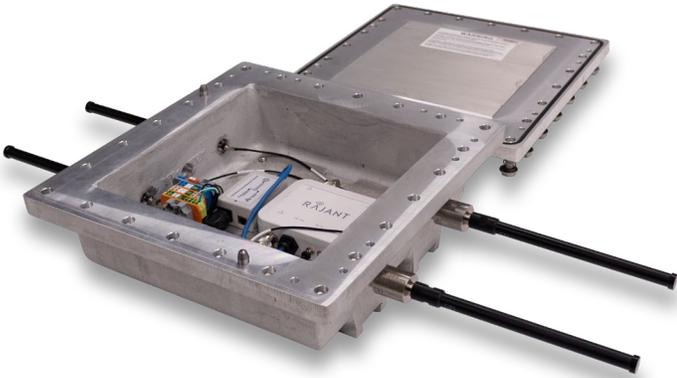# Troubleshooting Guide for the ES1-IS-2450 NEMA 4X Enclosure System for Rajant

This guide provides troubleshooting for the ES1-IS-2450 NEMA4x enclosure system for Rajant, SKU #283384. The guide assumes that the enclosure system has been installed in accordance with the local jurisdiction's regulations for ECP ATEX/IEC Ex explosion-proof enclosures and environments. Please note that some steps have the potential to create electrical sparks or arcing if not performed properly. Only personnel certified and/or trained in the local jurisdiction's regulations for ECP ATEX/IEC Ex explosion proof enclosures and environments should perform the operations outline in this guide.
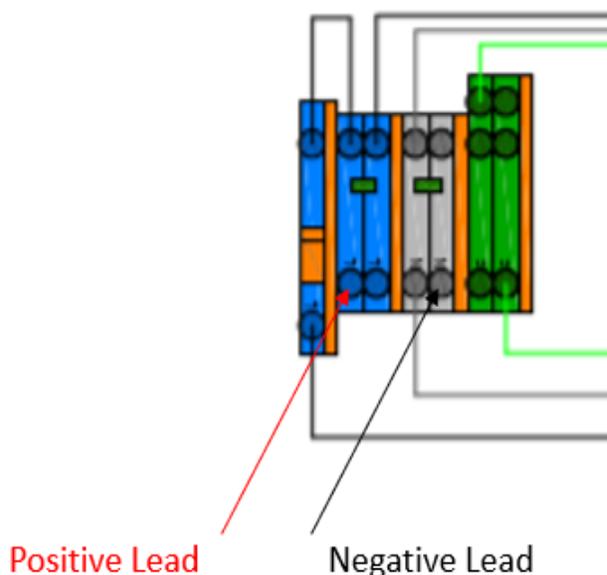
ES1-IS-2450 NEMA 4X Enclosure System
TESSCO Sku 283384

Equipment Required for Troubleshooting

- Digital multimeter with probes
- CAT6 Ethernet cable
- Laptop
- Rajant BC Commander software

Troubleshooting Process

1. Place the multimeter leads to the LINE and NEUTRAL terminal blocks (LINE is the blue terminal blocks with black wires; NEUTRAL is the white terminal blocks with white wires; GND is the green terminal block with green wires).

Positive Lead   Negative Lead

2. Verify that the voltage is between 90 ~ 264 Vac. If the voltage is outside this range, then check the source voltage and adjust so that it is in the input voltage range of the PoE power supply.

