

WATERMETERS

CONTACT HEAD/ PADDLEWHEEL/4-20mA

Prominent offers watermeters for cooling and boiler applications with a variety of analog and digital signal output types. Compatible meters can be categorized into three types, Digital Contact Head, Digital Frequency and Analog. Contact Head meters submit a 'dry' contact closure upon reaching a set value of gallons, typically 1, 10, 50 or 100 gallons. Frequency, or paddlewheel sensors output multiple pulses per gallon. Analog meters output a 4-20mA signal which requires the controller have the proper analog input.

Meters that output digital; dry contact, Hall effect or 'open collector' signals, are acceptable to microFlex, SlimFlex, ProMtrac, Aegis and MultiFLEX controllers. Powered digital outputs or sinusoidal signals are **not** compatible. The maximum input frequency is 400Hz (2.5mS). Inputs include 60hZ filtering. Inputs are pulled up by a 10k resistor.

Analog, or 4-20mA signals are compatible with Aegis and MultiFLEX controllers. The Aegis 'G' input is a 4-20mA input that can be used with an analog meter. Driver cards for both controllers are available. (Driver card part number [7760250](#))

See page 6 for a list of meter types and pipe sizes.

Page	Description
2	Contact Head offerings
5	Paddlewheel offerings
6	Part numbers for meters
7	Analog option (4-20mA)
8	Wiring examples to various controllers

- 1) **Dry**; A dry contact is a switch that does not have voltage of its own. A light switch is an example. Our controllers provide 5VDC on one wire and a ground on the other. When the switch closes, the 5volts drops to zero. Any voltage provided by the meter will upset this process.

CONTACT HEAD WATERMETERS (Digital)



FEATURES

- Dry top multi-jet design
- Tolerates low quality water
- Simple pulse output
- Cold or hot water models

APPLICATIONS

- Cooling tower chemical control
- Industrial water treatment
- Deduct metering



Hot Water Model

Contact Head - GENERAL INFORMATION

Prominent offers the WM series meters use the multi-jet principle, which has been an internationally-accepted standard for many years. This type of meter is known for its wide range, simplicity, and accuracy in low-quality water. Available in cold or hot water models. The impeller is centered in a ring of jets, with inlet jets on one level and outlets jets on another. A gear train drives the register totalizer dial. For pulse output, one of the pointers is replaced by a magnet, which is detected by an encapsulated sensor attached to the outside of the lens. The WM series meters use a two-wire reed switch. They provide a dry contact closure and to not require power. For totalizing inputs only.

CONTACT HEAD WATERMETERS (Digital)

FEATURES

Available in cold or hot water models

Either MJE/MJHE or MJR/MJHR sensor fastens to lens without removing top

Calibration plug seal wire for tamper evidence

Cast bronze body

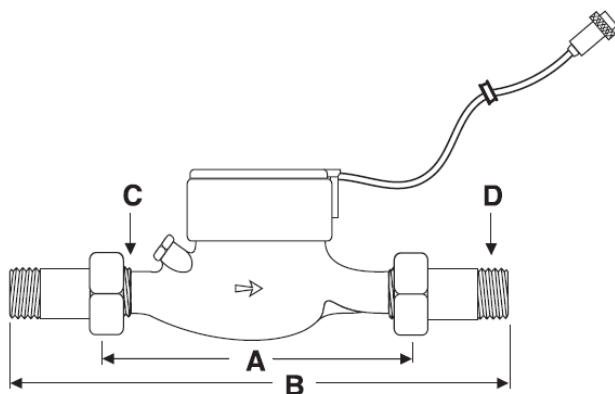
Union end couplings for easy service



SPECIFICATIONS*

Power		6 mA at 12 Vdc (MJE/MJHE only)			
Temperature	Cold Water Model	105° F (40° C) max			
	Hot Water Model	194° F (90° C) max			
Pressure		150 psi operating			
Materials	Body	Cast bronze, epoxy powder coated inside and out			
	Internals	Engineered thermoplastic			
	Magnet	Alnico			
Accuracy		+/- 1.5% of reading			
Pulse Output		MJE/MJHE	MJR/MJHR	MJT/MJHT	
	Sensor	Hall-effect device	Reed switch	Totalizer only	
	Max Current	20 mA	20mA	n/a	
	Max Voltage	24 Vdc	24 Vdc or Vac	n/a	
Cable Length		12' (4 m) standard (2000' maximum run)			
Flow Rates (GPM)		3/4"	1"	1-1/2"	2"
	Minimum	0.22	0.44	0.88	1.98
	Maximum	22	52	88	132

