



Badger Meter

Endpoint Guard for Model 450 Fire Hydrant Meters

The Hydrant Meter Endpoint Guard is designed to mount and protect an ORION endpoint connected to the following Recordall® meters:

- Model 450 fire hydrant meter
- Model 450 backflow preventer fire hydrant meter

This document provides installation instructions.

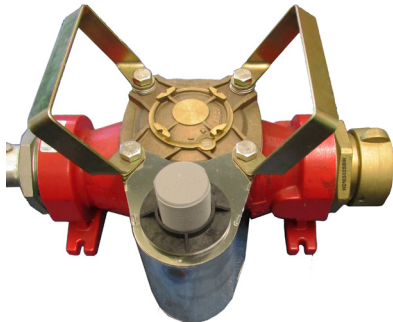


Figure 1: Endpoint guard attached to Model 450 fire hydrant meter

NOTE: The endpoint guard can be used with any ORION endpoint. The ORION Cellular LTE endpoint is shown in this document.



Figure 2: Endpoint guard with endpoint

REQUIRED MATERIALS

Endpoint Guard Kit (PN: 68874-001)

Kit Components

Quantity	Part	Part Number
1	Endpoint guard	68686-001
2	Lock nuts	62825-001
4	Bolts	55031-117
16*	Washers	55262-017

*Kit includes 12 washers required for installation plus 4 extra/spare washers

Tools

- 3/4 in. wrench (customer supplied)
- Torque wrench (customer supplied)

DIMENSIONS

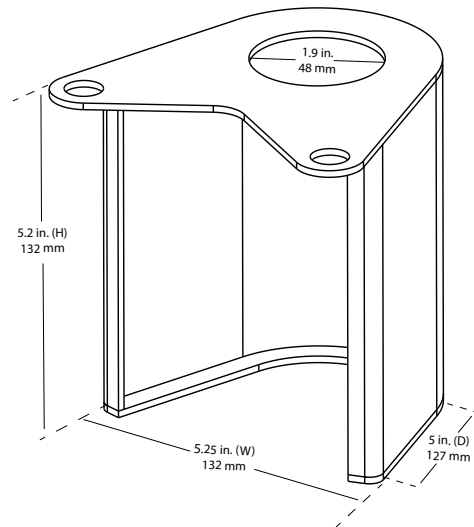


Figure 3: Endpoint guard dimensions

INSTALLATION

⚠ WARNING

DO NOT PERFORM THESE STEPS WITHOUT DEPRESSURIZING THE FIRE HYDRANT METER FIRST.

Preparing the fire hydrant meter

1. Depressurize the fire hydrant meter before removing the bolts.
2. Remove the meter handles by removing the four (4) bolts from the handles using a 3/4 in. wrench.

IMPORTANT

Do not remove or move the measuring element assembly during installation of the endpoint guard.

Preparing the endpoint guard

3. Thread one of the two (2) lock nuts from the kit onto the endpoint, large diameter side *up*.
4. Place the endpoint antenna end through the center opening of the endpoint guard top plate, up to the lock nut as shown in [Figure 4](#). The lock nut will be in contact with the underside of the top plate.

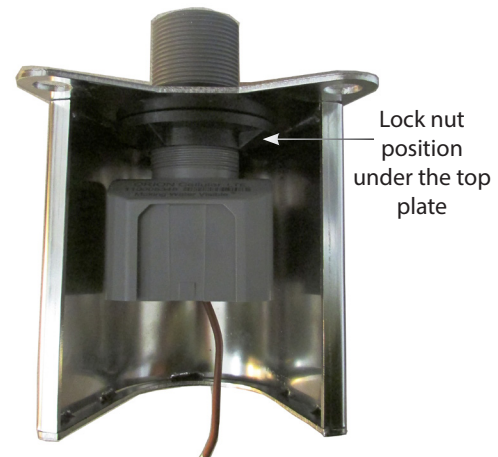


Figure 4: Lock nut under top plate

5. Thread the second lock nut onto the endpoint, large diameter side *down*, until the lock nut is in contact with the outside surface of the top plate. See [Figure 5](#).
6. Adjust the lock nuts so the endpoint is exposed 1-1/4 inch above the top plate ([Figure 5](#)).

IMPORTANT
Too much variation in this dimension (1-1/4 in.) will diminish the RF range of the endpoint.

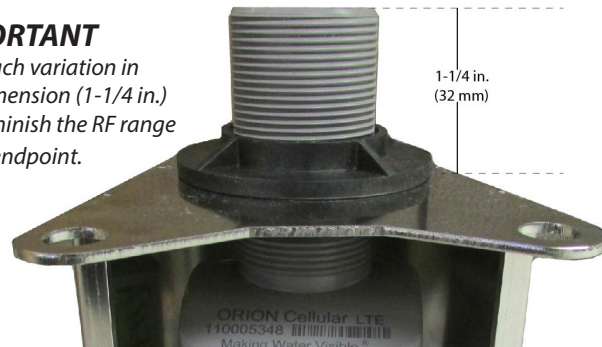


Figure 5: Endpoint 1-1/4 inch above

7. Tighten both lock nuts to make sure the endpoint position is secure.
8. Connect the endpoint to the encoder with the in-line connector. See the *In-line Connectors* section in the *ORION Water Endpoints Installation Manual*, available at www.badgermeter.com if you need help.

Best practice recommends connecting the endpoint to the encoder now. Connecting the endpoint to the encoder at this point in the installation process allows you to bring the cable up and out at the top, and keep the in-line connector inside the endpoint guard, which protects it from tampering. Once the endpoint guard is attached to the meter, the endpoint cable must exit out the bottom of the endpoint guard, making it difficult to keep the in-line connector inside.

