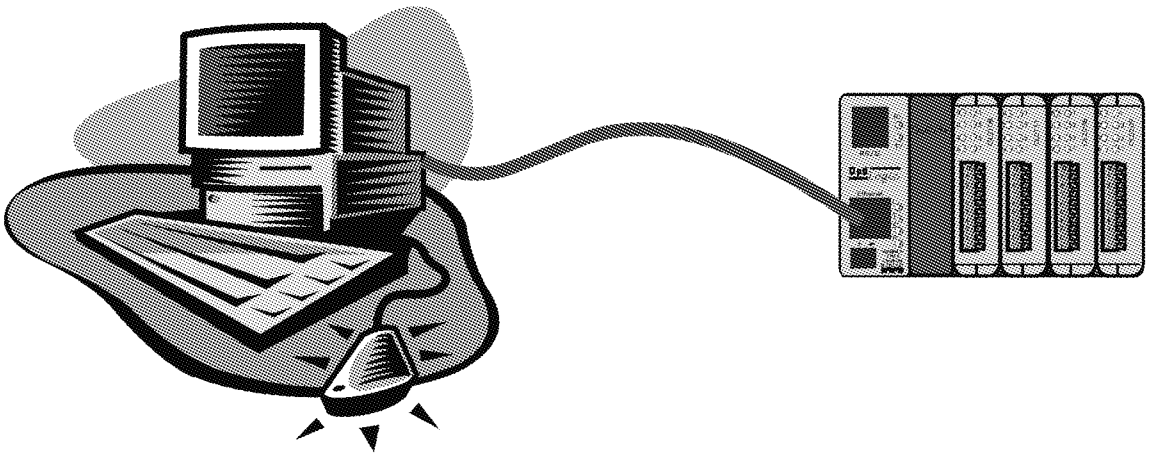
OptiLogic™

QuickStart



Optimation
Optimal Automation for Industry

Optimation, Inc.

(256) 883-3050
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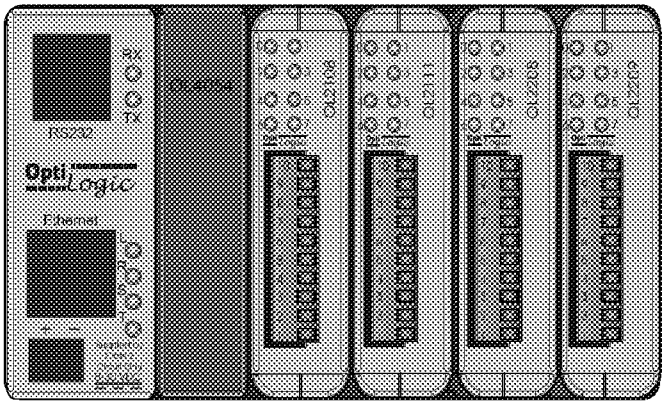
OL_QuickStart



1.0 Introduction

OL_QuickStart software provides an easy way of verifying the hardware of your OptiLogic remote terminal unit (RTU) system. Each individual RTU node in the system can easily be queried by the software. Once a node is queried, the software will inform you if it found the node(s). When a node is found, it can be viewed in greater detail. Each plug-in module/operator panel (I/O card) for any queried RTU can be tested by turning on outputs, reading inputs, etc. This is an easy means of checking out the OptiLogic system hardware, cabling, etc., in addition to your program or software such as Think & Do.

Other Resources- There may be other manuals that are useful for your application, depending on the products you have purchased.

OptiLogic Remote Terminal Units
OptiLogic Software Interface Definition
OptiLogic Input/Output Modules
OptiLogic Getting Started

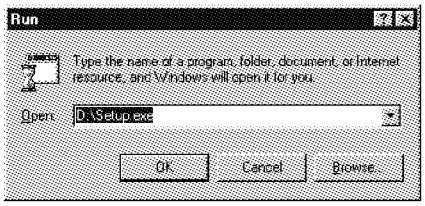
Technical Support- For further assistance, please use these resources for help:
Optimation web site: www.optimate.com
Optimation tech support: (256) 883-3050 or
1 (877) 883-3050

2.0 Installation

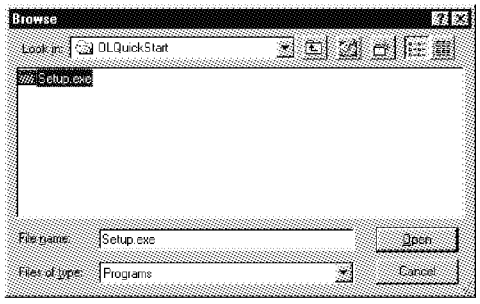
Step 1: Insert the OptiLogic Tool Kit CD into the CD-ROM drive. Be sure you have met the minimum requirements before proceeding.

Minimum Requirements:
Pentium or compatible computer
CD-ROM drive
16 MB RAM
2 MB hard drive space

Step 2: Select RUN from the Start Menu. The following screen appears.