CONTACT HEAD WATERMETERS (Digital)



PULSE RATES

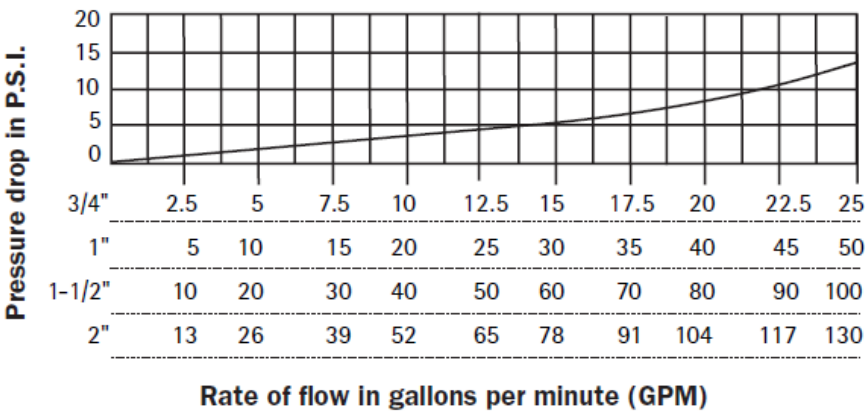
	3/4"	1"	1-1/2"	2"
Gallons per Pulse	10	100	100	100

	3/4"	1"	1-1/2"	2"
A (body)	7-1/2"	10-1/4"	11-3/4"	11-3/4"
B (w/couplings)	12-5/8"	15-5/8"	17-5/8"	17-5/8"
C (IPS thread)	1"	1-1/4"	2"	2-1/2"
D (NPT thread)	3/4"	1"	1-1/2"	2"

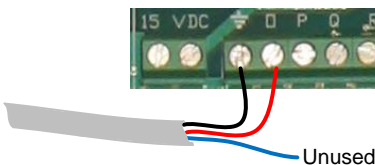
FLOW RATES (GPM)

	3/4"	1"	1-1/2"	2"
Minimum	0.22	0.44	0.88	1.98
Maximum	22	52	88	132

PRESSURE DROP CURVE



Connection to controllers: Requires 1 digital input. (Input O shown below).
See chart on pages 8 and 9.



PADDLEWHEEL WATERMETERS (Digital)

General Information

The IP80 Series are impeller-type insertion meters designed for use in pipe sizes 3/4" to 6". High-quality jewel bearings and nickel-bound tungsten carbide shaft are used for maximum life and extreme low friction. Bodies are machined from solid rod for maximum precision. Low-flow performance is superior. The rotation of the rotor is detected by a non-drag Hall-effect sensor. Output is a pulse-type square wave, which can be sent long distances (up to 2,000 feet) without a transmitter.

SeaMetrics IP meters are ideal for chemical proportioning applications.

The IP80 Series require special fittings, since they are not depth-adjustable. Installation in the fitting ensures correct depth placement in the pipe.

Specifications

Sensor

Hall Effect Sensor 12 VDC current sinking pulse

Materials

Sensor Body PVC or 316 SS
Rotor Kynar
Shaft Nickel-bound tungsten carbide
Bearings Ruby jewel

Maximum Pressure

PVC 175 PSI (12 bar) at 75° *
316 SS 250 PSI (17 bar)

Maximum Temperature

PVC 130° F (55° C)*
SS 200° F (93° C)

Accuracy

1-1/2% FS

Flow Range (GPM)

