

## Thank You

Thanks for purchasing an FM100 Programmable Magnetic Flowmeter from us! We appreciate your business and your trust. Please take a moment to familiarize yourself with the product and this manual before installation. If you have any questions, at any time, don't hesitate to call us at 888-525-7300.

NOTE: Scan the QR code to the right to see the full user manual on your tablet or smartphone. Or visit <https://www.apgsensors.com/support> to find it on our website.



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### 1 Description

The FM100 Programmable Magnetic Flowmeter is a highly accurate, bi-directional flowmeter, with configurable 4-20 mA output. It comes with a two-line LCD display and four-button keypad for intuitive display set up and menu navigation. The hard technical rubber liner of the FM100 is compatible with most water and waste water applications.

### 2 How To Read Your Label

Each FM100 converter label comes with a full model number. The model number for the FM100 will look something like this:

▲ SAMPLE: FM100-03-F-1-A6-LCD

The model number tells you exactly what you have. You can also call us with the model number and we can help you.

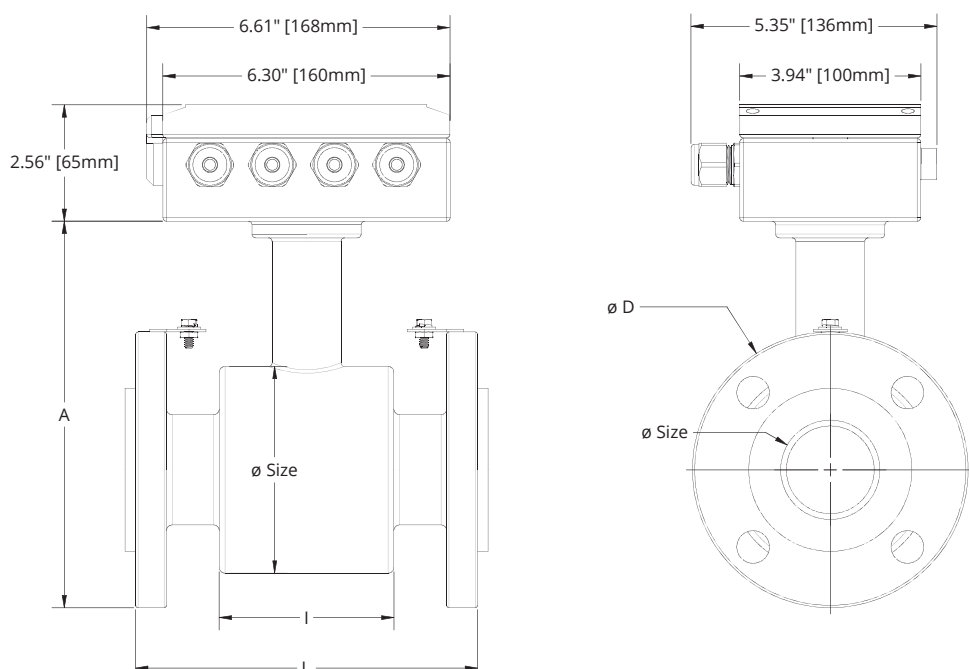
### 3 Warranty

This product is covered by APG's warranty to be free from defects in material and workmanship under normal use and service of the product for 24 months. For a full explanation of our Warranty, please visit <https://www.apgsensors.com/about-us/terms-conditions>. Contact Technical Support to receive a Return Material Authorization before shipping your product back.

Scan the QR code below to read the full explanation of our Warranty on your tablet or smartphone.



### 4 Dimensions



# Programmable Magnetic Flowmeter

## Installation Guide

For FM100



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[www.apgsensors.com](http://www.apgsensors.com) | phone: 888-525-7300 | email: [sales@apgsensors.com](mailto:sales@apgsensors.com)

Part # 122950-0036  
Doc #9004860 Rev A2

### 5 Installation Guidelines

The FM100 should be installed so that the location meets the following conditions:

- No pipe transitions between the sensor and the adjacent pipeline.
- At least 5 times the sensor's DN of straight pipe must precede the sensor.
- At least 3 times the sensor's DN of straight pipe must follow the sensor.
- The sensor must be at least 25 DN's downstream of any pump on the line.
- A sensor near a stop valve must be upstream of the valve, not downstream.
- Sensor housing and electrodes cannot be more than 45° from vertical.

Additional care must be taken to ensure:

- The sensor is always completely filled or flooded with fluid.
- The sensor is not installed on upper sections of pipeline.
- If installed on a vertical section of pipe, the sensor must be oriented so that the fluid flows upward through it.
- If anticipated flow will not maintain flooded pipe through the sensor, a low water trap can be used to locate the sensor. Free liquid discharge should be located at least 2 times the sensor's DN above the centerline of the exit side of the sensor.
- Pipe should be supported as close to the sensor as possible to decrease vibrations.

