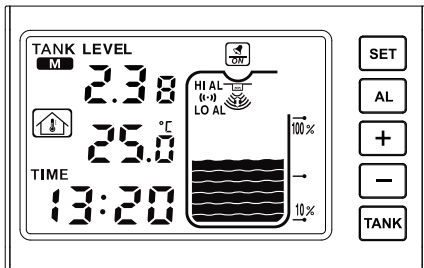


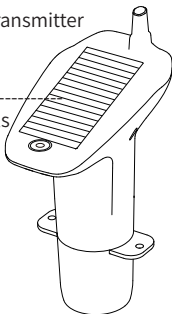
Ultrasonic Liquid Level Meter

User Manual



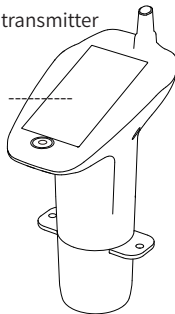
TS-FT003 transmitter

Includes solar panels



TS-FT005 transmitter

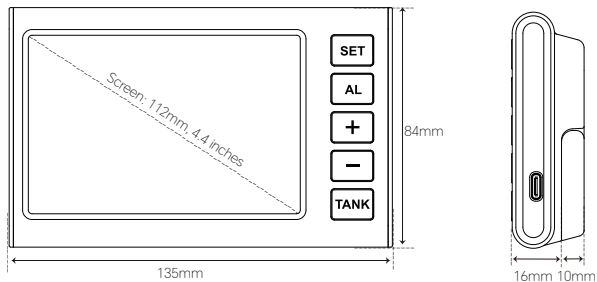
No solar panels



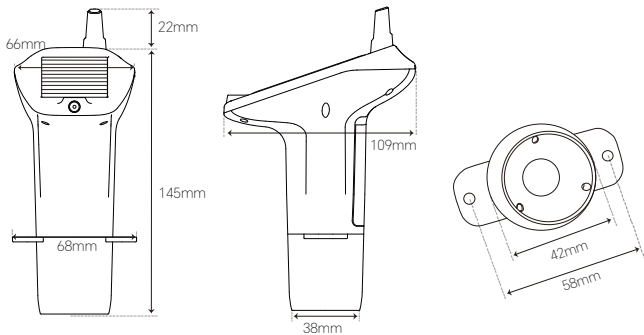
1 Table of Contents

Table of Contents.....	2
Receiver Dimension Diagram / Transmitter Dimension Diagram.....	3
Full Display Diagram.....	4
Product Specifications.....	5
Packaging Contents / Default Settings / Button Indicator Diagram.....	6
Main Features / Power Supply Methods.....	7~8
Installation Instruction / Installation Steps.....	9~12
Backlight Settings.....	13
Time Settings.....	14
Alarm Clock Settings.....	15~18
Turn On or Off the Buzzer.....	18
Switching Between Water Tank Level and Temperature Display.....	19
Temperature Unit Switching / How to Reacquire Signal.....	20

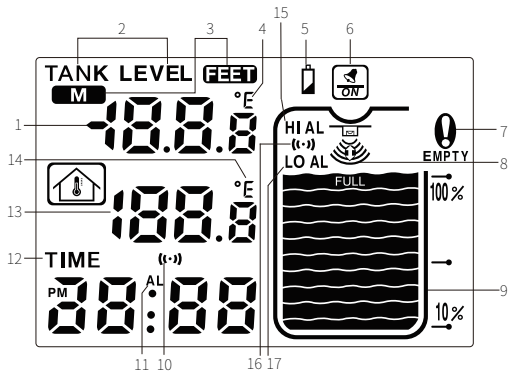
2 Receiver Dimension Diagram



3 Transmitter Dimension Diagram



4 Full Display Diagram



- | | |
|---|-------------------------------------|
| 1. Numeric Display Area | 10. Alarm Clock On |
| 2. Water Tank Temperature & Level Icons | 11. Alarm Clock Mode |
| 3. Water Level Unit | 12. Time Display |
| 4. Water Tank Temperature Unit (°C/°F) | 13. Indoor Temperature Display |
| 5. Transmitter Low Battery Icon | 14. Indoor Temperature Unit (°C/°F) |
| 6. Buzzer On | 15. High water level alarm |
| 7. Low Water Level Icon | 16. Alarm sound on icon |
| 8. Signal Indicator | 17. Lowest water level alarm |
| 9. Water Tank Level Indicator | |

