



Installation Instructions - Remote Utility Monitoring (RUM)

Rev 1.1



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 WARNING	
	ELECTRIC SHOCK HAZARD Disconnect electrical supply before installing the Transponder, Power Supply, Relays, Current Transformer or any other components of the Remote Utility monitoring System. Failure to follow these instructions may result in death, serious injury or property damage.

Installation Instructions

The following section contains installation and wiring instructions for the MarineSync RUM Transponder in an outdoor enclosure (pedestal). If technical assistance is required at any point during the installation, contact information can be found on the first page of this manual. MarineSync Corporation is not responsible for damage to the transponder or pedestal caused by incorrect wiring.

Safety Precautions

WARNING

- Installation of RUM Transponders requires working with possibly hazardous voltages. These instructions are meant to be a supplement to aid trained, qualified professionals.
- Turn off all power supplying the equipment before performing any wiring operations. Use a properly rated voltage sensing device to confirm power is off.
- Installations should be done in accordance with local codes and current National Electric Code requirements.
- Equipment used in a manner not specified by this document impairs the protection provided by the equipment. Failure to follow these warnings could result in serious injury or death.

FCC

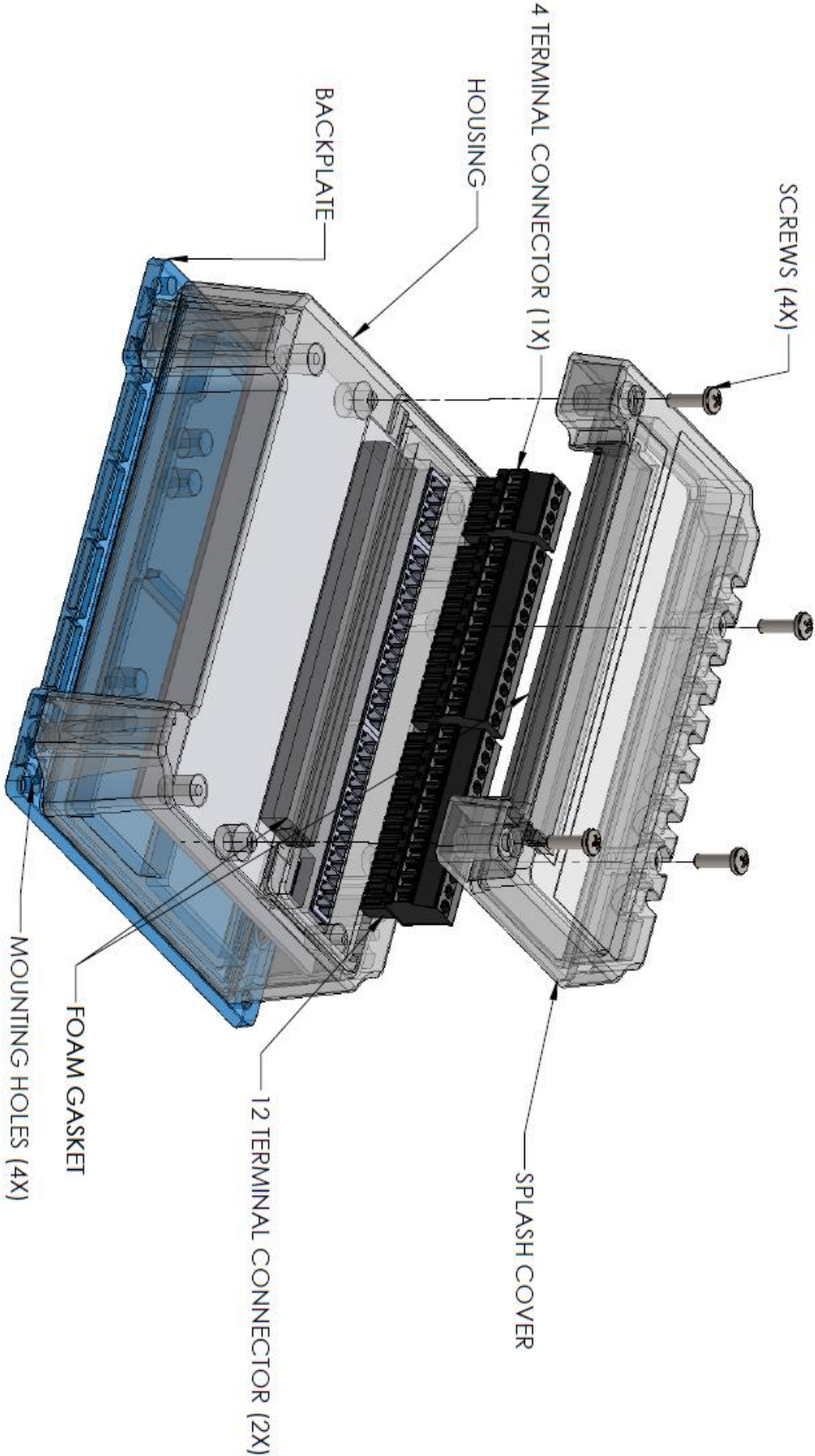
This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * Reorient or relocate the receiving antenna.
- * Increase the separation between the equipment and receiver.
- * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

