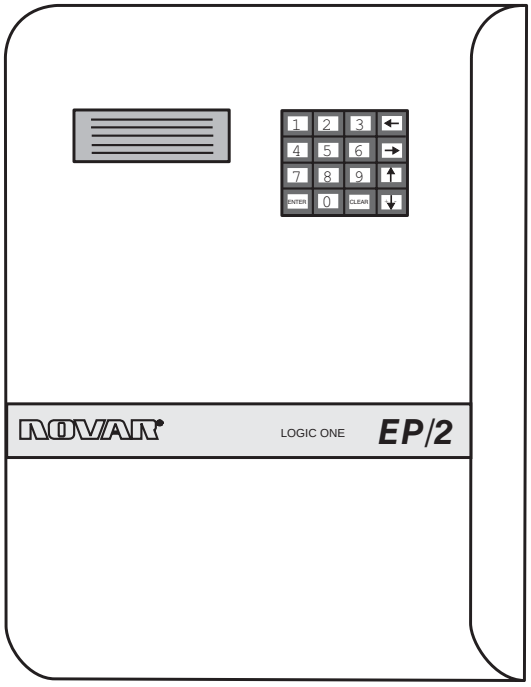

EP/2 Installation Instructions

DOC. #569011000—A 7/30/04 PRINTED IN U.S.A.

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.

Disclaimer

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Description

The EP/2 is the second generation Executive Processor for the Logic One® Building Management System. The EP/2 manages network communications, monitors and logs the operations of the local control modules, and provides expandable and complete integrated data control of the building's equipment. It also has local area network (LAN) capability and offers the option of a built-in 3.5-inch, high-density floppy drive.

This document provides instructions for mounting the EP/2's baseplate, installing the electronics assembly, and making the proper wiring connections.

EP/2 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
Consumption:	30 VA

Operating Environment

Temperature:	32° to 140°F (0° to 60°C)
Humidity:	0 to 95% Relative, noncondensing.

Physical Dimensions

Height:	22.25 inches
Width:	13.3 inches
Depth:	2.5 inches
Weight:	12.0 lb (All aluminum enclosure)

Precautions

Take the following precautions during installation:

- Observe all national and local electrical codes.
- Connect 24-VAC power wiring to the terminals marked 24 VAC only. Connection to other terminals will damage them.
- Make sure that the 24-VAC power wiring is connected to a dedicated transformer. No other devices should be supplied power by the transformer connected to the EP/2.
- Do *not* ground the transformer for this module on the secondary side.
- Do *not* connect the EP/2 to a Module Power Supply.
- Make sure that the EP/2 power cannot be switched off accidentally. The EP/2 requires continuous power for proper operation.
- Do *not* use the EP/2 as a final safety device.

Mounting the EP/2 Baseplate

NOTE! The EP/2 must be mounted in an accessible location with the top of the assembly no higher than 6 feet from the floor. Use hollow-wall anchors when mounting the baseplate to paneling or drywall to ensure a secure mount.

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

Step	Procedure
1	Loosen the two screws at the bottom of the EP/2 with the hex wrench and lift off the cover.
2	Position the baseplate against the wall and mark the wall to show the location of the four slotted holes in the baseplate.
3	Drill the holes and, if necessary, install the hollow-wall or other appropriate anchors.
4	Insert screws into the fasteners until approximately 1/4-inch remains between the wall and the head of each screw.
5	Position the baseplate over the screws and slide it down until the screws move into the slots.
6	Tighten the screws to secure the baseplate.

