

## Insertion Flow Meter Device (IFM)

### Integrated flow meter for BERMAD control valves

The IFM device is an in-valve electromagnetic insertion flow meter that adds an accurate flow measurement functionality to any BERMAD control valve.

Perfectly suitable for flow measurement in civil, municipal, industrial and agricultural water management systems, the easy to install and operate IFM enhances the control valve functionality by adding a flow measuring capability, in many cases eliminating the need for full size water meter installation.

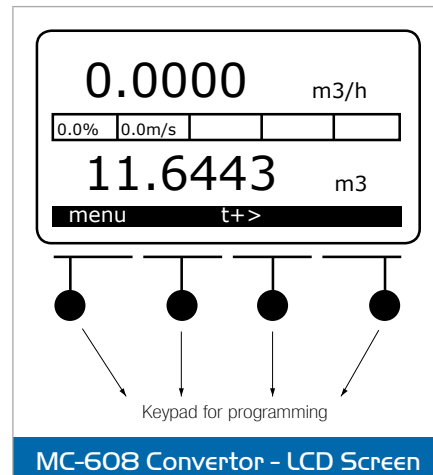
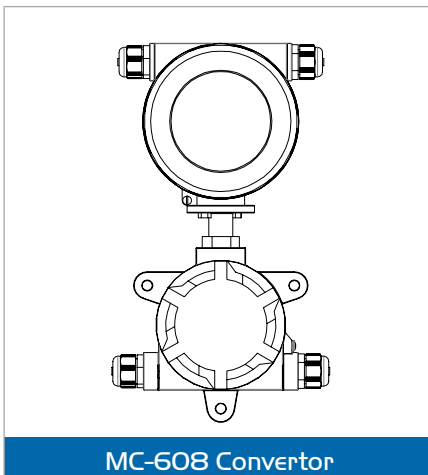
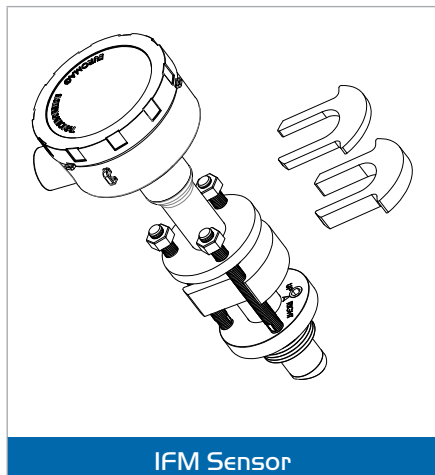


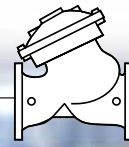
Photo for illustration purposes only

### How it Works

Using Faraday's law, the sensor produces a magnetic field. As fluid moves through this field a voltage is generated which is proportional to flow rate. This voltage reading is then converted to a flow value by the processor.

### General View





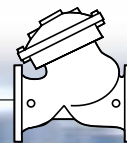
### Features and Benefits

- Designed for use with BERMAD control valves
- Fits a wide range of valve sizes
- Cost saving
- No need for water meter
- No additional pressure drop
- Compact design reduces space needed for installation
- Suitable for water and sewage
- Electromagnetic operation
  - Flow measurement accuracy +/- 2%
  - No moving parts
  - Suitable for flow measurement of liquids contaminated with solids
- Electronic convertor
  - Wide range of output options to control applications
  - Local flow rate & totalizer display
  - Can also be battery powered, usable up to 6 years, replaceable on site
  - Built-in data logger
  - Pressure data logging is available by adding external pressure transmitter
  - Various communication options
  - GSM option available including data transmission of flow, pressure and temperature

### Recommended Measurement Flow Table

Metric Units		
Valve size	Min. Flow - m <sup>3</sup> /h (V = 0.5 m/s)	Max. Flow - m <sup>3</sup> /h (V = 10 m/s)
DN80	9	180
DN100	14	282
DN150	32	634
DN200	57	1128
DN250	89	1762
DN300	127	2538
DN400	226	4512
DN500	353	7050
DN600	508	10152
DN700	691	13818
DN750	793	15862
DN800	902	18048
DN900	1142	22842
DN1000	1410	28200

