EcoWell Wireless Temperature Transmitter (WTT100) – 900MHz

FEATURES

➢ **Customizable configuration for diverse applications: selectable sensor accuracy level, enclosure material, insertion depth, and temperature range.**

➢ **Integrated superior temperature sensor with corrosion, shock, and vibration resistance.**

➢ **Extensive telemetry range.**

➢ **Simple communication setup between transmitters and gateway.**

➢ **User-defined data update rates**

➢ **Digital LCD display: real-time temperature, battery power, wireless signal strength etc.**

➢ **Configuration for various measuring mediums: gas, vapor, liquid**

➢ **Temperature compensation technology**

➢ **Anti-electromagnetic and radio frequency interference technology**

➢ **Signal full isolation technology**

➢ **Zero-point self-stabilization technology**

TECHNICAL SPECIFICATIONS

Parameter	Specifications
Accuracy level	Selectable: 0.5%, 0.2%, 0.1%
Temperature Ranges	Standard: -58~ 212°F; 0 ~ 302°F; 0 ~ 572°F; 0 ~ 932°F; 0 ~ 2372°F
Power Source	3.6V Lithium Battery, 38Ah
Operating Medium Temperature	-58 °F ~ 930 °F
Ambient temperature	-40 °F ~ 140 °F
Relative humidity	10% RH ~ 90% RH
Wireless Communication	Range 902-928MHz
Data Interface	Modbus Register at Gateway w/ optional AO and DO
Telemetry Distance	~ 1 mile (line of sight)
Environmental impact coefficient	Δ≤0.05%/°F

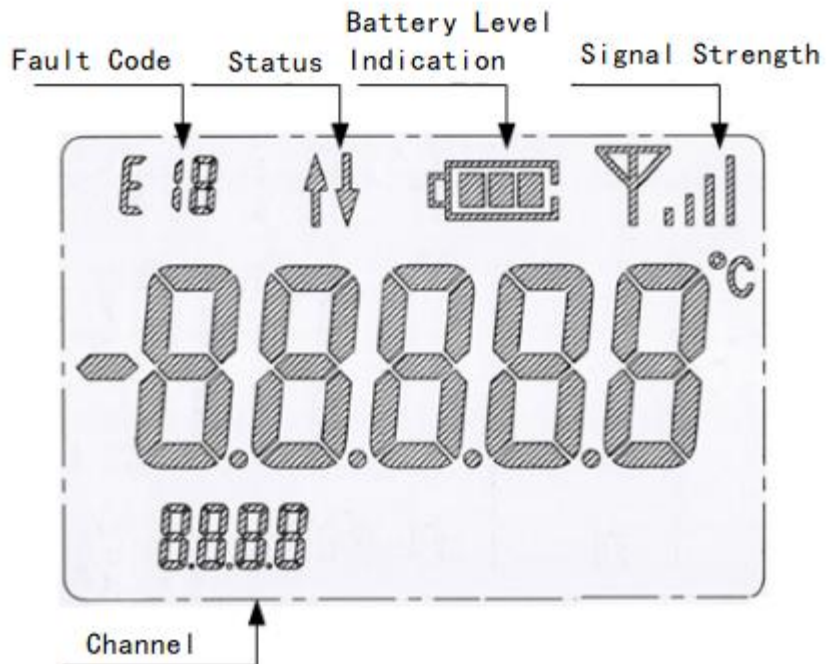|	
Overload capacity	1.5 times the maximum range
Vibration	≤0.022 lbs, f≤55Hz, amplitude≤0.02 inch
Enclosure Rating	IP66
Explosion proof	Ex ib IIC T4 Gb

STRUCTURAL DIMENSIONS
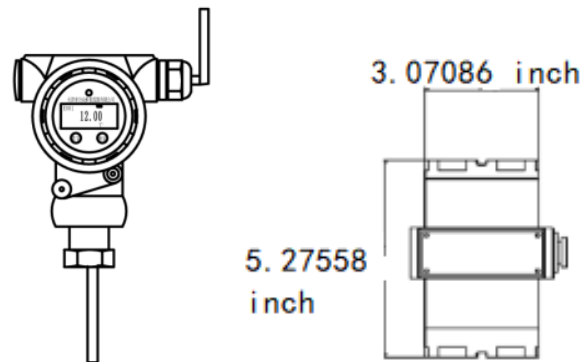
INSTALLATION GUIDE

