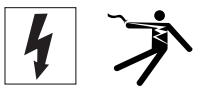
Installation Manual
PMIM-IOMOD-0208

ACCESS 9340/9360 Meter Input/Output Module

9340-60-I/O2222 and 9340-60-I/O26

HAZARD CATEGORIES AND SPECIAL SYMBOLS

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 bulletin 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 immediately 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.

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result in** property damage.

NOTE: Provides additional information to clarify or simplify a procedure.

PLEASE NOTE

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

CLASS A FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. This Class A digital apparatus complies with Canadian ICES-003.

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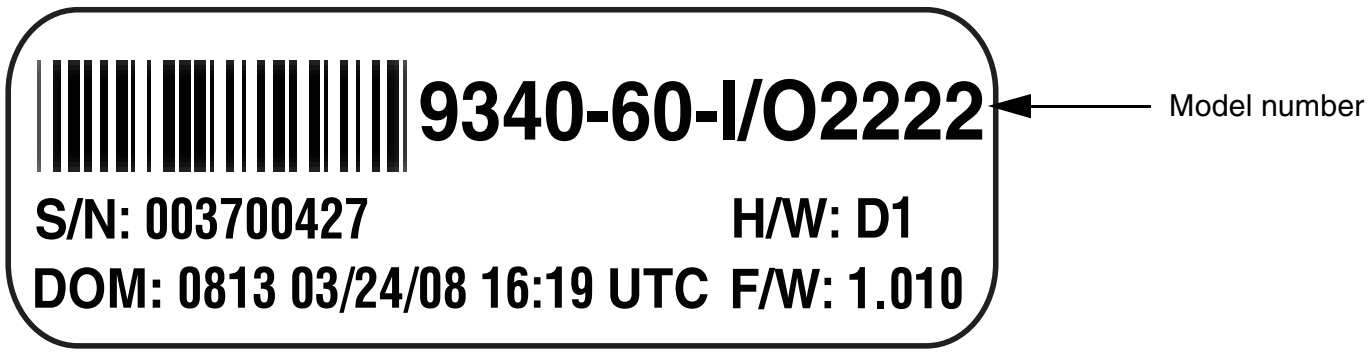
TABLE OF CONTENTS

ENGLISH

Identification



Firmware

NOTE: The meter must be running firmware version 10.2 or higher before installing the meter I/O module.

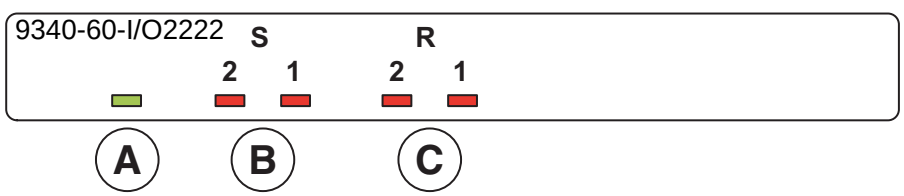
I/O Module Characteristics

Table 1–1: I/O Module Characteristics

9340-60-I/O2222	
Inputs	2 Analog, 2 Digital
Outputs	2 Analog, 2 Digital
9340-60-I/O26	
Inputs	6 Digital
Outputs	2 Digital
Power Source	One (1) 24 V

LEDs

A. Flashes green to indicate the module is operating
B. Glows red when digital inputs (S1, S2, etc.) are ON.
C. Glows red when relay outputs are ON.



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Safety

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, BURN, OR ARC FLASH

Failure to follow this instruction will result in death or serious injury.

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. In the U.S., see NFPA 70E.
- Only qualified workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on 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 equipment in which the I/O is to be installed before installing and wiring the I/O.
- Always use a properly rated voltage sensing device to confirm that power is off.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.

Installation

Supply Voltage Considerations

If your control power voltage is less than 208 V, you can install one of the following combinations:	If your control power voltage is greater than 208 V, you can install one of the following combinations:
• One or two 9340-60-I/O26's • One 9340-60-I/O2222	• One or two 9340-60-I/O26's • One 9340-60-I/O2222 and one 9340-60-I/O26 • One or two 9340-60-I/O2222's

