MODEL: FM-15 *(0-25 GPM, 0-97 L/min)*

SpotOn®

Irrigation Flow Meter

Innoquest Item # 26060

- Patented
- 1 Year Warranty
- Made In USA
- Includes Nozzle Boot

Product Manual

innoquest™ Inc.

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2.0 Specifications

Measurement Range: .08-25.0 GPM, .30-96.7 L/min, 20-5800 L/hr
(Gallons are US Gallons)

Accuracy: Greater of +/- 4% or one digit (Meter must be held steady
during fill for best accuracy)

Resolution: 0.01 GPM (.08 – 9.99 GPM) or 0.1 GPM (10.0 – 25.0 GPM)
0.01 L/min (0.30 – 9.99 L/min) or 0.1 L/min (10.0 – 96.7 L/min)
10 L/hr (20 L/hr – 5800 L/hr)

Battery: Two (2) "N" size alkaline batteries (included)

Battery Life: 2 years, meter has low battery indicator

Size: 8.0 in (20.3cm) tall by 8.0 in (20.3 cm) diameter

Weight: 1.2 lbs (545 g) weight

Construction: Break resistant plastic & Stainless Steel

Environmental: 35-120°F (2-49°C) / up to 100% RH temporary use with
a period to allow meter to dry out. Do not use meter then place
in air tight container while still wet.

Fluid Compatibility: Water and water based solutions only

Country of Origin: Made in USA

1.2 Features

Measures up to 25 GPM (58 Liters/min)
Test for worn/plugged nozzles as well as regulator problems
Simple waterproof design has no moving parts
Digital readings in either GPM, Liter/min, or Liter/hr
Just place under flow until reading is displayed
Patented Design US # 8,297,131

3.0 General Operation

3.1 Nozzle Boot Use

Fig. 1

Fig. 2

The meter comes with a reuseable "Nozzle Boot" to facilitate taking readings on irrigation nozzles. (See Fig. 1 and Fig. 2 above) Additional nozzle boots can be ordered from Innoquest by specifying Item # 26350.

3.2 Taking a Measurement

Fig. 3

Fig. 4

Press the **START** button to turn the meter on. The LCD will flash "000" momentarily indicating it is working properly. The LCD will then show a "_" marker to indicate the type of measurement units the meter will use when displaying readings. The meter will then show "- - -" on the LCD indicating the meter is ready to take a new measurement. Once the meter shows "- - -", it can be placed under the nozzle or pipe to be tested (you have 60 seconds to place the meter under the flow). Placement of the meter under the flow should be brisk and certain so that all the flow from the nozzle is transferred quickly to the meter (See Fig 3). As the meter fills with water, the display will start
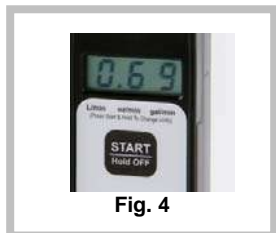
flashing "- - -"; this indicates that the reading is in progress. As soon as water reaches the meter's upper sensor, the flashing stops and the flow rate is displayed on the LCD (See Fig 4). This flow rate will continue to be displayed on the meter for 90 seconds or until the
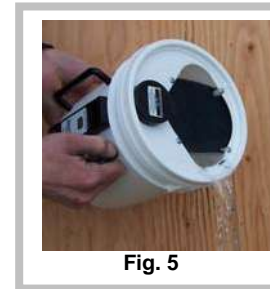
Fig. 5

START button is pressed to start a new reading. Once the reading has been displayed, the water can be poured out of the meter (See Fig 5). Pouring out the contents of the meter will not affect the reading being displayed on the LCD. If a reading must be re-started for some reason, simply empty the meter and re-press the START button to ready it for a new measurement.

