

Apollo Flow Measurement Ltd
RTB Rate Totaliser Manual
Issue 1

Installation & Operation
of the
RTB Battery Powered
Rate Totaliser

Note

Read this manual prior to installation

1. Description

The RTB battery powered Rate Totaliser requires no external supply as it is powered from a 6 Volt lithium battery. It provides a display and totalising facility, an 8 point linearity correction, and a scaled pulse output.

- Low power consumption for battery life typically 4 years.
- Pulse output at up to 1 pulse per second.
- The pulse scaling is programmable.
- The output is an open collector pulse.



2. Connections

0V	pulse out common 0V
LP+	pulse out +ve (open collector)
LP-	not used
Scn	Screen for sensor cable if required (connected to 0V)
S -	Sensor input
S+	Sensor input
Battery	Connects to the 2 pin connector

3. Operating Instructions

If the unit has been set up with calibration data (see below) this will be retained in the non-volatile memory and when the battery is connected the unit will display in normal mode.

1. The display can show either Batch Total, Grand Total, or Flowrate, this is indicated by the chevrons below the main display. To change the display press and hold the 'MODE' button until the required display is indicated by the chevrons.
2. To reset the Batch Total press and hold the button 'BATCH RESET', the display will blink three times as a warning before resetting to zero.
3. To reset the Grand Total press and hold the button 'RES TOT' on the rear, the display blinks three times (as in 2 above) then resets.
4. The unit has a non-volatile memory so that in the event of a loss of power the calibration data and the counter totals are retained in memory and not lost.
5. If the supply should be low, two chevrons will flash on the display as a warning. If the battery is too low for reliable operation, normal operation is stopped and the display flashes BATTERY until the battery is restored to normal.

4. Entering Calibration Data

1. Connect the battery and have access to the rear buttons. Press the RED 'ENTER' button. The display will then initialise to display:

CCCCCCC after about 4 seconds.

at this point use either the GREY or BLUE buttons to move the decimal point position for the total and batch counters. When correct press the RED 'ENTER' button.

2. Set a suitable decimal point for the FLOWRATE display using the GREY or BLUE buttons as before and the 'ENTER' button when correct:

FFFFF

3. Select the required time base of seconds, minutes or hours for the FLOWRATE and press 'ENTER':

PEr SEC

or PEr nnin

or PEr Hr

4. The display now shows:

H1 0000

This is requesting data for the first of up to 8 calibration points. (H for frequency in Hz)

Use the BLUE 'UP' button to increase the value of H1 and the GREY 'DOWN' button to decrease the value. Holding either button will change the value

first by 1 for 10 times

then by 10 for 9 times

then by 100 for 9 times

When correct press 'ENTER'

5. The display next shows:

F1 00000 with the decimal point set as previously. (F for FLOWRATE)

Set a value for Flowrate F1 which corresponds to the frequency of H1 just entered. Press the 'ENTER' button when correct.

6. Similarly enter values for H2 and F2
H3 and F3 etc. etc.

Up to eight calibration points can be set. If less than eight are required, enter a zero value for H and no more data will be requested.

7. The calibration data can be entered in any order, so long as each H and F correspond. After entry however, the data is sorted in ascending order of H and F such that H1 becomes the lowest frequency, H2 next etc. The F data should now also be in ascending order this is checked and any error will be indicated by

Err X or Y where $F_X > F_Y$ when it should not be

Press 'ENTER' to re-edit the data.

8. After entering the calibration data the display shows:

P1 00000 with a decimal point as previously set

This is the Pulse Interval value, enter a value for the number of totalisation units to represent 1 output pulse.

The maximum value is 65535 with an appropriate decimal, the minimum value is 100, below this the output pulse is turned off and

P1 OFF is displayed.

The unit will allow temporary overloads of the maximum output rate of 1 pulse per second by storing excess pulses and putting them out when the overload has passed. This is limited to about 15 seconds worth of pulses.

9. When entry of the data is complete it is stored in the non-volatile memory and is retained even when the supply is off.

The unit now reverts to normal display but the total and batch counter memories may need clearing. Press and hold the button 'RES TOT' on the rear, the display blinks three times before setting 00000000. Press and hold the 'BATCH RESET' button on the front to clear the batch counter in the same way.

Output: Open collector transistor switching to 0 V
(Polarised)
Maximum voltage 35V
Maximum current 100mA

Operating temperature: -10 to 65°C

Case: Plastic with translucent lid sealed to IP66

Size: 95x95x58mm