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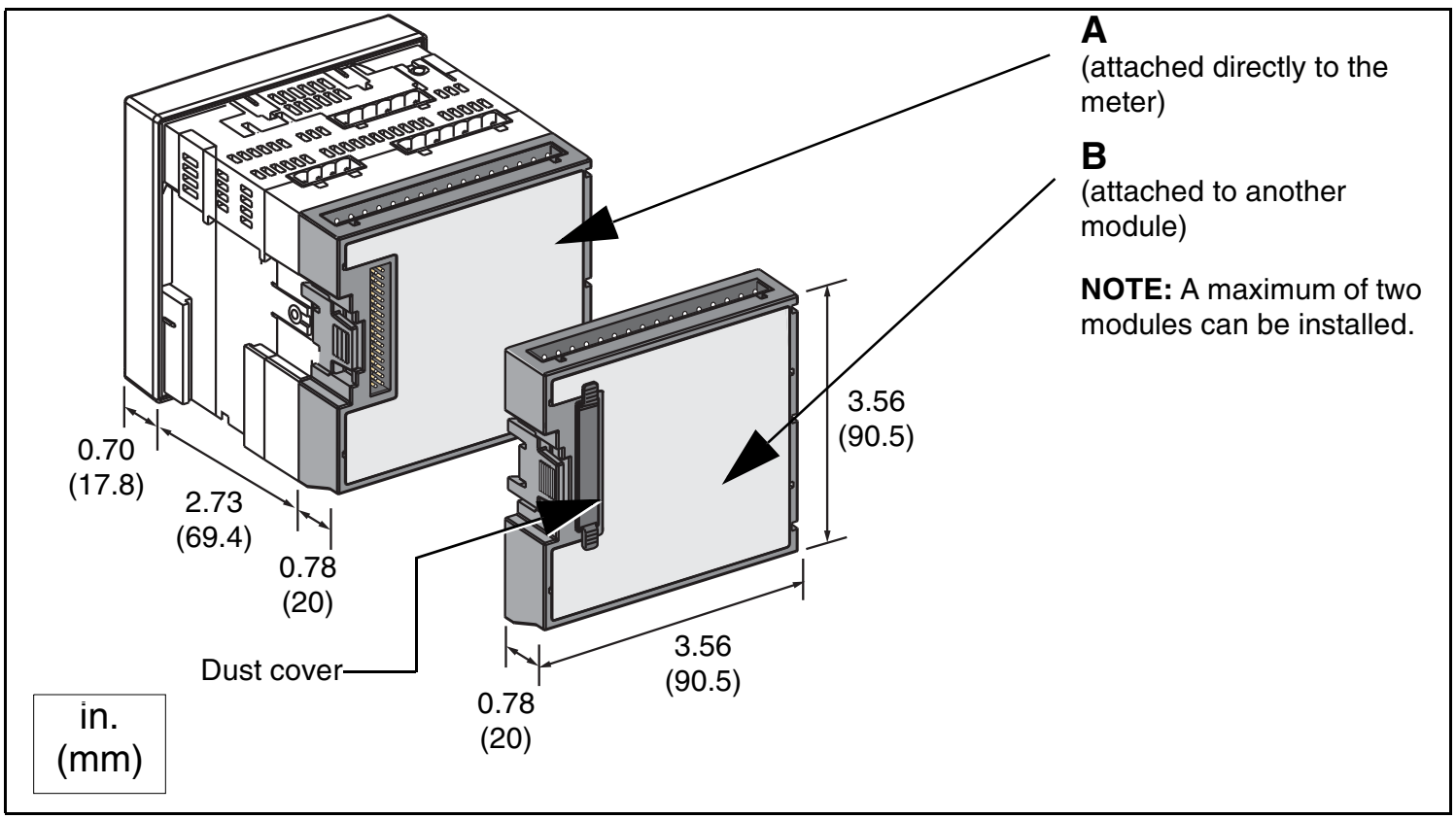
Mounting

Refer to your meter installation manual for minimum clearances and other guidelines for mounting PM I/O modules.

Figure 1–1: Dimensions



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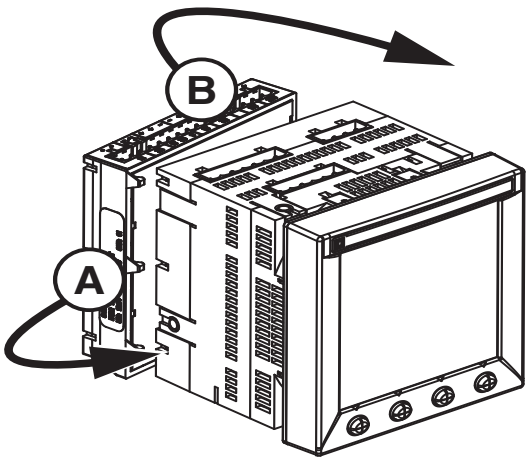


1. Turn off all power to the meter and the equipment in which it is installed:
   a. Disconnect the metered voltage either by removing the fuses from the potential transformer (PT secondaries) or by turning off the voltage disconnect switch.
   b. Short circuit the current transformer (CT) secondaries.
   c. Remove the control power and any power sources to the auxiliary inputs and outputs.
   d. Always use a properly rated voltage sensing device to confirm that power is off.

   NOTE: Install the meter first. Refer to the meter installation manual for more information. Before *installing I/O modules, connect the phase current inputs; they are not accessible after mounting the I/O module.*
2. Follow the instructions that came with your anti-static or grounding strap to discharge static while installing the PM I/O module.
3. Remove the dust cover from the meter or previously installed PM I/O module.
4. Hook one side of the PM I/O (A) and snap it in place as shown (B).

Wiring

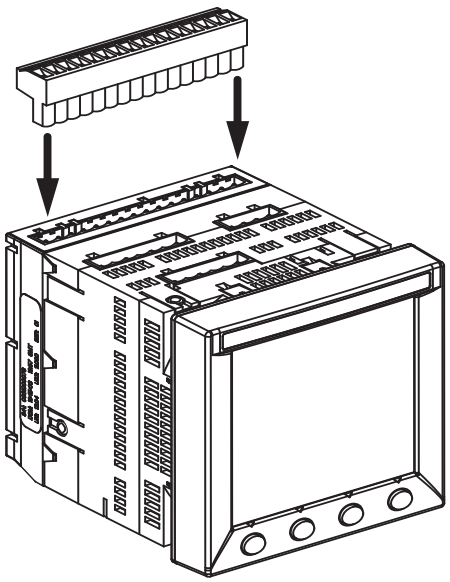
CAUTION

VOLTAGE TRANSIENTS OVER 500 V CAN DAMAGE DIGITAL INPUTS

Failure to follow this instruction will result in equipment damage.

