

Model RTR®

Recordall® Transmitter Register  
Remote ORION® 3-Wire

# Installation Data

## IDENTIFICATION

The Badger Meter RECORDALL® Transmitter Register (RTR) is available for all remote and pit settings where a Badger Meter water meter can be located. The RTR is permanently sealed to eliminate moisture, dirt, and other contaminants to insure reliable operation in submerged or indoor applications. As the foundation for Badger Meter's MRT products, including ORION, the RTR provides a digital output for superior electronic resolution.

Available for all RECORDALL Disc, Turbo, Compound and Fire Series Meters, each RTR is clearly identified on the face of the dial with an assembly number, unit of measure, and meter model (see figure 1.)

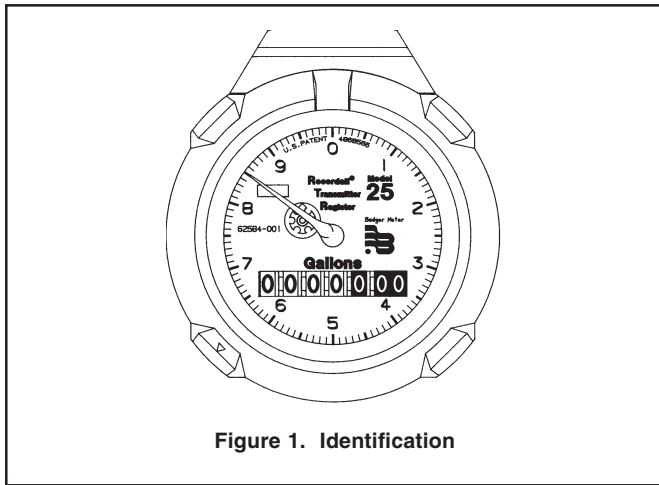


Figure 1. Identification

## CAUTION

Changes and modifications to this product that are not expressly approved by Badger Meter, Inc. will void your authority to operate the equipment as originally approved by the Federal Communication Commission (FCC.)

## REQUIRED MATERIAL

(3) 59761-001 Gel Connectors

## SUGGESTED TOOLS

59983-001 Gel-Splice Crimping Tool  
59989-001 Coax Stripper  
59991-001 Wire Cutting Pliers  
59993-001 Wire Stripper  
Torx Driver  
Optional - 3M™ Scotchlok™ Model E-9C Cartridge Tool  
Optional - 59987-001 VOM Multimeter (Analog)

Before proceeding with installation, be certain that the meter type and size correspond, and that the proper RTR configuration has been supplied for the application.

## INSTALLATION

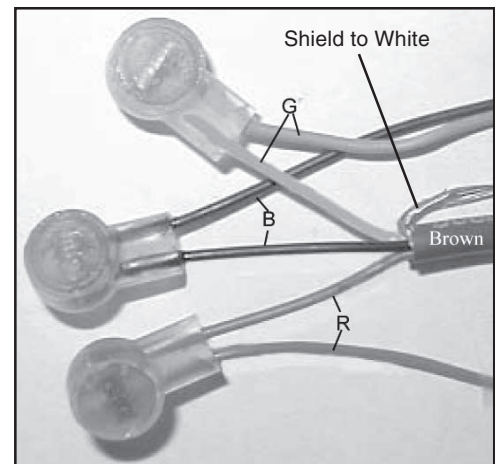
### CONNECTING RTR

## CAUTION

The RTR should only be connected to a Badger Meter approved product. Connection to an unapproved product will void the RTR warranty.

To connect to an AMR module, strip approximately 1 ½" of outer insulation sheath from the RTR and AMR module cables using the 59989-001 Coax Stripping Tool. Use caution in removing the outer sheath so that the inner signal wire insulation is not damaged.

Unwind the outer foil shield from the RTR cable and cut it off even with the outer sheath using the wire cutting pliers.