5 Product Specifications

Receiver:

Indoor Temperature Range: 0°C~50°C ,

32°F~122°F

Resolution: 0.1°C

Accuracy: ±1°C

Water Tank Temperature Measurement Range:

-40°C~60°C , -40°F~140°F

Alarm Duration: 120 seconds

Transmitter:

Temperature Resolution: 0.1°C

Accuracy: ±1°C

Water Level Resolution: 0.01m

Accuracy: ±0.05m

Water Level Measurement Range: 1~5m

Battery Usage:

Receiver: USB to Type-C Wire / 3*AAA

TS-FT003 Transmitter: 6*AAA 1.2V NiMH 900mAh

TS-FT005 Transmitter: 6*AAA

Note: Transmitter, and Receiver communicate wirelessly at 433MHz with a transmission distance of up to 100m in an open area, through wall distance is 30m.

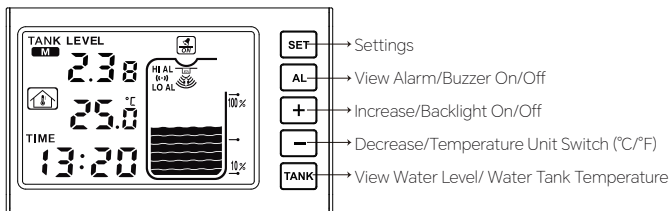
6 Packaging Contents

- ▶ Receiver*1
- ▶ Transmitter*1
- ▶ Installation Screws*2
- ▶ USB to Type-C Wire*1
- ▶ User Manual*1

7 Default Settings on Startup

- ▶ Time: 0:00~23:59 (Default: 0:00)
- ▶ Temperature Unit: °C/°F (Default: °C)
- ▶ 12HR/24HR Format: (Default: 24HR)
- ▶ Alarm Time: 0:00~23:59 (Default: 0:00, Off)
- ▶ Water Level Unit:
TANK LEVEL M (meters) / TANK LEVEL FEET (feet) (Default: TANK LEVEL M)

8 Button Indicator Diagram



9 Main Features

- ▶ Display Backlight On/Off Function
- ▶ Time Function in 12H/24H format
(Default display on startup: 0:00 24 hours)
- ▶ Alarm Function (Default on startup: Off)
- ▶ Indoor Temperature °C/°F (Default: °C)
- ▶ Water Tank Temperature °C/°F (Default: °C)
- ▶ Maximum/minimum water level alarm setting
- ▶ Water Tank Level Display in meters/feet (Default on startup: meters)
- ▶ Water Level Depth simulated on a 10-element LCD bar graph " — "
- ▶ Alarm On Indicator " (••) "
- ▶ Transmitter Low Battery Reminder " 🔋 "
- ▶ Buzzer On/Off " 🔊 "
- ▶ Data Signal Indicator " 📶 "
- ▶ Low Water Level Icon " 🚰
EMPTY "

10 Power Supply Methods

When installing batteries, please pay attention to the polarity. Incorrect installation of batteries, reversing the positive and negative terminals, may result in permanent damage to the product. Battery malfunction or poor performance can adversely affect data communication between products.

Power Supply:

Receiver: 3*AAA (3*1.5V) batteries/
TYPE-C Power Cable (as shown in Figure ①)

Note: Please replace the batteries promptly when the backlight on the receiver dims or if there is flickering in the display.

