



Wireless Optical Pulse Initiator

Installation Guide

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Regulatory Information

FCC

The following FCC Requirements are met by the Wireless Optical Pulse Initiator product.

Warning: Changes or modifications to this unit that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with Part 15 of the FCC Rules. Operation is FCC subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Limited Warranty

American Innovations, Ltd. (AI) warrants to the original owner of this product that the hardware is free of defects in materials and workmanship. Should the product fail to be in working order for one year from date of purchase, AI will, at its option, repair or replace this product provided that in AI's sole determination the part or product has not been abused, misused, repaired, or modified. All returns for limited warranty service require a Return Material Authorization (RMA).

AI shall not be liable for any special, incidental, or consequential damages, or for damages from acts of God (e.g., lightning), or from damage caused by product use outside of specified operating limits, or for damage directly or indirectly arising from customer's use of or inability to use the equipment either separately or in combination with other equipment, or for personal injury or loss or destruction of other property, or from any other cause. This warranty gives you specific legal right; you may have other rights which vary from state to state.

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Introduction

Product Overview

The Wireless Optical Pulse Initiator (WOPI) is a reliable, low cost device that converts electric meter disk rotations into count output. The WOPI uses optical sensing to detect a non-reflective stripe on the meter disk and provides an RF (radio frequency) transmission of counts for each rotation. It draws power from the utility side of the meter and meets rigorous test criteria for accuracy and durability. It fits inside most major single phase, electromechanical watt-hour meter models manufactured during the last 25 years as well as some electromechanical three phase meters.

Contents of Your Package

The WOPI package consists of:

- ◆ One WOPI
- ◆ Screws:
 - One 6-40 x 1/2-inch screw – for commercial meters
 - One 6-32 x 3/8-inch screw and nut – for Schlumberger residential meters
 - Two 6-32 x 3/8-inch screws – for Landis & Gyr residential meters
- ◆ One mounting bracket - for Schlumberger residential meters
- ◆ Two custom standoffs - for Landis & Gyr residential meters
- ◆ Two power cables
- ◆ WOPI Installation Guide

If any items are missing or damaged, call AI Technical Support for assistance at 1-512-249-3400.

Required Equipment

To complete the installation, you should have the following equipment (equipment required may vary from meter to meter):

- ◆ #2 flathead screwdriver
- ◆ #2 Phillips head screwdriver
- ◆ needle-nose pliers
- ◆ flat black paint marker

Installation

Introduction

The WOPI is installed differently for different meter types. The following sections provide detailed installation instructions for different types of commercial and residential meters.

Commercial Meters

This section provides information on installing the WOPI in an ABB/Westinghouse Polyphase 9S meter and an ABB/Westinghouse Network meter.

ABB/Westinghouse Polyphase 9S Meter

1. Unscrew the cover on the meter in a counter-clockwise direction. See Figure 1.

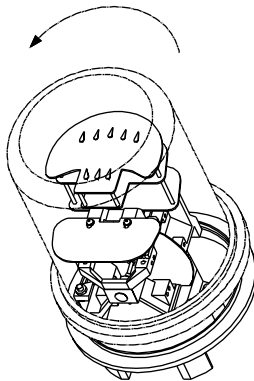


Figure 1. Removing Cover

2. Remove the meter dial assembly. See Figure 2.
 - a. Loosen the set screws from the assembly.

- b. Remove the clip using needle-nosed pliers.
- c. Lift the assembly up and off.

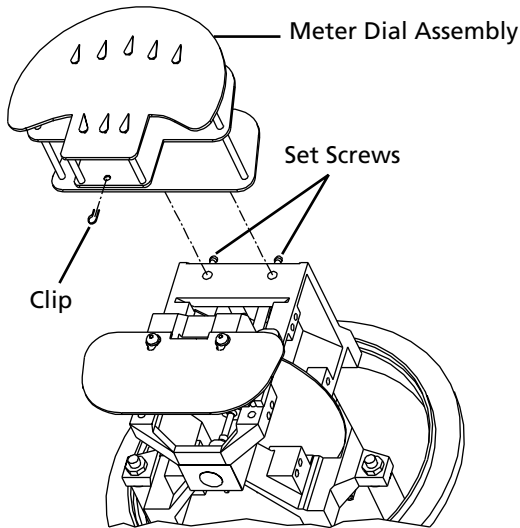


Figure 2. Removing Meter Dial Assembly

- 3. Remove the face plate screws and face plate. See Figure 3.

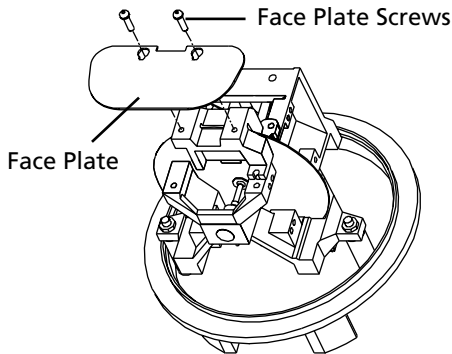


Figure 3. Removing Face Plate

- 4. Attach the power cables. See Figure 4.
 - a. Remove the power cable screws.

- b. Attach the power cables by sliding the tongue ring terminal onto the screw.
- c. Replace the power cable screws.

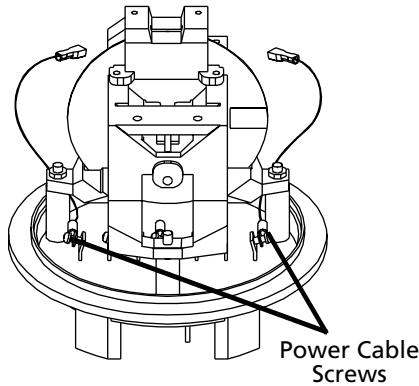


Figure 4. Attaching Power Cables

- 5. Remove the WOPI from its packaging. If the plastic tabs on either side of the mounting tab have not been broken off, refer to Appendix B.
- 6. Attach power cables to the WOPI. See Figure 5.

