Benefits

The McMag2000 provides farmers and irrigators an affordable and easy-to-read mag with minimal maintenance and little to no downtime. As the only mag meter on the market with a price tag comparable to a propeller meter, the McMag2000 has a low cost of ownership without compromising durability and accuracy. The McMag2000 is portable, making it an efficient purchase for users with multiple irrigation lines. This mag's familiar saddle-style form and streamlined functionality allows for in-field programmability and serviceability, guaranteeing minimal downtime and maximum control. It's the hassle-free, wallet-friendly, works-when-you-need-it-to, simple to use, mag meter, only from McCrometer.

Designed for Accuracy, Built to Last

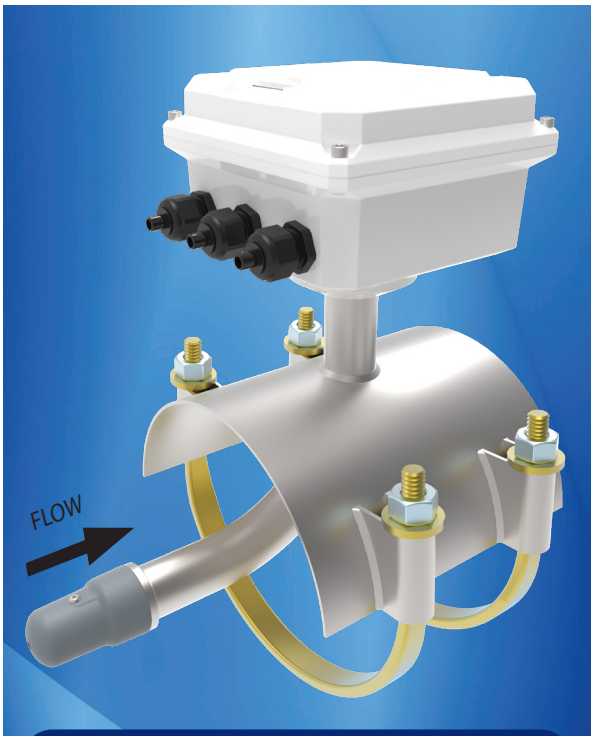
- Durable, built with a time-tested rugged design
- Consistent and repeatable measurements
- Versatile, with a wide range of applications

Installation

The McMag2000 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 five pipe diameters upstream of a flow disturber and two pipe diameters downstream from the meter are required to ensure optimal accuracy of ±2%. When used with a flow straightener, these distances are 1.5 diameters upstream and 1 diameter downstream.

Existing saddle style Mc Propeller meters can be easily and quickly retrofit to the Mc Mag2000 in the field.



KEY FEATURES

- +/- 2% accuracy
- Easy in-field installation
- Low maintenance
- 5-year full warranty
- Low cost of ownership
- "Do-it-yourself" programmability
- Minimal pipeline intrusion

APPLICATIONS

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

Description

The McMag2000™ provides growers and irrigators with a new alternative for flow measurement. With a 5-year meter warranty, a 5-year battery life, and saddle mount design, the McMag2000 delivers the dependability and ease-of-installation McCrometer has provided to the agricultural market for over 65 years. The electromagnetic sensor offers accuracy as good as ±2%.

The meter is available to fit a common range of agricultural line sizes, from 4" to 16" diameter pipe or tube.

The innovative design of the McMag2000 saddle mount meter offers modular design to ensure McMag2000 continues to have low cost of ownership, the main components can be easily and affordably updated in field without downtime.

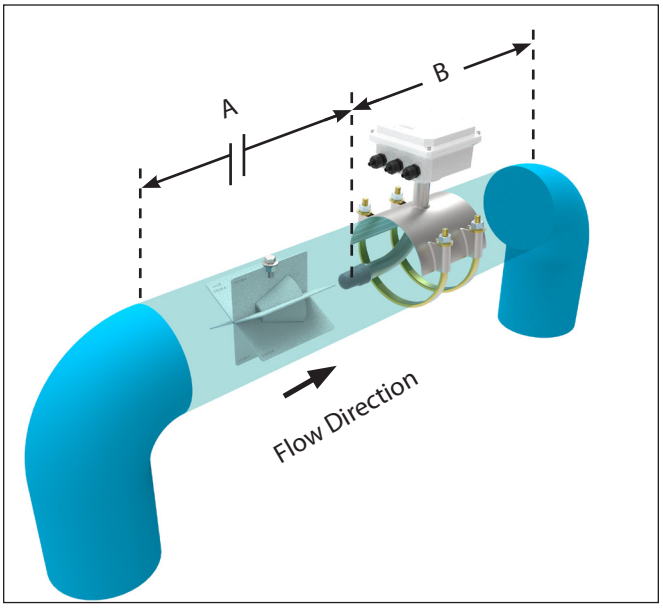
The meter combines a saddle, precision sensor, and a battery powered integrated electronic converter package to provide accurate flow measurement for full-pipe flow monitoring applications.

