Analog Output Module Installation Instructions

Description

The Analog Output Module is a component of Novar Controls' Spectrum® Refrigeration Control System. It produces a varying analog voltage signal to control proportional modulating devices. Control is based on system software parameters and status information processed by the Refrigeration Controller and sent to the Analog Output Module.

A maximum of eight Analog Output Modules can be connected to a single Refrigeration Controller. The Analog Output Module can control up to four modulating devices.

This document provides instructions for mounting, wiring, and checking the installation of the Analog Output Module.

Specifications

Power Requirements

Voltage:	24 VAC, Class 2
Consumption:	6.5 VA
Fuse rating:	2 Amp

NOTE! The Analog Output Module does not require a dedicated transformer. The transformer can be shared with other Spectrum Refrigeration Control Modules.

Operating Environment

Temperature:	32° to 158°F (0° to 70°C)
Humidity:	0 to 95% Relative, noncondensing

Physical Dimensions

Height:	4 inches
Width:	14 inches
Depth:	1.5 inches
Weight:	1 lb

Output

Output Signal:	Variable from 0 to 10 volts, isolated

Precautions

Take the following precautions during installation:

- Observe all national and local electrical codes.
- Turn off power before installing this module.
- Do *not* ground the transformer for this module on the secondary side.
- Do *not* use this module as a final safety device.

Mounting the Module

Use the following procedure to mount the module.

Step	Procedure
1	Turn off all power before mounting the module.
2	Select a suitable mounting location for the module.
3	Position the module's plastic snap track against the mounting surface and mark the surface to show the locations of the two mounting holes.
4	Drill holes in each of the places marked.
5	Position the module over the mounting holes and insert and tighten the mounting screws to secure the module.

Wiring the Module

Follow the instructions provided below and refer to Figure 1, as necessary, to make the wiring connections.

Control Outputs

The four analog control output connections are located at the right side of the module's circuit board. These connections are isolated from the module's control circuits but not isolated from each other.

Use the following procedure to wire the control outputs.

Step	Procedure
1	Locate the analog control output connections on the right side of the module's circuit board (see Figure 1).
2	Connect a wire from the plus (+) and COM terminals to the 0 to 10-volt input connections of the modulating device.
3	Make sure that the software configuration matches the wiring scheme of the control outputs.

