YPPA1004 & YPPA1044
Relay & I/O Expansion Modules
Instruction Manual

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⚠	⚡
CAUTION: Read complete instructions prior to installation and operation of the module.	**WARNING**: Risk of electric shock or personal injury.

Expansion modules **DO NOT** contain internal jumpers or user settings.

⚡
WARNING!   *Hazardous voltages exist within enclosure. Installation and service should be performed only by trained service personnel.*

⚡
WARNING!   *Do not connect or disconnect the expansion module with the power on!*

Limited Warranty
Yokogawa Corporation of America warrants this product against defects in material or workmanship for the specified period under "Specifications" from the date of shipment from the factory. Yokogawa's liability under this limited warranty shall not exceed the purchase value, repair, or replacement of the defective unit.

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INTRODUCTION

These external expansion modules add functionality to any ***PRO****PLUS* in the field. They can be added at any time and are easy-to-install.

Add a 4-relay expansion module and/or up to two I/O modules. The menu items for these modules do not appear until the module is connected, simplifying the basic menu.

The relay module consists of four 3 amp Form A (SPST) relays.

The I/O module has four digital inputs and four digital outputs per module. External digital inputs can function similarly to the front panel function keys. They can be configured to trigger certain events (i.e. acknowledge/reset alarms, reset max and/or min values, disable/enable all output relays, and hold current relay states), provide direct menu access point, or mimic front panel keys. Digital outputs can be used to remotely monitor ***PRO****PLUS* alarm relay output states, or the states of a variety of actions and functions executed by the meter.

RS-232 or RS-485 communications modules are also available; refer to the accessories section for ordering details.

Accessories

Model	Description
YPPA1002	DIN-rail mounting kit for two expansion modules
YPPA1200	Meter copy cable
YPPA1232	RS-232 serial adapter
YPPA1485	RS-485 serial adapter

SPECIFICATIONS

Except where noted all specifications apply to operation at +25°C.

General (applicable to both models)

POWER	*PRO*PLUS meter M-LINK connection
CABLE	Standard CAT5e cable; provided with module. *Note: To ensure optimum performance use only supplied cables.*
CONNECTORS	RJ45; identical and interchangeable Removable screw terminal blocks that accept 12 to 22 AWG wire.
TIGHTENING TORQUE	Screw terminal connectors: 5 lb-in (0.56 Nm)
ENCLOSURE	ABS-94HB material, UL94HB (Flame-Class Rating)
OVERALL DIMENSIONS	2.286" x .924" x 3.624" (W x H x D) 58.06 mm x 23.47 mm x 92.05 mm (W x H x D)

YPPA1004 4-Relay Expansion Module

RELAYS	Four Form A (SPST); Rated 3 A @ 30 VDC and 125/250 VAC for resistive loads 1/14 HP @ 125/250 VAC for inductive loads.
WEIGHT	2.4 oz (68 g)

YPPA1044 Digital Input & Output Expansion Module

CHANNELS	4 digital inputs & 4 digital outputs per module
SYSTEM	Up to 2 modules for a total of 8 inputs & 8 outputs *Note: The jumper located between the RJ45 connectors must be removed on the second module in order for the system to recognize it as module #2.*
DIGITAL INPUT LOGIC HIGH	3 to 5 VDC
DIGITAL INPUT LOGIC LOW	0 to 1.25 VDC
DIGITAL OUTPUT LOGIC HIGH	3.1 to 3.3 VDC
DIGITAL OUTPUT LOGIC LOW	0 to 0.4 VDC
SOURCE CURRENT	10 mA maximum output current
SINK CURRENT	1.5 mA minimum input current
+5 V TERMINAL	To be used as pull-up for digital inputs only. Connect normally open pushbuttons across +5 V & DI1-4. **WARNING** <u>***DO NOT***</u> *** use +5 V terminal (pin 1) to power external devices.***
WEIGHT	2.2 oz (62 g)

INSTALLATION

There is no need to remove the expansion module from its case to complete the installation, wiring, or setup of the unit.

WARNING!

Do not connect or disconnect the expansion module with the power on!

External Relays & Digital I/O Connections

The relay and the digital I/O expansion modules YPPA1004 & YPPA1044 are connected to the meter using a CAT5e cable provided with each module (see Figure 1).
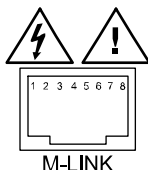

Figure 1: M-Link Connector Location on the Meter

WARNING!

Do not connect any equipment other than Yokogawa's expansion modules, cables, or meters to the RJ45 M-LINK connector. Otherwise damage will occur to the equipment and the meter.

The two RJ45 connectors on the expansion modules are identical and interchangeable; they are used to connect additional modules to the system.

Note: The jumper located between the RJ45 connectors of the YPPA 1044 (see Figure 2) must be removed on the second digital I/O module in order for the system to recognize it as module #2.
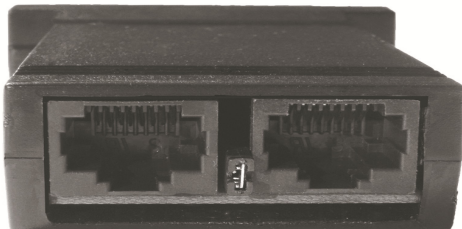

Figure 2: Jumper Location

Terminal Block Connections

All connections are made to removable screw terminal connectors located at the front of the module.

> ⚠ Use copper wire with 60°C or 60/75°C insulation for all line voltage connections. Observe all safety regulations. Electrical wiring should be performed in accordance with all applicable national, state, and local codes to prevent damage to the meter and ensure personnel safety.
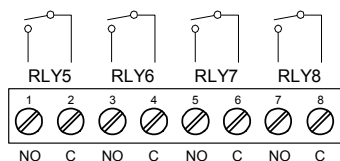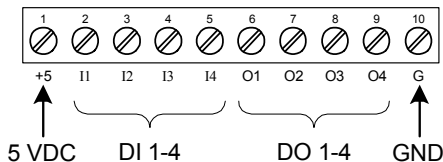
Figure 3: External Relays Module Connections

Figure 4: Digital I/O Module Connections

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