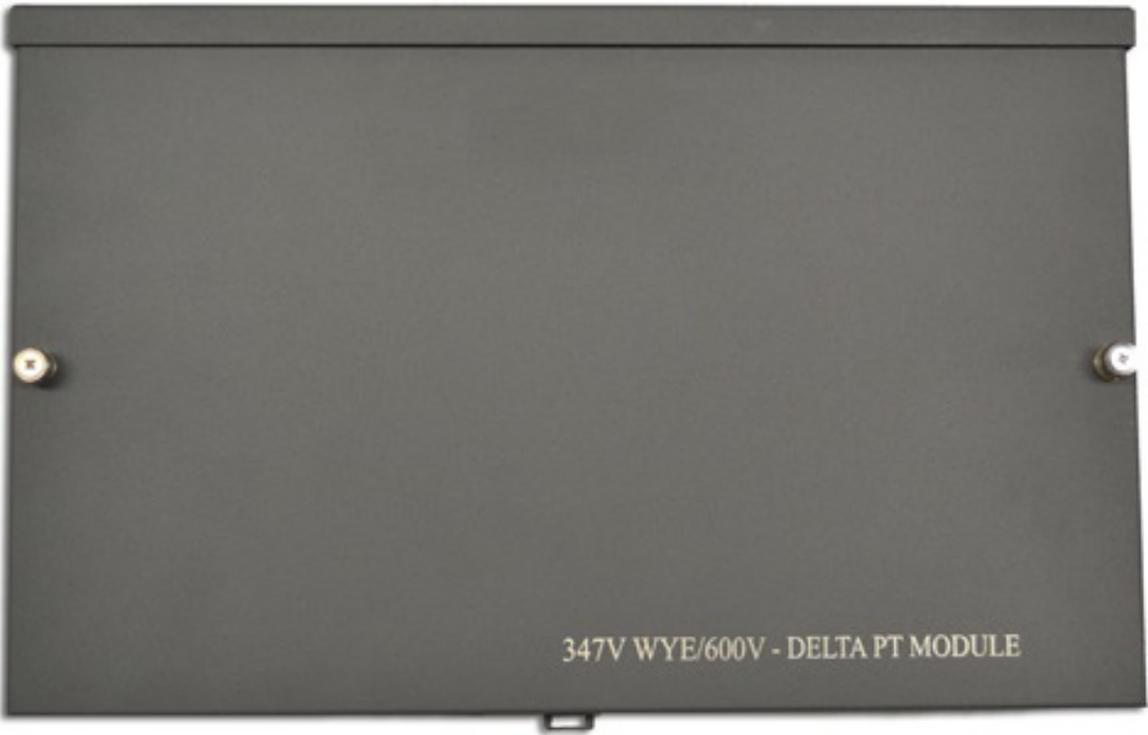


PowerHawk PT Module Installation Guide

930-135-01-A.02
05/2014



Safety Information

Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word.

Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Triacta for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Notices

UL (Underwriters Laboratories)

UL (Underwriters Laboratories) are listed by the American Federal Occupational Safety and Health Administration (OSHA) under NRTL (Nationally Recognized Testing Laboratory) program. They are also accredited by Standards Council of Canada. This equipment complies with UL 61010-1 Third Edition and CSA C22.2 No. 61010-1-04

Table of Contents

Introduction	1
Description and specifications	1
Safety precautions	3
Electrical Safety Compliance.....	3
Installation	4
Mounting the PowerHawk PT module	5
Install 347V Wye/600V Delta PT module in 600V three-phase 3- wire system	7
Install 347V Wye/600V Delta PT module in 347V three-phase 4- wire system	8
Install 480V Delta PT module in 480V three-phase 3-wire system 9	
Maintenance	10
Fuse Replacement	10
Regulatory Compliance	11
Equipment servicing and access	11
Access to equipment	11
Servicing the equipment.....	11
Component servicing.....	11
Graphical symbols.....	11

Introduction

This guide provides a description of the PowerHawk PT (potential transformer) module and procedures for installing and maintaining the module.

This documentation is intended for those responsible for installing and maintaining the PowerHawk PT (potential transformer) module. Installers must be qualified electricians with knowledge of local and national code requirements. See “Safety precautions” on page 3.