I. **Display and key menu**

The main page of the display is shown as follows:

Display area	Description
Fault code	No display - no fault; E01 - memory fault; E02 - communication fault; E03 - instrument parameter fault; E04 - temperature transmitter fault.
Data Status	"↓" when sending data, displays "↑" when receiving data, and does not display when there is no data exchange.
Battery level indication	3 bars - 100%; 2 bars - 75%; 1 bar - 50%; 0 bar - 25%; when it is 0 bar, the battery needs to be replaced.
Temperature	Display temperature value, such as 200°F, it will be displayed as 200.00 °F.
Signal Strength	When signal icon "▽" is always on, the wireless communication is good. If the signal icon "▽" is not on, the wireless communication is not built.
Channel	The instrument wireless frequency is displayed below

Specific operation example: long press K1, the interface displays code, then short press K1 to enter the password setting, enter 2 and short press K1 to confirm, then conv will be displayed, and other menus will be switched through K2 and K3. If you continue to short press K1 to enter the conv setting, adjust the value through K2 and K3, short press K1 to confirm, and long press K1 to exit the menu setting. Other menu operations are the same.

Key menu operation instructions	
K1 short press	Enter settings, confirm and return
K1 long press	Enter the menu, return to the main interface
K2 short press	Decrease, Page Up, Shift
K2 long press	none
K3 short press	Add, Page down, Manual send
K3 long press	none

Menu Password	Menu Contents	Adjustment function	illustrate
code=1	Network ID: P-ID	Shift, increase	The default value is 1, and the range is 0-9999. (The network number is used to distinguish different wireless networks. Only devices on the same channel and using the same network number can communicate with each other.)
	Carrier frequency: --CH	Increase, decrease	Range 902-928MHz
	Device ID: n-ID	Shift, increase	Default is 1, range is 0-9999
	Target ID: S-ID	Shift, increase	The default value is 0, and the range is 0-9999, which is the destination address in the API format. Set to 9000 for broadcast transmission.

	Transmit power: --PL	Increase, decrease	Default is 5, range is 5-20 dBm, the larger the value, the longer the communication distance and the greater the power consumption. If it is less than 100m, it is recommended to adjust it to 5
	Air speed: --AH	Increase, decrease	The default value is 3, and the range is 1-6. The data transmission rate in the air can be divided into 6 levels. The higher the level, the higher the rate. Under the same conditions, the higher the rate, the closer the transmission distance. Therefore, this value needs to be adjusted according to the actual application environment. (Note: Once the rate is determined, all devices must be at the same rate, otherwise they cannot communicate.) 1 = 0.3 Kbps, 2 = 0.6 Kbps, 3 = 1.0 Kbps, 4 = 1.8 Kbps, 5 = 3.1 Kbps, 6 = 5.5 Kbps
code=2	Collection interval: conv	Shift, increase	Default: 5 seconds
	Send interval: send	Shift, increase	Default 120s
	Maximum sending interval: H end	Shift, increase	Need not
	Group No.: Hsnr	Shift, increase	Default 0, range 0 -255
	Serial number: snr	Shift, increase	Default 0, range 0 -255

Status Description

- **Instrument configuration parameter status:** "E 1" and "E 2" are displayed in the upper left corner, indicating that the instrument is setting Lora parameters.
- **Status code when Lora parameter setting fails:** Displays "E 7". If there are multiple faults, the status codes will be displayed in a superimposed manner. The instrument fault status codes are as follows: E 2-No communication, E 3 Uncalibrated, E 4-Overrange, E 7- Lora parameter setting failed. (Note: E 3 and E 4 will not appear at the same time)
- **The status display of whether the instrument Lora is online:** the signal icon "∇" is always on, indicating that the instrument Lora is online; the signal icon "∇" is not on, indicating that the instrument Lora is not online.
- **Normal wireless communication of the instrument:** When the instrument displays the temperature value normally, short press K3 to manually send normal data. The LED flashes once, indicating that the instrument executes the sending. The LED flashes for the second time and the instrument will flash "↓", indicating that the instrument has sent successfully. The instrument will display "↑" when it receives the response from gateway, indicating communication built with gateway. The online status is that the signal icon "∇" is always on and there is no E 2 prompt. If the instrument does not receive a response from the gateway, it will prompt "E 2", indicating no communication.

