HACH® FPI MAG™

FPI Mag Flow Meter Specification Sheet

Applies to the following models:

FPI Mag 3000

FPI Mag 5000

Applications

Hach's FPI Mag 3000 and 5000 Series flow meters are intended exclusively for clean water applications. These can include:

- Well Water
- Potable Water
- Pump Stations
- Rate-of-Flow Control
- Raw Water Transmission
- Distribution
- Effluent
- Filter balancing and backwash
- Pumping stations
- UV dosing
- Wells and booster stations

Benefits

- **Hot Tap Installation** - No service interruption
- **Accurate** – Measures the full flow profile
- **Lower Cost** – Installed savings more than 45%
- **Robust** – No moving parts to wear or break
- **Versatile** – Great for plant maintenance, upgrades and retrofits
- **Accessible** – Insertion design provides easy access
- **Virtually No Maintenance** – No field calibration required

Performance Advantages

- Hot tapped for quick, simple installation
- Measures the full profile, not just a single point
- High accuracy, FPI Mag 5000 +/- 0.5%
- FPI Mag 3000 +/- 1%
- Bi-directional flow indication and measurement
- Maintenance free
- Wide flow range
- Available from 4" – 138"

Features

- **No Service Interruption for Installation**

  Hach's FPI Mag (Full Profile Insertion) electromagnetic flow meter is the only rugged steel shaft, hot tap full profile insertion flow meter available on the market. The FPI Mag installs without service interruption making it ideal for retrofits, upgrades and maintenance projects and sites not previously metered. The hot tap installation significantly reduces installation time; eliminating the need to de-water lines or cut pipe.

- **Accurate Measurement**

  The multi-electrode sensor delivers an accurate measurement of the full pipe profile rivaling the performance of a full-bore mag meter. The repeatable, stable measurement across the entire flow profile compensates for variable flow profiles, including swirl and turbulent conditions.

Hach's Flow Solutions by **McCROMETER**

- **An Economical Metering Solution**

Hach's FPI Mag is the industry's most economical flow metering solution offering unbeatable value in the cost of installation and ownership reducing installed costs by more than 45 percent in medium and large line sizes. The compact insertion design fits in confined spaces and offers complete accessibility. The flow meter can be removed in pipes under pressure for easy inspection, cleaning, calibration, or verification. Installation costs are reduced by eliminating the need for heavy equipment and extensive manpower.

- **Durability and Longevity**

The innovative flow meter comes pre-calibrated from McCrometer's NIST traceable calibration labs and requires no recalibration in the field. With no moving parts and a single-piece design, the FPI Mag's sensor contains nothing to wear or break and is generally immune to clogging by sand, grit, or other debris. The electrodes are encased in a heavy-duty 316 stainless steel sensor body for maximum structural integrity and coated with a NSF certified 3M™ fusion-bonded epoxy coating for operational longevity.

Signal Conversion and Transmission

The signal converter is where the raw flow data is converted into calibrated, usable output parameters for display and transmission through the transmitter. This allows the measurements, functional programming, and data logs to be communicated through the display visually and through external connections to transmit both wired and wirelessly to external devices and networks. There are two different models used in various applications; both are available as either meter or remote mount.

ProComm GO Transmitter

Hach's FPI Mag 3000 flow meter is accompanied by the ProComm GO transmitter and can be battery powered, ideal for remote installations and locations with unreliable power sources.

- Output options include pulse, 4-20mA, Modbus, and telemetry
- Battery powered with optional solar, AC or DC power with battery backup
- DIY battery replacement and in-field programming available via USB cable and laptop
- 5-year expected battery life
- Rated to 140F
- UL, CSA certifications

ProComm Max Transmitter

Hach's FPI Mag 5000 is offered with the ProComm Max transmitter, offering greater accuracy and more sophisticated output options for users needing superior system integration and data collection.

- Output options include Digital Pulse, 4-20mA, Hart, Modbus, and Ethernet IP
- Datalogger and optional AMI/AMR
- AC/DC powered
- Rated to 140F
- CE, UL, CSA certification

Installation

- **Hot Tap Installation** - No service interruption
- **Pipe Run Requirements** - Pipe run requirements for Hach's FPI Mag sensor can vary, depending on the disturbances in the pipe run. See FPI Mag flow meter manual 30127-05 or 30127-06, step 3 of the installation procedure for a table of upstream and downstream straight-pipe run recommendations.