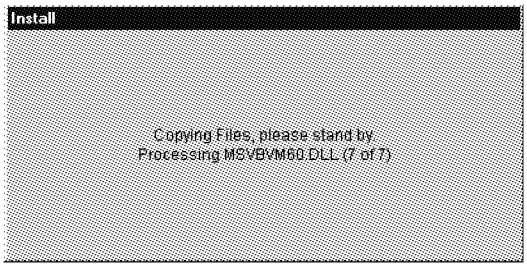


Step 3: Click Browse.
Select the CD-ROM Drive.
Select the OLQuickStart directory.
Click on Setup.exe.
Click Open.



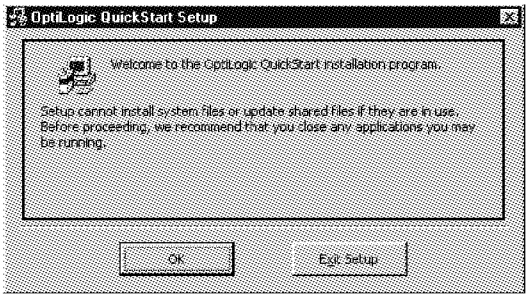
Step 4: At this point, click OK to run the Installation program from the CD. Follow the on-screen instructions.

Step 5: The following screen will appear to install Windows system files.



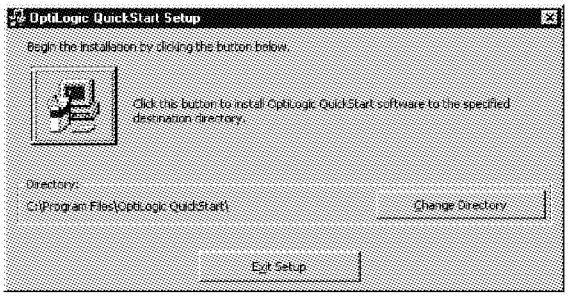
If the files are not present or are older versions, the software will ask you to reboot. After you reboot your computer, restart the installation procedure. You will not have to reboot your computer the second time. The installation will move on to Step 6.

Step 6: The welcome screen appears to remind you to exit all other applications, since they might interfere with the installation.

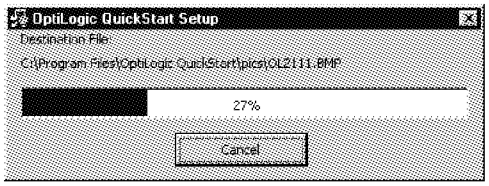


2.0 Installation cont.

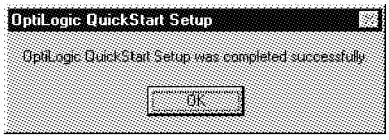
Step 7: Click the button indicated below to begin installation.



This screen appears while OLQuickStart is being installed.



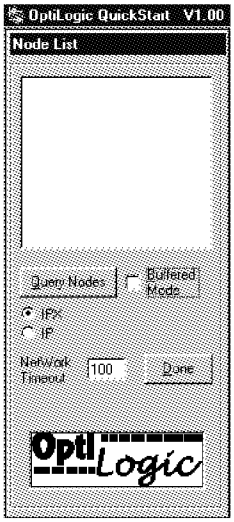
Step 8: You are now ready to use OptiLogic QuickStart!



3.0 Running QuickStart

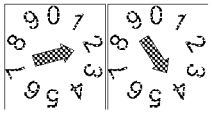
To run QuickStart, click Start→Programs→OptiLogic→OptiLogic QuickStart, or, using Windows Explorer, find the file OL_QuickStart.exe and double click.
Either action will bring up the following:

First QuickStart Screen



3.1 Basic Definitions

A "node" is the address that is unique to each RTU base in your system. This address, a value between 1 and 99, is set via rotary address switches and is how the software identifies each RTU.
The switch on the left is the most significant digit and the switch on the right is the least significant digit. Therefore, the example shown below indicates a node address of 24.



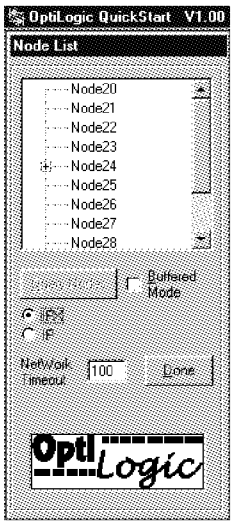
"Network Timeout" is the retry time between checking one node and the next node.

"IPX" and "IP" are network protocols. Choose the one you prefer to use.

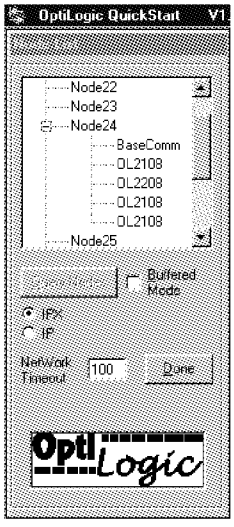
"Buffered Mode" is recommended for larger applications and uses an intermediate buffer to access data. The command is not sent to the node until the Update Node button in the Node List is clicked. if many messages are to be sent at one time, Buffered mode cuts down on the amount of overhead data that is transmitted on your network. If unchecked, "Immediate Mode" is in operation, and commands are sent to the RTU as soon as the action is requested.

