SYST0101RM
Ion™ Communicating Relay Module
Installation and Start–Up Instructions

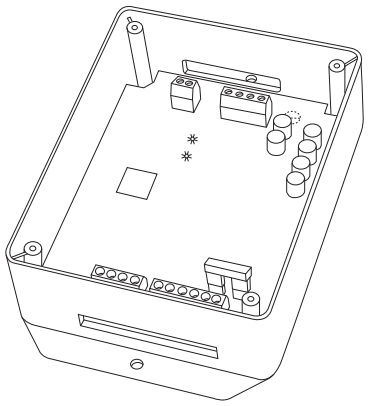

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Fig. 1 - Communicating Relay Module SYST0101RM

NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury or property damage. Consult a qualified installer, service agency or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings and cautions included in literature and attached to the unit. Consult local building codes and the current edition of the National Electrical Code (NEC) NFPA 70. In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1.

Recognize safety information. When you see this symbol ⚠ on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand the signal words **DANGER**, **WARNING**, and **CAUTION**. These words are used with the safety-alert symbol. **DANGER** identifies the most serious hazards, which **will** result in severe personal injury or death. **WARNING** signifies hazards, which **could** result in personal injury or death. **CAUTION** is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. **NOTE** is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

INTRODUCTION

The Communicating Relay Module (CRM) is used to interface the following devices to the Ion™ communications bus so they can be controlled by the Ion™ System. The following devices do not have communication ability and the CRM is required to control:

- A non-communicating single-speed heat pump with ICP communicating furnace (dual fuel application only).
- A non-communicating two-speed outdoor unit.

INSTALLATION

Step 1 — Check Equipment and Job Site

INSPECT EQUIPMENT—File claim with shipping company, prior to installation, if shipment is damaged or incomplete.

Step 2 — Component Location and Wiring Considerations

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, turn off all power to unit. There may be more than one power disconnect.

NOTE: All wiring must comply with national, local, and state codes.

LOCATING COMMUNICATING RELAY MODULE (CRM)

Select a location near the ICP communicating furnace or fan coil where wiring from equipment can come together easily.

NOTE: Do not mount CRM in outdoor unit. The CRM is approved for indoor use only and should never be installed with any of its components exposed to the elements.

The CRM may be installed in any area where temperature remains between 32° and 158°F, and there is no condensation. Remember that wiring access is likely the most important consideration.

⚠ CAUTION

ELECTRICAL OPERATION HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

To prevent possible damage to the CRM do not mount on plenum, ductwork, or flush against surface.

WIRING CONSIDERATIONS

See the Ion™ System Control Installation Instructions for detailed wiring instructions. Ordinary thermostat wire is ideal when wiring the Ion™ System (shielded cable is not necessary). Use 18 - 22 AWG or larger for typical installations. Lengths over 100 ft. should use 18 AWG or larger wire. Cut off or fold back and tape any unneeded conductors. Plan the routing of wiring early to avoid possible problems later.

NOTE: Communications bus wiring only requires a four-wire connection; however, it is good practice to run thermostat cable having more than four wires in the event of a damaged or broken wire during installation.

The following color-code is recommended for each communications bus connection:

DX+ — Green = Data A
DX- — Yellow = Data B
C — White = 24 VAC (Com)
R — Red = 24VAC (Hot)

It is not mandatory that the above color code be used, but each communications connector in the system MUST be wired consistently.

NOTE: Improper wiring of the communications connector will cause the Ion™ System to operate improperly. Check to make sure all wiring is correct before proceeding with installation or turning on power.

Step 3 — Install Components

INSTALL COMMUNICATING RELAY MODULE — Plan wire routing before mounting. The Ion™ Communicating Relay Module is designed so that wires can enter it from the sides.