FPI Mag Flow Meter Specifications

All specifications apply to both FPI Mag 3000 and FPI Mag 5000 models except where noted.

The full pipe averaging flow meter comes complete with Mounting Hardware, AC Converter with Dual 4-20mA output, 25 Feet of Dual Submersible Cables with quick connects at sensor, Stainless Steel Body, 316 Stainless Steel Electrodes, NSF Approved Fusion Bonded Epoxy Coating, 2" Stainless Steel Ball Valve (minimum of 1-7/8" port I.D.), 2" x Close Stainless Steel Nipple, 2-Year Warranty.

Physical Specifications

Measurement	Electromagnetic
Directionality	Forward and reverse
Pipe Sizes	Up to 138"
Body Style	Full profile insertion
Materials	• Stainless steel body • 316 stainless steel electrodes • NSF approved fusion bonded epoxy coating • 2" stainless steel ball valve (minimum of 1-7/8" port I.D.) • 2" x close stainless steel nipple
Coating	Fusion bonded epoxy (NSF 61 approved) coated 316 stainless steel
Electrodes	316 Stainless Steel, Hastelloy optional
Electrical Connections	Quick Connect
Electronics	• FPI Mag 3000: ProComm GO electronics • FPI Mag 5000: ProComm Max transmitter
Electronics Mount	Remote mount only

Sensor Cable Lengths	• Standard: 25'/7.6 m McCrometer supplied submersible cable with each remote mount unit.
	• Optional: Up to 500'/152.4 m, or 25'/7.6 m max for battery powered.
	• Quick connect: Available in standard cable lengths:
	  Feet: 25, 50, 75, 100, 125, 150, 175, 200, 500
	  Meters: 7.6, 15.25. 22.5, 30.5, 38.1, 45.75, 53.3, 61, 152.4
	  Custom quick connect cable lengths at additional cost.

Insertion Hardware	316 Stainless Steel
Compression Seal	Silicone Rubber

Performance and Operational Specifications

Measurement Method	Volumetric flow in filled flow conduits 4" (100 mm) to 138" (3,500 mm) utilizing insertable electromagnetic averaging sensor. Flow indication in English Standard or Metric units.
Direction Measurement	• 395 sensor: Forward flow measurement and reverse flow indication • 394 sensor: Bidirectional flow measurement
Operating Temperature	-20 to 60°C (-4 to 140°F) up to 250 PSI
Storage Temperature	-20 to 60°C (-4 to 140° F) Note regarding storage: 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.**
IP Rating	• Standard model: Quick Connect (IP68) • HL model: Quick Connect (IP67)

FPI Mag Flow Meter Specifications (cont.)

Sensor Submersibility Depth	With standard quick connect: 9 m (30 ft.)
Velocity Range	See following pages flow velocity ranges by line size for each type of electronics.
Calibrated accuracy for forward and bidirectional sensors	• ProComm Max Electronics: ±0.5% of measured value ±0.006 ft/s (±0.0018 m/s) • Reverse and Forward Flow +/-0.5% of measured Value • ProComm Go Electronics : Reverse and Forward Flow ±1% of measured value ±0.006 ft/s (±0.0018 m/s)
Linearity	0.3% of Range
Repeatability	0.2% of Reading
Pipe Run Requirements	Pipe run requirements for the FPI Mag sensor can vary, depending on the disturbances in the pipe run. See FPI Mag flow meter manual 30127-05 or 30127-06, step 3 of the installation procedure for a table of upstream and downstream straight-pipe run recommendations.

Other Specifications

Certifications and Approvals	**FPI Mag 3000**
	
	Standard model:
	
	• ISO 9001:2015 certified quality management system
	• Certified by MET to UL 61010-1
	• Certified to NSF / ANSI Standards*
	
	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-D, T5
	  • Class I, Zone 2, IIC T5
	• Certified to NSF / ANSI Standards*

	FPI Mag 5000 • ISO 9001:2015 certified quality management system • Certified to NSF / ANSI Standards*
System Options	• Hastelloy electrodes • Annual verification / calibration • Stainless steel ID tag
Meter Options and Accessories	• Sensor insertion tool • Extension to hardware clearance • Additional sensor cable up to 475' (500' max for model 395 and 200' max for model 394)
Warranty	2 years

* Certified by IAPMO R&T to NSF/ANSI 61 for material safety and NSF/ANSI 372 for low lead content.