3. Verify that the AC power cable from the enclosure is properly connected to the source: AC LINE (black); AC NEUTRAL (white); GND (green) are connected.
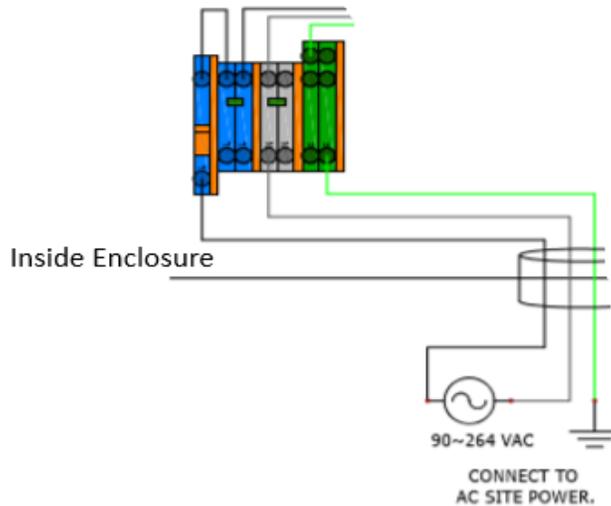

4. Verify the LED operation of POE1. A green LED means the injector is operational. If the LED is nonoperational or red, then the PoE injector is not operational.

5. Verify that the 2.4 GHz antennas are connected to the ports on the top of the enclosure (MO1: Port A and MO1: Port B) per the door diagram.

6. Verify that the 5.0 GHz antennas are connected to the ports on the bottom of the enclosure (MO1: Port C and MO1: Port D) per the door diagram.

7. Verify the LED operation of MO1. A green LED means the radios are connected. An amber LED means the radios are not connected. If the LED is nonoperational, then the PoE injector is not operational.

8. Connect a laptop to the Rajant PoE power supply (POE1:DATA IN) with an ethernet cable.

9. Open the control panel on the computer. Select NETWORK AND INTERNET -> CHANGE ADAPTER OPTIONS.

10. Select the adapter being used from the file menu. Select PROPERTIES.

11. In the PROPERTIES menu, scroll down to the INTERNET PROTOCOL VERSION 4 (TCP/IPV4) item, select it, then select properties.

NOTE: This window allows manual configuration of the network adapter's IP addresses.

12. Select "USE THE FOLLOWING IP ADDRESS".

13. Enter 10.26.50.2 under "IP ADDRESS". Do not use a 1 in the last octet.

14. Enter 255.0.0.0 under "SUBNET MASK". Press the "OK" button and then close the window.

15. Open the "RAJANT BC COMMANDER" application on the laptop. You should see all the breadcrumb radios on the network in the "BREADCRUMB TABLE" tab.

16. Identify the radio at the node you are troubleshooting via the radio's serial number. The serial number is located on the label on the bottom of the radio if it is not available. The radio will have to be removed from the enclosure to view. If you don't see the breadcrumb radio with that serial number on the network in the "BREADCRUMB TABLE" tab, then the radio is not operational.
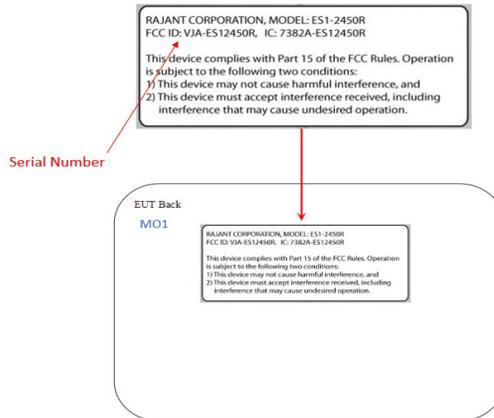
17. Verify that the circles under the flags column in the "BREADCRUMB TABLE" tab are green. A green circle means the radios are connected. A blue circle means the radios are not connected. If the blue LED is nonoperational, then the antennas, rf jumpers, or Solexy RF couplers are not operational.

18. Link on the "TOPOLOGY VIEW" tab.

19. From the main menu, select VIEW -> TOPOLOGY LAYOUT -> DEFAULT LAYOUT.

20. Click on the light blue and green links between the radios in the "TOPOLOGY VIEW" tab to verify all the antennas are connected. There will be data listed in all fields in the pop-up window (shown below). The antenna with no data listed is not operational.