Description and specifications

The Triacta PowerHawk PT module provides step-down voltage connections to Triacta PowerHawk meters for metering single-phase to three-phase voltages of 600V, 347V, or 400V, while meeting all regulatory electrical safety and ANSI 0.5 Accuracy Class standards. The PowerHawk PT module provides both the per-phase input metering sense voltages and the auxiliary input power required by Triacta PowerHawk energy meters.

There are two variants of the PowerHawk PT module that support the following source voltages and wiring configurations:

1. The PowerHawk 347V Wye / 600V Delta variant supports:
 - 347V, three-phase, 4-wire wye
 - 600V, three-phase, 3-wire delta
2. The PowerHawk 480V Delta variant supports:
 - 480V, three-phase, 3-wire delta

The 347V/600V PT module variant has three sense voltage potential transformers for metering. The configuration of the transformers (347V wye or 600V delta) is selected by using the jumper provided.

The 480V PT module has two sense voltage potential transformers for metering.

There is a separate auxiliary power transformer in both variants to operate the meter. All voltage inputs are fused.

One PowerHawk PT module can be used to provide sense voltages and auxiliary power to a maximum of two PowerHawk meters.

Table 1 lists the specifications of the PowerHawk PT module.

Table 1: PowerHawk PT module specifications

Specification	Value
Dimensions	
Height	8.39 in. (21.31 cm)
Width	13.53 in. (34.37 cm)
Depth	2.125 in. (5.4 cm)

Specification		Value
Weight		112.5 lb (5.67 kg)
Fuse Ratings		
High voltage inputs	F1	T315 mA, 1000V
	F2	T315 mA, 1000V
	F3	T315 mA, 1000V
Voltage outputs	F4	T250 mA, 250V
	F5	T250 mA, 250V
	F6	T250 mA, 250V
	F7	T250 mA, 250V
Transformer specifications		
Input voltage	600V	Voltage tolerance: +/-10%
	480V	Voltage tolerance: +/-10%
	347V	Voltage tolerance: +/-10%
Output voltage	120V	Accuracy: 0.3%
Environmental		
Operating temperature		-40 to 158°F (-40 to 70°C)
Operating humidity		5% to 90% non-condensing
Usage environment		Indoor or enclosed outdoor environment
Maximum altitude		9843 ft (3000 m)
Pollution degree		2

Safety precautions

Carefully observe these safety instructions.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- The equipment must be accessible to authorized personnel only. Equipment must be installed in areas where access can be restricted.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance of this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying the meter and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Successful equipment operation requires proper handling, installation, and operation. Neglecting fundamental installation requirements can lead to personal injury as well as damage to electrical equipment or other property.
- NEVER bypass external fusing.
- NEVER short the secondary of a Voltage Transformer (VT).
- Always short the secondary of a current transformer prior to disconnecting current input loads.

Failure to follow these instructions will result in death or serious injury.

