AQUATEL

INSTRUCTION MANUAL

Wireless Level Indicator

MODEL S207E

www.aquatel.co.nz

Aquatel NZ Ltd
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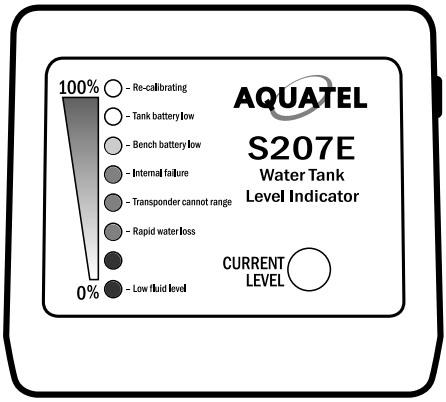
North Auckland, New Zealand



External Power Jack
6V DC

- 4 x AA Alkaline batteries (supplied)
- 92mm W x 73mm D x 50mm H (3 5/8" W x 2 7/8" D x 2" H)
- PCB Loop Antenna

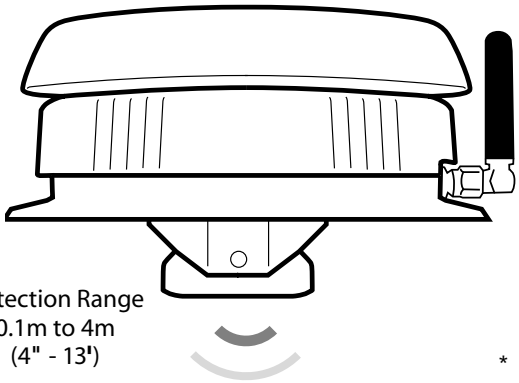
Display Unit

Individually Security coded
433 MHz CE (Aus/NZ/Europe)
920 MHz (USA/Asia)

up to 300m*
(1,000')

- Temperature range : -10 to +60°C (14 to 140°F)
- Approval : AS/NZS 4268:2003 1:2005 CE
- Housing : ABS Plastic
- Circuit Boards : ROHS compliant

Tank Unit



Detection Range
0.1m to 4m
(4" - 13')

- Use on any non-flammable fluid (water, diesel, septic etc)
- 4 x AA Alkaline batteries (supplied)
- 135mm diameter x 80mm H (5 3/8" D x 3 1/8" H)
- ¼" Wave Whip Antenna

* Range shown is line of sight. Objects between units will reduce range

The S207E is a wireless tank level indicator for use on fluid tanks, in septic systems or on other tanks and cisterns that contain non-flammable liquids.

The Tank Unit is mounted on the top surface of the tank or cistern and uses ultrasonic signals to detect the liquid level inside. This is then wirelessly transmitted to the Display Unit. When the button is pressed the lights show you the fluid level. When you are about to run out the "Low Fluid Level" light flashes to alert you.

Main features and benefits:

- Peace of Mind - know exactly how much fluid is in the tank at any time
- Ultrasonic level measurement - no holes in side of tank or mechanical floats
- Resilient – stands up to all climatic conditions: high winds, rain, snow and extreme heat
- Stylish – the Tank Unit is low profile and the Display Unit looks good in any kitchen
- Wireless system - no need for control wires or trenching
- Intelligent – robust and reliable software which notifies you of anything that needs your attention
- Tough – designed and constructed in New Zealand using materials that withstand the harshest environment.

Before you install

Try your unit!

1) Insert the batteries supplied in the Display Unit and Tank Unit.
2) Hold the Tank Unit so the ultrasonic signal bounces off a flat reflective surface such as the floor or wall.
3) Watch the Display Unit update
4) Test the range by leaving the Tank Unit on the top of the tank and walking away with the Display Unit. If the Display Unit beeps every few seconds the units are in range. When the Display Unit stops beeping the units are out of range.

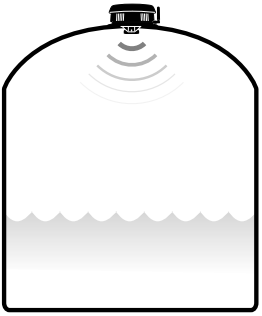
Take the batteries out while you read the rest of the manual and find your tools.

Note - Ensure you read the complete manual before installation.

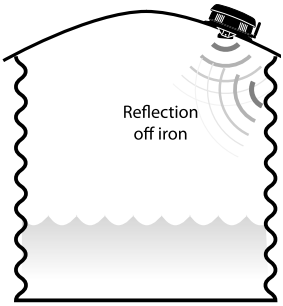
Install Tank Unit

① Choose location for Tank Unit on the top of the tank or cistern.

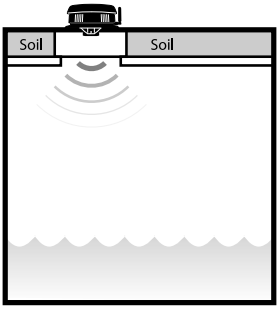
✔ **Ideal.** Unit in centre of tank



✘ **Incorrect.** Mount unit away from ribbed walls to prevent signal reflection off walls



✔ **Correct.** For buried tanks mount unit in centre of lid, or on bracket mounted in riser

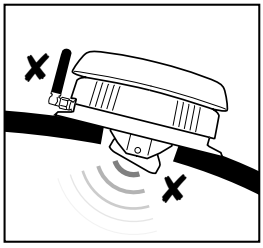


Note - For tanks less than 1500 mm (5') deep mount unit in centre of tank.
- Mount unit at least 100 mm (4") from the high water level.

