

IM3000 Irrigation Magnetic Flowmeter Installation Instructions

Overview

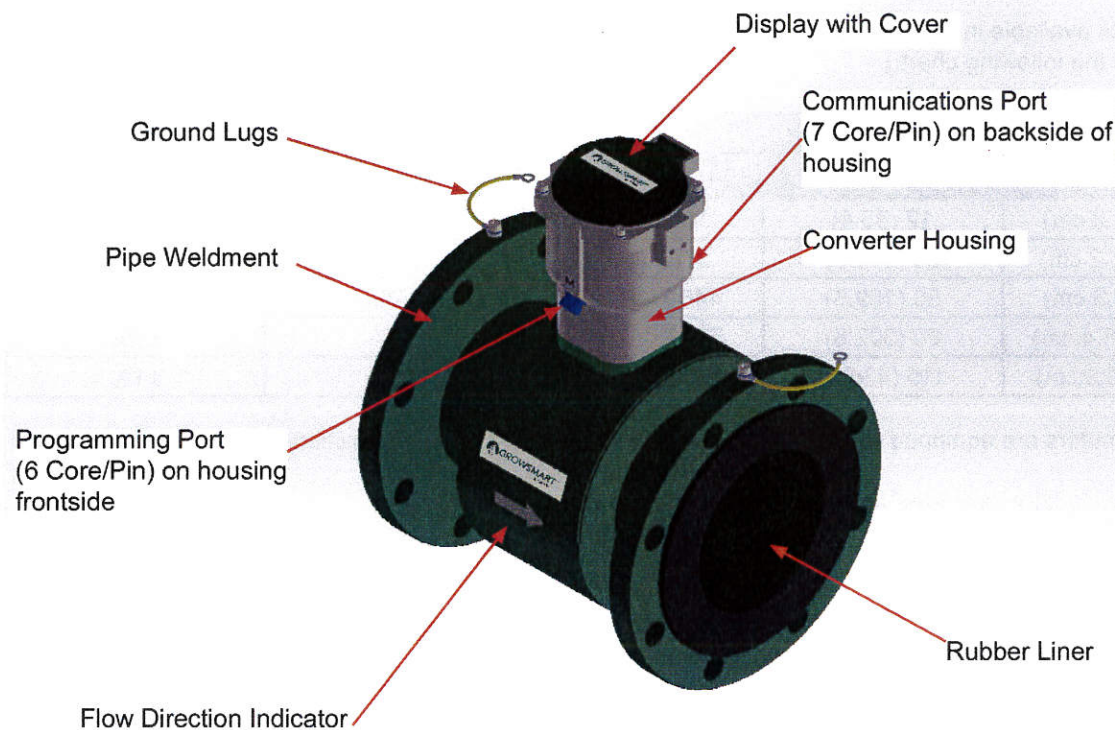
These instructions describe the Growsmart IM3000 Magnetic Flowmeter features as well as provide instructions for meter installation, specifications, user interface explanation and troubleshooting.

The IM3000 comes in these models according to pipe diameter size.

- IM3000-04 for 4" pipe.
- IM3000-06 for 6" pipe.
- IM3000-08 for 8" pipe.
- IM3000-10 for 10" pipe.
- IM3000-12 for 12" pipe.

Features

The Growsmart IM3000 Magnetic Flowmeter provides the following features that set it apart from the competition.



Transportation

During shipping or transporting of the flowmeter, avoid exposing the meter to strong shock or vibrations or impact. Avoid scratching the rubber liner inside the pipe.

Storage

If possible, store the meter in its unopened packaging until actual installation.

Avoid storing the meter outdoors for an extended period of time. Avoid rain and any direct contact with fluids prior to installation.

Avoid exposing the signal converter to direct sunlight.

Installation

Performance and Operating Specifications

The IM3000 is constructed from the following materials:

The pipe consists of epoxy coated carbon steel, with a rubber liner and EPDM constructed O-ring.

The electrodes are made of 316 stainless steel and the electronics housing is constructed from die-cast aluminum with a powder-coated exterior.