Caution: To prevent damage to the WOPI, support it from behind when attaching power cables.

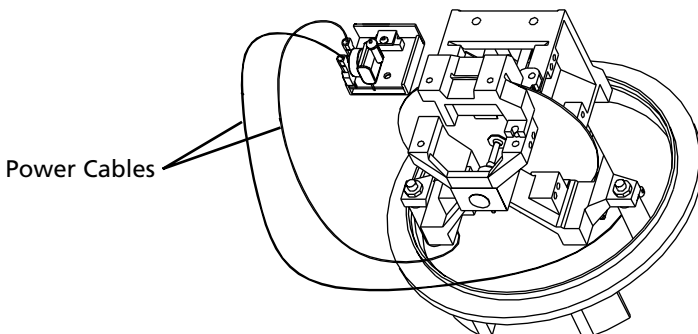


Figure 5. Attaching Power Cable to WOPI

7. Check the black stripe on the underside of the meter disk to make sure it is at least 1/2 inch wide and 4/5 inches long. If not, enhance the mark to these dimensions with a flat, black paint marker. Refer to Appendix A for paint stripe specifications.
8. Use the 6-40 x 1/2 inch screw to attach the WOPI to the meter. See Figure 6.

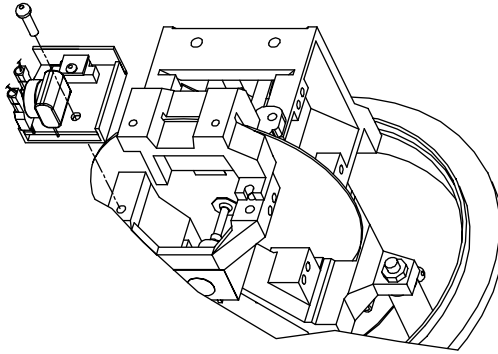


Figure 6. Attaching WOPI to Meter

9. Replace the face plate and face plate screws. See Figure 7.
10. Replace the meter dial assembly. See Figure 7.
 - a. Set the assembly down and align screw holes to meter base.
 - b. Replace the clip using needle-nosed pliers.
 - c. Tighten the set screws on the assembly.

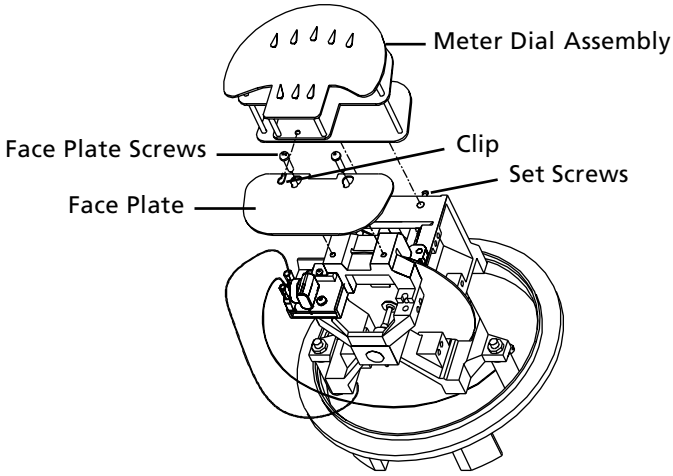


Figure 7. Attaching Face Plate and Meter Dial Assembly

11. Replace the cover by screwing it back on in a clockwise direction. Ensure all wires are clear of operational parts. See Figure 8.

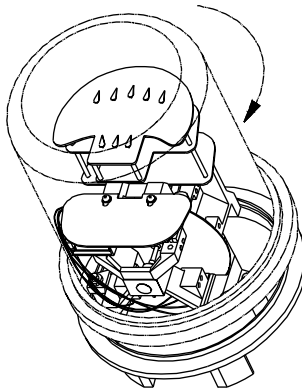


Figure 8. Replacing Cover

ABB/Westinghouse Network Meter

1. Unscrew the cover on the meter in a counter-clockwise direction. See Figure 9.

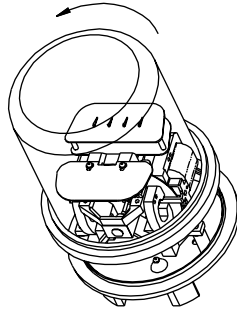


Figure 9. Removing Cover

2. Attach the power cables. Connectors are different for each cable. See Figure 10.

For the Tongue Ring Terminal:

- a. Remove the power cable screw.
- b. Attach power cable by sliding the tongue ring terminal onto the screw.
- c. Replace the power cable screw.

For the FASTON connector:

Attach the FASTON connector to the male FASTON tab.

