

### Required Tools


- ▶ Anti-static wrist strap
- ▶ Small slotted screwdriver
- ▶ Wire stripper and wire cutter
- ▶ Adjustable wrench
- ▶ Wire to connect power supply to voltage supply
- ▶ Voltmeter
- ▶ Tools to prepare mounting surface
- ▶ Hardware to mount enclosure
- ▶ Wire nuts
- ▶ Windows® Laptop PC
- ▶ Bullhorn® Tools configuration software
- ▶ USB mini-b cable

### Installing the Equipment

The following procedures are general steps for a typical installation. For specific instructions, including safety warnings and safety icon descriptions, visit the Bullhorn RMU Support site ([www.support.aiworldwide.com/products/bh2](http://www.support.aiworldwide.com/products/bh2)).

**WARNING:** To prevent electrostatic discharge (ESD) damage when handling electronic equipment, always wear an anti-static wrist strap attached to an unpainted, grounded metal object. Ensure the wrist strap has maximum contact with bare skin.

**WARNING:** Before beginning any wiring to the RM4150, RM4150S, RM4151, or RM4151S, ensure that power has been turned off at the rectifier.

 **NOTE:** For safety precautions for wiring power supply and unit inputs, refer to the *RM4000 Series User Guide* available from the Bullhorn RMU Support site.

## 1 Select Location for Unit

- 1 If placing the unit within rectifier, find a secure location. If placing the unit on bottom of rectifier, place either to the front or back to ensure that unit does not restrict air flow.



RM4150 Placed in Rectifier

- 2 If mounting the unit inside the rectifier, attach the included magnetic mounting disks to each corner and secure unit to side **OR** drill holes in side and secure unit with screws and bolts in each corner.

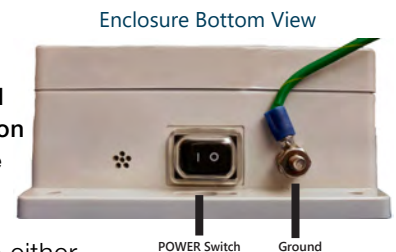


RM4150 Mounted to Rectifier Door

**NOTE:** See page 3 for instructions on mounting an alternative waterproof enclosure for the unit.

## 2 Connect Ground and Input Wires

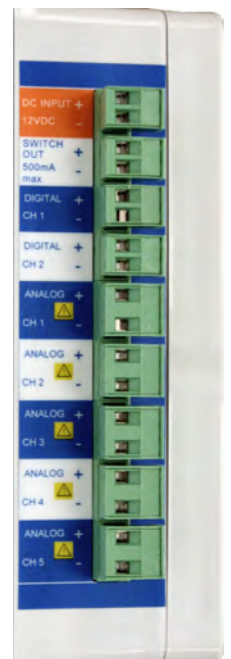
**IMPORTANT:** Only ground the RMU if it is mounted on a structure other than the rectifier.



- 1 Connect unit **Ground** to either rectifier ground or to the rectifier frame.
- 2 Connect input devices and relay (for interruption only) to input channels using the following information:

- ▶ **SWITCH OUT:** connect to relay (interruption only).
- ▶ **DIGITAL CH 1 & CH 2:** non-isolated inputs that support digital dry contact closure input devices. DIGITAL CH 1 can also be used as a pulse counter accumulator. DIGITAL CH 2 can be used as an accumulator reset.
- ▶ **ANALOG CH 1 - CH 5:** isolated inputs that support analog  $\pm 150$  V DC, 150 V AC, 4 - 20 mA with external resistor, or active digital.

Input Channels



(Continued on back.)

**WARNING:** If wires are to be buried or covered, use conduit to protect the wires.

# 3 Install Antennas and Power Supply

- 1 Attach **GSM** antenna cable to **GSM antenna port**.
- 2 Attach **GPS** antenna cable to **GPS antenna port**.
- 3 Place antennas on a metal surface outside the rectifier and clear of any obstructions. The base of each antenna is magnetized to ensure stability.
- 4 Install power supply:
  - a Connect power supply to **DC INPUT** connection on unit.
  - b If using an **AC/DC** power supply, connect AC input cable of the power supply to a 100-240 V AC supply/outlet or to an AC breaker.
  - c If using a **DC/DC** power supply, connect DC input cable of the power supply to a 9-36 V DC supply/outlet or to a DC breaker.
- 5 Power on the unit.