### 6 Grounding Instructions

There are three grounding scenarios for the FM100:

- **For adjacent conductive pipe:**
  1. Wire each flange of the FM100 to the adjacent pipe.
  2. Ground both sections of the pipeline.
- **For non-conductive adjacent pipe:**
  1. Use conductive grounding rings between the flanges to establish a connection from the conducting fluid to ground.
  2. Wire each flange of the FM100 to a ground ring.
  3. Ground both grounding rings.
- **For electrified fluid (e.g. cathodic protection against corrosion):**
  1. Ensure complete electrical isolation of the FM100 from the adjacent pipe.
  2. Wire the adjacent upstream pipe to the adjacent downstream pipe, bridging over the FM100.
  3. Use galvanized conduit for the electrical connection to the FM100 to ensure isolation.

Size	ø D*	L**	A	Weight
1" (25mm)	4.53" (115mm)	7.87" (200mm)	7.09" (180mm)	9.7 lbs (4.4 kg)
2" (50mm)	6.30" (160mm)	7.87" (200mm)	8.78" (223mm)	19.6 lbs (8.9 kb)
3" (80mm)	7.68" (195mm)	7.87" (200mm)	10.2" (260mm)	28.4 lbs (12.9 kg)
4" (100mm)	8.46" (215mm)	9.84" (250mm)	11.0" (280mm)	37.2 lbs (16.9 kg)
6" (150mm)	11.0" (280mm)	11.8" (300mm)	13.4" (340mm)	63.6 lbs (28.9 kg)

\*Flange dimensions meet ANSI B 16.5

\*\*Standard construction length meets ISO 13359.

## 7 Wiring and Pin Diagrams

The FM100 comes with an active 4-20 mA output, and requires 85 - 240 VAC input power. The 4-20 mA loop is connected to pins 12 and 13 (See Figures 7.1 and 7.2), and power is connected on the L, N, and PE terminals at the far right (Figure 7.2).

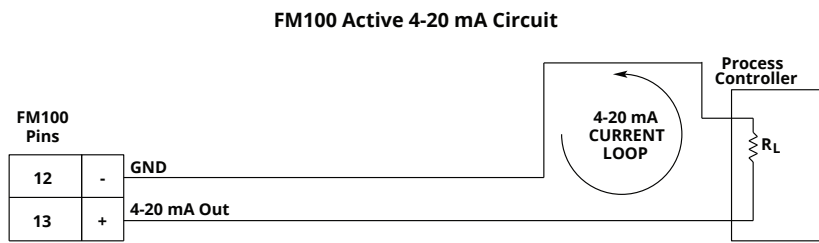


Figure 7.1

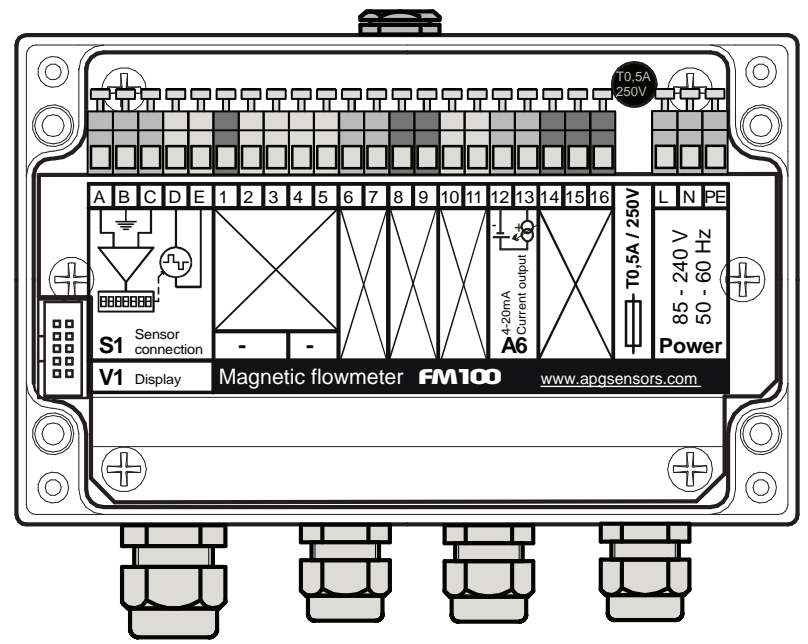


Figure 7.2

## 8 User Interface and Menus

The operation of the FM100's three buttons depends on whether the FM100 is in Display Mode or you are navigating the FM100 Setup Menus.

