

Unitary Control Module (UCM) Installation Instructions

Description

Novar's Unitary Control Module (UCM) is a dedicated, direct digital control module that provides precise and integrated control of HVAC equipment. This Logic One[®] module efficiently controls heating and cooling stages, the fan, and damper operation. The UCM also provides positioning and on/off control signals for a fully integrated temperature control system.

The UCM can be used to replace various models of existing Novar Unit Ventilator Controllers (UVCs), Electronic Thermostat Controllers (ETCs), Heat Pump Controllers (HPCs), and Custom Controllers (CCs). (For specific modules, refer to the "Replacing an ETC, UVC, HPC, or CC with a UCM" section of this document.)

This document provides instructions for replacing existing ETCs, UVCs, HPCs, or CCs with a UCM as well as instructions for installing it as a new module—mounting the UCM, connecting power, making the appropriate wiring connections, setting the module address, and checking the installation.

NOTE! This document does not provide instructions for wiring sensors to the older ETCs, UVCs, HPCs, and CCs. If needed, those instructions are available in the Documents folder on the Novar Software Package CD.

Specifications

Agency Approvals

| | |
|-----------------|---|
| Listed device: | CUL/UL E90949 |
| Standards used: | UL 916, Energy Management Equipment CSA C22.2, No. 205-M1983, Signal Equipment |

Power Requirements

| | |
|--------------|---------------------------|
| Voltage: | 24 VAC, 50/60 Hz, Class 2 |
| Consumption: | 8 VA |

Operating Environment

| | |
|--------------|---|
| Temperature: | Maximum allowable ambient temperature 158 F (70 C) |
| Humidity: | 0 to 90% Relative, noncondensing |



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Physical Dimensions

| | |
|---------|--------------|
| Height: | 5.5 inches |
| Width: | 8 inches |
| Depth: | 1.125 inches |
| Weight: | 1 lb |

Precautions

Take the following precautions during installation.

- Observe national and local electrical codes.
 - Observe voltage and current limits marked on the UCM.
 - Do *not* connect 115 volts to any terminal of the UCM. It is a Class 2 (low voltage) control device.
-

Replacing an ETC, UVC, HPC, or CC with a UCM

The UCM can replace any model of ETC, UVC, HPC, or CC. Its mounting footprint, sensors, and terminal strip locations can be transferred directly, with no changes necessary. The UCM is designed to use thermistor temperature sensors; however, when used as a replacement controller, it will automatically detect and work with the temperature sensors that were installed with the older controllers. The UCM can be used to replace the following models.

- UVC-1, UVC-3, UVC-9, UVC-10, UVC-11, UVC-13
- ETC-1, ETC-2, ETC-3, ETC-4, ETC-6
- HPC, HPC Plus, and HPC Plus R
 - The HPC Plus has the reversing valve fail on (Heating) in the default mode (before it receives a program from the executive module).
 - The HPC Plus R has the reversing valve fail off (cooling) in the default mode (before it receives a program from the executive module).
- CC

The following procedure should be used to replace any of these modules with a UCM.

| Step | Procedure |
|------|--|
| 1 | Set the address switch of the new module to match the address of the old module. |
| 2 | Set the Module Type dip switches (Switches 7–10) to match the type of module that the UCM is replacing (see Table 1 following this procedure). |
| 3 | Remove the terminal strip and mounting screws of the old module and remove the module from its mounting position. |

continued

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| Step | Procedure |
|------|--|
| 4 | <p>Connect the wires to the new UCM terminal strip.</p> <ul style="list-style-type: none"> ■ The wires should be connected in the same order (e.g., Terminal 1 moves to Terminal 1, Terminal 2 moves to Terminal 2, etc.). <hr/> <p>NOTE! Some of the terminal designations have more than one label (e.g., Heat 2/Relief Damper). This is to accommodate variations in the old controllers that the UCM is replacing.</p> <hr/> |
| 5 | Mount the replacement controller in the same mounting holes as the old controller and connect the terminal strip. |
| 6 | Verify that the UCM operates properly. |

Table 1. Model Type Dip Switch Settings

| MODEL | SWITCH 7 | SWITCH 8 | SWITCH 9 | SWITCH 10 |
|-------------|----------|----------|----------|-----------|
| UVC-1 | Off | On | On | On |
| UVC-3 | Off | Off | On | On |
| UVC-9 | Off | On | On | Off |
| UVC-10 | On | Off | On | Off |
| UVC-11 | Off | Off | On | Off |
| UVC-13 | Off | On | Off | Off |
| ETC-1/ETC-3 | On | Off | On | On |
| ETC-2/ETC-4 | On | On | Off | On |
| ETC-6 | On | On | Off | Off |
| HPC | Off | On | Off | On |
| HPC Plus | On | Off | Off | Off |
| HPC Plus R | Off | Off | Off | Off |
| CC | On | On | On | Off |

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Mounting the UCM

The UCM is designed to be mounted in the control compartment of the HVAC equipment. It must be mounted so that the module and the mounting hardware do not interfere with proper operation of the equipment.