Note regarding cable length: McCrometer recommends minimizing cable length. Electromagnetic flow meters may have unfavorable signal strength to noise ratio in electrically noisy environments. Longer lengths of cable increase the likelihood of interference. In those cases where the meter's signal must be transmitted a long distance, or where the environment may be particularly noisy, we suggest using the converter's analog output(s) that allows locating the transmitter as close as possible to the metering location.

Flow Meter Pipe Sizes and Flow Ranges with ProComm Go Electronics

Imperial Units

Pipe Size (Nominal)	Pipe ID Range		Flow Ranges (GPM Standard)		Standard Program Defaults[1]	Minimum Clearance Required During Installation[2]	Velocity Range[3] (f/s)
	Min Pipe ID	Max Pipe ID	Min (GPM)[1]	Max (GPM)[1]	20mA (GPM)		
S = Standard (Available in 395 models Pipe Sizes 4" - 24" as shown in table below)							
C = Custom (Available in all 394 and 395 models Pipe Sizes 4" - 138")							
Standard Length Hardware and Installation Clearance Dimensions are based on a 4" Maximum Height Coupling and Pipe Schedule Standard							
4"	3.74	4.99	20	1280	1280	51"	0.5 - 32
6"	5.00	7.24	43	2800	2800	51"	0.5 - 32
8"	7.25	9.24	78	5000	5000	55"	0.5 - 32
10"	9.25	11.24	130	8000	8000	55"	0.5 - 32
12"	11.25	12.99	180	11000	11000	59"	0.5 - 32
14"	13.00	14.99	250	15000	15000	59"	0.5 - 32
16"	15.00	16.75	320	20000	20000	59"	0.5 - 32
18"	16.76	18.80	400	26000	26000	63"	0.5 - 32
20"	18.81	22.74	500	28000	28000	63"	0.5 - 28
24"	22.75	24.99	680	33000	33000	67"	0.5 - 23
30"	25.00	33.99	1000	44000	44000	71.25"	0.5 - 20
36"	34.00	39.99	1700	48000	48000	77.25"	0.5 - 15
42"	40.00	45.99	2200	56000	56000	83.25"	0.5 - 13
48"	46.00	51.99	2800	62000	62000	89.25"	0.5 - 11
54"	52.00	57.99	3700	79000	79000	95.25"	0.5 - 11
60"	58.00	63.99	4300	97000	97000	101.25"	0.5 - 11
66"	64.00	69.99	5300	106000	106000	107.25"	0.5 - 10
72"	70.00	75.99	6300	127000	127000	113.25"	0.5 - 10
78"-128"	76.00	138.00	Available - Call Factory at 1-800-220-2279				

[1] Default totalizer units measured as KGAL.

[2] Hardware clearance after installation for all sizes is 28".

! Required Information

At the time of ordering, please be prepared to provide the following information:
1. Pipe ID and Pipe OD
2. Unit of Measure (US Gallons is Default)
3. Maximum pressure
4. FPI Specification Data Sheet for custom length sensors

Consult factory if any chemicals are in use.

