






Wireless Temperature Transmitter
TM52W0
User Manual

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Symbol Definition	
	WARNING: Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	RISK OF ELECTRICAL SHOCK: Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	ESD HAZARD: Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user.

Safety& Caution Symbols

The following table lists Safety& Caution symbols used on equipments.














No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chasis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

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Wireless Temperature Transmitter TM52W0

Section 1 Overview

Wireless Temperature Transmitter TM52W0 (hereinafter referred to as "TM52W0") supports the use of thermocouple and thermal resistor to convert input signals into standard output signals. TM52W0 adopts standard industrial wireless protocols to send real-time data and diagnostics to the wireless gateway, measuring and controlling temperatures. Features of TM52W0 are listed below:

- Supports the connection of 2-ch thermocouples and 2-ch thermal resistors with a measuring accuracy of $\pm 3^{\circ}\text{C}$ and $\pm 1^{\circ}\text{C}$ respectively.
- Offers LCD display.
- Up to 200 m/656.17 ft wireless communication distance (without obstacles).
- Uses an 38000 mAh Li-Socl2 battery with a life of over 8 years (if upload interval is 1 minute).
- Complies with Exia Intrinsic safety requirements.
- Battery is changeable even in hazardous areas.

1.1 Network Structure

The network diagram of TM52W0 communicating with GW042 is shown in the following figure.

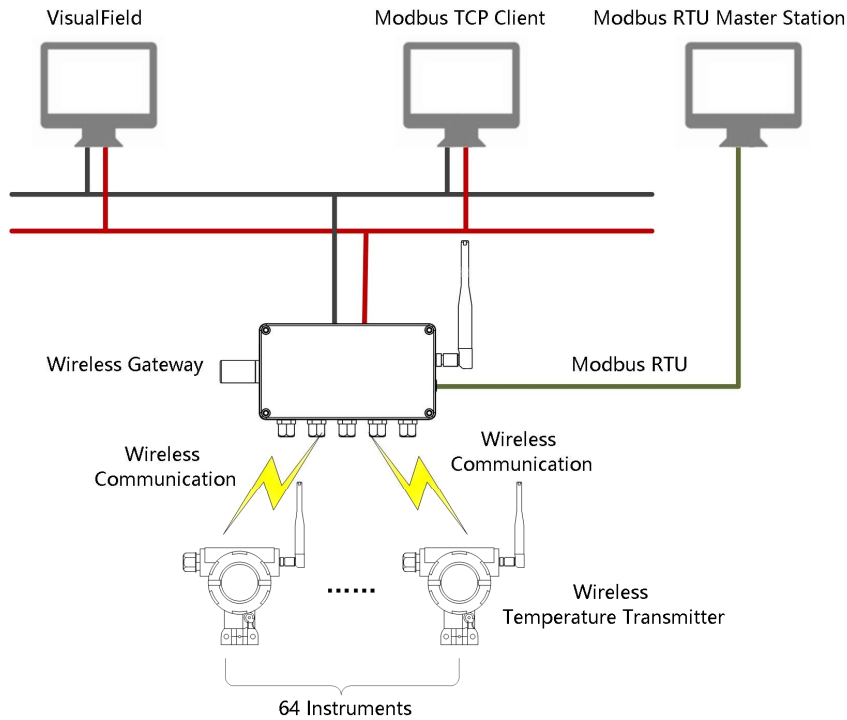


Figure 1-1 Network structure diagram

1.2 Specifications

Table 1-1 Technical specifications

Parameter			Description
Basics			
Power supply	Power supply mode		Li-Soc12 battery or DC power
	Battery	Capacity	38000 mAh
		Battery life	≥ 8 years (upload interval: 1 minute)
	DC Power Supply	Range	(4.5–100) VDC
		Anti-reverse connection	Yes
		Power consumption	<3 W
Channels			2
Input signals	Thermal resistor		Pt100, Cu50
	Thermocouple		E, J, K, N, T, B, S, R
Precision	Thermal resistor		±1 °C
	Thermocouple		±3 °C
Maximum signal input range	Pt100, PT1000 thermal resistor		–200 to 850 °C
	Cu50 thermal resistor		–50 to 150 °C

