

## Water Specialties Flow Meter Specification Sheet

**Water Specialties Model MLU  
150 psi Weld-on Saddle Meter  
Sizes 4" to 72"**

### Description

**MODEL MLU WELDING SADDLE METERS** are manufactured to the highest standards. Materials used on all meters and flow ranges meet or exceed AWWA standard C704-02. The weld-on design permits use in a wide range of applications with up to 150 psi working pressure. It is necessary, upon ordering, to furnish the I.D. dimension of the pipe the meter is to be mounted on for calibration purposes. The O.D. dimension or wall thickness must also be furnished for proper fit of the saddle to the pipe.

### 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.

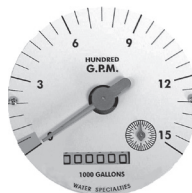
**CHANGE GEARS** may be easily exchanged in the field when changing the dial, or when recalibrating for different pipe sizes. It is not necessary to remove pressure from the line for these changes.

|   |           |
|---|-----------|
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#### Totalizer



#### Indicator-Totalizer



#### FlowCom Register



#### FlowConnect Wireless Telemetry



**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 liquids.

**TOTALIZER** is O-ring sealed and magnetically coupled with the driving mechanism, and features a six digit totalizer with a full 3" diameter, 100 division, center sweep dial that permits extremely accurate readings for timing purposes in determining flow rates. The totalizer dial can be

furnished in gallons, cubic feet, acre feet or any standard liquid measuring units. The bonnet, with padlock hasp, can be positioned in four different directions for the easiest possible reading when the meters are mounted in unusual positions.

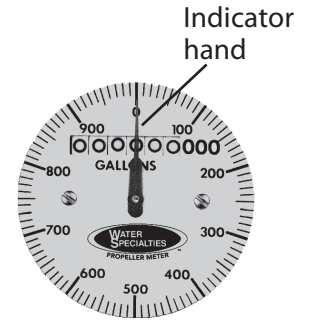
**INDICATOR-TOTALIZER** is mechanically driven by the meter mechanism and features a full 4" diameter, 250 degree sweep dial with a six digit, straight reading type totalizer and sweep test hand. The indicator drive mechanism is temperature compensated so the indicator will be accurate at all points on the dial when operated between 32° and 140° F. The indicator dial can be furnished in GPM, CFS, MGD or any standard liquid measuring units with choice of standard totalizer measuring units. The bonnet, with padlock hasp, is O-ring sealed to the meter head.

**FLOWCOM DIGITAL REGISTER** displays a flowmeter's flowrate and volumetric total. Available are four optional outputs: 4-20mA loop, open collector, optically isolated, and contact closure. Unique units of measurement for rate, total, 4-20mA, and pulse outputs. The FlowCom can be fitted to any new or existing McCrometer propeller flowmeter.

**Registers and Totalizers**

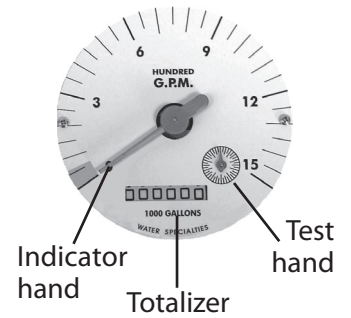
**Mechanical Register and Indicator-Totalizer**

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



**Standard register**

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**

**Digital Totalizer**

The optional FlowCom digital register displays a flowmeter's flowrate and volumetric total. Available are four optional outputs: 4-20mA loop, open collector, optically isolated, and contact closure. Unique units of measurement for rate, total, 4-20mA, and pulse outputs. The FlowCom can be fitted to any new or existing McCrometer propeller flowmeter.



**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**

**INSTALLATION**

Flanged end meters: A tube is inserted into a section of open pipe and each flanged end is joined to the existing pipe using the provided gaskets and bolts.

Plain, grooved, or threaded end meters: A tube is inserted into a section of open pipe and each end is joined to the existing pipe as appropriate to its type.

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.

| 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" |

Center of meter shaft

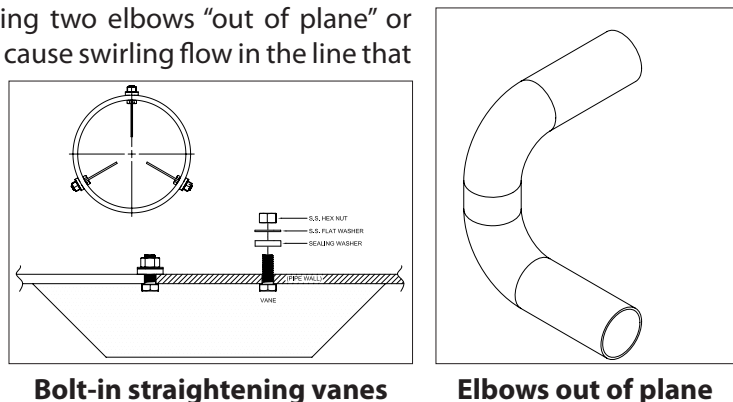
Flow

Elbow shown - Other piping components can be pumps, valves and expansions or reductions

