
CHAPTER 2: INSTALLATION

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WATER FIREFLY INSTALLATION PREPARATION

Installation Overview - Sensor End

1. Install the optical sensor. (See instructions “Installing the Optical Sensor”).
2. Program the FIREFLY MIU (See instructions “Programming the FIREFLY MIU”).
3. Choose a method and mount the FIREFLY MIU.
4. Verify that the FIREFLY MIU is transmitting properly.

Installation Considerations

1. Signal distance varies depending on the location of the MIU. FIREFLYs installed above ground generally transmit the greatest distance.
2. The material of a pit or vault lid affects the transmission range. For example, a transmitter has a greater range sending from a pit with a plastic lid than a cast iron lid.
3. Lids with holes of a diameter of one inch make possible the mounting of the FIREFLY MIU through the lid. This can increase transmission range significantly.
4. Complete field installation of an MIU takes 5-10 minutes, depending on the meter location, and mounting application.
5. If the lid has a hole for the unit, use the cap and wing nut assembly (lid lock). Make sure there is enough space between the box lid and the ground for the unit to sit. If not, remove some of the dirt from the bottom of the box. Do not over-tighten lid locks.

Installation Tips

Following are tips for FIREFLY installation that ensure maximum adhesion.

1. Use only 99% Isopropyl alcohol to prepare the meter face.
2. The most important part of installing a FIREFLY sensor on a *clean* register is the **Pressure** step.
3. Make sure the lens is clean and dry as condensation reduces adhesion.
4. Cool weather may reduce adhesion. Avoid installing sensors in temperatures lower than 32F.
5. Only use the specified 3M adhesive disks to adhere the sensor to the meter face.
6. **Do not to touch the 3M adhesive with bare hands, as skin oil greatly decreases adhesion.**
7. Adhesion is greatly degraded if the sensor is removed from the meter face then repositioned.
8. Loctite adhesive forms a barrier around the 3M adhesive for the 24-hour curing time.
9. Avoid handling or moving the sensor after placement while mounting the FIREFLY.

FIREFLY INSTALLATION

INSTALLING THE OPTICAL SENSOR

MIU Preparation

1. Survey the meter, checking lid, hole depth, and overall cleanliness.
2. Remove meter box lid.
3. Clean excess dirt from meter lid, exposing meter number.
4. Flip lid back and pre-clean meter face / lens using Fast Orange™ non-pumice cleaner and a cloth or cotton swab to remove residue.
5. Clean meter face / lens with an isopropyl alcohol and a NEW lint-free cotton swab.

Note: Use Isopropyl rubbing alcohol, 99% by volume, for best results. Lower concentrations do not clean as well and may adversely affect the sensor-to-meter bond.

6. **Re-wipe the surface of the meter lens with a clean, new cotton swab each time until the swab comes up clean, and the clean lens squeaks when wiped.**
7. After cleaning, ensure that the lens **is completely dry**; allow the alcohol time to evaporate.



MIU Placement

8. Remove the adhesive backing from the high-bond tape on the Optic Sensor face.
9. Refer to Meter Qualification Data in Appendix C to determine sensor placement for the brand and model of register.
10. Orient the sensor so the water meter needle approaches the sensor from the cable side and perpendicular to the cable. There are indents on each side of the sensor base which are to be in line with the needle when it passes.
11. Attach the sensor to the water meter lens surface.



12. Since the 3M tape provides a pressure sensitive seal, the installer should apply pressure to the MIU sensor immediately after attaching to the lens surface. The installer should apply four, five-second pushes to the MIU.

*TIP: Palm the sensor
and lean onto it to
apply appropriate
pressure.*

13. A full cure on the seal is achieved in 24 hours. The sensor should not be touched, pulled, moved, or handled in any way during this period.

Apply approved adhesive around sensor to seal completely if the pit may fill with water prior to the 24-hour cure time, or if the meter face is curved and not flat.

Note: If the sensor is initially misplaced, do not attempt to remove the sensor by twisting the sensor body. A fully cured sensor requires breaking the seal at the adhesive tape joint with a flat tool such as a screwdriver. Insert the screwdriver between the aluminum base and meter lens and twist.

14. Mount the FIREFLY MIU to an appropriate wall, stake or through hole in meter box/vault lid.

If using a stake, affix the stake in the ground adjacent to the meter register. The platform area of the pole should be facing inward.

Position the transmitter on the pole platform.

Attach the transmitter to the pole with the binding material.

Re-mounting the 3M sensor

For instructions on re-mounting the FIREFLY sensor once placed on the meter, see Appendix D: Reference, in the section titled “Re-application of Sensor 3M Tape”.

INSTALLING THE WIRE-END FIREFLY

1. Refer to Appendix C : Meter Qualification to determine wire connection for the brand and model of meter.
2. Connect FIREFLY Wire-end to meter contacts using Posi-lock connector or Gel caps.
3. Use 3M mastic pads to cover the wire connections. Make sure mastic pad forms a complete seal around the wire connections.
4. Mount the FIREFLY to an appropriate wall, stake, or through hold in the meter box / vault lid.

If using a stake, affix the stake in the ground adjacent to the meter register. The platform area of the pole should be facing inward.

Position the transmitter on the pole platform.

5. Position the FIREFLY MIU with the threaded neck pointing up.
6. Attach the transmitter to the pole with the binding material.