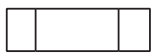
- Do not use digital inputs to directly monitor circuits with highly inductive loads.
- Use auxiliary contacts and isolated power supply when monitoring inductive loads.

NOTE: Switching of inductive devices such as relay coils and motors results in high voltage transients from back electromotive force (EMF). To monitor this type of circuit, use an isolated power supply, such as the 24 Vdc power supply included with the 9340-60-I/O26, and an auxiliary contact on the circuit breaker or switch.



1. Plug the connector into the PM I/O.
2. Using 12- to 24-gauge (0.2–3.3 mm^2) stranded wire, strip 0.25 in (6 mm) from the end of each wire being connected to the terminal and insert the wire into appropriate hole of the connector.
3. Torque the wire binding screw 5–7 in-lb (0.56–.79 N•m).

Table 1–2: Wiring Diagram Symbols

Symbol	Description
	Fuse
	Normally open contact
	Normally closed contact
	Vdc or Vac external power source
	Vdc external power source
R	Relay output
S	Status input
AI	Analog input
AO	Analog output

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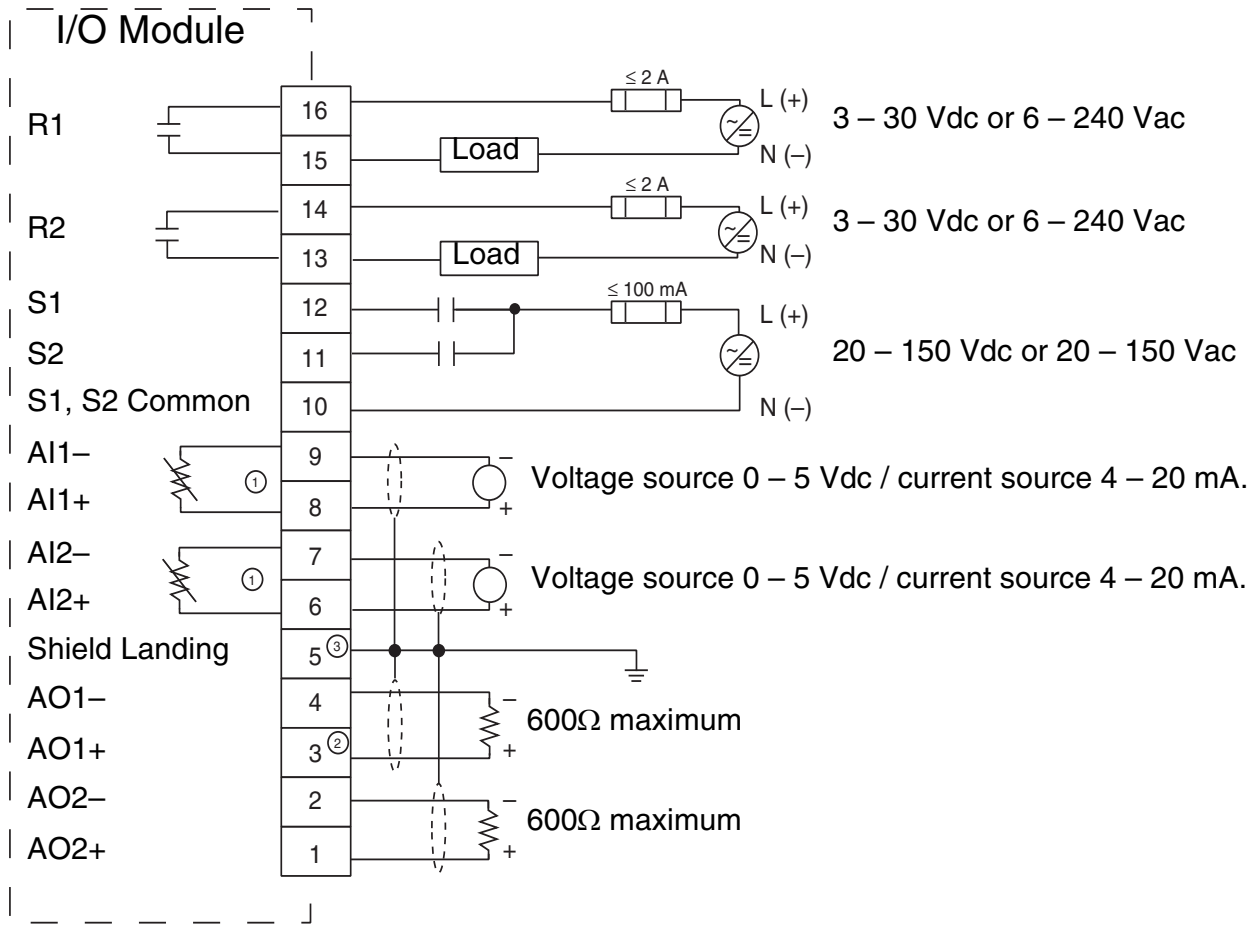
9340-60-I/O2222



1. Input resistance is 250W in current mode. In voltage mode, the input resistance is 12.75 kW. The acceptable voltage range is 0 to 5 Vdc.
2. Open circuit voltage is 15 Vdc. When the analog output is used in voltage mode, the output will source 0 to 20 mA of current. To convert this current to a voltage source, connect a 250 W resistor across the output.
3. Optional: Use the shield landing terminal for shield grounding by connecting the earth ground to the shield landing with an auxiliary wire. The shield landing is not connected internally. To prevent ground loops, only connect one side of the shield to ground.