**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.



## Specifications

### Performance

|                          |  |
|--------------------------|--|
| <b>Accuracy</b>          | Plus or minus 2% of actual flow within the range specified for each meter size.  |
| <b>Pressure Range</b>    | Up to 150 PSI maximum working pressure.  |
| <b>Temperature Range</b> | 140° F Maximum. Consult factory for special construction for higher temperatures.  |
| <b>Flow Ranges</b>       | See Min-Max-Int Flow Ranges column in the table of meter specifications on page 7.<br><br><ul style="list-style-type: none"> <li>• Size and construction are rated for continuous operation.</li> <li>• Min and max flow ranges will vary according to meter size and construction.</li> <li>• Min flow will be higher when auxiliary equipment is added.</li> <li>• Intermittent flow is rated for 10%-15% of the total time the meter is operating.</li> <li>• Consult factory for high velocity construction when intermittent flows are higher than shown in the table of meter specifications on page 3 and/or when longer operating periods are required.</li> </ul> |

### Materials

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

|                          |  |
|--------------------------|--|
| <b>Magnets</b>           | Anticorrosive aluminized barrier coated magnets; Everlube 6155                   |
| <b>Interior Bearings</b> | Shielded stainless steel   |
| <b>Propeller Bearing</b> | 4" - 54"    Ceramic sleeve type<br>60" - 72"    Sealed stainless steel ball type |
| <b>Propeller Spindle</b> | 4" - 54":    Ceramic sleeve/stainless steel<br>60" - 72":    Stainless steel     |
| <b>Propeller</b>         | Injection molded thermoplastic   |
| <b>Gearbox</b>           | 4" - 54":    Stainless steel   |
| <b>Separator</b>         | Stainless steel  |
| <b>Shafts</b>            | Stainless steel  |
| <b>Meter Head Bolts</b>  | 4" - 20:    Stainless steel<br>24" - 72":    Plated steel                        |
| <b>Meter Head</b>        | 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.

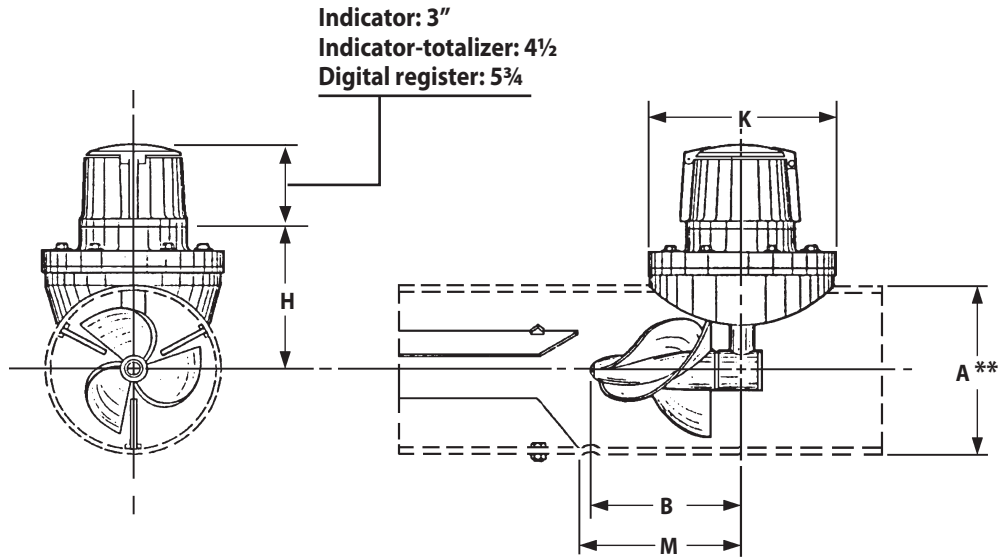
FCC CERTIFICATION: The digital indicator-totalizer has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules.

