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 assure reliable operation in submerged or indoor applications. As the foundation for Badger Meter's MRT products, including TRACE®, Itron® ERT®, ORION® and other Badger® approved AMR solutions, the RTR provides a digital output for superior electronic resolution.

Available for all RECORDALL Disc, Turbo, Compound and Fire Service 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.)

SUGGESTED TOOLS

- 59983-001 Gel-Splice Crimping Tool
- 59989-001 Coax Stripper
- 59991-001 Wire Cutting Pliers
- 59993-001 Wire Stripper
- TORX® Driver
- 59987-001 VOM Multimeter (Analog) (OPTIONAL)

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.

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.

Your RTR will either have a factory installed two-conductor cable (black) or a factory installed three-conductor cable (brown) for connection to an AMR module.

If the wire is cut or broken on either a 2 or 3 wire RTR and requires a field splice after initial installation, connect like color wires to maintain proper installation.

To connect to an AMR module, strip approximately 1½” 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. For two conductor cables, do not cut the uninsulated shield drain wire.

RTR with two wires (black cable)

Connect the RTR cable conductors to the AMR module wires using gel-filled connectors, P/N 59761-001, provided in the installation kit. Crimp the cables completely using a parallel jaw crimper such as Badger Meter P/N 59983-001. Polarity must be observed when connecting the RTR to the remote module. Badger Meter, Inc. wiring standards use the black conductor as the negative (−) conductor and the red as the positive (+) conductor.

Place the two plastic cable ties P/N 34776-001 on wires and tighten securely for strain relief. Remove excess cable tie with wire cutting device.

OPTIONAL MATERIAL

- 62440-001 Reel of Belden #8451 2-conductor wire (2000')
- 64153-001 Reel of Belden #9770 3-conductor wire (1000')

REQUIRED MATERIAL

- 62084-001 RTR Splice Kit
  Contents:  (3) 59761-001 Gel-Connectors
            (2) 34776-001 Cable Ties
            (1) 62085-001 Splice Enclosure

Optional wire connection diagrams are shown for your convenience.

TORX® Driver

62440-001 Reel of Belden #8451 2-conductor wire (2000')
64153-001 Reel of Belden #9770 3-conductor wire (1000')

Figure 2. 2 Conductor RTR Splice Diagram

RTR TRACE TRACE TRACE TRACE TRACE
Pit/Remote Pit/Remote Pit/Remote Pit/Remote Pit/Remote

Itron® Pit

Red Red Red Red Red
Black Black Black Black Black
Uninsulated wire Uninsulated wire Don’t connect Uninsulated wire Uninsulated wire

*For field splice information please refer to Itron Pit ERT® Modules 40W-1 and 50W-1.

Place the two plastic cable ties P/N 34776-001 on wires and tighten securely for strain relief. Remove excess cable tie with wire cutting device.

Figure 3. Strain Relief Diagram

CABLE TIES
(Remove Excess)

GEL-SPlice

Installation Data
**RTR® with three wires (brown cable)**

For connection to ORION® Transmitter, Hexagram® Star Module or RAMAR® V4 Transpondit, verify the RTR has a brown cable and contains a label with either an ‘HE’ for connectivity to Hexagram or an ‘RA’ for connectivity to RAMAR. Using the chart below, connect the RTR conductors to the AMR module conductors using insulation displacement gel-filled splices, P/N 59761-001 provided in the installation kit. Crimp the cables completely using a parallel jaw crimper, P/N 59983-001.

For connection to an Itron® remote ERT®, verify that the RTR has a brown cable and contains an ‘IT’ on the label. For more information on the installation instructions for the Itron remote ERT, please refer to Itron’s Installation Remote ERT Modules 40W-1 and 50W-1.

<table>
<thead>
<tr>
<th>RTR</th>
<th>ORION</th>
<th>Ramar V4</th>
<th>Hexagram</th>
<th>Itron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
<td>Wire #2</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Black</td>
<td>Black</td>
<td>Wire #3</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td>Green</td>
<td>Green</td>
<td>Wire #1</td>
<td>White</td>
<td>Green</td>
</tr>
</tbody>
</table>

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 P/N 34776-001 on wires and tighten securely for strain relief. Remove excess cable tie with wire cutting device.

**PIT INSTALLATIONS**

Insert the entire splice assembly into the filled splice tube P/N 62085-001 as indicated in Figure 6. Close the cover with leads exiting alternate sides as indicated in the drawing.

**TESTING**

After connections are complete, test the entire installation including the RTR, wiring, and remote or pit 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.