HACH® **FPI MAG**™

Flow Meter Pipe Sizes and Flow Ranges with ProComm Go Electronics

Metric Units

Pipe Size (Nominal) (mm)	Pipe ID Range		Flow Ranges (m³/h standard)		Standard Program Defaults[1]	Minimum Clearance Required During Installation (cm)[2]	Velocity Range[3] (m/s)
	Min Pipe ID (mm)	Max Pipe ID (mm)	Min (m³/h)[1]	Max (m³/h)[1]	20mA		
S = Standard (Available in 395 models pipe sizes 100 mm - 600 mm as shown in table below)							
C = Custom (Available in all 394 and 395 models pipe sizes 100 mm - 3,500 mm)							
Standard length hardware and installation clearance dimensions are based on a 100 mm maximum height coupling and pipe schedule standard							
DN100	95	127	5	290	135	129.5	0.15 - 10
DN150	127	184	10	635	295	129.5	0.15 - 10
DN200	184	235	18	1135	535	139.7	0.15 - 10
DN250	235	285	30	1815	900	139.7	0.15 - 10
DN300	286	330	41	2500	1250	149.9	0.15 - 10
DN350	330	381	57	3400	1700	149.9	0.15 - 10
DN400	381	425	73	4550	2150	149.9	0.15 - 10
DN450	426	478	91	5900	2700	160.0	0.15 - 10
DN500	478	578	114	6350	3400	160.0	0.15 - 8.5
DN600	578	635	154	7500	4650	170.2	0.15 - 7
DN750	635	863	227	10000	6800	181.0	0.15 - 6
DN900	864	1016	386	10900	8200	196.2	0.15 - 4.5
DN1050	1016	1168	500	12700	10200	211.5	0.15 - 4
DN1200	1168	1321	636	14000	12500	226.7	0.15 - 3.5
DN1350	1321	1473	840	18000	14750	241.9	0.15 - 3.5
DN1500	1473	1625	977	22000	18000	257.2	0.15 - 3.5
DN1650	1626	1778	1204	24000	20500	272.4	0.15 - 3
DN1800	1778	1930	1431	29000	22500	287.7	0.15 - 3
DN2000 and up	1931	3505	Available - Call Factory at 1-800-220-2279				

[1] Default totalizer units measured as m^3.

[2] Hardware clearance after installation for all sizes is 700 mm.

Required Information

At the time of ordering, please be prepared to provide the following information:
1. Pipe ID and pipe OD
2. Unit of measure (m^3 is default)
3. Maximum pressure
4. FPI specification data sheet for custom length sensors

Consult factory if any chemicals are in use.

McCROMETER

HACH® **FPI MAG™**

Flow Meter Pipe Sizes and Flow Ranges with ProComm Max Transmitter

Imperial Units

Pipe Size (Nominal)	Pipe ID Range		Flow Ranges (GPM Standard)		Standard Program Defaults[1]	Minimum Clearance Required During Installation[2]	Velocity Range[3] (f/s)
	Min Pipe ID	Max Pipe ID	Min (GPM)[1]	Max (GPM)[1]	20mA (GPM)		
S = Standard (Available in 395 models Pipe Sizes 4″ - 24″ as shown in table below)							
C = Custom (Available in all 394 and 395 models Pipe Sizes 4″ - 138″)							
Standard Length Hardware and Installation Clearance Dimensions are based on a 4″ Maximum Height Coupling and Pipe Schedule Standard							
4"	3.74	4.99	12	1280	1280	51"	0.3 - 32
6"	5.00	7.24	26	2800	2800	51"	0.3 - 32
8"	7.25	9.24	47	5000	5000	55"	0.3 - 32
10"	9.25	11.24	80	8000	8000	55"	0.3 - 32
12"	11.25	12.99	110	11000	11000	59"	0.3 - 32
14"	13.00	14.99	150	15000	15000	59"	0.3 - 32
16"	15.00	16.75	190	20000	20000	59"	0.3 - 32
18"	16.76	18.80	240	26000	26000	63"	0.3 - 32
20"	18.81	22.74	300	28000	28000	63"	0.3 - 28
24"	22.75	24.99	410	33000	33000	67"	0.3 - 23
30"	25.00	33.99	600	44000	44000	71.25"	0.3 - 20
36"	34.00	39.99	1000	48000	48000	77.25"	0.3 - 15
42"	40.00	45.99	1300	56000	56000	83.25"	0.3 - 13
48"	46.00	51.99	1700	62000	62000	89.25"	0.3 - 11
54″	52.00	57.99	2200	79000	79000	95.25″	0.3 - 11
60"	58.00	63.99	2600	97000	97000	101.25"	0.3 - 11
66″	64.00	69.99	3200	106000	106000	107.25″	0.3 - 10
72"	70.00	75.99	3800	127000	127000	113.25"	0.3 - 10
78″-128″	76.00	138.00	Available - Call Factory at 1-800-220-2279				

[1] Default totalizer units measured as KGAL.

[2] Hardware clearance after installation for all sizes is 28″.

Required Information

At the time of ordering, please be prepared to provide the following information:
1. Pipe ID and Pipe OD
2. Unit of Measure (US Gallons is Default)
3. Maximum pressure
4. FPI Specification Data Sheet for custom length sensors

Consult factory if any chemicals are in use.

