Eaton® Remote Monitoring Device

Installation and Operation Manual

Powering Business Worldwide

p/n: P-164000516
Revision 02

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and operation. Please read all instructions before operating the equipment and save this manual for future reference.

CONSIGNES DE SÉCURITÉ IMPORTANTES – CONSERVER CES INSTRUCTIONS

Ce manuel comporte des instructions importantes que vous êtes invité à suivre lors de toute procédure d'installation. Veuillez consulter entièrement ces instructions avant de faire fonctionner l'équipement et conserver ce manuel afin de pouvoir vous y reporter ultérieurement.

⚠ IMPORTANT

To ensure you have the most up-to-date content and information for this product, please review the latest manual revision on our website, www.eaton.com.

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Eaton Remote Monitoring Device

Introduction

The Eaton® Remote Monitoring Device (RMD) is designed for use with various Eaton UPS systems. The RMD includes a status display screen and a local audible alarm, allowing monitoring of the operational status and alarm condition of the UPS from virtually any location within the facility, up to 300 feet from the UPS. It will display the general state of the UPS and key metrics like battery charge and available runtime when on battery. It is not a full remote display and it does not offer any control or operation capability.

The RMD is housed in small plastic case with a separate battery charger cord that can be placed on a desk or wall mounted.

Figure 1 shows the RMD and Figure 2 the RMD dimensions. The Wall Mounting Bracket is shown in Figure 3.

Figure 1. Eaton Remote Monitoring Device

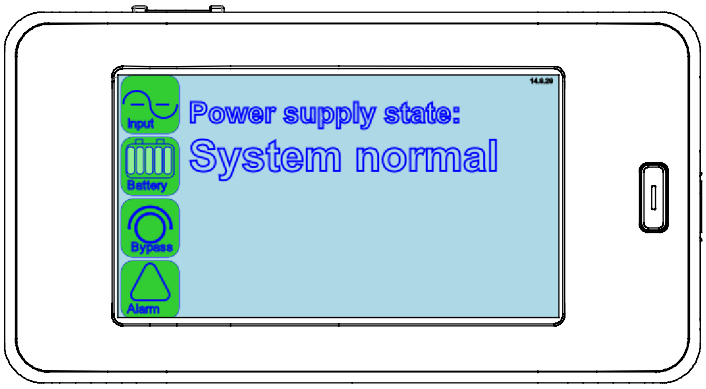
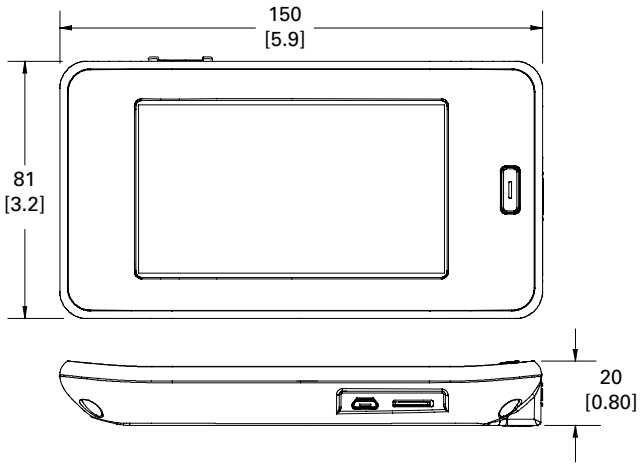
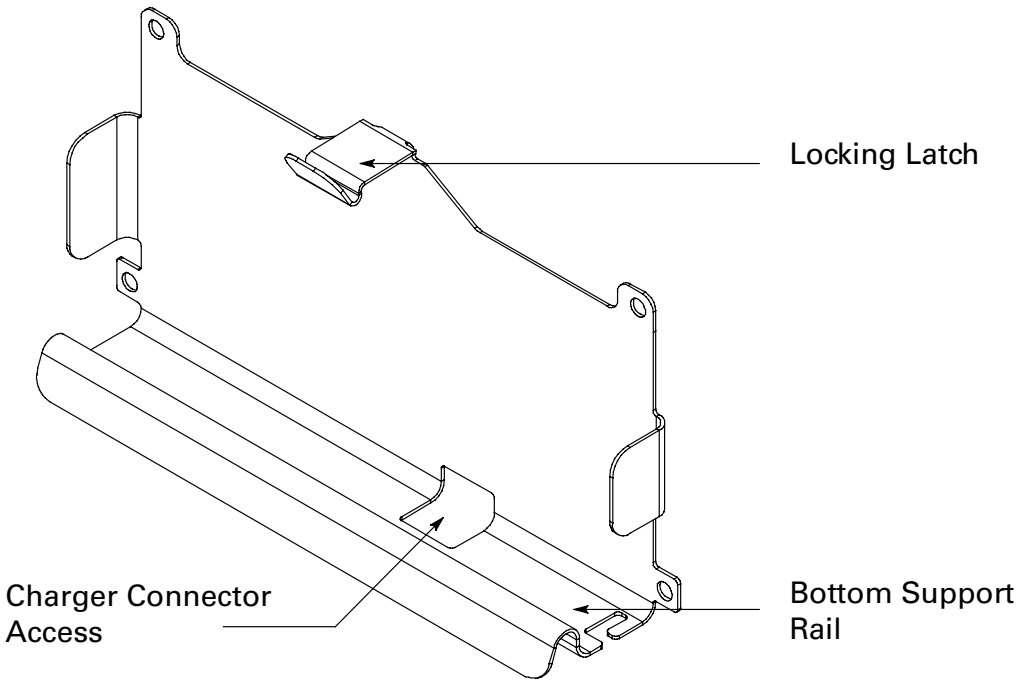


