

IOM/2 Keypad and Display Instructions

Description

The IOM/2, an Input/Output Module used with Novar's Logic One[®] Building Management System, is an intelligent universal controller module designed to replace virtually any type of system controller.

The IOM/2's two-line, twenty-character, backlit liquid crystal display (LCD) and keypad (Figure 1) can be used to monitor and make changes to modules connected to the IOM/2 via a local expansion network (LEN)

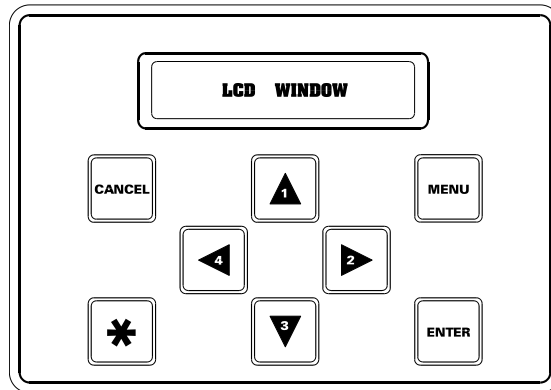


Figure 1. IOM/2 keypad and display

Turning On the IOM/2

The IOM/2 must be properly installed and wired (see Novar's *IOM/2 Installation Instructions*, available through any Novar representative).

When power to the IOM/2 is turned on, the display should show Novar's company name and copyright information (Figure 2).

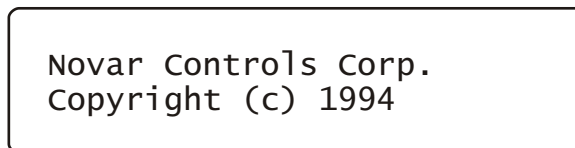


Figure 2. IOM/2 power-up display

If this information does not appear on the display, contact Novar's Technical Support Staff for assistance.



Downloading to the IOM/2

If the IOM/2 has not yet received a download, the company name and copyright information is displayed for approximately 5 seconds before it changes to a “Download Needed” message (Figure 3). The number at the end of the first line is the address of the IOM/2 that was set during installation (refer to the *IOM/2 Installation Instructions* for address setting information). In Figure 3, the IOM/2’s address is 01.

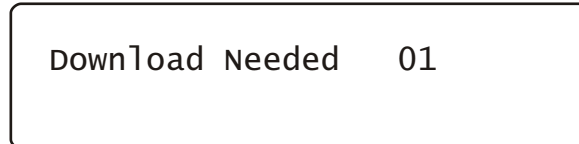


Figure 3. IOM/2 download display

The screen displays this message for several seconds while the IOM/2 communicates with the executive module and receives its download. If the IOM/2 is properly connected to the executive module, the download takes place automatically. Once the IOM/2 portion of the download is completed, the screen displays the status while LEN data is downloaded (if LEN data has been programmed for the IOM/2).

Using the Status Display

The status display (Figure 4) is the starting point for viewing and/or modifying the IOM/2’s information.

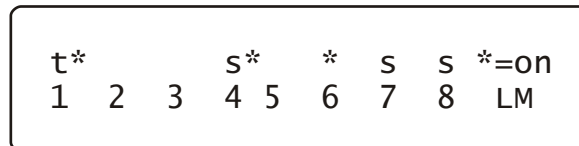


Figure 4. IOM/2 Status display

It shows the eight IOM/2 outputs, each controlling the load defined in ESS32 (Novar’s Engineering and Support System for personal computers). When the status is first displayed, the reverse-video cursor is on “4” (Output #4). The left and right arrow keys on the keypad can be used to move to other outputs.

The following symbols can appear in the display.

- An asterisk (*) above an output number means that the output status is on (as noted in the upper right corner of the display). In Figure 4, Outputs 1, 4, and 6 are on.
- An “s” above an output number indicates that a load is in scheduled on mode. If there is no “s,” the load is in scheduled off mode. In Figure 4, Outputs 4, 7, and 8 are in Scheduled On mode.

- A “t” indicates that a timed override is in effect. A timed override is activated when the cursor is moved to an output and the asterisk key (*) on the keypad is pressed. The override stays in effect for the length of time defined in ESS32. An override can be canceled by moving the cursor to the output that is indicated as being in timed override and pressing the asterisk key on the keypad. In Figure 4, Output 1 is in timed override.
- The “LM” at the end of the second line indicates that the LEN download has been completed. An “LD” here would indicate that the expansion download is in progress; an “NL” means that no expansion load data has been downloaded.

NOTE! The IOM/2 provides an online explanation of these and other symbols that appear on the IOM/2 display screens. To access these explanations, select the **Guide** option from the Main Menu (see “Main Menu, Guide”).

Main Menu

Pressing the **Menu** key on the keypad displays the Main Menu, which offers the following options:

- Utilities
- Guide
- Access Code
- Unit Status

Pressing the keypad’s up and down arrow keys moves the cursor to the next option. Pressing the **Cancel** key returns the user to the previous display. Pressing it repeatedly eventually returns the system to the status display.