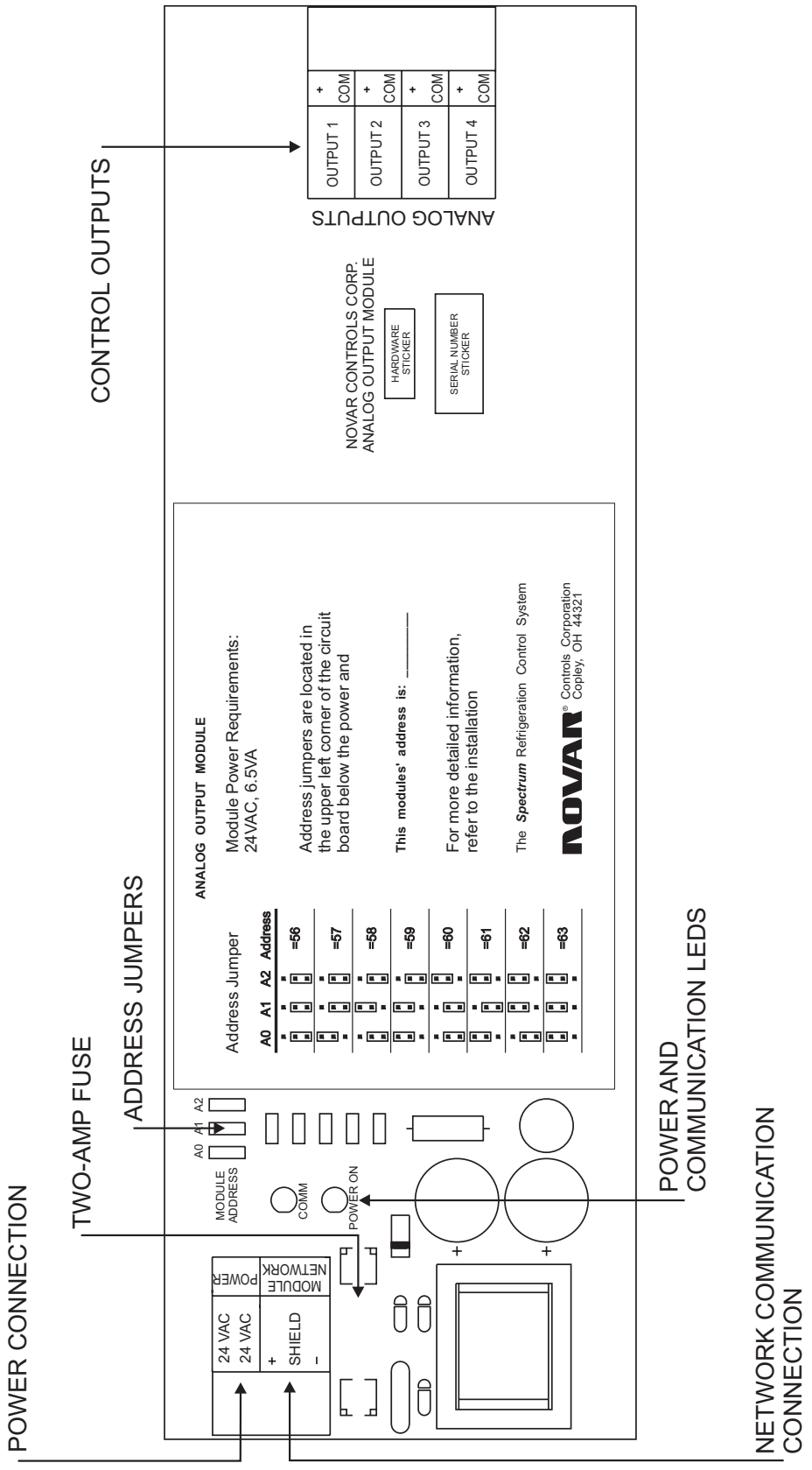

Figure 1. Analog Output Module

Communication Network Connection

The communication connection between the Analog Output Module and the Refrigeration Controller should be made with a shielded two-conductor cable (Belden #8761, Novar Controls' WIR-1010, or equivalent). The module communication connection is in the upper left corner of the circuit board, below the power connection.

Use the following procedure to make the communication network connection.

Step	Procedure
1	Locate the module communication connection in the upper left corner of the module's circuit board.
2	Connect the two-conductor shielded cable to: ■ The module's communication connection. ■ The Refrigeration Controller's Module A Communication (MOD A COM) or Module B Communication (MOD B COM) port.

Power Connection

Connect the 24-VAC power leads to the module's 24-VAC power connection located in the upper left corner of the circuit board, above the module communication connection.

NOTE! A two-amp fuse is provided on the Analog Output Module circuit board to protect the module's electronics. The fuse can be removed to isolate power to the module.

Setting Addresses

Up to eight Analog Output Modules can be connected to one Refrigeration Controller. Each module must have a unique address for the controller to identify it. The address jumpers (labeled A0, A1, and A2) are located to the right of the power connection on the circuit board.

Set the address as shown in Figure 2.

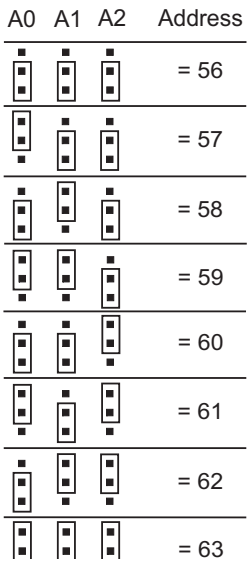

Figure 2. Setting the address

Checking Operation

When the module has been mounted and the wiring connection have been completed, the following items should be checked to insure proper operation.

- Check all wiring connections to make sure they are correct and secure before turning on the power.
- Turn on the power and check the power light-emitting diode (LED) located immediately to the right of the module communication connection. The LED should be on.
- Check the communication LED located to the right of the module communication connection. When power is on and the Analog Output Module is connected to a downloaded Refrigeration Controller, this LED should blink intermittently when normal communication is occurring. If the LED is not blinking, there is a communication loss.
- Check the Refrigeration Controller for alarm messages. If any faults or malfunctions exist, they will be picked up by the controller and announced as alarm messages.
- Use the Refrigeration Controller keypad and display to change the control settings and monitor the equipment for proper response.

  Refer to Novar Controls' *Refrigeration Controller Keypad and Display Instructions* (Doc. No. 560109000) for information about using the Refrigeration Controller's keypad and display.

Model and Part Numbers

Use the model numbers provided in Table 1 to order the necessary parts.

Table 1. Novar Controls Part Numbers

PRODUCT	MODEL NO.	PART NO.
Analog Output Module		733017000
Two-conductor shielded cable (Belden #8761 equivalent)	WIR-1010	709001000

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