

# LASER<sup>®</sup>

Part No. 8470

## Digital Flow Meter

1" BSP

## Instructions



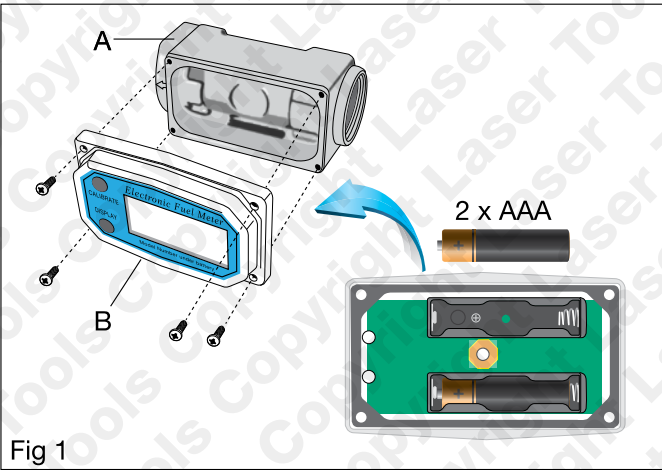
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# Introduction

An inline digital flow meter designed for measuring the flow or transfer rate of fluids including AdBlue, diesel, methanol, oil, petrol and water. It features a robust aluminium body (flow-rate turbine housing), with an easy to read LCD display and sealed electronic board, together with 1" BSP female threaded inlet and outlets (1" BSP to 3/4" hose adaptor included), making it suitable for use in a range of different conditions and applications. Liquid flows through the turbine housing causing an internal rotor to spin; this generates an electrical signal in the pickup coil, which is translated into calibrated flow units shown on the display panel.

The unit is powered by two AAA batteries; the microprocessor-based electronics have extremely low power requirements and therefore the display is on continuously.

# Instructions

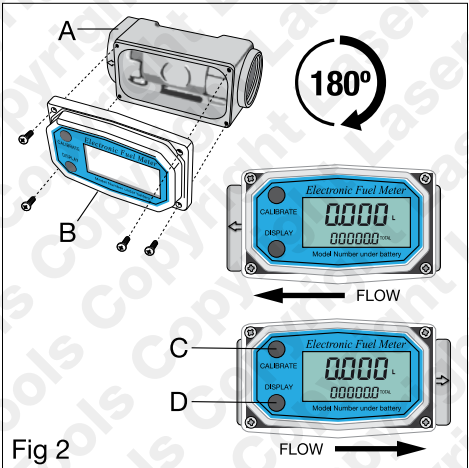


Ref.	Description
A	Flow rate turbine housing
B	Detachable display panel
C	Calibrate button
D	Display button

Read and understand these instructions fully before setting up the unit.

Refer to **Figure 1**: To fit the two AAA batteries, remove the detachable display panel (B) from the flow rate turbine housing (A) by removing the four securing screws. Fit the batteries, taking care with polarity.

Refer to **Figure 2**: The unit is designed to measure flow in one direction only; the direction is indicated by the arrow cast in the turbine outlet. After mounting the unit and incorporating into the fluid pipework, refit the detachable display panel (B) - it can fit either way, depending on the direction of flow.



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Refer to **Figure 3**: The initial display shows the amount of fluid discharged **per use** (top digital display), with the FLOW RATE shown on the lower digital display. Press the Calibrate button **(C)** once to change the display function to show the TOTAL fluid discharged on the lower digital display.