The ProComm GO 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 warranty. The McMag2000 features two 3.6V lithium-thionyl chloride (Li-$SOCl_2$) D size batteries, and a back-up battery pack. The main power batteries are easily replaced in the field. Pulse output is available for remote meter reading or SCADA.

Pipe Run Requirements

Both upstream and downstream distances are measured from the center of the sensor as shown at right. In a typical installation to achieve ±2% accuracy the McMag2000 flow meter should be installed a minimum of five diameters upstream from most flow disturbers and two diameters downstream of the meter, or when used with a flow straightener, 1.5 diameters upstream and 1 diameter downstream.

Configuration	A	B
With or without straightening vanes	5	2
With flow straightener	1.5	1



Part Number Structure

G20	__	__	-	__	__	__	__	__	__	-	__	-	__
Line Size													
4" Saddle Meter	04												
6" Saddle Meter	06												
8" Saddle Meter	08												
10" Saddle Meter	10												
12" Saddle Meter	12												
14" Saddle Meter	14												
16" Saddle Meter	16												
Outside Diameter Range													
Tube Style Saddle (Nominal Inch OD)		T											
Pipe (IPS, PVC, HDPE) Style Saddle (Nominal Pipe OD)		P											
Ductile Iron/ C900 Standards Style Saddle		A											
PIP Standard Style Saddle		B											
Retrofit Kit (no saddle, Sensor & Electronics only)		K											
Non Standard OD Style Saddle (In available Sizes)		X											
Converter Mounting													
Meter Mount Converter *(Standard)*				M									
Converter Power Options													
Battery Power *(Standard)*					B								
Solar Power, Battery Backup					S								
A/C Power, Battery Backup					E								
DC Power, Battery Backup					F								
Converter Output Options													
No Outputs *(Standard)*						-							
No Outputs, DC Power cable only						0							
Two Digital Out						1							
4-20mA Analog only						2							
4-20mA Analog + Two Dig Out						3							
AMI Smart Output only						4							
AMI Smart Output + Two Dig Out						5							
AMI Smart Output + 4-20mA Analog						6							
AMI Smart Output + 4-20mA Analog + Two Dig Out						7							
DC Power/ Analog Out Cable Options													
No DC Power or Outputs *(Standard)*							-						
No Cable - Output Configured (Quick Conn)							0						
6 ft (Open Leads - Strain Relief)							1						
25 ft (Open Leads)							2						
50 ft (Open Leads)							3						

Pulse Cable Length Options					
No Outputs (Standard)	-				
No Cable - Output Configured (Strain Relief or Quick Conn)	0				
6 ft (Open Leads)	1				
25 ft (Open Leads)	2				
50 ft (Open Leads)	3				
25 ft (7-Pin Male connector for Telemetry)	4				
50 ft (7-Pin Male connector for Telemetry)	5				
Output Cable Terminal Options					
Strain Relief *(Standard)*		1			
Quick Connect (25 & 50 ft Cable length only)		2			
Smart Output Protocol Options (*5 or 6 output option required)					
No AMI Outputs			-		
Sensus Protocol (6ft cable, Nicor Connector hardwired only)			SEN		
Itron 6 digit Protocol (6ft cable, Nicor Connector hardwired only)			IT6		
Itron 9 digit [100W] Protocol (6ft cable, Nicor Connector hardwired only)			IT9		
SmartTrax Telemetry Unit (Requires Pulse Output, STX Smart Part on 2nd Line)			STX		
Special Options					
F Style Saddles for FS Flow Straightener (6-12" "T" & "P" saddles only)					FS

