

ETM-1010 Installation Instructions

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.

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Description

Novar Controls Corporation's Electronic Thermostat Modules (ETMs) are Logic One[®] intelligent control modules distributed throughout a building to provide local direct digital control of unitary, packaged, staged HVAC systems.

This document provides instructions for mounting the ETM baseplate, supplying power, wiring, setting the address, installing the module, and checking the installation.

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 VDC, Class 2
Current:	50 mA

Operating Environment

Temperature:	32° to 122° F (0° to 50° C)
Humidity:	0 to 95% Relative, noncondensing

Physical Dimensions

Height:	4.875 inches
Wide:	7.093 inches
Depth:	1.75 inches
Weight:	1 lb

Precautions

Take the following precautions during installation:

- Observe all national and local electrical codes.
 - Do not connect 115 volts to any wire of the baseplate. The ETM is a Class 2 (low voltage) control device.
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Mounting the ETM Baseplate

The ETM baseplate must be mounted indoors, in the zone where the temperature is to be controlled. It should be mounted horizontally, approximately 5 feet (1.5 meters) above the floor, to an electrical junction box or directly to a wall. The area should have ample air circulation and be free from drafts and sudden temperature changes.

Use the following procedure and refer to Figure 1, as necessary, to mount the ETM baseplate.

Step	Procedure
1	Turn off all power to the HVAC equipment.
2	Position the base against the mounting surface and mark the surface to show the location of the four corner mounting holes. NOTE! When mounting the baseplate in a junction box, mark the surface to show the location of the two mounting holes located directly above and below the large hole through which the wires will pass.
3	Drill holes in the marked places and insert hollow-wall anchors, if necessary. NOTE! Use the hollow-wall anchors when mounting to paneling or drywall. When mounting to a cement block or brick wall, use 3/8- to 1/2-inch layer of insulation between the wall and the baseplate.
4	Position the baseplate over the holes, insert screws, and tighten to ensure a secure mount.

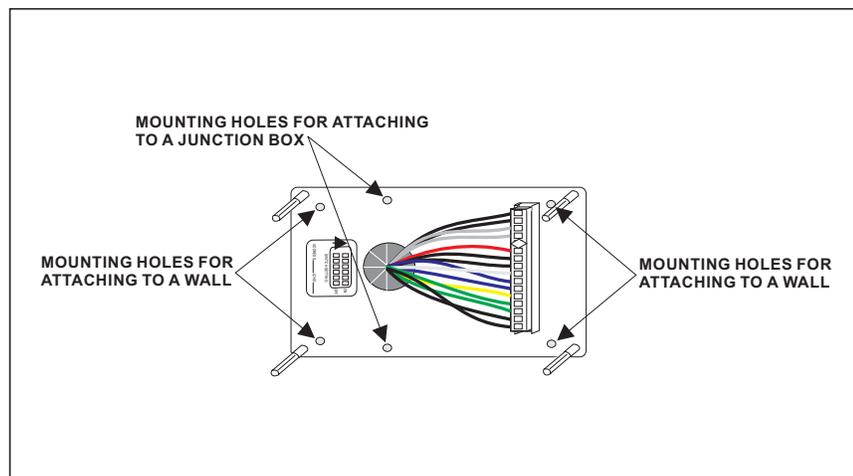


Figure 1. ETM Baseplate Installation

Supplying the ETM with Power

The ETMs are powered by a DC source. Use the recommended Novar Controls Module Power Supply (MPS) for 24-volt direct current power to the electronic module. Up to 24 ETMs can be powered by one MPS. Refer to the Novar Controls *Module Power Supply Installation Instructions* (available in the Documents folder on the Novar Controls Software Library CD) for wiring instructions.

If 24 modules are powered by one MPS, the average distance between the MPS and the modules should not exceed 500 feet. If fewer modules are powered by each MPS, this distance can be greater than 500 feet. The minimum allowable voltage at any module is 20 VDC with all other modules installed.

Wiring the ETM Control Outputs

Using the wire nuts provided, connect the ETM baseplate wires to the HVAC control/interface equipment. Table 1 shows the correct wiring scheme.

CAUTION! Make sure that the wiring is connected properly to avoid permanent system damage.

Table 1. ETM-1010/ETM-1020 Wiring		
PIN NUMBER/COLOR	FUNCTION	INDUSTRY CODE
1 White	Heat Stage 1	W1 or H1
2 Dark Blue	Heat 1–2 Return	RH, V, VR, or 4
3 White/Black/Green	Module Power (–24 VDC)	
4 White/Black/Red	Module Power (+24 VDC)	
5	(Socket Key)	
6 Yellow	Cool Stage 1	Y1 or C1
7 White/Blue	Heat Stage 2	W2 or H2
8 Orange	Cool Stage 2	Y2 or C2
9 Light Blue	Heating Stage 3 or Dampers	W3 or H3
10 Black	Comm Network (Shield)	
11 White/Red	Comm Network (+)	
12 White/Black	Comm Network (–)	
13 White/Brown	Air Flow Switch Return	
14 Brown	Air Flow Switch	
15 Red	Cool, Fan, Heat 3/Damper Return	R or RC
16 Green	Fan	G

NOTE! The markings or color codes on existing heat/cool/vent wiring may vary from industry-standard. Record any discrepancies between the actual wiring and standard code and retain this information for future reference.