NOTE! If the IOM/2’s parameters are changed, pressing **Cancel** does not cancel the change. It only exits that display screen. Changes do not take effect until the **Cancel** key has been pressed and the user has exited the screen where the changes were made.

Utilities

From the Main Menu, the user can press the up or down arrow key to move the cursor to the **Utilities** option and press **Enter** to display the Utilities menu options:

- Module Status
 - Versions
 - Time and Date
 - Configuration
 - RS-232 Application
 - Load List
 - Expansion Schedules
 - Sensor Range
 - Diagnostics
-

Module Status

The module status screen (Figure 5) shows which IOM/2 module is being used and any IOM/2 modules connected to that IOM/2 via the LEN.

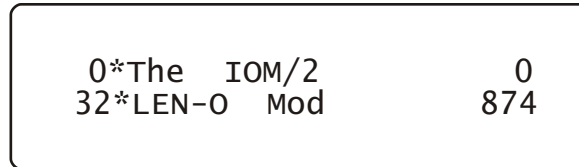


Figure 5. Module Status screen

The IOM/2 is always the first module on the list. All modules are displayed with their system address and name. The number to the far right is a diagnostic indicator. An asterisk after the address indicates the module is active.

To select a module, the user presses the appropriate keyboard arrow keys to highlight the module and presses **enter** to display the following two options:

- View Inputs
- View Outputs

NOTE! A “quick-start” method can be used to access the **View Inputs/View Outputs** options quickly. Simply press **Menu, enter, enter, enter**.

NOTE! LEN modules are either input or output modules, not both. Selecting to **View Outputs** for a LEN input module (or vice versa) does not change the display. Users must select the option that corresponds with the LEN module type.

Users move the cursor to an option and press **enter** to display input or output information.

Selecting the **View Inputs** option displays the screen shown in Figure 6.

- Line one of the display shows the input number (two digits) and the input name assigned in ESS32.
- Line two indicates if the input is an analog (ANA), digital (DIG), or meter (MTR) input and shows the current value of the input.

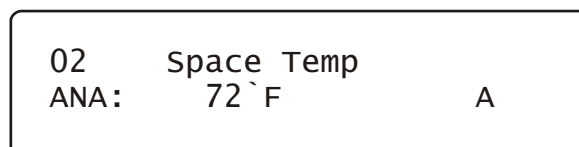


Figure 6. Module input display

In Figure 6, Input 02 is the space temperature. It is an analog input and its value is 72 Fahrenheit. The status of a meter would show as a number of meter counts. The “A” at the end of the second line indicates that the value shown by the input is the actual device value.

Selecting the **View Outputs** option displays the screen shown in Figure 7. The format is the same as it is for inputs, except for meters (which applies to inputs only). Also, outputs can have several additional status indicators.

- An “S” indicates that the output is in scheduled on mode.
- A “T” indicates that the output is being controlled by a timed override.
- An “F” indicates it is controlled by a forced state.
- An “A” indicates that the output is controlled automatically, not forced.

```
02 Fan Start/Stop
DIG: ON-CLOSED      SA
```

Figure 7. Module output display

Versions

Selecting the **Versions** option displays the IOM/2’s current Initialization and PROM software version. This selection is for viewing only.

In Figure 8, the Initialization version is 1.13 and the PROM version is 1.22. The numbers following the version are diagnostic check sums. The number at the end of Line 1 (“01” in Figure 8) is an internal diagnostic counter. The number at the end of the second line (“09” in Figure 8) is the IOM/2’s address.

```
Init      113  7BD2      01
ROM       122  8FE0     _09_
```

Figure 8. Software version display

Time and Date

Selecting the **Time and Date** option displays the system’s time of day and date information as it is received from the executive module (Figure 9).

```
TIME:    09:38:42
DATE:    08 SEP 99
```

Figure 9. Time and date display

These can be changed from this screen if the user has Super User access (see “Access Code” in this document). Any changes that are made apply to the IOM/2 only; they do not affect the executive module or any other system modules. Changing the time and date at the IOM/2 does not provide long-term advantages—the executive module will eventually change the time and date to correspond to the system time and date.

Configuration

Selecting the **Configuration** option from the Utilities menu displays the following configuration menu options, which can be used to monitor and set certain parameters within the IOM/2. The left or right arrow keys on the keypad can be used to move the cursor from one option to the next.

NOTE! Super User access is required to change any parameters from the IOM/2.

The status of these options can be changed by pressing the **enter** key. Status changes do not take effect until the user presses the **Cancel** key to exit the display.

- The **Rem OVR** option can be used to activate the remote override function of the IOM/2 or inactivate it.
- The **Rem LEDs** option can be used to activate the remote load status LEDs connected to an IOM/2 to show if a load is in scheduled on mode, timed override mode, etc., or to inactivate them.
- The **Exp Loads** option should be active if modules are connected to the IOM/2 via the LEN. If no modules are connected to the IOM/2 via the LEN, this option can be inactive.
- The **RS-232 BRD** option can be used to activate the RS-232 port on the IOM/2 to allow communication with devices such as a hand-held computer, etc.