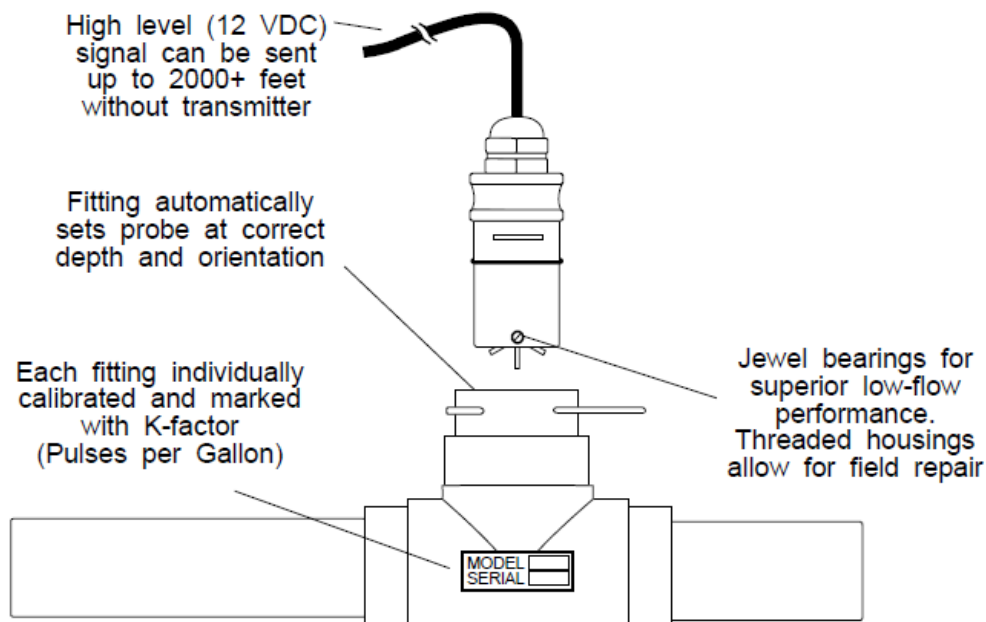
	3/4"	1"	1-1/2"	2"	3"	4"	6"
Min	0.5	0.8	1.9	3.1	6.9	12	27
Max	50	80	190	314	691	1200	2700

Cable

#22 AWG 3-con, 18'

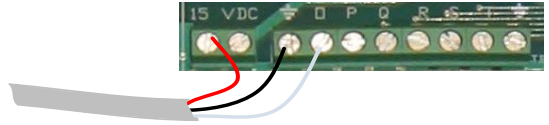
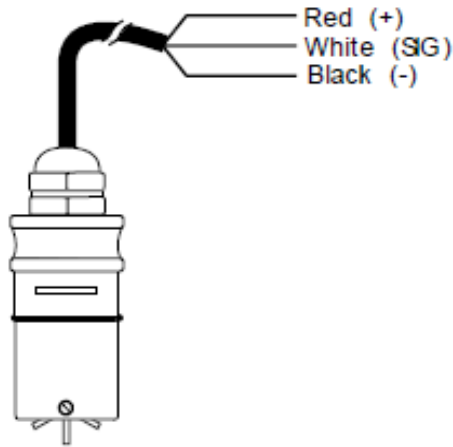
* (see Pressure vs. Temperature chart)

Features



PADDLEWHEEL WATERMETERS (Digital)

IP80 Series Connections



Note: The sensor uses a **Hall Effect** circuit to measure flow with the output to the controller a current sinking circuit. Our digital inputs use 5VDC to monitor the signal. Each time the 5 volts is shorted to near ground potential, the input pulse is counted.

“Dry contact”, “reed switch” and “open collector” inputs are also acceptable. Sinusoidal or voltage signals are not.

K-factor.

The meter is factory calibrated in the fitting. A K-factor (meter factor) is indicated on the side of the fitting. This represents the actual number of pulses per gallon the meter produced during the factory flow test.

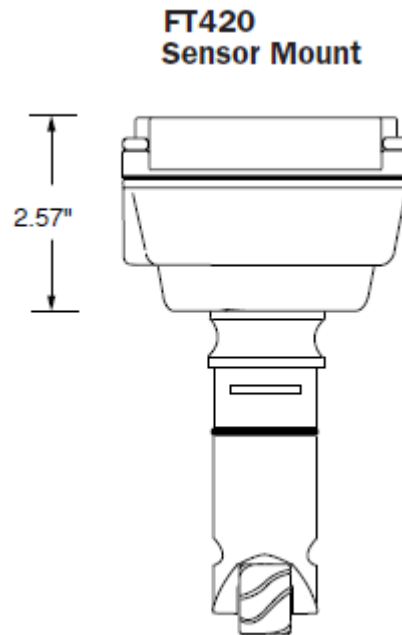
To order:

Size		For cooling - Contact Head		For cooling - Paddlewheel		For hot water - Paddlewheel
3/4"		7760518		7760514		7760277
1"		7760515		7760508		7760279
1.5"		7760516		7760509		7760278
2"		7760517		7760510		7760280
3"		NA		7760511		7760281
4"		NA		7760512		7760282
6"		NA		7760513		NA

4-20mA (Analog)