Figure 2. RMD Dimensions



Dimensions are in millimeters [inches]

Figure 3. RMD Wall Mounting Bracket



Installation

This section describes how to install the RMD.

Network Card Installation

NOTE A Power Xpert® Gateway Minislot (PXG) card or Power Xpert Gateway Xslot (PXGX) card must be installed in the UPS to use the RMD.

Install the PXG card into the UPS Minislot or the PXGX card into the UPS Xslot. Refer to the applicable Eaton UPS Installation and Operation manual (see *For More Information* section) for the slot type, location and wiring access information and the applicable Eaton Power Xpert Gateway User's Guide supplied with the card for installation and user instructions. For installation and setup of a PXG card, contact an Eaton service representative (see *Getting Help* section).

Network Card Configuration

To establish communication between the PXG card and the RMD, the PXG card network must be statically configured as a private Class C network.

To set up the PXG card:

1. Download the powerxpert.inf file to provide USB driver support for the Linux USB Ethernet/RNDIS Gadget on Windows 7 or XP from the Eaton website at:

   http://www.eaton.com/Eaton/ProductsServices/Electrical/ProductsandServices/PowerQualityandMonitoring/NetworkingHardware/PXG/index.htm

2. Install the powerxpert.inf onto a laptop computer in accordance with the procedures outlined in the applicable Eaton Power Xpert Gateway User's Guide supplied with the card.
3. Connect the USB port on the laptop to the microUSB port on the PXG card using a USB cable with a microUSB connector on one end. Communication is established via IP address 192.168.200.101. Once established scroll down to **Configuration > Network** and modify the Network Configuration of the PXG card to the values listed below:

   IP Address: 192.168.1.1

   Netmask: 255.255.255.0

   Gateway: 192.168.1.254

4. Proceed to *RMD Installation*.

RMD Installation

If desk mounting:

1. Route the Cat5 network cable from the UPS PXG card to the RMD.
2. Connect the Cat5 cable to the RJ45 Ethernet connector on the RMD (see Figure 4).
3. Connect the Cat5 cable to the RJ45 Ethernet connector on the PXG card. Refer to the applicable Eaton UPS Installation and Operation manual for the UPS card slot location and wiring access information (see *For More Information* section).

NOTE Ensure the Status indicator of the PXG card is illuminated (this may take approximately two minutes) before plugging in the RMD power source.

4. After the Status indicator of the PXG card has illuminated, connect the charger cord micro USB connector to the micro USB connector on the RMD (see Figure 4). Connect the transformer side of the charger cord to a 120 Vac service outlet. The RMD should start automatically with the Eaton logo being displayed. Then the power pushbutton on the front of the RMD will illuminate green and the current status of the UPS should be displayed. If the display does not start, let the battery charge for 30 minutes and start manually (see paragraph *Powering the RMD*).