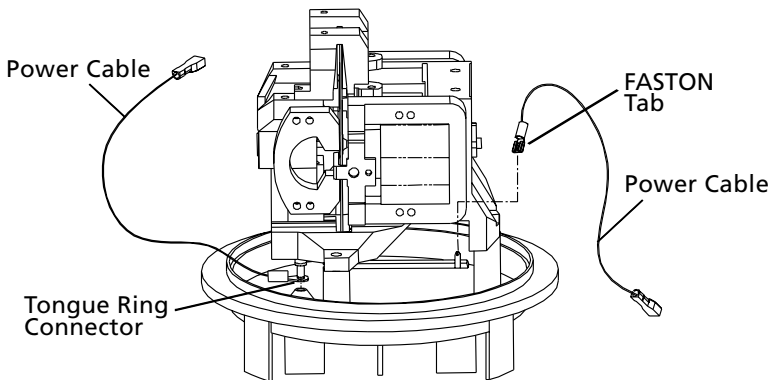


Figure 10. Attaching Power Cables

3. Remove the face plate screws and face plate. See Figure 11.

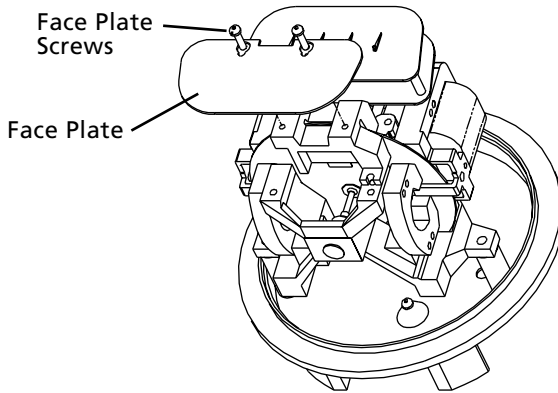


Figure 11. Removing Face Plate

4. Remove the WOPI from its packaging. If the plastic tabs on either side of the mounting tab have not been broken off, refer to Appendix B.
5. Attach the power cable to the WOPI. See Figure 12.

Caution: To prevent damage to the WOPI, support it from behind when attaching the power cables.

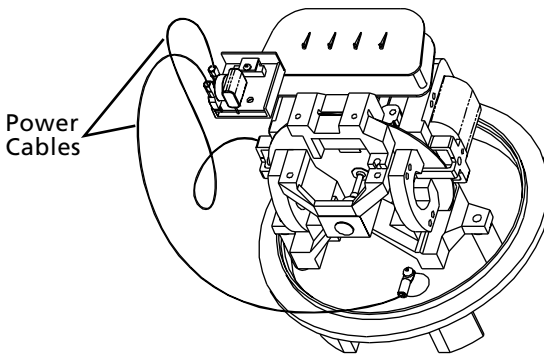


Figure 12. Attaching Power Cables to WOPI

6. Check the black stripe on the underside of the meter disk to make sure it is at least 1/2 inch wide and 4/5 inch long. If not, enhance the mark to these dimensions with a flat, black paint marker. Refer to Appendix A for paint stripe specifications.
7. Using the 6-40 x 1/2 inch screw, attach the WOPI to the meter base so that the mounting bracket and WOPI are aligned parallel to the meter disk. Ensure that wires do not interfere with the meter disk. See Figure 13.

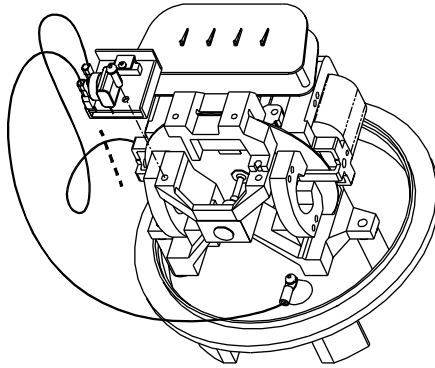


Figure 13. Attaching WOPI to Meter

8. Replace the face plate and face plate screws. See Figure 14.

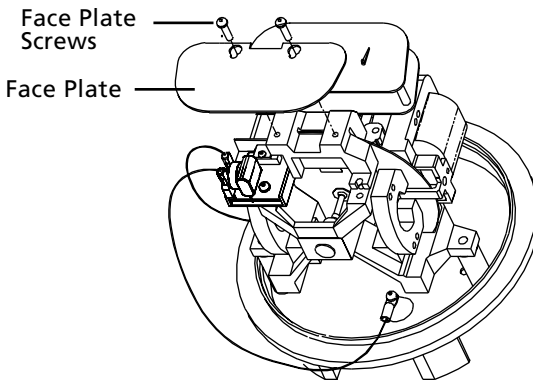


Figure 14. Attaching Face Plate

9. Replace the cover by screwing it back on in a clockwise direction. Ensure all wires are clear of operational parts. See Figure 15.

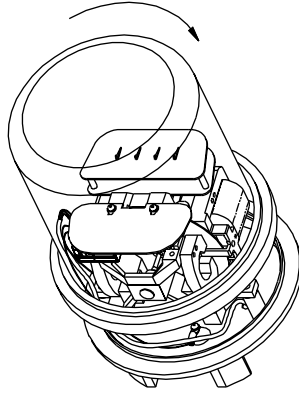


Figure 15. Replacing Cover

Residential Meters

This section explains how to install the WOPI in the following residential meters:

- ◆ Landis & Gyr/Duncan
- ◆ ABB/Westinghouse
- ◆ Schlumberger/Sangamo
- ◆ GE

Landis & Gyr/Duncan Meter

1. Unscrew the cover on the meter in a counter-clockwise direction. See Figure 16.

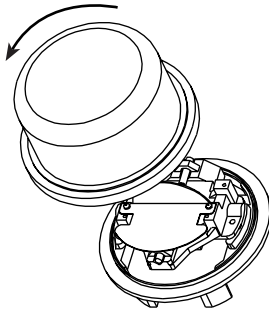


Figure 16. Removing Cover

2. Remove the face plate screws and face plate. See Figure 17.

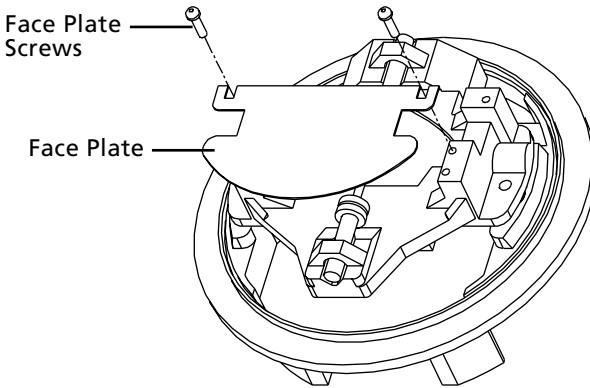


Figure 17. Removing Face Plate

3. If you have an AMR Ready meter, go to step 4. If your meter is not AMR Ready, attach the power clips to the copper bus bar on the inside of the meter using needle-nose pliers (see Figure 18). Then, go to step 5.