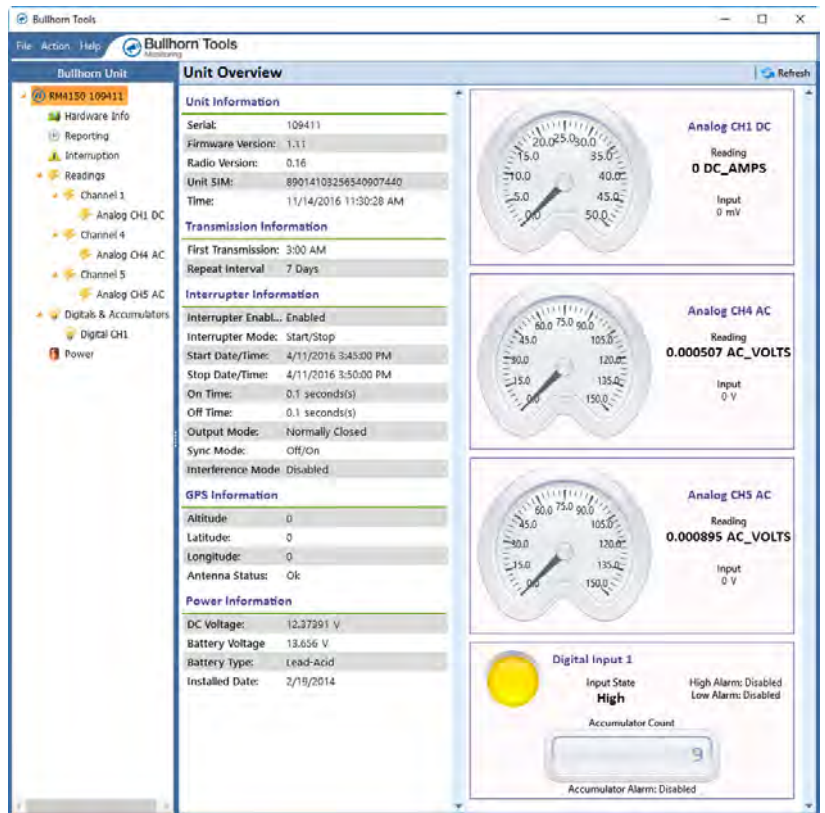
# 4 Configure Unit for Service

The following procedure includes general steps for configuring the RM4150, RM4150S, RM4151, or RM4151S for service using Bullhorn Tools. Before beginning the configuration steps, ensure that Bullhorn Tools is installed on your laptop. The software can be downloaded from the **Downloads** page of the Bullhorn RMU Support site ([www.support.aiworldwide.com/products/bh2](http://www.support.aiworldwide.com/products/bh2)). Instructions are also in the *RM4000 Series User Guide*.

- 1 Connect a USB cable to the unit's **USB CONFIG** port and then to your laptop.
- 2 Start Bullhorn Tools. The **PACKET** light flashes to indicate that a start-up packet has been sent to your Bullhorn Web account.
- 3 If **not** using a saved Template:
  - a Verify **Unit Information** and **Hardware Info**.
  - b Configure **Reporting** settings.

**Note:** Click **Save** after each change.

  - c Configure **Interruption** settings.
  - d Enable **Readings**.
  - e Configure channel settings.
  - f Configure **Digitals & Accumulators** settings.
  - g Set **Power** (battery) date and type.
- 4 Exit Bullhorn Tools and disconnect USB cable.



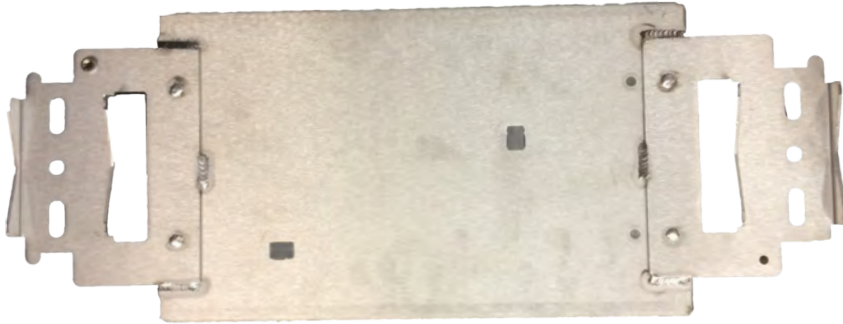
For additional assistance, contact the American Innovations Technical Support team at [support@aiworldwide.com](mailto:support@aiworldwide.com) or 512-249-3400 (toll-free: 800-229-3404).

## Alternate Mounting Instructions

The following procedures are general steps for mounting the waterproof enclosure that can be used to house the RM4150, RM4150S, RM4151, or RM4151S outside of the rectifier.

### 1 Select Location for Enclosure

The waterproof enclosure includes mounting brackets that can be used to mount the enclosure on either a flat surface or on a pole. The mounting hardware kit includes U-bolts and hardware for mounting to a pole. If you plan to install the enclosure onto a flat surface, you will also need a hand drill for the installation.



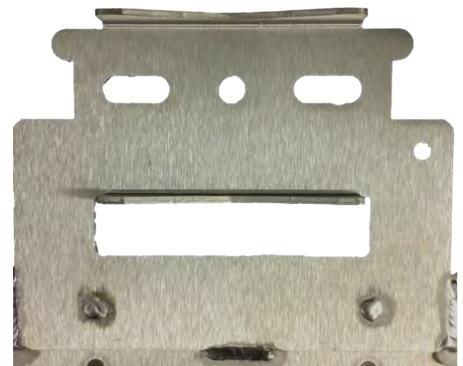
Unit Waterproof Enclosure  
with Mounting Brackets



U-bolt Mounting Hardware

### 2 Mount Waterproof Enclosure

- 1 If mounting enclosure to a pole:
  - a Install one U-bolt around the pole, through the pipe bracket, and then through the top mounting bracket.
  - b Secure U-bolt with washers and nuts provided.
  - c Repeat for the bottom pipe bracket.



Mounting Bracket

- 2 If mounting enclosure to a metal or wooden surface:
  - a Place enclosure against the surface in the location where it will be mounted.
  - b Marks locations of the top and bottom center holes. Set aside enclosure.
  - c Using marks as a guide, drill two holes in mounting surface.
  - d Place enclosure in place and fasten to surface with appropriate hardware. A lag bolt is included for mounting to a wooden surface, such as a telephone pole.