If wall mounting:

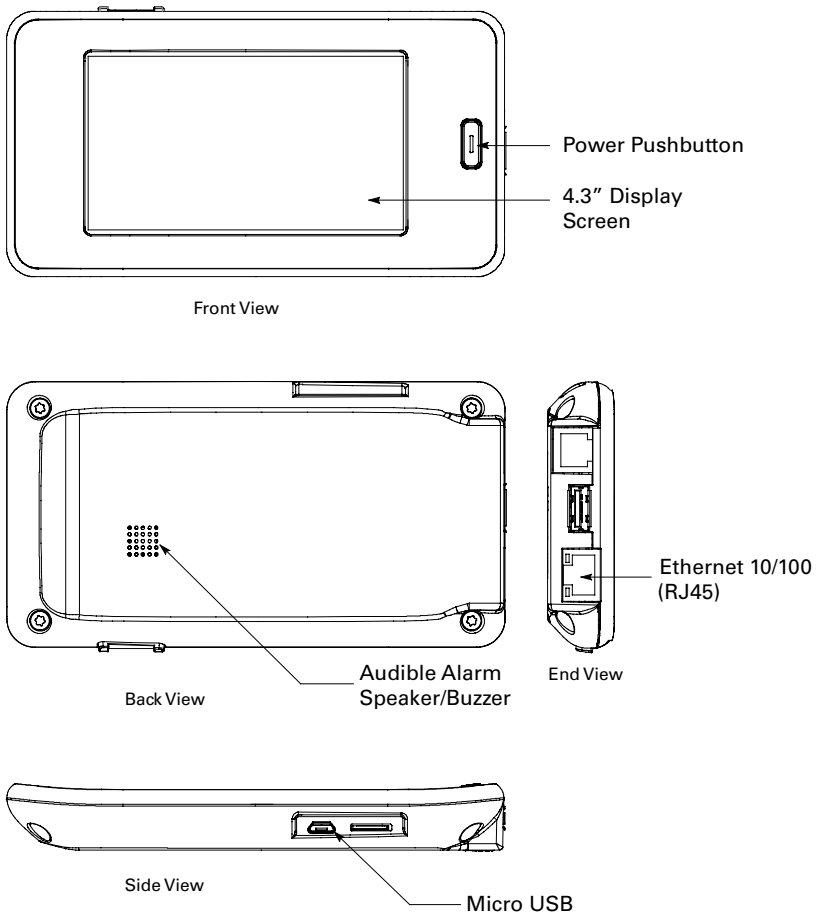
1. Attach the wall mounting bracket to a wall at the desired location. Use the mounting holes in the bracket as a template to drill holes. Use hardware applicable to the surface that the bracket is being mounted on to secure the bracket to the wall.
2. Mount the RMD in the bracket by placing the bottom edge of the RMD into the bracket bottom rail support and then snapping the top edge under the locking latch (see).
3. Route the Cat5 network cable from the UPS PXG card to the RMD.
4. Connect the Cat5 cable to the RJ45 Ethernet connector on the RMD (see Figure 4).

5. Connect the Cat5 cable to the RJ45 Ethernet connector on the PXG card. Refer to the applicable Eaton UPS Installation and Operation manual for the UPS Minislot location and wiring access information (see *For More Information* section).

NOTE Ensure the Status indicator of the PXG card is illuminated (this may take approximately two minutes) before plugging in the RMD power source.

6. After the Status indicator of the PXG card has illuminated, connect the charger cord micro USB connector to the micro USB connector on the RMD (see Figure 4). Connect the transformer side of the charger cord to a 120 Vac service outlet. The RMD should start automatically with the Eaton logo being displayed. Then the power pushbutton on the front of the RMD will illuminate green and the current status of the UPS should be displayed. If the display does not start, let the battery charge for 30 minutes and start manually (see paragraph *Powering the RMD*).

Figure 4. Location of RMD Components



Operation

This section describes how to operate the RMD.

