FT0024A Ultrasonic Depth Meter User Manual





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1.Introduction

Thank you for your purchase of the FT0024A Ultrasonic Tank Depth Meter with up to 8 channel.
The following user guide provides step by step instructions for installation, operation and troubleshooting.

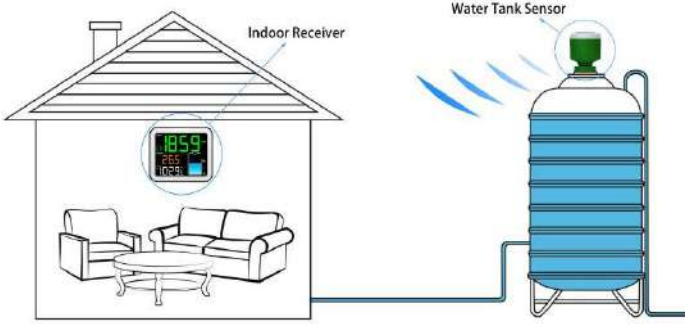


Figure 1

2.Getting Started

2.1 Parts List

QTY	Item	Image
1	**Display Console(FT0024A)** (120mm)L*(138mm)W*(25.8mm)H **LCD Dimensions:**96mm*111mm	
1	**Ultra-sonic Depth Meter (FT033TA)** (100mm)L*(105mm)W*(138mm)H **LCD Dimensions:** 45mm*45mm **Solar panel size:** 60mm*60mm	
2	Lag Screws for Mounting to horizontal plastic surface M4*30mm(L)	

1	Power Adapter for the console	
1	Manual	

2.2 Recommend Tools

1. Screwdriver (for transmitter)
2. Hammer and nail for hanging display console.

2.3 Ultrasonic Depth Meter Sensor Set Up

Note: Do not use rechargeable batteries due to the lower voltage. We recommend fresh alkaline batteries for outdoor temperature ranges between -20 °C and 60 °C and fresh lithium batteries for outdoor temperature ranges between -40 °C and 60 °C. For best results, do not mix battery types or brands.

1. Remove the battery door on the base of the sensor by the finger, as shown in Figure 2 .
2. Insert 4 x AA batteries into the battery box, observing the correct polarity.
3. Close the battery door. Make sure that the gasket (around the battery compartment) is properly seated in its trace prior to closing the door.
4. Check the LED and LCD. The sensor LED indicator (lens cover) will light for 3 seconds, and then flash once per 30 seconds thereafter. Each time it flashes, the sensor is transmitting data.

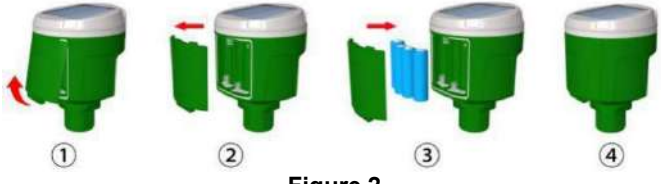


Figure 2



Figure 3

2.3.1 Display Transmitter Layout

Note: This is the full-segments display layout for various models. The specific model might not have all the below illustrated features.

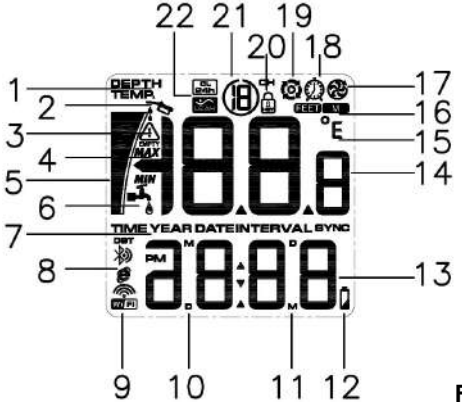


Figure 4

1. Depth or temperature icon of Tank 2. Import Pump icon (optional) 3. Empty alert icon 4. Min/Max icon for temp and depth display 5. Water level 8 element bar graph 6. Export Pump icon (optional) 7. Time, date and year indicator icon 8. Bluetooth network signal icon (optional) 9. WiFi network signal icon (optional) 10. Date display 11. Month display 12. Transmitter Low power indicator	13. Time, date or year (alternative) 14.Depth or temperature value display 15.Temperature units (°F or °C) 16. Depth units (Feet or Meter) 17. Auto mode indicator for pump (optional) 18.Timer mode indicator for pump (optional) 19. Manual mode indicator for pump (optional) 20. Lock KEY mode indicator 21. Channel 1-8 display 22. Min/Max reset for 24h and water leak icon

2.3.2 Sensor Operation

Quick Display Mode

Note: The display transmitter has five keys for easy operation: ***MIN/MAX/-*** key, ***Tank*** key, ***SET*** key, ***CHANNEL/+*** and ***TX*** key.