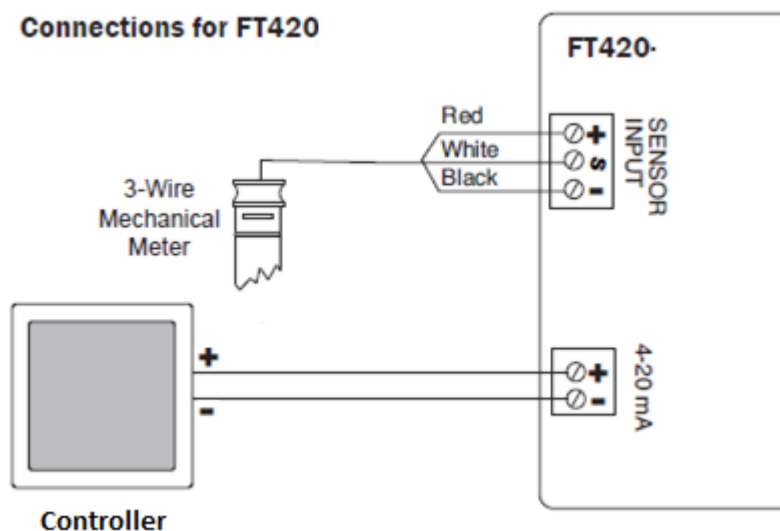
ACCESSORIES for Seametrics IP-80 series paddlewheels

ADD 4-20mA output: FT420 2 wire output for paddlewheels only



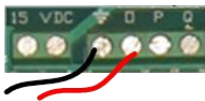








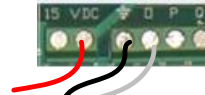





Mounts directly to the paddlewheel sensor.
Loop powered via 4-20mA output.
Local display.
Can be located 1,000' from controller.
Requires a 4-20mA input driver card CI, CII or the G input on the Aegis. The loop can be powered from the controller. Consult driver manual.



Connections for FT420









Call Customer Service for pricing and to order this option. 412/787-2484.

WATERMETER TERMINATION EXAMPLES

BRAND	SENSOR TYPE	CONTROLLER	WIRE COLOR	TERMINATION	
SEAMETRICS	CONTACT HEAD	MULTIFLEX/AEGIS	RED	INPUT LETTER*	
			BLACK	COMMON 	
			BLUE	UNUSED	
		SMART SERIES (AS OR FLEX)	RED	O+, P+, Q+...*	Signal In
			BLACK	O-, P-, Q-...*	Common
			BLUE	UNUSED	
		SLIMFLEX	RED	METER 	
			BLACK		
			BLUE	UNUSED	
		MICROFLEX	RED	METER 	
			BLACK		
			BLUE	UNUSED	
PADDLEWHEEL	HALL EFFECT	MULTIFLEX/AEGIS	RED	+15VDC	
			BLACK	COMMON 	
			WHITE	INPUT LETTER*	
		SMART SERIES (AS OR FLEX)	RED	PO, PP, PQ...*	12VDC
			BLACK	O-, P-, Q-...*	Common
			WHITE	O+, P+, Q+...*	Signal In
		SLIMFLEX	RED	+15V	
			BLACK		
			WHITE	METER	
		MICROFLEX	RED	+15V	
OSMONICS		MULTIFLEX/AEGIS	RED	+15VDC	
			WHY/CLR	COMMON 	
			BLACK	INPUT LETTER*	
		SMART SERIES (AS OR FLEX)	RED	PO, PP, PQ...*	12VDC
			WHY/CLR	O-, P-, Q-...*	Common
			BLACK	O+, P+, Q+...*	Signal In

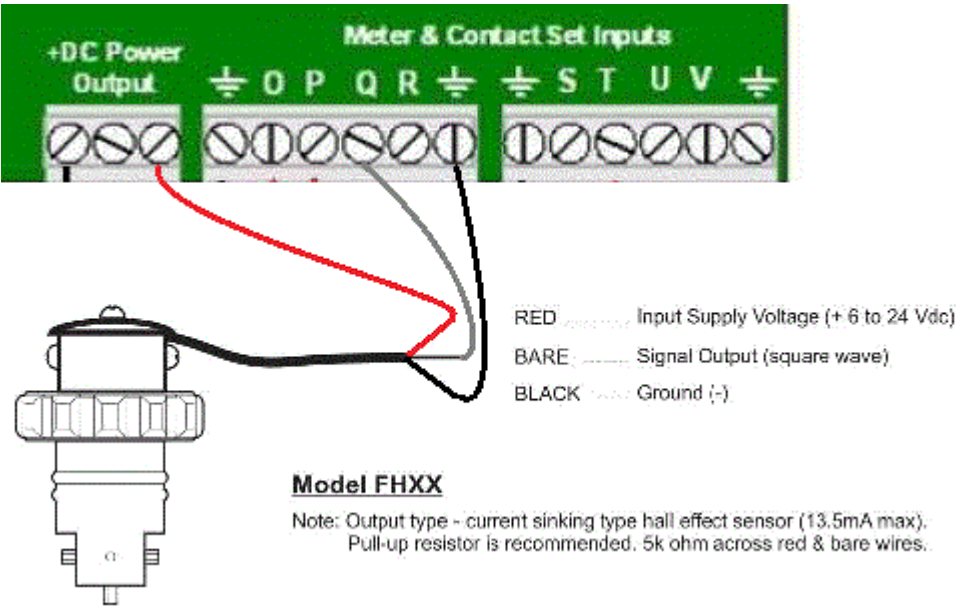
SLIMFLEX	RED	+15V
	WHY/CLR	
	BLACK	METER
MICROFLEX	RED	+15V
	WHY/CLR	
	BLACK	METER