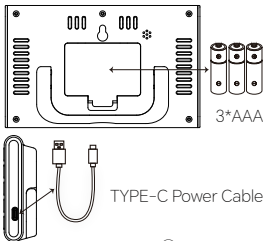


Figure ①

TS-FT003 transmitter: 6*AAA nickel-metal hydride (6*1.2V) rechargeable batteries, Battery included in shipment.(as shown in Figure ②)

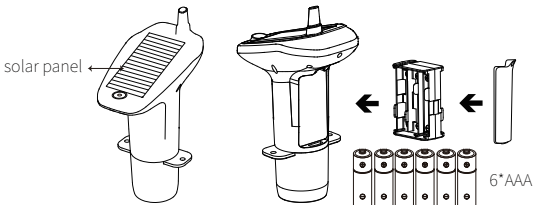


Figure ② **Battery included in shipment**

Note:The solar panel provides auxiliary power and has a charging function for rechargeable batteries. Please use NiMH rechargeable batteries (which can reduce the frequency of battery replacement and save on battery usage costs to some extent). When installing, place the solar panel facing the sun so that it can provide power and charge the rechargeable batteries during sunlight exposure.

TS-FT005 Transmitter: 6*AAA batteries, Ships without batteries. (as shown in Figure ③)

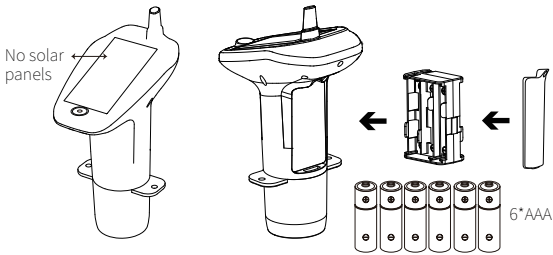


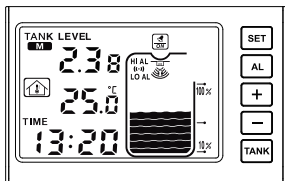
Figure ③

Ships without batteries

11 Installation Instruction Diagram

Transmission distance:

Up to 30m through buildings, up to 100m in open space.



12 Installation Steps

(1). Power on the receiver. After the full display on the screen for 3 seconds, a "BI" sound will be emitted, and "1.00" with a flashing empty tank will be displayed (as shown in Figure ④).

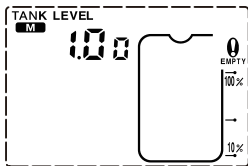


Figure ④

Enter the water tank depth setting mode (setting range 0.5~5m/1.64ft~16.4ft). During the setting, short press the "+" key to increase by one, long press the "+" key for continuous increase, short press the "-" key to decrease by one, and long press the "-" key for continuous decrease.

Press the "SET" key again to set the air gap value, initially displaying "0.50" (as shown in Figure ⑤), with a setting range of 0.5~5m/1.64ft~16.4ft. It is recommended to set the air gap value to be $\geq 0.5\text{m}$ for optimal monitoring status.

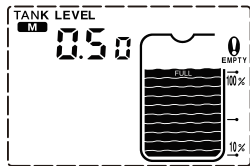


Figure ⑤

Note: The air gap value is the monitoring distance from the bottom sensor of the transmitter to the highest water surface in the tank, with a minimum of 0.5m.

During settings, a short press of the "+" key increases the value by one, while a long press of the "+" key results in continuous increase. Similarly, a short press of the "-" key decreases the value by one, and a long press of the "-" key leads to continuous decrease.

Note: If there is no operation in the depth setting mode for more than 15 seconds, it will automatically switch to normal display mode.

Note: If the receiver displays "EEr" (as shown in Figure ⑥), it indicates a data setting error, and you need to reset. In the normal mode, simultaneously press and hold the "SET" and "AL" keys for 3 seconds to restart the setup process; the setup steps are the same as described above.

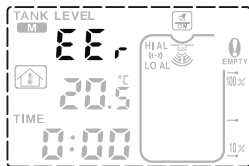


Figure ⑥

(2). After completing the above-mentioned steps for the receiver, power on the transmitter. Upon powering on, the transmitter will send the first signal, and subsequent signal transmissions will occur every 30 seconds or 180 seconds.

