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Maretron®

M1AR Fluid Flow Sensor

Maretron M1AR Fluid Flow Sensor Installation Guide

Contents

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Maretron M1AR Fluid Flow Sensor

Product Information

Specifications

- Product Series: M1AR – M16AR
- Manufacturer: Maretron
- Model Number: FFM100
- Fluid Flow Sensor Type: Series Fluid Flow Sensors
- Particle Filtration Requirement: 75 micron particles or smaller
- Mounting Orientation: Horizontal, not vertical or flat

Product Usage Instructions

Installation Requirements:

- Filter fluid to 75-micron particles or smaller before passing through the sensor.
- Install the sensor with the correct flow direction orientation.
- Use liquid thread sealant on threaded inlet and outlet fittings, avoiding Teflon tape.
- Tighten fittings hand tight, then an extra 1/2 turn to prevent restricted flow.
- Avoid using elbow fittings or obstructions within 12 inches of the sensor to prevent cavitation.
- Mount in a location that is not the highest point in the system to prevent air entrapment.
- Purge air from the sensor before initial use to prevent running dry.
- Avoid forcing compressed air through the sensor.

Mounting Fluid Flow Sensors:

1. Fasten the sensor mounting plate to the sensor using provided machine screws.

2. Mount the sensor to a wall, bulkhead, or stringer ensuring horizontal orientation.
3. Avoid vertical or flat mounting for proper operation.

Additional Considerations:

Consider installing isolating valves before and after the sensor and adding a bypass loop for easy removal during servicing.

FAQ

- **Q: Can I use Teflon tape on the threaded fittings?**
  - A: No, it is recommended to use liquid thread sealant instead of Teflon tape.
- **Q: How should I mount the sensor for proper operation?**
  - A: Mount the sensor horizontally on a wall, bulkhead, or stringer. Avoid vertical or flat mounting positions.

General

The following Installation Instructions are for the Maretron M1AR – M16AR series Fluid Flow Sensors. For FFM100 configuration instructions, please refer to the FFM100 User's Manual. The Installation practices outlined in this document must be followed for proper operation of the Fluid Flow Sensor(s) and FFM100 system.

Installation Requirements

- To prevent damage from dirt or foreign matter, it is required that the fluid going through the sensor(s) is filtered to 75 micron particles or smaller.
- The Fluid Flow Sensor must be installed with the proper flow direction orientation to match the flow of the fluid going through the sensor.
- A liquid thread sealant must be used on the threaded inlet and outlet fittings of the Fluid Flow Sensor. Do not use Teflon thread tape.
- Fittings on the Fluid Flow sensor shall be tightened hand tight, then an extra 1/2 turn. Beware not to tighten the fittings to the bottom of the inlet or outlet threaded cavity potentially causing restricted flow.
- The Fluid Flow Sensor must have 12 in. (31cm) of unobstructed plumbing. This means that elbow fittings shall never be used for the inlet or outlet port of the Fluid Flow Sensor. Additionally, T fittings, manifolds or any other possible obstructions shall not be installed within 12 in. (31cm) of the sensor. This will prevent cavitation which may hinder the sensor's performance. There is an exception to this requirement, and that is, installation of Full Port Ball Valves where the valve opening diameter is the same diameter as the valve's pipelines therefore posing no restriction or disruption in flow.
- To prevent air entrapment, the sensor(s) must be installed in a location that is not the highest point in your application. It is best that the Fluid Flow sensor(s) are mounted in the lowest point of your FFM100 system.
- Fluid Flow Sensors must be purged of air before the first use. This shall be done manually before initial use that may cause sensor to run dry.
- Never force compressed air through sensor.
- The sensor has specific mounting orientation requirements. These requirements are illustrated in the following mounting instructions.

