APOLLO ultrasonic **Visual** OIL LEVEL MONITOR

READ INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

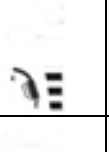
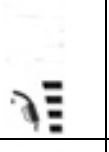
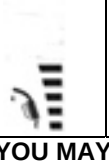
QUICK GUIDE

First Stage

	**Step 1:** Measure the tank height and from the height chart, set the relevant switches on the receiver. Using a screwdriver or tip of ball point pen, flip the relevant switches upwards (=ON). e.g. Tank height 1100mm set switches 1, 4, 5, 6 & 7. (Nozzle and 2 bars) **NB: Please refer to the chart below before setting switches.**
	**Step 2:** Plug receiver into a suitable and convenient electrical socket and switch on. The display screen on the front of the receiver will show a flashing top bar. This indicates that the receiver is awaiting a unique code. The flashing top bar will last for 2 minutes during which time you can match the transmitter to the receiver.
	**Step 3:** Hold the Visual transmitter against/touching the receiver on the right hand side, so that the black dots are aligned with the display screens facing you, as shown. Hold together for about 20 seconds to allow the unique code to be transferred. The bars will increase up the display screens. ONLY when all 10 bars are shown, will they flash to indicate that, the unique code is transferred. **For tanks <u>of 1 metre</u> in height, the matching is now complete.** Separate the Apollo Visual from the receiver and watch for double flash of red light on the Visual transmitter. You may now fit to tank.

> FOR TANKS OF 800mm AND MORE THAN 1 METRE IN HEIGHT – Continue Matching To Second Stage.<

Second Stage – Tank Height Look Up Table For Apollo Visual – Bar Display

Visual Transmitter Reading	Set Measurement		Visual Transmitter Reading	Set Measurement
	**(A)** For each setting, continue to hold Visual Transmitter until you see this symbol. Immediately separate the Visual transmitter from the Receiver. Watch for a double flash of the red light on Visual transmitter showing that the new reading has been stored in permanent memory. You will have set it to measure tank height **800mm**			Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **1700mm**
	Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **1000mm**			Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **2000mm**
	Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **1100mm**			Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **2300mm**
	Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **1200mm**			Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **2600mm**
	Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **1300mm**			Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **2800mm to 3000mm**
	Continue to hold Visual Transmitter until you see this symbol. Follow instructions as (A) above. You will have set it to measure tank height **1400mm**			**Don't forget that if you make a mistake, you can simply continue to hold Visual transmitter in matching position until the bars reset themselves and start again.**

YOU MAY NOW FIT THE TRANSMITTER TO YOUR TANK. Ensure the Visual transmitter is vertical on top of the tank. Tighten on to the tank using the 2 screws supplied. Do not over tighten.

APOLLO ultrasonic Visual OIL LEVEL MONITOR

READ INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

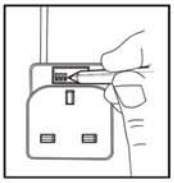
THE RIGHT CHOICE

The Apollo Visual gives a reading of the level of oil in the tank on the receiver indoors and also on the Visual Transmitter on the tank, which is a major benefit to the oil delivery person when filling. The Apollo Ultrasonic Oil Level Monitor measures the level of usable oil in your tank in 10 graduations of the tank height.

We give a full one-year warranty subject to normal conditions. Supplied with long life lithium battery (3V-CR2450). The warranty becomes invalid if the sealed unit is opened. Suitable for use in tanks for the storage of diesel fuel, kerosene, gas oil types A2, C1, C2, and D as defined by BS 2869. Check with the manufacturer and/or supplier before using with any other fluids.

The Apollo Visual will fit easily to all standard oil storage tanks (plastic or steel).

1. SETTING RECEIVER



- Accurately measure the height of your tank. Using the tank height chart below, read across to the relevant multi switch settings. The multi switches are located in a recess at the back of the receiver above the pins.
- Using screwdriver or tip of ball point pen, flip the relevant switch(es) upwards (= ON). As an example, if the tank is 850 mm high, set switches ON (Up) Number 1, 4 & 8.
- By setting switch 1 on/up, you will enable the low level audible warning. Your Apollo Ultrasonic receiver is now programmed to your tank height.

