

# PDA1004, PDA1011, & PDA1044 Instruction Manual

## *Relay, Analog Output, and Digital I/O Expansion Modules*



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DIGITAL** ÷

## Disclaimer

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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 switches.



**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

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

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# Table of Contents

<b>INTRODUCTION</b>	<b>3</b>
Accessories	3
<b>SPECIFICATIONS</b>	<b>4</b>
General (applicable to all models)	4
PDA1004 4-Relay Expansion Module	4
PDA1011 Dual Isolated 4-20 mA Output Module	4
PDA1044 Digital Input & Output Expansion Module	5
<b>INSTALLATION</b>	<b>5</b>
Expansion Module Connections	6
PDA1011 Configuration	6
PDA1044 Configuration	6
Terminal Block Connections	7

## INTRODUCTION

These external expansion modules add functionality to the PROVU 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 PD6060, PD6080, PD6081, PD6088, PD6089, PD6262, PD6363, and PD6400 PROVU meters may add an additional 2 analog outputs. 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 analog output module consists of two 4-20 mA outputs. Both are configured for functions similar to the PROVU onboard outputs.

The I/O module has four digital inputs and four digital outputs per module. External digital inputs function similarly to the F4 digital input on most PROVU models. They can be configured to trigger events (i.e. acknowledge/reset alarms, reset max and/or min values, disable/enable all output relays), provide specific menu access, or mimic front keys. Digital outputs can be used to remotely monitor alarm relay states, or the states of a variety of actions and functions executed by the meter.

## Accessories

Model	Description
PDA1002	DIN-rail mounting kit for two expansion modules
PDA1200	Meter copy cable
PDA1232	RS-232 serial adapter
PDA1485	RS-422/485 serial adapter
PDA8008	USB Serial Adapter

## SPECIFICATIONS

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

### General (applicable to all models)

<b>POWER</b>	ProVu meter M-LINK connection
<b>CABLE</b>	Standard CAT5e cable; provided with module. <i>Note: To ensure optimum performance use only supplied cables.</i>
<b>CONNECTORS</b>	RJ45; identical and interchangeable Removable screw terminal blocks that accept 12 to 22 AWG wire.
<b>TIGHTENING TORQUE</b>	Screw terminal connectors: 5 lb-in (0.56 Nm)
<b>ENCLOSURE</b>	ABS-94HB material, UL94HB (Flame-Class Rating)
<b>OVERALL DIMENSIONS</b>	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)

### PDA1004 4-Relay Expansion Module


<b>RELAYS</b>	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.
<b>WEIGHT</b>	2.4 oz (68 g)

### PDA1011 Dual Isolated 4-20 mA Output Module

*The PDA1011 is only compatible with the PD6060, PD6262, PD6363, and PD6400 dual-input meters and PD6080, PD6081, PD6088, and PD6089 Modbus® scanners.*

<b>ACCURACY</b>	± 0.1% of span ± 0.004 mA		
<b>SCALING RANGE</b>	3.000 to 23.000 mA for any display range		
<b>TEMPERATURE DRIFT</b>	0.4 µA/ °C max from 0 to 65 °C ambient, 0.8 µA/ °C max from -40 to 0 °C ambient <i>Note: Analog output drift is separate from input drift.</i>		
<b>OUTPUT LOOP RESISTANCE</b>	Power supply	Minimum	Maximum
	24 VDC	10 Ω	700 Ω
	35 VDC (external)	100 Ω	1200 Ω
<b>WEIGHT</b>	1.8 oz (51 g)		

## PDA1044 Digital Input & Output Expansion Module

<b>CHANNELS</b>	4 digital inputs & 4 digital outputs per module
<b>SYSTEM</b>	Up to 2 modules for a total of 8 inputs & 8 outputs <i>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.</i>
<b>DIGITAL INPUT LOGIC HIGH</b>	3 to 5 VDC
<b>DIGITAL INPUT LOGIC LOW</b>	0 to 1.25 VDC
<b>DIGITAL OUTPUT LOGIC HIGH</b>	3.1 to 3.3 VDC
<b>DIGITAL OUTPUT LOGIC LOW</b>	0 to 0.4 VDC
<b>SOURCE CURRENT</b>	10 mA maximum output current
<b>SINK CURRENT</b>	1.5 mA minimum input current
<b>+5 V TERMINAL</b>	<p>To be used as pull-up for digital inputs only. Connect normally open pushbuttons across +5 V &amp; DI 1-4.</p> <div style="border: 1px solid black; padding: 10px; display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p><b><u>DO NOT</u> use +5 V terminal (pin 1) to power external devices.</b></p> </div> </div> <p><b>WARNING!</b></p>
<b>WEIGHT</b>	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!***

## Expansion Module Connections

The relay, analog output, and digital I/O expansion modules PDA1004, PDA1011, and PDA1044 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 Precision Digital'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.

### **PDA1011 Configuration**

For the ProVu to recognize the installed PDA1011 analog outputs the module must be connected by the M-Link connector to the ProVu and each analog output being used must be wired to and powered by a separate DC supply than the one powering the ProVu.

### **PDA1044 Configuration**

The jumper located between the RJ45 connectors of the PDA1044 (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**

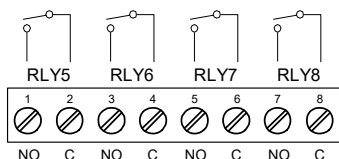
## Terminal Block Connections

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

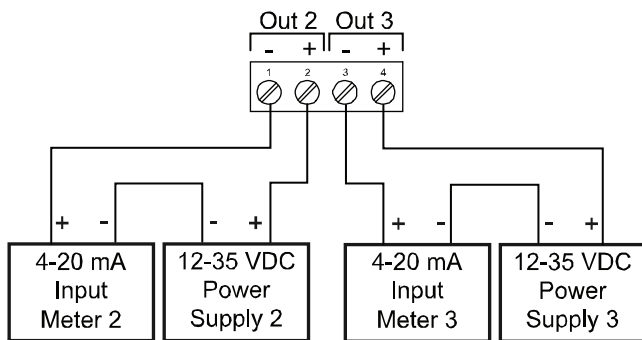


**Caution!**

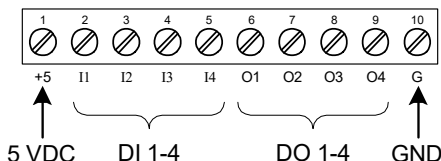
Use copper wire with 60°C or 60/75°C insulation for all line voltage connections. Observe all safety regulations. Electrical wiring should be performed in accordance with all applicable national, state, and local codes to prevent damage to the meter and ensure personnel safety.



**Figure 3: External Relays Module Connections**



**Figure 4: Dual Analog Output Module Connections**



**Figure 5: Digital I/O Module Connections**