1. Remove top cover and mount CRM to wall using screws and wall anchors provided.

Step 4 — Dual Fuel with 1-Speed Heat Pump Wiring

DUAL FUEL INSTALLATION WITH 1-SPEED HEAT PUMP

The CRM is needed when an ICP communicating variable-speed furnace is applied with a single-speed (non-communicating) heat pump. See Fig. 2 for wiring details. An outdoor air temperature sensor MUST be connected to furnace control board for proper operation (see Fig. 4 for details).

Step 5 — ICP Communicating Indoor Unit with 2-Speed Outdoor Unit Wiring

2-SPEED NON-COMMUNICATING OUTDOOR UNIT

The CRM can control a 2-speed non-communicating air conditioner or heat pump with an ICP communicating indoor unit. See Fig. 3 for wiring details..

SYSTEM START-UP

Follow the system start-up process outlined in the Ion™ System Control installation instructions.

LED INDICATORS

Under normal operation, the Yellow and Green LEDs will be on continuously (solid). If the CRM does not successfully communicate with the Ion™ System Control, the Green LED will not be on. If there are faults present, the Yellow LED indicator will blink a two-digit status code. The first digit will blink at a fast rate, the second at a slow rate.

STATUS CODE	DESCRIPTION
16 =	Communication Failure
45 =	Board Failure
46 =	Low Input Voltage

FUSE

A 3-amp automotive type fuse is used to protect the CRM from overloading the outdoor unit R output. If this fuse fails, there is likely a short in the wiring to the device being controlled by the CRM. After short in wiring is fixed, fuse should be replaced with an identical 3 amp automotive fuse.

24 VAC POWER SOURCE

The CRM receives its 24 VAC power from the indoor unit C and R terminals (via communications bus). In most applications, there is sufficient power (VA capacity) available from the indoor unit transformer to accommodate an outdoor unit connection. No additional transformer is required.

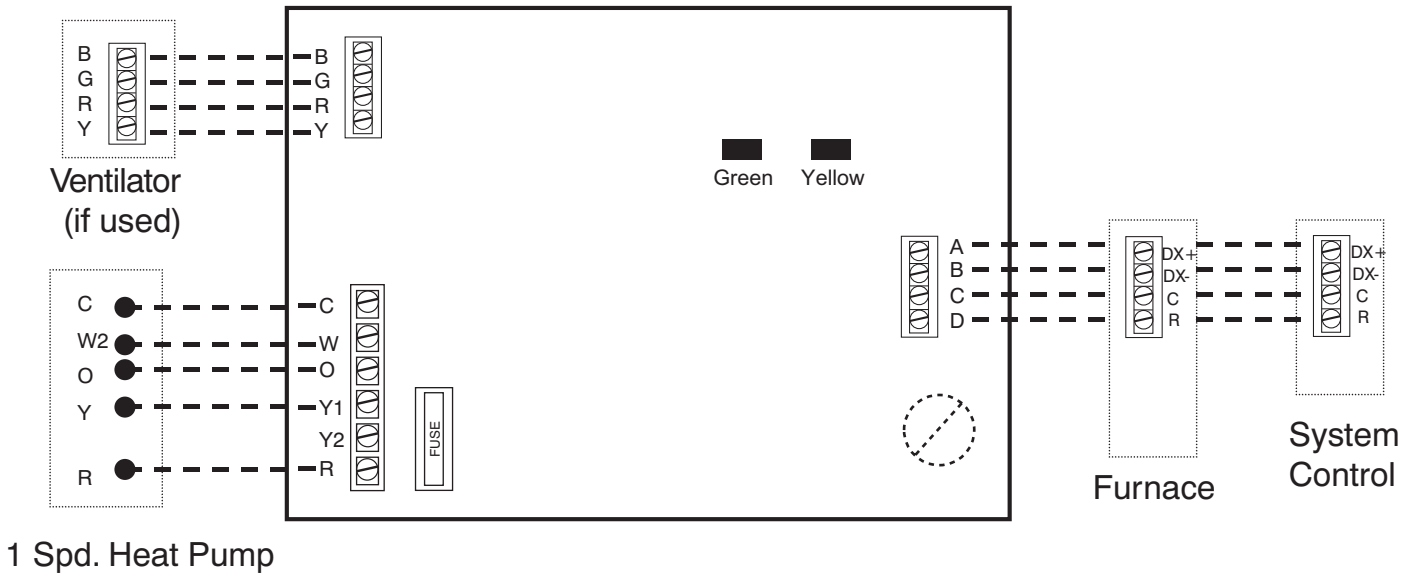

Fig. 2 - Communicating Variable-Speed Furnace with 1-Speed Heat Pump (Dual Fuel)