② Drill a 50mm (2") hole in tank. For thick concrete tanks make a 75mm (3") hole.

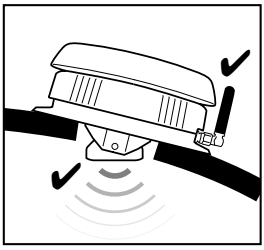
③ Measure the depth of tank to the base (or to the water outlet). Write this measurement down.

④ Insert Tank Unit in hole and rotate so tank antenna is on the lower side (to prevent water entering unit). Ensure that the transducer cone underneath is pointing directly at the surface of the water.



✘ Antenna should be mounted on the opposite side

✘ Transducer is not pointing at the surface of the water



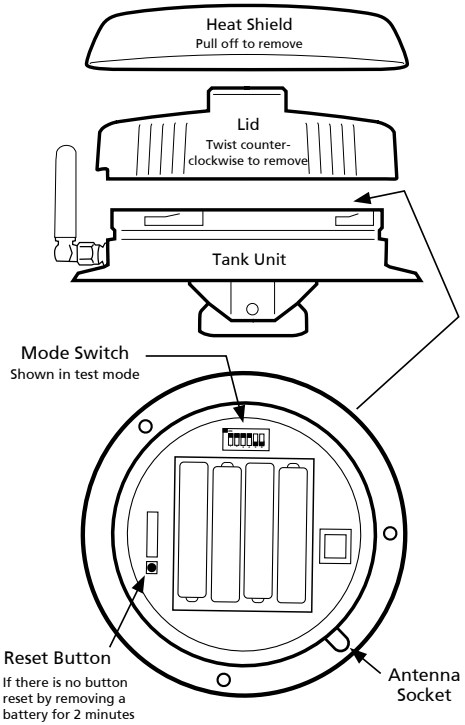
✔ Water will not enter antenna hole

✔ Transducer is parallel to water

For plastic tanks use the supplied screws to attach the Tank Unit to the tank.
For metal tanks first drill 3mm or ⅛" holes, and then fasten using the screws.
For concrete tanks drill 6mm or ¼" holes, insert the supplied plastic plugs and then fasten using the screws.

Tank Unit setup

⑤ Remove cap from Tank Unit by turning counter-clockwise and insert batteries (supplied).



Depth mm feet - inches	Mode Switch Position	Depth mm feet - inches	Mode Switch Position
TEST MODE		2500 8'-2"	
1000 3'-3"		2600 8'-6"	
1100 3'-7"		2700 8'-10"	
1200 3'-11"		2800 9'-2"	
1300 4'-3"		2900 9'-6"	
1400 4'-7"		3000 9'-10"	
1500 4'-11"		3100 10'-2"	
1600 5'-3"		3200 10'-6"	
1700 5'-7"		3300 10'-10"	
1800 5'-11"		3400 11'-2"	
1900 6'-3"		3500 11'-6"	
2000 6'-7"		3600 11'-10"	
2100 6'-11"		3700 12'-2"	
2200 7'-3"		3800 12'-6"	
2300 7'-7"		3900 12'-10"	
2400 7'-10"		4000 13'-1"	

⑥ Set Depth. The Tank Unit comes factory set in test mode. In test mode the Tank Unit takes a new reading and transmits this data every few seconds. Once you have checked communication is working, take the Tank Unit out of test mode. (Leaving the unit in test mode will drain the batteries quicker).

In order for the S207E to determine whether the tank is half full or almost empty, the depth of the tank must be input.

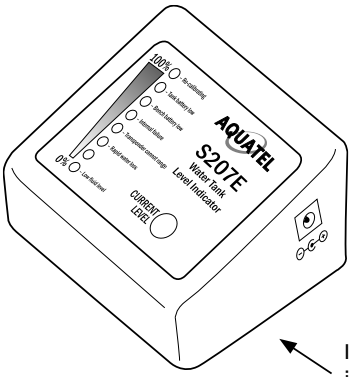
This is done by changing the position of the Mode Switch inside the Tank Unit. Use the measurement taken in ③ and find the nearest depth on the table to the right. Change the Mode Switch to the switch position indicated. Once the Mode Switch has been set, press the Tank Unit reset button.

Display Unit Set Up

⑦ Insert batteries into the base of the Display Unit.

Note: Display Unit can alternatively be powered by a 6V DC supply

The top light will flash as the Display Unit calibrates and looks for the Tank Unit. When the Tank Unit is found the depth will be displayed on the Display Unit.
8 lights means the tank is full,
2 lights means it is ¼ full.