Additional Considerations:

When plumbing the fluid flow sensors into your fluid flow system, please keep in mind that the fluid flow sensors may need to be removed for servicing. Installing the fluid flow sensors with an isolating valve before and after the sensor and adding a bypass loop with a bypass valve will enable the sensor to be removed for servicing. An example of this is shown below.
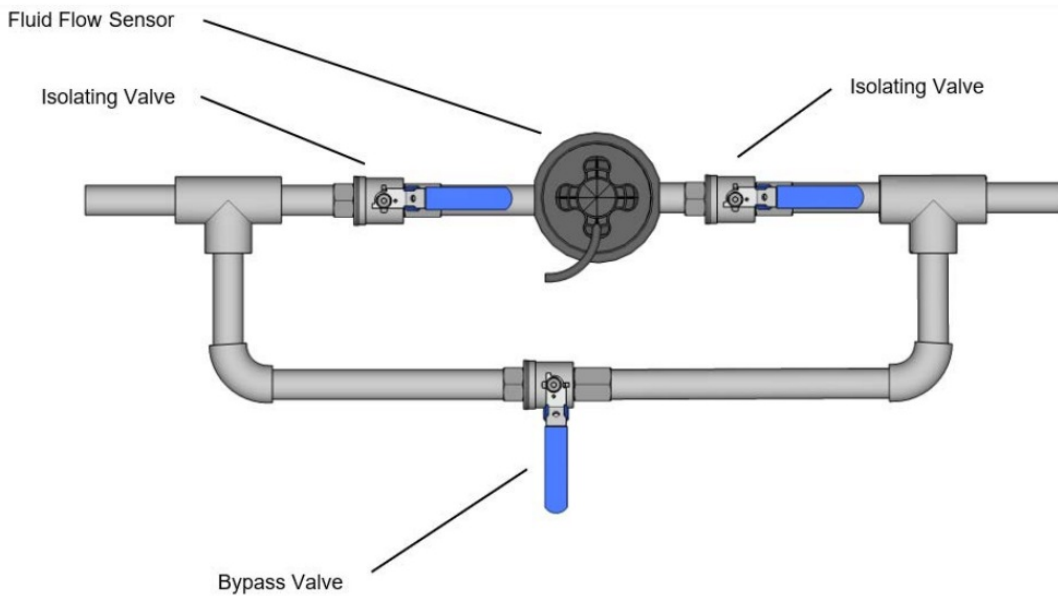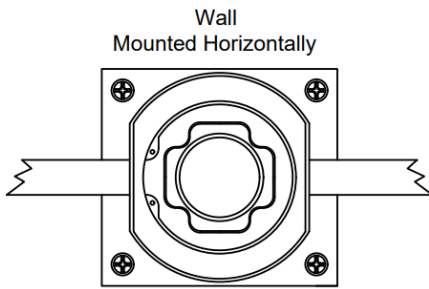

