

Enclosed meter— Power Xpert Multi-Point Meter



Contents

Description	Page
Introduction	
Preliminary comments and safety precautions	2
Warranty and liability information.	2
Safety precautions	2
Description	
Catalog number identification	2
Catalog number example	2
Receiving, handling, and storage	
Receiving and handling	3
Storage.	3
Installation and wiring	
General.	3
Mounting location	3
Mounting procedure	3
Knockout procedure	3
Wiring.	5
Field wiring.	5
Door-locking means	5
Operation	8
Maintenance	8

⚠ WARNING

READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED HEREINAFTER BEFORE ATTEMPTING TO UNPACK, ASSEMBLE, OPERATE, OR MAINTAIN THIS EQUIPMENT.

⚠ WARNING

HAZARDOUS VOLTAGES THAT CAN CAUSE DEATH OR SEVERE PERSONAL INJURY ARE PRESENT INSIDE ENCLOSURE. FOLLOW PROPER INSTALLATION, OPERATION, AND MAINTENANCE PROCEDURES TO AVOID THESE VOLTAGES.

⚠ WARNING

ALL POSSIBLE CONTINGENCIES THAT MAY ARISE DURING INSTALLATION, OPERATION, OR MAINTENANCE, AND ALL DETAILS AND VARIATIONS OF THIS EQUIPMENT DO NOT PURPORT TO BE COVERED BY THESE INSTRUCTIONS. IF FURTHER INFORMATION IS DESIRED BY PURCHASER REGARDING THE PARTICULAR INSTALLATION, OPERATION, OR MAINTENANCE OF PARTICULAR EQUIPMENT, CONTACT AN EATON REPRESENTATIVE.

EATON

Powering Business Worldwide

Introduction

Preliminary comments and safety precautions

This technical document is intended to cover most aspects associated with the installation, application, operation, and maintenance of enclosed Power Xpert® Multi-Point Meter (PXMP) equipment. It is provided as a guide for authorized and qualified personnel only.

Warranty and liability information

No warranties, expressed or implied, including warranties of fitness for a particular purpose of merchantability, or warranties arising from course of dealing or usage of trade, are made regarding the information, recommendations, and descriptions contained herein. In no event will Eaton be responsible to the purchaser or the user in contract, in tort (including negligence), strict liability, or otherwise for any special, indirect, incidental, or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or the user by its customers resulting from the use of the information and descriptions contained herein.

Safety precautions

All safety codes, safety standards, and/or regulations must be strictly observed in the installation, operation, and maintenance of this device.

 **CAUTION**

COMPLETELY READ AND UNDERSTAND THE MATERIAL PRESENTED IN THIS DOCUMENT BEFORE ATTEMPTING INSTALLATION, OPERATION, OR APPLICATION OF THE EQUIPMENT. IN ADDITION, ONLY QUALIFIED PERSONS SHOULD BE PERMITTED TO PERFORM ANY WORK ASSOCIATED WITH THE EQUIPMENT. ANY WIRING INSTRUCTIONS PRESENTED IN THIS DOCUMENT MUST BE FOLLOWED PRECISELY. FAILURE TO DO SO COULD CAUSE PERMANENT EQUIPMENT DAMAGE.

 **CAUTION**

REFER ALSO TO PXMP DEVICE INSTRUCTION BOOKS. REFER TO INSTALLATION MANUAL MN150001EN.

Description

Catalog number identification

The enclosed PXMP catalog number provides a description of the features provided with your device. The catalog number is included on labels both on the shipping carton and on the equipment enclosure.

The first set of characters identifies the type of monitoring device mounted in the enclosure. (Refer to *PXMP Installation Manual* MN150001EN for detailed information on the monitoring device.) See **Table 1 on Page 6**, which references the PXMP catalog numbering system.

Note: The second character denotes the type of enclosure.

2	NEMA® 12 enclosure
3	NEMA 3R enclosure
4	NEMA 4X enclosure

Note: The third character denotes 24 Vdc power supply.

A	None—24 Vdc supplied by other source
B	Single-phase, 100–240 Vac to 24 Vdc, 60 watt
C	Three-phase, 400–500 Vac to 24 Vdc, 60 watt
D	Three-phase, 480–600 Vac to 24 Vdc, 55 watt

Note: The fourth character denotes the display type.

A	None
D	6-inch color touchscreen

Catalog number example

The catalog number **PXMP-MB-2B-D** denotes a PXMP-MB monitoring device mounted in a NEMA 12 enclosure with a single-phase power supply and a display (PXMP-DISP-6).

