

Badger GALAXY

Transmitter for GALAXY Fixed Network

Installation Data

Transmitter Application

The Badger® GALAXY® Transmitter (TR3) is designed for fixed-network water meter reading in indoor/outdoor remote installations as well as pit/vault installations that are subject to flooding or submergence. The transmitter can be mounted on an indoor or outdoor wall, basement floor joists or beneath a plastic or composite lid.



Transmitter Compatibility

The GALAXY Transmitter can be used with all Badger Recordall® Transmitter Registers (RTR®), Badger Absolute Digital Encoders (ADE®) or the Hersey®, AMCO®, Neptune® and Sensus® three-wire competitive encoders.

Each Recordall® Transmitter Register (RTR®) and Absolute Digital Encoder (ADE®) is identified on the dial face with an assembly number, unit of measure and meter model.



Badger Recordall Transmitter Register (RTR)



Badger Absolute Digital Encoder (ADE)

Factory Shipments

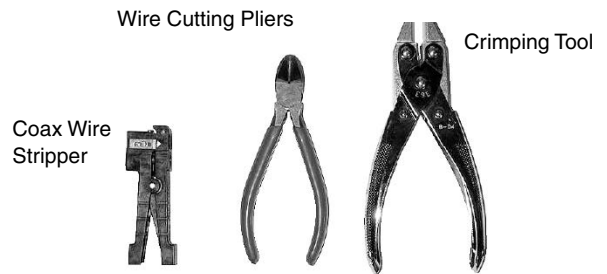
The GALAXY Transmitter and the RTR register or ADE encoder can be either factory wired with a pre-defined length of lead wire, or the two units can be shipped separately and connected in the field.

All transmitters are shipped factory programmed to the utility's FCC-assigned frequency.

The transmitter is shipped in a dormant, non-transmitting condition and is activated at installation.

Installation Tools

61658-003	TORX® #T-10 Driver (not shown)
59989-001	Coax Wire Stripper
59991-001	Wire Cutting Pliers
59983-001	Gel Splice Crimping Tool



User Supplied Materials

Users are required to supply all mounting materials. This includes the hardware and fasteners to mount the transmitters to the specific surface. The required tools will depend on the type of mounting hardware used.

Transmitter Location

The transmitter must be located on a flat surface in suitable indoor, outdoor or submersible environments.

For optimum radio performance, indoors or outdoors, mount the unit as high as possible with minimal surrounding obstructions and a clear line-of-sight signal path to the receiving antenna (repeater or Gateway receiver).

For optimal radio transmission when mounting in a pit or a vault, make sure to mount the transmitter at or near the center, when possible.

Keep the transmitter away from large metal objects, such as water heaters or furnaces that may block the signal path.

Mounting a GALAXY Transmitter

Carefully remove the GALAXY Transmitter and the RTR register or ADE encoder from the shipping carton and inspect the units for damage.

Retain any additional contents of the carton for possible use in mounting the transmitter in the field.

Before proceeding, verify that the meter type and size correspond with the supplied RTR register or ADE encoder configuration.

Ensure that the mounting surface is flat. Mount the transmitter using appropriate mounting hardware.

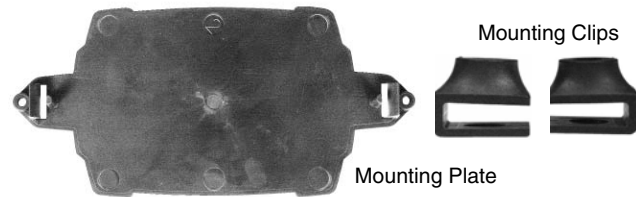


Mounting Hardware

Mounting plate screws (not supplied) should be #6 stainless steel and preferably pan head screws with flat bottoms. If utilizing the mounting plate, be sure to snap the plate on the transmitter BEFORE screwing it into place.

Mounting clip screws (not supplied) should be ¼-20 thread. The length of the stainless steel screws should equal the pit lid thickness, plus ½ inch, minimum.

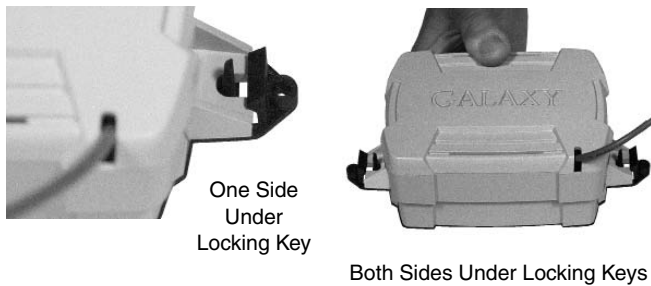
Caution: When mounting the transmitter and the mounting plate, do not overtighten the screws. Maximum torque on the mounting clips should not exceed 22 in-lbs. Maximum torque on the mounting plate is dependent on several additional external variables. Please use care not to over tighten.



