



**Badger Meter**

## Model PLMT Portable Large Meter Tester

### DESCRIPTION

**APPLICATIONS:** For use in testing the performance of any make of large potable cold water meter (sizes 1 1/2" – 10"). Testing can be performed without removing the meter from the service line.

**BENEFITS OF TESTING:** The Badger Meter portable test meter is an invaluable tool in helping water utilities earn full revenue on all water distributed to customers. By checking the accuracy of meters already in service, the utility can easily determine when under-registration is curtailing water revenue.

Accuracy and revenue performance of meters can be affected by a number of factors, including the length of time in service, overloading and damage from other causes. Because of its one-person portability, the device makes regular testing possible without removing the meter from the line and taking it back to a repair shop.

Small utilities with limited facilities also can use the test meter right in their own shops to check the performance of meters before and after repair.

**OPERATING PERFORMANCE:** The tester contains all equipment necessary for field testing, including fire hoses and standard adapters. With the accessibility of a test plug on the meter or a test tee on the line, the unit will test all Badger Meter and competitive large meter products. The 5/8" Recordall® Model 25 and 3" Recordall Turbo Series Fire Hydrant water meters meet or exceed the latest AWWA performance and accuracy. A certified accuracy test curve is provided with the assembly.

**CONSTRUCTION:** The Portable Large Meter Tester (PLMT) consists of a 5/8" Recordall Model 25 meter for measuring low flows (1/4 – 25 GPM) and a 3" Recordall Turbo Series Fire Hydrant meter for measuring high flows (25 – 450 GPM). Flow rates through the PLMT are controlled by two ball valves. Two 12.5 foot sections of fire hose, 1-1/2" and 2" test plug adapters and a spanner wrench are included with the unit.

The cast bronze Recordall 25 housing is corrosion resistant. The Turbo's heat treated aluminum alloy housing is lightweight and corrosion resistant. The assembly only weighs about 60 pounds and is mounted to a securable wooden base to prevent movement during testing. The assembly is designed for easy operation and handling by one person.

**MAGNETIC DRIVE:** Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling.

**SEALED REGISTER:** The standard registers consist of a straight-reading, odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Permanently sealed, dirt, moisture, tampering and lens fogging problems are eliminated.

**(OPTIONAL) RESETTABLE REGISTERS:** Two (2) Electronic Resettable Registers with ER-10 style single indicators provide rate of flow and totalization for the main line and bypass meters. The totalization resettable function can be disabled. Flow Rate function is programmed independently of the totalization. Reference: IOM-124-01 for ER-10H programming. The flow rate value is approximate and if a more specific value is required, follow the procedure outlined in the Application Brief (PLMT-E-06) for flow rate calculation.

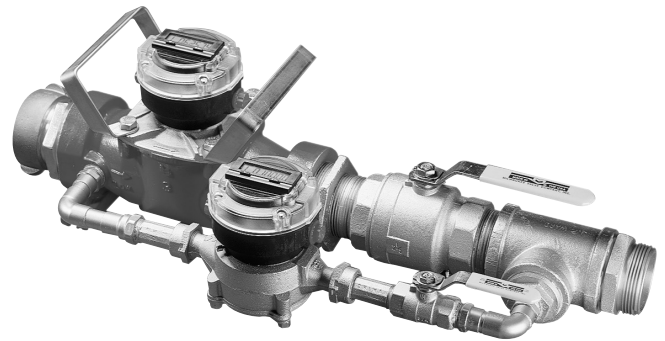
**MAINTENANCE:** The PLMT is designed and manufactured to provide long-term service with minimal maintenance. Interchangeable components are available through various maintenance and meter component exchange programs.

**HOSE COUPLINGS:** The PLMT is equipped with (2-1/2" – 7-1/2" NST) fire hose swivel couplings as standard equipment unless otherwise specified.

**CARE OF METER TESTER:** The PLMT is a precision instrument and should not be subjected to rough handling. Used with proper care, it will provide many years of satisfactory service. The correct operating procedure is described on the laminated instruction sheet attached to the meter.

If the water supply contains sand, silt or pipe scale, the test meter should be flushed with clear water before being placed in storage. After each use, all water should be drained from the meter, hoses disconnected and the ends capped. When the portable unit is in storage, it should be protected from excessive heat, cold and dusty conditions.

PLMT-T-01 (10-11)