While in Normal Mode, press (do not hold) the ***SET*** key to enter the Quick Display Mode as follows:

- Once for time, date and year display.

While in Normal Mode, press (do not hold) the ***TANK*** key to enter the Quick Display Mode as follows:

- Once for depth and temperature value display.

While in Normal Mode, press (do not hold) the ***MIN/MAX/-*** key to enter the Quick Display Mode as follows:

◆ Once for Maximum and Minimum value display.

While in Normal Mode, press (do not hold) the ***TX*** key to test and transmit the temperature and liquid depth for one time.

NOTE: The receiver will not update from the transmitter if it is not in receiving mode.(the remote search icon disappears.)

When the sensor unit is powered up, the LCD display activates for 3 seconds.



Figure 5

Secondly, the unit displays the type number of transmitter for 2 seconds.(The type number is only to identify the specific version of model in our product series. A0010F is displayed as below is just a sample. Your unit does not necessarily displays this way.)



Figure 6

Then the unique Device ID number of transmitter will be displayed for 2 seconds. (A808 in below display is only a sample. Your unit does not necessarily displays this way.)



Figure 7

NOTE: It is important that no transmitters with same channel number are nearby during paring with receiver. When there are more than one transmitters with same channel number within receiving range, the receiver sticks to the one whose signals are synchronized first. The synchronized transmitter ID can be checked on receiver. Up to 8 transmitters with different channel numbers can be connected to one receiver.

Setting tank Depth and the Air Gap

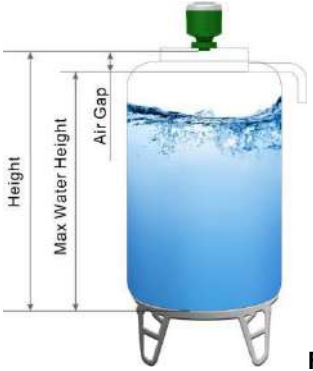


Figure 8

Then, the unit displays tank depth **(HEIGHT in Figure 8)** setting mode(Only for the first time of powering).



Figure 9

Display of "2.00"(default) and empty level flashes（Figure 9）. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease depth. Press and hold ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease tank depth at greater step.

● NOTE: Tank depth is the distance between the bottom of the transmitter to the bottom of tank. Tank depth range is 0.01M(min)~ 5M(max).

If tank depth is not set within 30 seconds or press the TX key the unit will switch to normal display mode automatically. (Don't set the tank depth and air gap under normal working condition).

Finally, press the **SET** key once,the unit displays Air Gap setting mode.



Figure 9a

Display of "0.00"(default) and full level flashes（Figure 9a）.

Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease air gap. Press and hold ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease air gap at greater step.
Press SET key once to normal display mode.

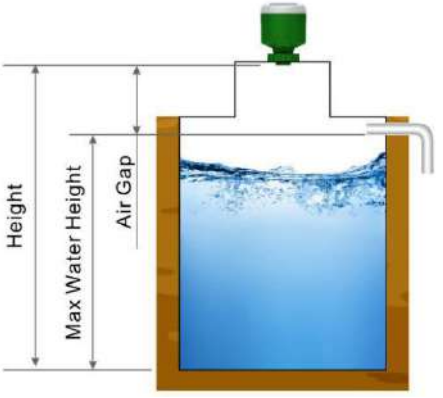


Figure 9b

● Air Gap: Distance between bottom of the transmitter to the maximum fluid level.
If you miss this steps or want to correct it, you can set it later as follows.
In normal operation mode, press and hold **SET** and **TANK** keys for 5 seconds until tank depth and air gap value starts flashing. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease depth. Press and hold ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease tank depth at greater step.

Make sure not to immerse the sensor into liquid.
In normal display mode:
Press and hold ***SET*** key for 3 seconds to enter program menu.

