

Digital Oil Meter

OM-2000

High pressure positive displacement meter suitable for in-line and end of line applications.

Oval gear mechanism for optimum accuracy.

6 Digit Non-Resettable Totaliser.

Meter Inlet / Outlet threaded 1/2" (F)

Electronic display using one 3V lithium ion battery with life upto 2 years.

Robust aluminum die cast construction with protective shroud on meter.

Display can be rotated in every 90° orientation for ease of installation.

Bi-Directional - Either ports can be used as Inlet/ Outlet.

Measures in Litres, Gallons, Quarts, Pints.

Easy user re-calibration.



FLOW RATE	MAX. WORKING PRESSURE
0.3 TO 8 GPM (1 TO 30 LPM)	1000 PSI (70 BAR)
WORKING TEMPERATURE RANGE	
-4°F TO 158°F (-20°C TO 70°C)	

SPECIFICATIONS

Meter Type	Digital
Meter Mechanism	Oval gear
Inlet / Outlet Position	In-Line
Female Port Size	1/2"
Threads	BSP or NPT
Repeatability	± 0.25%
Accuracy	± 0.50%*
Water resistance	IP55
Units of measure	Pints, Quarts, Liters, Gallons
Partial total	0.001 to 99999 units
Max resettable total	9,99,999 (six digits with × 100 indicator) units
Max non-resettable total	9,99,999 (six digits with × 100 indicator) units
Least count/ resolution	Upto 0.001 units
Viscosity	Upto 5 - 5000 Cst
Wetted components	Aluminum, Acetal, Nitrile Rubber & Stainless Steel
Do not use with	Water based media, Gasoline etc
Recommended use	Oils upto SAE 140

CAT.NR.	THREAD TYPE
OM/2000/1-2/BSP	1/2" BSP
OM/2000/1-2/N	1/2" NPT

* Tested in laboratory condition

SAFETY INFORMATION

- Keep the work area clean and dry. Damp or wet work areas can result in injury.
- Store idle equipment. When not in use, tools and equipment should be stored in a dry location to inhibit rust
- Use the right tool for the job. Do not attempt to force small equipment to do the work of larger industrial equipment. Do not modify this equipment, and do not use this equipment for a purpose for which it was not intended.
- Check for damaged parts. Before using this product, carefully check that it will operate properly and perform its intended function. Replace damaged or worn parts immediately

WARNING!

- Read and understand all instructions. Failure to follow all instructions listed above may result in electric shock, fire and/or serious injury.

PACKAGING CONTENT

DESCRIPTION	QUANTITY
Digital oil meter	1
O.I.P.M.	1

TOOLS NEEDED

- Phillips screwdriver
- Allen key (4 mm or 5/32")
- Scriber

BEFORE INSTALLATION

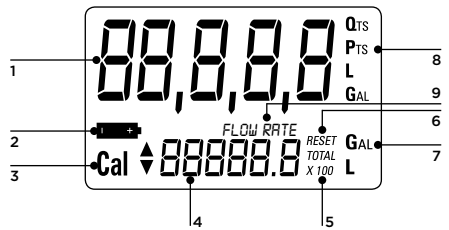
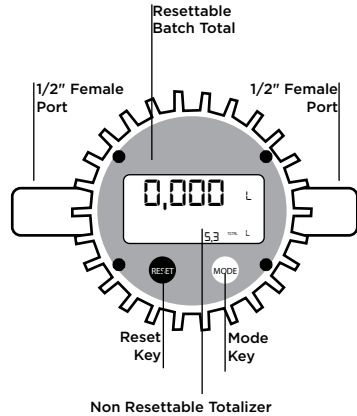
Upon receipt, examine the meter for visible damage. Remove protective plugs and caps for a thorough inspection. If any items are damaged or missing, contact the distributor. Make sure the meter model meets the specific need. Refer to the Specifications section and confirm the following:

1. Flow rate should be within the limits of the model.
2. The liquid should be compatible with the meter's material.
3. The system's pressure should not exceed the meter's maximum pressure rating.