PLEASE NOTE: For accurate measurements the meter **must be held still** during the filling period. It is ok if the meter is held at an angle, but must be held at this angle during the whole fill period. **Note:** The diffuser pad installed in the opening at the top of the meter is important for producing accurate readings. The purpose of this diffuser pad is to keep strong flows or sprays from directly impacting the surface of the water inside the meter during a reading.

3.3 Setting Display Units

The meter can be configured to display readings in either gallons per minute (GPM), liters per minutes (L/min), or liters per hour (L/hr). To change the display units, the user must first turn the meter off. Then press and hold the **START** button. Keep holding the **START** button until the display shows "_ _ _" (about 3 seconds).   When the display shows "_ _ _" release the **START** button and the display will start flashing "_" above the unit type that is currently selected. Press the **START** button to change this selection. Once the correct unit type is selected, wait **without** pressing the **START** button for 5 seconds. The meter will then enter the new setting and shut off.   From that point forward, the meter will always display readings in the new units.

3.4 Turning Meter Off

The meter will turn on any time the **START** button is pressed. The meter can be turned off in two ways:

1. The meter can be shut off by pressing and holding the **START** button for several seconds (about 3 seconds). As soon as the LCD goes blank, release the START button.
2. The meter will automatically shut off after 90 seconds of inactivity. This means that the user does not have to shut off the meter after use since it will eventually shut itself off.

3.5 Installing New Batteries (use N size 1.5 volt only)

Fig. 6
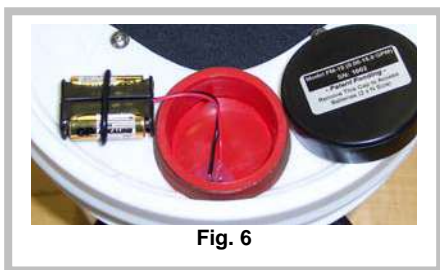
The batteries are housed under the black cap on the top of the meter. This black cap can be removed by pulling it straight up while twisting slightly. The cap is just a press fit onto the meter. The meter requires two (2) N size alkaline batteries which are available at any drug store. Place both new batteries in the battery holder following the polarity indication marked on the holder (negative ends towards the springs). Place the rubber retaining ring around the batteries once they are in the holder as shown in Fig. 6. Then place the battery holder back into the tube on the meter and replace the black cap and press it firmly back onto the meter. When the meter's batteries need replacing, the meter will show "Lo b" on the LCD display when the meter is turned on. If this message is displayed, the batteries should be replaced as described above.

4.0 Troubleshooting

The Flow Meter measures the flow rate by measuring the time it takes to fill the meter's container. The rising water level is sensed by 3 electrodes in the meter. The meter will only function with fluids that conduct electricity, such as water. In the case of distilled water, the conductivity may be too low for proper meter operation. All tap water will work very well with the meter. Any substance that coats or covers the exposed metal on the electrodes will hinder their ability to sense the water level. Care should be taken to rinse the meter inside and out with clean tap water when measurements are complete.

5.0 Warranty & Service

One Year Warranty

Innoquest, Inc. warrants this product to be free from defects in materials and workmanship under normal use and service for a period one (1) year from date of purchase. This warranty extends only to the original purchaser and shall not apply to any product which, in Innoquest's sole opinion, has been subject to misuse, alteration, abuse, or abnormal conditions of operation or handling. Innoquest's obligation under this warranty is limited to repair or replacement of the product which is returned to Innoquest. Innoquest accepts no liability for whatever damages may be caused by a malfunctioning product.

Repair & Service Policy

Product returned to Innoquest for repair or service must follow the guidelines set forth as follows: Return of the product for warranty or service repair will be the responsibility of the purchaser (Innoquest does not pay inbound shipping charges). All returns must receive an RMA number by **calling** Innoquest prior to return of the product. The RMA number must be clearly marked on the outside of the shipping carton. If the customer is returning product for non-warranty related repair or service, a minimum charge will apply for accessing the product's repair needs and further work will not be completed without the customer's approval.

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