PLMT With Optional Electronic Resettable Register

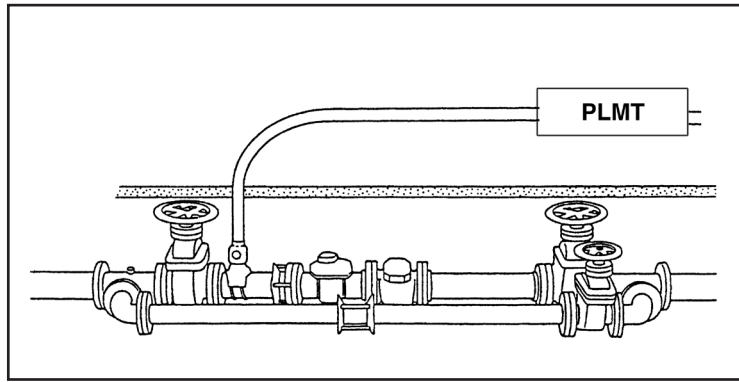
### SPECIFICATIONS

<b>Typical Operating Range (100% ±1.5%)</b>	(0.1 to 113 m <sup>3</sup> /h) 1/2 - 500
<b>Typical Low Flow (Min. 95%)</b>	1/4 GPM (0.06 m <sup>3</sup> /h)
<b>Maximum Continuous Flow</b>	450 GPM (102.2 m <sup>3</sup> /h)
<b>Pressure Loss at Maximum Continuous Operation</b>	45 PSI at 450 GPM (3.1 bar @ 102.2 m <sup>3</sup> /h)
<b>Maximum Operating Temperature</b>	80° F (26° C)
<b>Maximum Operating Pressure</b>	150 PSI (10 bars)
<b>Register Type</b>	Straight reading, permanently sealed magnetic drive standard
<b>Register Capacity</b>	Disc: 10,000,000 Gallons 1,000,000 Cubic Feet 100,000 Cubic Meters Turbo: 100,000,000 Gallons 10,000,000 Cubic Feet 1,000,000 Cubic Meters
<b>Weight</b>	57 lbs
<b>Shipping Weight</b>	98 lbs (includes all accessories)
<b>Meter Adaptors</b>	1 1/2" and 2" test plug adapters
<b>Fire Hose</b>	Two 12.5 foot lengths
<b>Test Rings</b>	Two provided
<b>MATERIALS</b>	
<b>Meter Housing</b>	Cast Bronze (Disc), Heat Treated Aluminum Alloy (Turbo)
<b>Housing Cover</b>	Bronze
<b>Measuring Elements</b>	Thermoplastic
<b>Trim</b>	Stainless Steel
<b>Connection Screen</b>	Thermoplastic
<b>Magnets</b>	Ceramic
<b>Magnet Spindles</b>	Stainless Steel
<b>Register Cover</b>	Bronze – Non-Resettable Register Thermoplastic – Resettable Register
<b>Flow Restriction Plate</b>	Stainless Steel

# Technical Brief

## SAFETY CONSIDERATIONS

- Read the Application Brief completely before performing a test.
- To prevent severe water hammer, open and close valves slowly.
- Secure the tester for operating pressures above 80 psi.
- Tester should not be operated at pressures above 150 psi.
- Discharge hose should always be secured.
- Thrust or water pressure can cause property damage or injury if tester or hose is not controlled.



Typical Field Application

## OPERATION (ER-10 Style Indicators)

**Total Display:** Indicates the present count value, which is equal to the number of pulses received (since the last reset), multiplied by the Totalizer Scaler Value programmed.



**Reset Key:** If the total value is being displayed, depressing this key will cause the value to be reset to 0 as long as program mode has not been set to disable function.

or

When the program input is active this key is used to select a menu item for editing.

**Rate Display:** Indicates the rate value, which is equal to the input frequency multiplied by the Rate Prescale Value in program mode. (If no pulses are received for two (2) seconds, the rate value goes to zero.)



**Down Key:** Toggles the unit between the total and rate display. When the program mode is active, this key is used to scroll through the menu items. After a menu item has been chosen for editing, the down key is used to set the value for the currently selected (flashing) digit. See IOM-124 for further programming detail.

## ER-10 PROGRAMMING NOTES AND FACTORS

### ER-10 Programming Notes

1. Gallon and cubic feet totalizers have rates programmed in GPM. Liter rates are LPM.
2. Connect jumper T5 with T1 to program and disconnect jumper. Attach both ends to T5 prior to testing.
3. The Turbo meter pulses-per-unit meter factor can be modified to affect meter calibration. Both the totalizer scale and the rate scale factor must be adjusted accordingly. The meter test tag must record both of these numbers, along with the unit of measure.

	M25			3" TSM (See note 3)		
	GAL	FT3	LITERS	GAL	FT3	LITERS
Reading	0.00	0.000	0.0000	0.00	0.000	0.0000
Scale Factor	.5042	.6740	1.9084	6.2571	8.365	23.697
Totalizer Decimal Point	0000.00	000.000	0000.00	00000.0	0000.00	00000.0
Rate Scale Factor/ Decimal Point	30.24	30.24	114.5	375.4	375.4	142.2
Rate Run Decimal Point	00.00	00.00	00.00	000.0	000.0	0000
Rate Multiplier	1	1	1	1	1	1
Front Panel Reset	R	R	R	R	R	R

Recordall is a registered trademark of Badger Meter, Inc.

Other trademarks appearing in this document are the property of their respective entities.

©2011 Badger Meter, Inc. All rights reserved.



Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

**Badger Meter** | P.O. Box 245036, Milwaukee, Wisconsin 53224-9536  
800-876-3837 | [infocentral@badgermeter.com](mailto:infocentral@badgermeter.com) | [www.badgermeter.com](http://www.badgermeter.com)