Know the digital oil meter

Major components

LCD display - Powered by one lithium battery of 3V. Includes three numerical Totals and other keys as given in the figures:



1. **Resettable Batch Total** (5 figures with moving comma) indicates volume dispensed after RESET button was last pressed.
2. Indication of battery charge.
3. Indication of calibration mode.
4. **Batch Totalizer** (6 figures with moving comma in multiple of 10 & 100) - indicates two types of Total:
 - Non-Resettable General Total (TOTAL)
 - Resettable total (Reset TOTAL)
5. Indication of total multiplication factor (x10 or x100).
6. Indication of type of total, (TOTAL / Reset TOTAL).
7. Indication of unit of measurement of Totalizer:
 - L=Litres
 - Gal=Gallons
8. Indication of unit of measurement of Resettable Batch Total:
 - Qts=Quarts
 - Pts=Pints
 - L=Litres
 - Gal=Gallons
9. Indication of flow rate when the meter dispense in flow rate mode.

User Buttons - The meter features two buttons (RESET and MODE) which individually perform two main functions and together, other secondary functions.

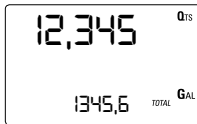
RESET Key - is used to reset the Batch Total and Reset Total

MODE Key- is used to change the unit of measurement

Combination of RESET + MODE keys- is used to enter calibration mode

Oval Gear Assembly: It has two female threaded ports. It contains two oval gear which turns when media passes through it with sufficient pressure. This action generates electrical pulses which are processed by a microprocessor and the result is displayed on the Totals of LCD.

Standby Mode When the media is not flowing through the meter, the meter shows only the word TOTAL on the display. This mode is called standby and majority of adjustments are carried out in this mode.



INSTALLATION (Refer “EXPLODED VIEW”)

This is a bi-directional meter with two female ports of 1/2” each. The meter can be installed in any position - fixed in line or mobile on a control nozzle.

How to rotate the display

1. Remove the four screws (9) and separate the meter face plate (8) and electronic assembly (10) from the housing (1).
2. Rotate the electronic assembly (10) in any of the four positions as shown in the picture and tighten the meter face plate (8) and electronic assembly (10) in the housing (1) with four screws (9)



WARNING!

- In order to improve the life of the gear, it is recommended to fit a filter before the meter itself.
- Ensure that the fluid supply is clean and pressure is less than 1000 PSI. High pressure and/or unclean fluid will shorten the life of the meter due to excessive wear, and may be dangerous, causing damage and/or personal injury

OPERATING INSTRUCTIONS

A. Measurement units configuration

The user can select the main measurement unit, Quarts (Qts), Pints (Pts), Litres (L), Gallons (Gal); according to the following predefined combinations:

REF. NO.	UNIT OF MEASUREMENT BATCH TOTAL	UNIT OF MEASUREMENT TOTAL REGISTER
1	Litres (L)	Litres (L)
2	Litres (L)	Gallon (Gal)
3	Gallon (Gal)	Litres (L)
4	Gallon (Gal)	Gallon (Gal)
5	Quarts (Qts)	Litres (L)
6	Quarts (Qts)	Gallon (Gal)
7	Pints (Pts)	Litres (L)
8	Pints (Pts)	Gallon (Gal)

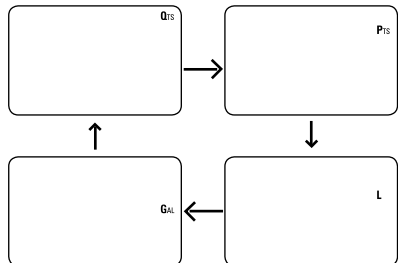
Sequence of setting the unit of measurement

In order to set the units for batch total and total register, perform the following steps:

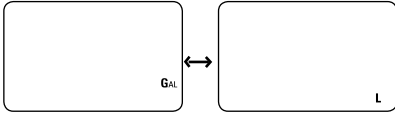
1. Enable the display by pressing any button.
2. Wait for the display to enter Standby mode (i.e. when the display shows TOTAL).