To satisfy RF exposure requirements, this device and its antennas must operate with a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

RUM Transponder Assembly



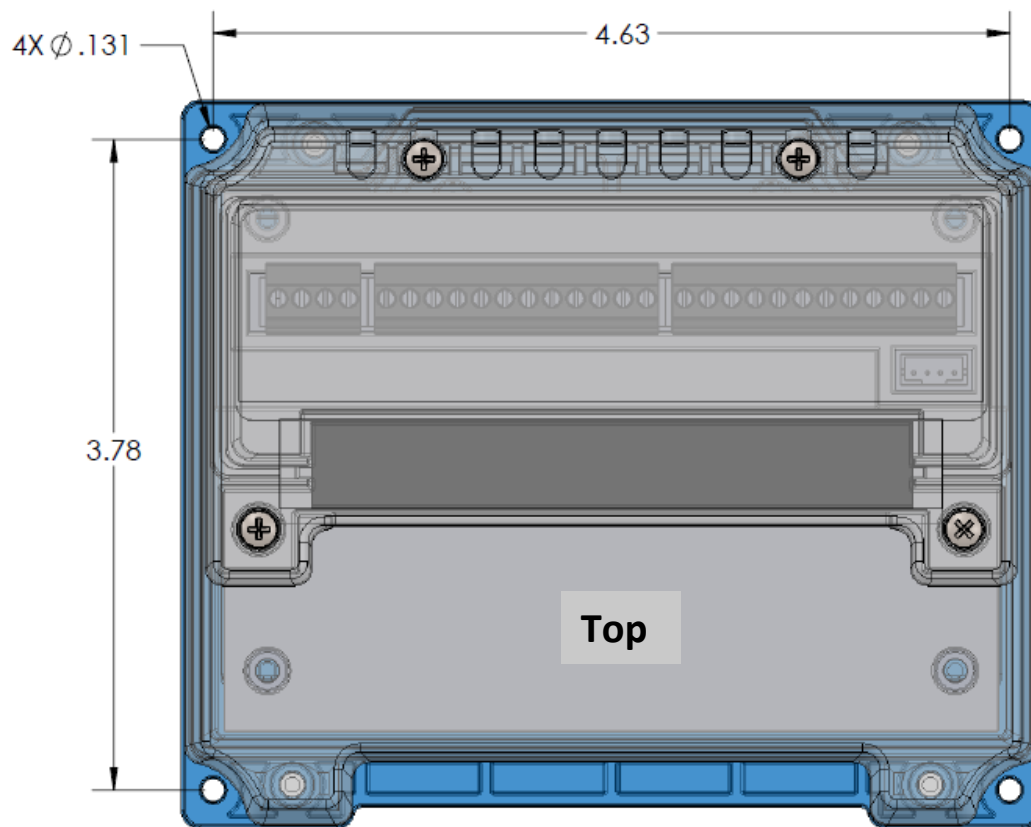
Mounting the Transponder

It is recommended the transponder be mounted near the sub-meter and/or power supply.