Receiving, handling, and storage

Receiving and handling

Every effort is made to ensure that the enclosed PXMP equipment arrives at its destination undamaged and ready for installation. Crating and packing are designed to protect internal components as well as the enclosure. Do not remove protective packing until the equipment is ready for installation.

When the equipment reaches its destination, the customer should inspect the shipping container for any obvious signs of rough handling and/or external damage that occurred during transportation. Record any external and internal damage for reporting to the transportation carrier and Eaton, once a thorough inspection is complete. All claims should be as specific as possible and include general order numbers.

A plastic bag of instruction booklets and/or CDs will be found in the shipping container. Store these documents in a safe place.

Storage

Although well packaged, this equipment is not suitable for storage outdoors. And if the equipment is to be stored indoors for any period of time, it should be stored with its protective packaging in place. Refer to the *Power Xpert Multi-Point Meter User and Installation Manual* MN150001EN for suitable conditions for these devices.

Installation and wiring

General

Enclosed PXMP devices are factory wired and tested. Installation requires solidly mounting the enclosed unit and connecting field wiring. Included in this booklet are diagrams of the factory wiring and various field wiring options. Review and understand the appropriate diagrams for the catalog number of the unit you have ordered.

The system voltage application is assumed to be either a three-phase, four-wire system or a single-phase, three-wire system. The enclosed PXMP is provided with a meter base that can accept a variety of modules to allow for maximum flexibility for the application. Up to 10 different PXMP Meter Modules (PXMP-MMs) can be mixed and matched within a PXMP Meter Base (PXMP-MB) to accommodate a total of up to 60 poles of metering channels from a variety of single-, two-, and three-pole loads. For applications that are three-phase, three-wire, and different CT configurations, as well as the different modules available with the meter bases, please see Chapter 4 of the *User and Installation Manual* MN150001EN for further details and configuration options. All models containing an I/O module and RJ45 communications connections will be required to have the external wires connected directly to the PXMP device.

Mounting location

Choose a location that offers a flat, rigid mounting surface capable of supporting the weight of the equipment (**Figure 1** through **Figure 3**). Units will weigh 100 lbs (45.5 kg) maximum. Mount the equipment in a suitable environment. These enclosures are designed for NEMA 12, 3R, and 4X environments. The catalog number identifies the enclosure. If there are any doubts as to location suitability, discuss them with your Eaton representative. Check to make certain that there are no pipes, wires, or other mounting hazards in the immediate mounting area that could create a problem. Carefully remove all packing material from the unit. Even though an equipment inspection was made when the equipment was received, make another careful inspection of the enclosure and the devices inside as packing material is removed. Be especially alert for distorted metal, loose wires, or damaged components.

Mounting procedure

The enclosures are provided with four elongated mounting holes, two at the top and two at the bottom.

Knockout procedure

Use an appropriate knockout punching tool for incoming power connections. In addition, the use of an appropriate NEMA-rated hub is required to maintain enclosure NEMA rating.