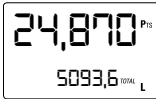
3. Press the MODE button.
4. The display will go blank except for the batch total units which will toggle between Qts, Pts, L, and Gal with each being displayed for 2 seconds before toggling to the next.



5. Press the MODE button again while the desired unit option is displayed. This will stop the units from toggling and will set the units for the batch total.
6. The units for total register will then start toggling back and forth between GAL and L with each being displayed for 2 seconds before toggling back to the other.

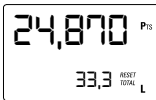


7. Press the MODE button again while the desired unit option is displayed. This will stop the units from toggling and will set the units for the total register.
8. Both unit options are now set and the display will go back into regular operation mode.

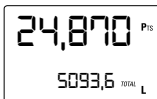


B. Normal dispensing mode

While the media is flowing through the meter, Batch Total and RESET TOTAL are displayed at the same time.

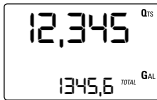


A few seconds after dispensing has ended, on the lower side of the display, the display switches from RESET TOTAL to General TOTAL. The word RESET above the word TOTAL disappears, and the RESET TOTAL is replaced by the General TOTAL.



C. Resetting the batch total

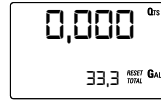
1. While in standby (i.e. when the display shows TOTAL), press the RESET button.



2. During reset, the display screen first of all shows all the lit-up digits and then all the digits will disappear.



3. At the end of the process, the display shows the reset batch total and the RESET TOTAL.



4. After a few moments, the RESET TOTAL is replaced by TOTAL.

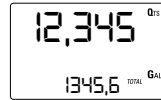


D. Resetting the reset total

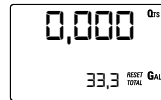
The RESET TOTAL can only be reset immediately after resetting the batch total. The RESET TOTAL is reset by pressing the RESET button while the display screen shows RESET TOTAL.

Perform the following steps:

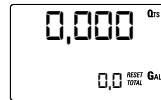
1. Enable the display by pressing any button.
2. Wait for the display to enter Standby mode (i.e. when the display shows TOTAL).



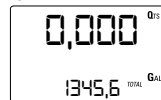
3. Press the RESET button quickly. The meter will reset the batch total.



4. While the display is showing RESET TOTAL, press the RESET button again.
5. The display screen shows all the segments of the display followed by all the switched-off segments and finally shows the display page where the new RESET TOTAL is shown.



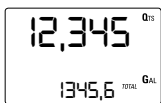
6. After a few moments, the RESET TOTAL is replaced by TOTAL.



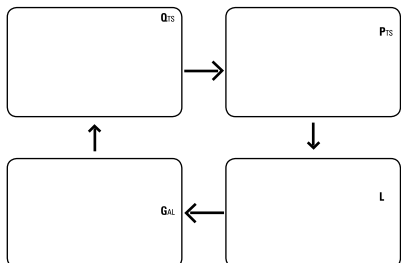
E. Dispensing with flow rate mode display

In order to enter Flow Rate mode, perform the following steps:

1. Enable the display by pressing any button.
2. Wait for the display to enter Standby mode (i.e. when the display shows TOTAL).



- Press the MODE button which will cause the units of measurement for batch total to start toggling.



- Press the RESET button.
- At this point the FLOW RATE segment will be lit. The display will start showing "FLOW RATE", in place of TOTAL.



- Start dispensing fluid immediately after entering FLOW RATE mode. The batch total will increment according to how much fluid is being metered and the flow rate will also be shown in the display.



The current units are used in Flow Rate mode. In order to change units, see the "Sequence of setting the unit of measurement" section in this manual. The Flow Rate is shown in either Litres or Gallons per minute.

