

**Water Specialties
Model TP1 (MLI1-D) 150 psi
Meter Head Assembly
Sizes 2" to 72"**

DESCRIPTION

MODEL TP1 AND TP2 METER HEAD ASSEMBLIES are manufactured to the highest standards. Materials used on all meters and flow ranges for the low velocity meter meet or exceed AWWA standard C704-02. The bolt-on design permits use in a wide range of existing applications with up to 150 psi working pressure. It is necessary, upon ordering, to furnish the meter size, model number and serial number of the meter it is replacing.

REGISTER OPTIONS

DIGITAL INDICATOR-TOTALIZER has a non-volatile EEPROM memory to store totalizer count (updated hourly while running). Features a large two line display. Five digit top line indicates flow rate, and eight digit bottom line provides volumetric flow data. Indicator is available in 22 different units, including GPM, CFS, MGD. Totalizer is available in 20 different units, including Gallons, AF, CF.

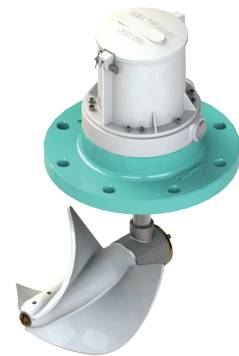
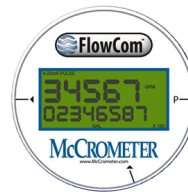
Units of measurement are user-selectable.

Battery life is 6 -10 years.

Housing is NEMA 4X rated.

Available with optional outputs: 4-20mA, pulse, Sensus, Itron, and Neptune.

*FlowCom
Register*





FEATURES

PROPELLER is magnetically coupled with the drive mechanism through the sealed oil filled gearbox. This completely eliminates water entering the meter assembly, as well as the need for any packing gland. The propeller is a conical shaped three bladed propeller, injection molded of thermoplastic material resistant to normal water corrosion and deformity due to high flow velocities.

BEARING in propeller is a water lubricated ceramic sleeve and spindle bearing system with a ceramic/stainless steel spindle. Dual ceramic thrust bearings, standard on all meters, handle flows in both forward and reverse directions. The bearing design promotes extended periods of maintenance free propeller

operation. Bearings within the sealed meter mechanism are shielded precision stainless steel bearings and are factory lubricated for the life of the meter.

CHANGE GEARS may be easily exchanged in the field when changing the dial, or when recalibrating for different pipe sizes. It is not necessary to remove pressure from the line for these changes.

O-RING SEALS are used at the meter head and all points where seals are required, making the meter mechanism completely immune to any of the corrosive effects of atmospheric moisture or the liquids measured by the meter assembly.



Part Numbers, Digital Registers

	TP	1	XX	A	1	D	2	-	C1	-	--	-	--
CONNECTION OPTIONS:													
→ Top Plate Only 150 PSI (MLI1/MLT1)		1											
Top Plate Only 300 PSI (MLI2/MLT2)		2											
METER SIZE													
2" Top Plate Meter		2											
3" Top Plate Meter		3											
4" Top Plate Meter		4											
6" Top Plate Meter		6											
8" Top Plate Meter		8											
10" Top Plate Meter		10											
12" Top Plate Meter		12											
14" Top Plate Meter		14											
16" Top Plate Meter		16											
18" Top Plate Meter		18											
20" Top Plate Meter		20											
24" Top Plate Meter		24											
30" Top Plate Meter		30											
36" Top Plate Meter		36											
42" Top Plate Meter		42											
48" Top Plate Meter		48											
Top Plate Configuration Options													
→ Standard Top Plate				A									
Non Standard Top Plate				X									
Propeller Options													
→ Standard					1								
High Velocity					2								
Register Options													
→ Flowcom													D
Flowcom Non Programmable													N
Flowconnect (FC Smart Part on 2nd line)													T