## 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
- Specify plain, grooved, or threaded end
- Installation requirement - Horizontal or vertical

MLU Dimensions



| Meter & Pipe size (inches) | Flow Ranges, GPM                      |                                      | Dimensions |        |        |        |        | Est. Shipping Weight (lbs.) |
|----------------------------|---------------------------------------|--------------------------------------|------------|--------|--------|--------|--------|-----------------------------|
|                            | Standard Construction Min - Max - Int | High Velocity Construction Min - Max | A          | B      | H      | K      | M      |                             |
| 4                          | 55-500-700                            | 200-700                              | 4 1/2      | 8      | 5 3/16 | 9      | 10     | 55                          |
| 6                          | 120-1200-1500                         | 300-1500                             | 6 5/8      | 8      | 6 1/4  | 9      | 10     | 55                          |
| 8                          | 150-1500-2000                         | 400-2500                             | 8 5/8      | 8      | 7 1/4  | 9      | 10     | 55                          |
| 10                         | 180-2000-3000                         | 500-3500                             | 10 3/4     | 8      | 8 1/2  | 11     | 10     | 60                          |
| 12                         | 200-3000-3500                         | 800-5000                             | 12 3/4     | 8      | 9 1/2  | 11     | 10     | 70                          |
| 14                         | 300-4000-4500                         | 1000-6000                            | 14         | 8      | 10 1/2 | 13 1/2 | 10     | 75                          |
| 16                         | 400-5000-6000                         | 1200-7500                            | 16         | 8      | 11 1/2 | 13 1/2 | 10     | 75                          |
| 18                         | 700-6000-7500                         | 1500-9000                            | 18         | 8      | 12 1/2 | 13 1/2 | 10     | 75                          |
| 20                         | 850-8000-9000                         | 2000-12000                           | 20         | 8      | 13 1/2 | 13 1/2 | 10     | 75                          |
| 24                         | 1000-10000-13500                      | 3000-15000                           | 24         | 11 1/2 | 17 1/2 | 21     | 13 1/2 | 250                         |
| 30                         | 1800-15000-21000                      | 4000-25000                           | 30         | 11 1/2 | 20 1/2 | 21     | 13 1/2 | 250                         |
| 36                         | 2000-20000-30000                      | 5000-35000                           | 36         | 11 1/2 | 23 1/2 | 21     | 13 1/2 | 250                         |
| 42                         | 3000-30000-40000                      | 6000-50000                           | 42         | 11 1/2 | 27     | 32     | 13 1/2 | 525                         |
| 48                         | 5500-35000-50000                      | 7000-60000                           | 48         | 11 1/2 | 30     | 32     | 13 1/2 | 525                         |
| 54                         | 6500-45000-55000                      | 8000-65000                           | 54         | 11 1/2 | 33     | 32     | 13 1/2 | 525                         |
| 60                         | 7500-60000-80000                      | 10000-90000                          | 60         | 18‡    | 36     | 32     | 22‡    | 525                         |
| 66                         | 8500-75000-95000                      | 12000-105000                         | 66         | 18‡    | 39     | 32     | 22‡    | 525                         |
| 72                         | 9500-90000-115000                     | 15000-125000                         | 72         | 18‡    | 42     | 32     | 22‡    | 525                         |

Standard construction will be supplied for all main line meters unless special flow range, materials, or construction are required.

\* Low velocity (LV) construction has the same low and maximum flow rates as AWWA C704.

‡ On High Velocity Meters "B" Dimension is 11 1/2" and "M" dimension is 13 1/2".

PLEASE SPECIFY PIPE I.D. AND O.D.

### Part Numbers, Digital Registers

| ML  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
|---|-----|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------|
| CONNECTION OPTIONS:   |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Weld on Saddle 150 PSI (ML19/ML20)  |     | U |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| METER SIZE  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SIZES OFFERED |
| 2" Top Plate Meter  | 02  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 3" Top Plate Meter  | 03  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 4" Top Plate Meter  | 04  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 6" Top Plate Meter  | 06  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 8" Top Plate Meter  | 08  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 10" Top Plate Meter   | 10  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 12" Top Plate Meter   | 12  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 14" Top Plate Meter   | 14  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 16" Top Plate Meter   | 16  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 18" Top Plate Meter   | 18  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 20" Top Plate Meter   | 20  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x             |
| 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  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Tube Options  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| AWWA Class D Standard Tube Length   | A   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| ANSI Flange (150) Standard Tube Length                                    | B   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Non Standard Tube   | X   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Prop Options  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Standard  | 1   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| High Velocity   | 2   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Standard Velocity Slip on Seperator                                       | 3   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| High Velocity Slip on Seperator   | 4   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Register Options  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Flowcom (FC200)   | F   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Flow Connect (FC Smart Part on 2nd Line)                                  | T   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Output Options  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| No Outputs  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Open Collector Pulse  | 1   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 4-20mA Analog Only  | 2   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 4-20mA Analog + Open Collector Pulse                                      | 3   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Output Cable Options  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| No Output Cables  |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 6 ft  | C1  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 15 ft   | C2  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 25 ft   | C3  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 50 ft   | C4  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 75 ft   | C5  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 100 ft  | C6  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 150 ft  | C8  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| Smart Output Protocol / Telemetry Options                                 |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| No AMI Outputs/Telemetry 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 |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |
| 2 ft SmartTrax Standalone Unit ExactRead Cable                            | S02 |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |               |