To connect an Remote ORION module to a Badger register with a brown-insulated cable, connect as follows:

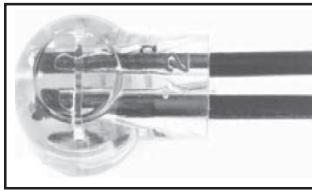
- Red to red
- Green to green
- Black to black
- Shield to white

This configuration supports the cut cable feature (Badger register equipped with a black-insulated cable does not support cut cable.)

Verify the RTR has a brown cable and contains a label with "IT/OR" for ORION Installation. Connect the RTR conductors to the AMR module conductors using insulation gel connectors P/N 59761-001. Crimp the cables completely using a parallel jaw crimper such as Badger Meter P/N 59983-001.

If the wire is cut or broken and requires a field splice after initial installation, connect like colors to maintain proper installation.

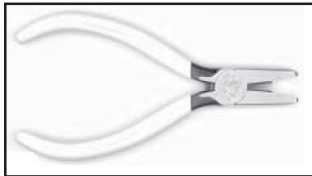
Place the two plastic cable ties on wires and tighten securely for strain relief. Remove excess cable tie with wire cutting device.



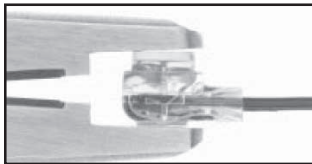
Push the wires that are to be connected together as far as possible into the connector.

### CAUTION

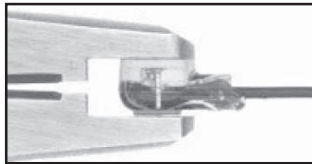
Do not strip any insulation from the ends of the wires before you push them into the connector.



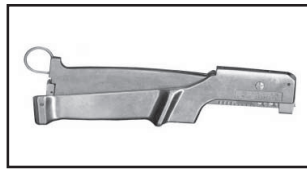
Crimping Tool



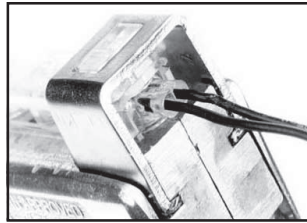
Place the connector (with wires) into the jaws of the crimping tool.



Crimp the connector by squeezing the handles until the connector looks like this. Continue to apply pressure for three seconds.

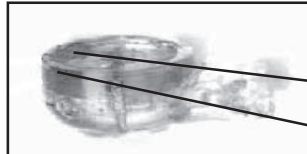


3M Scotchlok Model E-9C Cartridge Tool

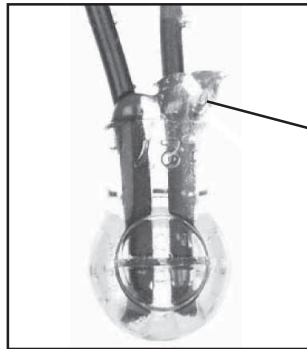


If using a 3M Scotchlok Model E-9C Cartridge tool, push the ends of the wires to be connected into the connector at the end of the crimping tool, as shown to the left.

Then squeeze the crimping tool handle until it pushes the connector (now crimped) out of the tool when you release the handle.



A connector is crimped properly if the top of the movable, yellow center part is flush with the top of the connector body.



### CAUTION

Crimping the connectors sometimes squeezes some sealant out of them. The sealant protects the inside of the connector against insects, moisture, and other contaminants.

The sealant may cause minimal eye and skin irritation. Avoid eye contact. Avoid prolonged or repeated skin contact.

### TESTING

After connections are complete, test the entire installation including the RTR, wiring, and remote module for proper operation in accordance with the instructions supplied with the module.

Install the RTR on the water meter and secure it using the Torx screw provided.

### TROUBLE SHOOTING

An analog ohm meter will show an "open" reading when connected across the OUTPUT leads of the RTR. When operating the RTR, the ohm meter should show a momentary deflection toward zero when the RTR sends a signal.

### LICENSE REQUIREMENTS

This device complies with Part 15 of the FCC Rules. Operation of this device is 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. Any changes made by the user not approved by Badger Meter can void the user's authority to operate the equipment. No license is required by the utility to operate a ORION meter reading system.

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[www.badgermeter.com](http://www.badgermeter.com)  
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