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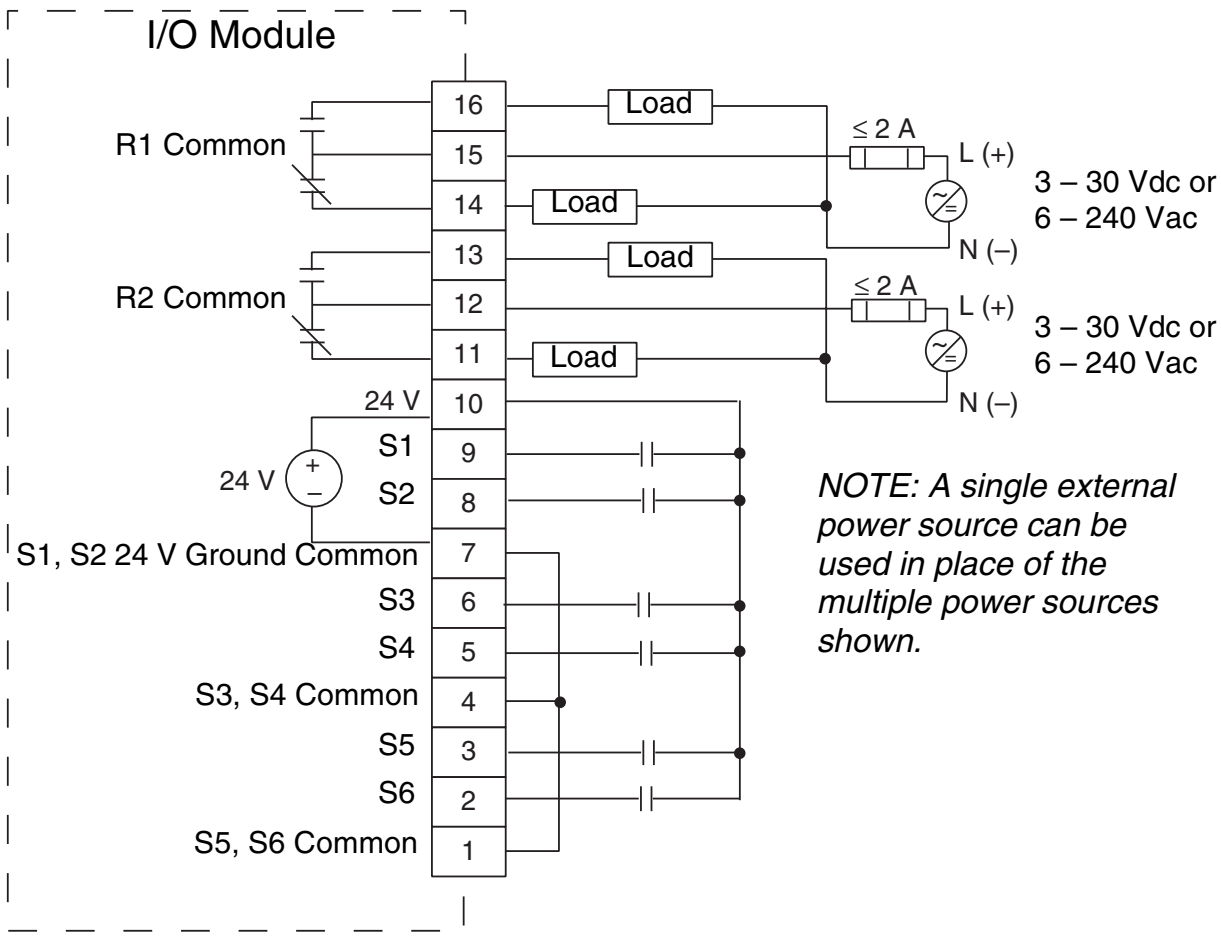
9340-60-I/O26 Using the Internal 24 Vdc Power Supply



NOTE: A single external power source can be used in place of the multiple power sources shown.

NOTE: The 24 volts can power a maximum of eight digital inputs.