The transponder should not be positioned in a manner that makes it difficult to gain access.

The transponder is equipped with an internal antenna. To maximize performance, the transponder should be mounted as high as possible.

Mount the transponder in a vertical orientation where possible. If installing within a weather-resistant enclosure or pedestal, the transponder may be mounted horizontally. Use the (4) mounting holes in the base plate to fasten (**fig. 1**).



MOUNTING DIMENSIONS

Figure 1

Mounting the Power Supply

It is recommended the DC power supply be installed in an accessible location within the pedestal.

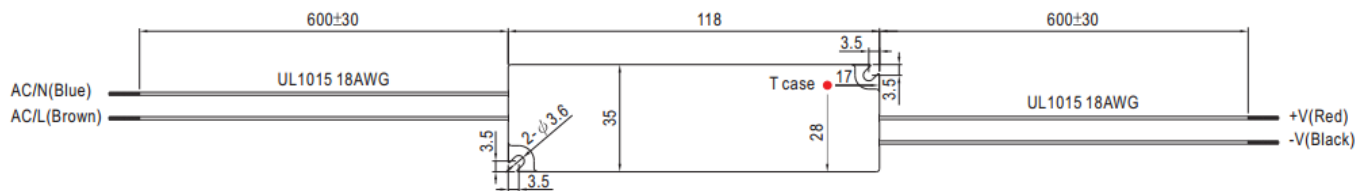
Only use MarineSync supplied AC/DC power supply.

The power supply must be directly wired to an unmetered, uninterrupted power source 100-240VAC.

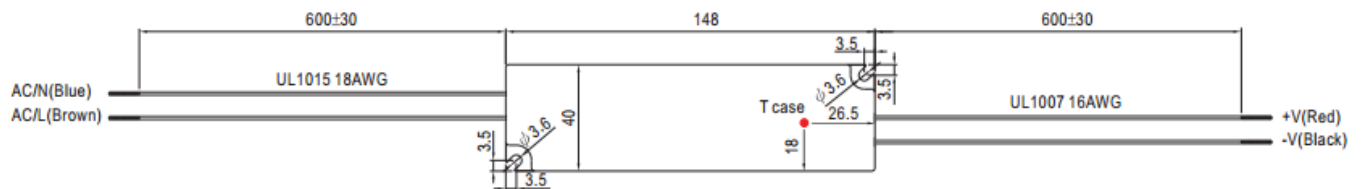
In some applications, the pedestals lighting circuit may provide an adequate connection point.

Ensure the power supply is not installed between a photocell or switch.

Power Supply Dimensions & Mounting



Power Supply: EP2000.000



Power Supply: EP2000.312

Preparing the Transponder

Remove the RUM splash cover using a #1 Phillips Screw Driver. Use caution not to lose the stainless hardware.

To remove the terminal connector from the transponder, firmly pull the desired connector away from the transponder.

As required, use 16-22AWG tinned copper wire for field wiring; strip field wiring to .20 to .24 inches.

Wiring the Transponder

Only use MarineSync supplied AC/DC power supply.