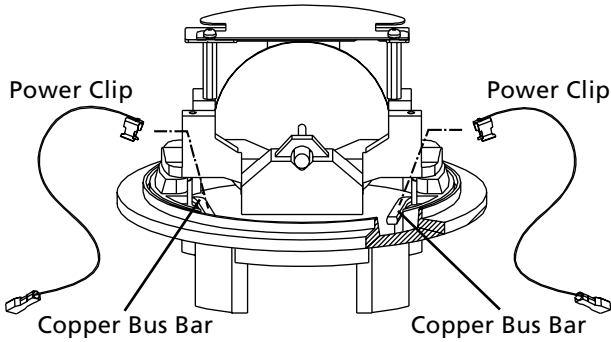


Figure 18. Attaching Power Cables to Non-AMR Ready Meter

4. If your meter is AMR Ready, attach the FASTON connector to the male FASTON tab on the AMR Ready meter. See Figure 19.

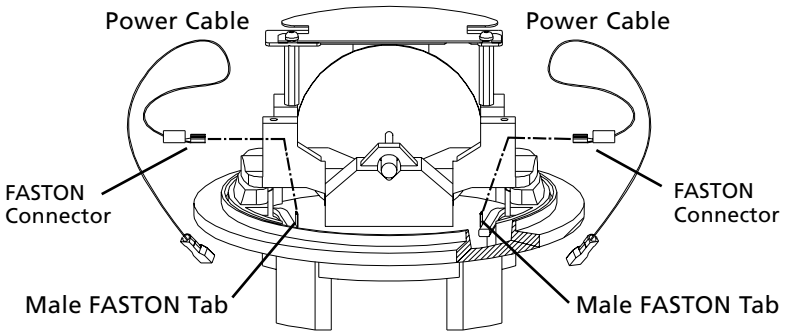


Figure 19. Attaching Power Cables to AMR Ready Meter

5. Screw standoffs into the meter base. See Figure 20.

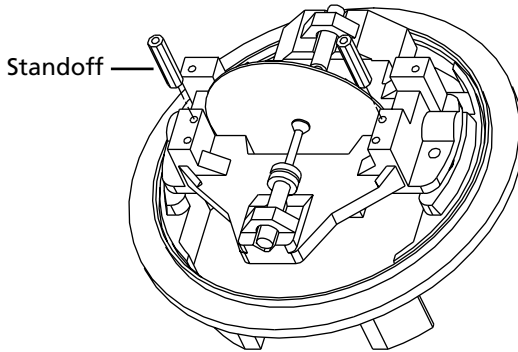


Figure 20. Installing Standoffs

6. Attach power cables to the WOPI as shown in Figure 21.

Caution: To prevent damage to the WOPI, support it from behind when attaching the power cables.

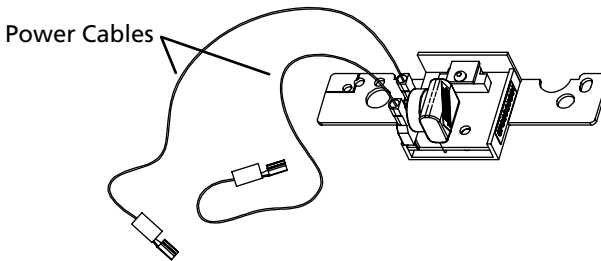


Figure 21. Attaching Power Cables to WOPI

7. Check the black stripe on the underside of the meter disk to make sure it is at least 1/2 inch wide and 4/5 inches long. If not, enhance the mark to these dimensions with a flat, black paint marker. Refer to Appendix A for paint stripe specifications.
8. Position the WOPI on the meter base so that the mounting bracket holes are aligned with the face plate screw holes. Ensure none of the wires are touching the meter disk or shaft. See Figure 22.

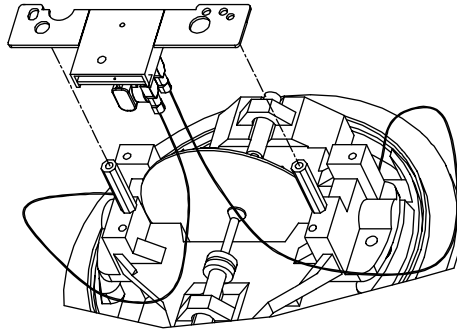


Figure 22. Installing the WOPI

9. Attach the face plate over the WOPI and screw down using the two 6-32 x 1/2-inch screws provided in your installation kit. Make sure the WOPI bracket is parallel to the meter disk surface. See Figure 23.

Caution: Do not pull the power cable abnormally. This puts stress on the WOPI assembly.

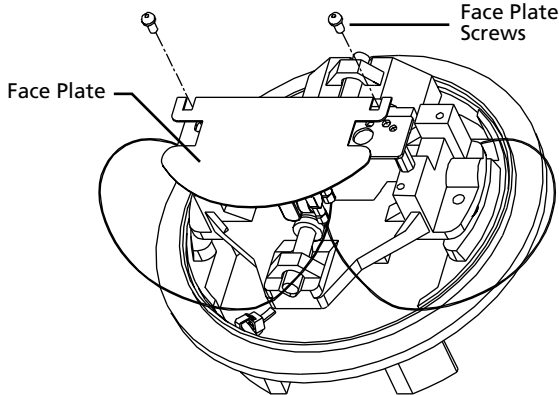


Figure 23. Attaching Face Plate

10. Replace the cover by screwing it back on in a clockwise direction. Ensure all wires are clear of operational parts. See Figure 24.