Note: Do not connect a multi-meter, probe or other interrogating device to the FIREFLY wires. Doing so can cause the unit to globally reset, erasing all programmed data!

ELECTRIC FIREFLY INSTALLATION

Qualified Meters

Following are meters qualified for use with the Electric FIREFLY

- Landis & Gyr MS
- Sangamo J5S
- Westinghouse D5S
- GE I70S

FIREFLY INSTALLATION PREPARATION

Following is a list of hardware needed to install one Electric FIREFLY on one meter:

Landis &Gyr

- Two 32 x ½ inch long screws
- Two 0.25 inch spacers
- Two meter spacer posts

Sangamo

- Two 1/8" x ½" long screws
- Two 0.25 inch spacers

Westinghouse

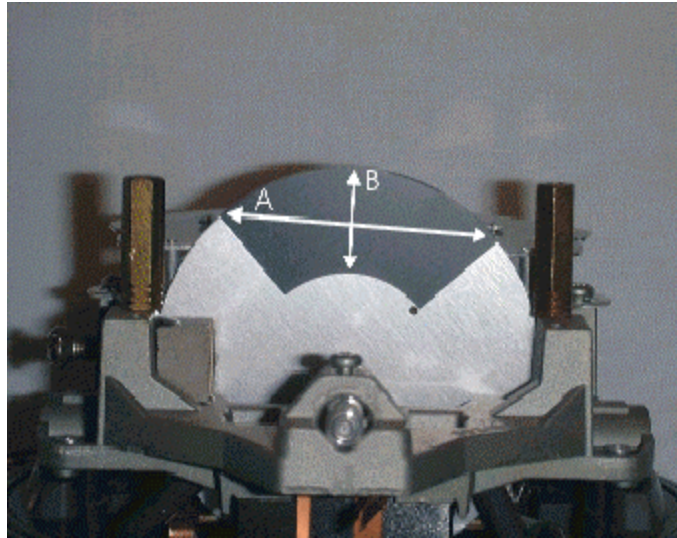
- Two 6-40 x ½" long screws
- Two 0.25 inch spacers

GE

- Two 4-48 x 3/8" long screws
- Two 0.25 inch spacers

Installing decals

1. Remove nameplate on meter.

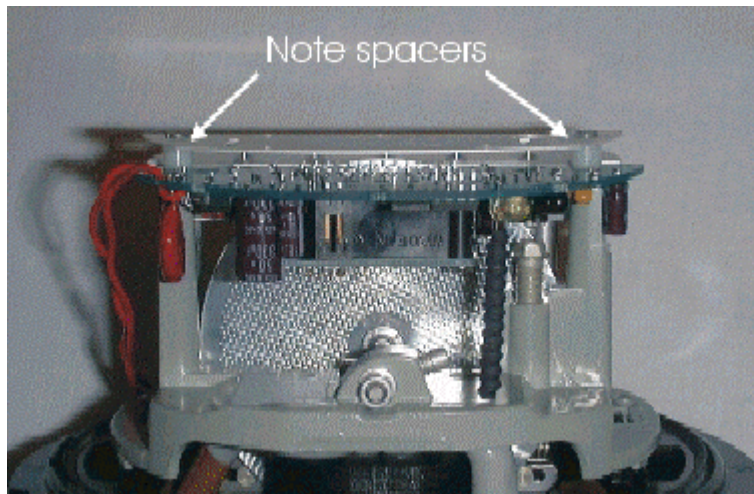


2. Clean rotating disk target area with 99% isopropyl alcohol.
3. Place approved * decal on target area.
4. Smooth decal on plate by applying pressure with your thumb.

*Contact Datamatic for specifications on approved decals.

Installing the Electric FIREFLY:

1. Remove nameplate.
2. Position the unit on top of the nameplate posts.
3. Mount the unit flush on top of the nameplate posts with the spacer and nameplate above it.
4. Thread the mounting screw through the nameplate, the 0.25 inch spacer (See illustration below) and FIREFLY into the nameplate post holes.



5. Adjust play in mounting holes so that FIREFLY is parallel with disk and the distance between sensor face and disk is between 0.070 and 0.110 inches.

6. Choose one of the following three options to connect the wires to the 240VAC terminals on the meter.

Option A. Use fuse clip to attach wires to the 240VAC terminals on the meter.

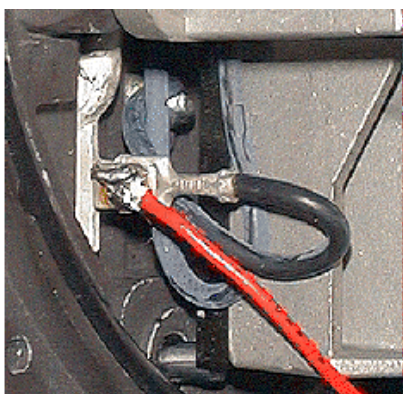
Option B. Use soldering to attach two wires to the 240VAC terminals on the meter.

Option C. Use female insulated crimp connector to connect the wires to the 240VAC terminals on the meter.

Note: If connectors are used in place of soldering, use UL-certified crimper.



Fuse clip option



Solder wires option



Insulated crimp connector option

7. Power the meter with 240VAC or power the FIREFLY using between 5 and 12 volts applied to the external battery jack.

Note: The FIREFLY requires 240VAC during programming for the settings to be written to its memory.

8. Zero out the register.