Locate the “Monitoring” connector on the RUM transponder. **Fig 2**

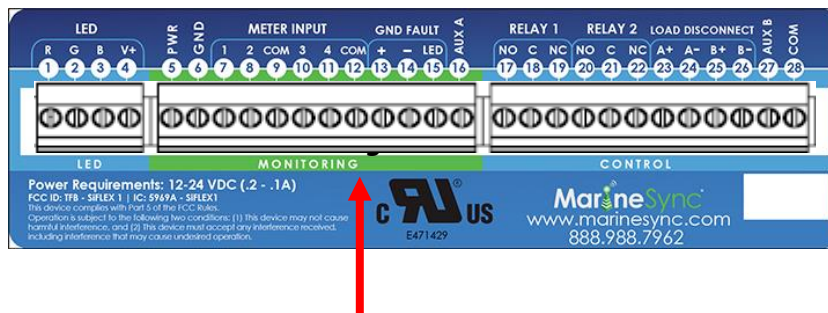


Figure 2

Connect the positive lead from (12-24 VDC) power supply to terminal #5. **Fig 3**

Connect the negative lead from the power supply to terminal #6. **Fig 3**

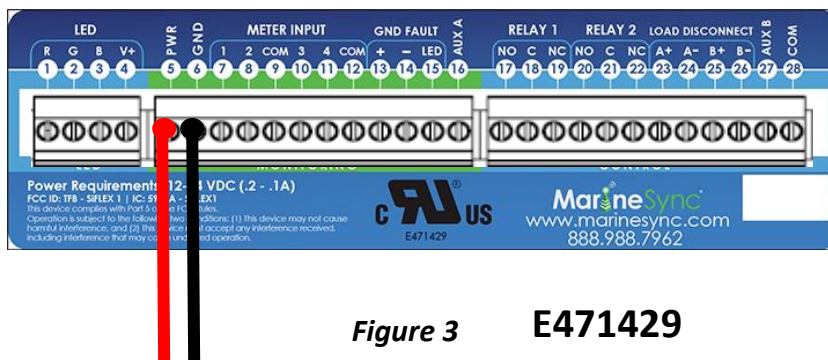


Figure 3

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Remote Utility Monitoring - Connecting a Digital kWh Meter

Preparing the Transponder

Remove the RUM splash cover using a #1 Phillips Screw Driver. Use caution not to lose stainless hardware.

To remove the terminal connector from the transponder, firmly pull the desired connector away from the transponder.

If required, use 16-22AWG tinned copper wire for field wiring; strip field wiring to .20 to .24 inches.

Wiring the Transponder

The RUM transponder accepts up to four (4) meter outputs.

When connecting a kWh meter to the RUM Transponder, only use the Isolated Outputs (ISO) from the meter (fig 1).

Connecting the RUM Transponder to a Counter Output, Display Output, Register Output or 12V Output will permanently damage the RUM Transponder and void the warranty.

Isolated outputs on utility meters are polarity specific.

Connect the Isolated Output (+) from the meter to terminal #7 of the RUM Transponder (**Fig 1**).

Connect the Isolated Common (-) of the utility meter to the RUM Transponder “COM” - Terminals 9 or 12. (**Fig 1**)