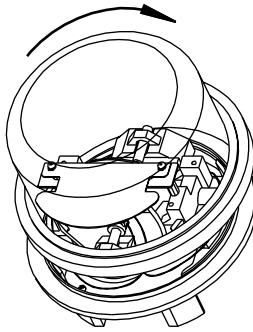


Figure 24. Replacing Cover

ABB/Westinghouse Meter

1. Unscrew the cover on the meter in a counter-clockwise direction. See Figure 25.

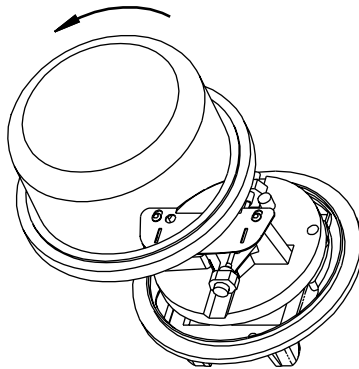


Figure 25. Removing Cover

2. Remove the face plate screws and face plate. See Figure 26.

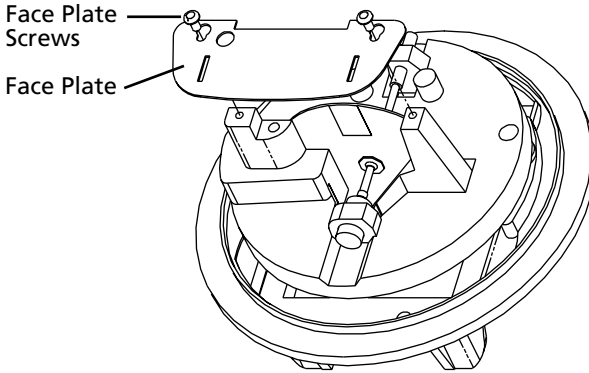


Figure 26. Removing Face Plate

3. If you have an AMR Ready meter, go to step 4. If your meter is not AMR Ready, attach the power clips to the copper bus bar on the inside of the meter using needle-nose pliers (see Figure 27). Then, go to step 5.

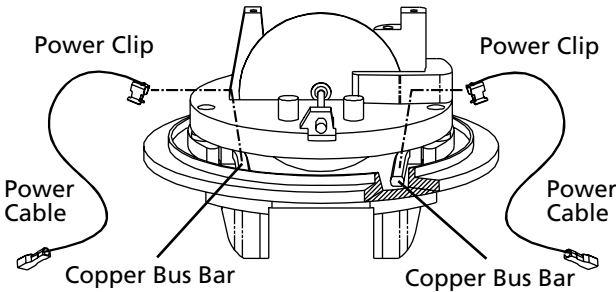


Figure 27. Attaching Power Cables to Non-AMR Ready Meter

4. If your meter is AMR Ready, attach the power cables to the meter using the Mate-N-Lok connectors. See Figure 28.

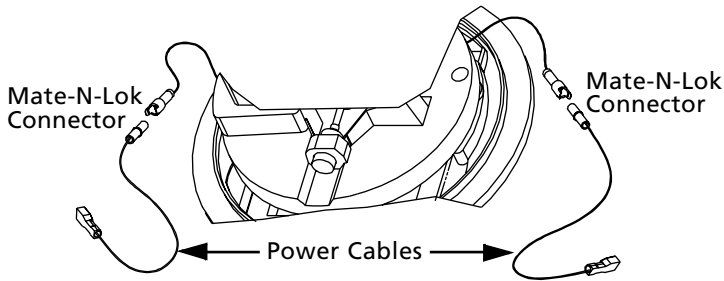


Figure 28. Attaching Power Cables to AMR Ready Meter

5. Attach the power cables to the WOPI as shown. See Figure 29.

Caution: To prevent damage to the WOPI, support it from behind when attaching the power cables.

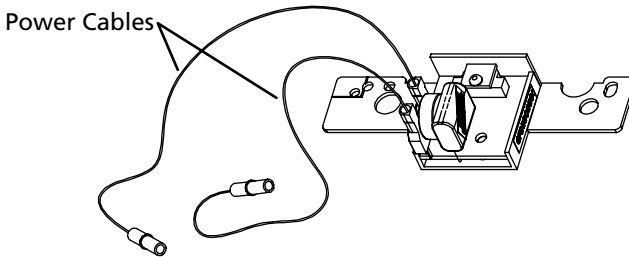


Figure 29. Attaching Power Cables to WOPI

6. Check the black stripe on the underside of the meter disk to make sure it is at least 1/2 inches wide and 4/5 inches long. If not, enhance the mark to these dimensions with a flat, black paint marker. Refer to Appendix A for paint stripe specifications.
7. Position the WOPI on the meter base so that the mounting bracket holes are aligned with the face plate screw holes. Ensure none of the wires are touching the meter disk or shaft. You'll use the face plate screws described in step 8 below to attach the WOPI. See Figure 30.

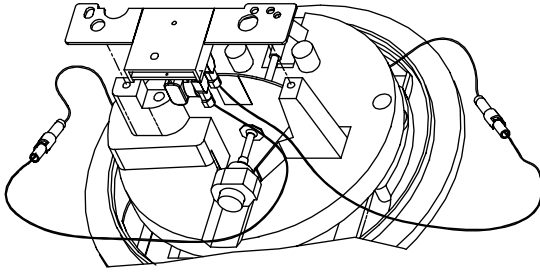


Figure 30. Attaching the WOPI

8. Keeping the WOPI bracket parallel to the meter disk, attach the face plate and tighten the screws. See Figure 31.

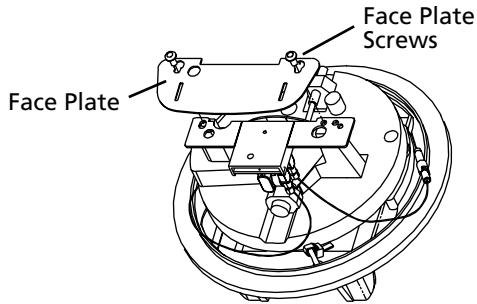


Figure 31. Attaching Face Plate

9. Replace the cover by screwing it back on in a clockwise direction. Ensure all wires are clear of operational parts. See Figure 32.