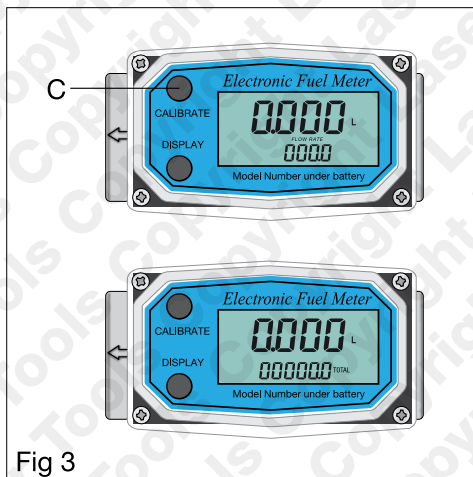


Fig 3

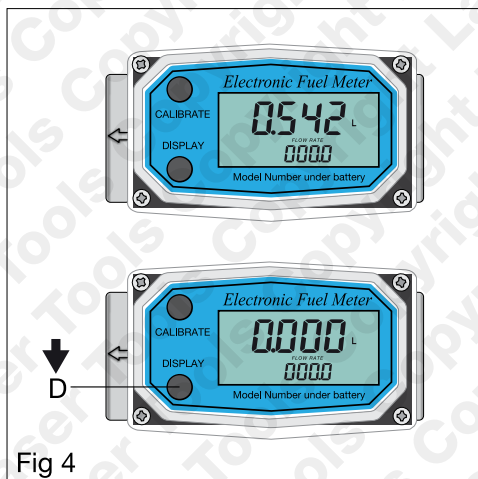


Fig 4

Refer to **Figure 4**: After use, to reset (ZERO) the top digital display (ready for the next use), press the Display button **(D)** once. The TOTAL of fluid discharged so far can be checked by pressing the Calibrate button **(C)**, refer to **Figure 3** above.

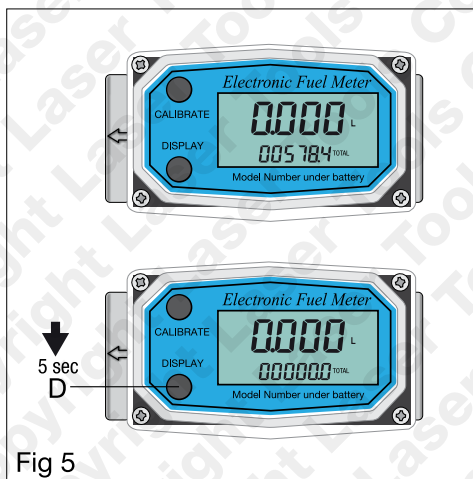


Fig 5

Refer to **Figure 5**: To reset (ZERO) the TOTAL fluid discharged so far, press and hold the Display button **(D)** for 5 seconds.

# Instructions

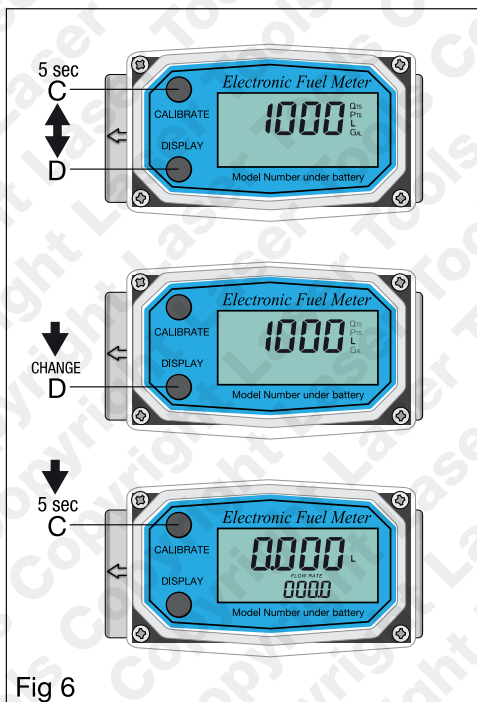
## Calibration:

For best results verify accuracy before first use and then periodically. To ensure accurate measurement remove all air from the system before use. Then discharge a known volume into an accurate measurement container. Now check this volume against the digital readout figure.

For example, if the tested amount of fluid is actually 100 litres but the digital display shows 98, the factory-set coefficient needs to be adjusted (the factory-set coefficient is 1000).

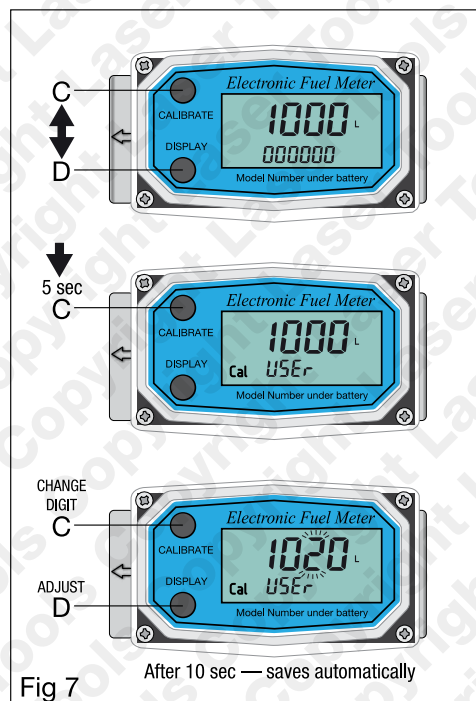
Refer to **Figure 7**: To check the factory-set coefficient, press both buttons **C** and **D** together.