Screen shot of Steps #19 and #20
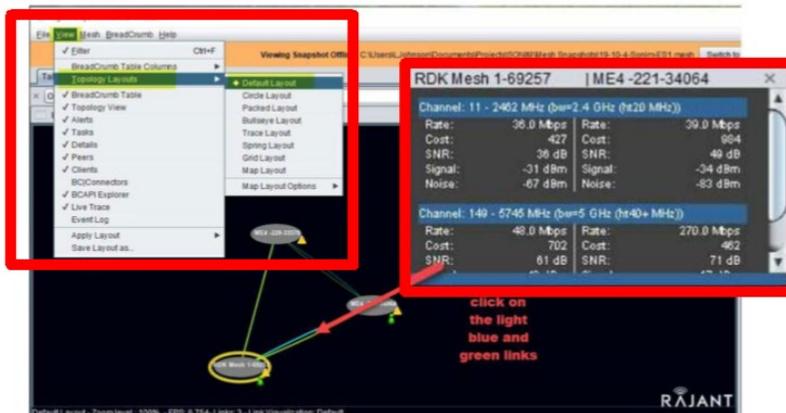
21. Click on the radio with serial number under test in the "TOPOLOGY VIEW" tab.

22. Click on the "PEERS" tab.

23. Verify all the antennas have good cost values. The cost should be under 1000. If the cost is over 1000, then there is interference in the area where the enclosure system is deployed which is not allowing it to connect. The enclosure system will need to be relocated.

START UP PROCEDURE

1. Connect both 2.4 GHz antennas to N type bulkhead connectors on the top of the enclosure.
2. Connect both 5.0 GHz antennas to N type bulkhead connectors on the bottom of the enclosure.
3. Connect DC power to enclosure via neoprene SJO jacket pigtail.
   Black Wire = "Vin +"
   White Wire = "Vin -"
   Green Wire = "GND"
   Voltage Range: 10~36Vdc.
4. Power up radio.
5. Verify the LED on radio comes "ON".

KM3 RADIO RESET BUTTON: HOLD DOWN FOR 15 SECONDS TO RESET KM3 BACK TO FACTORY DEFAULTS.

ZEROIZE

P/N:23-100033-011

RAJANT

2.4GHz, 5dBi ANTENNA SKU #540532

2.4GHz, 5dBi ANTENNA SKU #540532

B 2.4G

A 2.4G

D 4.9G

C 4.9G

ETH1

USB

ETH0

INSTALL 10' CAT6A OUTDOOR UV PATCH CABLE SKU #206841

INSIDE ENCLOSURE

INSTALL CABLE GLAND SKU #351192

CONNECT TO WLAN OR LOCAL NETWORK

5.8GHz, 6dBi ANTENNA SKU #510531

5.8GHz, 6dBi ANTENNA SKU #510531

RAJANT

PWR 2.0 A

7.5 A

GND
VIN -
VIN +
10V - 36V

CABLE GLAND

10~36 VDC

CONNECT TO DC SITE POWER.

RAJANT KM3 DC VOLTAGE ENCLOSURE SYSTEM

A DIVISION OF TESSCO TECHNOLOGIES

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Hunt Valley, MD 21031
EMAIL: info@ventev.com
TOLL FREE: (800) 759-9996
(TESSCO SKU 226396)

LED OPERATION OF COMPONENTS
* CONNECTING POWER TO ENCLOSURE:
KM3-ES-2450 (ALWAYS ON)

⚠ Caution:
This enclosure may contain energized electrical circuits.

NOTES:
1. Dashed items are connected at customer site.
2. Wire color coding follows NFPA70 (National Electric Code).
3. 88~264VAC, single phase power to system to be completed in the field.
4. Single point ground to be established by installer per nec and/or as established by site local.
5. Knife switches are used to disconnect input voltages. Knife switch is used to disconnect battery from system. Pivoting the knife disconnect clearly indicates the circuit state by defined, notched positions "On" <_> "Off".
6. Ventev® reserves the right to substitute equipment and/or components in this system as required.