# Cx Plus Monitor™ Quick Guide

# INSTALLATION INSTRUCTIONS OF THE POWER ANALYZER


## WARNING-WARNING-WARNING

**Read and understand this manual before connecting device.**

**Death, fire or serious injury can occur from using equipment outside of safety ratings or improper use.**

**Installation must be performed from qualified personnel only. Follow applicable safety work practices, including using the proper personal protective equipment during install.**

## ALWAYS POWER DOWN ALL ELECTRICAL CIRCUITS BEFORE INSTALLATION

**SYSTEM MUST BE POWERED FROM GROUNDED RECEPTACLE. THESE STEPS REQUIRE SYSTEM-TRAINED OR LOCAL QUALIFIED PERSONNEL ONLY!**



THIS INFORMATION IS PROPERTY OF
RX MONITORING SERVICE, INC • 1 SUNDIAL AVE STE 117N MANCHESTER, NH 03103
TELEPHONE: (603) 666-6606 • EMAIL: SUPPORT@RXMS.COM • WEB: WWW.RxMS.COM

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# Definitions

- **WARNING**

  This statement is to reinforce the practice of certain conditions may cause physical bodily harm or loss of life.

- **CAUTION**

  This statement is to reinforce the practice of certain conditions may cause physical damage to the Load Bank, Cx Plus Monitor, accessories, equipment or property.

# Abbreviations

| | | | |
|---|---|---|---|
| CT's : | Current Transducers | Wireless Probes: | Wireless add-on's for power monitor |
| Rope Probes : | Rogowski coil current transducers | EWE: | External Wireless Extensions |
| Cx : | Power Monitor | Site: | Cx Plus Monitor data set. |
| Monitor : | Power Monitor (Cx) | | |

# Symbols

The following are (IEC) symbols are used on this document or on the power monitor, and their definitions.

This symbol indicates AC or DC voltage or current

This symbol indicates safety ground conductor.

This symbol indicates high voltage. It calls your attention to items or operations that could be dangerous to you and other persons operation this equipment.
Read the message and follow the instructions carefully.

This symbol indicates that caution is necessary when operating the device or control close to where the symbol is placed, or to indicate that the current situation needs operator awareness or operator action in order to avoid undesirable consequences.

## WARNING, to avoid electric shock or fire:

- Before using the power monitor inspect wireless probes, voltage probes, current probes, leads and accessories for mechanical damage or broken plastic and call Rx Monitoring Services Inc. for replacements.
- Wear proper Personal Protective Equipment, including safety glasses and insulated gloves when making connections to power circuits.
- Use only current probes, test leads, and adapters supplied with equipment.
- Remove unnecessary voltage leads or accessories that are not in use.
- Make sure the power monitor is properly connected through the power cord to protective earth ground.
- Do not insert foreign objects into connectors, only use approved accessories.
- Never open the equipment, there are no customer replaceable parts.
- Never use equipment outside or when condensing water is present.
- Use proper lockout procedures on circuits under test.
- Hands, boots and the working area must be dry when making connections to power system.
- Do not operate the equipment or probes around volatile gas or vapor.

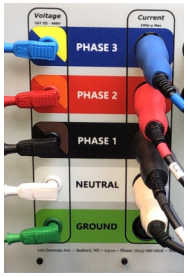
## ******** WARNING DO NOT EXCEED CAT RATINGS ********

### Voltage Ratings:

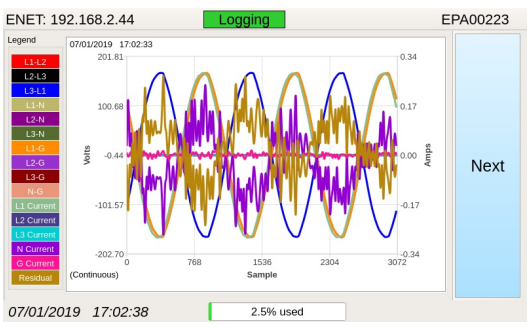
| | | |
|---|---|---|
| **Power Monitor** | **: CAT III - 600V** | **Pollution Degree 2** |
| **Rope CT's** | **: CAT III - 1000V** | **Pollution Degree 2** |
| **Clamp CT's** | **: CAT III - 600V** | **Pollution Degree 2** |
| **Wireless DC** | **: CAT II - 600V** | **Pollution Degree 2** |
| **Wireless DCx** | **: CAT II - 150V** | **Pollution Degree 2** |

**Quick Reference Guide for the Power Monitor:** Please refer to the Installation Instructions for full details on how to install the Power Monitor on the following pages and the user manual for more explanation.







