

Compressor Output Module Installation Instructions



Regulatory Compliance

Safety

This device has been tested and found to be in compliance with the requirements set forth in UL 873, Energy Management Equipment, and is listed by Underwriters Laboratories, Inc., for installations in the United States.

This device has been tested and found to be in compliance with the requirements set forth in C22.2, No. 205-M1983, Signal Equipment, and is Certified by Underwriters Laboratories, Inc., for installations in Canada.

Electromagnetic Compatibility (EMC)

Federal Communications Commission (FCC)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE! This device has been tested and found to comply with the limits established for Class A digital devices. It is intended to be used in a commercial environment. Operation of this equipment in residential environments may cause harmful interference, in which case the user may be required to correct the interference at his own expense.

CAUTION! Any changes or modifications not expressly approved by Novar Controls Corporation could void your authority to operate this equipment.

Industry Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled *Digital Apparatus*, ICES-003, of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouiller: *Appareils Numériques*, NMB-003, édictée par l'Industrie Canada.

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Description

The Compressor Output Module is a component of Novar Controls Corporation's Spectrum® Refrigeration Control System. It controls the on and off cycling of the compressors. The operation of this module is based on programmable settings and system information that is processed through the Refrigeration Controller and communicated to the Compressor Output Module.

The Compressor Output Module can control up to ten compressors. Each output has a corresponding on-off-automatic switch to allow automatic control of each compressor or manual on/off override. A maximum of four Compressor Output Modules can be connected to each Refrigeration Controller.

This document provides instructions for mounting and wiring the module and checking installation.

Specifications

Agency Approvals

Recognized component: CUL/UL E134292

Standards used: UL 873 & CSA C22.2, No. 24, Temperature-Indicating and Temperature-Regulating Equipment

Power Requirements

Input:	Voltage:	24 VAC, Class 2
	Consumption:	20 VA

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

Operating Environment

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

Physical Dimensions

Width:	14 inches
Height:	4 inches
Depth:	1.5 inches
Weight:	1 lb 6 oz

Relay Output Rating

250 VAC, 3 Amps Maximum; Form C

Fuse Rating

2 Amps

Compressor Output Module Installation Instructions

Precautions

Take the following precautions during installation:

- Observe all national and local electrical codes.
 - Do *not* mix the line voltage (Class 1) and low voltage (Class 2) wiring.
 - Do *not* ground the transformer on the secondary side.
 - Turn off the power before installing this module.
 - Do *not* use this module as a final safety device.
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Mounting the Module

Use the following procedure to mount the Compressor Output Module.

Step	Procedure
1	Turn off all power before installation.
2	Select a suitable location for the module.
3	Position the snap track against the mounting surface, mark the surface to show the location of the two mounting holes, and drill holes at the marked locations.
4	Position the module against the snap track and insert and tighten screws to secure the module.

Wiring Connections

Make all line voltage connections **before** wiring low voltage connections. The connections are shown in Figure 1.

Control Outputs

Outputs 1–5 are Form A contacts—normally closed. Outputs 6–10 are Form C contacts—normally open and normally closed. Interfacing devices that require normally open contacts must be connected to Relays 6–10.

The outputs should be wired in series with the existing control circuitry for the compressors. Typically, they would be wired in series with the low pressure switch, keeping all of the existing safety devices intact.

Output status light-emitting diodes (LEDs) are located above each relay on the Compressor Output Module. The status of the LED depends on the status of the relay coil.

- When the relay coil is energized, the LED is on.
- When it is de-energized, the LED is off.