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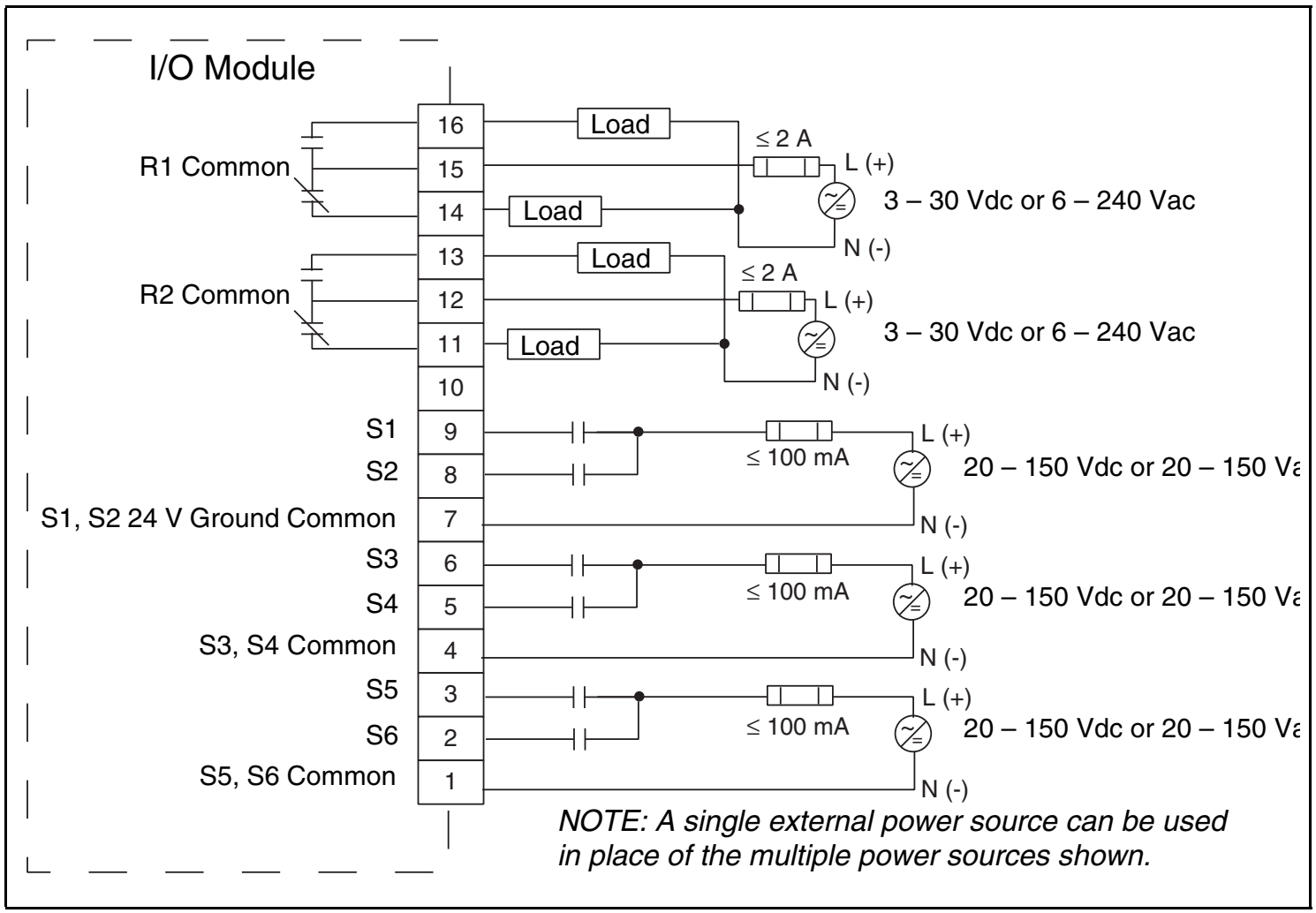
9340-60-I/O26 Using an External Power Supply



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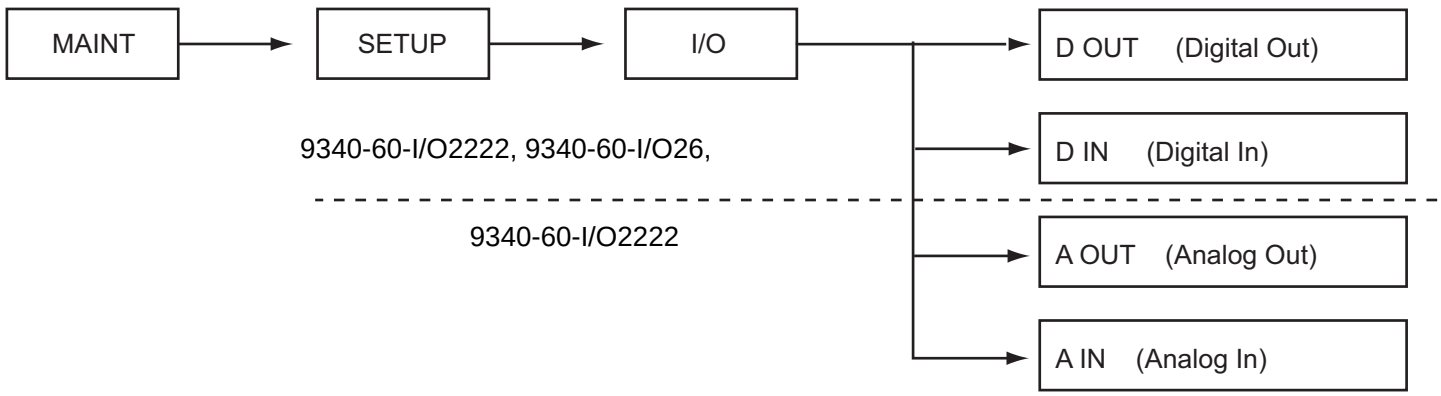
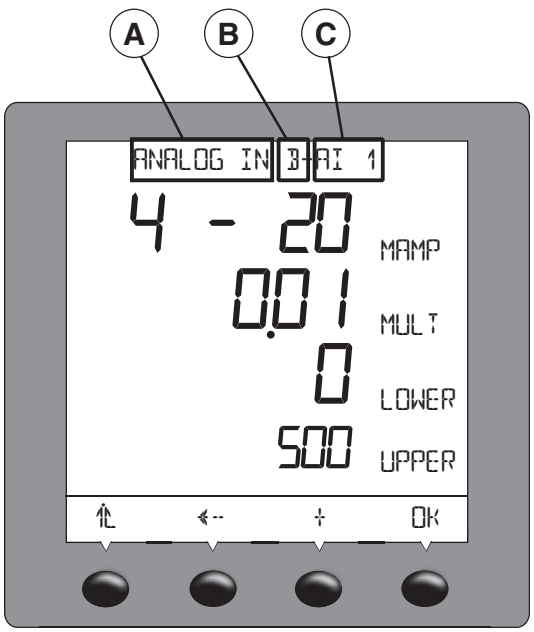
Setup