TANK HEIGHT CHART - MULTI SWITCH SETTING CHART

Measure the vertical height of the tank from the transmitter position on top of the tank to the bottom of the tank. Read to the nearest measurement on the chart.

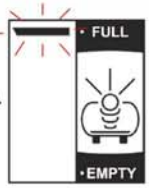
Height of tank in mm.	Set Switches On		Height of tank in mm.	Set Switches On	
	Pin Setting	Visual Setting		Pin Setting	Visual Setting
500	1		1750	1,3,4,5,6,7	
550	1,7		1800	1,2,8	
600	1,6,8		1850	1,2,7,8	
650	1,6,7,8		1900	1,2,6,7	
700	1,5,7		1950	1,2,5	
750	1,5,6		2000	1,2,5,7,8	+ 7 BARS
800	1,5,6,7,8	+ 0 BARS	2050	1,2,5,6,8	
850	1,4,8		2100	1,2,4	
900	1,4,6		2150	1,2,4,7	
950	1,4,6,7		2200	1,2,4,6,8	
1000	1,4,5,8	+ 1 BARS	2250	1,2,4,6,7,8	
1050	1,4,5,7,8		2300	1,2,4,5,7	+ 8 BARS
1100	1,4,5,6,7	+ 2 BARS	2350	1,2,4,5,6	
1150	1,3		2400	1,2,4,5,6,7,8	
1200	1,3,7,8	+ 3 BARS	2450	1,2,3,8	
1250	1,3,6,8		2500	1,2,3,6	
1300	1,3,5	+ 4 BARS	2550	1,2,3,6,7	
1350	1,3,5,7		2600	1,2,3,5,8	+ 9 BARS
1400	1,3,5,6,8	+ 5 BARS	2650	1,2,3,5,7,8	
1450	1,3,5,6,7,8		2700	1,2,3,5,6,7	
1500	1,3,4,7		2750	1,2,3,4	
1550	1,3,4,6		2800	1,2,3,4,7,8	+ 10 BARS
1600	1,3,4,6,7,8		2850	1,2,3,4,6,8	
1650	1,3,4,5,8		2900	1,2,3,4,5	
1700	1,3,4,5,6	+ 6 BAR	3000	1,2,3,4,5,6,8	

2. MATCHING RECEIVER AND TRANSMITTER

The Apollo Visual requires a two stage matching procedure.

- The **First Stage** is to match receiver to Visual transmitter and to default to 1m in height.
- The **Second Stage** is to calibrate the Visual transmitter for tanks of 800mm and more than 1m in height.

Important: Check Tank Height Look Up Table - Bar Display, corresponding to your tank height. (See Over)



- First Stage

You should match the receiver with the transmitter so that the system code is unique to your tank.You only need to do this once.

Plug receiver into a suitable and convenient electrical socket and switch on. The display screen on the front of the receiver will show a flashing top bar as shown in diagram. This indicates that the receiver is awaiting a unique code. The flashing top bar will last for 2 minutes **during which time you can match the transmitter to the receiver.**



Hold the transmitter against the receiver right hand side, as shown, **so that the black dots are aligned as shown. It will take about 20 seconds to allow the unique code to be transferred,** during which time the bars will increase up the display screens of the receiver and Visual transmitter in synch. During the matching process you will hear an audible beep to indicate matching is in progress. When all ten bars are flashing, the receiver makes a beep noise, indicating that the First Stage matching is complete and the default height of **1m** is set on the Apollo Visual transmitter.

FOR TANKS OF 1M IN HEIGHT ONLY, the calibration/ matching is now complete. Separate the Visual transmitter from the receiver. Watch for a double flash of the red light on Visual transmitter showing that the new reading has been stored in permanent memory. Proceed to **FITTING TRANSMITTER INSTUCTIONS.**

FOR TANKS OF 800mm AND MORE THAN 1 METRE IN HEIGHT, KEEP HOLDING TRANSMITTER IN PLACE TO CONTINUE MATCHING PROCEDURE TO SECOND STAGE.