The following procedure should be used to mount the UCM (refer to Figure 1, as necessary).

| Step | Procedure |
|------|--|
| 1 | Turn off all power to the HVAC unit before installing the UCM. |
| 2 | Position the UCM against the mounting surface of the control compartment and mark the surface to show the location of the four mounting holes. |
| 3 | Drill holes for the mounting screws where the mounting surface was marked. |
| 4 | Position the UCM over the mounting holes and insert and tighten metal screws (not included) to secure the module to the mounting surface. |

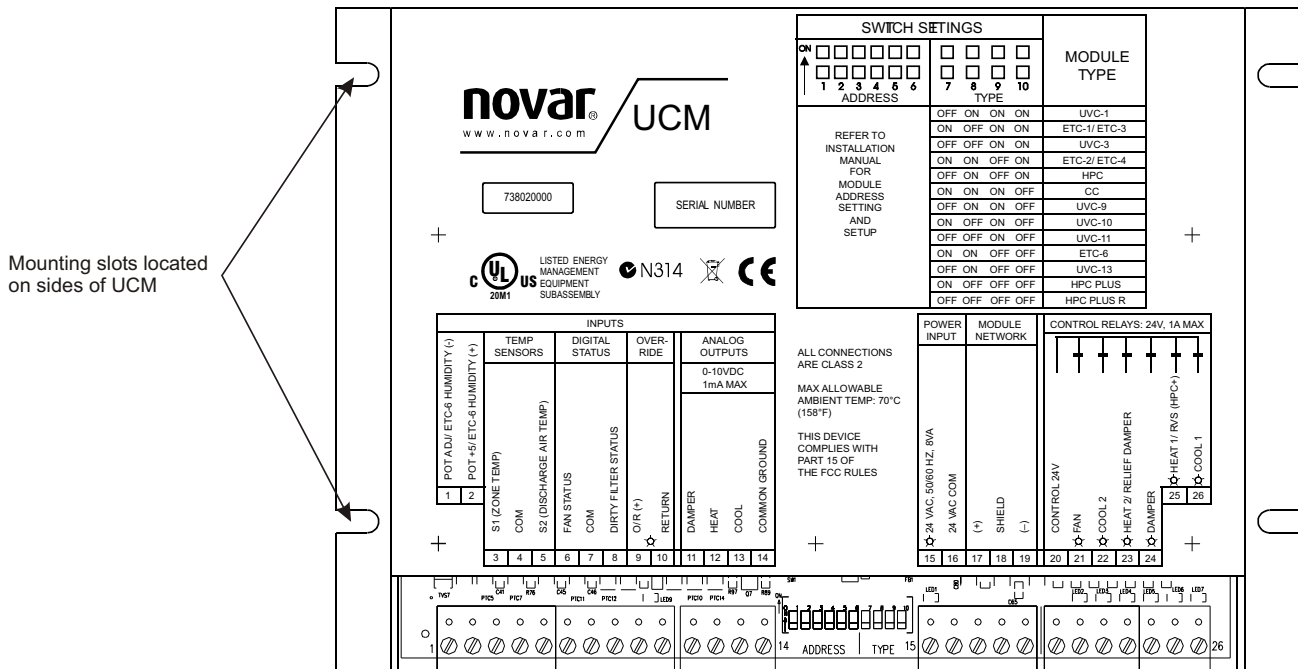


Figure 1. UCM mounting holes

Supplying the UCM with Power

The UCM is powered by 24-VAC and rated at 8 VA. Connect the 24 volts to Terminals 15 and 16 (labeled 24 VAC 50/60 HZ, 8 VA and 24 VAC COM). One control transformer can be used to power multiple modules within the restrictions of the VA rating of the control transformer.

NOTE! If the secondary winding of the transformer is grounded, the grounded leg must be attached to Terminal 16 (24 VAC COM), and a jumper (as short as possible) must be installed between Terminals 14 and 16.

Wiring the UCM

Inputs

The UCM has a removable terminal strip with screw connections. The inputs are Terminals 1–10 located on the left side of the terminal strip (Figure 2).