Transmitter Installation Diagram

1. Antenna
2. Level
3. Installation Screws
4. Sensor
5. Water Tank

NO	R(m)	H1(m)
1	≥ 0.15	≤ 1
2	≥ 0.3	≤ 2
3	≥ 0.5	≤ 3
4	≥ 0.65	≤ 4
5	≥ 0.8	≤ 5

Figure ⑦

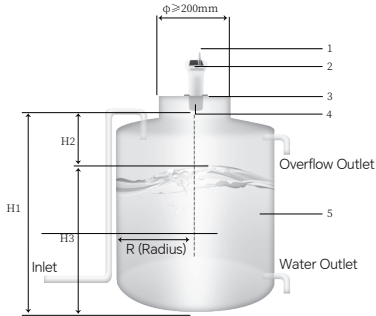


Figure ⑧

H3: Maximum depth measurable by the transmitter.

R: Radius of the tank.

Note: The radius R of the water tank will affect depth measurement. Regarding R and H1, refer to Figures ⑦ and ⑧, and pay attention to the following during installation:

1. The distance H2 between the bottom of the transmitter and the highest water surface must be at least 0.5m (1.64ft).
2. The maximum container depth H1 that the device can measure is 5m (16.4ft).
3. Observe the level on the transmitter to ensure it is installed in a horizontal position with the bubble centered (as shown in Figure ⑨).

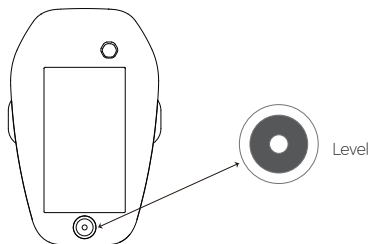
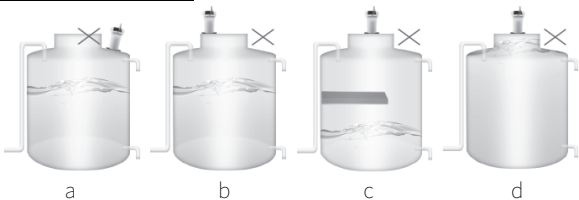


Figure 9

Examples of Incorrect Installation



- a. The transmitter is not installed in a horizontal position.
- b. The transmitter is too close to the walls of the water tank.
- c. There are solid objects in the water tank.
- d. The bottom of the transmitter is submerged in water (or another liquid).

Note: Under normal operating conditions, the transmitter is designed to effectively protect against splashing rainwater from any direction.

13 Backlight Setting

When the receiver is powered by batteries, a short press on any key will turn on the backlight for 15 seconds. If there is no other key operation, the backlight will automatically turn off. In normal mode, to keep the backlight constantly on, long-press the "+" key for 3 seconds. After hearing a "Bl" sound, the backlight will stay on continuously.

In normal mode, to turn off the backlight, long-press the "+" key for 3 seconds. After hearing a "Bl" sound, the constant backlight will turn off (as shown in Figure ⑩)

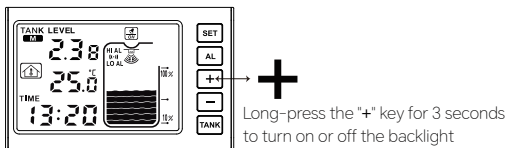


Figure ⑩

Notes: when powered by the TYPE-C power cord, the backlight defaults to constant-on, while it defaults to off when powered by batteries.

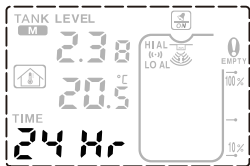
Using the constant backlight mode under battery power will consume more battery.

If you want to extend the battery life of the receiver, it is recommended to turn off the backlight when not needed.

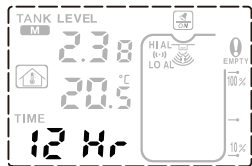
14 Time Setting

In normal mode, long-press the "SET" key to set the time. The corresponding setting item will blink during the setting process. The setting sequence is as follows: 24/12-hour format setting → hours → minutes → water tank liquid level unit selection → exit.

When setting the 24/12-hour format, press the "+" or "-" key to choose between 24 hours or 12 hours (as shown in Figure ⑪).



24-Hour Format Setting



12-Hour Format Setting

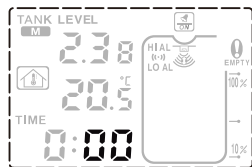
Figure ⑪

When setting the hour or minute, press the "+" or "-" key to increase or decrease the value.