Electrical Safety Compliance

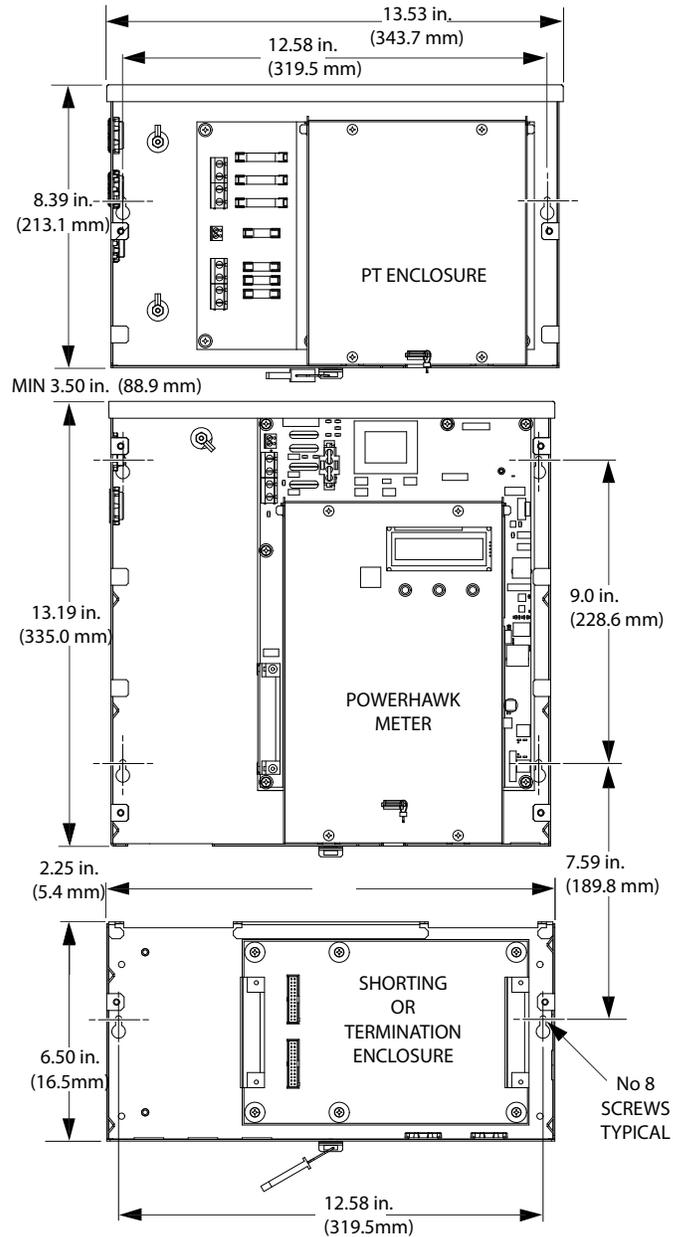
- Use the unit only in accordance with the electrical power rating
- The unit is only to be installed by a qualified electrician
- Initial installation of the unit must be inspected by the local electrical Inspection Authority
- Install the unit in compliance with the following local and national electrical codes:
 - Canada: Canadian Electrical Code, Part I, CSA C22.1
 - United States: National Fire Protection Association (NFPA) 70; US National Electrical Code
 - Elsewhere: International Electrotechnical Commission (IEC) 364, Part 1-7
- Ensure that the unit is properly earthed
- If the equipment is installed or used in a manner other than that specified in this document, it may void your warranty or impair the protection of the equipment.

Installation

The installation site must be supplied with access to the main electrical panel and any sub-panels. Portable or permanent lighting must be available to provide the installers with a clear view of the equipment and of the installation environment. Each installation may vary depending on physical site restrictions.

Figure 1 shows the recommended spacing for mounting the equipment at the installation site.

Figure 1: Recommended equipment spacing and dimensions



List of tools and equipment

The installer must have the following tools and equipment before proceeding with the installation:

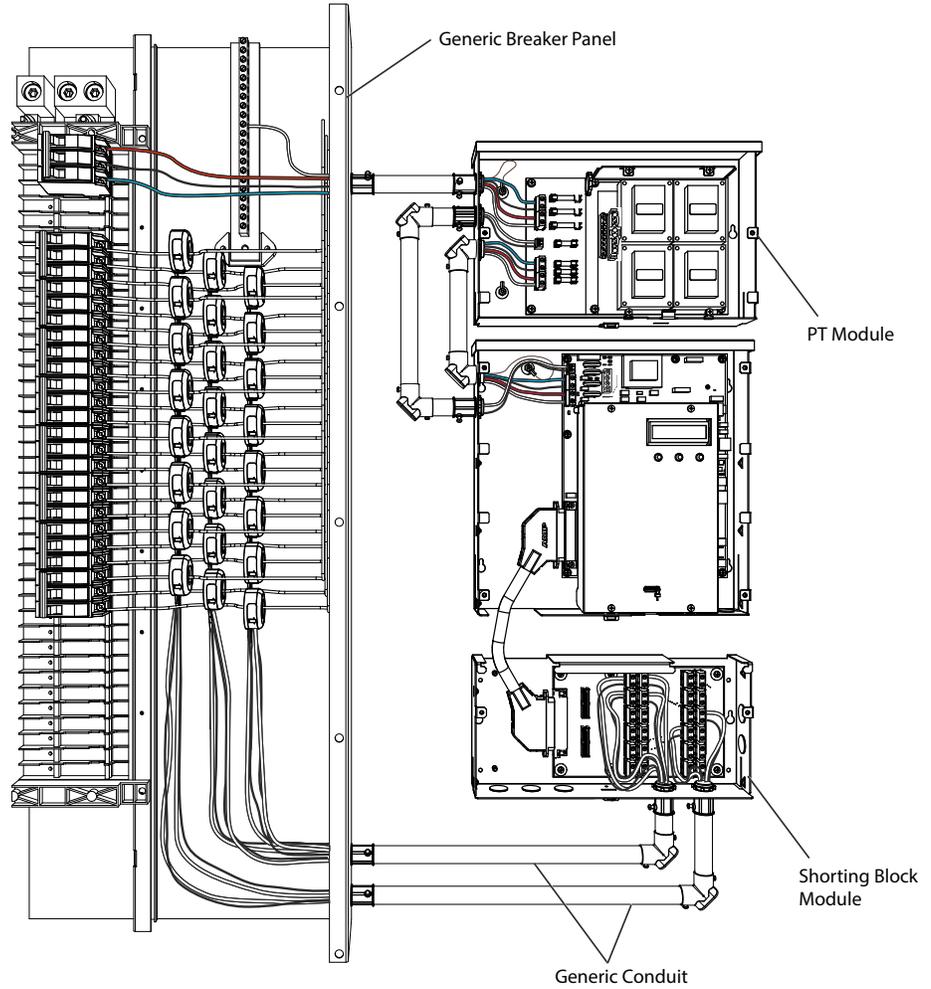
- an appropriate 15-Amp maximum circuit breaker or a disconnect device
- current/voltage meter
- 4-wire 14 AWG (1.63 mm²) 194°F (90°C) cable
- 3-wire, 14 AWG (1.63 mm²), 194°F (90°C) cable
- small flat-head screwdriver
- #2 Phillips screwdriver
- crimping tool
- wire strippers
- four 1-inch (25 mm) #8 mounting screws suitable for selected mounting surface