McCROMETER

FPI MAG™

HACH®

Flow Meter Pipe Sizes and Flow Ranges with ProComm Max Transmitter

Metric Units

Pipe Size (Nominal) (mm)	Pipe ID Range		Flow Ranges (m³/h standard)		Standard Program Defaults[1]	Minimum Clearance Required During Installation (cm)[2]	Velocity Range[3] (m/s)
	Min Pipe ID (mm)	Max Pipe ID (mm)	Min (m³/h)[1]	Max (m³/h)[1]	20mA		
S = Standard (Available in 395 models pipe sizes 100 mm - 600 mm as shown in table below)							
C = Custom (Available in all 394 and 395 models pipe sizes 100 mm - 3,500 mm)							
Standard length hardware and installation clearance dimensions are based on a 100 mm maximum height coupling and pipe schedule standard							
DN100	95	127	3	290	135	129.5	0.1 - 10
DN150	127	184	6	635	295	129.5	0.1 - 10
DN200	184	235	11	1135	535	139.7	0.1 - 10
DN250	235	285	18	1815	900	139.7	0.1 - 10
DN300	286	330	25	2500	1250	149.9	0.1 - 10
DN350	330	381	35	3400	1700	149.9	0.1 - 10
DN400	381	425	45	4550	2150	149.9	0.1 - 10
DN450	426	478	55	5900	2700	160.0	0.1 - 10
DN500	478	578	70	6350	3400	160.0	0.1 - 8.5
DN600	578	635	95	7500	4650	170.2	0.1 - 7
DN750	635	863	135	10000	6800	181.0	0.1 - 6
DN900	864	1016	230	10900	8200	196.2	0.1 - 4.5
DN1050	1016	1168	295	12700	10200	211.5	0.1 - 4
DN1200	1168	1321	385	14000	12500	226.7	0.1 - 3.5
DN1350	1321	1473	500	18000	14750	241.9	0.1 - 3.5
DN1500	1473	1625	590	22000	18000	257.2	0.1 - 3.5
DN1650	1626	1778	725	24000	20500	272.4	0.1 - 3
DN1800	1778	1930	865	29000	22500	287.7	0.1 - 3
DN2000 and up	1931	3505	Available - Call Factory at 1-800-220-2279				

[1] Default totalizer units measured as m³.

[2] Hardware clearance after installation for all sizes is 700 mm.

Required Information

At the time of ordering, please be prepared to provide the following information:
1. Pipe ID and pipe OD
2. Unit of measure (m³ is default)
3. Maximum pressure
4. FPI specification data sheet for custom length sensors

Consult factory if any chemicals are in use.

McCROMETER

FPI Mag 3000 Part Number Matrix

FP339																
Single or Bidirectional Flow																
Bidirectional Flow	4															
Single Forward Flow	5															
Standard or Customer Length Sensor																
Standard Length Sensor	S															
Custom Length Sensor	C															
Nominal Line Size																
4 in	04															
6 in	06															
8 in	08															
10 in	10															
12 in	12															
14 in	14															
16 in	16															
18 in	18															
20 in	20															
24 in	24															
30 in	30															
36 in	36															
42 in	42															
48 in	48															
54 in	54															
60 in	60															
66 in	66															
72 in	72															
78 in	78															
84 in	84															
90 in	90															
96 in	96															
100 in	H0															
110 in	H1															
120 in	H2															
130 in	H3															
Sensor Length Options																
20" Sensor Length	020															
21" Sensor Length	021															
Each nominal Inch Length	XXX															
175" Sensor Length	175															
Electrode Material Options																
S316 Stainless Steel *(Standard)*	S															
Hastelloy	H															

FPI Mag 3000 Part Number Matrix (cont.)

| FP339 | - | | | - | | | | | | | | - | | - | | - | |

Ball Valve Options
	Code
2" NPT	N
2" BSPT	B
No Valve 2" NPT	X
No Valve 2" BSPT	Y

Remote Mount Cable Connector Options
	Code
25 ft. Quick Connect	Q

Converter Power Options
	Code
Battery Power *(Standard)*	B
Solar Power, Battery Backup	S
A/C Power, Battery Backup	E
DC Power, Battery Backup	F

Converter Output Options
	Code
No Outputs *(Standard)*	
No Outputs, DC cable only	0
Two Digital Out	1
4-20mA Analog only	2
4-20mA Analog + Two Dig Out	3