SIGNET* *Signet notes on page 10	OPEN	MULTIFLEX/AEGIS	BLACK	+15VDC	
	COLLECTOR		SHIELD	COMMON	
			RED	INPUT LETTER*	
		SMART SERIES (AS OR FLEX)	BLACK	PO, PP, PQ...*	12VDC
			SHIELD	O-, P-, Q-...*	Common
			RED	O+, P+, Q+...*	Signal In
		SLIMFLEX	BLACK	+15V	
			SHIELD		
			RED	METER	
		MICROFLEX	BLACK	+15V	
			SHIELD		
			RED	METER	

BURKERT	OPEN	MULTIFLEX/AEGIS	BLACK	+15VDC	
	COLLECTOR		WHITE	COMMON	
			RED	INPUT LETTER*	
		SMART SERIES (AS OR FLEX)	BLACK	PO, PP, PQ...*	12VDC
			WHITE	O-, P-, Q-...*	Common
			RED	O+, P+, Q+...*	Signal In
		SLIMFLEX	BLACK	+15V	
			WHITE		
			RED	METER	
		MICROFLEX	BLACK	+15V	
			WHITE		
			RED	METER	

TERMINATION NOTES: The input letters on a MultiFLEX M5 can be any letter from O through T. On the M10, letters O through Z. The Aegis controller digital inputs are O through V. The Smart AS digital inputs for watermeters are O, P and Q with the Smart Flex having O through T. SlimFlex and microFlex controller have one watermeter input, "Meter".

Blue White METER NOTES



SIGNET METER NOTES:

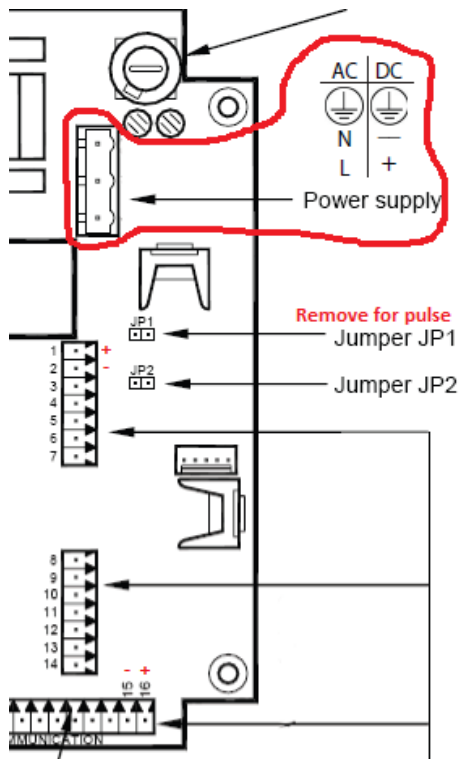
SENSOR MODEL	OUTPUT TYPE	NOTES
515	Sinusoidal	Sinusoidal outputs are a peak to peak voltage and do not work with any work with any Aquatrac controller digital (pulse) input
525	Sinusoidal	Open collector outputs work with all Aquatrac digital inputs. They may require a pull-up resistor.
2000	Open Collector	
2100	Open Collector	
2517	Sinusoidal	
2536	Open Collector	
2540	Open Collector	
2550	4-20mA	4-20mA outputs work with 4-20mA inputs only.
2560	4-20mA	"

Badger M2000 METER NOTES

Meter power: 120VAC or 10 to 30DCV

Pulse output pins 1(+) and 2(-) or 4-20mA output 16 (+) and 15 (-)

Badger M2000



Digital Output Wiring Diagrams

