt 100/Pt 1000 input, RTD (S1/S2)	
One or two of the temperature sensor inputs can be configured as Pt100/Pt1000 inputs. The connection type can be configured to 2, 3 and 4 wires. Inputs can also detect a short and open sensor.	
Temperature measurement range	-200...+800 °C
Measurement accuracy	≤ ±0.3 °C
Temperature coefficient	≤ ± 0.01°C / °C

Thermocouple input, TC (S1/S2)	
One or two of the temperature sensor inputs can be configured as thermocouple sensor inputs. TC inputs can also detect an open sensor.	
Thermocouple types	E, J, K, N, R, S, T, B, L and U are supported
Measured temperature range depends on the thermocouple type	e.g. for type K: -200...+1820 °C
Measurement accuracy for types E, J, K, N, T, U and L	≤ ±1°C, temperature coefficient ≤ ±0.05 °C/°C
Measurement accuracy for types B, R and S	≤ ±2 °C, temperature coefficient ≤ ±0.2 °C/°C
Cold junction temperature (CJC)	-40...+80 °C Accuracy ≤ ± 1°C

Linear resistance, Lin. R input (S1/S2)	
Resistance measurement range	0-3757 ohm
Measurement accuracy	≤ ± 0.1% of span
Temperature coefficient	≤ ± 0.01% of span / °C

Analogue input (AUX)

Current / Voltage input	
The analogue input can be configured as voltage or current input, or as humidity sensor input.	
Current measurement range	0...20 mA (0 - 23mA)
Measurement accuracy	≤ ± 0.5 % of span
Temperature coefficient	≤ ± 0.01% of span / °C
Voltage measurement range	0...10 V (0 - 11 V)
Measurement accuracy	≤ ± 0.5 % of span
Temperature coefficient	≤ ± 0.01% of span / °C

Humidity sensor input (AUX)	
The analog input connector can be configured as a humidity sensor input. Sensors with an output up to 10 V are supported. There is a supply voltage output for 5 V and 10 V sensors. The input accuracy is similar to the analog voltage input.	
Humidity measurement range	0... 100 % RH
Voltage measurement range	0...10 V (0 - 11 V)
Temperature coefficient	≤ ± 0.01% of span / °C
Measurement accuracy	≤ ± 0.5 % of span
Supply for humidity sensor	5 V and 10 V
Output voltage accuracy	± 5 %
Maximum load	1 mA
The supply generation circuit is switched on only during the humidity measurement (under SW control).	

Power supply

Battery	<ul style="list-style-type: none"> • Main power supply is a C size Lithium primary cell battery, 3.6 V nominal 8.5 Ah • The battery input is polarity protected • Battery life time depends of configuration (typically min. 1-2 years) • Electricity consumption < 100 mA *)
External power supply	<ul style="list-style-type: none"> • The device operates on external nominal 12 or 24 V DC supply • The operating voltage range is 9 to 40 V (12-24V more than ± 30 %) • The power supply is isolated from the inputs. The isolation between the power supply/inputs is 1500 Vrms. • Inputs are not isolated from each other! • Electricity consumption < 70 mA *)

*) Power consumption is affected by transmission density, coupled sensors and the quality of the transmitter and gateway connection. Typical current consumption 0.5 ... 50 mA.

Environmental specifications

Operating temperature range when powered by battery**)	-25 to +60 °C
Operating temperature range when powered by external DC supply	-40 to +80 °C
Plastic casing / protection class	IP20
Vibration resistance	Certification No 2.4 class B (DNV Standard)
Humidity	
RH for device	< 90 %, non-condensing
Storage	< 95 %, non-condensing
Transportation	< 95 %, non-condensing
The expected lifetime is more than 10 years in temperature range -40...+80 °C.	

**) Depends on the battery manufacturer's specifications.