F. Calibration

The meter has been calibrated at the factory under the following operating conditions:

Fluid: SAE 32
Temperature: 20°C (68°F)
Flow rate: 5-25 LPM (1.3-6.6 GPM)
 (With change of media, recalibration is needed)

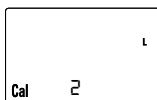
G. Calibration procedure

(As an example here the meter is being calibrated for 2 units of fluid.)
 To enter Calibration Mode, perform the following steps:

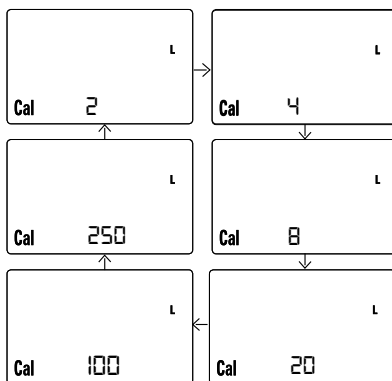
- Enable the display by pressing any button
- Wait for the display to enter Stand-by mode (i.e. when the display shows TOTAL)



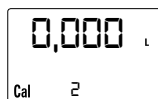
- Press the RESET button, which will reset the batch total and display the RESET TOTAL.
- While the RESET TOTAL is displayed, press the MODE button.
- At this point the meter is in Calibration mode and the "Cal" segment will be lit in the lower left hand corner of the display.



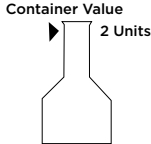
- The options for the volume that can be used during calibration will now be shown in the lower part of the display.
- They will toggle between 2, 4, 8, 20, 100, and 250 units. The current units are used in Calibration mode. In order to change units, see the "Sequence of setting the unit of measurement" section in this manual.



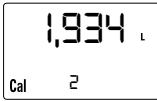
- Pressing the MODE button while the desired volume is displayed (2, 4, 8, 20, 100, 250) will select that volume.
- Once the desired volume (2 units in this case) is selected, that volume will remain displayed in the bottom right part of the display.



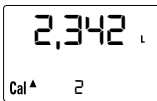
10. Now begin dispensing the fluid into the graduated sample container without pressing any key. Continue dispensing until the level of the fluid in the sample container has reached the desired graduated level (2 units in this case). The batch total will increment accordingly. Once the dispensing is complete, press the MODE button again.



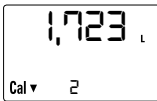
- If the dispensed volume shown in batch total is within +/- 8% of the default calibration value (2 units in this case), the meter will automatically calibrate itself with the exact volume that was dispensed (2 units in this case) as the "Cal" segment prior to turning the display off. The meter is now calibrated.



- If the dispensed volume shown in batch total is outside the range of +8% (greater than 2.16 units in this case) of the default calibration value, the meter will display the up arrow beside the "Cal" segment prior to turning itself off. In this case, the meter does not update its calibration settings. Contact the seller if this error occurs.



- If the dispensed volume shown in batch total is outside the range of -8% (less than 1.84 units in this case) of the default calibration value, the meter will display the down arrow beside the "Cal" segment prior to turning itself off. In this case, the meter does not update its calibration settings. Contact the seller if this error occurs.



The meter can be calibrated as many times as desired. Calibration is needed to make the meter suitable for actual conditions.

MAINTENANCE (REFER "EXPLODED VIEW")

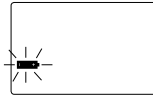
The Meter has been designed to require a minimum amount of maintenance. The only maintenance jobs required are:

- Battery change** - Necessary when the batteries have run down
- Cleaning the measurement chamber** - Due to the presence of solid particles following bad filtering

Changing the battery

The meter is capable of operating with 1 CR2450 coin battery. It features 2 low-battery alarm levels:

- When the battery voltage falls below the first level, the fixed battery symbol appears. In this condition, the meter continues to operate correctly but the fixed battery icon warns the user that it is advisable to change the batteries.
- If the meter operation continues without changing the batteries, the second battery alarm level will be reached which will prevent operation. In this condition the battery icon will flash and is the only segment visible on the LCD.