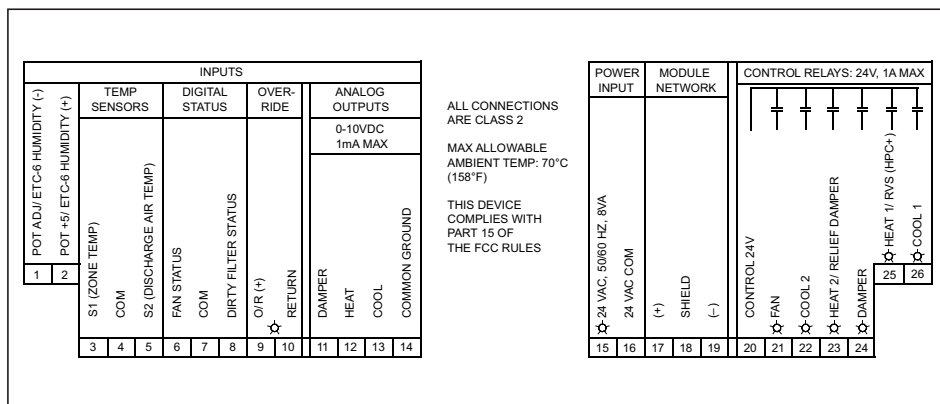


Figure 2. UCM terminal connections

NOTE! As stated in the “Note” above, if the secondary winding of the power transformer is grounded, a jumper (as short as possible) must be installed between Terminals 14 and 16 to prevent fluctuations of the temperature readings.

FTS-4A Setpoint Adjustment Potentiometer

The FTS-4A setpoint adjustment potentiometer can be connected to the UCM at Terminals 1, 2, and 10 for remote setpoint control adjustment. The following procedure should be used to connect an auxiliary potentiometer.

| Step | Procedure |
|------|--|
| 1 | Connect FTS-4A Terminal 7 (Aux Pot Adjust) to the UCM Terminal 1 (Pot Adj/ETC-6 Humidity [-]). |
| 2 | Connect FTS-4A Terminal 8 (Pot +5V) to UCM Terminal 2 (Pot +5V/ETC-6 Humidity [+]). |
| 3 | Connect FTS-4A Terminal 5 (O/R & Pot Return) to UCM Terminal 10 (Return). |

NOTE! When the UCM is configured as an ETC-6, the setpoint adjustment potentiometer is not active, and Terminals 1 and 2 are used for a 4–20 mA humidity sensor.

Zone and Discharge-Air Temperature Sensors

The UCM temperature inputs are designed for use with standard 10,000-ohm, Type II thermistors. In a wall-mount configuration, Novar's FTS-4 or FTS-4A would be appropriate. For a duct-mount configuration, Novar's 4-inch duct-mountable Thermistor Temperature Sensor (Part No. TS-2004-FA-10-AA) would be appropriate. Other 10K-ohm, Type II thermistor sensors are also compatible with the UCM.

Thermistors are not polarity sensitive; the two wires of the sensors can be hooked to the two wiring terminals for each temperature sensor inputs as follows:

- S1 (Zone Temperature): Terminals 3 and 4
- S2 (Discharge-Air Temperature Sensor): Terminals 4 and 5

Status Input

Terminals 6, 7, and 8 (Status Input) are for digital input connections. Terminals 6 and 7 are for the fan status and Terminals 7 and 8 are for the dirty filter status or, in the case of HPCs, compressor status. These are dry contact closure, digital inputs and are connected as normally open. The fan status input will close when the fan is on, and the filter status input will close when the filter is dirty.

On an HPC Plus, Terminals 13 (Cool) and 14 (Common Ground") under Analog Outputs can be used as a general fault input. They can be connected to a dry contact closure input from a safety switch. The signal from the safety switch can be used to initiate an alarm or shut down the heat pump (based on how the input is defined in the software).

Override Input

A momentary contact switch with a light-emitting diode (LED) can be connected to Terminals 9 and 10 (Override) to be used as an override indicator. The length of time that the override remains in effect is defined in the software.

The Futura Temperature Sensor (FTS-4 and FTS-4A) provides an override switch and status LED. The override connections are at Terminals 5 and 6.

Outputs

The UCM's outputs will match the module type selected via the dip switches (refer to Table 1). Unused outputs are inactive.