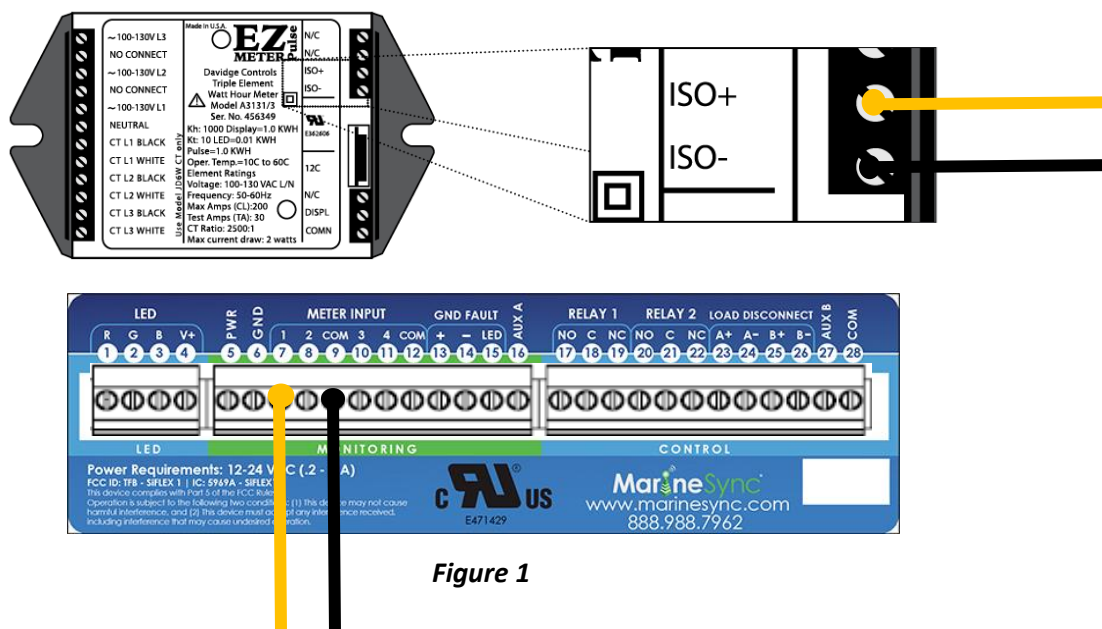
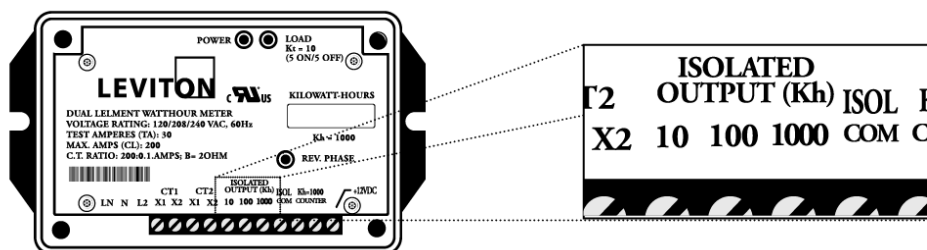


Figure 1

When connecting more than one meter to the RUM Transponder, use terminal #8, #10 and #11.

If the utility meter provides more than one output resolutions (10, 100, 1000), determine the appropriate resolution for your application (**fig 2**) and connect to the RUM meter input. If you need assistance selecting a resolution, contact MarineSync.



Output Resolutions
Isolated 10 = 100 Pulses per kWh
Isolated 100 = 10 Pulses per kWh
Isolated 1000 = 1 Pulse per kWh

Figure 2

Decals have been provided (**fig 3**) to identify the Transponder ID installed at each pedestal. Use the corresponding “input” decal to label the receptacle or side of the pedestal connected to the transponder. Place the decal in a visible location and ensure the decal is adhered in a protected location for future reference.

It is extremely important to properly label the pedestals. The Transponder ID and the meter inputs are used during setup, troubleshooting and system maintenance.



Figure 3

Remote Utility Monitoring – Ground Fault Monitoring

Preparing the Transponder

Remove the RUM splash cover using a #1 Phillips Screw Driver. Use caution not to lose stainless hardware.

Remove terminal connector from the transponder by firmly pulling the desired connector away from the transponder.

Use 16-22AWG tinned copper wire for most field wiring applications, strip field wiring to .20 to .24 inches.

Connecting the Ground Fault Current Transformer (CT)

Only use MarineSync supplied Current Transformer (ES3000.100) or (ES3000.015).