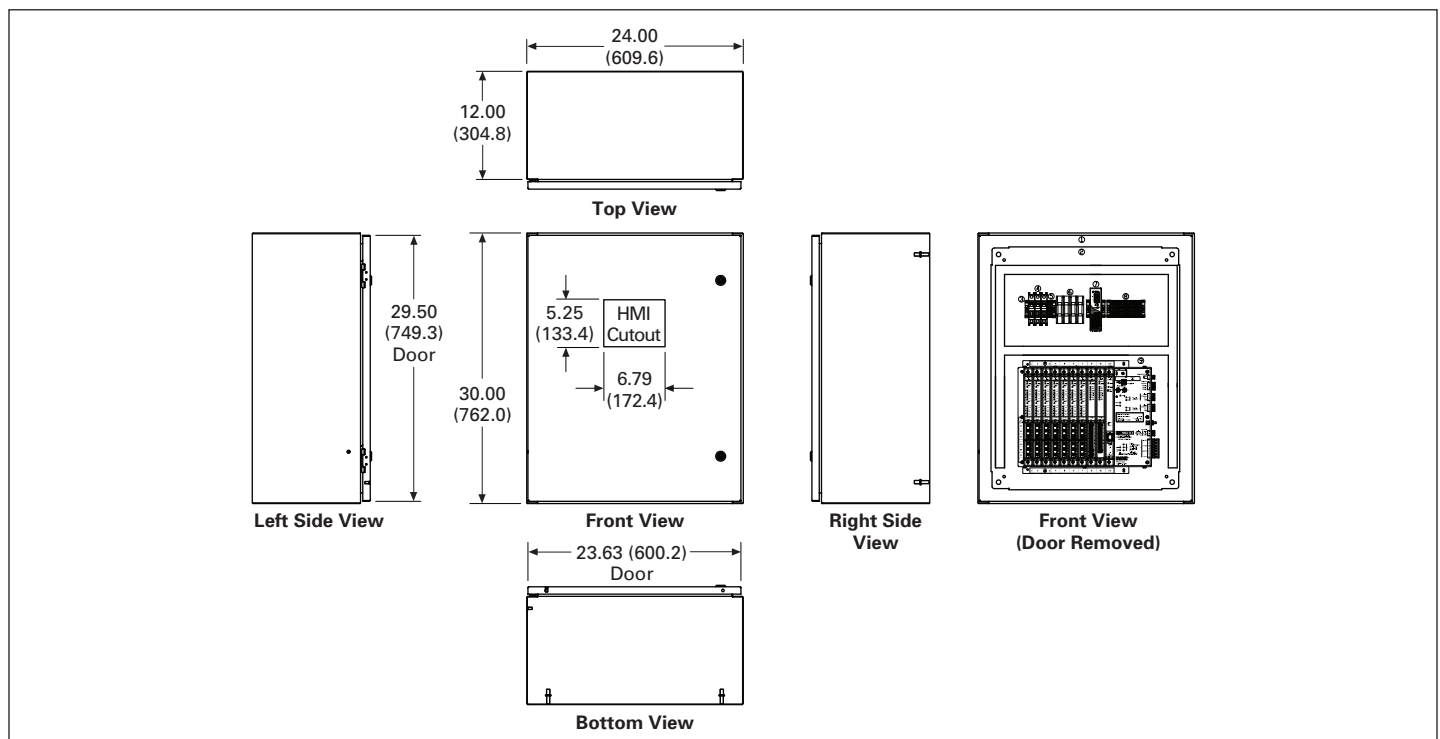


Figure 1. Dimensions of Enclosed PXMP—NEMA 12

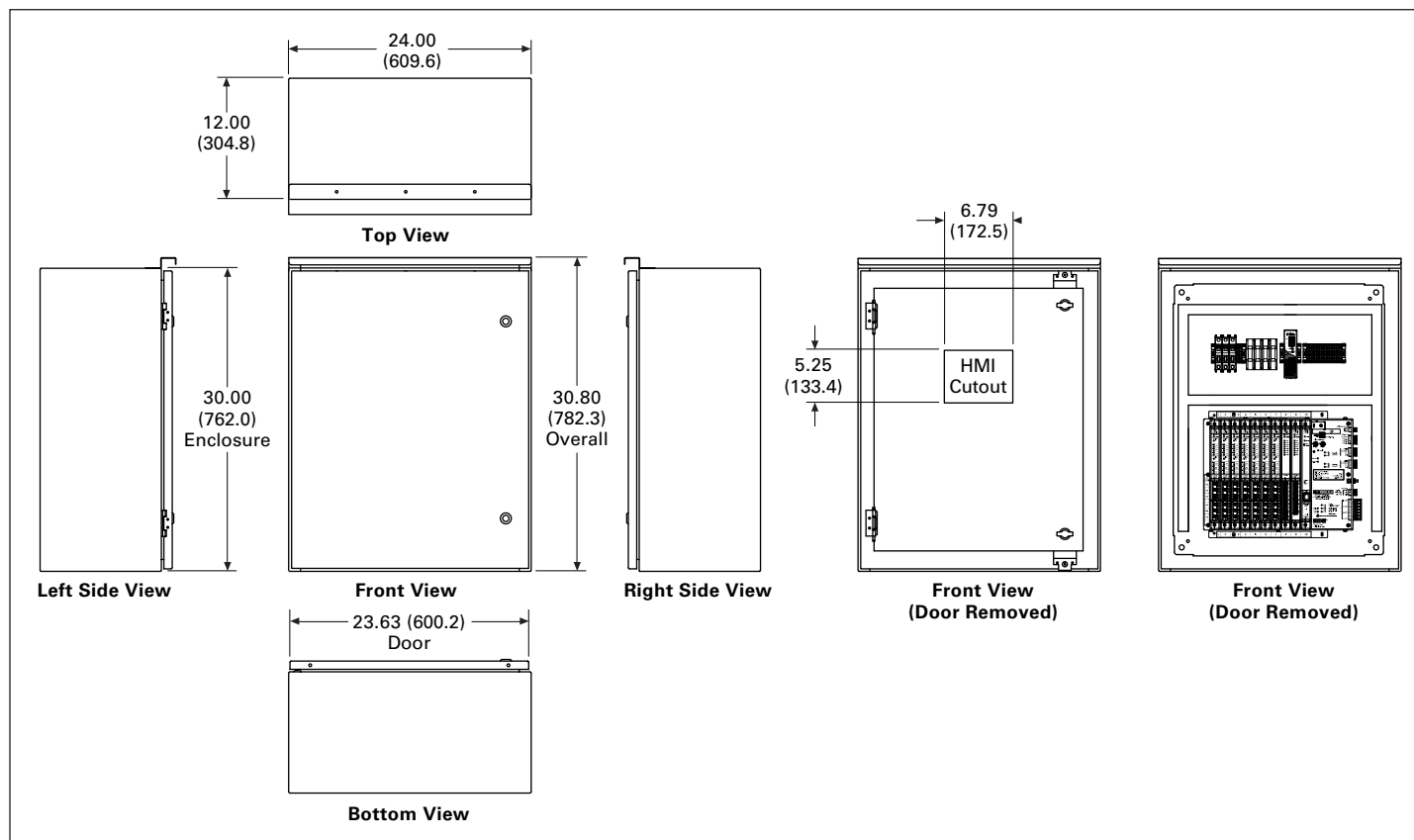


Figure 2. Dimensions of Enclosed PXMP—NEMA 3R

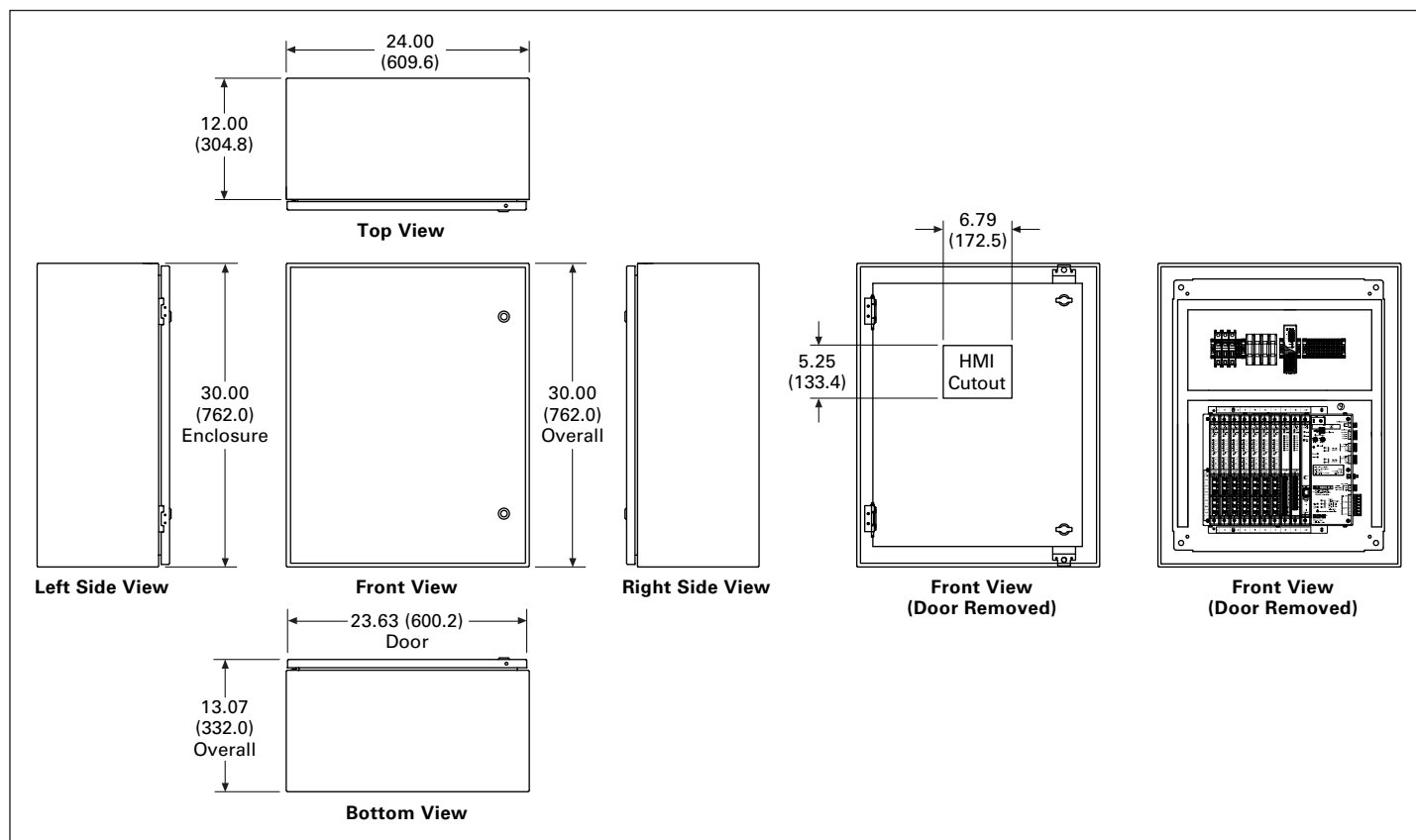


Figure 3. Dimensions of Enclosed PXMP—NEMA 4X

⚠ CAUTION

EXTREME CARE SHOULD BE TAKEN TO PROTECT THE EQUIPMENT FROM DRILL CHIPS, FILINGS, AND OTHER CONTAMINANTS WHEN MAKING THE WIRE ENTRY HOLES AND MOUNTING THE ENCLOSURE TO PREVENT COMPONENT DAMAGE OR A FUTURE MALFUNCTION.

- Step 1: Locate the four mounting holes that are on the back of the enclosure, two on the top and two on the bottom.
- Step 2: Install required mounting bolt anchors and mounting bolts in top two holes, but do not completely tighten the bolts.
- Step 3: While still supporting the enclosure, install the two lower mounting bolts in the lower holes, but do not completely tighten. Use shims, if required, to prevent deformation of the enclosure when tightening the bolts, if the mounting surface is distorted.
- Step 4: Tighten all four mounting bolts after any required shimming is completed.

Wiring

⚠ WARNING

CONTROL WIRING MAY HAVE VOLTAGE PRESENT THAT CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. DE-ENERGIZE ALL CONDUCTORS BEFORE BEGINNING TO PERFORM ANY WIRING ACTIVITY TO OR WITHIN THE ENCLOSED PXMP DEVICE.