Table 2 indicates the wiring connections for various digital and analog outputs.

| Table 2. UCM Output Wiring Connections | | | | | | | | | |
|---|-----------------|--------------------|-----------------------------|--------|---|--------------------|-----------------|--------|--------|
| Terminal Connections | DIGITAL OUTPUTS | | | | | | ANALOG OUTPUTS | | |
| | FAN | COOL 2 | HEAT 2/ RELIEF DAMPER | DAMPER | HEAT 1/ REVERSING VALVE (HPC PLUS) | COOL 1 | DAMPER | HEAT | COOL |
| | 21 | 22 | 23 | 24 | 25 | 26 | 11 | 12 | 13 |
| UVC-1 | Active | | Active (Rlf Dmp) | | | Active | Active | Active | |
| UVC-3 | Active | | Active (Rlf Dmp) | | | | Active | Active | Active |
| UVC-9 | Active | | | | | | Active | Active | Active |
| UVC-10 ^A | Active | | | Active | | | | | Active |
| UVC-11 ^A | Active | | | | | | Active | | Active |
| UVC-13 | Active | | | | Active (H1) | | Active | | Active |
| ETC-1/ETC-3 | Active | Active | Active (H2) | | Active (H1) | Active | Active | | |
| ETC-2/ETC-4 | Active | Active | Active (H2) | Active | Active (H1) | Active | | | |
| ETC-6 ^B | Active | Active | Active (H2) | Active | Active (H1) | Active | | | |
| HPC | Active | | | | Active (H1) | Active | | | |
| HPC Plus ^C | Active | Active (Comp 2) | Active (Aux Heat) | | Active (RVS) | Active (Comp 1) | Active (Dmp) | | |
| HPC Plus R ^C | Active | Active (Comp 2) | Active (Aux Heat) | | Active (RVS) | Active (Comp 1) | Active (Dmp) | | |
| CC | Active | Active | Active | | Active (H1) | Active (Comp 1) | Active (Dmp) | | |

^A UVC-10 and UVC-11 use the analog cooling output for both heating and cooling in a 2-pipe system. Novar Custom Language is required to perform the changeover.

^B ETC-6 performs a dehumidification cycle and can operate heating and cooling at the same time (for use on appropriate HVAC equipment only).

^C In the default mode (no program yet received from the executive module), the HPC Plus reversing valve energizes with heat, and the HPC Plus R reversing valve energizes with cooling.

Relay Outputs

The digital relay output terminals are located at the far right side of the terminal strip under the label Control Relays. Terminals 21–26 are the actual output connections. The wiring and operation of these outputs is determined by the configuration of the UCM model.

The digital relay outputs tie in directly to the six relay output status LEDs located just above the terminal strip of the UCM. On the circuit, the LEDs are labeled A–F:

A = Fan
B = Cool 2
C = Heat 2/Relief Damper (Aux Heat on HPC Plus and HPC Plus R)
D = Damper
E = Heat 1 RVS (HPC Plus)
F = Cool 1

The relay output status LEDs match the status of the relay:

- If the contact is closed, the relay is energized and the LED is on.
- If the contact is open, the relay is de-energized and the LED is off.

Terminal 20 is for one side of a 24-volt source to be regulated (switched) through outputs A through F. The relay outputs are isolated from the other connections to permit the additional power source. The transformer powering the module can be used if it has enough capacity.

Network Communications

A suitable shielded cable (Belden 8761, Novar WIR-1010, or equivalent) must be used to make the communication connections between the UCM and the module communications terminals of the executive module.

On the UCM, the connections are Terminals 17, 18, and 19, located under the label Module Network. Make certain that the plus (+) and minus (–) connections are made correctly.

CAUTION! The Shield connection (Terminal 18) is not a ground like the other common grounds on the terminal strip. It is dedicated for communications only. Do *not* connect any other grounds to Terminal 18.

Setting the Module Address Switches

Every Logic One module must have a unique address for the executive module to identify it. Addresses are assigned in the software during system programming. The system printout shows the address of the UCM being installed.

The dip switches used to set the address and module type are located between the analog outputs and the power connection. The switches should be set for the correct address from 00 to 63 (see Figure 3).

NOTE! Address 00 may *not* be used by the UCM when operating on an EC or a Savvy. (The IOM section of the EC or Savvy uses address 00.)

Novar's Lingo[®] is designed to accept module addresses from 00 to 127 for any type of Logic One module. Address settings 64 through 127 duplicate the sequence of settings shown in Figure 3 (address setting 64 is the same as address setting 00, etc.).