RMD Components

The components identified and described in this section are used to connect and operate the RMD.

- **4.3" Display Screen** – shows UPS status
- **Power Pushbutton** – turns the RMD on (press and hold for 3 seconds) and off (press and hold for 11 seconds) and is used to silence the audible alarm
- **Audible Alarm** – the alarm sounds to alert an operator that an event needing attention is taking place. To silence the audible alarm, press the power button momentarily (see)
- **Micro USB Connector** – connects the external charger to RMD internal battery
- **Ethernet Connector** – connects the RMD to the UPS PXG card

shows the location of the RMD components.

Display Screen Sections

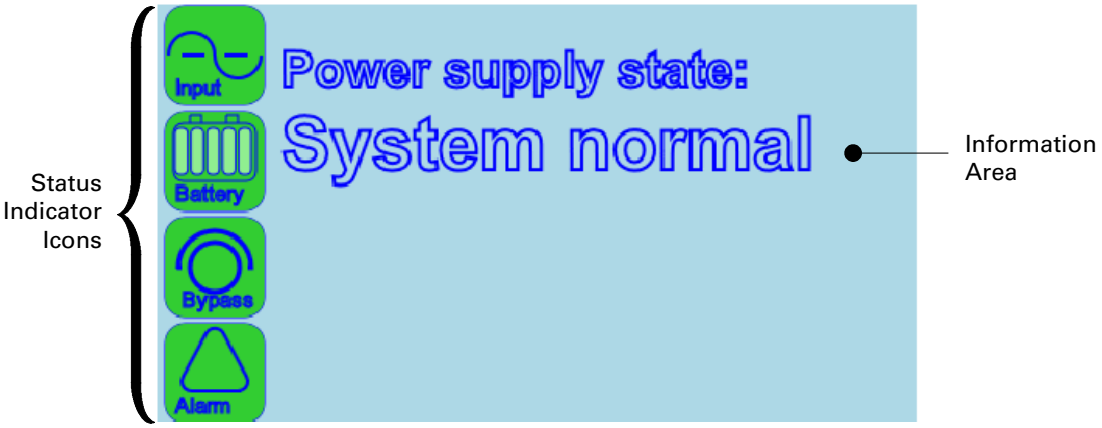
The display consists of two sections, a status indicator section on the left side of the screen and an information area to the right of the status indicators that displays operational messages. The status indicator icons display as green, yellow, or red depending on the status of the UPS. Figure 5 shows the display screen sections.

- **Input** – This icon shows the state of the incoming power. It is green if the power is available and good. If it turns yellow the voltage or frequency of the electrical power is not within acceptable limits.
- **Battery** – This icon shows the state of the energy storage and charge percent. Each bar of the Battery icon represents a predefined percentage of the total energy as follows: if five bars are shown the energy charge is between 90-100%; if four bars are shown the charge is between 70-89%; if three bars are shown the charge is between 50-69%; if two bars are shown the charge is between 30-49%; if one bar is shown the charge is between 10-29%; if no bars are shown the charge is 9% or less. In case the input power fails, and the UPS goes on battery, this icon will turn yellow. When the battery is almost depleted and there are only a few minutes of runtime left the icon will turn red.

Battery Icon	
Number of Bars Displayed	Energy Charge
Five	90-100%
Four	70-89%
Three	50-69%
Two	30-49%
One	10-29%
None	9% or less

- **Bypass** – Under normal operation this icon should remain green. If it changes to yellow, the UPS is on bypass and is not able to provide battery backup.
- **Alarm** – Under normal operation this icon should remain green. If it changes to yellow or red, there may be an issue with the UPS. Check the UPS and its local display for details.

Figure 5. Display Screen Sections



Powering the RMD

NOTE The PXG card must be setup and running in the UPS before starting the RMD. If powered up together the RMP may not establish communication.

To turn the RMD on press and hold the power pushbutton on the front of the RMD (see) for three seconds. The RMD should start with the Eaton logo being displayed. Then the power pushbutton on the front of the RMD will illuminate green and the screen shown in Figure 5 should be displayed. If the display does not start, let the battery charge for 30 minuets.

To turn the RMD off press and hold the power pushbutton on the front of the RMD for approximately 11 seconds.