APOLLO ultrasonic Visual OIL LEVEL MONITOR

READ INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

3. SETTING VISUAL TRANSMITTER - For tanks 800mm or more than 1m in height.

- Second Stage

Continue to hold together; the **Visual transmitter screen will go blank**. After about 20 seconds, the nozzle icon appears, indicating that it is in "tank height setting" mode.

Continue to hold Visual transmitter to the receiver. The Visual transmitter bar display will increase bar by bar.

Based on the tank height selected, (see bar display below), wait until the selected number of bars appear on the Visual transmitter display screen, then **seperate** Visual transmitter from the receiver.

The selected number of bars (tank height) will show. **Watch for a double flash of the red light on Visual transmitter showing that the new reading has been stored in permanent memory.**

The setup is now complete. Proceed to **FITTING TRANSMITTER INSTRUCTIONS**.

Please note there may be a variation between the reading on the Visual and on the Receiver in house. This may be one bar more or less; this is due to the restriction in the number of bars available on the Visual transmitter screen. HOWEVER WHEN FILLING COMMENCES THE BARS ON THE APOLLO VISUAL WILL REACT ACCURATELY AND RELIABLY.

(e.g. Actual tank height 1150mm, Visual set to 1100mm.)

Tank Height Look Up Table For Apollo Visual Transmitter – Bar Display

TANK HEIGHT (mm)	800	1000	1100	1200	1300	1400	1700	2000	2300	2600	2800 to 3000
Graphic on Visual Screen											
BARS	0	1	2	3	4	5	6	7	8	9	10

Second Stage Mismatch

If in the event during second stage matching one over runs the desired height settings (number of bars), continue to hold receiver and transmitter in matching position until all ten bars are flashing as the Visual reverts to blank screen and then flashing nozzle. Then hold until flashing nozzle and desired number of bars are shown. Separate the Visual transmitter from receiver. **Watch for a double flash of the red light on Visual transmitter showing that the new reading has been stored in permanent memory.**

Incorrect Setup

In the event that the incorrect number of bars were reached and the units were separated, you can reset the unit by going through the matching procedure from the **very beginning**. i.e. **(See 2. Matching Receiver and Transmitter).**

4. FITTING TRANSMITTER

The procedure is the same for fitting to both old and new tanks.



For Tank with pre-drilled 30/32mm hole

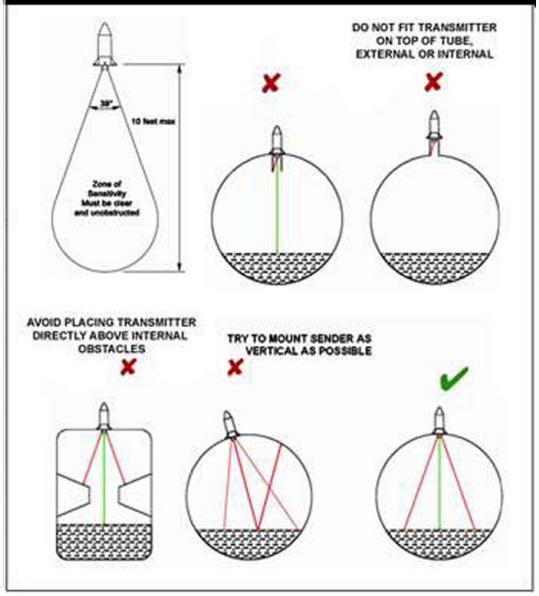
- Remove cap from hole and insert transmitter, ensuring the weather seal is securely in place.
- Ensure the transmitter is vertical on top of the tank.
- Tighten on to the tank using the 2 stainless steel 19mm long self-tapping screws supplied. **Do not use longer screws. Do not overtighten.**

For Tank without pre-drilled hole

- If tank is not pre-drilled, then using a 30/32mm hole saw, drill hole in top of tank in suitable area to allow ease of fitting of transmitter and in an area that the transmitter can see the tank contents. Position so that there are no internal obstructions. (i.e Ribs, Stays, Side of tank. internal equipment), that may interfere with ultrasonic signal.
- Use **Installation Help Diagram** on the right to insure suitable fitting.
- Ensure the transmitter is vertical on top of the tank.
- Tighten on to the tank using the 2 stainless steel 19mm long self-tapping screws supplied. **Do not use longer screws. Do not overtighten.**