| ADDRESS | | SWITCH SETTINGS | | | | | | ADDRESS | | SWITCH SETTINGS | | | | | | ADDRESS | | SWITCH SETTINGS | | | | | | ADDRESS | | SWITCH SETTINGS | | | | | | | | | | | | | | | | | | | |
|---------|---|-----------------|---|---|---|---|---|---------|---|-----------------|---|---|---|---|----|---------|---|-----------------|---|---|---|---|---|---------|----|-----------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| | | ON | 1 | 2 | 3 | 4 | 5 | 6 | | ON | 1 | 2 | 3 | 4 | 5 | 6 | | ON | 1 | 2 | 3 | 4 | 5 | 6 | | ON | 1 | 2 | 3 | 4 | 5 | 6 | | ON | 1 | 2 | 3 | 4 | 5 | 6 | | | | | |
| 00 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 16 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 32 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 48 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | | | |
| 01 | | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | 17 | | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | 33 | | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 49 | | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | | | |
| 02 | | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | 18 | | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | 34 | | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | 50 | | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | | |
| 03 | | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | 19 | | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | 35 | | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | 51 | | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | |
| 04 | | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | 20 | | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | 36 | | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | 52 | | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | |
| 05 | | ↑ | ↑ | ↑ | ↑ | ↓ | ↑ | 21 | | ↑ | ↑ | ↑ | ↑ | ↓ | ↑ | 37 | | ↑ | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | 53 | | ↑ | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | |
| 06 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↓ | 22 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↓ | 38 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↓ | ↑ | 54 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | | |
| 07 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 23 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 39 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 55 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | |
| 08 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 24 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 40 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 56 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | | |
| 09 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 25 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 41 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 57 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | |
| 10 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 26 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 42 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 58 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | |
| 11 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 27 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 43 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 59 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | |
| 12 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 28 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 44 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 60 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | |
| 13 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 29 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 45 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 61 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | |
| 14 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 30 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 46 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | 62 | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| 15 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | 31 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | 47 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | 63 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | |
| | | OFF | | | | | | | | OFF | | | | | | | | OFF | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 3. UCM address settings

A series of Model Type dip switches are located next to the address switches. The UCM is a universal controller that can be configured to match the functionality of several Novar unitary controllers that exist in Novar's ESS and/or iScope software. Currently, ESS and iScope do not provide for a "UCM" module type. In the software, users must create a controller (UVC, ETC, etc.) that matches their application, then set the UCM's Model Type configuration dip switches to match the appropriate software program. The appropriate settings are shown in Table 1 and on the face of the UCM.

Checking Installation

When the installation has been completed, check each of the following items to ensure proper operation.

- Turn on the power to the UCM and make sure that power to the HVAC equipment and its control circuitry is turned on. If the executive module is operating properly, the UCM begins to control in about 3 minutes (after performing a self-diagnostic check and establishing communications with the executive module).
- Check the schedule status indicator LED located above Terminals 9 and 10. If the module is communicating properly, this LED should be flashing according to the schedule mode.
 - When the UCM is in scheduled off mode, the LED is off and flashes on briefly when communicating.
 - When the UCM is in scheduled on mode, the LED is on and flashes off briefly when communicating.
- Check the timed override switch if one has been installed and programmed. Press it during a scheduled off mode to check for proper operation. The LED should flash rapidly until the override period ends.
- Check the six relay output status LEDs. They indicate the status of each active digital output (depending on the UCM model configuration). Verify that the LEDs are lit when the corresponding digital output is on.
- Monitor the executive module's display during the test procedures. If any faults or malfunctions still exist, they are picked up by the executive module and announced by alarm messages. Change the UCM's setpoints from the executive module's keypad and monitor the status display for proper equipment response.

Model and Part Numbers

The part numbers provided in Table 3 should be used to order the necessary Novar parts.

| Table 3. Novar Part Numbers | | |
|---|------------------|----------------------|
| PRODUCT | MODEL NO. | PART NO. |
| Unitary Control Module | UCM | 738020000 |
| Thermistor Temperature Sensor (4-inch duct-mountable) | — | TS-2004-F A-10-AA |
| Futura Temperature Sensor (wall-mount) | FTS-4 | 732503000 |
| Futura Temperature Sensor (wall-mount with temperature setpoint adjustment) | FTS-4A | 732501000 |
| Two-conductor cable (Belden #8761 equivalent) | WIR-1010 | 709001000 |

Regulatory Compliance

Safety

This device has been tested and found to be in compliance with the requirements set forth in UL 916, 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.

CE Declaration of Conformity

Novar declares under its sole responsibility that the Unitary Control Module is in conformity with EMC Standard EN61326:1998.

NOTE! To maintain international compliance, the Unitary Control Module must be powered by a CE-certified, UL Class 2 transformer.

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 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.

CAUTION! Any changes or modifications not expressly approved by Novar 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 brouilleur: *Appareils Numériques*, NMB-003, édictée par l'Industrie Canada.

Waste Electrical & Electronic Equipment (WEEE)

Customers are advised to dispose of this product at the end of its useful life according to applicable local laws, regulations, and procedures.

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