Flow Meter Specifications

Physical Specifications

Measurement Method	Volumetric flow in filled flow conduits 4" to 12" utilizing saddle installed sensor. Flow indication in English Standard or Metric units
Directionality	Single direction
Pipe Sizes	4", 6", 8", 10", 12"
Body Style	Saddle mount
Materials	**Sensor Body:** HDPE Plastic **Electrodes:** Stainless steel (316) **Saddle Mount:** Stainless steel (304) **Electronic Housing:** IP-67 Certified diecast aluminum, powder coated enclosure w/ tamper resistant seal, 6½" x 6½" x 43/8" tall **O-Ring:** SBR rubber D-ring **Boot Cover:** EPDM rubber
Power	**Battery:** Standard: three 3.6V lithium-thionyl chloride (Li-SOCI2) D size batteries with two AA backup batteries **AC Power:** 100-240VAC **DC Power:** Linear power supply 10-35VDC, 2.4W
Electrical Connections	• Optional shielded cable for 10-32VDC/4-20 mA output • Optional shielded cable for pulse out
Outputs	**Digital output:** Digital pulse (open collector) output for volumetric - Two isolated digital pulse (open collector) outputs for volumetric - AMI output **Analog output:** 4-20mA: Galvanically Isolated, 16 Bit resolution. All power configurations (including battery). Note: 9-30 VDC loop power required (not supplied via converter)

Performance and Operational Specifications

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
IP Rating	IP68 (submersible sensor)
Pressure Range	150 psi (10.3 bar) working pressure
Empty Pipe Detection	Hardware/software, conductivity-based (optional)
Accuracy	± 2% ± .006 ft/sec
Conductivity	Minimum conductivity of 50µS/cm. For lower conductive fluid consult factory.
Battery Life	Five-year expected battery life, five-year battery warranty
Pipe Run Requirements	5D upstream / 2D downstream 1.5D upstream / 1 downstream

ProComm GO Converter Specifications

Physical Specifications

Electronic Housing	Diecast aluminum, powder coated enclosure w/ tamper resistant seal, 6½" x 6½" x 43/8" tall
Converter Dimensions	See "Dimensions" section for meter mount and remote mount converter dimensions.
Power	**Battery:** Standard: three 3.6V lithium-thionyl chloride (Li-SOCI2) D size batteries with two AA backup batteries **AC Power:** 100-240VAC/45-66Hz (4W) **DC Power:** Linear power supply 10-35VDC (4 W)
Electrical Connections	• Optional shielded cable for 10-32VDC/4-20 mA output • Optional shielded cable for pulse out

Performance and Operational Specifications

Battery Life	Five-year expected battery life, five-year battery warranty
Location	Indoor or outdoor use
Altitude	Operating: 2000 meters Storage: 12,000 meters
Operating Temperature	-4° to 140° F (-20° to 60° C)
Storage Temperature	-4° to 140° F (-20° to 60° C)
Relative Humidity	0% to 100%
IP Rating	IP67 Die cast aluminum converter
Outputs	**Digital output:** Digital pulse (open collector) output for volumetric - Two isolated digital pulse (open collector) outputs for volumetric - AMI output **Analog output:** 4-20mA: Galvanically Isolated, 16 Bit resolution. All power configurations (including battery). Note: 9-30 VDC loop power required (not supplied via converter)

Display and Measurement

Display	• 2-Line LCD display (no backlight) • 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) • Opening lid activates display
Digits	5 Rate, 9 Total	

Units

GPM	Gallons per minute	IGM	Imperial gal per minute	CFM	Cubic feet per minute
MGD	Mega gal per day	MI9	Miners inch (9G)	B5M	Barrels per minute (55G)
CFS	Cubic feet per second	MI1	Miners inch (11.22G)	B5H	Barrels per hour (55G)
MLD	Megaliters per day	APD	Acre feet per day	B5D	Barrels per day (55G)
LPS	Liters per second	KLH	Kiloliters per hour	B4M	Barrels per minute (42G)
CMH	Cubic meters per hour	LPH	Liters per hour	B4H	Barrels per hour (42G)
LPM	Liters per minute	CMM	Cubic meters per minute	B4D	Barrels per day (42G)
GPH	Gallons per hour	CFM	Cubic feet per minute		

ProComm GO Converter Specifications

Totalizer Units	GAL	Gallons	B42	Barrel (42G)	MH1	Miners Inch Hour (11.22G)
	CUF	Cubic Feet	B46	Barrel (46G)	MD1	Miners Inch Day (11.22G)
	AFT	Acre Feet	B55	Barrel (55G)	MH9	Miners Inch Hour (9G)
	CUM	Cubic Meters	IMG	Imperial Gallon	MD9	Miners Inch Day (9G)
	LIT	Liters	AIN	Acre Inch	KGL	Kilo Gallons
	MML	Megaliter	TON	Ton (Short)	MGL	Mega Gallons
	MTT	Metric Ton (KL)	MM1	Miners Inch Minute (11.22G)	IN3	Cubic Inch
	B31	Barrel (31G)	MM9	Miners Inch Minute (9G)		
Data Logger	Standard with all models, minimum of five years of data stored					