DC Power/ Analog Out Cable Options
	Code
No DC Power or Outputs *(Standard)*	
No Cable - Output Configured (Quick Conn)	0
6 ft (Open Leads)	1
25 ft (Open Leads)	2
50 ft (Open Leads)	3

Pulse Cable Length Options
	Code
No Outputs *(Standard)*	
No Cable - Output Configured (Quick Conn)	0
6 ft (Open Leads)	1
25 ft (Open Leads)	2
50 ft (Open Leads)	3

Output Cable Terminal Options
	Code
No Output Cables	
Strain Relief	1
Quick Connect Cable Terminals	2

Smart Output Protocol / SmartTrax Options
	Code
No AMI Outputs/SmartTrax Options	
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
Neptune Protocol (6ft cable, Nicor Connector hardwired only)	NEP
6 ft SmartTrax Standalone Unit ExactRead Cable (Strain Relief Only)	S06
25 ft SmartTrax Standalone Unit ExactRead Cable (Strain Relief Only)	S25
50 ft SmartTrax Standalone Unit ExactRead Cable (Strain Relief Only)	S50

No Batteries, Battery Tray Options
	Code
Includes Batteries *(Standard)*	
No Batteries (Alkaline Tray)	NBA
No Batteries (Lithium Tray)	NBL

Hazardous Area Location
	Code
No Hazardous Location Needed	
Class 1, Division 2, Groups A-D, T5	HL

FPI Mag 5000 Part Number Matrix

FP539			–							–	–	–
Single or Bidirectional Flow												
Bidirectional Flow	4											
Single Forward Flow	5											
Standard or Customer Length Sensor												
Standard Length Sensor		S										
Custom Length Sensor		C										
Nominal Line Size												
4 in [100 mm]			04									
6 in [150 mm]			06									
8 in [200 mm]			08									
10 in [250 mm]			10									
12 in [300 mm]			12									
14 in [350 mm]			14									
16 in [400 mm]			16									
18 in [450 mm]			18									
20 in [500 mm]			20									
24 in [600 mm]			24									
30 in [750 mm]			30									
36 in [900 mm]			36									
42 in [1050 mm]			42									
48 in [1200 mm]			48									
54 in [1350 mm]			54									
60 in [1500 mm]			60									
66 in [1650 mm]			66									
72 in [1800 mm]			72									
78 in [1950 mm]			78									
84 in [2100 mm]			84									
90 in [2250 mm]			90									
96 in [2400 mm]			96									
100 in [2500 mm]			H0									
110 in [2750 mm]			H1									
120 in [3000 mm]			H2									
130 in [3250 mm]			H3									
Sensor Length Options												
20" Sensor Length				020								
21" Sensor Length				021								
Each nominal Inch Length				XXX								
175" Sensor Length				175								
Electrode Material Options												
S316 Stainless Steel *(Standard)*					S							
Hastelloy					H							

FPI Mag 5000 Part Number Matrix (cont.)

FP539			-						-	-	-	-	
Ball Valve Options													
2" NPT	N												
2" BSPT	B												
No Valve 2" NPT	X												
No Valve 2" BSPT	Y												
Cable Connector Options													
Quick Connect		Q											
Remote Cable Options													
25 feet (Standard)			025										
50 feet			050										
75 feet			075										
100 feet			100										
125 feet			125										
150 feet			150										
175 feet			175										
200 feet			200										
500 feet			500										
Converter Power Options													
A/C Power				A									
DC Power				D									
Transmitter Analog/Hart Output Options													
Single 4-20mA Analog, Dual Digital (Standard)					1								
Dual 4-20mA Analog, Dual Digital					2								
1 Hart 4-20mA Analog, 1 Standard 4-20mA Analog, Dual Digital					3								
Transmitter Output Protocol Options													
No Digital Protocol Outputs													
Modbus Protocol						MOD							
Ethernet IP Protocol *Future Option						EIP							
Output Protocol Types													
No Digital outputs													
RTU (RS485) Output (Modbus)							R						
TCP/IP Output (Modbus, Ethernet IP)							E						
Smart Output Protocol / SmartTrax Options													
No AMI Outputs/SmartTrax Options													
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					
Neptune Protocol (6ft cable, Nicor Connector hardwired only)								NEP					
6 ft SmartTrax Standalone Unit ExactRead Cable (Strain Relief Only)								S06					
25 ft SmartTrax Standalone Unit ExactRead Cable (Strain Relief Only)								S25					
50 ft SmartTrax Standalone Unit ExactRead Cable (Strain Relief Only)								S50					
Hazardous Area Location													
No Hazardous Location Needed													
Class 1, Division 2, Groups A-D, T5									HL				