3.2 Querying Nodes

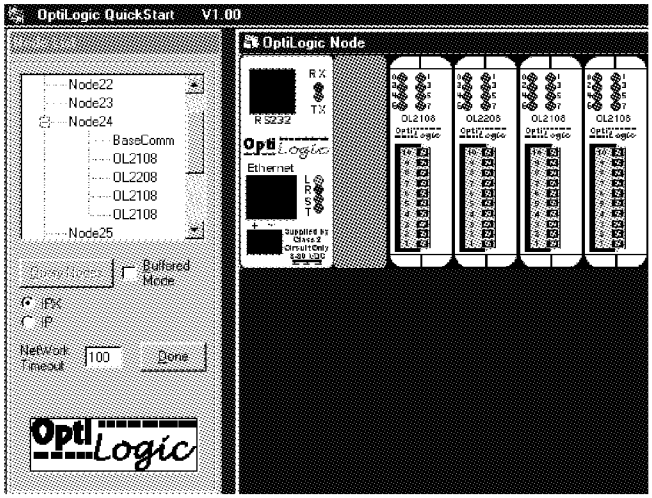
Select "Query Nodes". This will start the process identifying each node in your network. The "Start Node" and "End Node" screens will come up to allow you to define the range of addresses you want to query. You can select any node address range between 1 and 99.
At the end of the poll a screen like the one shown below will be displayed.



Notice the '+ ' sign by Node24. A plus sign will display next to every address, in the selected range, that has responded. When you click on the "+", the tree will expand to show you which I/O boards and operator panels are present. Click on "Node24" and a separate display, similar to the one shown on the following page, will show you a pictorial view of the node's card cage.

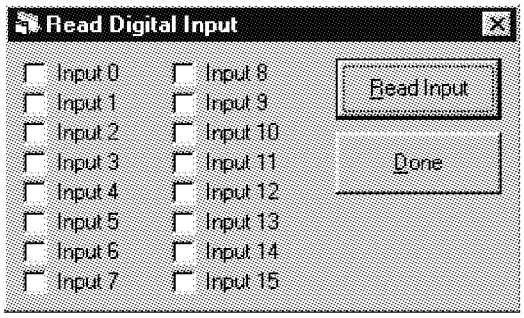


4.0 Selecting a Card

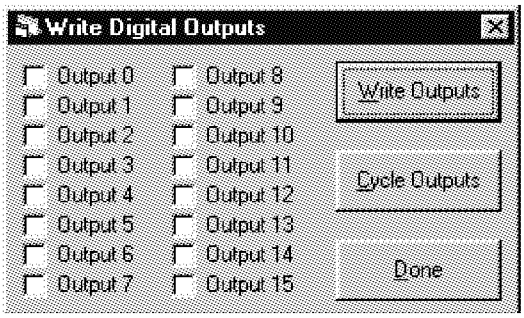


To select an I/O card, click on the card number in the tree displayed in the Node List (the OL2208 digital input board, for example).

A screen like the one shown below will be displayed. For digital I/O, 16 points will be shown regardless of the number that are actually on the board. For example, for an 8 channel digital input board, only the first column of input indicators has any meaning. Every time you click the “Read Input” button, the status indication for the inputs will be updated. When you are finished, click the “Done” button.

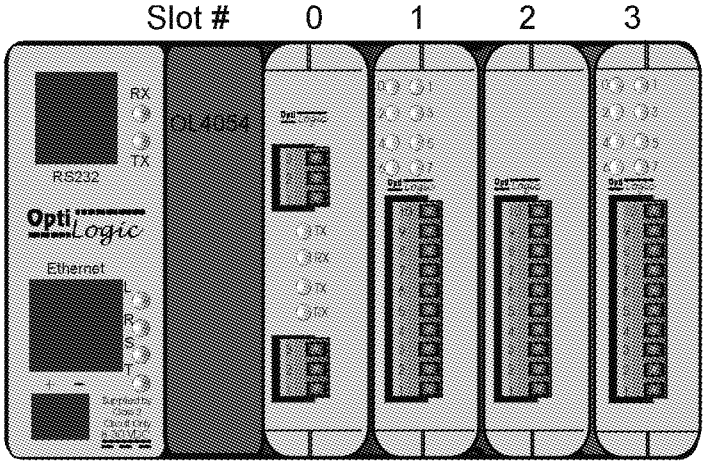


If you click on a digital output card, a display like the one shown below will come up.