**Part Numbers, Mechanical Registers**

| <b>ML</b>                                   |           |  |  |  | - |  | - |               |
|---|-----------|--|--|--|---|--|---|---------------|
| CONNECTION OPTIONS:                         |           |  |  |  |   |  |   |               |
| Weld on Saddle 150 PSI (ML19/ML20) <b>U</b> |           |  |  |  |   |  |   |               |
| METER SIZE                                  |           |  |  |  |   |  |   | SIZES OFFERED |
| 2" Top Plate Meter                          | <b>02</b> |  |  |  |   |  |   |               |
| 3" Top Plate Meter                          | <b>03</b> |  |  |  |   |  |   |               |
| 4" Top Plate Meter                          | <b>04</b> |  |  |  |   |  |   |               |
| 6" Top Plate Meter                          | <b>06</b> |  |  |  |   |  |   | <b>x</b>      |
| 8" Top Plate Meter                          | <b>08</b> |  |  |  |   |  |   | <b>x</b>      |
| 10" Top Plate Meter                         | <b>10</b> |  |  |  |   |  |   | <b>x</b>      |
| 12" Top Plate Meter                         | <b>12</b> |  |  |  |   |  |   | <b>x</b>      |
| 14" Top Plate Meter                         | <b>14</b> |  |  |  |   |  |   | <b>x</b>      |
| 16" Top Plate Meter                         | <b>16</b> |  |  |  |   |  |   | <b>x</b>      |
| 18" Top Plate Meter                         | <b>18</b> |  |  |  |   |  |   | <b>x</b>      |
| 20" Top Plate Meter                         | <b>20</b> |  |  |  |   |  |   | <b>x</b>      |
| 24" Top Plate Meter                         | <b>24</b> |  |  |  |   |  |   |               |
| 30" Top Plate Meter                         | <b>30</b> |  |  |  |   |  |   |               |
| 36" Top Plate Meter                         | <b>36</b> |  |  |  |   |  |   |               |
| 42" Top Plate Meter                         | <b>42</b> |  |  |  |   |  |   |               |
| 48" Top Plate Meter                         | <b>48</b> |  |  |  |   |  |   |               |
| <b>Tube Options</b>                         |           |  |  |  |   |  |   |               |
| AWWA Class D Standard Tube Length           | <b>A</b>  |  |  |  |   |  |   |               |
| ANSI Flange (150) Standard Tube Length      | <b>B</b>  |  |  |  |   |  |   |               |
| Non Standard Tube                           | <b>X</b>  |  |  |  |   |  |   |               |
| <b>Prop Options</b>                         |           |  |  |  |   |  |   |               |
| Please select a value                       |           |  |  |  |   |  |   |               |
| Standard                                    | <b>1</b>  |  |  |  |   |  |   |               |
| High Velocity                               | <b>2</b>  |  |  |  |   |  |   |               |
| Standard Velocity Slip on Seperator         | <b>3</b>  |  |  |  |   |  |   |               |
| High Velocity Slip on Seperator             | <b>4</b>  |  |  |  |   |  |   |               |
| <b>Register Options</b>                     |           |  |  |  |   |  |   |               |
| Please select a value                       |           |  |  |  |   |  |   |               |
| Totalizer                                   | <b>1</b>  |  |  |  |   |  |   |               |
| Indicator/Totalizer                         | <b>2</b>  |  |  |  |   |  |   |               |

**continued on next page**

**Part Numbers, Mechanical Registers (cont.)**

|  |  |   |  |   |  |
|--|--|---|--|---|--|
| <b>ML</b>  |  | - |  | - |  |
| <b>Output Options</b>  |  |   |  |   |  |
| No Outputs   |  |   |  |   |  |
| 4-20 Analog Only (TR15/TR16) <b>A</b>                            |  |   |  |   |  |
| Dry Contact Pulse & 4-20 Analog (TR04/TR12 + TR15/TR16) <b>B</b> |  |   |  |   |  |
| Dry Contact Pulse (TR04/TR12) <b>C</b>                           |  |   |  |   |  |
| <b>Extension Options</b>   |  |   |  |   |  |
| Meter Mount (Standard)   |  |   |  |   |  |
| 6" Long Extension <b>006</b>                                     |  |   |  |   |  |
| 1" Increments for Extensions Lengths <b>XXX</b>                  |  |   |  |   |  |
| 144" Maximum extension length <b>144</b>                         |  |   |  |   |  |
| <b>SPECIAL OPTIONS</b>   |  |   |  |   |  |
| No Special Options   |  |   |  |   |  |
| High Temp Prop and Seals <b>H</b>                                |  |   |  |   |  |