● 12/24H: 12Hr or 24Hr will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to select 12H or 24H. Press SET key to move to

hour setting.
● HOUR: Hour value will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease hour value. When hour value is set press SET key to set minute value.

● MINUTE: Minute value will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease minute value. When minute value is set press SET key to set date format.

● DATE FORMAT: Date format will flash(M-D or D-M). Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to select date format of Month-Day or Day-Month. When data format is set press SET key to set month (in month-day format) or date (in day-month format).

● MONTH: Month will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease month (date). After month (date) is set press SET key to set date (month).
● DATE (Day): Date (Day) will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease date (day). After date (day) is set press SET key to set year.

● YEAR: Year will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to increase or decrease year. After year is set press SET key to set depth unit.

● Level unit will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to select water level unit of Feet or Meter. After press SET key to set temperature unit.

● Temperature unit will flash. Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to select temperature unit of C or F. After temperature unit is set press SET key to set MIN/MAX record

format.
●CL24h no/off icon will flash, Press ***MIN/MAX/-*** key or ***CHANNEL/+*** key to select **CL 24H** icon on/off (The MIN/MAX/- can be programmed to clear daily (at midnight) or manually), press SET key to exit

◆ **Set Up Channel Number**

In the Normal mode, press and hold the ***CHANNEL/+*** key for 3 seconds, the channel number will flash (the default is CH1). Then press the ***CHANNEL/+*** key or ***MIN/MAX/-*** key to adjust the channel number from 1 to 8
Press SET key to exit.

If channel number is changed during working with display console, you need to re-synchronize to get the correct channel number and readings on the display console.

◆ **Check and Reset MIN/MAX Value**

● In normal display mode press **MIN/MAX/-** key once to check the max value of level or sensor temperature.
● Press **MIN/MAX/-** key again to check the min value of level or sensor temperature(press the **Tank** key to switch).
● Press **MIN/MAX/-** key again to exit.

● In the MIN/MAX mode, when min/max icon and min/max values are displayed, press and hold the **MIN/MAX/-** key for 3 seconds (the CLR will display in time area), the min/max records will be reset to current value.

◆ **Locking Keys**

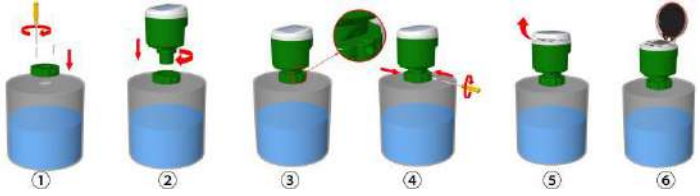
● In normal display mode, press and hold **TANK** and **TX** key at the same time for five seconds to lock keys to prevent the operation mistakes(The LOC icon  will remain display). After the keys are locked, all key operations become invalid.

Press and hold **TANK** and **TX** key for 5 seconds again to unlock keys. (The **UNLOC** letter will display for 3 seconds)

2.3.3 Remote Sensor Installation

1. Drill a hole in the place that you have selected on the tank's top surface using a 35mm hole-saw. (Figure 10)
2. Remove cap from the hole and insert transmitter base, ensuring the weather seal is securely in place (Both side of Cap).
3. Tighten the transmitter base on to the tank with 2 stainless steel self-tapping, counter sunk screws supplied. Do not over tighten!
4. Screw the transmitter into the base. Ensure the transmitter is vertical on top of the tank and level. Ensure that the transmitter unit is screwed correctly into the base and that the threads have not crossed, to give a secure seal.

A: Fixing the transmitter with 2 stainless steel self-tapping



B: Fixing the transmitter without 2 stainless steel self-tapping (you already have a tank lid which thickness is less than 15MM)

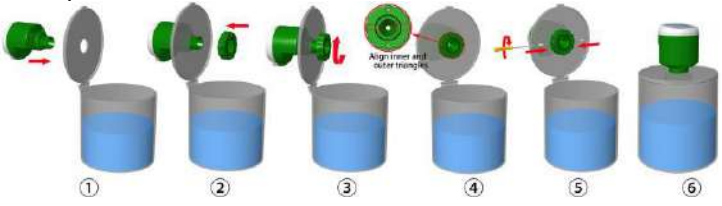


Figure 10

Height does not include the base/piers which tank sits on.