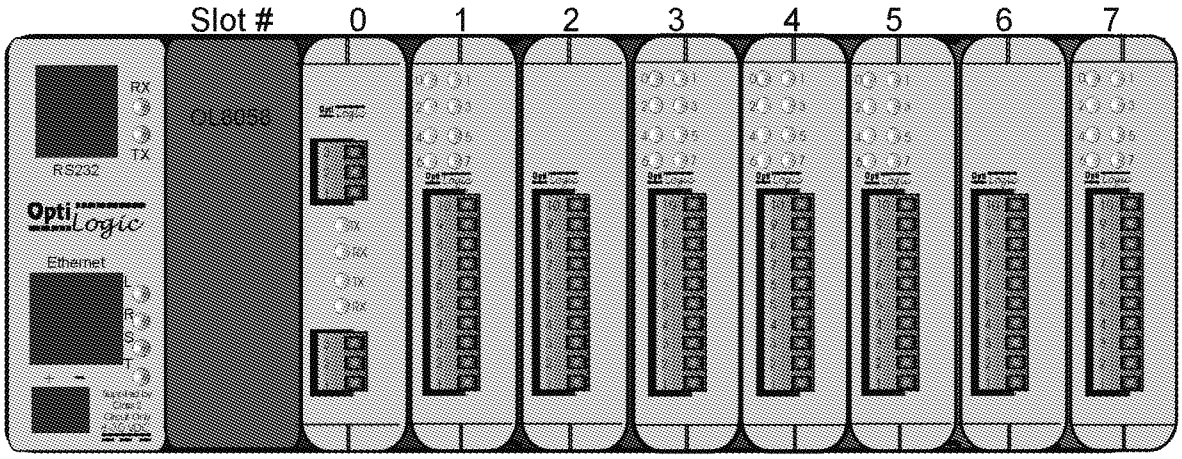


To write to an output, click the selected point, or points. All click boxes that are checked will be activated the next time you click the “Write Outputs” button. To cycle through all of the outputs, click the “Cycle Outputs” button. Again, click the “Done” button when you are finished.

5.0 I/O Cards



OL4054 4-Slot Base



OL8058 8-Slot Base

Optimation has developed a series of I/O modules, communications modules, specialty modules and operator panels that can be plugged together in nearly any combination.

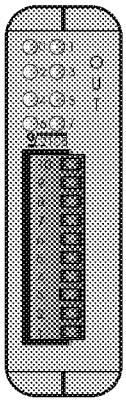
Most OptiLogic modules can be installed in any card cage slot and used in any combination and quantity that will fit in the card cage. This applies to all general purpose digital and analog I/O. If you need all digital inputs - plug in digital inputs only. If you need a mixture of analog and digital inputs and outputs - select the combination that fits your needs. Snap-together modularity gives you the ability to optimize your system for your needs.

5.1 I/O Cards

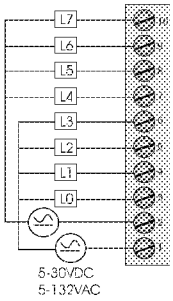
Digital Output Modules

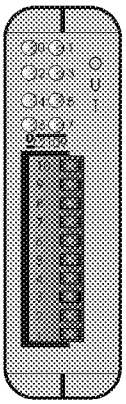
OptiLogic Digital Output cards include the following: OL2108 Relay Output, OL2109 DC Sinking Output, and the OL2111 AC Solid State Relay Output. For more detailed information on the Digital Output cards, see the OptiLogic Input/Output Modules manual.

For help on selecting a particular output card, see Section 4.0 (Selecting an I/O Card).

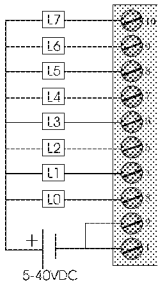


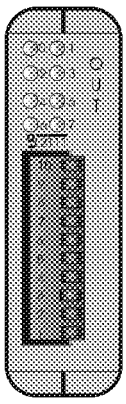
OL2108 Relay Output



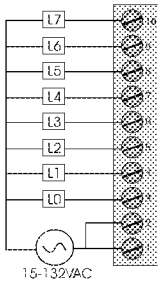


OL2109 DC Sinking Output

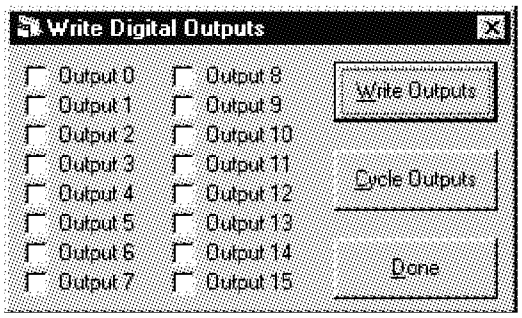




OL2111 AC Solid State Relay

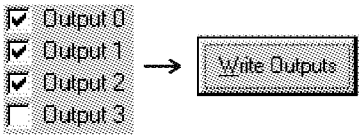


After you select a particular card, the following screen appears regardless of the type of Output card you are using.

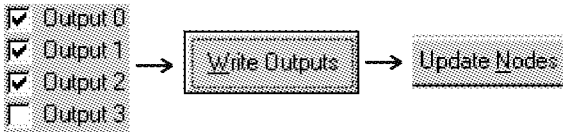


The procedure to turn on outputs depends on whether you are in *Immediate* mode or *Buffered* mode.

Immediate Mode The Write Output button turns each output on or off depending on the state of each output's corresponding check box. If the box is checked the output will turn on, otherwise, it will turn off. The Cycle Outputs button, when clicked, cycles repeatedly through all outputs. After the button is clicked, it will change to read 'Stop Cycle'. The ouputs will continue to cycle until the Stop Cycle button is clicked.



Buffered Mode Turning on an output in Buffered mode is similar to Immediate mode. The outputs are selected in a similar manner and the Write Outputs button is clicked. However, the outputs will not turn on until the Update Nodes button in the Node List has been clicked. The cycling of outputs doesn't work well in Buffered mode because the outputs are not updated in real time, only when the Update Nodes button is clicked.