If a white screen is displayed on the RMD after the UPS is turned on, press and hold the power pushbutton on the front of the RMD for 15 seconds (while the power cable is plug in) and the RMD will subsequently establish communication with the PXG card.

Silencing the Audible Alarm

To silence the audible alarm, press the power button momentarily.

System Events

The following paragraphs describe the typical information that can be displayed on the RMD screen.

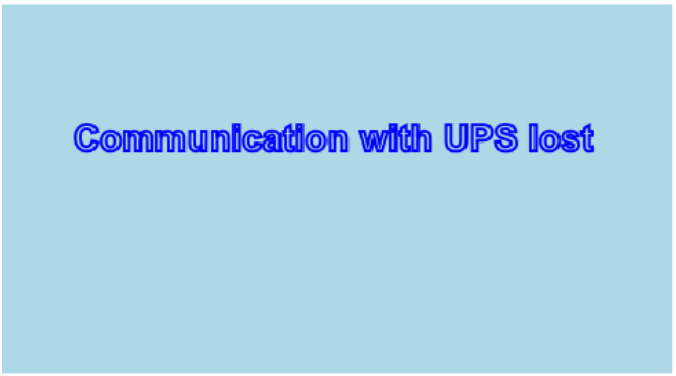
Communications Fault Screen – If a communication issue occurs between the RMD and the UPS the message shown in Figure 6 will be displayed. Check the state of the Ethernet 10/100 (RJ45) connection examine both LEDs on the RMD. One represents Activity (ACT) and the other represents the speed (10/100) at which that activity is occurring. Specifically, network communication is occurring when the green ACT indicator is blinking. If this indicator is not illuminated then there is no network activity. The other LED represents the speed of the network connection. If this indicator is illuminated yellow then that indicates a valid 100 Mb connection. If this indicator is not illuminated it indicates a valid 10 Mb connection as long as the corresponding ACT is blinking green.

If the Activity LED on the RMD is not blinking green, check that the network cable is the correct type and securely connected to the Ethernet 10/100 port for both the PXG card and the RMD.

If the network cable is securely connected to both the PXG card and the RMD, and display on the RMD is completely white (i.e. no communication), communication can be reattempted. To re-establish communication:

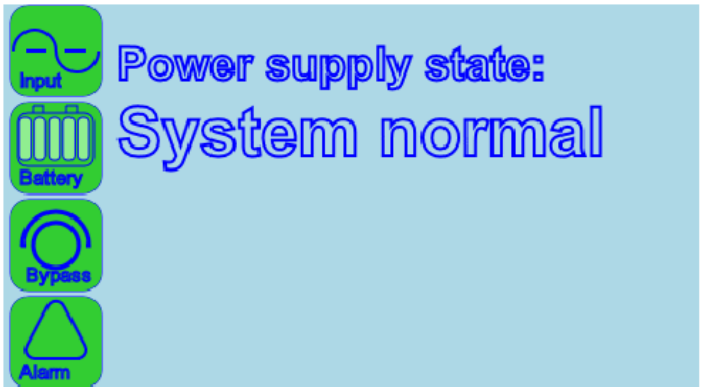
1. Unplug the microUSB power connection from the RMD.
2. Turn the RMD off by holding the power pushdown switch down for 11 seconds.
3. Remove and re-seat the PXG card within the mini-slot and waiting approximately two minutes until the Status indicator is illuminated.
4. Once illuminated, turn the RMD back on by re-inserting the microUSB power connection into the RMD. After 55 seconds check to see if communication has been established with between the PXG card and the RMD.

Figure 6. Communication Error Screen



Normal Screen – When the UPS is operating normally with full load protection, the information area will display **System normal** and all status indicators will be illuminated green as shown in Figure 7.