Figure 11

Press the RESET button in the battery case with a pin or needle if the unit can not work.

Note: Hold the **MIN/MAX/-** key and install the battery simultaneously, the RES will display and restore to factory default settings.

2.3.4 Set Up Sketch

The following picture illustrates transmitter installation:

1.Solar Panel
2.Battery
3.Screw
4.Bracket
5.Sonic sensor
6.Tank

NO	R(m)	H3(m)
1	0.1	≤1
2	0.2	≤3
3	0.3	≤5

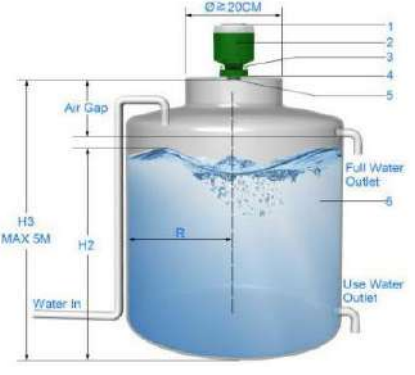
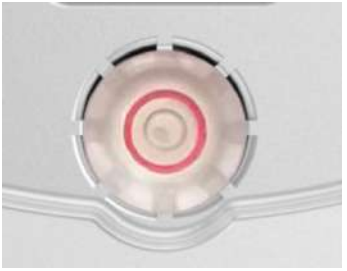


Figure 12

Please pay attention to the following issues in installation:
1) The distance between transmitter bottom and highest liquid surface must be 0.01m or more(Air Gap).
2) The maximum depth the unit can measure is 5m (16.4ft).
3) Observe the balance bubble on the sensor to ensure it is installed at a level horizontal position.



Examples of Wrong Installation

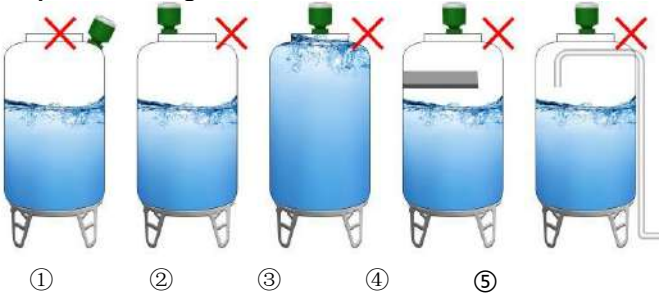


Figure 13

1) The sensor is not installed at a level horizontal position.
2) The sensor is too close to the TANK wall.
3) The transmitter bottom is immersed into liquid.
4) There are solid objects in the tank.
5) There are pipes of inlet or outlet in the tank.



2.3.5 Best Practices for Wireless Communication
Wireless communication is susceptible to interference, distance, walls and metal barriers. We recommend the following best practices for trouble free wireless communication.
1. Electro-Magnetic Interference (EMI). Keep the console several feet away from computer monitors and TVs.
2. Radio Frequency Interference (RFI). If you have other 433 MHz devices and communication is intermittent, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid intermittent communication.
3. Line of Sight Rating. This device is rated at 300ft(100m) line of sight (no interference, barriers or walls) but typically you will get 100ft(30m) maximum under most real-world installations, which include passing through barriers or walls.

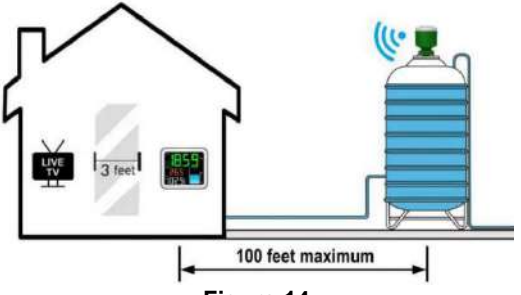


Figure 14

4. Metal Barriers. Radio frequency will not pass through metal barriers such as aluminum siding. If you have metal siding, align the remote and console through a window to get a clear line of sight.

The following is a table of reception loss vs. the transmission medium. Each “wall”or obstruction decreases the transmission range by the factor shown below.

Medium	RF Signal Strength Reduction
Glass (untreated)	5-15%
Plastics	10-15%
Wood / Brick	10-40%
Concrete	40-80%
Metal	90-100%

3. Display Console Set Up

Plug in the display console with power adapter.

