Instructional Leaflet **IL04209004E**

Effective July 2010
Supersedes April 2010

Modbus module for use with Motor Insight , C440, and S611

Installation

The Modbus® module is designed to be used in industrial applications and installed in accordance with this document. The device is intended for use in clean, dry environments.

Mount the module

To mount the Modbus adapter to Motor Insight® or C440-COM-ADP the following procedure must be performed:

- Place the tabs opposite the Modbus connector into the lower slots provided.
- Pivot the module on the lower tabs.
- Gently press the module and base together.

Connect the Modbus communication cable to the Modbus adapter

Connect the Modbus RS-485 cable to the 5-position connector located at the top of the module.

Connect 24 Vdc control power to the 5-position header.

The connector has screws for positive retention to eliminate accidental unplugging

Use one wire per terminal.

Set the Modbus address, TX mode, and baud rate

The Modbus address, TX mode, and baud rate are set using DIP switches on the face of the module. The Modbus address is in binary with the major units numbered to the left of the switch on the side label. Adding up the major units set to ON determines the Modbus address.

Example: To set the Modbus address to 25, start from the top (or 16) and set the switches to ON(16), ON(8), OFF(4), OFF(2), ON(1) (16+8+1=25).

The baud rate is set using the configuration switches B0 and B1.

Table 1. Configuration Switches

B1	B0	Baud
OFF	OFF	9600
OFF	ON	19,200
ON	OFF	38,400
ON	ON	115,200

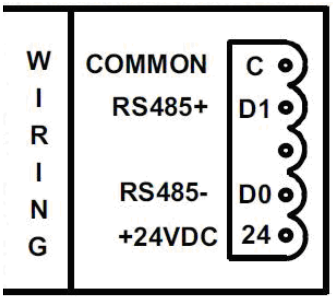
- TX mode is selected using DIP switch 5
  - OFF = RTU
  - ON = ASCII

Modbus setup and configuration

The Modbus adapter requires no extra setup or configuration for normal operation other than setting the address, TX mode, and baud rate for Modbus. For more information on the Modbus configuration, refer to the appropriate user manual. Motor Insight MN04209001E, C440 MN042010001E or S611 MN03902011E.

5pin 24VDC power, Modbus Connector

CURRENT DRAW: 18mA
TERMINAL TORQUE: 25Nm (2.25 lb-in)



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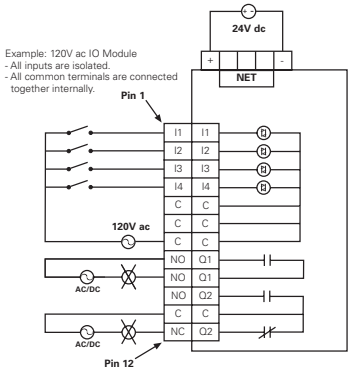

Figure 1. C441N—120 Vac Input Specification

Table 2. 120 Vac Inputs

Specification	Value
Number of inputs	4
Nominal input voltage	120 Vac
Nominal input current	15 mA
Operating frequency	50/60 Hz
Signal delay max.	30 ms
Input type	IEC 61131-2, type 1 digital

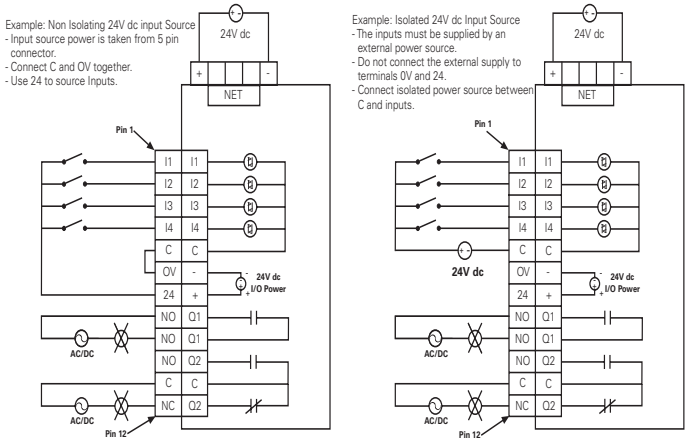

Figure 2. C441P—24 Vdc Input Specification

Table 3. 24 Vdc Inputs

Specification	Value
Number of inputs	4
Nominal voltage	24 Vdc
Nominal current	5 mA
Type	Current sinking
Input type	IEC 61131-2, type 1 digital
Max. 24 Vdc source current	50 mA

Table 4. Environmental Ratings of the Module

Description		Rating
Transportation and storage	Temperature	–40°C to 80°C (–58°F to 176°F)
	Humidity	5–95% noncondensing
Operating	Temperature	–20°C to 50°C (–40°F to 131°F)
	Humidity	5–95% noncondensing
	Altitude	Above 6600 ft (2000m) consult factory
	Shock IEC 60068-2-27	15G any direction for 11 ms
	Vibration IEC 60068-2-6	5–150 Hz, 3G, 0.42 mm maximum peak-to-peak
	Pollution degree	3

Table 5. Approvals/certifications

Electrical/EMC	Rating
ESD immunity (IEC 61000-4-2)	± 8 kV Air, ± 4 kV contact
Radiated immunity (IEC 61000-4-3)	10V/m 80–1000 MHz, 80% amplitude modulation at 1 kHz
Fast transient (IEC 61000-4-4)	± 2 kV using direct method
Surge (IEC 61000-4-5)	± 2 kV line-to-ground
RF conducted (IEC 61000-4-6)	10V, 0.15–80 MHz
Ingress protection code	IP20
Radiated and conducted emissions	EN55011 Class A
Agency certifications	UL® 508
	cUL® (CSA® C22.2 No. 14)
	CE (low voltage directive)
	conformance tested

Table 6. Module Electrical Requirements

Description	Requirement
Voltage range	18–30 Vdc
Current draw	Approx. 18 mA

Note: For use with Eaton UL listed Power Supply Catalog No. PSG60E, PSG60F, or PSG240F.

Any UL listed isolated power supply with a maximum of 30 Vdc output may be used, provided that a UL listed or recognized fuse rated no more than 3A maximum be installed.

For **Figure 2** and **Table 5**: Do not connect a 24 Vdc source to Pins 6 and 7. The "I/O Power: 24 Vdc" is to be used only in conjunction with the inputs. It is a 24 Vdc output intended to only supply signal power for the inputs. When using the 24 Vdc input supply, Pin 6 should only be connected to Pin 5 (24 Vdc input supply common to input common). Any device using the provided 24 Vdc input supply must have 500V isolation from ground. Example devices include pushbuttons and auxiliary contacts.

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