NOTE! The RS-232 port and the device that is to be connected to it must be installed *before* activating this feature.

- The **MODNET** option shows the baud rate for communication to the module network. Although the baud rate can be changed, Novar recommends that the default baud rate of 1747 be maintained. If it is changed, other system-level changes in ESS32 are required.
-

RS-232 Application

The **RS-232 Application** option on the Utilities Menu displays the following options, which are intended primarily for use by Novar's Technical Support personnel.

- The **Load Application** option displays a screen that shows the Baud Rate.
- The **Position-Graph** option turns the RS-232 port into an output that can be used with the diagnostic software.
- The **Line Monitor** option allows a terminal to be hooked up so the user can watch the communications line activity without a dedicated monitor.
- The **Memory Display** option provides a binary data dump.
- The **Terminal** option allows a hand-held terminal to access the system.
- The **Inactive** option unhooks the RS-232 port from any other application that could be running with it.

NOTE! This option differs from the **RS-232** option offered from the **Configuration** option of the Utilities menu. That selection must be set to **Active** to be able to use the RS-232 port. This selection shows whether the port is actually being used and, if so, the device connected to it.

Load List

Selecting the **Load List** option from the Utilities menu displays a list of loads that have been configured in the IOM. It provides basic monitoring functions and allows some parameters to be changed.

Expansion Schedules

Selecting the **Expansion Schedules** option from the Utilities menu displays the names of the schedules. The keypad arrow keys are used to move the cursor to a schedule; pressing **enter** displays information about that schedule.

The system indicates if the schedule is off or on and its effective dates. Pressing the right arrow key displays specific information for that schedule by day and advances through the days of the week (today, tomorrow, Sunday, Monday, etc.).

Sensor Range

Selecting the **Sensor Range** option from the Utilities menu displays a list of sensors. The arrow keys can be used to move to a specific sensor. Pressing **enter** opens a screen that gives the sensor's range and value. Pressing the right arrow key displays the type of sensor and the units used for measurement.

Diagnostics

Selecting the **Diagnostics** option from the Utilities menu displays a Diagnostics menu with the following options:

- **Display Test** can be used to test the display screen. Any key can be used to advance through the display. Pressing the asterisk (*) key changes the displayed letters from lowercase to capital and back again. Pressing the **Cancel** key exits this display.
- **Keyboard Test** The **Keyboard Test** option can be used to test the keyboard. Any key can be used to advance through the test. When a key is pressed, the screen indicates which key was pressed. To exit this screen, the user must press **enter**.
- **A/D Diagnostics** is intended for Novar's Technical Support and engineering personnel use. It offers three options that provide access to information that is used to calibrate the system.
 - Raw Counts is a value from analog to digital that is used to convert binary values before scaling the calibration.
 - Calibrated Counts is the same value after it has gone through the calibration formula and been converted to standard input range.
 - Monitor A/D Inputs is used to monitor the inputs after scaling has been completed.
- **View Local Switches** displays the on/off status of the eight input switches.
 - 1 = The switch is on.
 - 0 = The switch is off.
- **View Local Outputs** displays the on/off status of the outputs.
 - 1 = The output is on.
 - 0 = The output is off.
- **Memory Dump**

The **Memory Dump** option lists the memory contents starting at a user-specified address.

Guide

The second option offered on the Main Menu, **Guide**, displays definitions of the symbols used by the IOM/2's display. This information is provided to help the user; it cannot be modified.

The keyboard up, down, right, or left arrow keys are used to move through the explanations.

Access Code

The third option offered on the Main Menu, **Access Code**, provides a means by which a user can obtain Super User access privileges, which allow the user to change parameters from the IOM/2. Without Super User access, users can only monitor the IOM/2 display. They cannot change any parameters.

The access code is the same four-digit code used for the executive module. When the Access Code screen is first displayed, the cursor appears in the first space provided for entering the code. To enter the access code, the user must:

- Press the up and down arrow keys on the keypad until the appropriate number appears.
- Press the right arrow key to move the cursor to the next space and select the next number.

The user continues until all four numbers have been selected, then presses **enter**. If the access code was correctly entered, a “Super-User Access!” message appears briefly. If the access code was entered incorrectly, a “Monitor Access!” message appears.

In either case, the system returns to the Main Menu. The user maintains Super User access until he or she returns to the Status screen.

NOTE! If a user has Super User access, the cursor changes to a blinking, reverse-video block identical to the one displayed in the Status screen. The cursor remains this way until the user exits to the Status screen. If a user has monitoring access privileges only, the cursor appears as an underline.

Unit Status

The last option offered on the Main Menu is **Unit Status**. When this option is selected, the system provides the following information:

- RS-232 owner
 - The number of mail envelopes currently in use for messaging within the system
 - Menu Mode, which is provided for Novar’s use only.
 - Power failure date and time
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