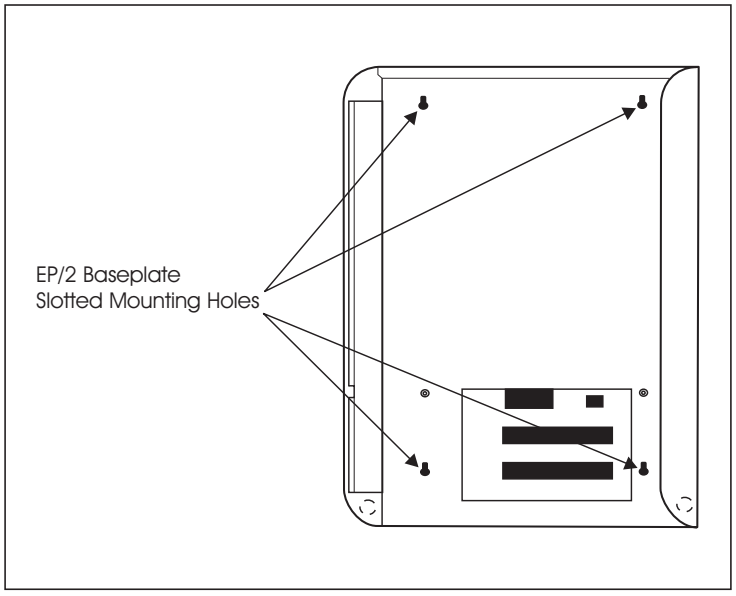


Figure 1. Slotted mounting holes on the EP/2 baseplate

Wiring the EP/2

Supplying the EP/2 with Power

The EP/2 is powered by a 24-VAC, Class 2, Transformer Kit (not included; the transformer kit must be purchased separately). It must be installed not more than 50 feet from the EP/2 (using minimum 18-gauge wire).

CAUTION! Use a dedicated transformer. Do *not* connect any other devices to the transformer. Do not connect the EP/2 to a Module Power Supply.

Use the following procedure and refer to Figure 2, as necessary, to install the 24-VAC, Class 2, Transformer:

Step	Procedure
1	Connect the blue and yellow leads from the transformer secondary to the screw terminals labeled 24 VAC, Class 2, located on the EP/2 terminal board.
2	Connect the transformer primary leads (white/black) to a 120-VAC source.
3	Connect the GND terminal to a suitable earth ground.
4	Apply power to check the voltage at the 24-VAC terminals. ■ Voltage should be approximately 25–28 VAC.
5	Turn off the power until needed. **NOTE!** The EP/2 requires continuous power for proper operation. Make sure the EP/2 power *cannot* be switched off accidentally.

Wiring the EP/2 Inputs and Outputs

Refer to Figure 2 when wiring the EP/2 input/output connections. All digital inputs should be dry contact closures.

Outdoor Light Sensor

This input can support either a 4–20 mA analog sensor such as the Novar Controls Analog Light Sensor (ALS) or a standard digital contact closure sensor.

Connect the sensor to the terminals labeled Outdoor Light Sensor Input according to the instructions supplied with the sensor.

Outdoor Temperature Sensor

This input can support any standard 4–20 mA sensor with a –40°F to 120°F range. Novar Controls recommends its Outdoor Temperature Sensor.

Connect the wiring from the sensor to the terminal labeled Outdoor Temperature Sensor Input according to the instructions supplied with the sensor.

Demand Pulse

Connect the isolated contacts of a pulse-type utility meter or watt transducer to the terminals labeled Demand Pulse Input. The EP/2 baseplate is shipped with a capacitor on it (Terminals 5 and 7). Leave the capacitor in place unless the demand pulse is expected to exceed 5 pulses per second. This capacitor filters out electrical noise.

Phase Loss Sensor

Connect a normally open, dry contact output of an electrical phase loss monitor to the terminals labeled Phase Loss Input.

Emergency Status Input

Connect a normally open, dry contact output of an emergency monitoring system to the terminals labeled Emergency Status Input.

Output X

Under normal operating conditions, a normally open solid state contact is held closed. It opens for 0.5 seconds upon the occurrence of system alarms, load alarms, or monitoring alarms that have "Unit Fault" programmed as active. This signal can be used to indicate an EP/2 fault alarm.