For the example above (actual 100 litres but the digital display shows 98) adjust the coefficient by first pressing and holding the



Refer to **Figure 6**: The metering fluid unit of measurement can be changed from litres (factory-set) to quarts, pints or gallons. To change, press and hold both the **C** and **D** buttons for 5 seconds. The **L** (for litres) will flash. Now select the desired unit of measurement by pressing the **D** button. Then press and hold the **C** button for 5 seconds to save the new unit selection.

When the cumulative total reaches a display reading of 999,999 an **X10** symbol will be displayed. This indicates that a zero must be added to the six digits displayed. Similarly, when the next rollover occurs, an **X100** symbol will be displayed, and that two zeros must be added to the six digits shown.



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C button for 5 seconds to enter Cal mode. Select the digit to be adjusted by pressing the **C** button (digit flashes), then adjust to the desired figure by pressing the **D** button. In this case, adjust the coefficient to 1020.

Then wait for 10 seconds and the unit will reset automatically.

Test again to check the accuracy. A larger coefficient will result in a higher display value, similarly a lower coefficient will show a lower display value.

### Maintenance & Cleaning:

The only maintenance required is to keep the unit clean, replace the batteries when necessary, and clean the internal rotor if required. During use, the turbine rotor chamber should be kept full of liquid to ensure that drying does not occur inside the chamber. If drying or caking should occur, the rotor will stick or drag, affecting accuracy. This is particularly important with water/urea solutions (AdBlue).

To determine if the rotor is sticking or dragging, remove the flow rate turbine housing from any pipework (make sure that line pressure has been released and all fluid drained from the flow meter unit before removal). Gently blow through the housing in the correct direction of flow and listen for the whir of the rotor.

### Low Battery Warning:

The display may appear dim or faded, plus the battery symbol will be displayed.

**CAUTION:** Never blow compressed air through the turbine housing — it could damage the rotor.

To clean the rotor and turbine housing, apply a penetrating lubricant or recommended cleaning solvent to the rotor, shaft and bearings. Allow to penetrate for a period. Then carefully remove any residue from the rotor using a very soft brush or small, non-metallic probe. Take care not to damage the rotor and supports.

When the rotor turns freely, reinstall the unit.



# Instructions

## SPECIFICATIONS:

Min flow rate: 10L/Min. Max flow rate: 100 L/Min. Accuracy: +/- 1%.

Thread size: 1" BSP (female).

Included adaptor: 1" BSP to 3/4" hose adaptor (spare part number: 61903)

Manufactured from Aluminium.

Powered by 2 x AAA batteries (not included).



## Safety Warnings - please read



### Precautions:

- When using with flammable liquids, as the flow rate turbine housing is aluminium, this is considered a potential risk of ignition through impact or friction. Care must be taken during installation and use to prevent such impact or friction.
- When using with flammable liquids, it should be noted that the detachable display panel is constructed from plastic. To prevent the risk of electrostatic sparking, the plastic surface should only be cleaned with a damp cloth.
- When measuring/discharging flammable liquids, observe all precautions against fire or explosion.
- DO NOT use for corrosive fluids.
- When installing, to ensure display accuracy, avoid electronically “noisy” environments; install at least 15cm (6 inches) away from motors, relays or transformers.
- Do not use taper connectors or adaptors, use parallel connectors only.
- To ensure against leakage, seal all threads with an appropriate thread-sealing compound. Make sure that the sealing compound does not intrude into the flow path.
- Make sure that the arrow on the outlet side is pointed in the direction of flow.
- It is recommended to check accuracy before use (see Calibration section above).
- Foreign material in the fluid being measured can clog the internal rotor and affect accuracy. If this problem is anticipated or experienced, install appropriate filter screen/media to filter impurities from incoming fluids.
- If removing the unit from the pipework, make sure that line pressure has been released and all fluid drained from the flow meter unit.
- If the unit is to be stored, remove the batteries. The calibration will be maintained.
- Dispose of waste fluids in accordance with local authority regulations.
- Dispose of waste batteries in accordance with local authority regulations.



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Distributed by The Tool Connection Ltd

Kineton Road, Southam, Warwickshire CV47 0DR  
T +44 (0) 1926 815000 F +44 (0) 1926 815888  
[info@toolconnection.co.uk](mailto:info@toolconnection.co.uk) [www.toolconnection.co.uk](http://www.toolconnection.co.uk)

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