Long-pressing the "+" or "-" key allows for a rapid increase or decrease in the value (as shown in Figure ⑫).



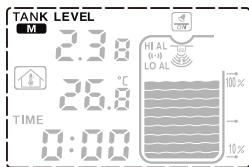
Hours



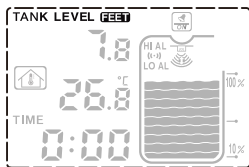
Minutes

Figure ⑫

When selecting the water tank liquid level unit, press the "+" or "-" key to choose between meters (M) or feet (FEET) as the unit for the water tank liquid level (as shown in Figure ⑬).



Unit (Meters) Display

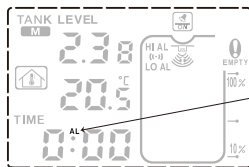


Unit (Feet) Display

Figure ⑬

15 Alarm Clock Setting

In normal mode, press the "AL" key once to switch to the alarm clock display screen. The alarm clock defaults to displaying "0:00" (as shown in Figure ⑭).



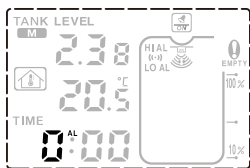
AL
Alarm Clock Mode

Figure ⑭

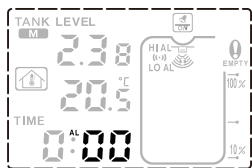
In the alarm clock display screen, long-press the "SET" key to enter the alarm clock setting mode. The corresponding setting item will blink during the setting process. The setting sequence is as follows: Alarm clock hours → Alarm clock minutes → Alarm clock on or off → HI AL (High Water Level Alarm) → LO AL (Low Water Level Alarm) → Exit.

When setting HI AL (High Water Level Alarm) or LO AL (Low Water Level Alarm), you can press the AL key to enable or disable the alarm sound.

When setting the alarm clock hour or minute, press the "+" or "-" key to increase or decrease the value. Long-pressing the "+" or "-" key allows for a rapid increase or decrease in the value (as shown in Figure 15).



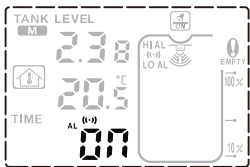
Alarm Clock Minute Setting



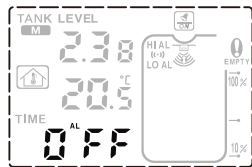
Alarm Clock Hour Setting

Figure 15

When setting the alarm clock to be on or off, press the "+" or "-" key once to choose between alarm clock on (ON) or off (OFF) (as shown in Figure 16).



Choose Alarm Clock Off



Choose Alarm Clock On

Figure 16

The alarm clock will ring for 2 minutes. During the alarm, press any key to stop the alarm, or it will automatically stop after 2 minutes. When the alarm is on ((••) visible icon), and off ((••) invisible icon) when the alarm is off (as shown in Figure 17).

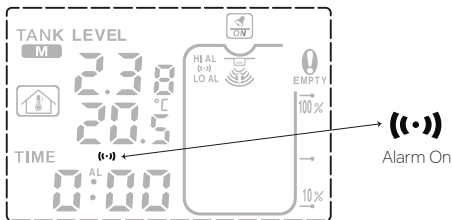
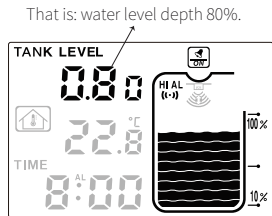
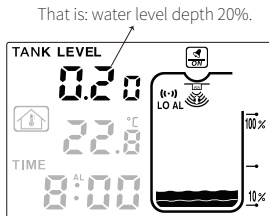


Figure 17

When setting the highest/lowest water level alarm value, press "+" or "a" key to set the value as a percentage of the liquid depth, HI AL takes the value of 60%~100%, LO AL takes the value of 10%~40%. (As shown in Figure 18)



HI AL (maximum water level alarm value setting)



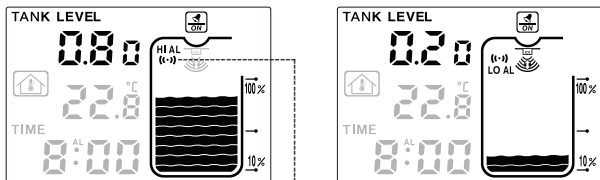
LO AL (minimum water level alarm value setting)

Figure 18

When Alarm sound is on, the alarm time 2 minutes. When alarming, press any key to stop the alarm, or the alarm will also stop automatically after 2 minutes.