Communications Network

Use a suitable shielded cable (Novar Controls WIR-1010, Belden 8761, or equivalent) to make the communication connection between the ETM and the network communication terminals of the executive module.

Setting the Module's Address

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 ETM being installed.

The address switches are located on the rear of the ETM module (Figure 2). Set the switches to the correct address from 00 to 63 (see Figure 3) and record the address in the space provided on the back of the module and the baseplate.

NOTE! Address 00 cannot be used by the ETM when operating on an Executive Controller (EC) or Savvy®. The IOM section of the EC or Savvy uses address 00.

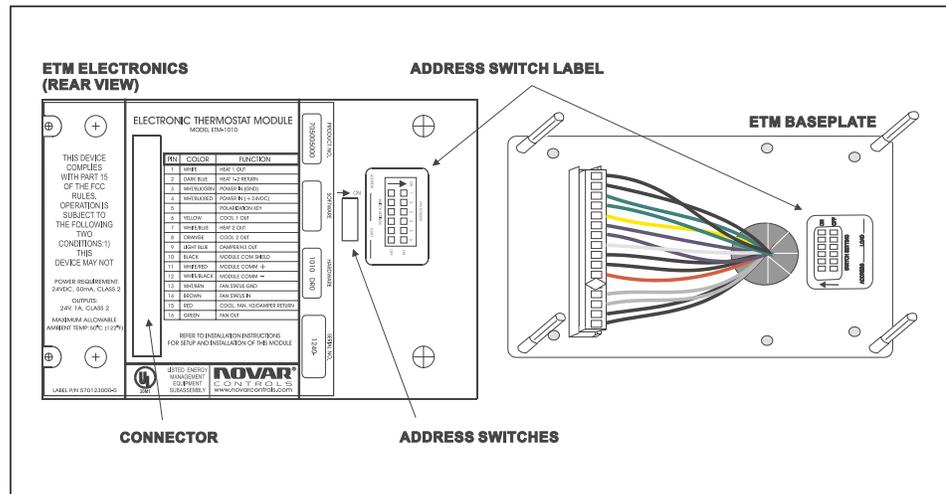


Figure 2. ETM address switch and connector

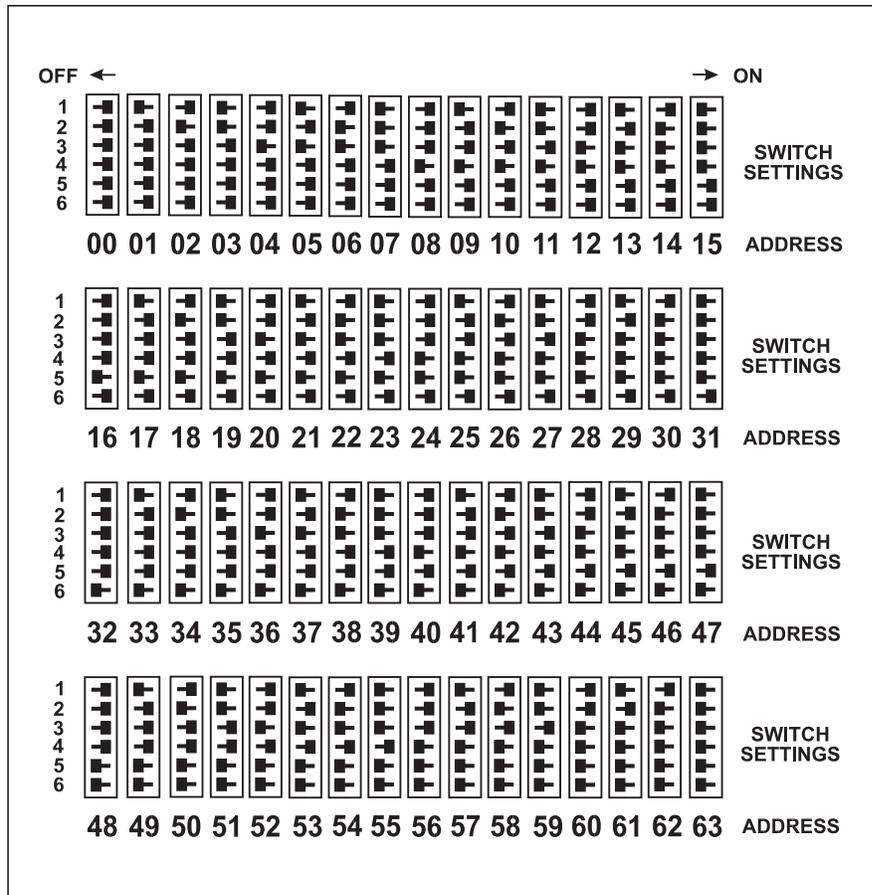


Figure 3. ETM address settings

Installing the ETM Module on the Baseplate

Use the following procedure and refer to Figure 4, as necessary, to mount the ETM module on the baseplate.