## FlowCom Digital Register Specification

### Physical Specifications

|                                    |  |
|------------------------------------|--|
| <b>Electronic Housing</b>          | Diecast aluminum, powder coated enclosure w/ tamper resistant seal, 6½" x 6½" x 43/8" tall |
| <b>Digital register Dimensions</b> | See "Dimensions" section for meter mount and remote mount digital register dimensions.     |
| <b>Power</b>                       | <b>Battery:</b> Standard: three 3.6V lithium-thionyl chloride (Li-SOCI2) D size batteries  |
| <b>Electrical Connections</b>      | Optional shielded cable for pulse out  |

### Performance and Operational Specifications

|                              |  |
|------------------------------|--|
| <b>Battery Life</b>          | Five-year expected battery life, five-year battery warranty  |
| <b>Location</b>              | Indoor or outdoor use  |
| <b>Altitude</b>              | Operating: 2000 meters<br>Storage: 12,000 meters   |
| <b>Operating Temperature</b> | -4° to 140° F (-20° to 60° C)  |
| <b>Storage Temperature</b>   | -4° to 140° F (-20° to 60° C)  |
| <b>Relative Humidity</b>     | 0% to 100%   |
| <b>IP Rating</b>             | IP67 Die cast aluminum digital register  |
| <b>Outputs</b>               | <p><b>Digital output:</b> Digital pulse (open collector) output for volumetric</p> <ul style="list-style-type: none"> <li>- Two isolated digital pulse (open collector) outputs for volumetric</li> <li>- AMI output</li> </ul> <p><b>Analog output:</b> 4-20mA: Galvanically Isolated, 16 Bit resolution. All power configurations (including battery).</p> <p>Note: 9-30 VDC loop power required (not supplied via digital register)</p> |

### Display and Measurement

|                |   |  |
|----------------|---|--|
| <b>Display</b> | <ul style="list-style-type: none"> <li>• 2-Line LCD display (no backlight)</li> <li>• Non-volatile memory</li> <li>• Anti-reverse totalizer (standard)</li> <li>• Total (to 9 digits of precision)</li> </ul>   | <ul style="list-style-type: none"> <li>• Flow rate and velocity (to 5 digits of precision)</li> <li>• Two alarms: low battery and empty pipe (optional)</li> <li>• Opening lid activates display</li> </ul>  |
| <b>Digits</b>  | 5 Rate, 9 Total   |  |
| <b>Units</b>   | <p>GPM Gallons per minute</p> <p>MGD Mega gal per day</p> <p>CFS Cubic feet per second</p> <p>MLD Megaliters per day</p> <p>LPS Liters per second</p> <p>CMH Cubic meters per hour</p> <p>LPM Liters per minute</p> <p>GPH Gallons per hour</p> <p>IGM Imperial gal per minute</p> <p>MI9 Miners inch (9G)</p> <p>MI1 Miners inch (11.22G)</p> <p>APD Acre feet per day</p> | <p>KLH Kiloliters per hour</p> <p>LPH Liters per hour</p> <p>CMM Cubic meters per minute</p> <p>CFM Cubic feet per minute</p> <p>CFM Cubic feet per minute</p> <p>B5M Barrels per minute (55G)</p> <p>B5H Barrels per hour (55G)</p> <p>B5D Barrels per day (55G)</p> <p>B4M Barrels per minute (42G)</p> <p>B4H Barrels per hour (42G)</p> <p>B4D Barrels per day (42G)</p> |

**FlowCom Digital Register Specification (cont.)**

|                        |                    |  |     |                             |
|------------------------|--------------------|--|-----|-----------------------------|
| <b>Totalizer Units</b> | GAL                | Gallons  | AIN | Acre Inch                   |
|                        | CUF                | Cubic Feet   | TON | Ton (Short)                 |
|                        | AFT                | Acre Feet  | MM1 | Miners Inch Minute (11.22G) |
|                        | CUM                | Cubic Meters   | MM9 | Miners Inch Minute (9G)     |
|                        | LIT                | Liters   | MH1 | Miners Inch Hour (11.22G)   |
|                        | MML                | Megaliter  | MD1 | Miners Inch Day (11.22G)    |
|                        | MTT                | Metric Ton (KL)  | MH9 | Miners Inch Hour (9G)       |
|                        | B31                | Barrel (31G)   | MD9 | Miners Inch Day (9G)        |
|                        | B42                | Barrel (42G)   | KGL | Kilo Gallons                |
|                        | B46                | Barrel (46G)   | MGL | Mega Gallons                |
|                        | B55                | Barrel (55G)   | IN3 | Cubic Inch                  |
|                        | IMG                | Imperial Gallon  |     |                             |
|                        | <b>Data Logger</b> | Standard with all models, minimum of five years of data stored (4gb) |     |                             |