The flanges are ANSI 150# which provides a maximum pressure rating of 150 psi.

The IM3000 is rated for operating between 14°F to 131°F (-10°C to 55°C) and should be stored in temperatures between -40°F to 140°F (-40°C to 60°C).

The IM3000 has the IP68 and NEMA 4x electrical enclosure ratings for environmental protection of the electrical components.

The IM3000 is available in 4", 6", 8", 10" and 12" pipe sizes. With the following accuracies for their given pressure ranges. (See the following chart.)

Pipe Size	Measurement Range GPM (LPM)		Accuracy	
	Minimum	Maximum	0-10% Max Flow	0-100% Max Flow
4" (10.2 cm)	12 (45.4)	1000 (3785)	±2%	±1%
6" (15.2 cm)	30 (113.6)	2500 (9463)	±2%	±1%
8" (20.3 cm)	50 (189.3)	4480 (16,958)	±2%	±1%
10" (25.4 cm)	80 (302.8)	7010 (26,535)	±2%	±1%
12" (30.5 cm)	115 (435.3)	10,090 (38,195)	±2%	±1%

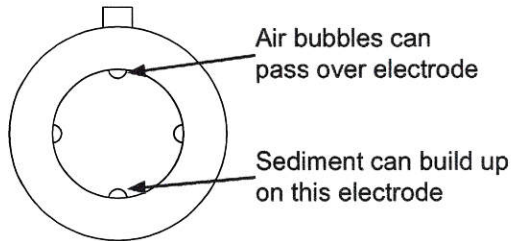
IM3000 flowmeters are equipped with conductivity-based empty pipe warning functionality.

All IM3000 are factory calibrated and require no field calibration.

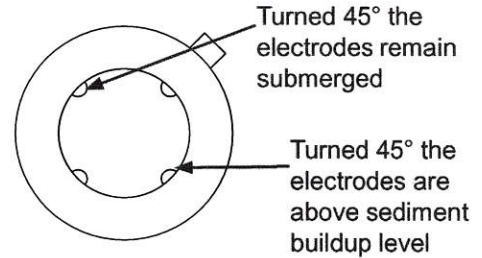
Meter Positioning

It is important to install flowmeters so the readings are always accurate. The meters are designed to give a zero reading should one or more electrodes become exposed. Air bubbles and sediment in the pipe can cause false readings.

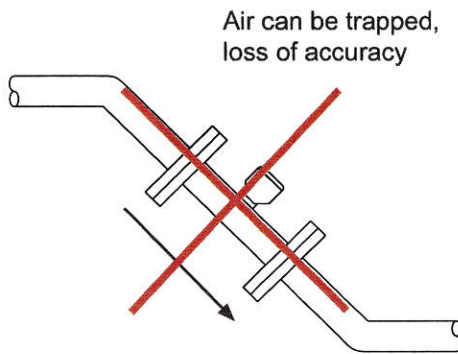
For the best performance, install the flowmeter in pipeline locations where the pipe will be full when there is flow. Also, rotating the pipe 45° (or one flange hole position) will offset the electrodes enough to avoid air bubble and sediment locations that typically occur over center within the pipe. The following diagram shows proper and improper installation options.