continued on next page



Part Numbers, Digital Registers

TP	1	XX	A	1	D	2	-	C1	-	--	-	--
Output Options												
No Outputs -												
Open Collector Pulse(Flowcom 01) 1												
→ Opto Isolated Pulse & 4-20 Analog (Flowcom 02) 2												
Dry Contact Pulse & 4-20 Analog (Flowcom-03) 3												
Sensus Only (Flowcom 06) 6												
OC Pulse & Sensus (Flowcom-07) 7												
Opto Isolated Pulse & 4-20 Analog & Sensus (Flowcom-08) 8												
Dry Contact Pulse & 4-20 Analog & Sensus (Flowcom-09) 9												
Output Cable Options												
No Outputs -												
→ 6 ft C1												
15 ft C2												
25 ft C3												
50 ft C4												
75 ft C5												
100 ft C6												
125 ft C7												
150 ft C8												
7 pin Female pigtail Telemetry ready (Output Option 1 Only [Flowcom-05]) T1												
7 pin Male 25ft Telemetry ready (Output Option 1 Only) T2												
7 pin Male 50ft Telemetry ready (Output Option 1 Only) T3												
Register Remote and Extension Options												
→ Meter Mount (Standard) -												
6 ft Cable Remote Mount (Flowcom only) R06												
25 ft Cable Remote Mount (Flowcom only) R25												
50 ft Cable Remote Mount (Flowcom only) R50												
6" Long Extension (Mech or Digital) 006												
7" Long Extension (Mech or Digital) 007												
8" Long Extension (Mech or Digital) 008												
1" Increments for Extensions Lengths XXX												
150" Maximum extension length 150												
High Temp Option												
High-Temp Prop and Seals H												

* High temperature range is 140° - 250° F. High temperature prop meters must have at least a 12" register extension (included in price).



TP1 / TP2 SPECIFICATIONS

Performance

Accuracy	Plus or minus 2% of actual flow within the range specified for each meter size
Range	2" to 72"
Pressure Range	Up to 150 PSI maximum working pressure
Temperature Range	140° F maximum. Consult factory for special construction for higher temperatures
Flow Ranges	See Min-Max-Int Flow Ranges column in the table of meter specifications on page 8. <ul style="list-style-type: none"> • Size and construction are rated for continuous operation. • Min and max flow ranges will vary according to meter size and construction. • Min flow will be higher when auxiliary equipment is added. • Intermittent flow is rated for 10%-15% of the total time the meter is operating. • Consult factory for high velocity construction when intermittent flows are higher than shown in the table of meter specifications on page 8 and/or when longer operating periods are required.

Materials

Materials used in construction are chosen to minimize the corrosive effects of the liquids measured by the meter assembly.

Magnets	Anticorrosive aluminized barrier coated magnets; Everlube 6155
Interior Bearings	Shielded stainless steel
Propeller Bearing	Ceramic sleeve type
Propeller Spindle	Ceramic sleeve/stainless steel
Propeller	Injection molded thermoplastic
Gearbox	Stainless steel
Separator	Stainless steel
Shafts	Stainless steel
Meter Head Bolts	Stainless steel
Meter Head	Cast iron or fabricated steel, NSF approved fusion epoxy coated