**Other Specifications**

|                                |   |
|--------------------------------|---|
| <b>Options and Accessories</b> | <ul style="list-style-type: none"> <li>• Data Logger - included as standard with five years of data storage at default (12hr) interval. (Cable sold separately)</li> <li>• AC, DC, and battery powered available</li> </ul> |
|--------------------------------|---|

### FlowCom Part Number Matrix

| <b>FC2</b>  |            |  |  |  |  |            |  |
|---|------------|--|--|--|--|------------|--|
| <b>Product Line</b>   |            |  |  |  |  |            |  |
| McCrometer  | <b>00</b>  |  |  |  |  |            |  |
| Water Specialties   | <b>01</b>  |  |  |  |  |            |  |
| <b>Assembly Component Options</b>   |            |  |  |  |  |            |  |
| Conversion Kit (From Mechanical)  | <b>K</b>   |  |  |  |  |            |  |
| Flowcom (FC100 to FC200) Upgrade Kit                                      | <b>R</b>   |  |  |  |  |            |  |
| Flowcom (FC200) Replacement Kit   | <b>F</b>   |  |  |  |  |            |  |
| <b>Output Options</b>   |            |  |  |  |  |            |  |
| No Outputs  |            |  |  |  |  |            |  |
| Open Collector Pulse  | <b>1</b>   |  |  |  |  |            |  |
| 4-20mA Analog   | <b>2</b>   |  |  |  |  |            |  |
| 4-20mA Analog and Open Collector Pulse                                    | <b>3</b>   |  |  |  |  |            |  |
| <b>Output Cable Options</b>   |            |  |  |  |  |            |  |
| No Output Cables  |            |  |  |  |  |            |  |
| 6 ft  | <b>C1</b>  |  |  |  |  |            |  |
| 15 ft   | <b>C2</b>  |  |  |  |  |            |  |
| 25 ft   | <b>C3</b>  |  |  |  |  |            |  |
| 50 ft   | <b>C4</b>  |  |  |  |  |            |  |
| 75 ft   | <b>C5</b>  |  |  |  |  |            |  |
| 100 ft  | <b>C6</b>  |  |  |  |  |            |  |
| 150 ft  | <b>C8</b>  |  |  |  |  |            |  |
| <b>Smart Output Protocol / Telemetry Options</b>                          |            |  |  |  |  |            |  |
| No AMI Outputs/Telemetry Options  |            |  |  |  |  |            |  |
| Sensus Protocol (6ft cable, Nicor Connector hardwired only)               | <b>SEN</b> |  |  |  |  |            |  |
| Itron 6 digit Protocol (6ft cable, Nicor Connector hardwired only)        | <b>IT6</b> |  |  |  |  |            |  |
| Itron 9 digit [100W] Protocol (6ft cable, Nicor Connector hardwired only) | <b>IT9</b> |  |  |  |  |            |  |
| Neptune Protocol (6ft cable, Nicor Connector hardwired only)              | <b>NEP</b> |  |  |  |  |            |  |
| 2 ft SmartTrax Standalone Unit ExactRead Cable                            | <b>S02</b> |  |  |  |  |            |  |
| 6 ft SmartTrax Standalone Unit ExactRead Cable                            | <b>S06</b> |  |  |  |  |            |  |
| 25 ft SmartTrax Standalone Unit ExactRead Cable                           | <b>S25</b> |  |  |  |  |            |  |
| 50 ft SmartTrax Standalone Unit ExactRead Cable                           | <b>S50</b> |  |  |  |  |            |  |
| <b>Register Remote and Extension Options</b>                              |            |  |  |  |  |            |  |
| Meter Mount (Standard)  |            |  |  |  |  |            |  |
| 6 ft Cable Remote Mount (Flowcom only)                                    | <b>R06</b> |  |  |  |  |            |  |
| 25 ft Cable Remote Mount (Flowcom only)                                   | <b>R25</b> |  |  |  |  |            |  |
| 50 ft Cable Remote Mount (Flowcom only)                                   | <b>R50</b> |  |  |  |  |            |  |
| <b>No Batteries, Battery Tray Options</b>                                 |            |  |  |  |  |            |  |
| Includes Batteries (Standard)   |            |  |  |  |  |            |  |
| No Batteries (Alkaline Tray)  |            |  |  |  |  | <b>NBA</b> |  |
| No Batteries (Lithium Tray)   |            |  |  |  |  | <b>NBL</b> |  |