Parameter		Description
	Thermocouple	E: -200 to 900 °C J: -200 to 750 °C K: -200 to 1300 °C N: 0 to 1300 °C T: -200 to 350 °C B: 100 to 1800 °C S: 0 to 1600 °C R: 0 to 1600 °C
Sampling cycle		2 s, 4 s, 8 s, 16 s, 32 s, 60 s
Operating Environment		
Operating temperature		-40 to +85 °C
Storage temperature		-40 to +85 °C
Operating humidity		10%–90% (RH), non-condensing
Storage humidity		5%–95% (RH), non-condensing
IP rating		IP65
Explosion-proof marking		Ex ia IIC T4 Ga
Installation and Structure		
Installation method		Standard rail
Dimensions (W × H × D)		160 mm × 289.5 mm × 134.4 mm (6.30" × 11.40" × 5.29")
Weight		About 50.4 g (0.11 lb)

Section 2 Structure and Dimensions

2.1 Structure

The structure of TM52W0 is shown in Figure 2-1 .

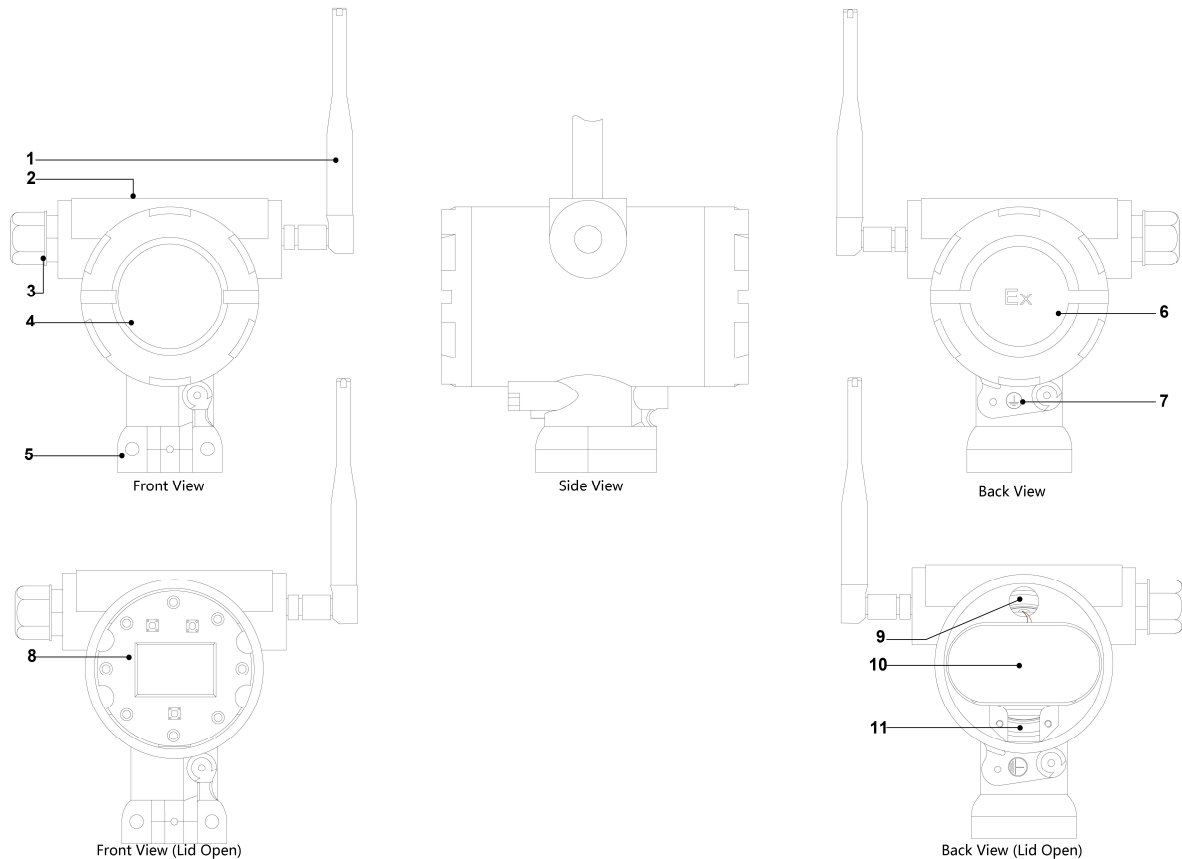


Figure 2-1 Structure diagram

Components and connectors are shown in the table below.