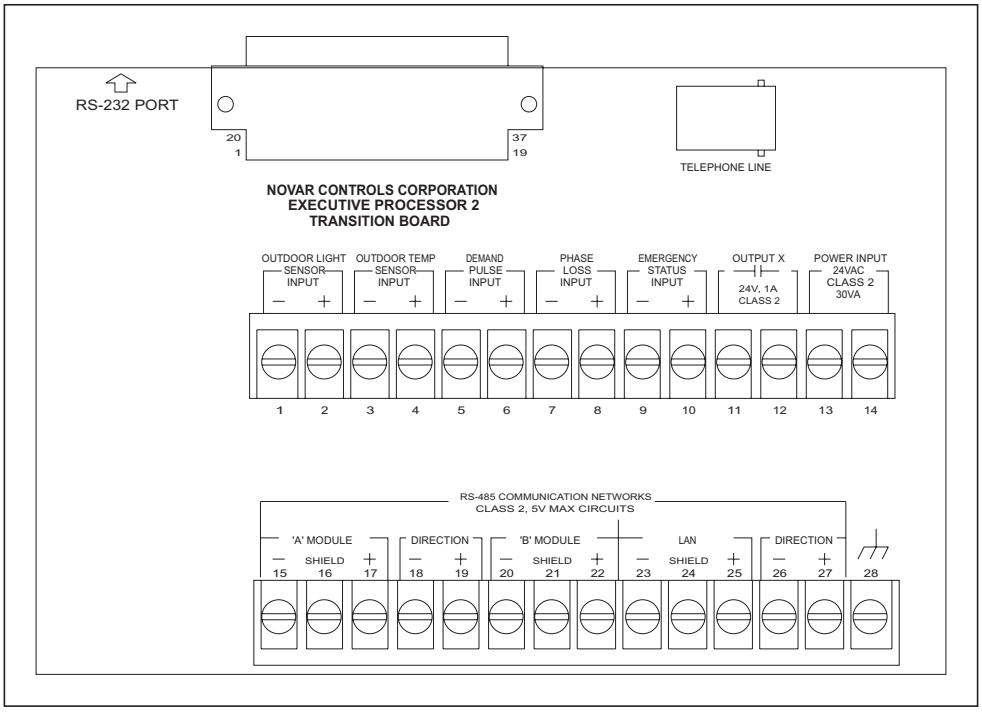


Figure 2. EP/2 terminal strip (transition board)

Module Communications

A maximum of 32 modules can be connected to each of the A or B Module terminals using the recommended network cable (Belden 8761, Novar Controls WIR-1010, or equivalent). Use the following procedure to make the connections.

Step	Procedure
1	Connect the black wire from the network cable to the negative (–) terminal.
2	Connect the shield/drain wire to the Shield terminal.
3	Connect the red wire to the positive (+) terminal.

Slave Communications

Connect the communications cable (Belden 8761, Novar Controls WIR-1010 or equivalent) from the slave EP/2s to the LAN terminals , using the following procedure.

Step	Procedure
1	Connect the black wire from the cable to the negative (–) terminal.
2	Connect the shield drain wire to the Shield terminal.
3	Connect the white wire to the positive (+) terminal.

Communication Direction

There are two Direction terminal locations on the terminal board:

- Terminals 18 and 19 (located between the A and B module terminals) are for module communications.
- Terminals 26 and 27 (to the right of the LAN terminals) are for slave communications.

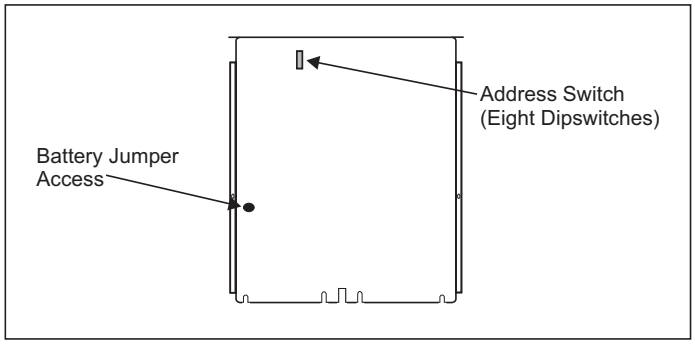
These connections provide an interface to other types of media such as fiber-optic networks (that do not have full-duplex capability) to allow the EP/2 to manage the switching of send and receive signals when communicating using these media.

Installing the EP/2 Electronics Assembly

The following items are needed to install an EP/2 electronics assembly:

- The EP/2 electronics assembly
- The hardware kit (containing a small jumper block and a hex wrench), included with the electronics assembly

Use the following procedure to install the electronics assembly on the baseplate.

Step	Procedure
1	Place the electronics assembly face down on a clean sturdy area.
2	Remove the jumper block from the hardware kit.
3	Position the small jumper block over the battery backup jumper leads (see Figure 3) and carefully push into place.  **Figure 3.** Back of the EP/2 electronics assembly
4	Set the address switch (eight dip switches located on the back of the EP/2, see Figure 3) as follows: ■ If the EP/2 is to be programmed to function as the master, set the address switch to 0 as indicated in Figure 4. ■ If the EP/2 is to function as a slave, set the address switch to the appropriate address setting from 1 to 31. **NOTE!** For EP/2 PROM version 18.23 or higher, make certain Address Switches 6, 7, and 8 are set to the on position or the address will be incorrect.
5	Slide the EP/2 assembly over the lip at the top of the baseplate and down over the mounting posts.
6	Guide the DB37 connector on the EP assembly over the corresponding connector on the transition board (terminal strip).
7	Tighten the two retaining screws (using the hex wrench supplied) to secure the EP/2 assembly to the baseplate