Optional Equipment

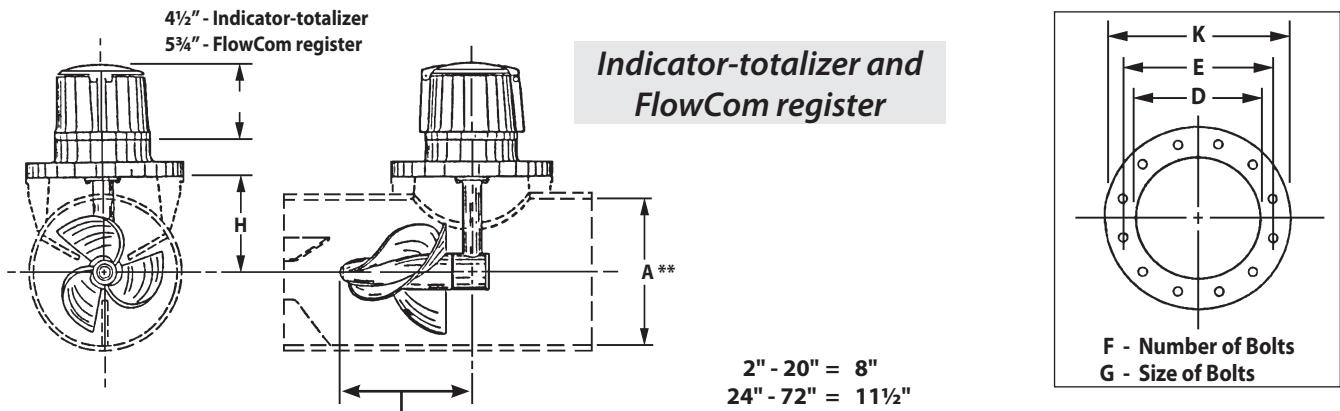
Totalizer extensions and a wide range of controls and instruments for indicating, totalizing and recording flow data for each meter. Special constructions and materials are available upon request.

ORDERING INFO

Meters must be specified by the customer and includes:

- Meter size
- Model number
- Serial number of the meter it is replacing
- Minimum & maximum flow ranges
- Temperature of meter environment
- Indicator scale & units
- Totalizer dial units
- Type of materials and construction
- Optional equipment desired
- Installation requirement - Horizontal or vertical

DIMENSIONS



Meter & Pipe size (inches)	Flow Ranges, GPM		Dimensions							Est. Shipping Weight (lbs.)
	Standard Construction Min - Max - Int	High Velocity Construction Min - Max	A	D	E	F	G	H	K	
2	40-160	N/A	3	3 1/4	7 3/4	8	1/2	3 1/4	9	35
3	45-250-350	N/A	3	3 1/4	7 3/4	8	1/2	3 1/4	9	35
4	55-500-700	200-700	4	4 3/8	7 3/4	8	1/2	3 1/4	9	35
6	120-1200-1500	300-1500	6	5 3/8	7 3/4	8	1/2	4 1/4	9	35
8	150-1500-2000	400-2500	8 1/8	6 1/2	7 3/4	8	1/2	5 1/4	9	35
10	180-2000-3000	500-3500	10 1/4	8 1/4	9 3/4	8	1/2	6 1/2	11	45
12	200-3000-3500	800-5000	12 1/4	8 1/4	9 3/4	8	1/2	7 1/2	11	50
14	300-4000-4500	1000-6000	13 1/2	10	12 1/4	8	1/2	8 1/2	13 1/2	55
16	400-5000-6000	1200-7500	15 1/4	10	12 1/4	8	1/2	9 1/2	13 1/2	55
18	700-6000-7500	1500-9000	17 1/4	10	12 1/4	8	1/2	10 1/2	13 1/2	55
20	850-8000-9000	2000-12000	19 1/4	10	12 1/4	8	1/2	11 1/2	13 1/2	55
24	1000-10000-13500	3000-15000	23 1/4	13 3/8	18 3/4	12	1	15 1/2	21	190
30	1800-15000-21000	4000-25000	29	13 3/8	18 3/4	12	1	18 1/2	21	190
36	2000-20000-30000	5000-35000	35	13 3/8	18 3/4	12	1 1/4	21 1/2	21	190
42	3000-30000-40000	6000-50000	41	23 3/8	29 1/2	20	1 1/4	25	32	365
48	5500-35000-50000	7000-60000	47	23 3/8	29 1/2	20	1 1/4	28	32	365
54	6500-45000-55000	8000-65000	53	23 3/8	29 1/2	20	1 1/4	31	32	365
60	7500-60000-80000	10000-90000	59	23 3/8	29 1/2	20	1 1/4	34	32	365
66	8500-75000-95000	12000-105000	65	23 3/8	29 1/2	20	1 1/4	37	32	365
72	9500-90000-115000	15000-125000	71	23 3/8	29 1/2	20	1 1/4	40	32	365

INSTALLATION

For new saddle installations, a hole is cut in the existing pipe line and the saddle is welded to the line. The meter head assembly can then be bolted to the saddle. For replacements or retrofits, the existing meter head assembly can be easily removed and replaced.