NOTE: For visual clarity, photos in this document do not show the encoder.

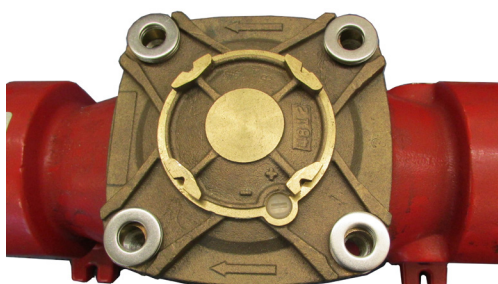
Attaching the endpoint guard to the meter

NOTE: As you reattach the handles, you will also be attaching the endpoint guard, using the washers and the new (longer) bolts from the kit. Do not remove or move the measuring element assembly as you attach the endpoint guard.

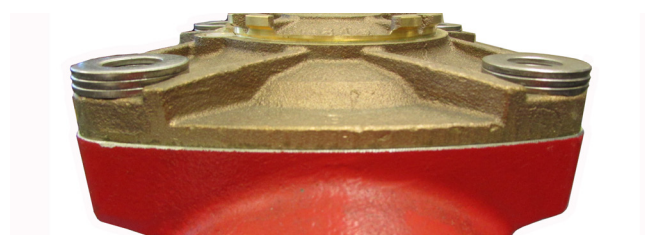
9. Place the meter on a sturdy flat surface. For easier access, stand facing the side of the meter on which the endpoint guard will be installed. Make sure you have the washers and bolts from the kit.

NOTE: The endpoint guard can be attached to either side of the Model 450 fire hydrant meter. If you are attaching the endpoint guard to the fire hydrant meter *with the backflow preventer*, attach the endpoint guard on the side *opposite* the pilot pressure hose.

10. Stack three (3) washers at the handle bolt openings on each corner of the meter as shown in [Figure 6](#).



Stacked washers, top view



Stacked washers, side view

Figure 6: Three (3) washers stacked on each bolt opening

NOTE: Refer to the photos in [Figure 7](#) and [Figure 8](#) for the remaining steps.

11. Attach the meter handles on the side across from you.
 - a. At the left corner, place the meter handle end on top of the stacked washers. Then insert a bolt through the handle opening and washers, into the meter. Hand tighten the bolt.
 - b. Repeat step 11a with the other handle at the right corner.

One side of each handle is now attached.

12. Attach the meter handles and the endpoint guard on the side closest to you.

- a. Holding the endpoint guard, place the top plate openings over the stacked washers at each corner.
- b. Slide the meter handle ends onto the top plate.

The three washers should be sandwiched between the meter and endpoint guard top plate, with the handle on top as shown in [Figure 7](#).

- c. Align the openings and insert a bolt through the handle opening, endpoint guard and washers at each corner.

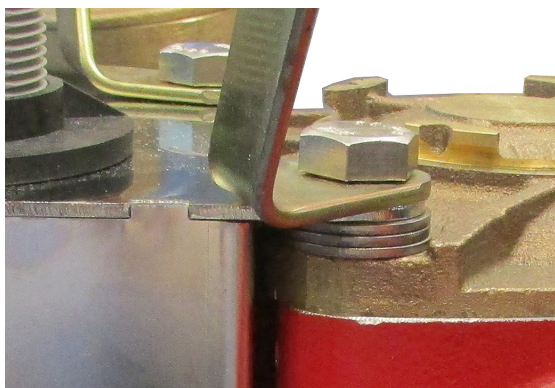


Figure 7: Endpoint guard connected—side view—closeup

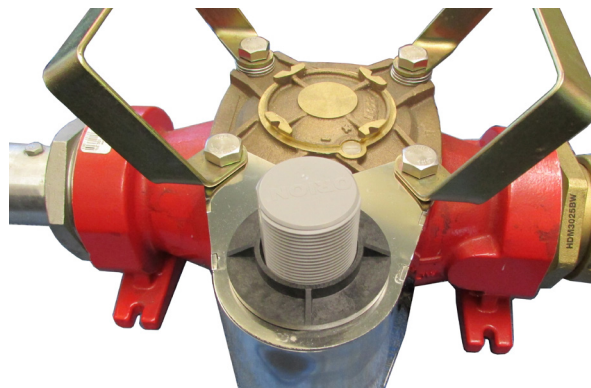


Figure 8: Endpoint guard connected—top view

13. Torque the four (4) bolts in criss-cross sequence to 280 inch-pounds (± 20 inch-pounds) to make sure the meter handles and endpoint guard are secure.

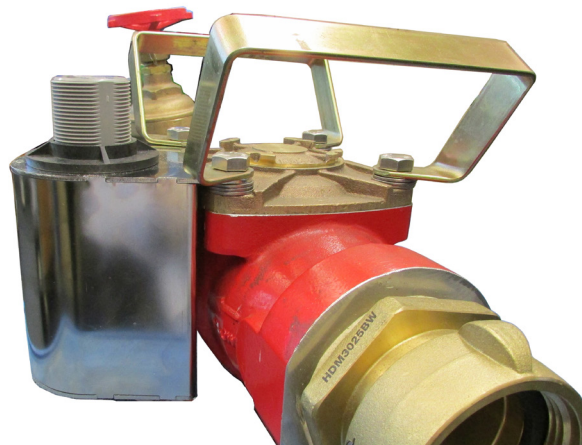


Figure 9: Model 450 Fire Hydrant meter with endpoint guard

Installation is complete.

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