AC ON will display in the time area for three seconds when powered up.

Note: It is recommended to plug in the power adapter to reduce the battery consumption and extend the service life

The console will instantly display indoor temperature, time and date.

Then all of the LCD segments will light up for a few seconds to verify all segments are operating properly AAA batteries can be used as back-up power source. (It is not recommended to use batteries as sole power source)

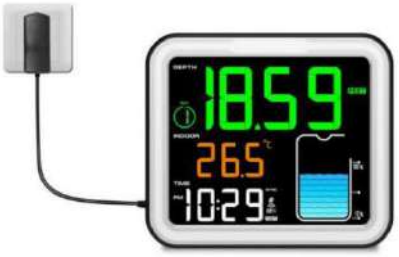


Figure 15

Remove the battery door on the back of the display, as shown in Figure 16. Insert three AAA (alkaline or lithium, avoid rechargeable) batteries in the back of the display console.



Figure 16

4. Display Features

Note: This is the full-segments display layout for various models. The specific model might not have all the below illustrated features.

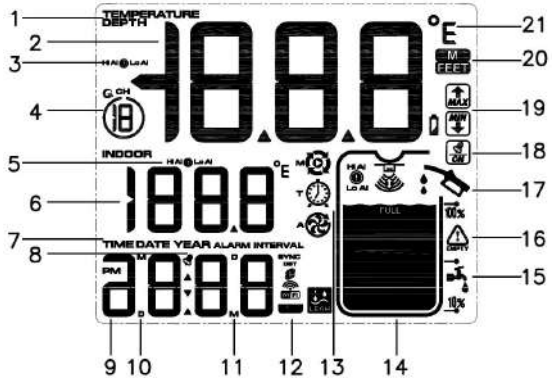


Figure 17

1. Depth or temperature icon of Tank
2. Depth or temperature value display
3. Temperature HI/LO alarm icon
4. Channel 1-8 and Scroll mode indicator
5. Indoor temperature HI/LO alarm icon
6. Indoor temperature value display
7. Time, date and year
8. Alarm of time icon
9. Time, date or year (alternative)
10. Date display
11. Month display
12. Min/Max reset for 24h icon, WiFi network signal icon, and water leak icon (optional)
13. Auto /Timer/ Manual mode indicator for pump(optional)
14. Water level 10 element bar graph
15. Export Pump icon (optional)
16. Empty alert icon
17. Import Pump icon (optional)
18. Alarm and KEY sound On indicator
19. Min/Max icon for temp and depth display
20. Depth units (Feet or Meter)
21. Temperature units (°F or °C)

5.Console Operation

Note: The display has six keys for easy operation: ***MIN/MAX/-***

key, ***SET*** key, ***CHANNEL*** key, ***TANK /+*** key***, ALARM*** key (Five keys on the right side) and ***SNOOZE/ LIGHT*** key (On the top).

While in Normal Mode, press (do not hold) the ***SET*** key to enter the Quick Display Mode as follows:

◆ Once for time, date and year display.

While in Normal Mode, press (do not hold) the ***TANK*** key to enter the Quick Display Mode as follows:

◆ Once for depth and temperature value display.

While in Normal Mode, press (do not hold) the ***ALARM*** key to enter the Quick Display Mode as follows:

◆ Once for Hi(included Timer) and LOW mode of alarm value display.

While in Normal Mode, press (do not hold) the ***MIN/MAX/-*** key to enter the Quick Display Mode as follows:

◆ Once for Maximum and Minimum value display.

While in Normal Mode, Press the ***CHANNEL*** button to switch the sensor display between remote tank sensors 1 through 8, and scroll mode . In scroll mode, all of the detected tank sensors will be displayed in five second intervals.

5.1 Setting

In normal display mode press **SET** key for 3 seconds to enter program menu.

● 12/24H: 12Hr or 24Hr will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to select 12H or 24H. Press SET key to move to hour setting.

● HOUR: Hour value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease hour value. When hour value is set press SET key to set minute value.

● MINUTE: Minute value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease minute value. When minute value is set press SET key to set date format.

● DATE FORMAT: Date format will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to select date format of month-day or day-month. When data format is set press SET key to set month (in month-day format) or date (in day-month format).

● MONTH (DATE): Month (date) will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease month (date). After month (date) is set press SET key to set date (month).