The meter can be installed horizontally, vertically, or inclined on suction or discharge lines. The meter must have a full flow of liquid for proper accuracy. Complete installation, removal, and reinstallation instructions can be found in the meter's Installation, Operation, and Maintenance Manual.

PIPE RUN REQUIREMENTS

Fully opened gate valves, fittings, or other obstructions that tend to set up flow disturbances should be a minimum of ten pipe diameters upstream and two pipe diameters downstream from the meter. Installations with less than ten pipe diameters of straight pipe require straightening vanes. Meters with straightening vanes require at least five pipe diameters upstream and two pipe diameters downstream of the meter.

An optional remote mounting kit with up to 100 feet of cable is available to locate the indicator-totalizer at remote locations.

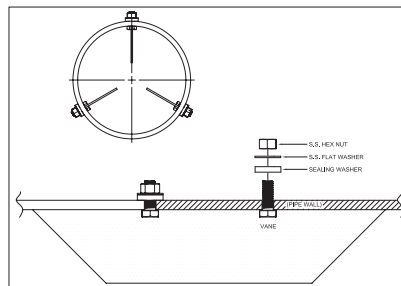
Configuration	A	B
Without straightening vanes	10	1
With straightening vanes	5	1

Dimension C varies depending on meter size.	
Meters 2" - 20"	8"
Meters 24" - 72"	11 1/2"

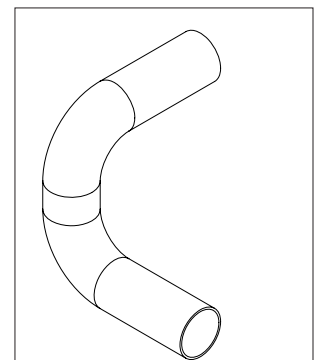
STRAIGHTENING VANES

Special attention should be given to systems using two elbows "out of plane" or devices such as a centrifugal sand separator. These cause swirling flow in the line that affect propeller meters. Well developed swirls can travel up to 100 diameters downstream if unobstructed. Since most installations have less than 100 diameters to work with, straightening vanes become necessary to alleviate the problem.

Straightening vanes will break up most swirls and ensure more accurate measurement. McCrometer actively encourages installing vanes just ahead of the meter. Straightening vanes are available in weld-in and bolt-in.



Bolt-in straightening vanes



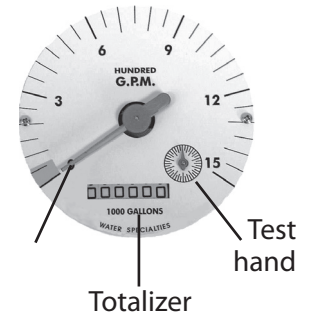
Elbows out of plane

REGISTERS AND TOTALIZERS

Mechanical Register and Indicator-Totalizer

The instantaneous flow rate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units.

The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flow rate indicator and totalizer.



Indicator-totalizer

Indicator hand

Digital Totalizer

The optional FlowCom register displays a flow meter's flow rate and volumetric total. Available are optional outputs: scaled pulse and/or industry standard 4-20mA signal. The FlowCom can be fitted to any new or existing McCrometer propeller flow meter.

Automated meter reading for the FlowCom register is available with the Smart Output transmitter option.



FlowCom register

Wireless Telemetry

The optional FlowConnect is designed specifically for wireless telemetry via either satellite or cellular data service. Manual meter reading is never required. It uses either the mechanical register or the digital register (both shown above).

You can determine how often readings are made and transmitted to the cloud database, which you can view on a PC or on a cell phone. The viewing utility provides data tools that can analyze flow rate, consumption, and possible anomalies in an irrigation system.



FlowConnect

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