Mounting Fluid Flow Sensors

Fasten the sensor mounting plate to the sensor using the machine screws provided.
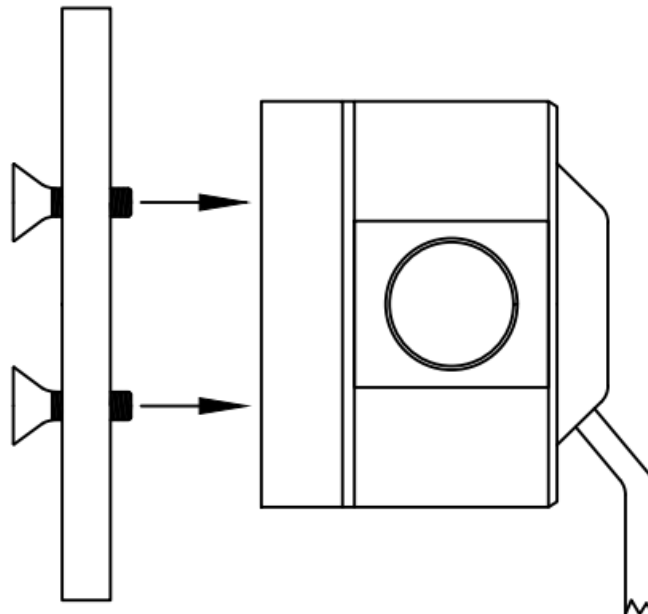
Once the sensor is mounted to its mounting plate, the sensor can be mounted to a wall, bulkhead or stringer. For proper operation, the sensor must be mounted where the fluid flow is horizontal and not vertical (Up and Down). The sensor also cannot be mounted flat (floor mounted) but instead must be mounted onto a vertical structure.
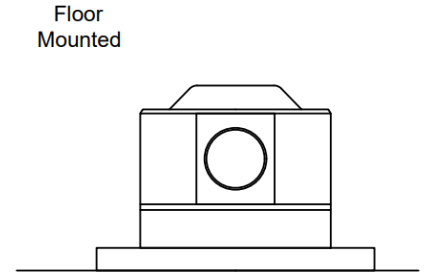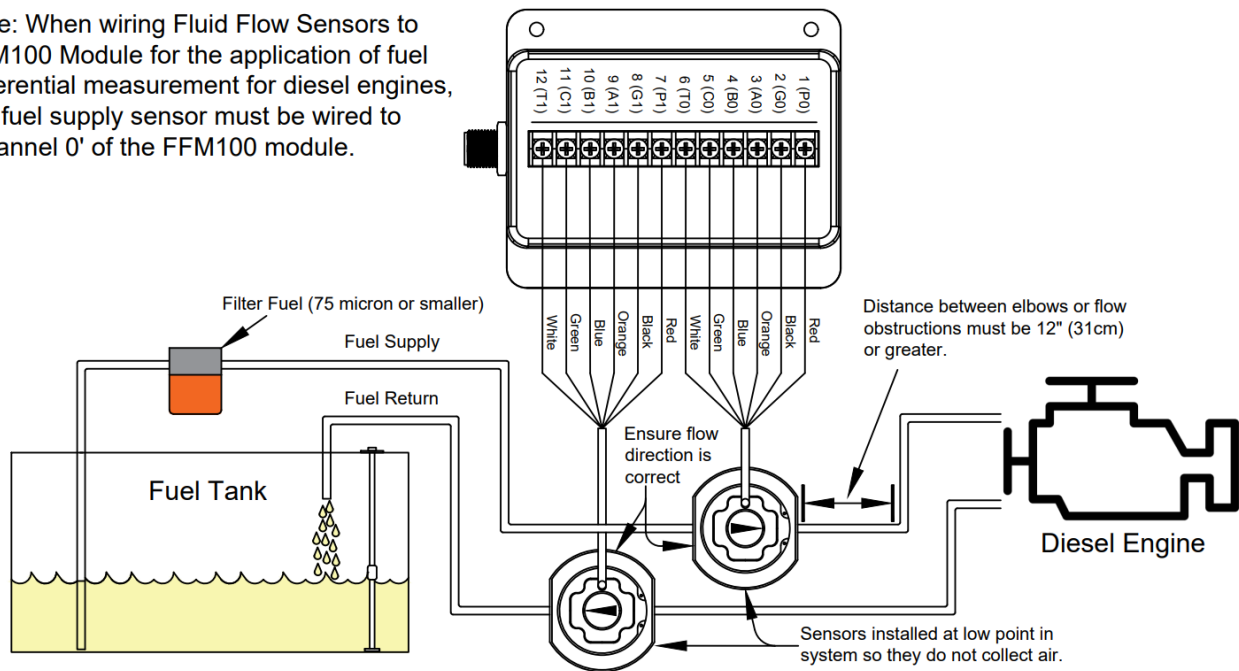
CORRECT	INCORRECT	INCORRECT
Wall Mounted Horizontally	Wall Mounted Vertically	Floor Mounted
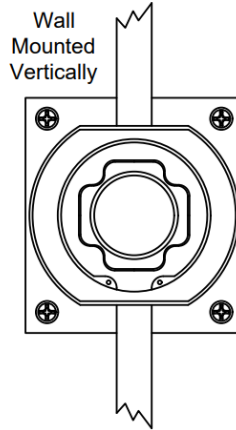
Example of diesel engine fuel flow system plumbing and wiring to FFM100:

Note: When wiring Fluid Flow Sensors to FFM100 Module for the application of fuel differential measurement for diesel engines, the fuel supply sensor must be wired to 'Channel 0' of the FFM100 module.

Note: When wiring Fluid Flow Sensors to FFM100 Module for the application of fuel differential measurement for diesel engines, the fuel supply sensor must be wired to 'Channel 0' of the FFM100 module.

Filter Fuel (75 micron or smaller)

Fuel Supply

Fuel Return

Fuel Tank

Distance between elbows or flow obstructions must be 12" (31cm) or greater.

Ensure flow direction is correct

Diesel Engine

Sensors installed at low point in system so they do not collect air.

For more application diagrams and additional information about FFM100 wiring or configuration please reference the FFM100 User's Manual.

Contact

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Documents / Resources

Maretron M1AR Fluid Flow Sensor [pdf] Installation Guide
M1AR, M1AR Fluid Flow Sensor, Fluid Flow Sensor, Flow Sensor, Sensor

References

- **User Manual**