● Day : Date (day) will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease date (day). After date (day) is set press SET key to set year.

● YEAR: Year will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease year. After year is set press SET key to set temperature unit.

● Temperature unit will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to select temperature unit of °C or °F. After temperature unit is set press SET key to set level unit.

●Water Level unit will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to select water level unit of feet or meter. After level unit is set press SET key to set MIN/MAX record format.

●MIN/MAX ON/OFF icon will flash, Press **MIN/MAX/-** key or ***TANK /+*** key to select CLEARS 24H icon on/off, (The MIN/MAX/- can be programmed to clear daily (at midnight) or

manually),press SET key to set buzzer level.

●Buzzer Level will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to adjust buzzer level from 0 (off), 1 (low), 2 (middle) to 3 (loud). After buzzer level is set press SET key to exit.

5.2 Level and Temperature Switch

In normal display mode press **TANK** key to switch from level display to remoter temperature display or switch from remoter temperature display to level display.

5.3 Date Switch

In normal display mode press **SET** key once to check the current TIME,DAY, and YEAR;

5.4 Check and Reset MIN/MAX Value

● In normal display mode press **MIN/MAX/-** key once to check the max value of level or sensor temperature.

● Press **MIN/MAX/-** key again to check the min value of level or sensor temperature. (press the **Tank** key to switch)

● Press **MIN/MAX/-** key again to exit.

● In the MIN/MAX mode, min 

or max 

icon and value displayed. Press and Hold the **MIN/MAX/-** key for 3 seconds (the CLR will display in time area), the temperature and level displayed minimum or maximum records will be reset to current value.

5.5 Alarm

5.5.1 Set Time Alarm

In normal display mode press **ALARM** key to the alarm mode. Previously set time alarm will display. Press **SET** key 3 seconds to set alarm hour. Alarm hour will flash. Press **MIN/MAX/-** key or

TANK /+ key to increase or decrease alarm hour. After alarm hour is set press **SET** key to set alarm minute. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease alarm minute.
During setting press **ALARM** key to turn on/off time alarm. After alarm minute is set press **SET** key to set indoor temperature high or low alarm.

5.5.2 Set Indoor Temperature High and Low Alarm
After finish time alarm setting previously set indoor temperature value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease high alarm value. After temperature high alarm is set press **SET** key to set temperature low alarm. Previously set low alarm value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease low alarm value.
During setting press **ALARM** key to turn on/off temperature alarm. After indoor temperature low alarm is set press **SET** key to set tank (1-8CH) temperature and level high or low alarm.

5.5.3 Set Tank Temperature High and Low Alarm
After finish indoor temperature alarm setting previously set tank temperature alarm value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease high alarm value. After temperature high alarm is set press SET key to set temperature low alarm. Previously set low alarm value will flash. Press **MIN/MAX/-** key or ***CHANNEL/+*** key to increase or decrease low alarm value.
During setting press **ALARM** key to turn on/off tank temperature alarm. After tank temperature low alarm is set press **SET** key to set tank (1-8CH) level high or low alarm.

5.5.4 Set Liquid Level High and Low Alarm
After finish tank temperature alarm setting previously set liquid level value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to

increase or decrease high alarm value. After level high alarm is set press SET key to set level low alarm. Previously set level low alarm value will flash. Press **MIN/MAX/-** key or ***TANK /+*** key to increase or decrease low alarm value.
During setting press **ALARM** key to turn on/off liquid level alarm. After level low alarm is set press **SET** key to exit.

The following is a list of the individual alarm parameters that are set (in order):
1. Alarm hour
2. Alarm minute
3. Indoor temperature high alarm
4. Indoor temperature low alarm
5. Tank (channel 1-8) temperature high alarm
6. Tank (channel 1-8) temperature low alarm
7. Tank (channel 1-8) level high alarm
8. Tank (channel 1-8) level low alarm

Note: To prevent repetitive alarming of temperature, there is a 0.5 °C tolerance band. For example, if you set the high alarm to 26.7 °C and silence the alarm, the alarm icon will continue to flash until the temperature falls below 26.2 °C, at which point, the alarm will reset and must increase above 26.7 °C to activate again.