YOU HAVE NOW COMPLETED THE INSTALLATION

Installation Help
(Not to Scale)



APOLLO ultrasonic Visual OIL LEVEL MONITOR

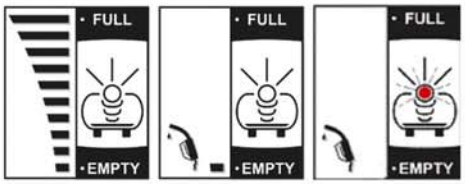
READ INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

5. SCREEN DISPLAYS - Diagrams are for illustration purposes only.

Power Failure

In the event of a power failure or if the receiver is switched off or moved to a new socket, when power returns again the receiver will display levels within 1 hour. **There is no need to repeat the matching procedure.**

Normal Messages



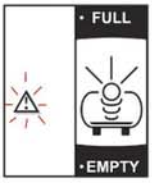
Full *Early Warning* *Almost empty*

All the bars will appear when the Apollo Visual reads that your tank is full.

The nozzle and one bar will show when your tank is coming close to an empty warning.

The nozzle will appear with a flashing red light to indicate that your tank is almost empty.

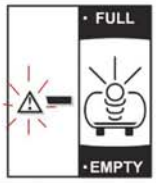
Flashing Triangle/No Bars



This may indicate that you have no radio signal received from transmitter, If this lasts for a period greater than 4 hours consider the following steps;

- check for correct matching procedure
- location of receiver to transmitter (try repositioning receiver)

Flashing Triangle, middle bar only



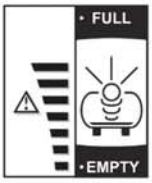
No ultrasonic echo

Failure of transmitter to receive an echo from the fuel surface.

If message persists

- check that the transmitter is fitted vertically on the tank.

Fixed Triangle Only



Low battery warning, unit will continue to give a reading until the battery is exhausted.

- Replace Lithium CR2450 battery in transmitter

6. BATTERY REMOVAL

- Remove the transmitter unit from the tank and take it to a safe location.
- The battery can be accessed by removing 4 self-tapping screws from the base of the unit.
- Remove the old battery noting the orientation ('+' mark facing outwards), and replace with a new battery. 3V-CR2450.
- Re-assemble, ensuring the O-Ring is undamaged and secured in position.
- Re-locate the transmitter on the tank.



No need to Rematch

The crossed-out dustbin on the packaging indicates that this product and its battery shall not be treated as household waste. Proper disposal will help prevent potentially negative consequences for the environment and human health. For more detailed information about recycling of this product or battery, please contact your local Recycling center or the shop where you purchased the product.

7. SPECIFICATIONS

Tank Depth measurement:	Minimum depth: 0.1m, Maximum depth: 3m
Max communication distance:	200m in normal 'line of sight' conditions
Power Supply:	Receiver: 150-250V, 50-60Hz, meets EN60335 Transmitter: 3-volt lithium cell
Wireless communications:	433 MHz FM transmission, EN 300-220.
Max and Min Operation Temp (Transmitter):	Operating temperature range -10° to +60°C.

Not suitable for pressurised containers. Use on tanks vented to atmosphere.

Patent Pending - The company reserve the right to change specifications without notice.

8. FOR SUPPORT

For additional information and assistance regarding this product and other Apollo products, please visit us on;

For Apollo Visual Information:	www.dunravensystems.com/faq_visual.html
For Apollo Product Information:	www.dunravensystems.com
Contact Us at:	info@dunravensystems.com

APOLLO ultrasonic Visual OIL LEVEL MONITOR

IMPORTANT

ADDENDUM TO MATCHING RECEIVER AND TRANSMITTER

- During the matching process (as described in the instruction sheet), you do not need to have the two black dots touching. You need to align the black dots, hold the Visual transmitter to the receiver exactly as shown below.



- Continue to hold the Apollo Visual transmitter in position for second stage matching as described in the instruction sheet.