Compressor Output Module Installation Instructions

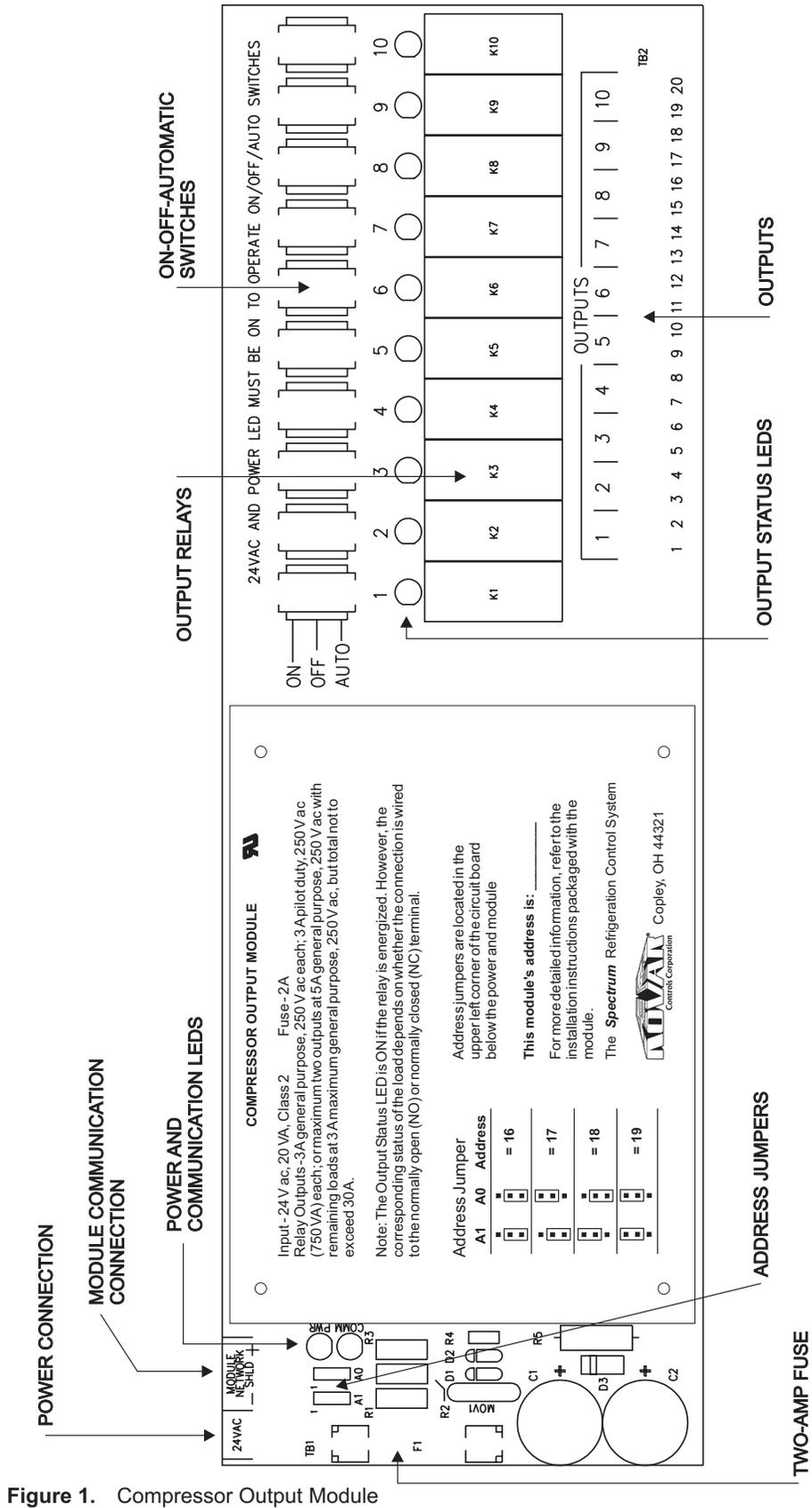


Figure 1. Compressor Output Module

Compressor Output Module Installation Instructions

The on-off labeling on the on-off-automatic override switches refers to the output status, not the relay status. When an override switch is on, the compressor is on, but because the connections are normally closed, the LED is off.

NOTE! The on-off-automatic override switches do not work unless 24-VAC power is supplied to the circuit board. If 24-VAC power is not supplied, all switches remain in an on (normally closed) state.

Module Communication

Two-conductor shielded cable (Belden #8761, Novar Controls WIR-1010, or equivalent) should be used to make the communication connection between the module and the Refrigeration Controller.

The module communication connection is located in the upper left corner of the circuit board, next to the power connection. There is a communication LED located below the module communication connection that should blink on intermittently when the power is turned on and proper communication is occurring. If the LED does not blink on, there is a loss of communication.

On the Refrigeration Controller, the connection should be made to the Module A Communication (MOD A COM) port.

Setting the Module Address

Up to four Compressor Output Modules can be connected to one Refrigeration Controller. Each module must have a unique address so the Refrigeration Controller can identify it.

The address jumpers are located below the power and communication connections on the circuit board. Both the A1 and A0 jumpers have three pins and can be set as shown in Figure 2.

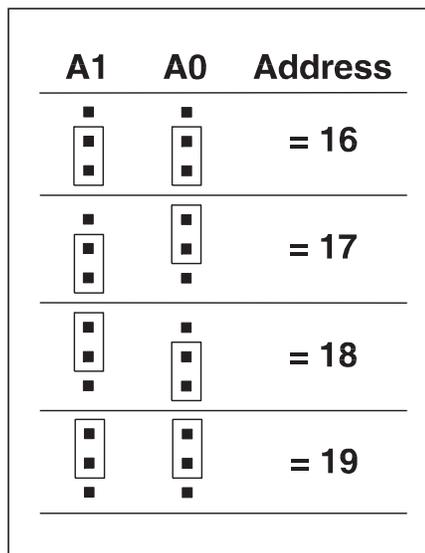


Figure 2. Setting the module address

Power Connection

The 24-VAC power connection is located in the upper left corner of the circuit board, next to the module communication connection. The power LED located below the power connection should be on when the power is turned on for the system.

A two-amp fuse is provided on the Compressor Output Module circuit board to protect the module electronics. The fuse can be removed to turn off the power to the module.

Checking Operation

After the module has been mounted and the wiring connections have been completed, the following items should be checked to ensure proper operation.

- Double check all wiring before turning on the power.

Cycle each on-off-automatic override switch on and off to test the wiring. All outputs should respond properly.

- Make sure the Refrigeration Controller is connected and the system has power. Observe the communication LED for an intermittent blinking to verify proper communication.
 - Check the Refrigeration Controller. If any faults or malfunctions still exist, they will be announced by alarm messages.
 - Use the Refrigeration Controller keypad and graphic display to change control settings and monitor the system to make sure the equipment responds properly.
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Model and Part Numbers

Use the part numbers provided in Table 1 to order the necessary Novar Controls parts.

PRODUCT	MODEL NO.	PART NO.
Compressor Output Module	—	733011000
Two-conductor shielded cable (Belden 8761 equivalent)	WIR-1010	709001000

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