I/O Setup Menu

Figure 1–2: I/O menu options



I/O Screen Label



A. Input or output type
B. I/O module position (A or B)
C. Input or output name

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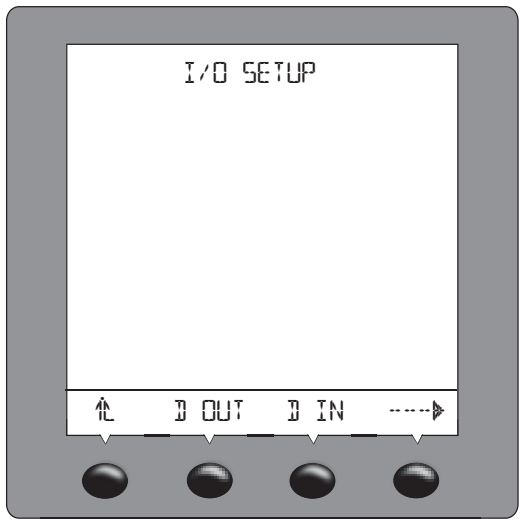
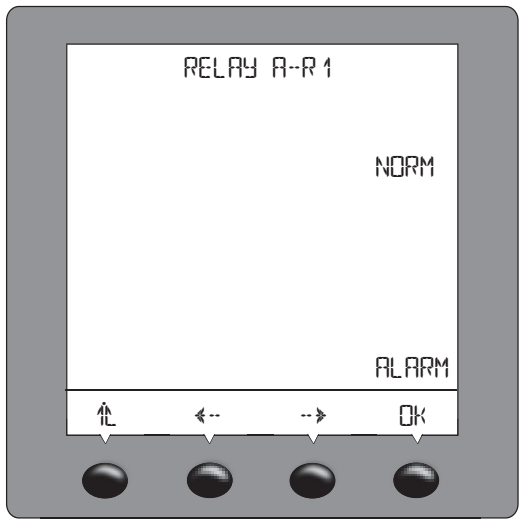
Accessing I/O Setup



1. Press ⇢ until MAINT is visible.
2. Press MAINT.
3. Press SETUP.
4. Enter your password.
5. Scroll to I/O.
6. Press I/O.

NOTE: All I/O modules have the D OUT (digital output) and D IN (digital input) menu options. The 9340-60-I/O2222 also has the A OUT (analog output) and A IN (analog input) menu options, which are accessed by pressing ⇢.

Digital Output Setup



1. From the I/O SETUP screen, press D OUT.
2. Press ⇠ or ⇢ to scroll to the output you want to edit.
3. Press EDIT.
4. Press ↕ to select the I/O mode: NORM, LATCH, TIMED, PULSE, or END OF. Refer to “Relay Output Operating Modes” in **Chapter 5 — Input Output Capabilities** of the ACCESS 9340/9360 installation manual for more information.

   NOTE: Depending on the mode selected, the meter will prompt you to enter the pulse weight, timer, or control.
5. Press OK.
6. Select the control mode: EXT (external control using SMS or a programmable logic controller (PLC)) or ALARM (internal control based on an alarm condition).
7. Press OK. If ALARM was selected in step 6, follow steps 7a and 7b.
   a. Press ⇠ or ⇢ to select the alarm type.
   b. To activate the alarm, press ↕ until asterisks appear. For example, alarm 01 is active if you see ** AL - 01 **.
8. Press ⇞ until you return to the I/O SETUP screen.

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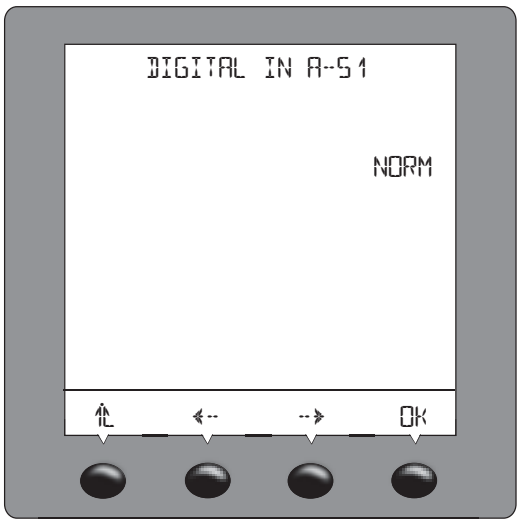
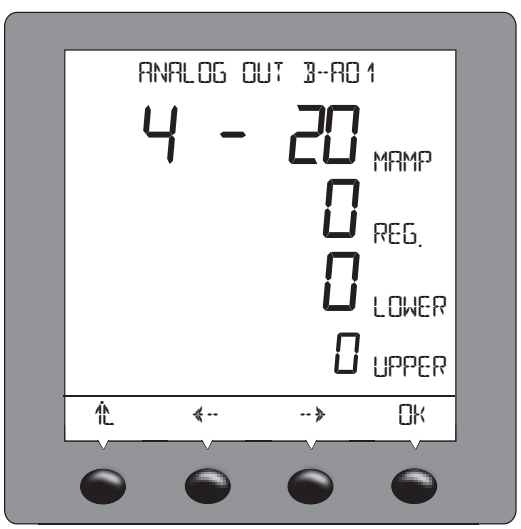
Digital Input Setup