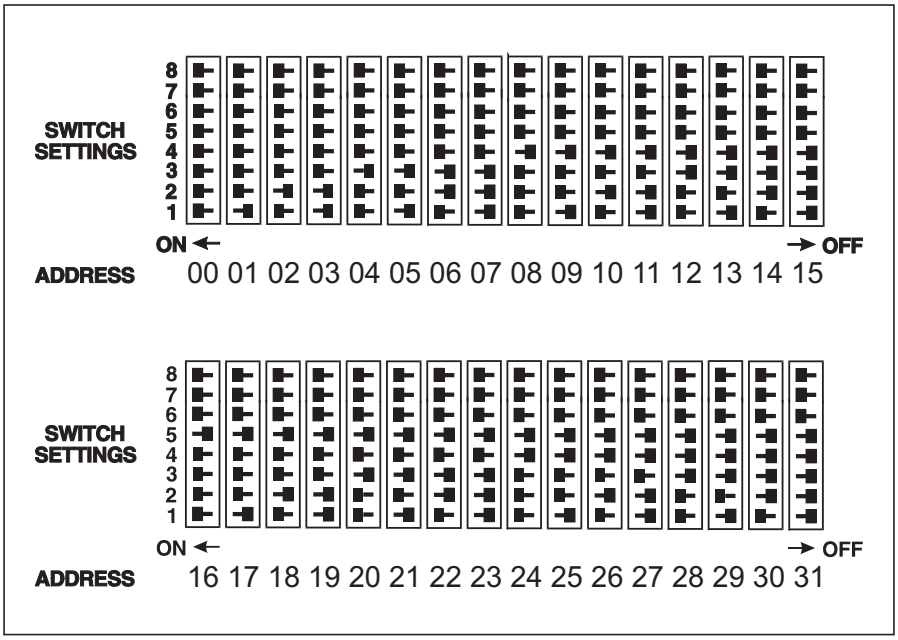


Figure 4. EP/2 address settings

RS-232 Port

The RS-232 direct-connect port is a DB9 connector located to the left of the DB37 connector on the EP/2 electronics assembly. This port can be used to connect the EP/2 directly to a laptop or personal computer (PC) via an RS-232 adapter cable (Novar Controls Part. No. 600540000) or to connect the EP/2 to a serial printer via a special cable. (Call Novar Controls Corporation's Technical Support if this cable is needed.)

Network Communications

The Network Communication Port is a DB37 connector located to the left of the RS-232 port on the electronics assembly. This port is compatible with many of the existing LAN networks. Connect the LAN adapter module to this port.

Changing the EP/2 Communication Ports Permanently

When an EP/2 contains PROM Version 18.26 or higher, the local area network (LAN), modem, Ethernet addresses, and RS-232 port definitions can be permanently adjusted if the EP/2 is put into a special Setup Mode. When changes are made in the Setup Mode, the settings are maintained even when the memory of the EP/2 is cleared. This allows the EP/2 to maintain communications to accommodate a download.

The following procedure should be used to make the changes.

Step	Procedure
1	Remove the EP/2 electronics from the baseplate if it has already been installed.
2	Write down the positions of the EP/2 address switches. ■ The address must be reset once the changes have been made.
3	Move all of the address switches to the off position (Address 255).
4	Plug the EP/2 onto its baseplate.
5	Make sure that the unit number shown on the opening menu of the keypad is 256.
6	Press the appropriate keypad numbers to enter the access code. ■ Use access code 1234 if the unit is dumb.
7	Use the keypad to access the Tools display and select **EP/2 Configuration**.
8	Set the LAN to **NovarNet** or **Master-Slave** and press **enter**.
9	Define the modem as **Novar-202** or **Novar-212** (Hayes Compatible) and press **enter**. ■ The modem type selected must match the modem type installed on the EP/2.
10	Adjust the RS-232 port and Ethernet parameters, if necessary, and press **enter**. **NOTE!** The RS-232 port at some download levels can be set to 38.4K if the PC communications port will support it.
11	Press **Clear** until the system returns to the sign-on screen.
12	Remove the EP/2 from its baseplate and return the address switches to their original settings.
13	Plug the EP/2 back onto the baseplate.