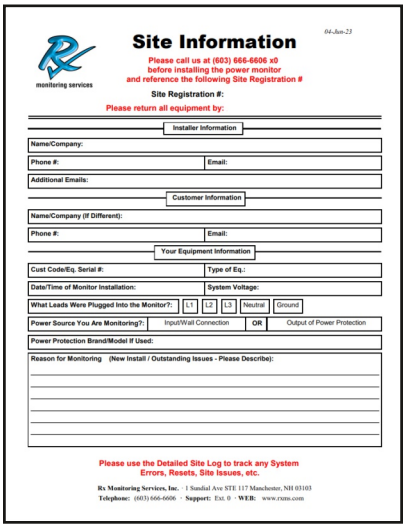



## *Follow these simple steps:*

1. Unpack the Power Monitor
2. Power down the load and turn off the power at the main circuit breaker
3. Connect the Alligator or Strip Voltage Leads
4. Connect the Current Probes
5. Connect the wired Temp/Hum Probe
6. Power up the Power Monitor
7. Power up Load Circuit and System
8. Fill out Site Info and Detailed Site Log
9. Let the system run for approximately a week and then remove the Power Monitor.

**WARNING!**
**HIGH VOLTAGE!**

***The above steps require system-trained personnel or local qualified personnel only. (i.e. a local electrician)***



**Site Information**

04-Jun-23

monitoring services

Please call us at (603) 666-6606 x0
before installing the power monitor
and reference the following Site Registration #

Site Registration #:

Please return all equipment by:

Installer Information

Name/Company:

Phone #: Email:

Additional Emails:

Customer Information

Name/Company (If Different):

Phone #: Email:

Your Equipment Information

Cust Code/Eq. Serial #: Type of Eq.:

Date/Time of Monitor Installation: System Voltage:

What Leads Were Plugged Into the Monitor?: L1 L2 L3 Neutral Ground

Power Source You Are Monitoring?: Input/Wall Connection OR Output of Power Protection

Power Protection Brand/Model If Used:

Reason for Monitoring (New Install / Outstanding Issues - Please Describe):

Please use the Detailed Site Log to track any System
Errors, Resets, Site Issues, etc.

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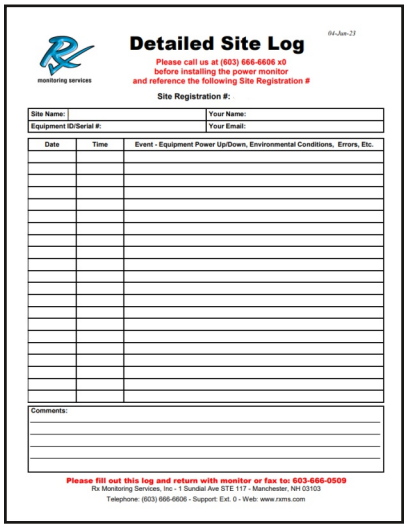
Telephone: (603) 666-6606 · Support: Ext. 0 · WEB: www.rxms.com



**Detailed Site Log**

04-Jun-23

monitoring services

Please call us at (603) 666-6606 x0
before installing the power monitor
and reference the following Site Registration #

Site Registration #:

Site Name: Your Name:

Equipment ID/Serial #: Your Email:

| Date | Time | Event - Equipment Power Up/Down, Environmental Conditions, Errors, Etc. |
|---|---|---|

Comments:

Please fill out this log and return with monitor or fax to: 603-666-0509

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Telephone: (603) 666-6606 - Support: Ext. 0 - Web: www.rxms.com

# 1. Unpack the Power Monitor


**Power Monitor**

a. Check the packing list to make sure all of the requested equipment was received.

b. Position near the connection point to be tested - be sure the Power Monitor is positioned in an area where it will not be interfered with or dropped.

c. Be sure a 120V-240V receptacle is available for powering the device.

# 2. Power down system and turn off the power at the main breaker

a. To ensure safe working conditions make sure to remove voltage from testing source. (Lockout if required)

# 3. Connect the Voltage Leads

**Connect Voltage Leads**


**Connect Banana Leads**

a. Confirm that the system under test is powered down and that power at the main circuit breaker is off.

b. Connect the L1, L2 and L3 voltage leads (alligator clip or strip) to the main circuit breaker. Connect the N lead to the Neutral bar (if present), and the G lead to the main chassis or the Ground bar.

c. Connect the right-angle banana plug end of the voltage leads into their corresponding color-coded ports on the front panel of the Power Monitor.