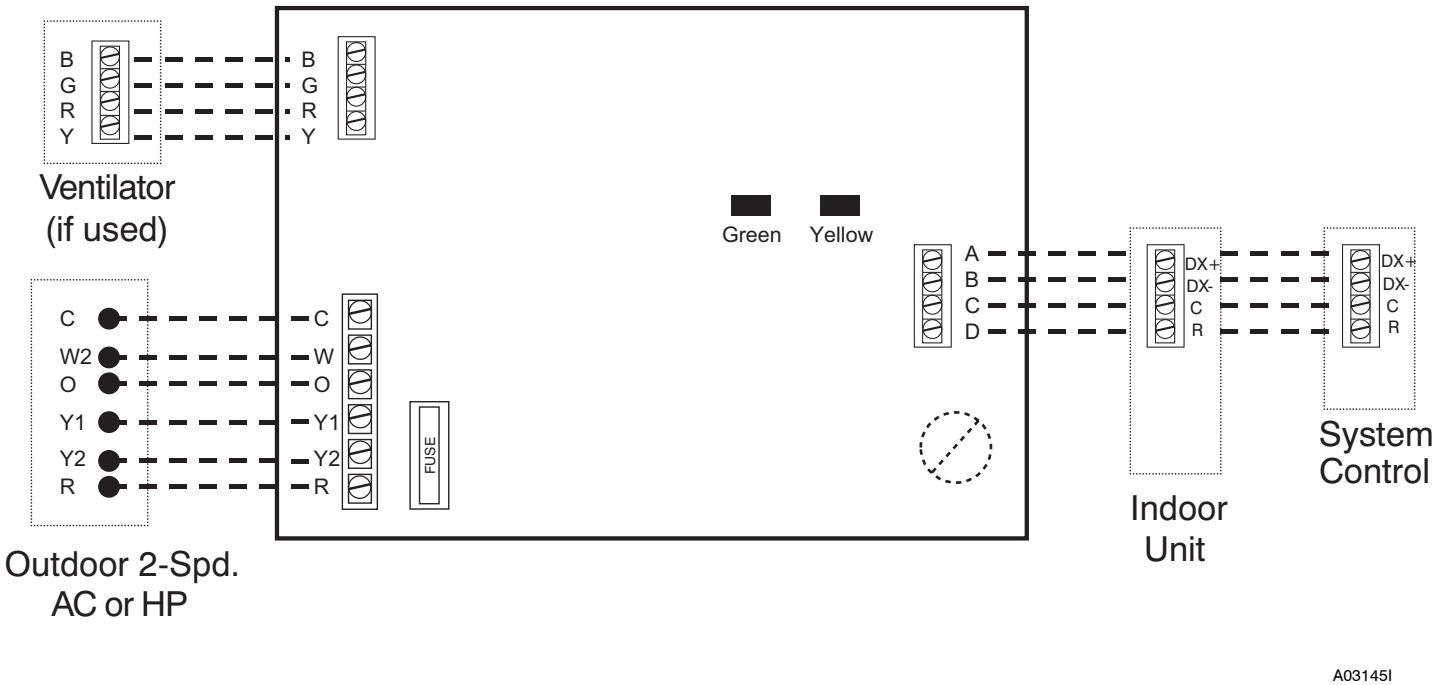

Fig. 3 - 2-Speed Non-Communicating AC or HP with Communicating Indoor Unit

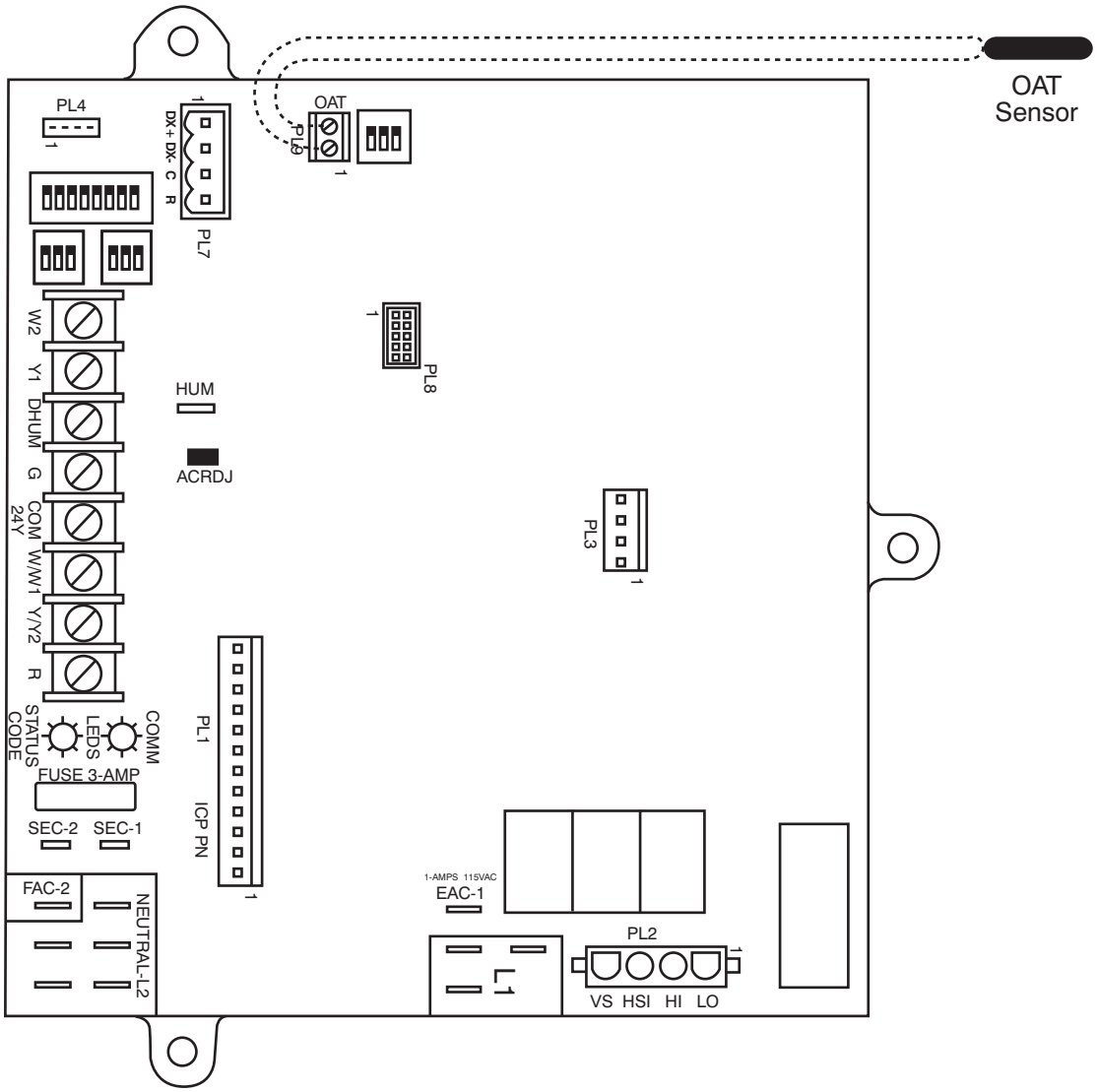

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Fig. 4 - 1184407 (HK42FZ043) Furnace Board Control with Outdoor Air Temperature Connection

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