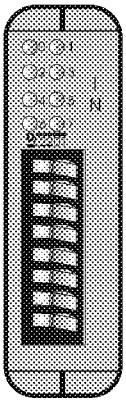


5.2 I/O Cards cont.

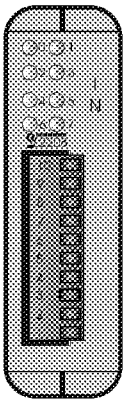
Digital Input Modules

OptiLogic Digital Input cards include the following: OL2201 Digital Input Simulator, OL2208 DC Digital Input, and the OL2211 AC Digital Input. For more information on the Digital Input cards, see the OptiLogic Input/Output Modules manual.

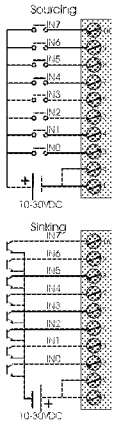
For help on selecting a particular Input card, see section 4.0 (Selecting an I/O Card).

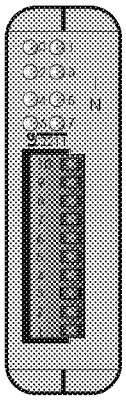


OL2201 Digital Input Simulator

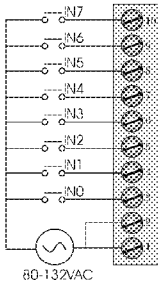


OL2208 DC Digital Input

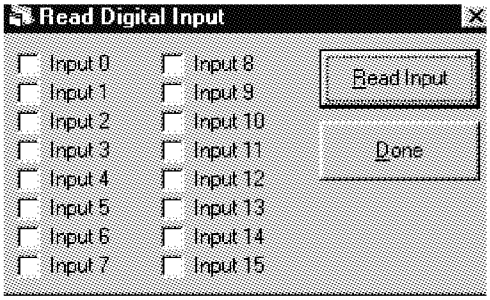




OL2211 AC Digital Input

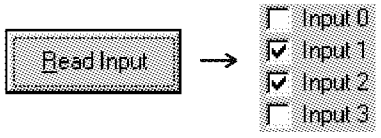


After you select a particular card, the following screen appears regardless of the type of Input card you are using.

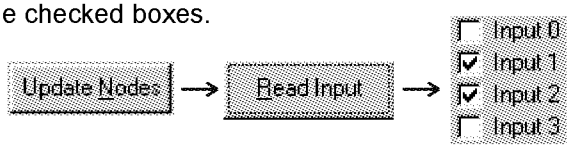


The procedure to read inputs depends on whether you are in *Immediate* mode or *Buffered* mode.

Immediate Mode To read digital inputs simply click the Read Input button. The checked boxes corresponding with each input will either be checked or unchecked depending on input status. A checked box means the input is on; if unchecked, it is off.

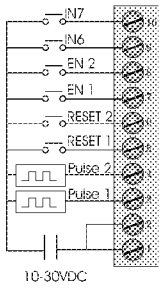


Buffered Mode To read digital inputs first click the Update Nodes button on the Node List. At this point the computer reads the input status from the RTU, but the status is not updated on the screen (or in the software). To do this, click the Read Input button, which in turn will show the input status denoted by the checked boxes.

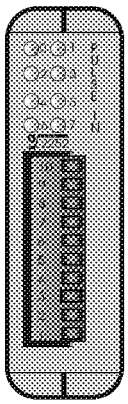


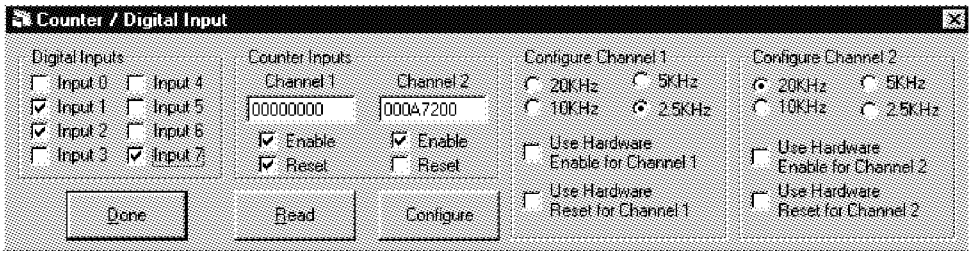
5.3 I/O Cards cont.

The **OL2252 Dual High Speed Pulse Counter** features independently configuable hardware or software enabling for each channel, as well as hardware or software reset capability. It can also be used as a DC input module with 2 dedicated, and up to 6, DC inputs. For more detailed information on the OL2252, see the OptiLogic Input/Output Modules manual.



OL2252 Dual High Speed Pulse Counter

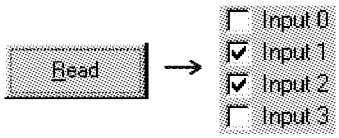




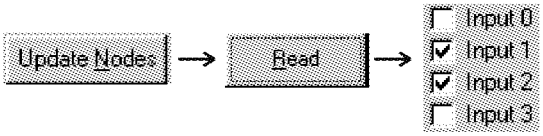
5.3.1 Reading Digital Inputs

After selecting the card, the above screen appears. The procedure to read rigital inputs depends on whether you are in *Immediate* mode or *Buffered* mode, just as with the other Digital Input cards such as the OL2208.(See page 6)

Immediate Mode Click the Read button. The checked boxes corresponding with each input will either be checked or unchecked depending on input status. A checked box means the input is on; if unchecked, it is off.