1. From the I/O SETUP screen, press D IN.
2. Press ⇠ or ⇢ to scroll to the input you want to edit.
3. Press EDIT.
4. Press ↕ to select the I/O mode:
   - **NORM** (normal) — simple ON/OFF with timestamping. The periodic rate < 2 Hz with a pulse duration > 10 ms.
   - **DMD** (demand interval synch pulse) — accepts a demand synch pulse from a utility demand meter.
   - **COND** (conditional energy control) — one digital input can be configured to control conditional energy.
   - **INPUT** (input metering) — Used for ON/OFF digital inputs where the periodic rate = 2 – 25 Hz with a 50% duty cycle. Timestamping and alarms are not available.
5. Press ⇞ until you return to the I/O SETUP screen.

Analog Output Setup



1. From the I/O SETUP screen, press ⇢⇢ until A OUT is visible.
2. Press A OUT.
3. Press ⇠ or ⇢ to scroll to the output you want to edit.
4. Press EDIT.
5. Press ↕ to select the signal to measure: 4 -20 MAMP (current mode in mA) or 0-5 VOLT (voltage mode).
6. Press OK.
7. Enter the REG (register number), then press OK.
8. Enter the LOWER (lowest reported value), then press OK.

   NOTE: When current = 4 mA in current mode or voltage = 0 V in voltage mode, the LOWER value is reported.
9. Enter the UPPER (highest reported value), then press OK.

   NOTE: When current = 20 mA in current mode or voltage = 5 V in voltage mode, the UPPER value is reported.
10. Press ⇞ until you return to the I/O SETUP screen.

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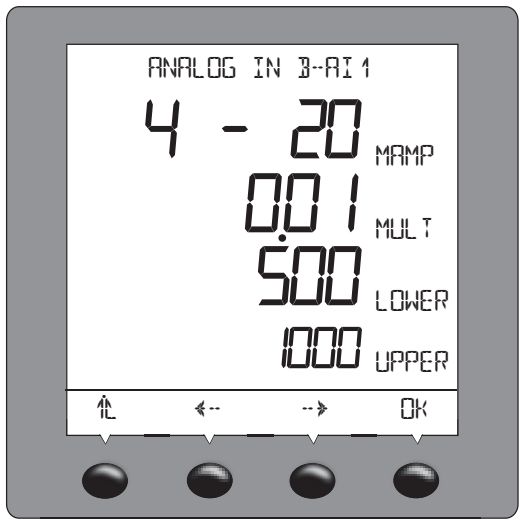
Analog Input Setup

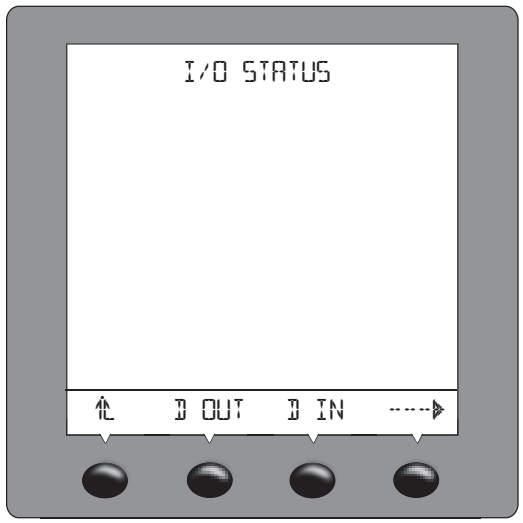


1. From the I/O SETUP screen, press ⇢ until A IN is visible.
2. Press A IN.
3. Press ⇠ or ⇢ to scroll to the input you want to edit.
4. Press EDIT.
5. Press ↕ to select the signal to measure: 4 -20 MAMP (current mode in mA) or 0-5 VOLT (voltage mode).
6. Press OK.
7. Enter the MULT (data multiplier: 0.001, 0.01, 0.1, 1, 10, 100, 1000), then press OK.
8. Enter the LOWER (lowest reported value), then press OK.

   NOTE: When current = 4 mA in current mode or when voltage = 0 V in voltage mode, the LOWER value is reported.
9. Enter the UPPER (highest reported value), then press OK.

   NOTE: When current = 20 mA in current mode or when voltage = 5 V in voltage mode, the LOWER value is reported.
10. Press ⇞ until you return to the I/O SETUP screen.

Viewing I/O Status



1. From the SUMMARY screen, press ⇢ until I/O is visible.
2. Press I/O.
3. Press D IN, D OUT, A IN, or A OUT to view an I/O's status.