WARNING!

- Allow the meter to turn itself off by letting it sit idle for 30 seconds before changing the batteries. If the batteries are pulled from the unit while the LCD is still active, the unit will not be damaged but any metered volume from the previous session will be lost.

Battery replacement procedure:

- Remove the four screws (9) and separate the electronic assembly (10) and meter face plate (8) from the housing (1).
- Remove the two screws (12) from the back side of the electronic assembly (10), this will separate the electronic assembly (10) from the meter face plate (8).
- Remove the old batteries (13) from the back side of the display using a scriber.
- Place the new batteries in the same position as the old ones, making sure the positive pole is positioned as indicated.
- Re-tighten the meter face plate (8) with the electronic assembly (10).
- Re-tighten the electronic assembly (10) and meter face plate (8) to the housing (1).

Cleaning the measurement chamber

Always make sure the liquid has been drained from the meter and the line pressure is released before cleaning.

- Loosen and remove the four Allen bolt (11) with the help of Allen key.
- Remove the cover (2) and the O-Ring (6).

3. Remove the oval gears (3).
4. Clean the meter body with a soft brush or cloth. Be careful not to damage the meter body or the gears.
5. Assemble in the reverse order taking care of the following:
 - Position the oval gears (3) at 90° to each other & turn them with fingers to ensure they rotate freely. If the gears, sit higher than the sealing face, turn them over and refit them (The magnets must be facing the electronic module).
 - Tighten all screws evenly

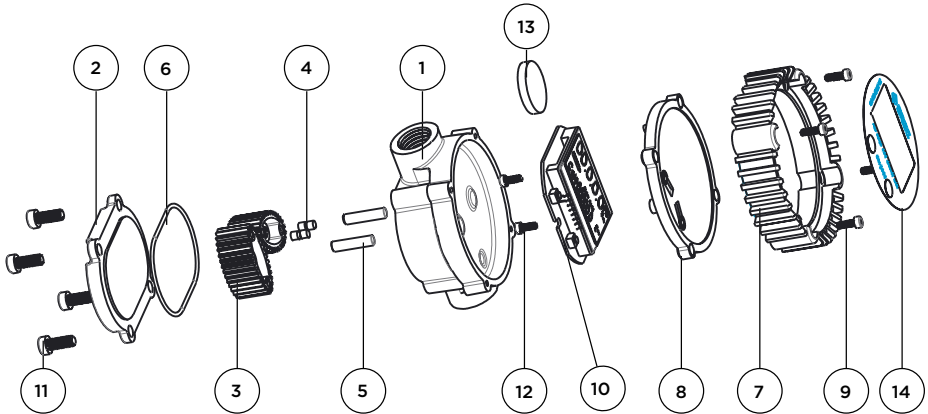
WARNING!

- Always make sure the liquid has been drained from the meter and the line pressure is released before cleaning.

PARTS LIST

PART NUMBER	PART DESCRIPTION	QUANTITY
1	Housing	1
2	Cover	1
3	Oval gear	2
4	Magnet	4
5	Shaft	2
6	O-Ring	1
7	Shroud (Meter)	1
8	Meter face plate	1
9	Screw	4
10	Electronic assembly	1
11	Allen bolt	4
12	Screw	2
13	Battery	1
14	Sticker	1

EXPLODED VIEW



TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
No indication on display	Bad battery contact	Check battery contacts
	Wrong Calibration	Follow calibration procedure
Inaccurate measurement	The meter works below minimum acceptable flow rate.	Increase the flow rate until an acceptable flow rate range has been achieved
	Oval gear blocked	Clean the measurement chamber
Reduced or zero flow rate	Incorrect installation of the electronic card	Reinstall the card (electronic assembly)
	Possible electronic card problems	Contact your dealer
Meter body cracks.	Excess line pressure.	Install pressure relief valve to allow high pressure to bleed back to the tank. Replace meter.

DISPOSAL

The components or the used product must be given to companies that specialize in the disposal and recycling of industrial waste.