Buffered Mode Click the Update Nodes button on the Node List. At this point the computer reads the input status from the RTU, but the status is not updated on the screen. To do this, click the Read button which will show the input status denoted by the checked boxes.



5.3.2 Counter Inputs

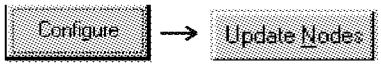
The OL2252 has two dual pulse counter inputs, denoted as Channel 1 and Channel 2.

Configuring Counters

When configuring each channel, a few decisions have to be made; sampling frequency, hardware/software reset, and hardware/software enable. The OL2252 can sample at rates of 20KHz, 10KHz, 5KHz, and 2.5KHz. To select a sampling frequency, click the option button next to the corresponding frequency. If an external source is to be used to enable the channel(s), click the check box "Use Hardware Enable..." for the corresponding channel. If unchecked, the channel must be enabled via software. The same is true with the Reset feature. If "Use Hardware Reset..." is checked, the channel can only be reset via hardware. If left unchecked, it can only be reset via software. The next step depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the Configure button to configure both channels at once.

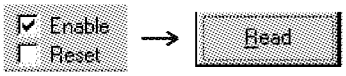
Buffered Mode Click the Configure button, then the Update Nodes button to send the configuration to the RTU.



5.3 I/O Cards cont.

5.3.3 Enabling Counter Inputs Before a Pulse Counter Input will start counting, it must be enabled. If using **hardware** enabling, place an 'active' signal in the corresponding screw terminal and in the corresponding Enable check box. If hardware enabling is not being used, the terminal can be used as a general purpose D.C. input; therefore, software enabling must be used.
To enable a channel using **software**, the Enable check box for the corresponding channel must be activated. The next step depends on whether you are in *Immediate* or *Buffered* mode.

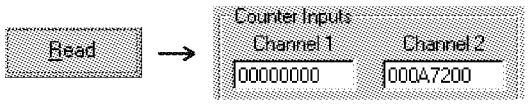
Immediate Mode Select the Enable box(es), then click the Read button.



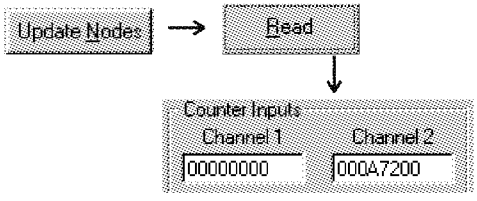
Buffered Mode Select the appropriate Enable check box(es), click the Read button, then click the Update Nodes button on the Node List.

5.3.4 Reading Counter Inputs
As the Counter inputs are read, each channel's count value is displayed in the text box under the channel's name. Count values are displayed in the **hexadecimal** number format.
The procedure to read counter inputs depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the Read button. This will update the display boxes for both channels, regardless of their reset and enable states.

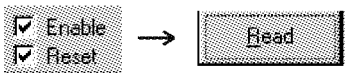


Buffered Mode Click the Update Nodes button, then click the Read button to update both channels' display boxes.



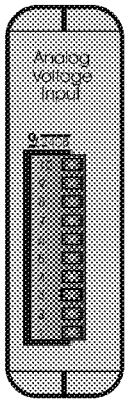
5.3.5 Resetting Counter Inputs
Both Channels 1 and 2 initially start their count at 0. Once started counting, they will continue to count until they reach the maximum of 4,294,967,295 where they roll over to 0 and continue counting.
In some cases, it may be necessary to reset the count value to 0, either via hardware or software. Both channels have a corresponding **hardware reset** terminal to clear the count value by placing an 'active' signal on the corresponding input terminal. The count data will remain cleared as long as the signal maintains an active state. If hardware enabling is not used, the corresponding terminal(s) can be used as a general purpose D.C. input.
To reset a channel using **software**, the Reset check box under the corresponding channel must be activated. The next step depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Select the corresponding Reset Check box(es), then click the Read button.

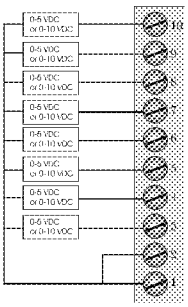


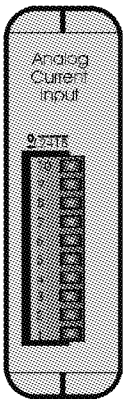
Buffered Mode Select the appropriate Reset check box(es), click the Read button, then click the Update Nodes button.

5.4 I/O Cards cont.



OL2408 Analog Voltage Input Module

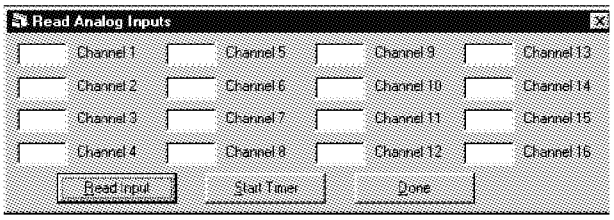




OL2418 Analog Current Input Module

The OptiLogic Series currently has 2 types of analog input modules available, the OL2408 Analog Voltage Input Module and the OL2418 Analog Current Input Module. Both analog input modules have 8 channels. For more information about using the OL2408 or the OL2418 with an OptiLogic RTU, see the OptiLogic Input/Output Modules manual.