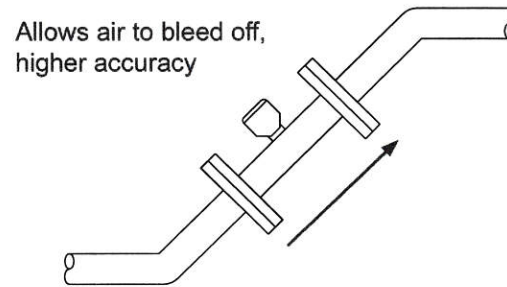
Problematic Sensor Orientation



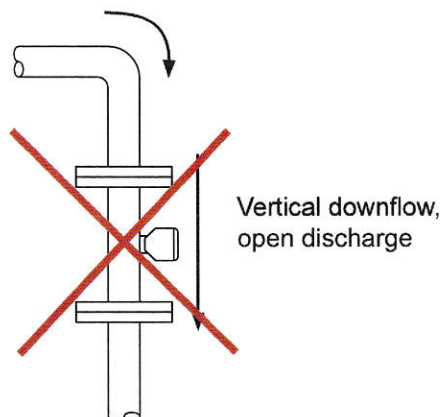
Recommended Sensor Orientation



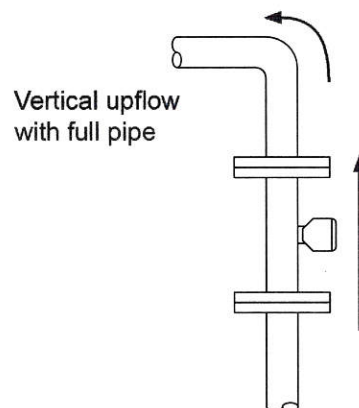
Problematic Meter Positioning



Recommended Meter Positioning



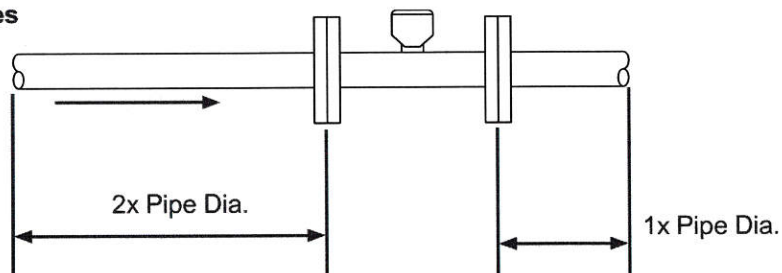
Problematic Meter Positioning



Recommended Meter Positioning

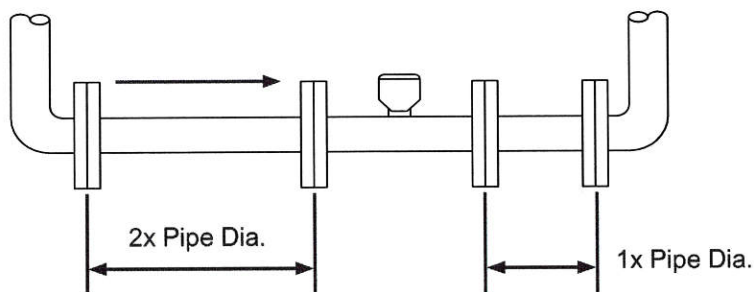
The following diagram shows proper straight pipe installation recommendations.

Inlet and Outlet Distances



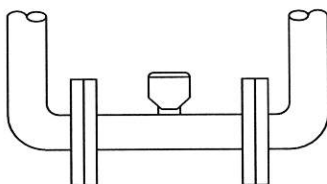
Minimum length of straight pipe at the meter inlet must be two times the pipe diameter and one times the pipe diameter at the meter outlet; this includes pipe lengths for control valves . Expansion joints can be installed in the pipeline after the meter.

Elbow Distance



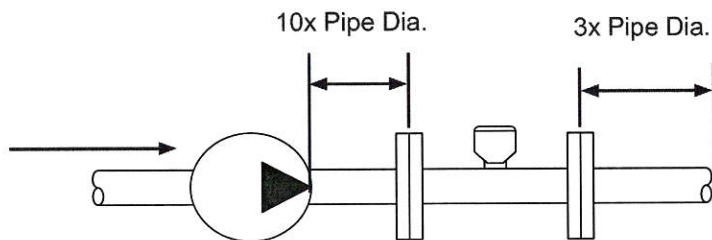
Elbows should not be placed closer than two times the pipe diameter to the meter inlet and one times the pipe diameter to the meter outlet.

O/O Distance



The IM3000 meter passes O straight pipe testing with 1% accuracy at 10% to 100% of its measurement range and 2% accuracy at cutoff to 10% of measurement range..

Pump Distance



Meters should be installed downstream from the pump discharge and never at the pump inlet. If an injection pump is used the meter should be installed upstream of the pump. The minimum straight pipe length for downstream installation must be 10 times the pipe diameter at the meter inlet and three times the pipe diameter at the meter outlet.