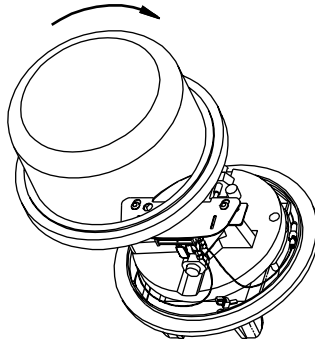


Figure 32. Replacing Cover

Schlumberger/Sangamo Meter

1. Unscrew the cover on the meter in a counter-clockwise direction. See Figure 33.

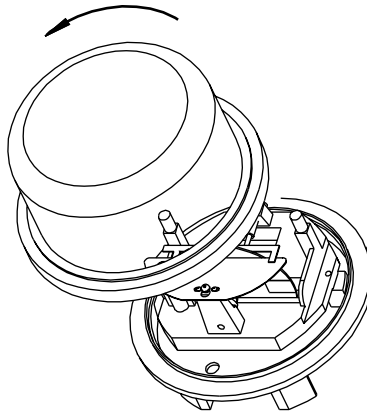


Figure 33. Removing Cover

2. Remove the face plate screw and face plate. See Figure 34.

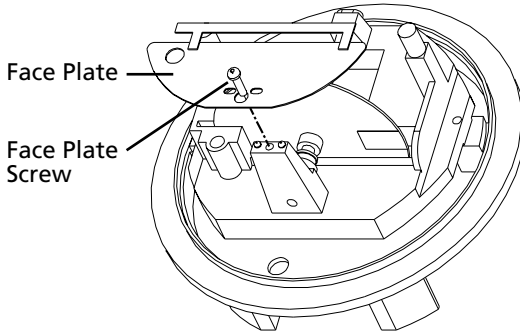


Figure 34. Removing Face Plate

3. Attach the power clips to the copper bus bar on the inside of the meter using needle-nosed pliers. See Figure 35.

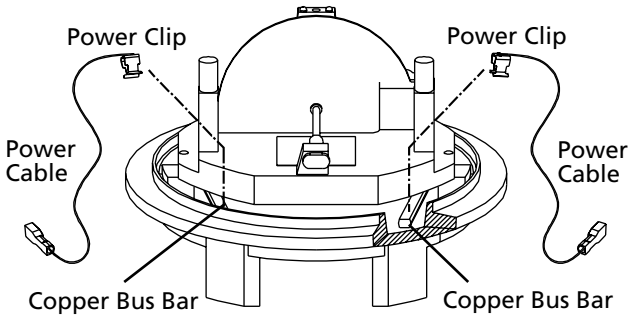


Figure 35. Attaching Power Clips

4. Remove the WOPI from its packaging. If the plastic tabs on either side of the mounting tab have not been broken off, refer to Appendix B.
5. Attach the power cables to the WOPI. See Figure 36.

Caution: To prevent damage to the WOPI, support it from behind when attaching the power cables.

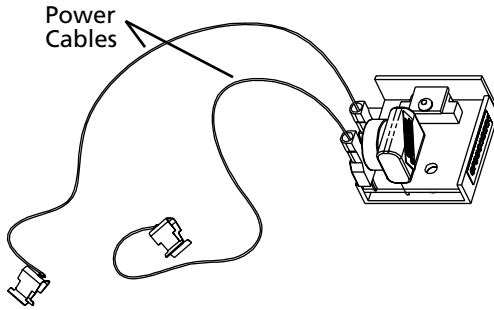


Figure 36. Attaching Power Cables to WOPI

6. Check the black stripe on the underside of the meter disk to make sure it is at least 1/2 inch wide and 4/5 inch long. If not, enhance the mark to these dimensions with a flat, black paint marker. Refer to Appendix A for paint stripe specifications.
7. Attach the WOPI to the WOPI bracket using the 6-32 x 3/8 inch screw and nut provided in the installation kit. See Figure 37.
8. Position the WOPI bracket against the meter base so that the mounting bracket hole is aligned with the face plate screw hole. Ensure none of the wires are touching the meter disk or shaft. See Figure 37.

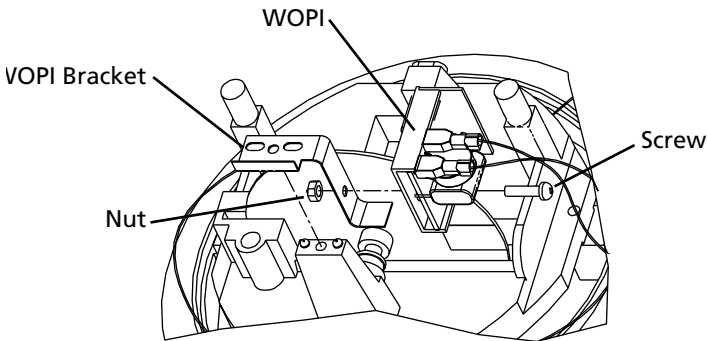


Figure 37. Attaching WOPI

9. Attach the face plate and tighten the screw. See Figure 38.

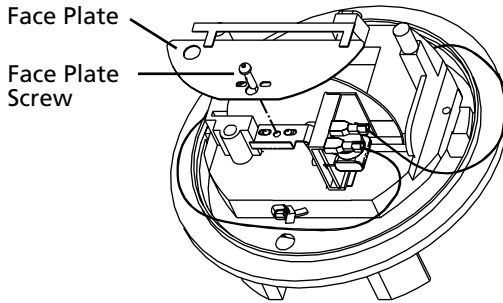


Figure 38. Attaching Face Plate

10. Replace the cover by screwing it back on in a clockwise direction. Ensure that the power cables do not contact the glass and misalign the WOPI. The WOPI must be parallel to the meter disk. See Figure 39.