When an Analog Input card is selected from the tree, the following window appears:



5.4.1 Reading Analog Inputs

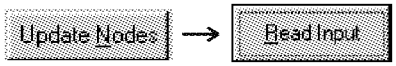
Reading Analog Inputs is a very simple process.

Immediate Mode

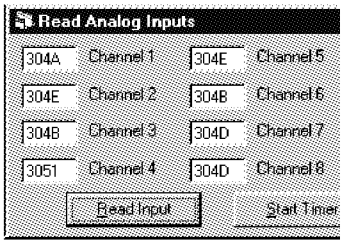
Click the Read Input button.

Buffered Mode

Click the Update Nodes button, followed by the Read Input Button.



As the Analog values are being read, they will appear on the screen in the corresponding channel's box as shown below. Please note that the values are displayed in the hexadecimal number format.



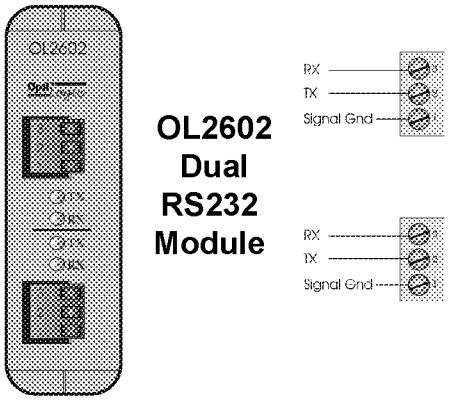
5.4.2 Reading Analog Inputs Using the Timer

The timer function is very useful because it polls the RTU every 1/2 second to read the Analog Inputs as they change. To start the timer, click the Start Timer button. Each channel will update automatically.

To stop the timer, click the Stop Timer button.

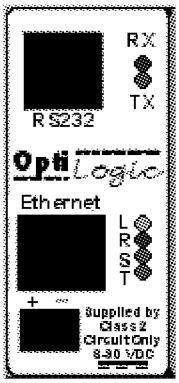
The timer function works best in Immediate Mode because Buffered Mode only reads the Analog Inputs status when the Update Nodes button is clicked.

5.5 I/O Cards cont.



OL2602 Dual RS232 Module

RS232 → Base Comm Port

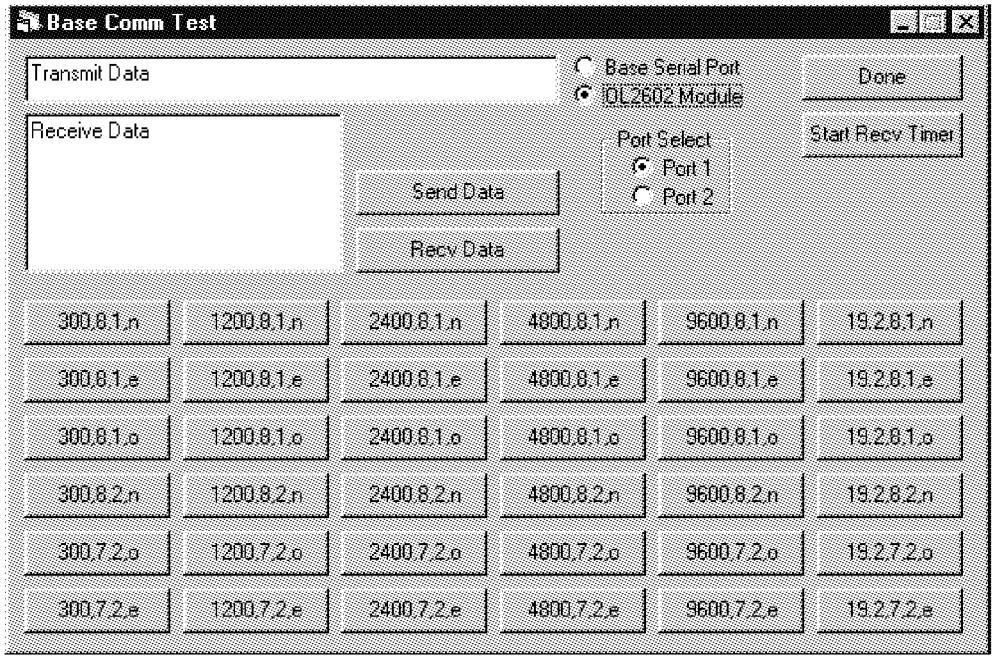


The OL2602 Dual RS232 Module and the Base Serial Communications Port are used to pass data between the computer and an external device through the RTU. The external device can be any device with an RS232 serial port that is capable of sending and/or receiving data.

When using an OL2602, there are a few requirements to keep in mind. If a 4-slot RTU base is used, a maximum of two OL2602s can be used and they have to be in slots 0 and 1. If using an 8-slot RTU base, only one OL2602 can be used and it has to be in slot 0.

For more detailed information on the OL2602, see the OptiLogic Input/Output Modules manual.

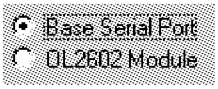
After selecting an OL2602 or the BaseComm from the Node List tree, the following screen appears.