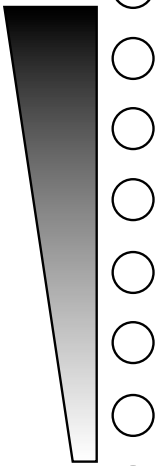
Power Jack 6 Volts DC
300mA or higher
Centre pin positive 2.5mm

Insert 4 x AA batteries in base of unit

Level Updates
If Tank Unit Mode Switch is set to 'test mode' – level updates every two seconds.
If Tank Unit Mode Switch is set to 'tank depth' – level updates 3-4 times an hour (every 15-20 minutes).

LED Lights

The LED lights flash to notify you of any abnormal operating conditions.
(They flash even when the button is not pressed)



– Re-calibrating	Signal has been lost – if this occurs regularly check range (see next page)
– Tank battery low	Replace batteries in Tank Unit
– Display battery low	Replace batteries in Display Unit
– Internal failure	Reset Display Unit (hold down button). If error persists reset Tank Unit. If error still persists check range (see next page)
– Transponder cannot range	Tank Unit can not detect range due to something blocking sensor, or the sensor is not rotated so it is level with the liquid surface
– Rapid water loss	The tank level has dropped very quickly. Check for leaks. If this occurs without any fluid loss, this could be a sign that your sensor is not level to the water.
– Low fluid level	The tank is almost empty. The red LED flashes and the Display Unit beeps.

Testing Range

1) Remove Tank Unit lid and set Mode Switch to test mode. Press Tank Unit reset button.
2) Reset Display Unit by holding down button for 3 seconds. The Display Unit will beep every two seconds when in range of Tank Unit.

Troubleshooting

If the Display Unit is not updating then:

- Reset the Display Unit. (Hold button down for three seconds until all LEDs light up)
- If problem persists reset the Tank Unit. (Take off Tank Unit lid and press reset button)
- If problem still persists check Display Unit is in range of Tank Unit

FAQ

How do I Improve the range?

The range is affected by trees, sheds, walls, buildings etc between the units.
Following are some suggestions for improving the range:

- Move the Display Unit closer to the Tank Unit
- Remove obstructions between Display Unit and Tank Unit.
  (Trees will reduce range, especially when wet or covered in snow)
- Remote mount Tank Unit antenna in a better location using a 2.4m (8 foot) extension cable. Aquatel Part: AQC4A. A higher location is better as the ground absorbs the signal
- Replace Tank Unit antenna with a high gain directional antenna. Aiming at the Display Unit will significantly increase the range (line of sight over 1000 meters, 3000 feet).
  Note: Check your local regulations regarding using this type of antenna
  (does not comply with EMC and may require a license).
  Aquatel Part: AQ433 for 433 MHz (Australasia, Europe)
  AQ920 for 920 MHz (USA, Asia)

Why is the Display Unit not displaying the correct liquid level?

- Ensure the angled cone on the Tank Unit is parallel to the fluid surface
- Ensure the Tank Unit depth has been set correctly. Adjust this by removing the Tank Unit cover and changing the Mode Switch setting using the previous table.
  If the Display Unit is showing empty but there is still water in the tank then increase the tank depth setting.
  If the tank is empty but the Display Unit is not yet showing empty then decrease the tank depth setting.
- If this occurs during periods of rainfall it will be because the Tank Unit is mounted right next to the inlet.
- The surface of the liquid has lots of bubbles (in a septic system)
- In tanks under 1500mm (5') deep ensure Tank Unit is mounted in centre.

Any other questions please email support@aquatel.co.nz

WARRANTY TERMS AND CONDITIONS

(This warranty is subject to the provisions of the Trade Practices Act and Goods and Consumer Protection Legislation of various States and Countries)

1. Aquatel NZ Ltd warrants this product will operate as designed for a period of 12 months from date of purchase from an authorized Aquatel re-seller. Subject to the conditions that follow, Aquatel NZ Ltd will repair or replace any defective products free of charge upon return of the faulty product to the authorized Aquatel re-seller.
2. This warranty excludes transportation costs to return the faulty product to the authorized Aquatel re-seller. It excludes problems resulting from failure to comply with installation instructions, from neglect or misuse, from installation outside the specified operating temperature ranges, or operation for any purposes other than those specified. Batteries are provided solely as a convenience and without warranty and may have a reduced operating lifetime due to the storage time or temperature prior to purchase.
3. This warranty applies only to the original owner and cannot be transferred to subsequent owners.
4. This warranty is subject to any consumer protection legislation in the government jurisdiction where the unit is installed.
5. Proof of purchase will be required for any warranty claims. Please record the date of purchase, dealer name, model, and serial number below and attach the sales receipt. Keep this document in a safe place.
6. Aquatel shall not be liable for any incidental or consequential damages resulting from the malfunctioning of its products or from any delays in repairing or replacing defective products.

Date of Purchase: _____

Where you purchased: _____

Model: _____

Attach proof of purchase.

0509

WARNING
Only use AA Alkaline or Lithium batteries and ensure the batteries are inserted correctly (do not reverse polarity)
Do not use rechargeable batteries (the voltage is too low).
Do not mix old and new batteries, or different types of battery.
Do not expose the batteries to excessive heat or fire.
Remove batteries if they are exhausted or if the unit will not be used for a long time.