5.6 Enable or Disable Alarm Buzzer
In default setting the alarm buzzer is enabled. To disable the alarm buzzer press **ALARM** key for 5 seconds. The alarm icon  will disappear. (The beeper can be silenced for both alarms and key strokes.)

Press **ALARM** key 5 seconds again to enable alarm buzzer. The alarm  icon will appear.

5.7 Empty Alert



When water level is less than 20% of depth the icon will display.

5.8 Channel Selection Mode

The console supports up to 8 transmitters.

Press the ***CHANNEL*** button to switch the sensor display between remote tank sensors 1 through 8, and scroll mode . In scroll mode, all of the detected tank sensors will be displayed in five second intervals.

- **Note:** Only when there are more than one tank sensors connected with the display console this feature can be activated.

5.9 Sensors Search Mode

If a sensor loses communication, dashes (--.-) will be displayed. If a specific channel is lost, press the ***CHANNEL*** button to display that channel prior to entering the search mode.

To reacquire the lost signal, press and hold the ***CHANNEL*** button for 3 seconds to enter the sensor search mode.

If new sensors are added, subtracted, or multiple sensor channels are lost, press and hold the ***CHANNEL*** button for 5 seconds to search all available sensor channels, the remote search icon will be constantly displayed for up to 10 minutes. Once all available signals are reacquired, the remote search icon will turn off, and the current values will be displayed.

- **NOTE:**

If the console is powered up again, the LCD display activates for 3 seconds. the system displays the type number of console for 2 seconds. (Only for this model)



Figure 18

Then displays the unique device ID and Channel number of transmitter that have already been received for 2 seconds. (If the pairing is successful, the receiver will only recognize the transmitter with this ID) .



Figure 19

When the console is restarted, it continues to receive the transmitter(s) that it received last time. The ID number(s) is(are) saved in the console and will appear in the left lower corner.

If you want to synchronize a transmitter with new ID, hold the ***CHANNEL*** button for 3 seconds. The console will search the new ID number from the new transmitter (ID number is displayed on the LCD of transmitter when power up).(Reference for 2.3.2 Sensor Operation)

Once the signal is reacquired, the remote search icon will turn off(ID **** display for 3 seconds in the left lower corner of console display), and the current values will be displayed.

Note:Hold the **MIN/MAX/-** key and install the battery simultaneously, RES will display and all ID numbers of transmitt - ers stored in the console are cleared.

5.10 Snooze and Light Mode

If the time alarm sounds, and you want to silence the alarm, press the **SNOOZE/LIGHT( )**key. The alarm icon will continue to flash and the alarm will silence for five minute. Press any key (**MIN/MAX/- , SET, ALARM, CHANNEL or *TANK* /+**) to permanently exit the **Snooze** mode.

There are three adjustable levels of backlight brightness.

Press the **SNOOZE/LIGHT( )** key to toggle between the four lighting states, off states, power saving state, general lighting state, bright state.

If the unit is powered only by batteries (without power adaptor), the backlight is default to be off. Press the **SNOOZE/ LIGHT( )** button once the backlight will turn on for five seconds, and if no operation is performed for three seconds, the backlight will turn off.

5.11 Check Depth of Tank

In normal operation mode, If you want to check tank depth of various channels, press and hold **SET** and **TANK** keys for 5 seconds.



Figure 20

Then press **SET** key to check tank depths of all channels and to exit.

Note: The tank depth can only be adjusted on the transmitter. Do not adjust it on the console.

5.12 Adjustment or Calibration

Note: Calibration of temperature and liquid level value can only be adjusted on the console. Do not calibrate on the transmitter.

The purpose of calibration is to fine tune or correct for any sensor error associated with the devices margin of error. The measurement can be adjusted from the console to calibrate to a known source.

Calibration of temperature is only useful if you have a known calibrated source you can compare it against, and is optional. This section discusses practices, procedures and sources for sensor calibration to reduce manufacturing and degradation errors. Do not compare your readings obtained from sources such as the internet, radio, television or newspapers.

5.12.1 Calibration

In normal mode, press and hold the **SET** and **MIN/MAX/-** keys at the same time for five seconds to enter the calibration mode.
The indoor temperature will begin flashing.

Press the [+] or [-] key to increase or decrease the temperature reading (in increments of 0.1) . Press and hold the [+] or [-] key for three seconds to increase or decrease rapidly.