⚠ WARNING

THE DISCONNECT SWITCHES IN THIS UNIT DISCONNECT CONTROL OR SENSING VOLTAGE TO THE PXMP DEVICE. WHEN THESE DISCONNECTS ARE IN THE "OFF" POSITION, THE CURRENT TRANSFORMER CIRCUIT, FUSES, WIRING, RECEPTACLE, AND INPUTS/OUTPUTS ARE ENERGIZED. A DISCONNECTING MEANS AND UPSTREAM PROTECTION SHOULD BE INSTALLED FOR ALL CIRCUITS. A SHORT-CIRCUIT-TYPE TERMINAL BLOCK IS PROVIDED FOR THE CURRENT TRANSFORMER CIRCUIT.

Understand the diagram(s) that pertain to your order before you begin the field wiring.

Refer to Installation Manual MN150001EN for more information regarding the PXMP.

Field wiring

Note: All field wiring must be #14 AWG minimum.

Figure 4 through **Figure 6** show the field wiring options available. Not all of these diagrams will pertain to your order. Understand your system and use the appropriate figures.

Factory wiring is shown solid; field wiring is shown dashed.

Door-locking means

The enclosure has been fitted with means for securing the door so that it cannot be opened or tampered with. The lower wing latch can be secured in place with a padlock or other multiple padlocking device. With the wing latch in the vertical