The " (••) " icon is visible when the alarm is on, and the " (••) " icon is not visible when the alarm is off. (As shown in 19)

When the alarm value is reached, the corresponding "HI AL" or "LO AL" icon will keep flashing.



HI AL (maximum water level alarm) (••) LO AL (minimum water level alarm)
Alarm sound on icon (when the icon is not displayed, the alarm sound is off)

Figure 19

16 Turn On/Off the Buzzer

By default, when the receiver is powered on, the buzzer is turned on, and the icon " (••) " is displayed.

In normal mode, long-press the "AL" key for 3 seconds to turn on or off the buzzer. In the off state, the buzzer icon " (••) " is not displayed (as shown in Figure 20).

Note: Enabling or disabling the buzzer only affects button sounds; it does not affect the alarm clock ringing.

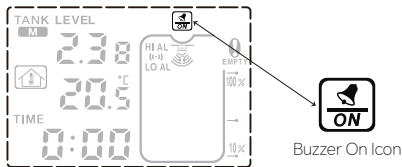
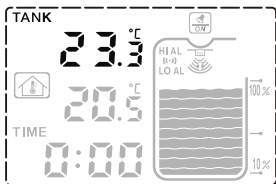


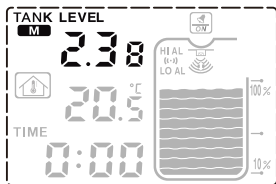
Figure 20

17 Switching Between Water Tank Level and Water Tank Temperature Display

In normal mode, press the "TANK" key once to switch between water tank level display and water tank temperature display (as shown in Figure 21).



Water Tank Temperature Display



Water Tank Level Display

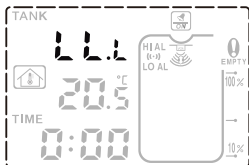
Figure 21

Note: Receiver temperature measurement range: 0°C~50°C , -32°F~122°F

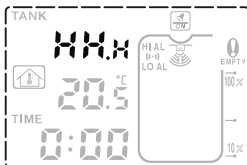
Transmitter temperature measurement range: -40°C~60°C , -40°F~140°F.

When the temperature is below the minimum value, it will display "LL.L"; when it exceeds the maximum temperature value, it will display "HH.H" (as shown in Figure 22).

High or low temperatures may affect battery performance, and the battery may not provide stable power output, potentially impacting the circuit's operation.



Low Temperature Value Display

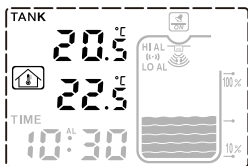


High Temperature Value Display

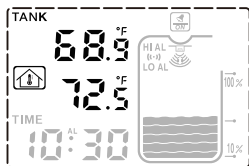
Figure 22

18 Temperature Unit Switch

In normal mode, press the "-" key once to switch between Celsius (°C) and Fahrenheit (°F) temperature units (as shown in Figure 23).




Celsius (°C)



Fahrenheit (°F)

Figure 23

19 How to Reconnect the Signal

When the transmission signal is lost, the corresponding icon "  " disappears. The water level and temperature will maintain the values from the last measurement. If there's no automatic reconnection within 1 hour, the water level value will start to flash. To manually reconnect near the transmitter, press and hold the "TANK" key for 3 seconds in normal mode. The maximum interval between two signal transmissions is 3 minutes, with one transmission every 3 minutes.

Note: If multiple connection attempts fail at close range, it is necessary to check whether the transmitter is working properly. You can first replace the battery with a new one and then restart the transmitter.

The fastest way to connect the product, in close proximity, the receiver is energized first to set it up, then the transmitter is energized.