## FlowConnect Specifications

### Communication

| Network Type              | Cellular   | Satellite  |
|---------------------------|--|--|
| Protocols                 | GSM/GPRS   | Iridium  |
| Operating Frequency (MHz) | 824–849  | 1616-1626.5  |
|                           | 869–894  |  |
|                           | 1850–1910  |  |
|                           | 1930–1990  |  |
|                           | 1710–1755  |  |
| Antenna                   | External Bulkhead Extension TNC Antenna<br>800/1800/1900 MHz | External Bulkhead Extension TNC Antenna<br>1,600 Mhz |

### Power

|   |   |
|---|---|
| <b>Batteries</b>                                | Batteries can be replaced by user on-site<br><b>Battery Only:</b> 2 Primary D-Cells 3.6V 13Ah (Both batteries need to be replaced at the same time)<br><b>Rechargeable:</b> 1 Primary D-Cell 3.6V and 3 Secondary C-Cells, 1.2V in series |
| <b>External Power</b>                           | Requires Rechargeable Battery Configuration listed above.<br>Recommended 9-12 VDC, 0-1000mA Max: 14.5 VDC<br>(Power supply or solar panel)  |
| <b>Recommended Battery Replacement Interval</b> | <b>Battery Only:</b> 3 years (Daily Report Interval)<br><b>Rechargeable:</b> 4 years  |

### Environmental

|   |   |
|---|---|
| <b>Operating Temperature</b>              | - 30°C to 70°C (-22°F to 158°F)   |
| <b>Electrical / Mechanical Protection</b> | All electrical components are grounded to fluid column and pipe. Manufactured in accordance with IP-67 Standards and ESD-safe   |
| <b>Environmental Protection</b>           | Ingress Protection (Dust Tight / Water Tight) to IP67<br>Vibration proof while operating:<br>Validated Vibration and 20G Sinusoidal testing to JEDEC 22B103B Section 4.3, Table 3, Service Condition C, for all axis and 20G sin sweep 20 - 2,000Hz for all axis. |
| <b>Tamper Protection</b>                  | Factory installed tamper-evident wire lock system   |

## FlowConnect Specifications (cont.)

### Other Characteristics

|                               |  |
|-------------------------------|--|
| <b>Mounting</b>               | Top Plate compatible with any McCrometer Propeller or Water Specialties (Digital Register Only)  |
| <b>External Interface</b>     | Five-pin serial-USB cable  |
| <b>Flow Indicator</b>         | Digital Register or McPropeller Mechanical Register  |
| <b>Operating Temperature</b>  | - 30°C to 70°C (-22°F to 158°F)  |
| <b>Inputs</b>                 | Two analog sensors, 1 pulse accumulator (for rain gauge)   |
| <b>Outputs</b>                | <b>Mechanical Register:</b> None<br><b>Digital Register:</b> 4-20 mA, Open Collector Pulse, Dry Contact Pulse, Optically Isolated Pulse (via 5- pin output cable)  |
| <b>Data Collection Method</b> | <b>Digital Register:</b> Serial interface between FlowConnect and digital register allows FlowConnect to read totalizer and rate value directly. No pulse counting required and always a perfect match.<br><b>Mechanical Register (McPropeller only):</b> Pulse counter and high-low digital signal for forward-reverse pulses. Accuracy between meter and Web totalizer: ±0.25% |
| <b>Data Storage</b>           | Capable of storing up to 1,000 reports in local memory   |