Mounting the PowerHawk PT module

In all installations, the PowerHawk PT Module must be connected to the source panel voltage through a 15A maximum disconnect or breaker that disconnects all line and neutral wires, so that the PT module can be powered down. The disconnect or breaker must be located within easy reach of the meter operator, and must be labeled to indicate the PowerHawk PT module and PowerHawk meter that it is connected to. The disconnect or breaker device must meet IEC 60947-1, IEC 60947-3 and/or comply with the local electrical code.

Figure 2 shows a typical system installation for a three-phase 4-wire 347V wye configuration with the PowerHawk PT module mounted adjacent to the electrical panel and the PowerHawk meter.

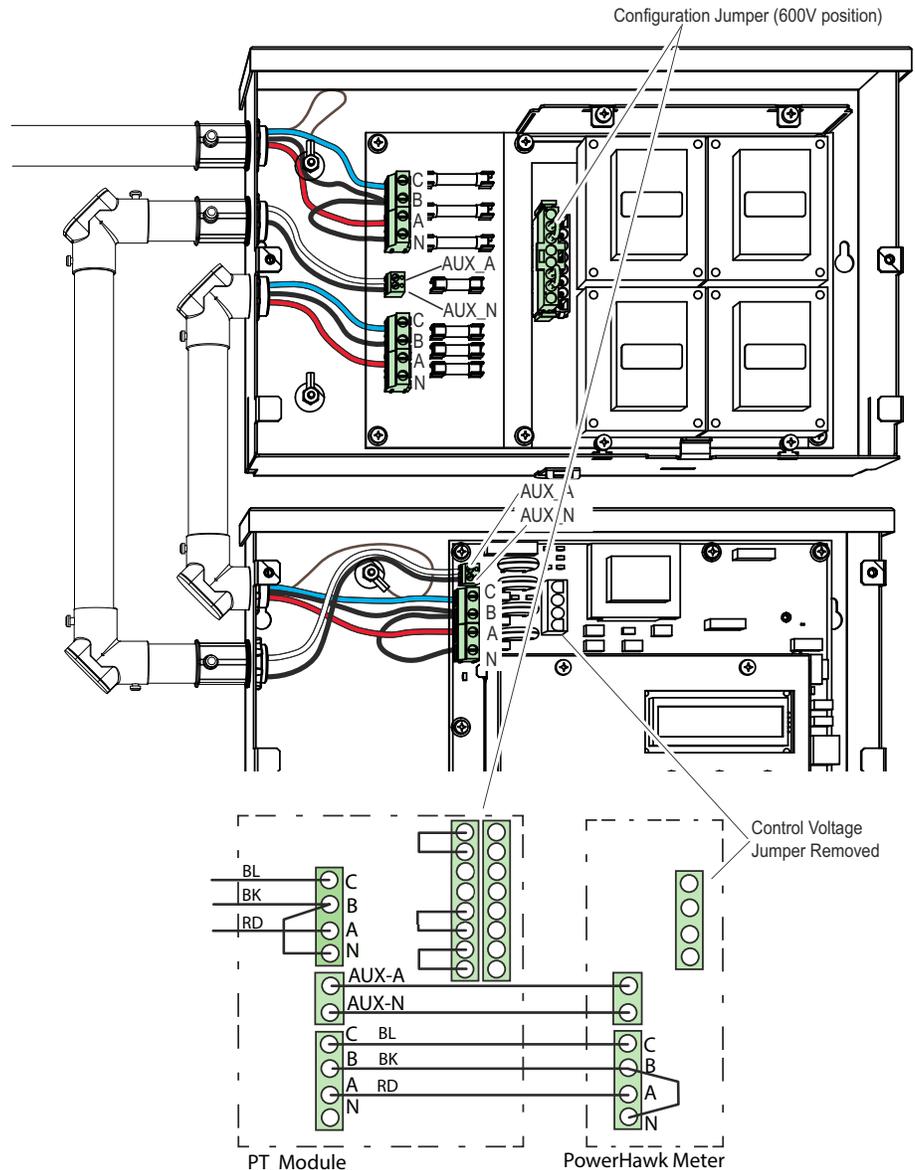
Figure 2: Typical three-phase 4-wire 347V wye system installation