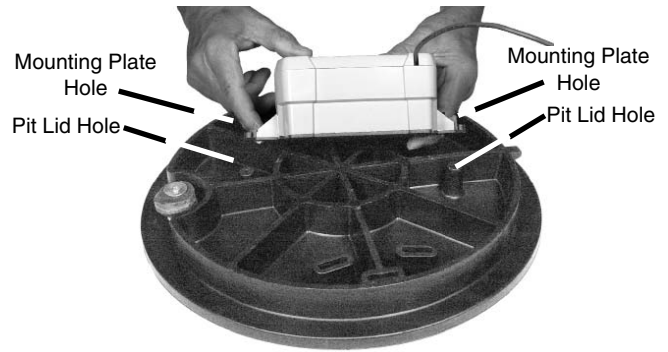
When installing in submersible environments, the transmitter should be mounted to the underside of a plastic or a composite pit lid with the accessory mounting plate or with the mounting clips. This will depend on the type of pit lid used at the installation.

Mounting a GALAXY Transmitter Under a Plastic or Composite Pit Lid with Standard Mounting Bosses

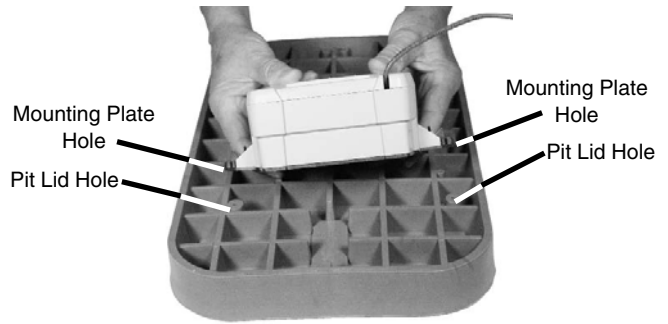
1. Position the GALAXY Transmitter onto the mounting plate.
 - a. Place one side of the transmitter mounting tab under a locking key.
 - b. On the opposite side, push down, under the other locking key to snap the unit into place.



2. Remove the pit lid and turn it over.
3. Position the mounting plate and transmitter over a flat area on the pit lid. Align the two mounting holes with the pit lid's mounting bosses.

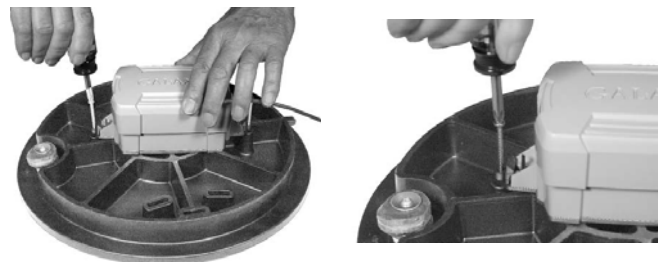


Round Pit Lid

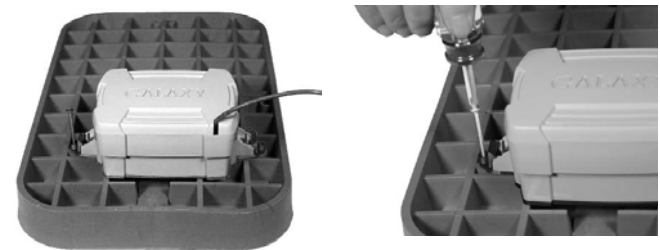


Rectangular Pit Lid

4. Screw the transmitter mounting plate onto the pit lid's mounting bosses with #6 stainless steel screws. Please see maximum torque requirements.



Round Pit Lid

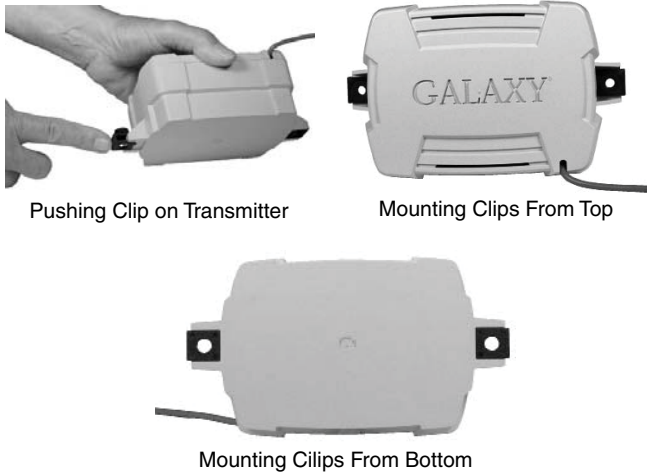


Rectangular Pit Lid

5. Install the RTR register or ADE encoder onto the water meter. Secure it with the provided tamper-proof screw.

Mounting a GALAXY Transmitter Under a Plastic or Composite Pit Lid Without Mounting Bosses