Disable Power at the Pedestal

Determine if the pedestal is wired in “Series” (Daisy Chain) or “Home Run”

If “Series”, install the CT above the buss bar (**fig 1**)

If “Home Run”, install the CT below the buss bar (**fig 2**)

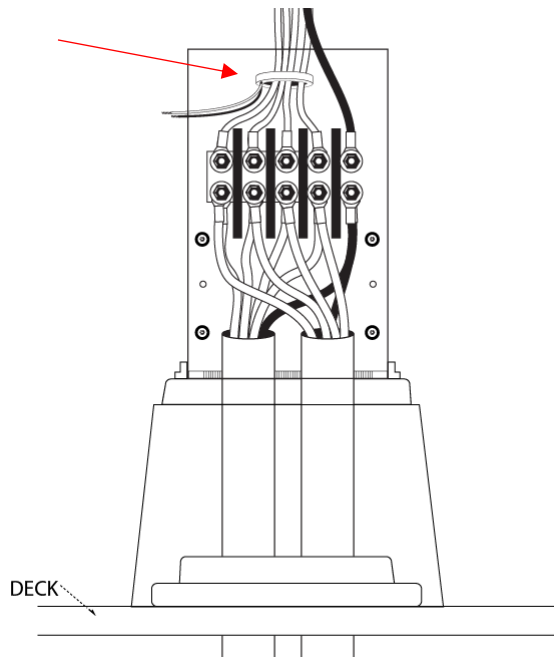


Figure 1

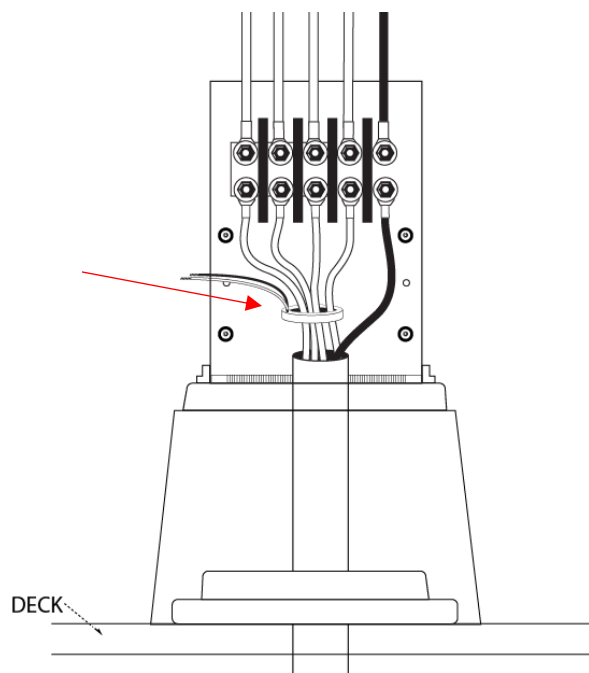
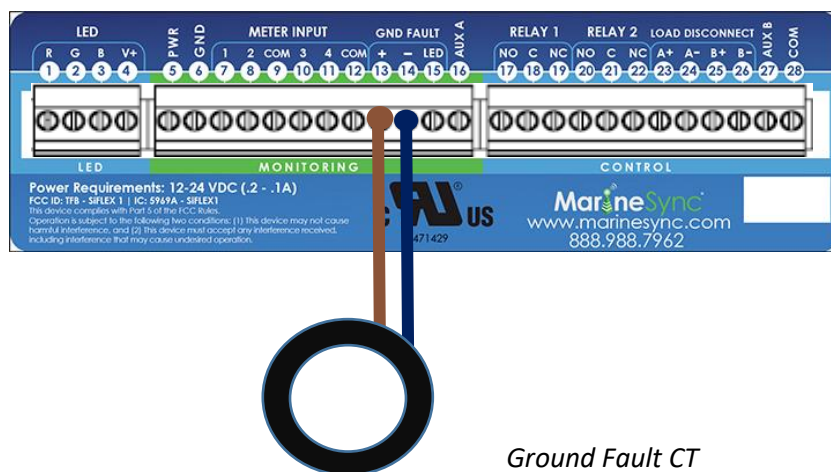


Figure 2

Loosen applicable wiring connection at the buss bar, and slide all conductors, with the exception of ground, through the Current Transformer.