Install 347V Wye/600V Delta PT module in 600V three-phase 3-wire system

1. Install the configuration jumper on the PT module in the 600V delta position (default), as shown in Figure 3, and as indicated on the printed circuit board.
2. Remove the control voltage jumper on the PowerHawk meter as shown in Figure 3.
3. Connect the source panel disconnect or breaker to the PowerHawk PT module in accordance with local and national electrical codes.
4. Connect the PowerHawk PT module to the PowerHawk meter using a 3-wire (red, black, blue), 14 AWG (1.63 mm²), 194°F (90°C) cable. The maximum cable length between the 120V outputs of the PT module and the meter sense voltage inputs is 108 ft (33 m).

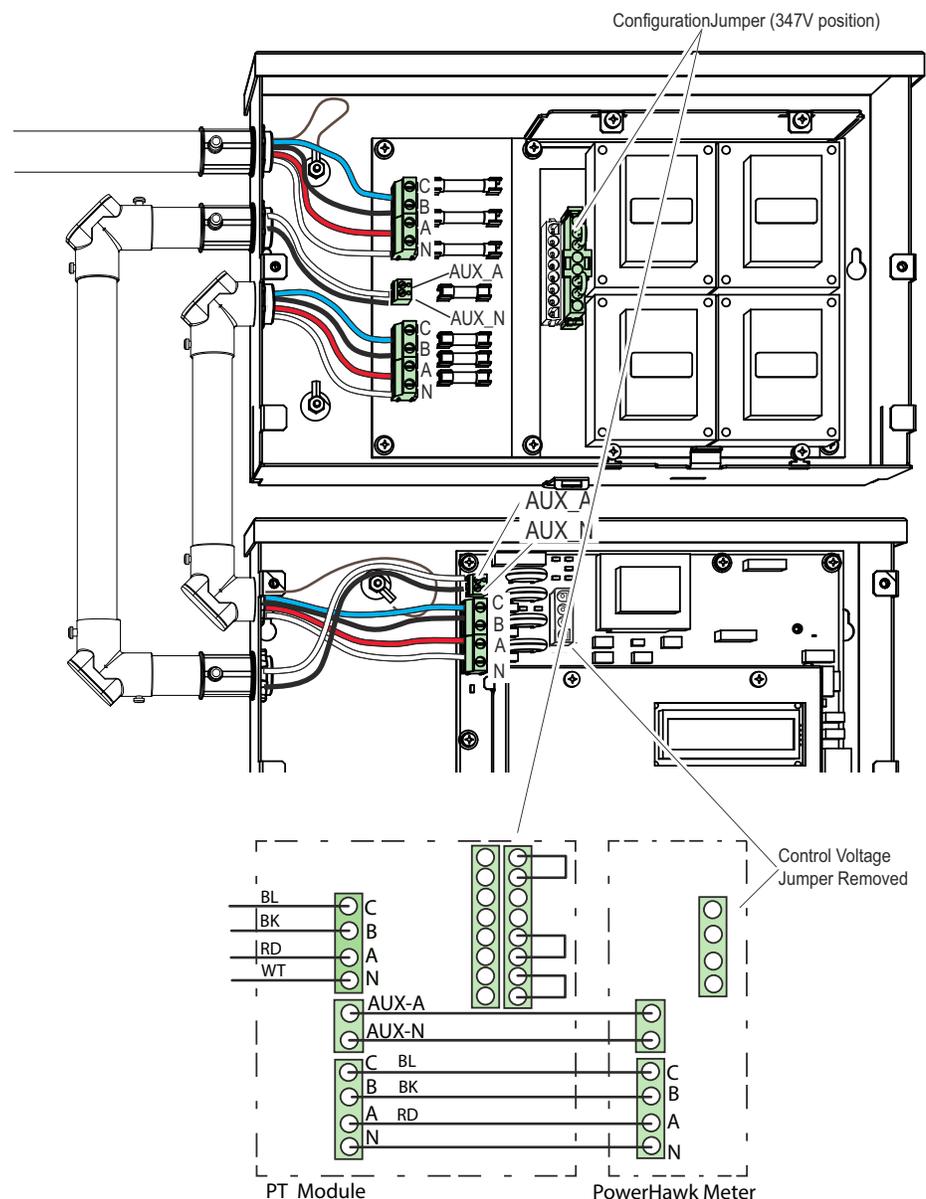
Figure 3: 600V delta PT module to meter wiring connections