position, the door can be locked in the OPEN position. With the wing latch in the horizontal position, the door can be locked in the CLOSED position. A padlock, can be placed in the left or right slots. The left slot is sized for a 3/8-inch padlock, and the right slot is sized for a 1/4-inch padlock. Please see image below for an example of a padlock installed in the wing latch.



Padlock Installed in Wing Latch

Table 1. Power Xpert Multi-Point Meter Catalog Numbering System

PXMP-MB - 2 B - D		
<div>Meter Base MB = Three-phase / single-phase, three-wire with ABCN voltage inputs MB-AB = Single-phase / three-wire with ABN voltage inputs</div>	<div>Enclosure Rating 2 = NEMA 12 3 = NEMA 3R 4 = NEMA 4X</div>	<div>Display A = None D = 6-inch color touchscreen</div> <div>Power Supply A = None—24 Vdc supplied by other source B = Single-phase, 100–240 Vac to 24 Vdc, 60 watt C = Three-phase, 400–500 Vac to 24 Vdc, 60 watt D = Three-phase, 480–600 Vac to 24 Vdc, 55 watt</div>

Example: **PXMP-MB-2B-D**

The catalog number above represents a Power Xpert Multi-Point Meter with three-phase / single-phase, three-wire with ABCN voltage inputs, NEMA 12 enclosure, single-phase 120–240 Vac to 24 Vdc power supply, and display (PXMP-DISP-6).