**<u>Caution</u>: If running Voltage leads out of the panel or system, wrap the "Safety Sleeves" provided in the safety kit around wires at pinch points.**

# 4. Connect the Current Probes

**Hard wired connection**


**<u>Caution</u>: If running CT wires out of the panel or system, wrap the "Safety Sleeves" provided in the safety kit around wires at pinch points.**

a. Connecting the current probes is a crucial part of the data gathering process. Make sure you connect them to ensure that all supporting data is gathered.

b. Connect the current probes around L1, L2, L3, N & G (or all applicable phases) and make sure that there is only one phase in each current probe.

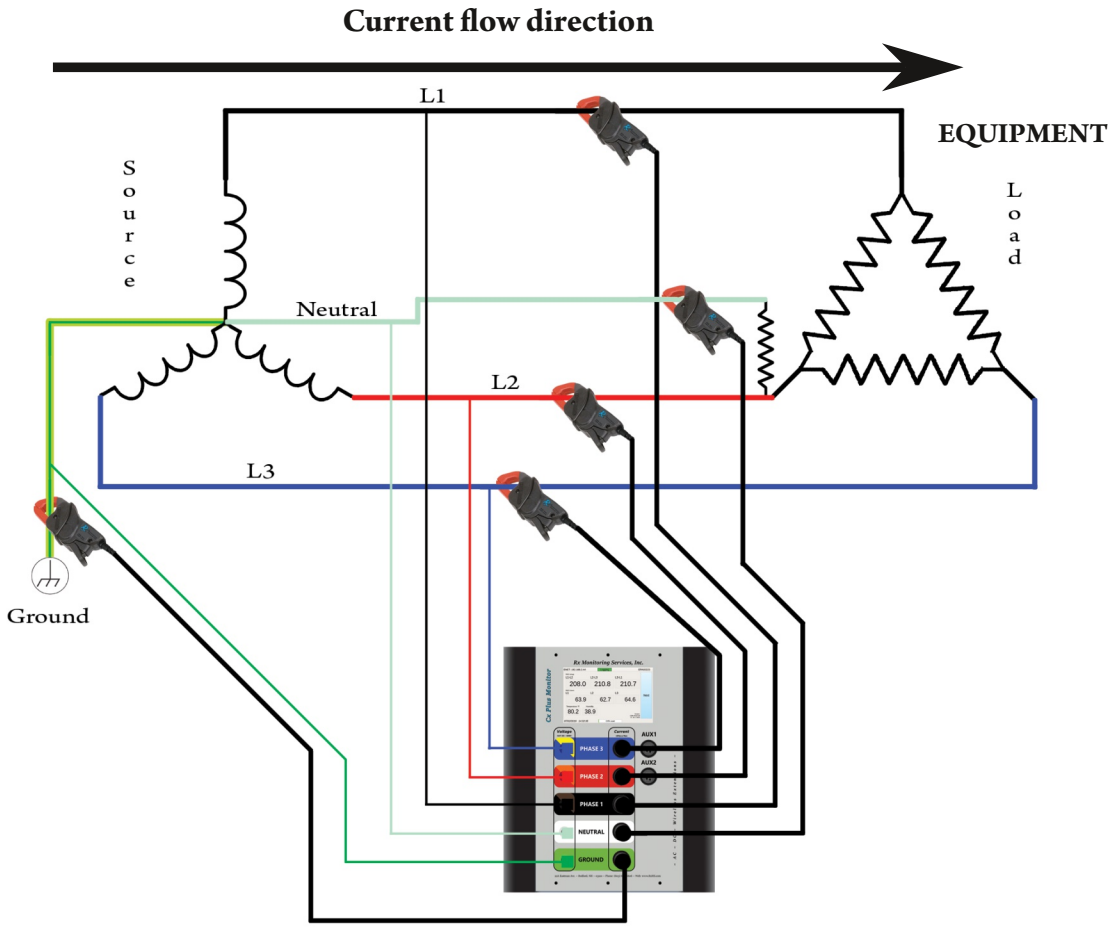
c. Make sure that each current probe is encompassing the correct phase and that the direction of the arrow on the probe is pointing toward the load.

d. Plug the connector end of the current probes into their corresponding ports on the front of the Power Monitor (to the right of the color-coded voltage ports).