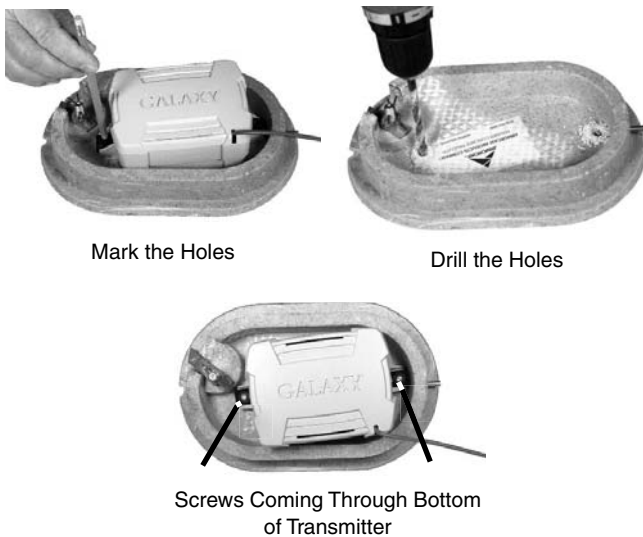
1. Attach the two mounting clips onto the transmitter with the flat side of each clip facing the transmitter bottom.



2. Remove the composite pit lid and turn it over. Ensure that the area inside the pit lid is flat. Adjust the GALAXY Transmitter so that it fits in the bottom of the pit lid.

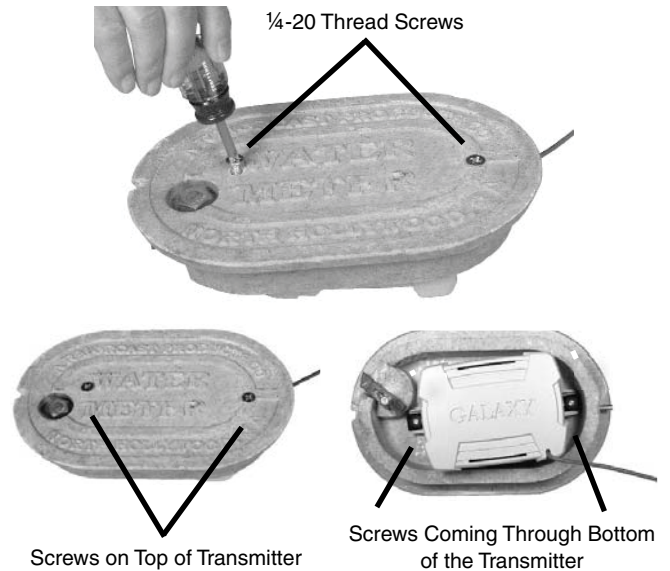
3. With a pencil, mark the two endpoint holes.

4. Drill the two holes for ¼-inch screws.



5. Position the transmitter on the under side of the pit lid.

6. Screw the transmitter on with ¼-20 thread screws.



7. Install the RTR register or ADE encoder onto the water meter. Secure it with the provided tamper-proof screw.

Note: GALAXY cannot be installed under a metal pit lid.

Mounting a GALAXY Transmitter on a Wall or Vertical Surface

A floor joist along an outside basement wall is an ideal location for an transmitter. Mount the transmitter away from large, metal objects, such as water heaters or furnaces that may block the signal.

For optimum performance outdoors, mount the transmitter as high as possible with minimal surrounding obstructions and a clear line-of-sight signal path to the receiving antenna (repeater or Gateway receiver).

1. Position the transmitter on the wall and mark the two mounting holes.

Note: Be sure the transmitter is positioned so that the cable exits at the bottom right. This ensures that the antenna is at the top of the transmitter.

2. Drill the two mounting holes in the wall (if needed).

3. Place an anchor in each hole (if needed).

4. Position the transmitter over the holes and mount it with the appropriate size screws.



Drill Two Holes



Place an Anchor in Each Hole



Screw in Transmitter



Transmitter On Wall

5. Install the RTR register or ADE encoder onto the water meter. Secure it with the provided tamper-proof screw.

Transmitter Activation

The GALAXY Transmitter is shipped in a dormant, non-transmitting condition.

Smart-Activation starts the transmitter broadcasting metering data once the encoder senses the first usage of water. Therefore, no field programming or special tools are necessary at installation.