Press the **ALARM** key to reset current value.
Press the **SET** key switch to tank temperature(CH1-8) calibrated mode.

The tank temperature will begin flashing.
Press the [+] or [-] key to increase or decrease the temperature reading (in increments of 0.1) . Press and hold the [+] or [-] key for three seconds to increase or decrease rapidly.

Press the **SET** key switch to tank level (CH1-8) calibrated mode.

The tank level will begin flashing.
Press the [+] or [-] key to increase or decrease the level reading (in increments of 0.01). Press and hold the [+] or [-] key for three seconds to increase or decrease rapidly.

Press the **SET** key switch to exit calibrated mode. To exit the calibration mode at any time, press the **SNOOZE/LIGHT(** **)** button on the top of the display console. If no operation is performed, the calibration mode will timeout in 30 seconds.

Note: Hold the **MIN/MAX/-** key and install the battery simultaneously, the RES will display and restore to factory default settings.

6.Glossary of Terms

Term	Definition
Accuracy	Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured.
Range	Range is defined as the amount or extent a value can be measured.

7.Specifications

7.1 Wireless Specifications

- Line of sight wireless transmission (in open air): 150m(500 feet), 30m (100 feet) under most conditions.
- Frequency: 433 MHz
- Update Rate: 30 seconds or 3mins (When the current measurement value changes by more than 0.03m compared to the previous one, it updates after 30 seconds, otherwise, it will be update after 3 minutes.)

7.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Indoor Temperature	0 to 60 °C (32 to 140°F)	± 1 °C (± 2°F)	0.1 °C(°F)
Outdoor Temperature	-40 to 60 °C (-40 to 140°F)	± 1 °C (± 2°F)	0.1 °C(°F)
DEPTH	0 – 5m(16.4feet）	+/-0.03m (0.09 feet)	0.01m(0.01feet)

7.3 Power Consumption

1) Display console:

- Adapter: 5V~1A(included)
- 3 x AAA batteries (Not included)

2) Depth transmitter:

- 4 x AA 1.5V batteries (Not included)
- Life: Minimum 24 months
- **Note**: Solar panel doesn't charge the battery, and it is an auxiliary power supply

8.Troubleshooting Guide

Wireless remote not reporting in to console. There are dashes (--.-) on the display console.	If any of the sensor communication is lost, dashes (--.-) will be displayed on the screen. To reacquire the signal, press and hold the **CHANNEL** button for 3 seconds, choose the lost sensor and press **SET** button, and the remote search icon will be constantly displayed. Once the signal is reacquired, the remote search icon

	will turn off, and the current values will be displayed. The maximum line of sight communication range is 150 m and 30 m under most conditions. If the sensor assembly is too far, move the sensor assembly closer to the display console.If the sensor assembly is too close (less than 1.5m), move the sensor assembly away from the display console. Make sure the remote sensor LCD display is working and the transmitter light is flashing. Make sure the remote level sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill). Move the display console away from electrical noise generating devices, such as computers, TVs and other wireless transmitters or receivers.
Indoor and Tank Temperature do not agree	Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor temperature sensors should agree within 2°C (4°F)(the sensor accuracy is ± 1°C(± 2°F). Use the calibration feature to match the indoor and outdoor temperature to a known source.
The measurement is wrong level	Ensure before you start that the tank is positioned on a level surface.

	Ensure before you setting that the tank Height and Air Gap value are correct. Ensure that the sonic path is clear to the bottom of the tank. The transmitter can't sit at an angle as this gives an incorrect level. Ensure that the transmitter **is not in the** wrong position.
Do not measure depth	Ensure the measurement is no higher than any opening at the top of the tank. Ensure that the unit is fitted to the inner tank if it is a bunded tank.
Do not set the time or date, and alarm	While in Normal Mode, **press and hold** the **SET** key for at least three seconds to enter the Set Mode. While in Normal Mode, press the **ALARM** key once to enter the alarm mode, Then **press and hold** the **SET** key for three seconds to alarm setting mode. The alarm parameter will begin flashing.
All keys of the transmitter have no function	In Normal Mode, Press and hold **TANK** and **TX** key for 5 seconds to unlock keys. (The **UNLOC** letter will display for 3 seconds)
Do not sound for both alarms and key strokes	In normal mode, **press and hold** the **ALARM** key for three seconds to turn the beeper on.