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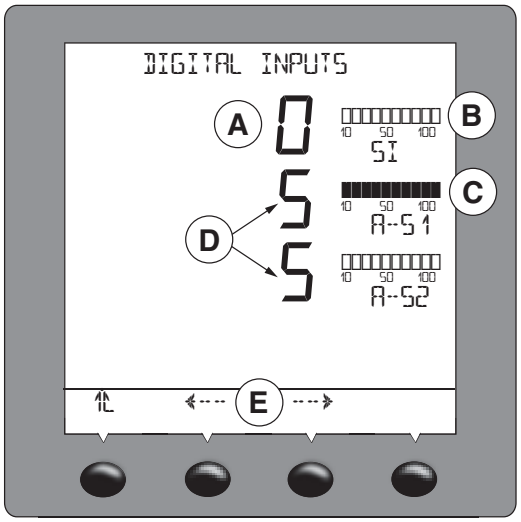
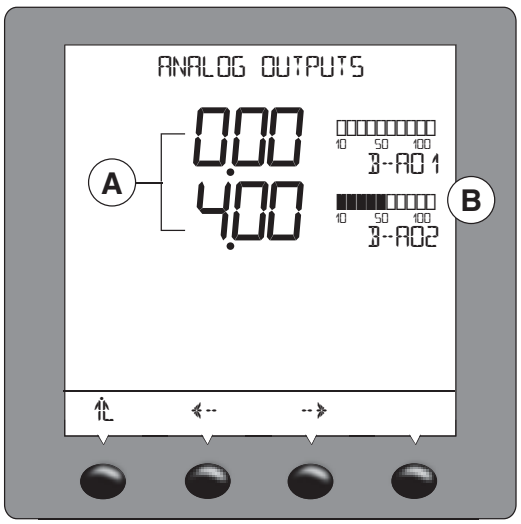
Reading Status Data

Digital I/Os



A. Number of transitions since the counter was last reset.
B. Empty bar graph = OFF
C. Lit bar graph = ON
D. A-S1 and A-S2 represent I/O point numbers on the first (A) module.
E. Use the arrow buttons to scroll through the remaining I/O points. Point numbers beginning with “B” are on the second module.

Analog I/Os



A. Displays a number between the user defined lower and upper limit values proportional to the input or output.
B. A lit bar graph represents the percentage of the user-defined full scale reading.

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Troubleshooting

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, BURN, OR ARC FLASH

Failure to follow this instruction will result in death or serious injury.

- This equipment must be installed and serviced only by qualified personnel.
- Qualified persons performing diagnostics or troubleshooting that require electrical conductors to be energized must comply with NFPA 70 E – Standard for Electrical Safety Requirements for Employee Workplaces and OSHA Standards – 29 CFR Part 1910 Subpart S – Electrical.

Table 1–3: Troubleshooting

Problem	Solution
Timestamping does not work	Check to see if input metering mode is set. See “Digital Output Setup” on page 14.
Module resets	Check external power connections.
	Ensure control power voltage is adequate for the modules installed. See “Supply Voltage Considerations” on page 6.
0–5 V output seems inaccurate	Ensure the total load resistance is 250Ω. Meter resistance can affect load resistance.
Analog input that is set to 4–20 displays –32767	The input current is < 3.6 mA. Check for open connections to the analog input, and check the quality of the current source.

Specifications

Table 1–4: Specifications for All I/O Modules

Environmental	
Operating Temperature	–25°C to +70°C
Storage Temperature	–40°C to +85°C
Humidity Rating	5–95% (relative humidity, non-condensing: at 40°C)
Altitude Range	0–3000 meters
Standards	
Product	
US	UL508
Canada	cUL508
EU	IEC61010-1
Emissions	
Radiated	FCC part 15 Class A, EN55011
Conducted	FCC part 15 Class A, EN55011
Harmonics	IEC 1000-3-2
Flicker	IEC 1000-3-3
Immunity	
ESD	IEC 1000-4-2 Level 3
Radiated	IEC 1000-4-3 Level 3
EFT	IEC 1000-4-4 Level 3
Surges	IEC 1000-4-5 Level 3
Conducted	IEC 1000-4-6 Level 3
Mag. Field	IEC 1000-4-8 Level 3
Voltage Dips	IEC 1000-4-11

Table 1–5: Specifications For 9340-60-I/O2222 and 9340-60-I/O26

Digital Inputs AC/DC for 2222 and 26	
Input Voltage Range	20–150 Vac/dc
Input Current Draw (Maximum)	2 mA
Turn on Time (Max.)	1 msec
Turn off Time (Max.)	1 msec
Turn on voltage	20 V
Turn off voltage	5 V
Maximum input frequency	25 Hz 50% duty cycle (20 msec ON, 20 msec OFF)
Digital Output AC/DC Ratings for 2222 and 26	
Load Voltage Range	0 to 240 Vac, 0 to 30 Vdc
Load Current	2 A rms, 5 A peak for 10 s once every hour
Maximum output frequency	1 Hz 50% duty cycle (500 msec on, 500 msec off)
Expected mechanical life	15 million operations
Contact ratings	250,000 operations at 2 A 250 Vac
Analog Inputs for 2222	
Input voltage/current range	0–5 Vdc or 4-20 mA user selectable
Accuracy	0.2% full scale
Maximum input voltage	5.1 Vdc
Temperature drift	50 ppm/°C typical
Analog Output Ratings for 2222	
Output Current Range	4-20 mA (20 mA into 600 ohms max.)
Accuracy	1% full scale
Temperature drift	50 ppm/°C typical
Open circuit voltage	15 V

Table 1–5: Specifications For 9340-60-I/O2222 and 9340-60-I/O26

Internal 24 V Power Source (9340-60-I/O26 only)	
Output voltage	20–34 Vdc
Output current	10 mA max.
Maximum load	8 digital inputs

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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, please ask for confirmation of the information given in this publication.

PMIM-IOMOD-0208