US Units		
Valve size	Min. Flow - gpm (V = 1.6 ft/s)	Max. Flow - gpm (V = 33 ft/s)
3"	35	725
4"	62	1288
6"	140	2898
8"	250	5153
10"	390	8052
12"	562	11595
16"	999	20613
20"	1561	32207
24"	2249	46379
28"	3060	63127
30"	3513	72467
32"	3997	82451
36"	5060	104352
40"	4246	128830



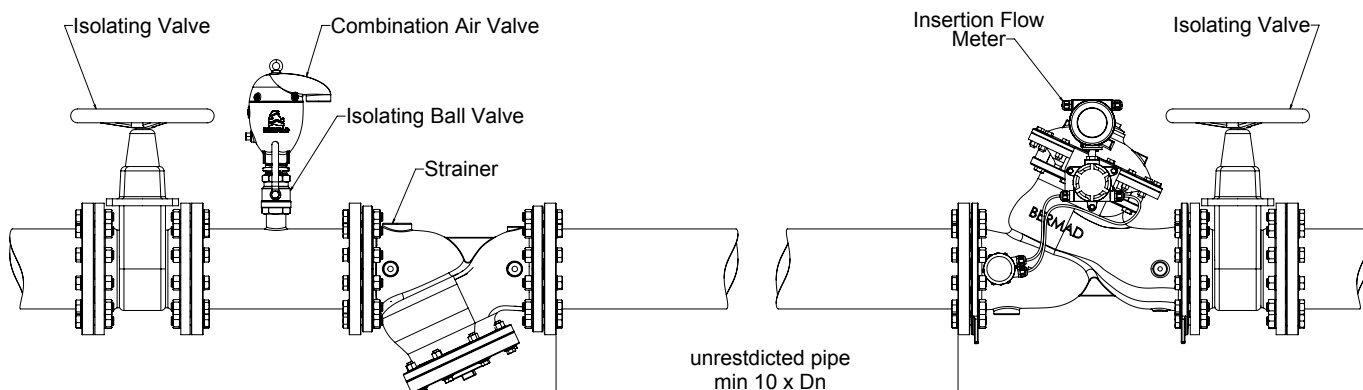
### Technical Specifications

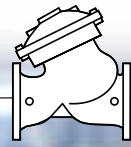
CONVERTER INSTALLATION	Installed on valve or remote version. Cable Length up to 30 meters.
CONVERTER CASE	Aluminum epoxy painted IP 67/68, with front window in toughened glass. Or Plastic
ELECTRICAL CONNECTIONS	Cable glands plastic or metal. Suitable for wire diameters between 7-13mm.
POWER SUPPLY	<ul style="list-style-type: none"> <li>• MC608A 12/24 VAC/DC, 90...264 VAC</li> <li>• MC608B Battery powered supply or 12/24 VAC/DC</li> <li>• MC608R Rechargeable battery + solar panel</li> </ul>
OUTPUT SIGNALS	<ul style="list-style-type: none"> <li>• Active analogue output 4-20 mA;</li> <li>• Digital output for pulses, maximum 1000 Hz duty cycle max 50% for instant load, positive only, positive and negative;</li> <li>• Digital output in active frequency 0-10 KHz; All outputs are opto-isolated. Pulse outputs with a maximum capacity of <math>\pm 35VDC</math> 50 mA.</li> </ul>
SERIAL COMMUNICATION	<ul style="list-style-type: none"> <li>• IrCOM interface for communicating with laptop or hand held communicator, and dedicated SW for programming, displaying and downloading data.</li> <li>• MODBUS RTU interface on RS 485.</li> </ul>
TEMPERATURE RANGE	Process $\gg -10^{\circ}C$ to $70^{\circ}C$
PRESSURE RATING	16 bar/230 psi. For higher pressure please consult factory
ACCURACY	<ul style="list-style-type: none"> <li>• MC608A: 2.0% from (0.5-10 m/s), ( 1.6 - 33 ft/s )</li> <li>• MC608B/R : 2.5% from (0.5-10 m/s), ( 1.6 - 33 ft/s )</li> </ul>
REPEATABILITY	0.5% of the read value (minimum 0.5 m/s ,1.6 ft/s)
SAMPLING FREQUENCY	Programmable 5 UP TO 1/480 Hz.
DISPLAY	Graphic LCD - 128x64 pixels, 50x25mm visual area
MEASUREMENT UNITS	Selectable volume units: ml, l, m <sup>3</sup> , in <sup>3</sup> , ft <sup>3</sup> , gal, USgal.
PROCESS DATA LOGGER	200,000 lines of data (approx. 6 years of logging on factory settings)
ELECTRICAL CONDUCTIVITY	<ul style="list-style-type: none"> <li>• MC608A: 5 <math>\mu S/cm</math> minimum</li> <li>• MC608B/R: 20 <math>\mu S/cm</math> minimum</li> </ul>
APPROVALS AND CERTIFICATIONS	<ul style="list-style-type: none"> <li>• The MC 608 converter meets all the requirements by the EC directives.</li> <li>• Electromagnetic compatibility <math>\gg</math> Directive 89/336/EEC, EN 61326-1:200</li> <li>• Low voltage directive <math>\gg</math> Directive 2006/95/EC</li> <li>• Custody Transfer <math>\gg</math> MI-001 and OIML R-49 (certification pending)</li> </ul>