Table 2-1 Components and connectors

No.	Name	Description
1	Antenna	Used for wireless data communication.
2	Nameplate	Shows device model, name, and more.
3	Cable gland	Used for running wires.
4	Front lid (transparent)	Protects the LCD screen.
5	Connector for temperature measuring devices	Connects devices to be measured
6	Back lid	Remove it before replacing the battery
7	Protective grounding screw	Connects to protective ground

No.	Name	Description
8	LCD screen	Periodically displays the collected temperatures and the progress of it connecting to the wireless gateway. The terminal board is behind the LCD screen. Remove the screen before wiring. For details, refer to "Wiring".
9	Battery wires inlet	Battery wires run through this inlet to the front.
10	Battery	Supplies power for TM52W0.
11	Signal wires inlet	External signal wires run through this inlet.

2.2 Dimensions

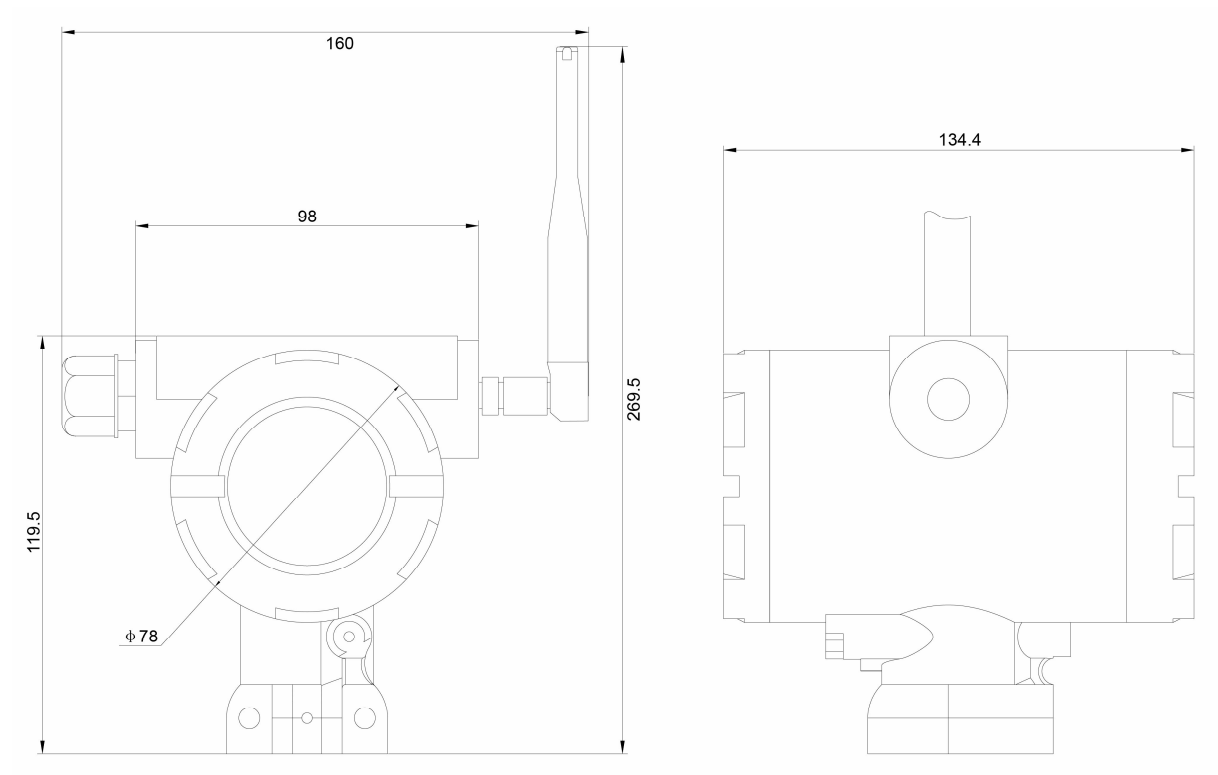


Figure 2-2 Dimensions

Section 3 Installation and Wiring

3.1 Installing and Removing the Antenna

TM52W0 is equipped with a 2.4 GHz omnidirectional antenna. Attach the antenna to TM52W0 by screwing it on clockwise; uninstall it by unscrewing it counterclockwise.



Attention:

After installation, please keep the antenna up.

3.2 Installing TM52W0



Tip:

Before installation, connect the field signal wire to TM52W0.

- 1) Connect the field signal wire to TM52W0 through the connector of temperature measuring devices.
- 2) Remove the front lid by unscrewing it counterclockwise. Unscrew the LCD screen with a small-sized Phillips screwdriver and remove the screen.
(Attention: Do not remove the wires behind the screen.)
- 3) Connect the field signal wire to the terminals on terminal board.
- 4) Install the LCD screen and the front lid.
- 5) Rotate the transmitter clockwise to tighten the connector of temperature measuring devices.