NOTE! If the EP/2 does not have a keypad, Remote Keypad Software (RKS) can be used to access and adjust the EP/2 during the Setup Mode.

Connecting to the Telephone Network

Thread the telephone cable through the knockout on the side of the baseplate. With the tab pointing toward the wall, insert the telephone line into the telephone jack on the EP/2 transition circuit board.

A telephone interface jack is required at the installation site. The jack is supplied by the telephone company and should be type RJ-11C.

The switched-telephone network can be either rotary dial or touch-tone. If communication between the EP/2 and the PC workstation takes place over long distance lines (toll call) using a long distance calling service (such as MCI or Sprint), check with that long distance service organization to determine what kind of switched-telephone network is required. No voice capability or additional equipment is required.

Checking Installation

Make sure that the installation is complete. Check all wiring connections to make sure that they are secure. Reinstall the EP/2 baseplate cover and turn on the power to the EP/2.

The EP/2 Model with the keypad has an 8-line by 40-character liquid crystal display (LCD) with a backlight. The first line of the display (Figure 5) should show a random time, date, outside temperature (or asterisk), and unit of measurement (degrees). The screen should also show product information and the message “System Check” in reverse type.

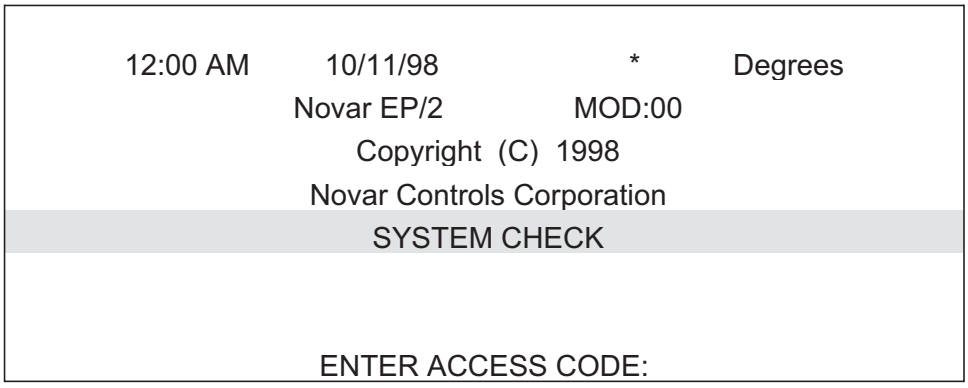


Figure 5. EP/2 Start-up Display Screen

NOTE! The EP/2K comes with a keypad and display. Monitoring on all other models must be performed via the Novar Controls software at the PC workstation or an auxiliary terminal connected to the RS-232 port on the EP/2.

If this information does not appear on the display, the EP/2 is not operating properly. Contact the appropriate Novar Technology Center (NTC) or Novar Controls account representative.

Refer to the Novar Controls *EP/2 Keypad and Display Instructions* (Doc. No. 560119000) for information about accessing the display to monitor and/or make configuration changes.

Model and Part Numbers

Use the part numbers shown in Table 1 to order the EP/2 and its accessories.

Table 1. Novar Controls Part Numbers

PRODUCT	MODEL NO.	PART NO.
EP/2 Baseplate	EP/2-BPL	735100000
EP/2 Electronics (no options) EP/2 with Keypad EP/2 with Hayes-compatible modem EP/2 with Novar Controls modem EP/2 with 3.5-in. disk drive and keypad EP/2 with Hayes-compatible modem and keypad EP/2 with Novar Controls modem and keypad EP/2 with Hayes-compatible modem, 3.5-in. disk drive, and keypad EP/2 with Novar Controls modem, 3.5-in. disk drive, and keypad	EP2 EP/2K EP/2S EP/2M EP/2DK EP/2KS EP/2KM EP/2DKS EP/2DKM	735000000 735007000 735008000 735005000 735003000 735004100 735004000 735001100 735001000
Ethernet Adapter for the EP/2	EP/2-EA	735090000
24 VAC, Class 2 Transformer Kit	24V-XFR	730090000
Analog Light Sensor	ALS	708100000
Outdoor Temperature Sensor (for EP/2 or Savvy)	OTS/2	735070000
EIA-232 Controller Direct Connect Cable for Savvy, EP/2 (RS-232 Adapter Cable)	—	600540000