II. **Battery replacement and installation instructions**

a. **Transmitter battery replacement steps:**
- Unscrew the back cover and unplug the battery.
- Take out the old battery, put in the new battery and plug in the power plug.
- After replacing the battery, tighten the back cover.

b. **Pre-installation inspection**
- Whether the temperature at the measured point exceeds the measuring range of the instrument.
- Whether the temperature of the measured point has instantaneous impact.
- Whether the measured medium is compatible with the instrument structural material.

c. **Installation Method**

- In general, the instrument should be installed vertically upward to facilitate observation.
- Use the blind pipe corresponding to the temperature transmitter, and punch and weld the blind pipe on the pipeline.
- Install the temperature transmitter into the blind pipe and reset the temperature transmitter connection network setting parameters.
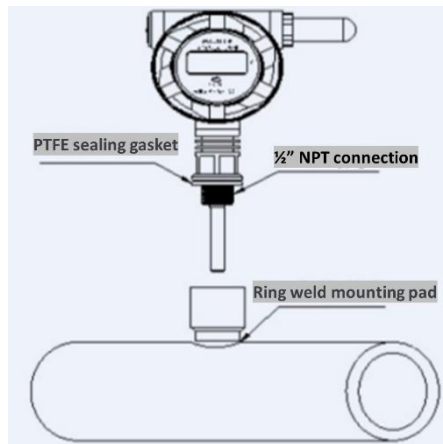
d. **Notes**

- Range selection: The measured value should be between 20% and 80% of the temperature transmitter range.
- The product contains electronic components and circuit boards. When disassembling and reinstalling, ensure that the front and rear covers are waterproof and sealed to prevent water from entering.
- If you want to open the front or rear cover, you must move the temperature transmitter to a safe area. It is strictly forbidden to open the cover in a dangerous area.
- Please turn off the power immediately after opening the cover.
- The use environment must comply with the "Main Technical Parameters", and the use environment and medium must not contain excessive dust, acid, salt, corrosive or explosive gases.
- Do not keep heat sources above 70°C close to the temperature transmitter for a long time.
- Do not subject the temperature transmitter to severe shaking or collision during use to avoid accidents.
- The temperature transmitter should be installed away from strong magnetic fields.
- Do not allow the temperature transmitter to contact with charged materials.
- The battery used in this product is a special model for intrinsically safe products. Users are strictly prohibited from replacing other batteries at will.

III. Common troubleshooting

Fault symptoms	Causes	Troubleshooting
The temperature indication is low or unstable	Broken Couple	Return to factory
	Low battery voltage	Battery replacement required
	The measured medium and ambient temperature exceed the product measurement range	Prevent the instrument from operating outside the temperature range
No communication or incorrect communication	Instrument communication parameters are inconsistent	Check the communication parameters and reset them.
	The wireless parameter settings are not correct	Reread configuration parameters
	The instrument communication module is damaged.	Factory repair

IV. How to Order

- When ordering, users need to provide detailed technical parameters, such as temperature measurement range, accuracy requirements, and special requirements, etc., to choose a digital instrument that better suits your requirements.
- For detailed configurations, please refer to the company's latest configuration table.

Name	Range or Level	Spec Code	Remark
Temperature Range	-58~ 212°F	L0	Choose one of five
	0 ~ 302°F	L1	
	0 ~ 572°F	L2	
	0 ~ 932°F	L3	
	0 ~ 2372°F	L4	
Accuracy Level	0.5%	A0	Choose one of three
	0.2%	A1	
	0.1%	A2	
Display	LCD Segment display	XL	Choose one
	OLED (low temperature -40℃ resist)	XO	
Process Connection	M20 × 1.5mm	M2	Choose one of three
	1/2" NPT Male	N2	
	Flange	FL	
	2"	D0	Choose one of nine, or
	4"	D1	
	6"	D2	
	8"	D3	
	12-20"	D4	

Insertion Depth	20-40"	D5	customize the depth, without blind pipe
	High temperature double section probe ≤12"	D6	
	High temperature double section probe 12-20"	D7	
	High temperature double section probe 20-40"	D8	
Enclosure Material	Aluminum alloy material	S0	Choose one of three
	Stainless steel 304	S4	
	Stainless Steel 316	S6	
Mounting Bracket	304 stainless steel bracket	MB	Optional