Other Specifications

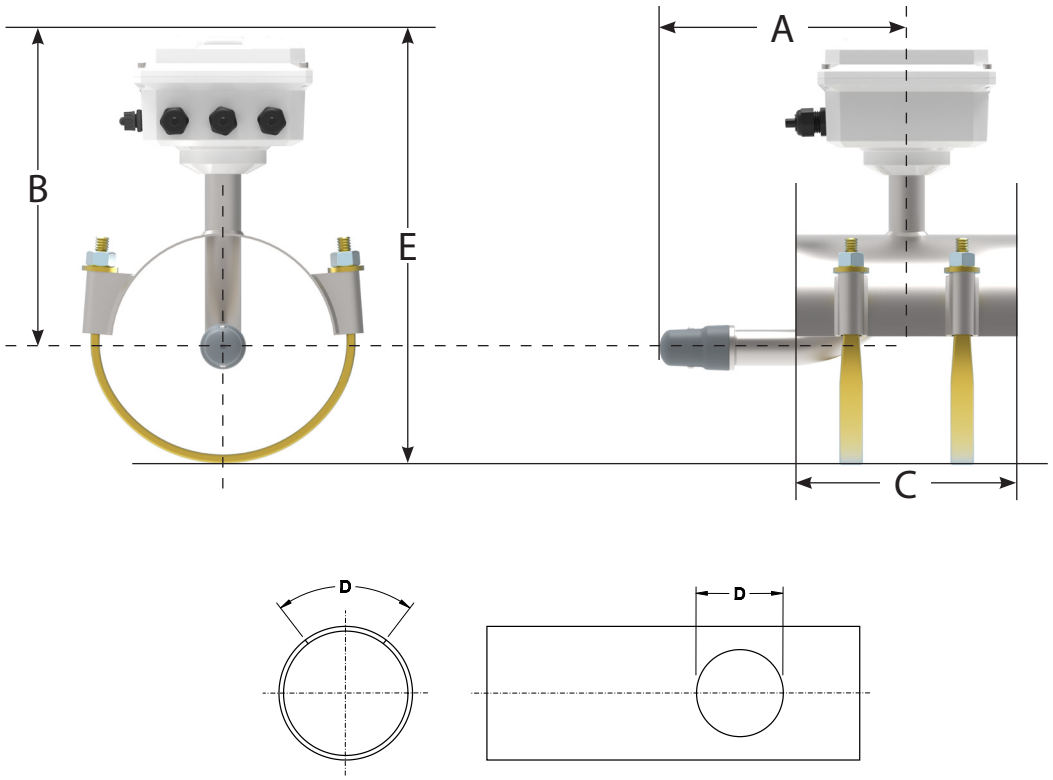
Options and Accessories	• Data Logger - included as standard with five years of data storage at default (12hr) interval. (Cable sold separately) • AC, DC, and battery powered with battery backup powered available
Safety	• IEC 61010-1, Pollution Degree II • Overvoltage protection Category III

Certifications

Standard Model	• ISO 9001:2015 certified quality management system • Certified by MET to UL 61010-1	

HL Model	• ISO 9001:2015 certified quality management system
	• Certified by MET to UL 61010-1 and MET C22.2 No. 61010-1-04
	  • Class I, Division 2, Groups A B C D, T5
	  • Class I, Zone 2 IIC T5	

Dimensions and Weights



	DIMENSIONS						
Meter and Nominal Pipe Size	**4**	**6**	**8**	**10**	**12**	**14**	**16**
Minimum Flow U.S. GPM	20	45	75	125	175	225	300
Maximum Flow U.S. GPM	600	1350	2350	3700	5300	6700	8800
Approx. Shipping Weight-lbs.	13	15	18	20	24	28	31
A (inches)	5 1/2	9	9	9	9	9	9
B (inches)	9	11 1/2	11 1/2	11 1/2	12 1/2	14 1/2	14 1/2
C (inches)	7	8	8	9 1/2	9 1/2	9 1/2	9 1/2
D (inches)	3	3	3	3	3	3	3
E (inches)	11 1/2	14 3/4	15 3/4	17 3/4	19 3/4	21 3/4	23 3/4

REQUIRED ORDERING INFORMATION: Pipe O.D. and I.D. are required for all saddle meter orders.

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