### Recommended Installation

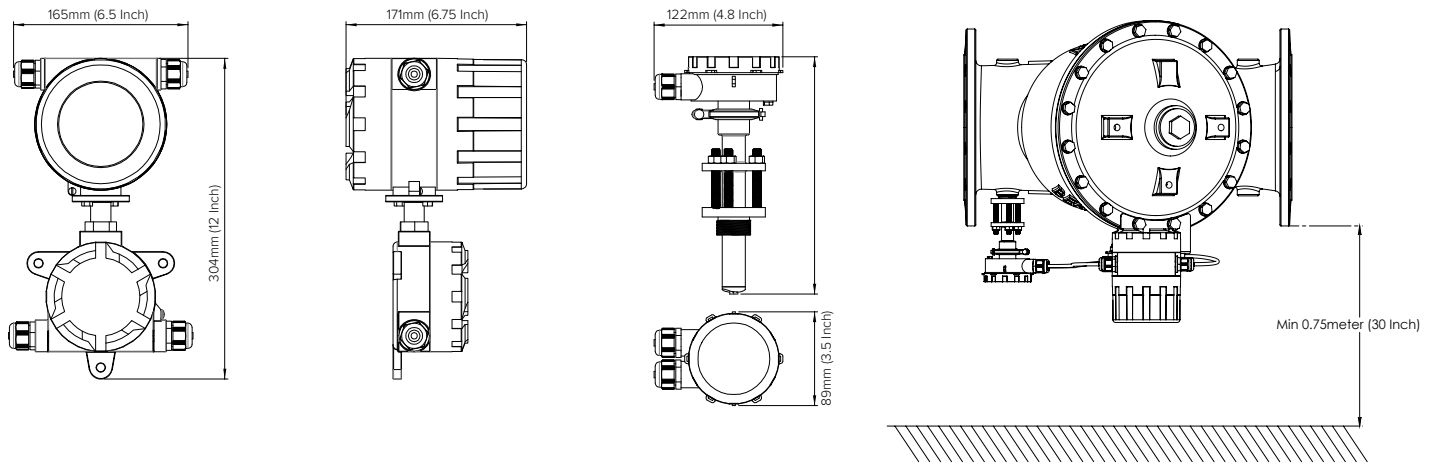
Recommended Installation to ensure accuracy according to the table.

- For special installation requirements, please contact to BERMAD.
- The pipe must be totally filled with water for reliable flow measurement





### Dimensions



### IrCOM Application

Interface for communicating with laptop communicator. Includes a special USB cable and software that can be downloaded for free.

For:

- Communication with the MC608 converter is Via PC or laptop computer using the IrCOM module.
- Using the IrCOM simplifies changing the operating configurations.
- Downloading data from the logger.



### Ordering Guide

1. Select full valve code using BERMAD 400/700/800 Ordering Guides.
2. Select the MT feature from the additional features list.
3. Select power supply option:
  - 3.1. Standard - 12-24V ac/dc
  - 3.2. Optional – 90-264Vac
  - 3.3. Optional –Battery (consult factory)
  - 3.4. Optional –Solar (consult factory)
4. Select convertor case material:
  - 4.1. Standard - Metal
  - 4.2. Optional – Plastic (consult factory)

**Example** – WW-6"-718-MT-03-Y-C-16-EB-4AP-NN-F (12-24V dc, with plastic convertor case)

