



Where Intelligence Meets Infrastructure™

Installation Guide

Solid State Meter

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About this Installation Guide

This guide is intended for meter technicians that possess reasonable field training.

IMPORTANT:

- The seal on the meter must not be damaged!
- A damaged seal will result in the invalidation of the factory warranty and calibration/conformity.

NOTE:

- The meter must be installed in compliance with the requirements of the AWWA M6 Manual.
- The SSM IR Reader and software permits trained meter technicians to review meter parameters and generate log file downloads. The reader and software is available from Mueller Systems.

Transport and storage

- Water meters are precision instruments and must be protected against impact, vibration, and freezing temperatures during shipment, storage and after installation.
- The meter can be damaged by temperatures below freezing.

Installation / Initial operation

- If the risk of freezing exists at a vacant site, empty the system and, if necessary, remove the meter.
- Thoroughly flush out the pipes before installing the meter.
- The meter should be installed so that the direction of the arrow on the meter housing corresponds to the direction of water flow.
- Avoid the collection of air in the meter during the installation process by opening a faucet.
- Make sure the meter is installed as far away from possible sources of electromagnetic interference (switches, electric motors, fluorescent lights) as possible.
- Straight pipe sections before and after the meter are not necessary.
- The meter must not be under any mechanical stress when installed in the pipeline.
- Never use the meter to align pipe connections.
- Remove old gaskets and clean the sealing faces of the couplings.
- Only use the newly supplied gaskets (the gaskets should not intrude into the pipeline).
- Site-provided gaskets must be suitable for the purpose and comply with the local guidelines and directives.



- Screw the meter fittings on both sides by hand and then tighten using a suitable tool to the following torque settings (minimum torque 30 Nm, maximum torque 50 Nm).
- The meter is suitable for water temperatures from 33 F to 194 F.
- Slowly fill the pipeline with water on completion of the installation to avoid water and air hammers.
- The meter must always remain full of water.
- The meter must be protected against excessive pressure in the pipeline.
- The meter must be protected from freezing before, during and after installation.

Battery power supply

Two 3.6 VDC lithium batteries with a battery life of 20 years. Batteries cannot be retrofitted or replaced.

Pin assignment of cable

The encoder variant of the meter is supplied with 5' or 25' flying lead wires, a 5' Nicor cable with connector or a 5' Itron cable with connector.

Color	Encoder Output
Red	Clock Terminal
Black	Ground Terminal
Green	Data Terminal

Interfaces

The meter is equipped with a standard 8 digit visual and encoder output via the wired connection.

- Optical IR port
- Encoder interface: Serial number and 8 electronically transmitted digits

Operation

To show the data read by the meter in the display, various windows have been created as functions that can be scrolled through in succession by covering the IR port with your finger for one second to display the meter information (e.g. flow rate, volume, date, due date, medium temperature).

The IR Port located on the front of the meter is used to scroll through the various displays.

To conserve battery life, the meter enters sleep mode (display off) if the IR port is not activated for approximately 4 minutes. The display can be initialized by activating the IR Port again at any time.

After initialization, the current status appears in the display for approximately 2 seconds if an error exists; e.g. error message E -- 7 -- A (air in the pipe) for a meter that is not yet installed or in the event the pipe is not full of water.

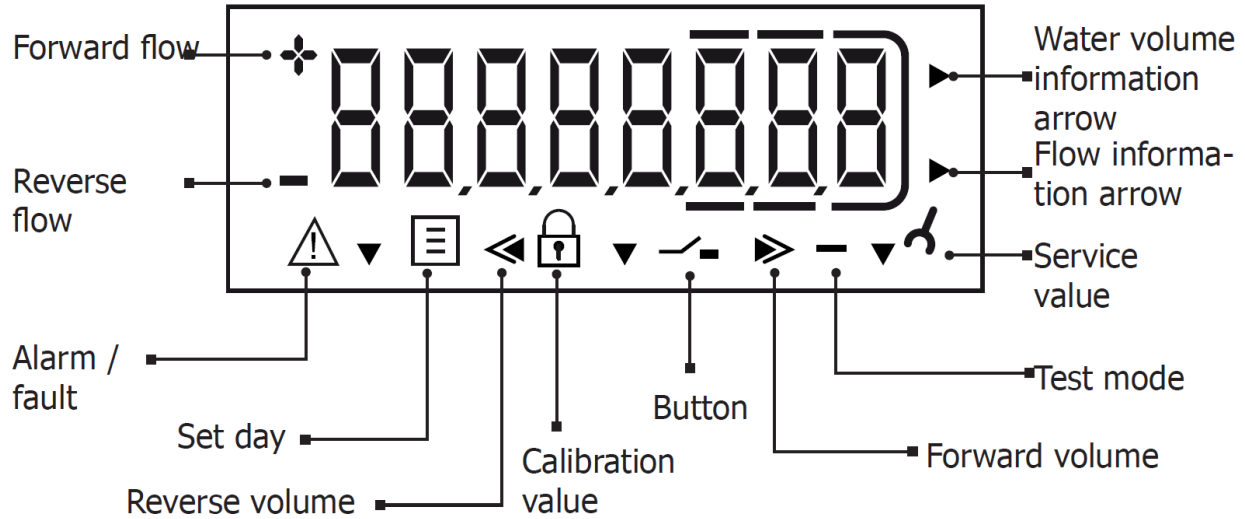
Standard operating mode of the IR Port with a short press:

- Current total volume
- Display test (alternates between all on and all off)
- Error messages (if errors exist, e.g. "E -- 7 -- A")
- Flow rate (GPM)
- Alternates between total volume on due date and due date
- Current reverse volume
- Alternates between software version and software checksum (e.g. "F06-006" -> "C7194")
- Battery lifetime (display alternates between "batt" and date)

Additional display information

- Medium temperature in °F
- Date and time
- Radio signal ON/OFF
- Pulse value (at interface Pulse)
- Forward volume
- Operating hours
- Due date reverse volume
- High resolution volume
- Error hours
- Error

Display / Symbols



Displays

Error display (visual indication on the LCD display in the event of an error)

Error Code	Description
C1	Basic parameter error in flash or RAM - Meter must be replaced The meter must be replaced.
E1	Temperature measurement error (temp. outside range, sensor short-circuit, sensor break) Meter should be checked in the event of sensor short-circuit or sensor break
E4	Hardware error, faulty ultrasonic transducer or short-circuit in ultrasonic transducer Meter should be checked
E5	Too frequent reading (no communication possible for short time)

Alarms (permanent visual indication on the LCD display)

Alarm Messages	Description
A1	Reverse flow

A3	No consumption
A4	Fault / failure of ultrasonic or temperature measurement
A5	Leakage alarm
A6	Low temperatures (below 37.4°F)
A7*	Air in the measuring path, no volume measurement
A9	Low battery

* If air is trapped in the measuring path, E7 is output to the display. After a defined time (standard 15 min.) the E7 changes to an A7. The A7 is output to the display and saved in the fault memory.

Combinations of error and alarm messages can occur simultaneously, e.g., E-7-A-1, corresponds to E7 and A1.

Disposal

Meters must be disposed of properly. Consult your local disposal guidelines for proper instructions.