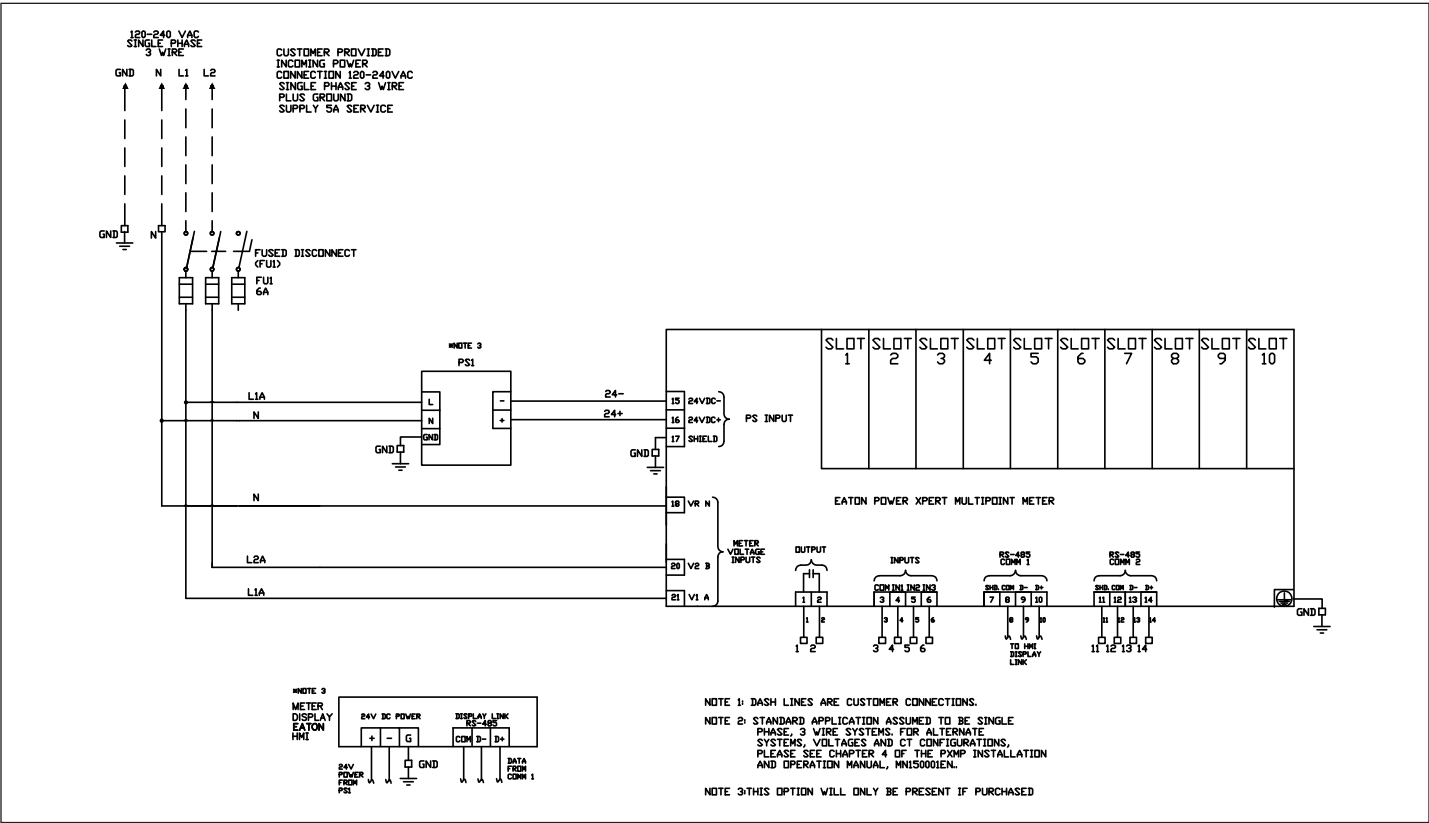


Figure 4. 120–240 Vac, 50/60 Hz, Single-Phase, Three-Wire System

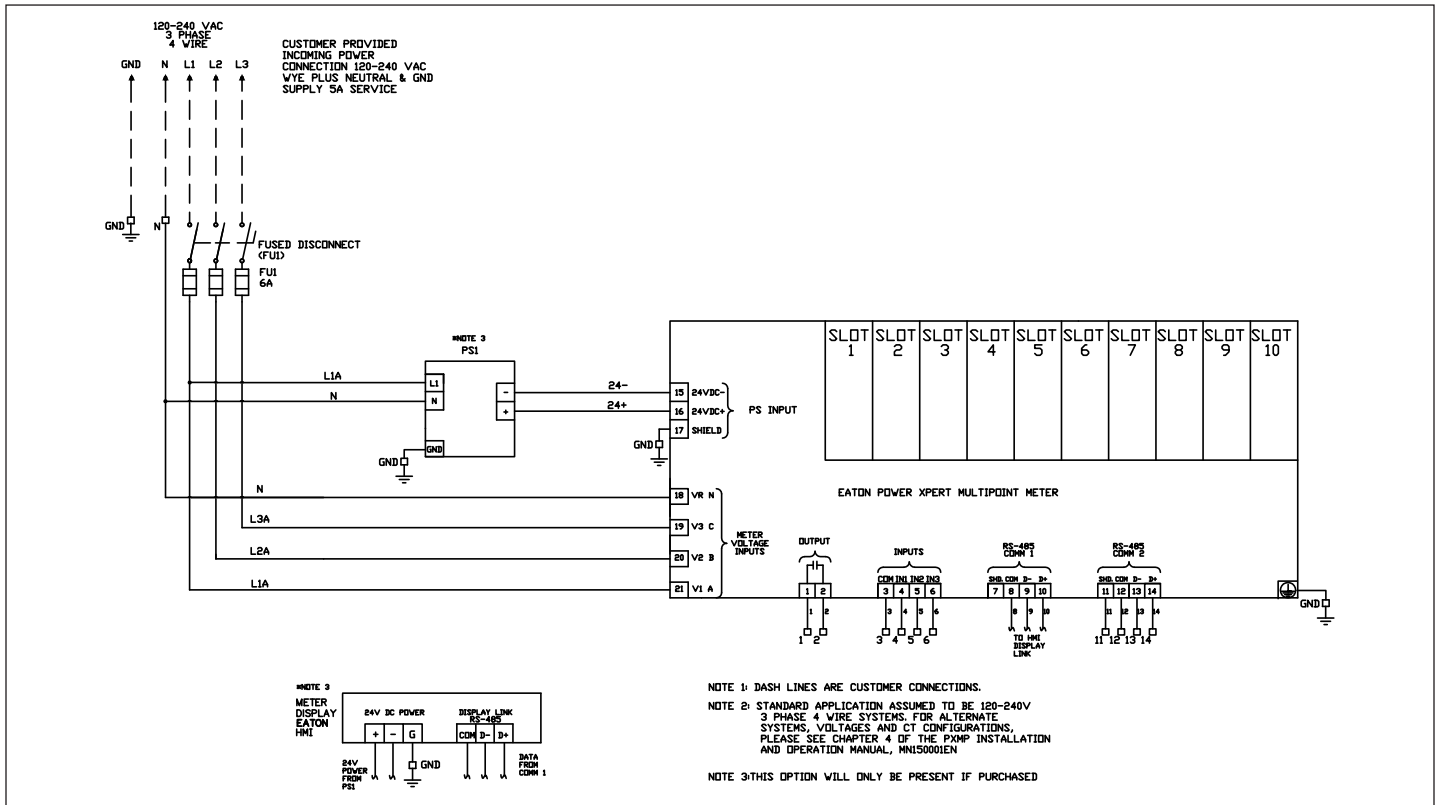


Figure 5. 120–240 Vac, 50/60 Hz, Three-Phase, Four-Wire Wye System

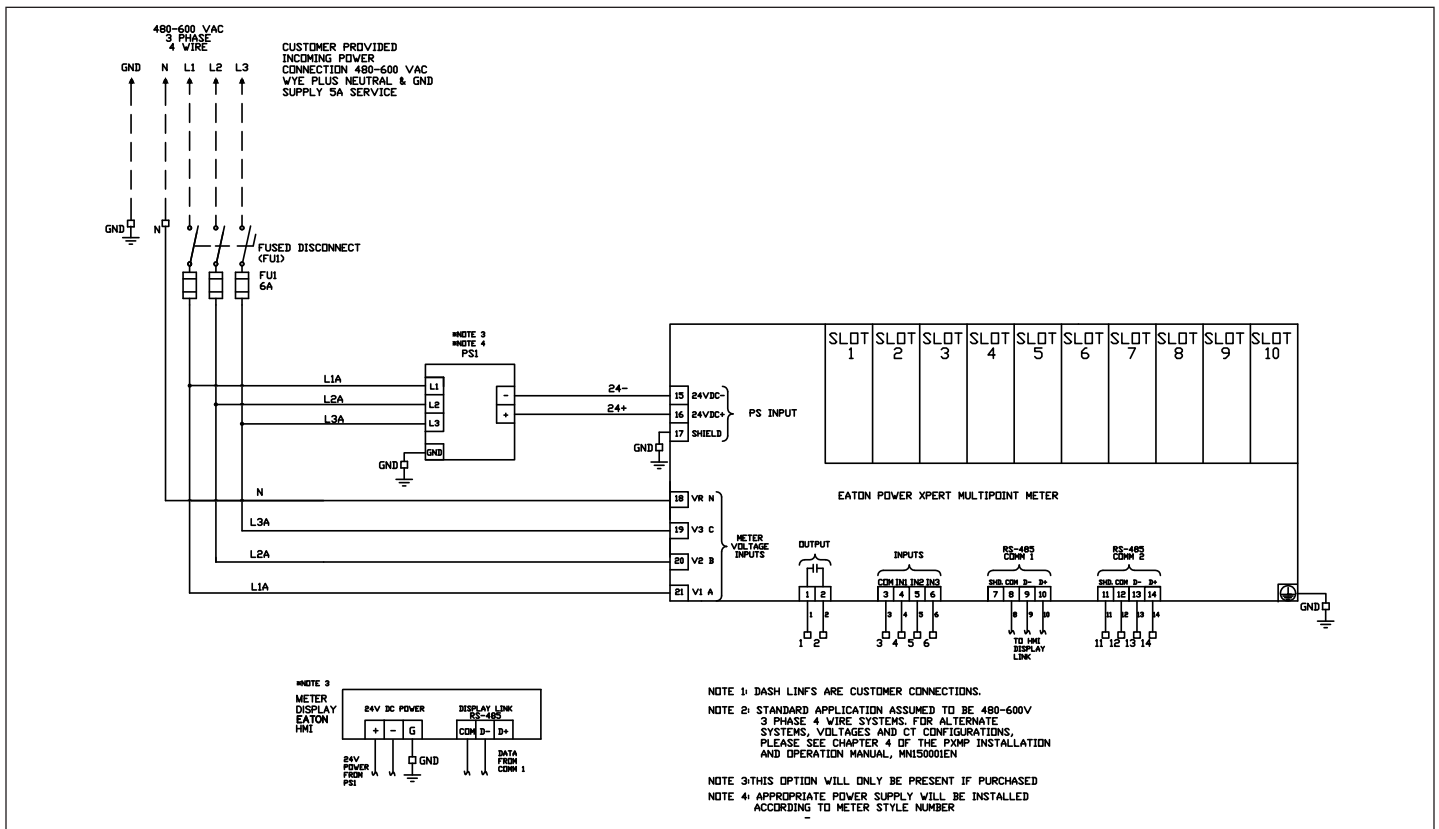


Figure 6. 480–600 Vac, 50/60 Hz, Three-Phase, Four-Wire Wye System

Operation

Refer also to PXMP device instruction books. Refer to Installation Manual MN150001EN.

The Enclosed PXMP is equipped with a two-position fused disconnect switch to enable switching voltage on and off to the PXMP device. This switch is marked SERVICE DISCONNECT.

The terminal blocks for the current circuits are short-circuit type. Shorting screws are included.