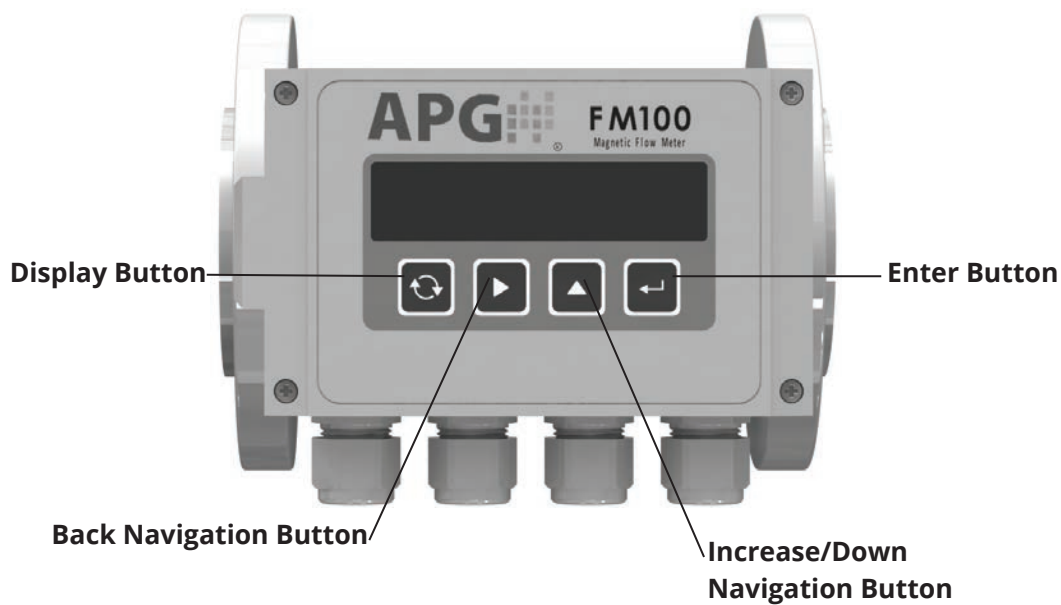
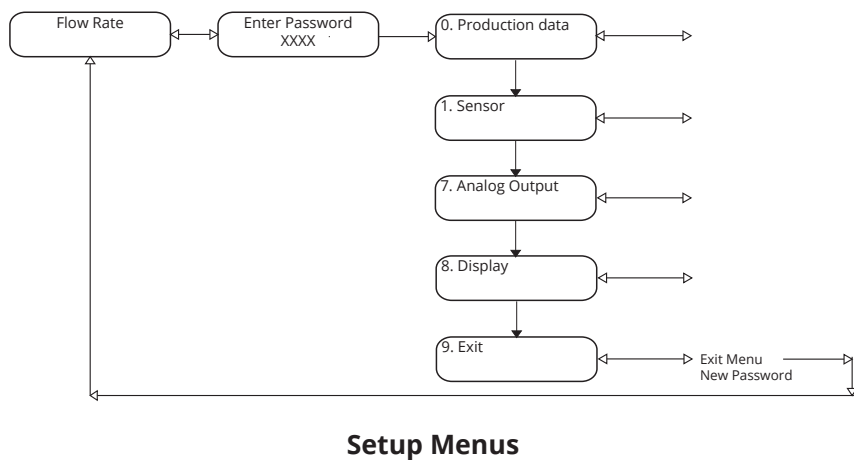


Figure 8.1



Setup Menu

Use the Analog Output Menu to set the Flow-to-4-20-mA output. Use the Display Menu to set the units for the FM100's on-board display. For all other menus and parameters, refer to the full FM100 User Manual.

The factory default password for entering the Setup Menus is 0000.

## 9 General Care

Your FM100 flowmeter is very low maintenance and will need little care as long as it was installed correctly. However, in general, you should periodically inspect your sensor to ensure the sensor ground connections are in good condition.

If you need to remove the sensor, be sure to store it in a dry place at a temperature between -40° and 180° F.

## 10 Repair Information

If your FM100 flowmeter needs repair, contact us via email, phone, or online chat on our website. We will issue you an RMA number with instructions.