Figure 7. Normal Screen

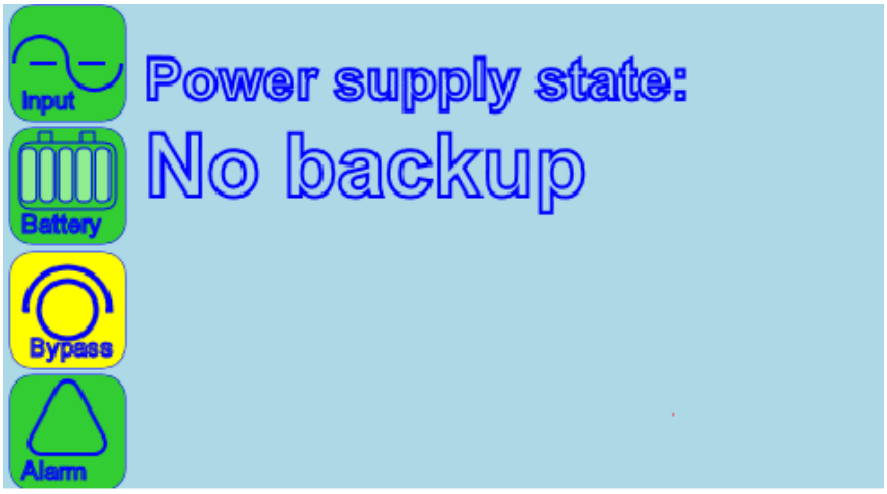


On Battery Screen – When the UPS is on battery, the status indicators will be displayed as shown in Figure 8. The information area will display the remaining backup time in minutes and seconds. Both the Input and Battery icons are illuminated yellow due to loss of input power while the UPS is on battery.

Figure 8. On Battery Screen

On Bypass Screen – When the UPS is on bypass, the status indicators and information area will be displayed as shown in Figure 9. The critical load is supported by the bypass source.

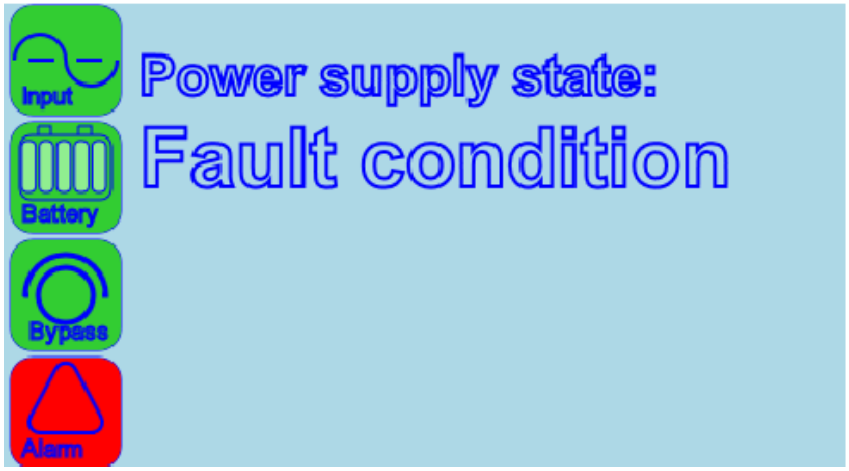
Figure 9. On Bypass Screen



Fault Condition Screen – When a fault condition occurs the status indicators and information area will be displayed as shown in Figure 10 and indicates the UPS has an active alarm and requires immediate attention. If this occurs, check the state of the UPS and if necessary contact service as the UPS may not be able to provide backup power.

All alarms are accompanied by an audible signal. To silence the audible signal, press the power button momentarily (see). The Alarm status indicator may be illuminated along with other indicators.

Figure 10. Fault Condition Screen



For More Information

Refer to the applicable Eaton UPS Installation and Operation manual for the UPS card slot location and wiring access information.

Visit www.eaton.com/powerquality or contact an Eaton service representative for information on how to obtain copies of your manuals.

Getting Help

If help is needed with any of the following:

- Scheduling initial startup
- Regional locations and telephone numbers
- A question about any of the information in this manual
- A question this manual does not answer

Please call the Help Desk at:

United States:	**1-800-843-9433**
Canada:	**1-800-461-9166 ext 260**
All other countries:	**Call your local service representative**

Please use the following e-mail address for manual comments, suggestions, or to report an error in this manual:

E-ESSDocumentation@eaton.com

Equipment Registration

Please visit www.eaton.com/pq/register to register your new Eaton UPS / Eaton UPS Accessory.

Model Number: _____

Serial Number: _____

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