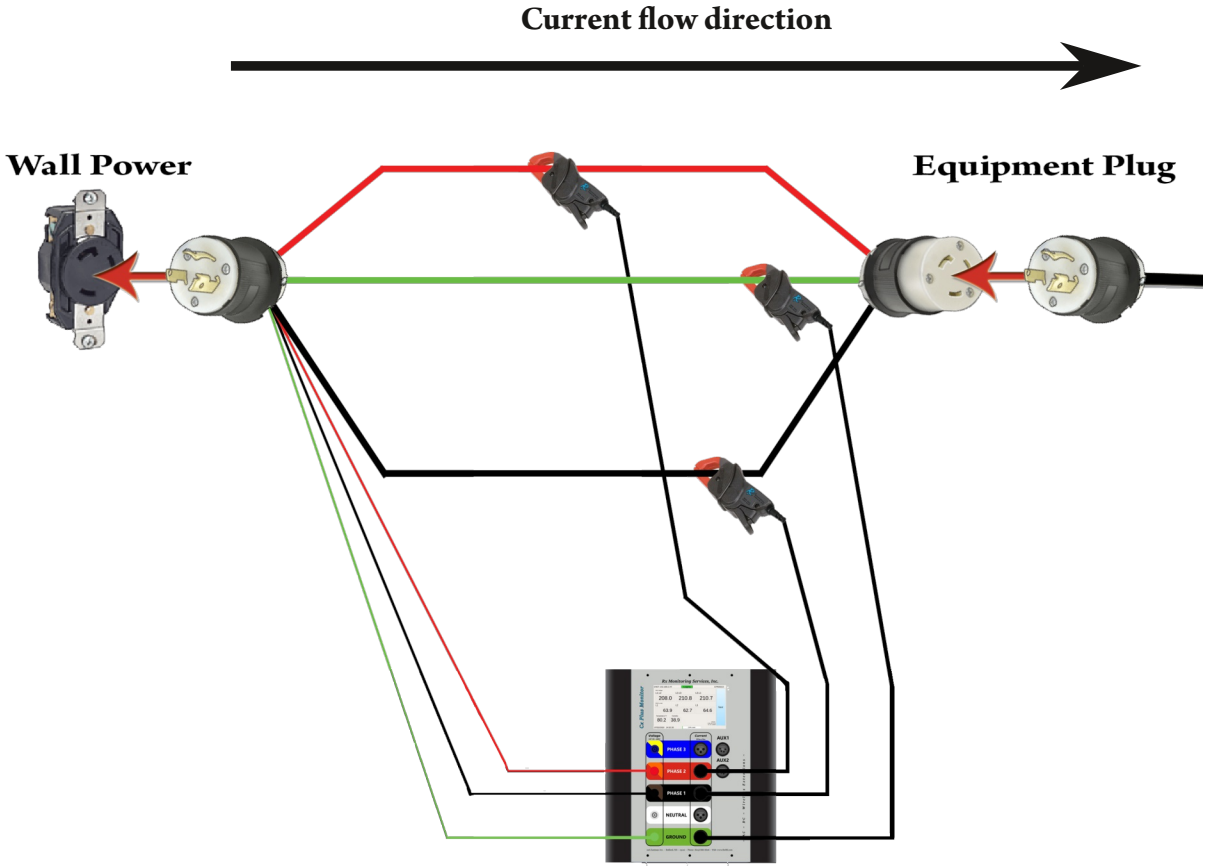
**Important:**

**Arrow on CT's must point toward load being monitored, or the direction of current flow.**

**Connection Diagram for Standard Cable Connection:**




## Connection Diagram for "Breakout" Cable Connection:

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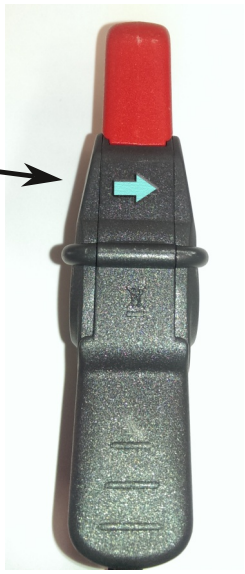


## 5. Connect the Wired Temperature & Humidity Probe (If Supplied)


a. Hang the Temp/Hum probe at a minimum height of 6 feet (if possible), and make sure it is not positioned near a door, window, or ventilation unit.

b. Plug into the Port 1 under AUX on the front of the Power Monitor.

