

SPECIFICATION SHEET BATTERY POWERED ELECTROMAGNETIC FLOW METER

DESCRIPTION

McCrometer's award-winning Mc Mag³⁰⁰⁰TM provides growers and irrigators with a new alternative for flow measurement. With a 5-year expected battery life (3-year battery warranty) and saddle mount design, the Mc Mag³⁰⁰⁰ delivers the dependability and ease-of-installation McCrometer has provided to the agricultural market for nearly 60 years. The electromagnetic sensor offers accuracy as good as $\pm 1\%$ while being designed to naturally shed debris.

The meter is available to fit a common range of agricultural line sizes, from 4" to 12" diameter pipe.

The innovative design of the Mc Mag³⁰⁰⁰ saddle mount meter features a multi-point angled sensor that sheds debris, making it ideal for use in surface water, livestock waste lagoons, and other dirty water applications.

Using electromagnetic technology to measure the water flow, the Mc Mag³⁰⁰⁰'s precision sensor corrects for shifting velocity in the pipe by constantly obtaining the mean velocity from its multiple electrodes. The result is a highly accurate (as low as $\pm 1\%$) flow meter.

The meter combines an innovative saddle, precision sensor, and a battery powered integrated electronic converter package with data logging capability to provide accurate flow measurement for full-pipe flow monitoring applications.

The integrated electronic converter is secured with tamper resistant screws to protect against unauthorized access. The meter offers flow rate and total water used and a 5-year expected battery life (3-year battery warranty). The Mc Mag³⁰⁰⁰ features three 3.6V lithium-thionyl chloride (Li-SOCl₂) D size batteries, with one serving as back-up power. The main power batteries are easily replaced in the field. Pulse and 4-20mA output are available for remote meter reading or SCADA. The Mc Mag³⁰⁰⁰ is McCrometer CONNECT wireless system compatible, which allows users to access flow data by simply logging on to the Internet. This eliminates costly manual meter reading.

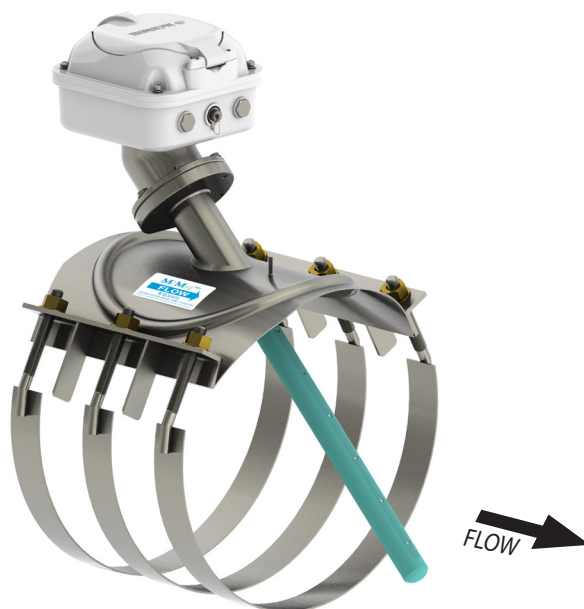
INSTALLATION

The Mc Mag³⁰⁰⁰ offers hassle-free installation, even in tight spaces. No flanges or costly welding is involved. Users simply cut a 3" diameter hole in the top of their pipe and slide the sensor into the hole, and then cinch the meter onto the pipe using the Factory provided U-straps.

The meter can be mounted in a horizontal or vertical position with a full pipe of water. A minimum of three pipe diameters upstream of a flow disturber and one pipe diameter downstream from the meter are required to ensure optimal accuracy of $\pm 2\%$. A $\pm 1\%$ accuracy is available with a Factory consultation prior to order.

APPLICATIONS

- Irrigation
- Center Pivot Systems
- Well Monitoring
- Water Distribution
- Chemigation
- Livestock Waste Lagoons
- Surface Water
- Golf Courses and Park Management



Description and Operating Specifications

Pipe Sizes	4", 6", 8", 10", 12"
Body Style	Saddle mount
Pressure	150 psi (10.3 bar) working pressure
Accuracy	± 2% with default calibration ± 1% with custom Factory calibration
Conductivity	Minimum conductivity of 50µS/cm, for lower conductive fluid consult Factory.
Empty Pipe Detection	Hardware/Software, conductivity-based (optional)
Electrical connects	Optional shielded cable for 10-32VDC/4-20 mA output Optional shielded cable for pulse out
Pipe Run Requirements	3D Upstream / 1D Downstream