To verify that the transmitter is active, use a radio scanner tuned to the GALAXY Transmitter's frequency (found on the transmitter's label).

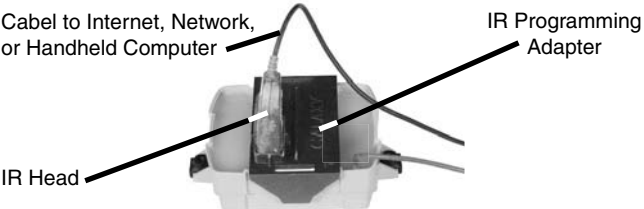
Once programmed to a utility's frequency, the radio scanner hears the GALAXY Transmitter's RF broadcast.

Forcing a Transmission/System Check

After activation, a transmitter can be forced to send a reading.

To do so, use the Badger Meter infrared (IR) head and GALAXY programming software in conjunction with the IR port on the transmitter.

Use the IR programming adapter, part number 66632-001, to hold the IR head in place.



The transmitter network reception can be verified through an Internet or network-connected computer, or a handheld computer.

Disabling the Transmitter

Once activated, a properly operating transmitter should never be turned off.

A transmitter can be disabled for special circumstances, such as a return shipment of a warrantied unit.

To disable a transmitter, use the Badger Meter handheld tool with GALAXY programming software to communicate with the transmitter via its infrared port.

Wiring the Transmitter to an Encoder

The GALAXY Transmitter may be factory wired to a Badger Meter transmitter with up to 75 feet of wire. Three to ten feet is standard.

The transmitter module and the encoder can also be shipped separately and connected at installation.

Using the Coax Stripper tool, part number 59989-001, strip about 1½ inches of outer insulation sheath from the transmitter and encoder cables.

Use caution. Do not nick or damage the inner, signal-wire insulation.

Unwind the outer foil shield from the transmitter cable and with a cutting device, cut it off. Make the cut even with the outer sheath.

Wire the transmitter to the encoder according to the guidelines chart below.

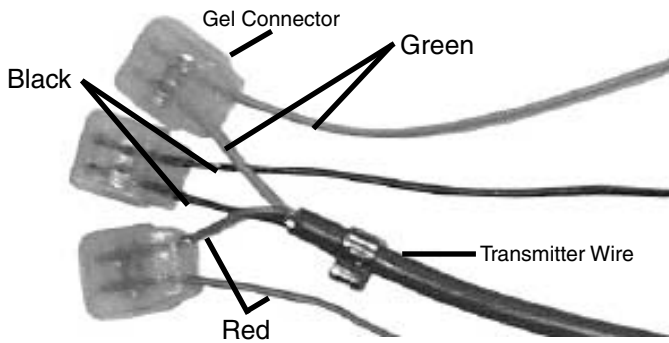
1. Using the insulation gel connectors, connect the transmitter wires and encoder cable wires.

Note: *The encoder must be programmed to communicate using Sensus protocol, three-wire mode.*

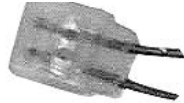
CAUTION

Do not strip any more insulation from the ends of the wires before pushing them into the connector.

GALAXY Universal	Badger RTR [®] , ADE [®]	Sensus ICE [®] , ECR [®]	Hersey Translator [®]	AMCO/ABB Scancoder [®] , InVISION [®]	Neptune ARB V [®] , ProRead [®]
Red	R	R	R	G	B
Green	G	G	G	R	R
Black	B	B	B	B	G



2. Push the wires, to be connected together, as far as possible into the gel connector.



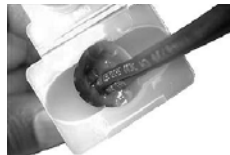
3. With the Gel Splice Crimping Tool, part number 59983-001, place the gel connector and wires into the crimping tool's jaws.



4. Crimp the gel connector by squeezing the tool handles until the gel connector is completely compressed. Apply pressure for three seconds. The crimping tool is designed to prevent applying too much pressure to the gel connector.



5. Place all wires and gel connectors into the field splice tube. Make sure the wires and gel connectors are inserted as far as possible into the field splice tube.



Gel Connectors Going into Field Splice Tube Gel Connectors Inserted into Field Splice Tube

6. Close the field splice tube lid.

The Badger Galaxy connection is now complete.

Transportation

The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. When powered up, the GALAXY Transmitters are considered operating. They cannot be shipped by air.

FCC Compliance

This product complies with Part 90 of the Federal Communications Commission rules. An FCC license is required for operation of the GALAXY system.

CAUTION

Changes or modifications to the equipment that are not expressly approved by Badger Meter, Inc. could void your authority to operate the equipment.

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