Step	Procedure
1	Make sure that the connector on the rear of the ETM module fits properly into the pigtail wiring connector on the baseplate.
2	Align the module over the mounting posts and press it gently onto the baseplate connector.
3	Insert screws into the posts and tighten to ensure a secure mount.

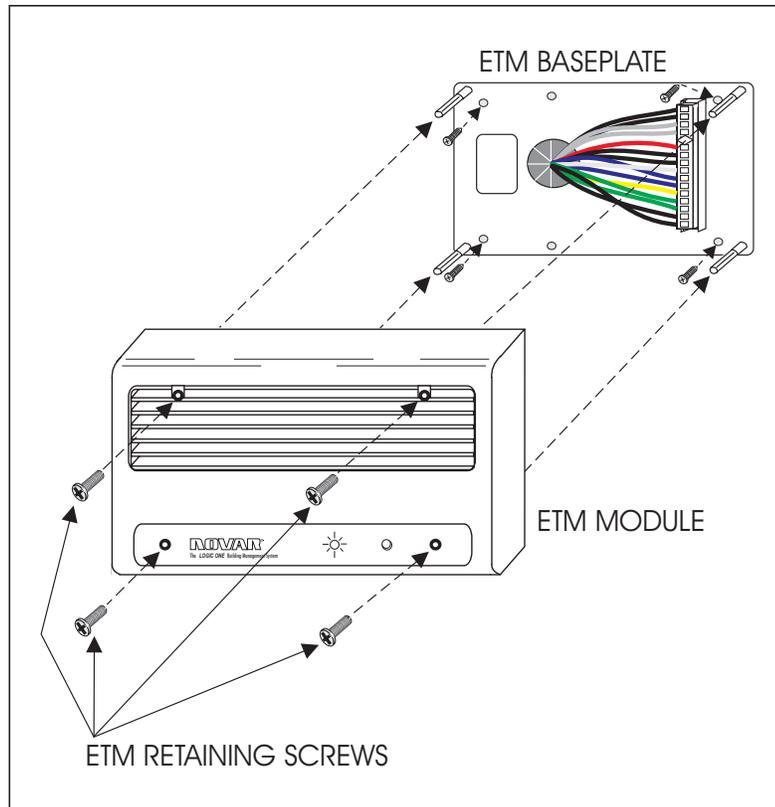


Figure 4. ETM electronics installation

Checking Installation

When installation has been completed, check the following items to make sure the module is operating correctly.

- Turn on power to the ETM and the HVAC equipment and its control circuitry.

If the executive module is operating properly, the ETM begins to control the HVAC equipment in about 3 minutes (after performing a self-diagnostic check and establishing communications with the executive module).

- Check the output status indicators. There are six output status indicators (inside the ETM, visible through the front grille) that show the status of each output. Each indicator lights up when the corresponding output is on.
- Test the ETM's built-in timed override switch by pressing it when the schedule status indicator is off (if set to "Active" in the software). The schedule status indicator exhibits a steady flash that stops when the override period ends. If the ETM's output status indicators are not in the zero energy band, they should show a change in status (if the change in schedule status initiates a change in "call for cool" or "call for heat").

Press the timed override switch again to cancel the override. The schedule status indicator should stop flashing.

- Observe the flashing pattern of the schedule status indicator to verify proper communications between the ETM and the executive module. The indicator should be on during scheduled on periods and off during scheduled off periods. It flashes on or off regularly when communicating with the executive module, depending upon the schedule status (on or off).

When a scheduled timed override has been implemented, it exhibits a steady flash that stops when the override period ends. The steady flash is broken when the ETM is communicating with the executive module.

- Monitor the executive module’s display during the testing procedures. If any faults or malfunctions still exist, they are picked up by the executive module and announced by alarm messages.

Change the ETM’s setpoints from the executive module’s keypad and monitor the status display for proper equipment response.

Model and Part Numbers

Use the part numbers shown in Table 2 to order the necessary Novar Controls parts.

Table 1. Novar Controls Parts Numbers		
PRODUCT	MODEL NO.	PART NO.
ETM-1010 Baseplate (with pigtail wiring)	ETM-BPL	705100000
ETM-1010 Electronics	ETM-1010	705005000
Module Power Supply	MPS	709000000
Two-conductor, shielded cable (Belden #8761 equivalent)	WIR-1010	709001000

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