



**TERMINOLOGY**

PLMT = Portable Large Meter Tester

Field meter = meter being tested

GPM = Gallons Per Minute

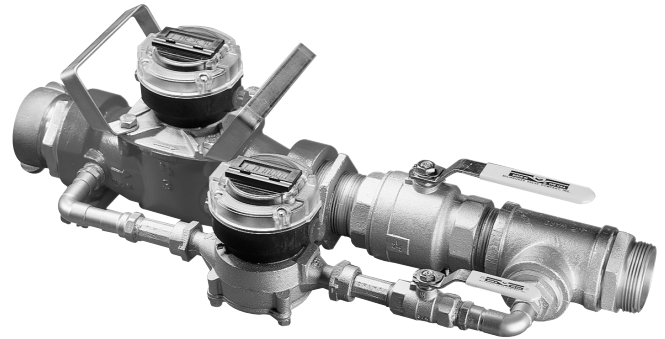
**OPERATION**

The Badger Meter Portable Large Meter Tester is connected to the test plug on the field meter or field tap. Water is run through the PLMT to test flows (1/4 to 500 GPM). Registration is then compared with the field meter and accuracy computed.

**PROCEDURE**

This procedure describes the testing of large meters with maximum continuous flow capacities up to 500 GPM.

1. Close the field meter's inlet and outlet valves. Verify that there is no water usage occurring. If provided, open the valve on the meter bypass line.
2. Connect the inlet of the PLMT to the test tee that is downstream of the meter to be tested or to the meter's test outlet, if provided. The inlet of the PLMT should be provided with a female fire hose coupling that is to be connected to the male end of the fire hose. The other end of the fire hose is to be connected to the reducer and/or adapter provided with the PLMT to the test tee or the meter test port.
3. Connect the remaining fire hose to the PLMT's male outlet connection. Place the outlet end of the fire hose in a drain or other suitable location. Ensure that the outlet hose is high enough (2 or 3 feet) to create sufficient back pressure on the PLMT.
4. Ensure that the control valves on the PLMT are closed.
5. Slowly open the field meter's inlet valve until the PLMT is fully pressurized.
6. Slowly open the PLMT control valves and allow sufficient water to pass through the test unit to ensure that all air is removed.
7. For low flows (i.e., below 20 GPM), open the control valve downstream of the 5/8" meter on the PLMT to the desired flow rate.\* Once the desired quantity of water has passed through the PLMT, the registration of the field meter is compared with the registration of the 5/8" meter on the PLMT to determine meter accuracy.\*\*
8. For high flows (i.e., 20 GPM to 500 GPM), open the shut-off valve downstream of the turbo side of the PLMT to the desired flow rate. Once the desired quantity of water has passed through the PLMT, the registration of the field meter is compared to the registration of the turbo side of the PLMT to determine the meter accuracy.\*\*



**PLMT With Optional Electronic Resettable Register**

9. Close the field meter's inlet valve prior to removal of the PLMT. The outlet valve should remain closed.
10. Once the PLMT has been removed, replace the test plug and slowly open the field meter inlet and outlet valve to repressurize the meter.

\*To determine flow rate, time the dial on the PLMT through one complete revolution or the equivalent value on the ER-10 electronic indicator. (Example: Turbo Meter = 100 gallons). Divide the amount registered by the time to get the flow rate.

For example:  
The turbo side of the PLMT was timed through one revolution (100 gallons) at 20 seconds.

The flow rate is as follows:

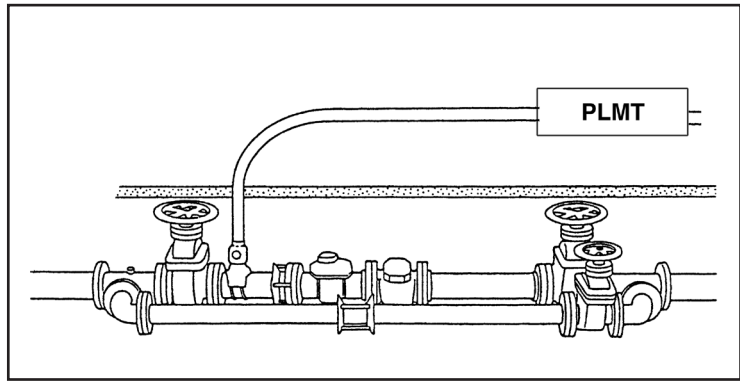
$$\text{Flow rate} = \frac{100 \text{ gallons} \times 60 \text{ sec/min}}{20 \text{ second test}} = 300 \text{ GPM}$$

\*\* The calculation for accuracy is as follows:

$$\text{Meter Accuracy \%} = \frac{\text{Field Meter Registration}}{\text{PLMT Registration}} \times 100 \quad (\text{or } \times \text{ PLMT accuracy at given flow rate})$$

**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.



**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.)



**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.

**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

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