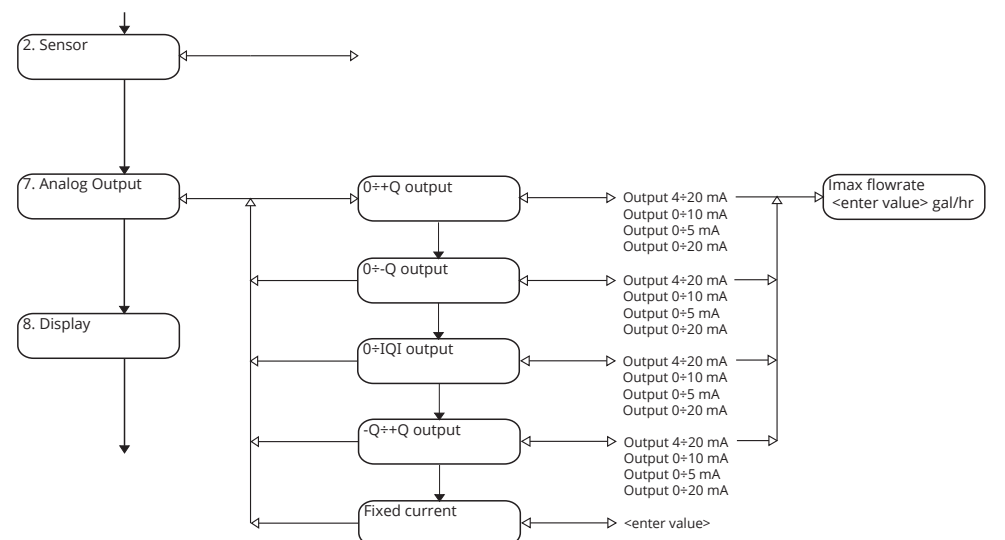
- Phone: 888-525-7300
- Email: sales@apgsensors.com
- Online chat at www.apgsensors.com

### During Display Mode

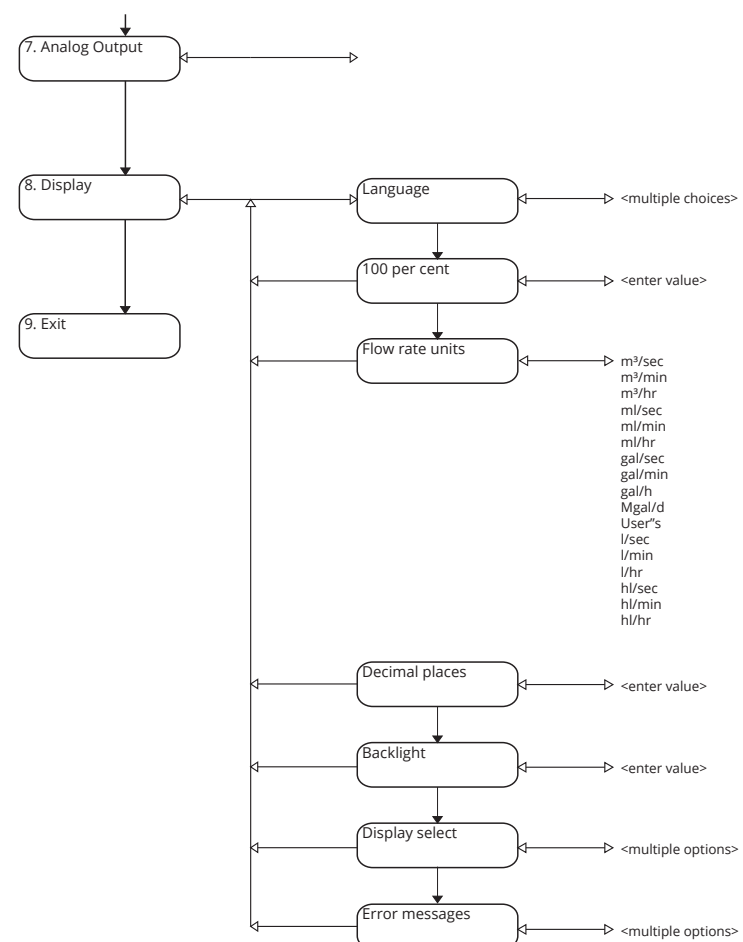
- Display Button:** Cycles through sensor readings selected for display
- Back Navigation Button:** Cycles between Total readings and Current or Temporary readings
- Increase/Down Navigation Button:** Disabled in Display Mode
- Enter Button:** Brings up Password prompt to enter Setup Menus

### Within FM100 Setup Menus

- Display Button:** Switches to Display Mode
- Back Navigation Button:** Exit current menu or parameter to previous menu level, or cycles through character positions for text input
- Increase/Down Navigation Button:** Cycles to next shown menu or parameter, or increases a blinking value
- Enter Button:** Press to enter selected menu or parameter, or accept text input.



Analog Output Menu



Display Menu