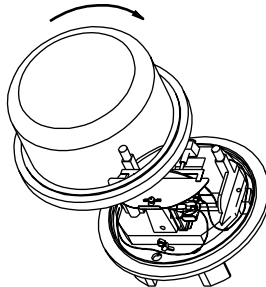


Figure 39. Replacing Cover

GE Meter

1. Unscrew the cover on the meter in a counter-clockwise direction. See Figure 40.

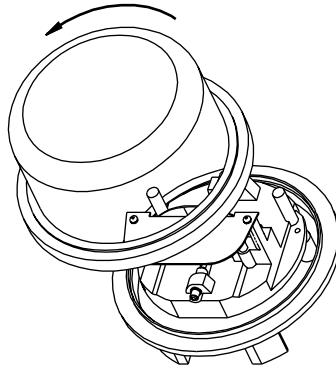


Figure 40. Removing Cover

2. Remove the two face plate screws and face plate. See Figure 41.

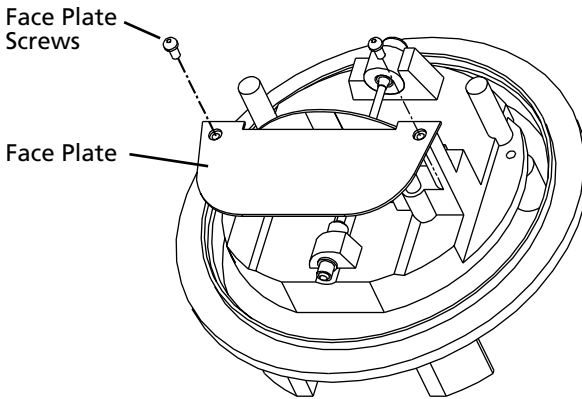


Figure 41. Removing Face Plate

3. If you have an AMR Ready meter, go to step 4. If your meter is not AMR Ready, attach the power clips to the copper bus bar on the inside of the meter using needle-nose pliers (see Figure 42). Then, go to step 5.

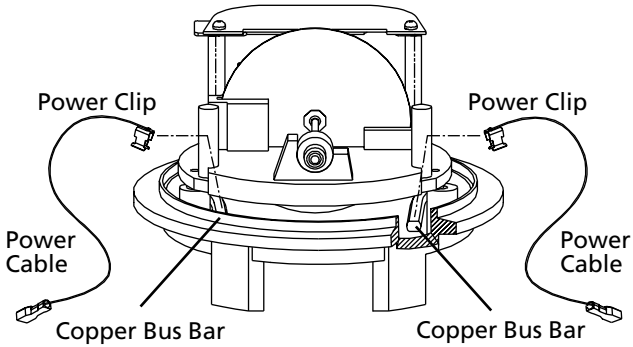


Figure 42. Attaching Power Clips to Non-AMR Ready Meter

4. If your meter is AMR Ready, attach the power cables to the meter using the Mate-N-Lok connectors. See Figure 43.

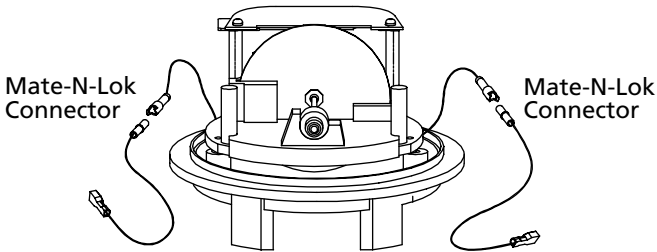


Figure 43. Attaching Power Cables to an AMR Ready Meter

5. Attach the power cables to the WOPI. See Figure 44.

Caution: To prevent damage to the WOPI, support it from behind when attaching the power cables.

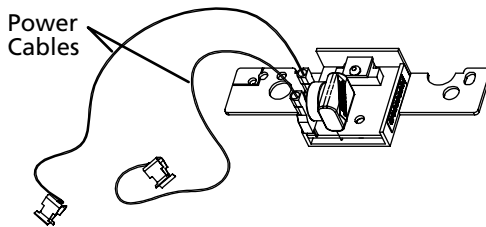


Figure 44. Attaching Power Cables to WOPI

6. Check the black stripe on the underside of the meter disk to make sure it is at least 1/2 inch wide and 4/5 inch long. If not, enhance the mark to these dimensions with a flat, black paint marker. Refer to Appendix A for paint stripe specifications.
7. Position the WOPI bracket against the meter base so that the mounting bracket holes are aligned with the face plate screw holes and the WOPI is parallel to the meter disk. See Figure 45.

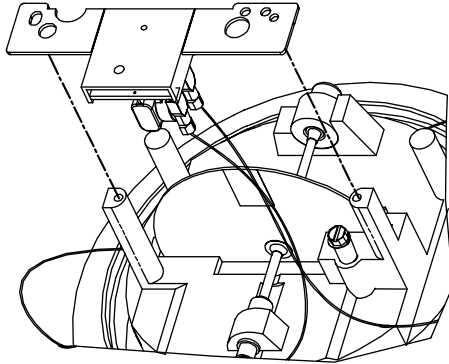


Figure 45. Attaching the WOPI

8. Attach the face plate and tighten screws. See Figure 46.

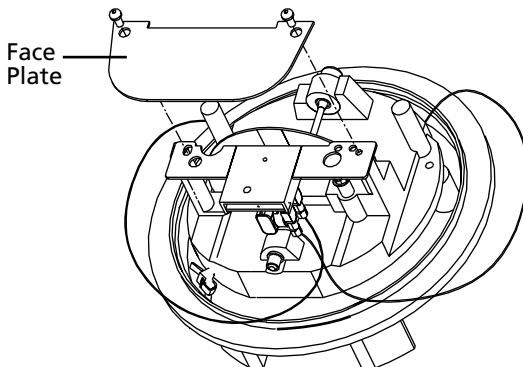


Figure 46. Attaching Face Plate

9. Ensure all wires are clear of operational parts and replace the cover by screwing it back on in a clockwise direction. See Figure 47.