Reconnect conductors to the buss bar and secure.

Connect the brown/blue leads from the Current Transformer to the RUM Transponder – Terminal 13 & 14. This connection is not polarity specific.



Connecting Ground Fault Indicator Light (LED) – *Optional*

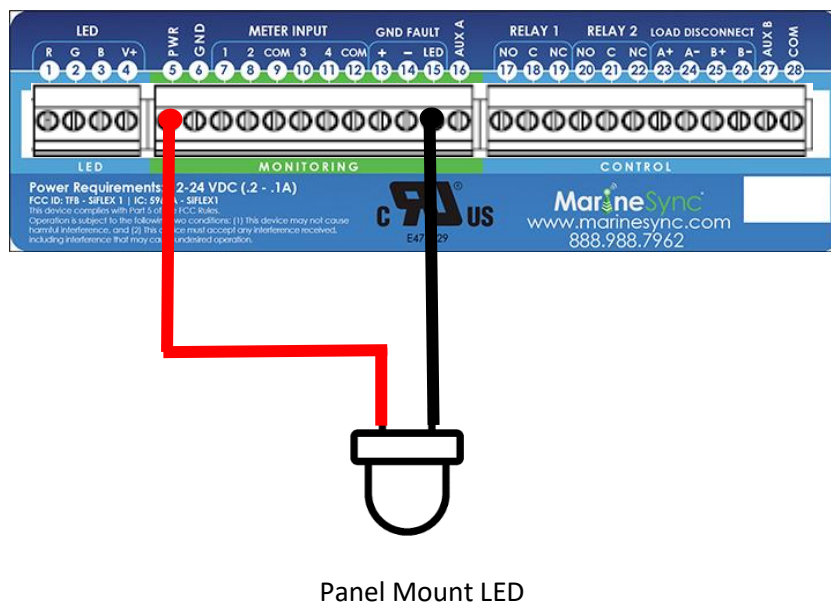
Only use MarineSync supplied LED Indicator Light.

Panel mount the LED in a visible location on the exterior of the pedestal.

Connect the positive lead of the LED to the “PWR” terminal of the RUM Transponder – Terminal 5

Connect the negative lead of the LED to the “LED” terminal of the RUM Transponder – Terminal 16

Light will only illuminate when RUM transponder senses *High* ground fault current. Contact MarineSync for help configuring Ground Fault levels.



Remote Utility Monitoring – Remote Load Disconnect (Relay)

Wiring the Transponder

Remove the RUM splash cover using a #1 Phillips Screw Driver. Use caution not to lose stainless screws.

Wiring terminals (3) are removable by firmly pulling the connector away from the transponder.

Use 16-22AWG tinned copper wire for most field wiring applications, strip field wiring to .20 to .24 inches.

Use a 2.4mm flathead screwdriver for tightening screw terminals on the removable connector (max of 2lbf in torque)

When re-installing connectors, verify proper alignment of terminals with the wiring decal.

Fan all incoming wiring across the lower foam gasket and secure the splash cover to ensure a proper seal.

Mounting and Wiring the Remote Load Disconnect Hardware (Relay)

Only use MarineSync supplied Remote Load Disconnect hardware.

Follow supplemental wiring instruction provided with the hardware. If unavailable, please contact MarineSync for support.

Connecting the Remote Load Disconnect (CT)

The RUM transponder will control up to two (2) independent loads – Load A / Load B

When connecting the Remote Load hardware (Relay) to the RUM Transponder, only use the supplied signal wires.

Signal wiring is polarity specific and must be connected properly.

Connect the red signal wire to the positive pin of all Load Relays.

Connect the black signal wire to the negative pin of all Load Relays.

Make final connection to the RUM transponder based on the desired configuration

Load A – Connector Terminals 23(+) & 24 (-)

Load B – Connector Terminals 25 (+) & 26 (-)