HACH **FPI MAG**™

ProComm Go Transmitter Specifications

Physical Specifications

Electronic Housing	Diecast aluminum, powder coated enclosure w/ tamper resistant seal, 6½" x 6½" x 43/8" tall
Transmitter Dimensions	See "Dimensions" section for meter mount and remote mount transmitter dimensions.
Power	**Battery:** Standard: three 3.6V lithium-thionyl chloride (Li-SOCl2) 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 transmitter

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 transmitter)

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

McCROMETER

ProComm Go Transmitter Specifications (cont.)

Display and Measurement (cont.)

Totalizer Units			
GAL	Gallons	B42	Barrel (42G)
CUF	Cubic Feet	B46	Barrel (46G)
AFT	Acre Feet	B55	Barrel (55G)
CUM	Cubic Meters	IMG	Imperial Gallon
LIT	Liters	AIN	Acre Inch
MML	Megaliter	TON	Ton (Short)
MTT	Metric Ton (KL)	MM1	Miners Inch Minute (11.22G)
B31	Barrel (31G)	MM9	Miners Inch Minute (9G)

Additional totalizer units: MH1 Miners Inch Hour (11.22G), MD1 Miners Inch Day (11.22G), MH9 Miners Inch Hour (9G), MD9 Miners Inch Day (9G), KGL Kilo Gallons, MGL Mega Gallons, IN3 Cubic Inch

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 • CE • Certified by MET to UL 61010-1	

HL Model	• ISO 9001:2015 certified quality management system
	• CE
	• Certified by MET to UL 61010-1 and MET C22.2 No. 61010-1-04
	  • Class I, Division 2, Groups A B C D, T4
	  • Class I, Zone 2, IIC T4
	
	Note: ProComm GO with SmartTrax On Board is not available for hazardous locations.	

HACH® **FPI MAG™**

ProComm Max Transmitter Specifications

Physical Specifications

Electronic Housing	Diecast aluminum, powder coated enclosure w/ tamper resistant seal
Transmitter Dimensions	Remote Mount: Height: 7.3" (18.5 cm) Width: 8.5" (21.6 cm) Depth: 4.3" (10.9 cm) Meter Mount: Height: 6.9" (17.5 cm) Width: 7.2" (18.25 cm) Depth: 6.2" (15.7 cm)
Power	AC Power: 100-240 VAC / 47-66 Hz (10 W) DC Power: 10-35 VDC (10 W) Note: AC or DC must be specified at time of ordering.
Connection Options	Conduit option: 1/2" NPT threaded connections
Galvanic Isolation	All outputs are galvanically isolated from power supply up to 500 V
Conductivity	Minimum conductivity of 5µS/cm

Performance and Operational Specifications

Location	Indoor or outdoor use
Operating and Storage Temperature	-4° to 140° F (-20° to 60° C)
IP Rating	IP67 Die cast aluminum transmitter
Standard Outputs	Single 4-20mA (standard). Galvanically isolated and fully programmable for zero and full scale. A second 4-20mA is available. Two separate digital programmable outputs: open collector transistor usable for pulse, frequency, or alarm settings. • Volumetric Pulse • Range Indication • Maximum switching voltage: 35 VDC • Maximum switching current: 100mA • Insulation from other secondary circuits: 500V
Optional Outputs	• Modbus • HART • Ethernet IP • Datalogger • Smart Output™ (Sensus, Itron 6, Itron 9)

Display and Measurement

Keyboard and Display	Can be used to access and change set-up parameters using six membrane keys and an LCD display

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)		

Other Specifications

	• ISO 9001:2015 certified quality management system • CE

McCROMETER

McCrometer, Inc.
3255 West Stetson Avenue
Hemet, CA 92545 USA
Tel: 951-652-6811
800-220-2279
Fax: 951-652-3078
customerservice@mccrometer.com
www.mccrometer.com

30127-04 Rev. 1.2 | 01FEB2025