Display and Measurement

Display	2-Line LCD display (no backlight), 16 characters per line <ul style="list-style-type: none">• Non-volatile memory• Anti-reverse totalizer (standard)• Total (to 9 digits of precision)• Flow Rate and Velocity (to 5 digits of precision)• Two alarms: low battery and empty pipe (optional) To preserve battery life, a push-button on the housing activates the display.
Digits	5 Rate, 9 Total
Units	US gallons, US gallons x1000, US gallons x1,000,000, cubic inches, cubic feet, cubic feet x1000, cubic centimeters, cubic decimeters, milliliters, liters, deciliters, hectoliters, kiloliters, megaliters, cubic meters, cubic meters x1000, acre feet, acre inches, imperial gallons, imperial gallons x1000, imperial gallons x1,000,000, standard barrels, oil barrels, and miner inch days. Rate scales: seconds, minutes, hours, and days.

Power

Battery	Standard: three 3.6V lithium-thionyl chloride (Li-SOCl ₂) D size batteries. Batteries are field replaceable
DC Power	Linear power supply 10-35VDC, 2.4W
Battery Life	Five-year expected battery life (three-year battery warranty)

Environmental

Operating Temperature	-4° to 140°F (-20° to 60°C) sensor
Storage Temperature	-40° to 149°F (-40° to 65°C) Note: During freezing conditions and when meter is not in use, sensor must be removed from pipe and stored in dry conditions. NOTE: Damage to the sensor caused by allowing the sensor freeze in the pipe is not covered by the warranty.
Operating Pressure	150 PSI
Water Impermeability	IP68 (submersible sensor)

Outputs

Pulse Output	Digital pulse (open collector) output for volumetric and/or alarm <ul style="list-style-type: none">• Battery power only: 1 pulse output maximum• DC powered version: 2 pulse outputs available
Analog Output	4-20mA (not galvanically separated from the power supply). DC powered option only.

Options and Accessories

- Data Logger - included as standard with five years of data storage at default (12hr) interval. (Cable sold separately)
- Epoxy coated carbon steel flanged spool piece
- DC power w/battery backup: (Pulse & 4 20mA Out)
- Annual verification / calibration
- Stainless Steel ID tag