## 6. Power up the Power Monitor

**Caution - Always use a grounded receptacle**

a. Plug power cord into grounded receptacle

b. Plug the supplied IEC cord into the external DC power supply.

c. Plug the male external DC power supply plug into the Power Monitor.

**DC Power Supply**

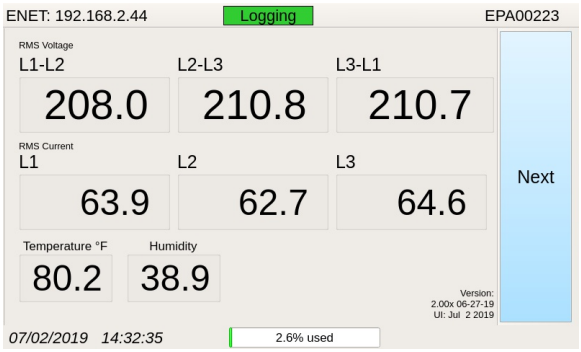
**b. Connect IEC**

**c. Plug In Barrel**

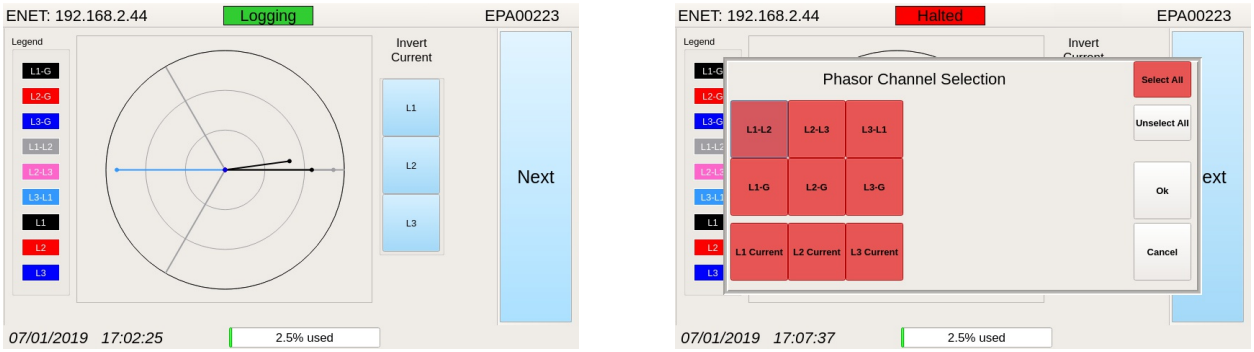
# 7. Power up load circuit and system

The LCD screen will illuminate when the Power Monitor is on. In about 30 seconds, the full color touch LCD screen will show real-time data, IP address, the date/time, and the percent of storage used.

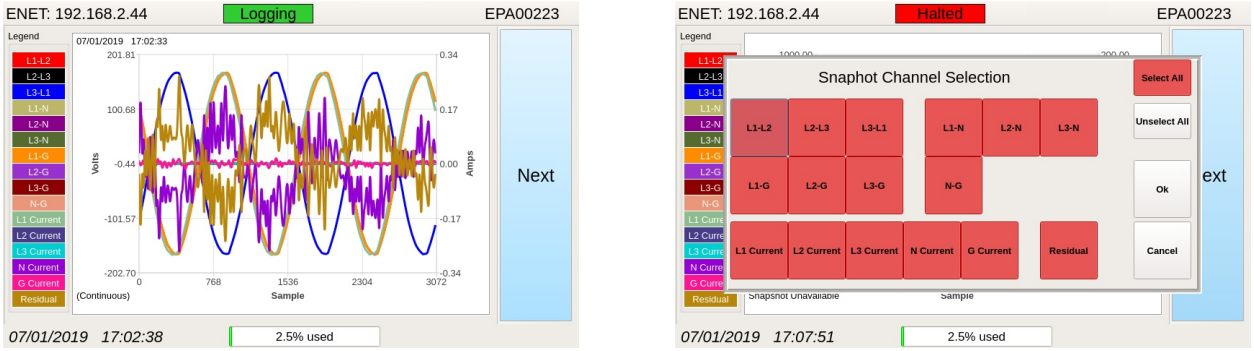
Three different displays can be shown - Meter Mode, Phasor Diagram, and Waveform Snapshot. Hit "Next" to move from one screen to another.