3.3 Removing TM52W0



Attention:

- Remove signal wires before removing the device.
 - During removal, hold the device firmly in case of accidental damage.
-

- 1) Unscrew the front lid counterclockwise. Unscrew the LCD screen with a small-sized Phillip screwdriver and take off the screen.
(Attention: Do not remove the wires behind the screen.)
- 2) Remove the field signal wires connected to the terminal board.
- 3) Install the LCD screen and the front lid.
- 4) Rotate the transmitter counterclockwise and untighten the connector of temperature measuring devices to remove the device.

3.4 Replacing the Battery

- 1) Unscrew the front lid counterclockwise.
- 2) Unscrew the LCD screen with a small-sized Phillip screwdriver and take off the screen.
(Attention: Do not remove the wires behind the screen.)
- 3) Remove the power wires connected to the terminal board.
- 4) Unscrew the back lid counterclockwise and remove the battery.
- 5) Install the new battery. Run the power wires through the hole to the other side of the terminal board.
Screw the back lid clockwise.
- 6) Connect the wires with the terminal board.
Install the LCD screen.
- 7) Screw the front lid in clockwise.

3.5 Wiring

Before wiring, remove the LDC screen with a small-sized screwdriver without removing its data wires.

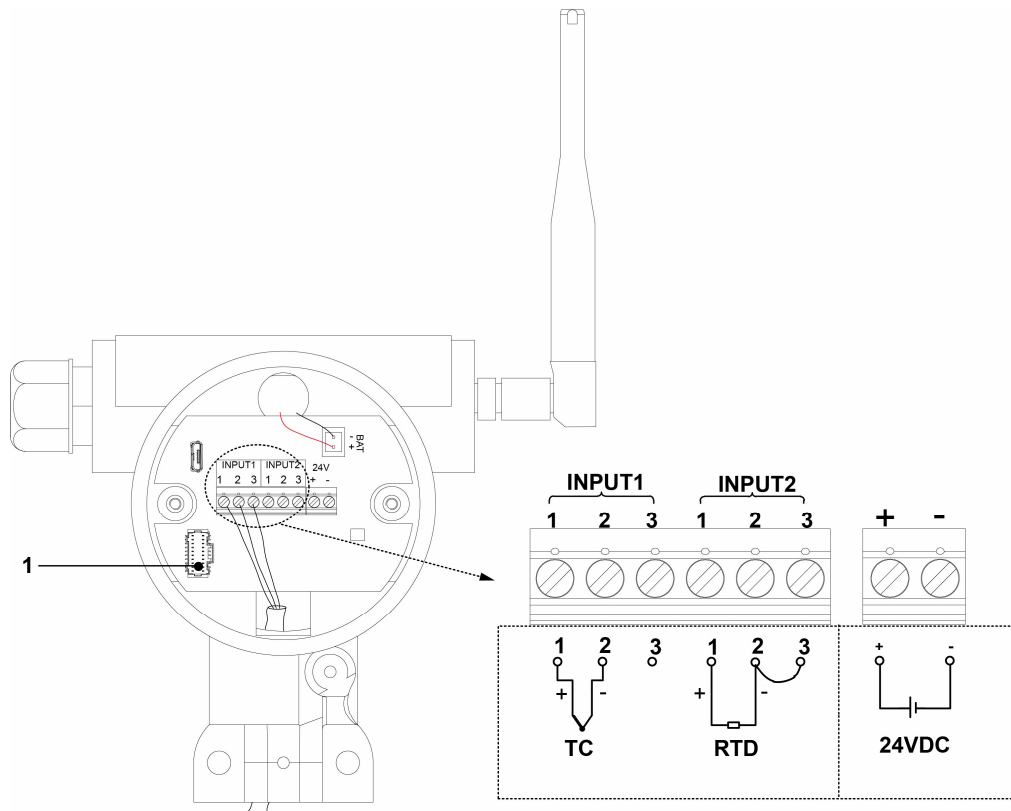
See the figure below to connect field signal wires and power wires.

TM52W0 supports battery and 24 VDC power. Select the method as needed.



Attention:

Do not connect 24 VDC power and battery at the same time.



1: Data wire connector for LCD screen

Figure 3-1 Wiring diagram

Section 4 Recycling

Comply with your national, local laws and regulations when recycling the devices and packages.

Section 5 Revision History

Table 5-1 Revision history

Version	Applicable product model	Remarks
V1.0 (20230302)	TM52W0 V10.10.00	First release.