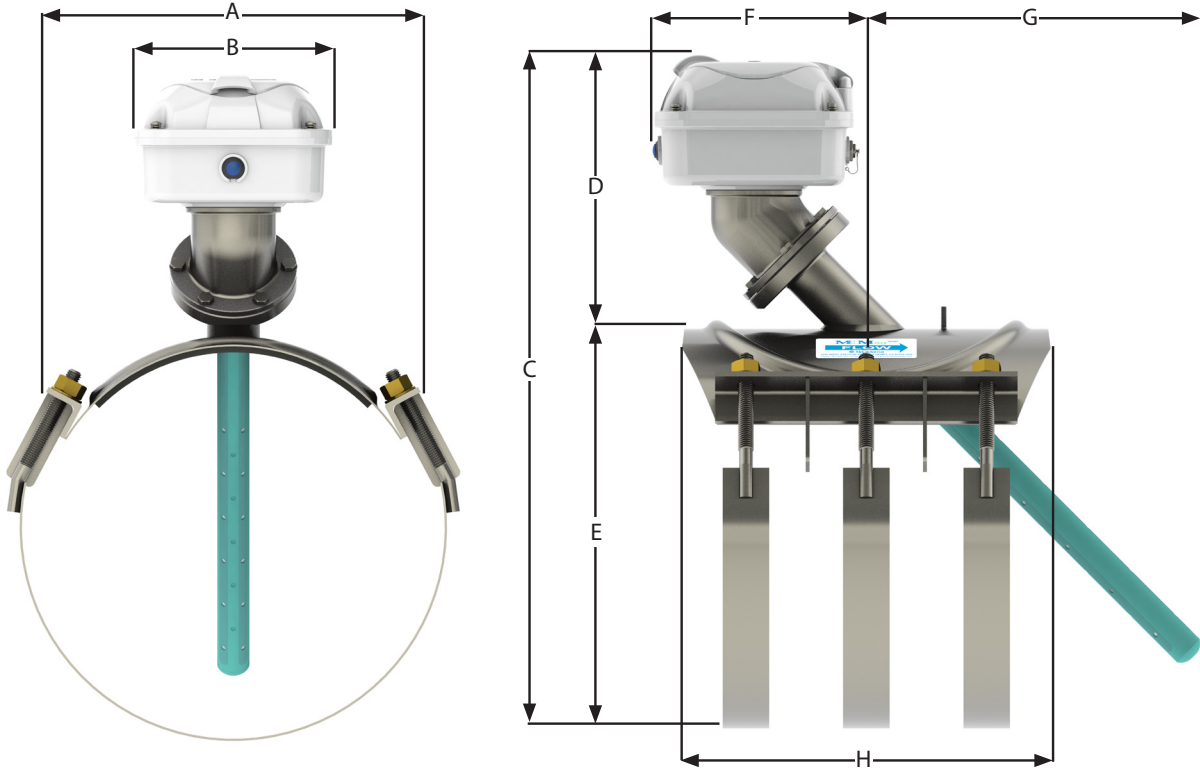
Materials

Sensor Body	Fusion bonded epoxy coated stainless steel (316)
Electrodes	Stainless steel (316)
Saddle Mount	Stainless steel (304)
Saddle Hardware	Stainless steel (304)
Electronic Housing	IP-67 Certified diecast aluminum, powder coated enclosure w/ tamper resistant seal, 6½" x 6½" x 4¾" tall
O-Ring	SBR rubber D-ring
Boot Cover	EPDM rubber

Mc Mag³⁰⁰⁰ Part Structure

G3	XX	-	X	-	-	-	-	-
METER SIZE								
	4" Meter	04						
	6" Meter	06						
	8" Meter	08						
	10" Meter	10						
	12" Meter	12						
OUTSIDE DIAMETER (O.D.) RANGE		MUST SPECIFY :		X				
4" METER	3.90 - 4.14"		0					
	4.35 - 4.64"		1					
	4.65 - 4.90"		2					
	4.91 - 5.15"		3					
6" METER	5.50 - 5.89		1					
	5.90 - 6.75		2					
	6.76 - 7.49		3					
8" METER	7.50 - 7.79		3					
	7.80 - 8.93		4					
	8.94 - 9.19		5					
10" METER	9.20 - 9.69		5					
	9.70 - 10.94		6					
	10.95 - 11.29		7					
12" METER	11.30 - 11.69		7					
	11.70 - 12.94		8					
	12.95 - 13.39		9					
POWER / OUTPUT OPTIONS								
	Battery Power / No Outputs (Default)		-					
	Battery Power / Pulse Output		1	0	●	●		
	DC Power (10-32v) / 4-20mA Output		2	●	0	●		
	DC Power (10-32v) / 4-20mA Output / Pulse Output		3	●	●	●		
POWER CABLE LENGTH OPTIONS								
	No Cable - Output configured [Quick Connect Only]		0					
	6ft (Open Leads - Hardwired only) [Default]		1					
	25ft (Open Leads)		2					
	50ft (Open Leads)		3					
PULSE CABLE LENGTH OPTIONS								
	No Cable - Output configured [Quick Connect Only]		0					
	6ft (Open Leads - Hardwired only) [Default]		1					
	25ft (Open Leads)		2					
	50ft (Open Leads)		3					
	25ft (7-Pin Male Connector for Telemetry Output)		4					
	50ft (7-Pin Male Connector for Telemetry Output)		5					
OUTPUT CABLE TERMINAL OPTIONS								
	Open Leads (Hardwired)						1	
	Quick Connection Cable Terminals (25 and 50 ft length only on meter mount converter)						2	
DATA LOGGER Standard Feature								
	Internal Data Logger							

Mc Mag³⁰⁰⁰ DIMENSIONS AND WEIGHTS



Max/Min Flow And Weight	Nominal Pipe Size*				
	4"	6"	8"	10"	12"
Maximum Flow U.S. GPM	600	1350	2350	3700	5300
Minimum Flow U.S. GPM	40	90	150	240	350
Approximate Shipping Weight lbs.	23	26	29	30	32

Dimensions (Inches)	Nominal Pipe Size				
	4"	6"	8"	10"	12"
A	7.50	13.00	12.50	13.25	15.25
B	6.44	6.44	6.44	6.44	6.44
C	13.50	15.50	17.50	19.75	21.75
D	8.90	8.90	8.90	8.90	8.90
E	4.50	6.625	8.625	10.75	12.75
F	7.37	7.37	7.37	7.37	7.37
G	3.56	4.93	7.32	8.38	10.77
H	8.00	12.00	12.00	12.00	12.00

All Dimensions based on ANSI B36.10 Nominal Pipe

*** Note:** Meters can be installed in Water Specialties bolt saddle meter cutouts for 6" meters and 8"-12" meters as well as in McCrometer bolt on saddle meter cutouts for 12" OD pipe. **The meter CANNOT be installed in Water Specialties bolt on saddle meter cutouts for 4" meters.** If replacing an existing meter, consult Factory.