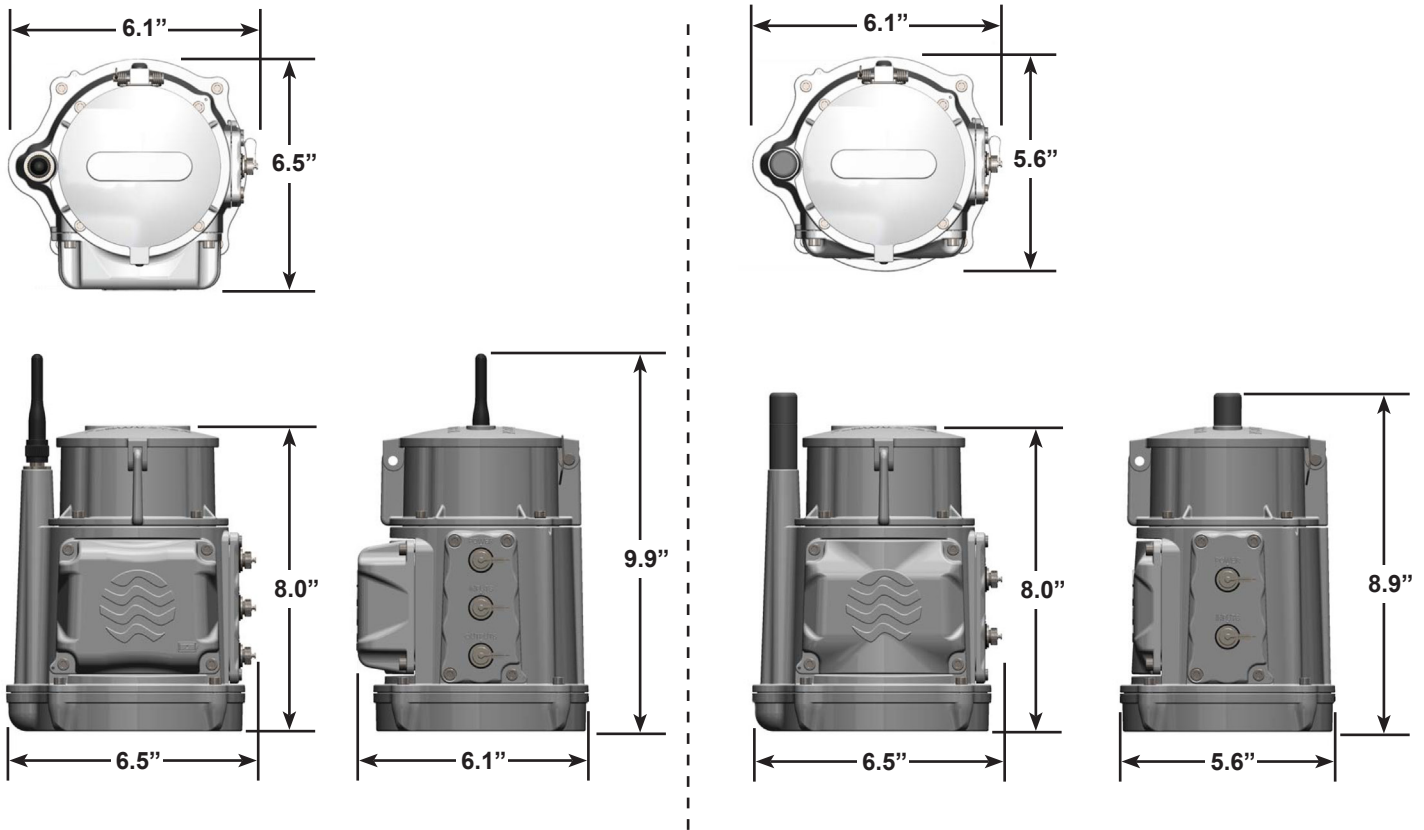
### Accessories

|                                  |   |  |
|----------------------------------|---|--|
| <b>Optional Protective Cover</b> | Gray boot cover, p/n TOB065   |  |
| <b>Serial Accessories</b>        | 200.720.542 serial-USB cable  |  |
| <b>Power Accessories</b>         | <b>Rechargeable:</b><br>200.723.520 2.5W 220mA Solar Panel<br>200.733.522 5W 540 mA Solar Panel<br>200.720.523 115V Power Supply<br><b>Battery Only:</b> No Power Accessories             |  |
| <b>Sensor Accessories</b>        | Adcon PA1 Cables - Pressure 10bar 500.000.120 - 16 ft. Cable<br>500.000.119 - 32 ft. Cable<br>200.733.048 - RGI Rain Gauge 200<br>200.720.510 - Y Cable<br>200.733.902 - A902 1/2/3 Cable |  |
| <b>Communication Accessories</b> | <b>Cellular</b>   | <b>Satellite</b>                             |
|                                  | 900.000.590 TNC Rigid Antenna (Included)  | TOB039 Helical Antenna (Included)            |
|                                  | 900.000.565 Directional Antenna   | MCC-510-AI-A Extension Antenna, Magnet Mount |
|                                  | 900.000.567 Extension Antenna   |  |

**FlowConnect Dimensions**

**Dimensions**

| Network Type        | Cellular           | Satellite          |
|---------------------|--------------------|--------------------|
| Unit Enclosure Size | W x D x H          | W x D x H          |
| Non-Rechargeable    | 6.5" x 5.6" x 9.9" | 6.5" x 5.6" x 9.8" |
| Rechargeable        | 6.5" x 6.1" x 9.9" | 6.5" x 6.1" x 9.8" |
| Packaged Dimensions | 11" x 11" x 11"    | 11" x 11" x 11"    |
| Packaged Weight     | 6 lbs.             | 6 lbs.             |



# Specification Sheet

## MLU Weld-on Saddle Mainline Flow Meter

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