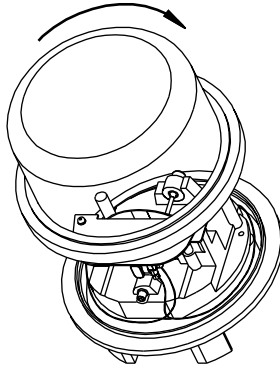


Figure 47. Replacing Cover

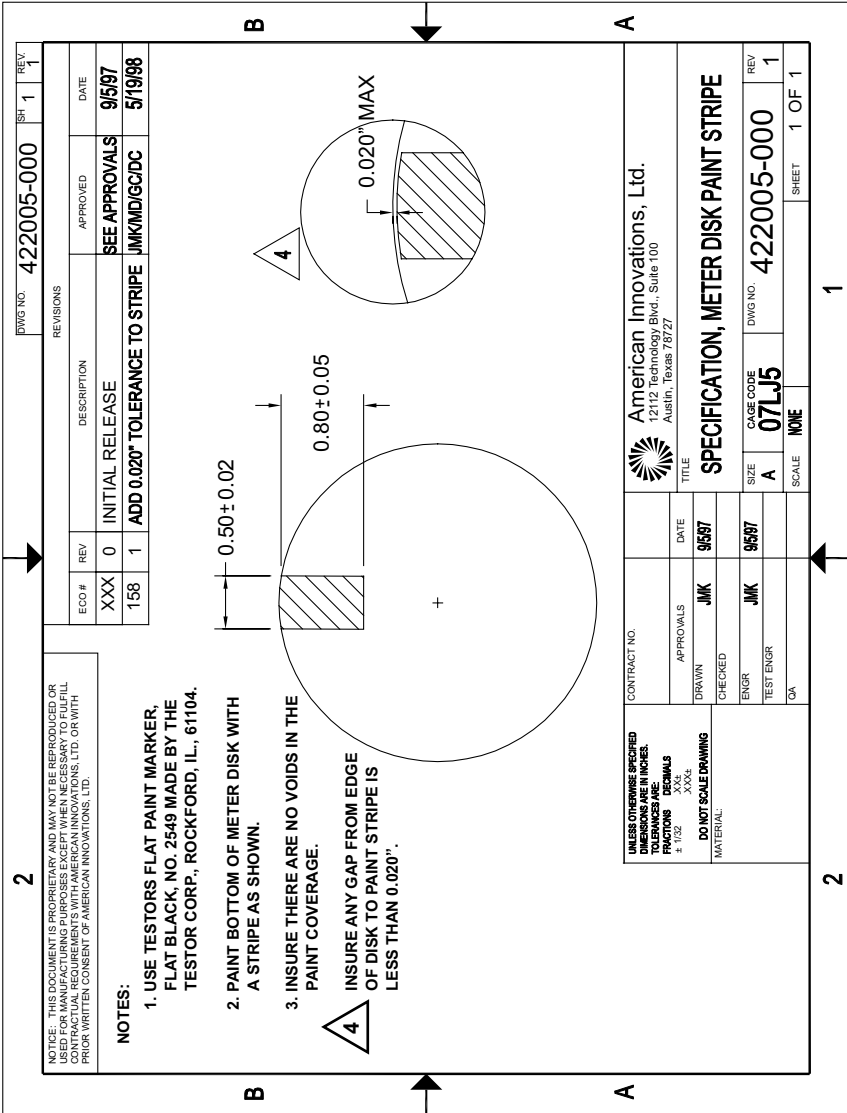


Figure 48. Meter Disk Paint Stripe Specification

Appendix B

Removing Mounting Tabs

There are several meters that require you to remove the mounting tabs (see Figure 49) from the WOPI before installation can begin. The following list of meters are among this group:

- ◆ ABB/Westinghouse Polyphase 9S
- ◆ ABB/Westinghouse Network
- ◆ Schlumberger/Sangamo

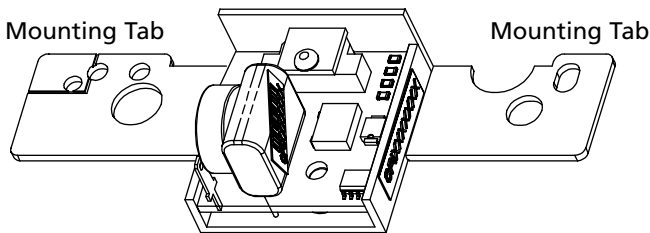


Figure 49. Mounting Tabs

To remove the tabs:

1. Place pressure on the front and top of the WOPI. See Figure 50.
2. Lift the mounting tabs upward one at a time until they snap off as shown in Figure 50. The plastic molding has been scored to ensure a clean break.

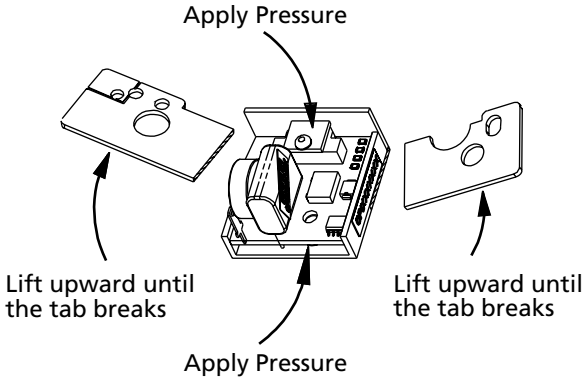


Figure 50. Removing Mounting Tabs



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