The disconnect switch in this unit disconnects control or sensing voltage to the PXMP device. When this disconnect is in the ON position, the current transformer circuit, fuses, wiring, receptacle, and input/output are energized. A disconnecting means and upstream protection should be installed for all circuits. A short-circuit type terminal block is provided for the current transformer circuit.

Maintenance

WARNING

HAZARDOUS VOLTAGE CAN CAUSE SEVERE INJURY OR DEATH. MULTIPLE SUPPLY SOURCES ARE PROVIDED. DISCONNECT EACH BEFORE SERVICING.

WARNING

REFER ALSO TO PXMP DEVICE INSTRUCTION BOOKS. REFER TO INSTALLATION MANUAL MN150001EN.

WARNING

IN GENERAL, THE ENCLOSED PXMP UNIT IS DESIGNED TO BE RELATIVELY MAINTENANCE-FREE UNDER NORMAL USAGE. HOWEVER, BECAUSE OF THE VARIABILITY OF APPLICATION CONDITIONS AND THE IMPORTANCE PLACED ON DEPENDABLE OPERATION AND INSPECTION, MAINTENANCE CHECKS SHOULD BE MADE ON A REGULARLY SCHEDULED BASIS. VISUALLY INSPECT FOR LOOSE PARTS, WIRES, AND/OR HARDWARE. INSPECT FOR DISCOLORATION OF INSULATION AND DAMAGED OR DISCOLORED COMPONENTS. BE ALERT FOR ACCUMULATION OF DIRT AND/OR MOISTURE ON STRUCTURE. CHECK OPERATION OF DISCONNECT SWITCH(ES) AND CONTINUITY OF FUSES, WHERE APPLICABLE.

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

© 2013 Eaton
All Rights Reserved
Printed in USA
Publication No. IB150002EN / Z13706
August 2013