Install 347V Wye/600V Delta PT module in 347V three-phase 4-wire system

1. Install the configuration jumper on the PT module in the 347V wye position as shown in Figure 4, and as indicated on the printed circuit board.
2. Remove the control voltage jumper on the PowerHawk meter as shown in Figure 4.
3. Connect the source panel disconnect or breaker to the PowerHawk PT module in accordance with local and national electrical codes.
4. Connect the PowerHawk PT module to the PowerHawk meter using a 4-wire (red, black, blue, white), 14 AWG (1.63 mm²), 194°F (90°C) cable. The maximum cable length between the 120V outputs of the PT module and the meter sense voltage inputs is 108 ft (33 m).

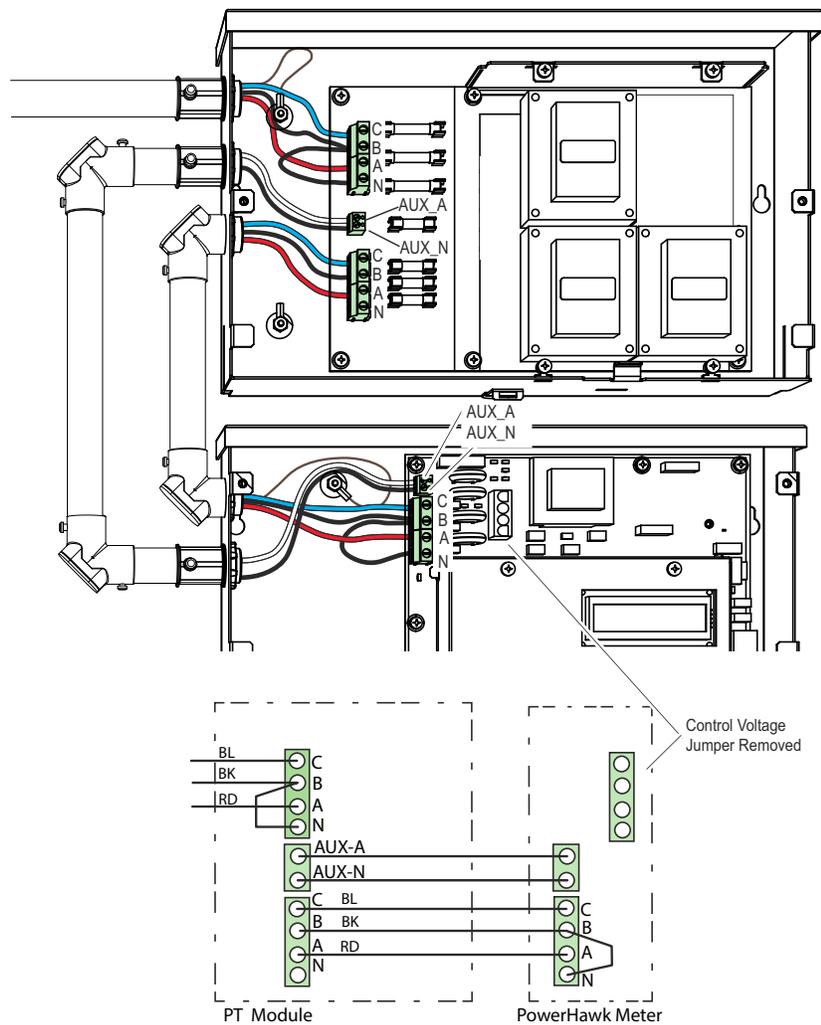
Figure 4: 347V Wye PT module to meter wiring connections