**a. Meter Mode**



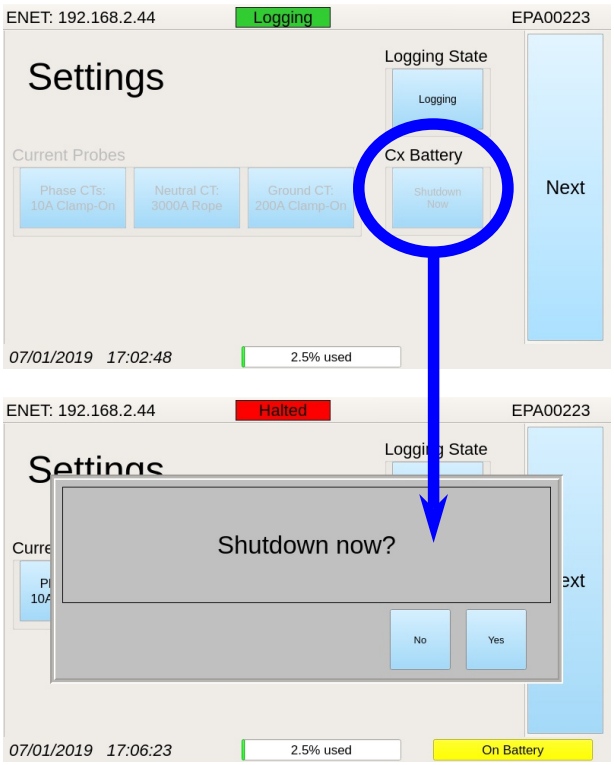

**b. Phasor Diagram**




**c. Waveform Snapshot**

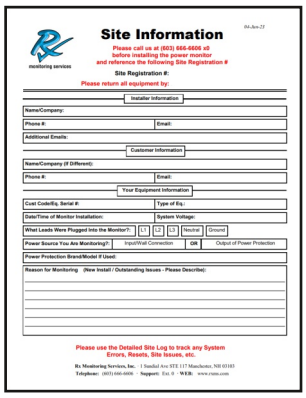
To Shutdown using the display:

a. Unplug and Shutdown prompt will appear
b. Hit Yes to shutdown now and No for the monitor to use battery




In addition to the LCD screen, on there is a light on the Power Monitor. The light will be blue upon start up and will blink red if the Power Monitor is on but not collecting data.


# 8. Fill out Site Info and Detailed Site Log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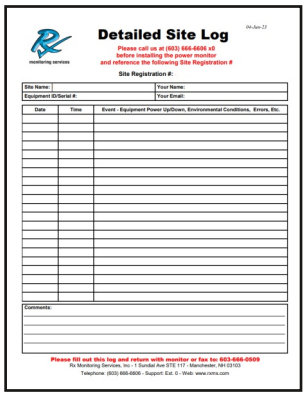
**Site Information Sheet**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**Detailed Site Log**

a. Please make sure you fully complete the RxMS Site Information sheet with the detailed information of the site and equipment being monitored.

b. Make sure you leave the Detailed Site Log that was provided with the Power Monitor with your customer. Ask them to record any system events or errors that will help RxMS correlate gathered data to any issues you may be having with your system.

c. Place the "Electrical Test In Progress" tag on the system under test (either on the main disconnect, panel or wires) so it is not disturbed during the monitoring period.

d. Please contact RxMS at 603-666-6606 ext. 0 or email support@rxms.com once you have installed the Power Monitor.

# 9. Uninstall the Power Monitor and ship back to RxMS


**Shipping Return Label**

a. Power down load and the main power.

b. Unplug the power cord from the Power Monitor.

c. Disconnect all probes from the Power Monitor.

d. Pack all equipment in provided shipping case. Make sure the Cx Plus Monitor™ is FACE DOWN.

e. Attach the enclosed return label and ship equipment back to RxMS.

f. Please contact RxMS at 603-666-6606 ext. 0 or email support@rxms.com once you have dropped off or FedEx has picked up the Power Monitor.

**Statements, Notices and Liability Information**

## *FCC Part 15 Class B*

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 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 affected equipment and the panel receiver to separate outlets, on different branch circuits.
- Consult the dealer or an experienced radio/TV technician for help.

### *Statement of Faultlessness:*

The information in this manual has been reviewed for accuracy at the time of writing. No responsibility can be assumed by Rx Monitoring Services Inc. for inaccuracy or changes that have taken place since production. The "Cx Plus Monitor User Manual" is for informational purposes only and is subject to change without notice.

### *Liability:*

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