Install 480V Delta PT module in 480V three-phase 3-wire system

1. Connect the source panel disconnect or breaker to the PowerHawk PT module in accordance with local and national electrical codes.
2. Remove the control voltage jumper on the PowerHawk meter as shown in Figure 5.
3. Connect the PowerHawk PT module to the PowerHawk meter using a 3-wire (red, black, blue), 14 AWG (1.63 mm²), 194°F (90°C) cable, as shown in Figure 5. The maximum cable length between the 120V outputs of the PT module and the meter sense voltage inputs is 108 ft (33 m).

Figure 5: 480V Delta PT module to meter wiring connections



Maintenance

Do not perform any operation or maintenance procedures that are not described in this product documentation. No preventive maintenance is required on any of the equipment. Visually inspect the equipment yearly and ensure it is free of dust or other particles. If necessary, wipe with a clean cloth. Individual components are not user-serviceable and must be returned to Triacta for repair.

Fuse Replacement

⚠ DANGER

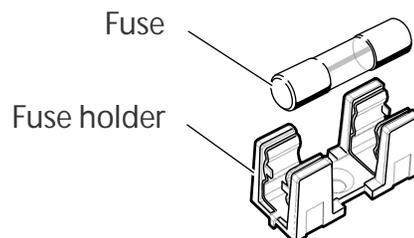
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

1. Turn off all sources of power before attempting to replace the fuse. Always use a properly rated voltage sensing device to confirm power is off.
2. Remove the outer cover from the unit.
3. Locate the fuse to be replaced inside the unit.
4. Remove the fuse from the holder as shown in Figure 6.
5. Replace the fuse with a fuse that meets the same specifications as printed on the metalwork (refer to fuse rating specifications listed in Table 1 on page 1).
6. Re-install the outer cover on the unit and turn on the power source.

Figure 6: Replacing the fuse



Regulatory Compliance

The PowerHawk PT module must be installed by a certified electrician with knowledge of local safety regulations. Initial installation of the unit, and any subsequent modification to the unit, must be inspected by the local electrical safety authority.

The PowerHawk PT module complies with the standards listed in Table 2.

Table 2: Regulatory Compliance

Discipline	Regulatory and industry standard
Safety	UL certified to IEC/EA/UL/CSA 61010-1 3 rd Edition CSA-C22.2 No. 61010-1-04

Equipment servicing and access

The information in this section must be considered as a mandatory requirement, and must be strictly adhered to when installing and operating PowerHawk PT (potential transformer) module.

Access to equipment

The equipment must be accessible to authorized personnel only. Equipment must be installed in areas where access can be restricted.

Servicing the equipment

No preventive maintenance is required on any of the equipment. Visually inspect the equipment yearly and ensure it is free of dust or other particles. If necessary, wipe with a clean cloth.

Component servicing

Individual components are not user-serviceable, and must be returned to Triacta Power Technologies for repair. If an equipment fault occurs, do not attempt to repair the faulty component.

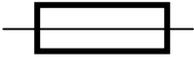
CAUTION

All maintenance activities should be performed by qualified personnel only. Do not perform any operating or maintenance procedures that are not described in the product documentation provided by Triacta.

Graphical symbols

Table 3 shows the graphical symbols that appear on the equipment.

Table 3: Graphical symbols that appear on equipment

Symbol	Description
	Indicates the supply wire protective earth, also known as chassis ground, for the primary ground.
	This symbol indicates a replaceable fuse.

Triacta Power Technologies

130 Industrial Avenue
Carleton Place ON K7C 3T2
www.triacta.com

The Triacta name, Triacta logo and PowerHawk brand used in this guide are trademarks or registered trademarks of Triacta Power Technologies. Other trademarks used are the property of their respective owners.

This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations. As standards, specifications and designs change from time to time, always ask for confirmation of the information given in this publication.

930-135-01-A.02 05/2014

©2014 All Rights Reserved