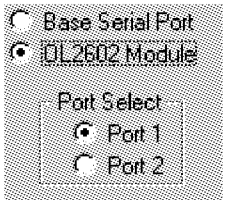
5.5 I/O Cards cont.

5.5.1 Selecting a Port

Base Comm If Base Comm was selected in the Node List, the Base Comm port is automatically selected when the window shown on the previous page opens.



OL2602 If OL2602 was selected in the Node List, the OL2602 is also automatically selected when the window shown on the previous page opens. The OL2602 has two ports, denoted as Port 1 and Port 2. Port 1 is the top port on the module, port 2 is on the bottom. To select between Ports 1 and 2, simply click the option button in the Port Select frame corresponding to the port you will use.



5.5.2 Configuring a Port

The option buttons on the lower half of the window are for configuration.

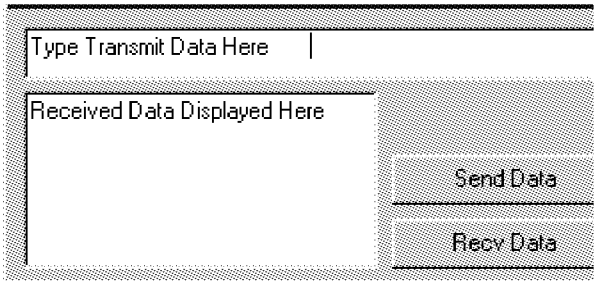
The first number denotes the baud rate, the second denotes the number of data bits, the third denotes the number of stop bits and the last denotes parity. The port configuration procedure depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the button that corresponds to the port configuration that you want. The selected port will be configured to the parameters on the button as soon as it is clicked.

Buffered Mode Click the proper button corresponding to the port configuration you wish to use. Then click the Update Nodes button from the Node List.

5.5.3 Transmitting Data

Before data can be transmitted, it must be typed into the proper location. The box on the left of the Base Serial Port and OL2602 Module option buttons is the box for typing in data for transmission.

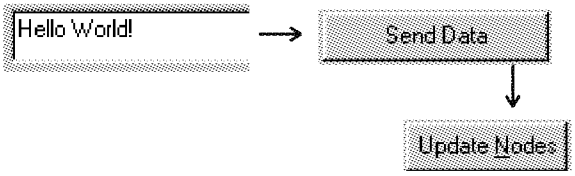


The procedure for transmitting the data out of the corresponding serial port depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Type the data in the box and click the Send Data button.

When this occurs you should see the TX LED blink on the proper port. This will indicate that the data has been transmitted.

Buffered Mode Type the data in the box and click the Send Data button. Then click the Update Nodes button.

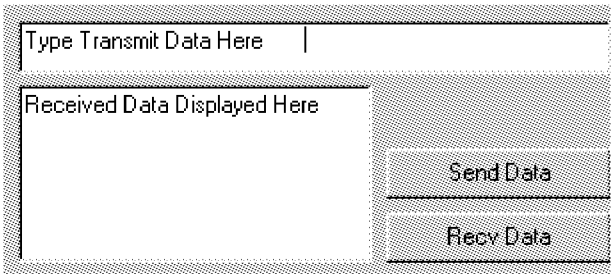


After clicking Update Nodes you should see the TX LED blink on the proper port. This will indicate that the data has been transmitted.

5.5 I/O Cards cont.

5.5.4 Receiving Data

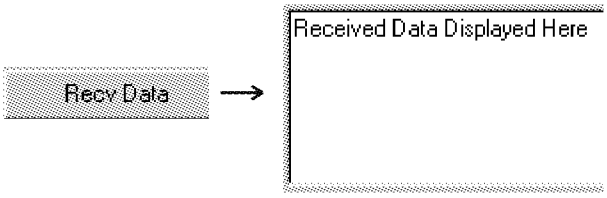
When data is received and read by QuickStart, it will be placed in the box shown below.



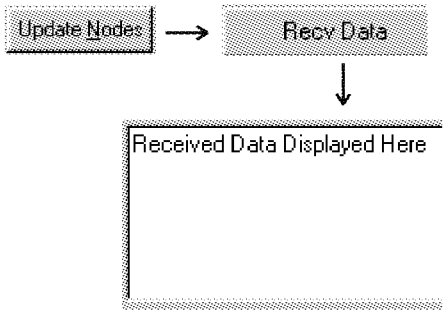
There are two ways QuickStart can read the received data. One is by using the Recv Data button to read the data only when the button is clicked. The other is to use the Recv Timer to poll the selected port's receive buffer at a fixed rate. Descriptions for each follow.

Recv Data button The procedure to read the selected ports' receive buffer depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the Recv Data button. The received data, if there is any, will display in the box shown.

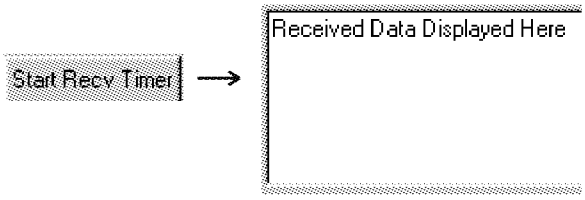


Buffered Mode Click on the Update Nodes button, followed by the Recv Data button. The data will display in the Receive box.



5.5.5 The **Start Recv Timer** button enables a timer which polls the selected port's receive buffer at a fixed rate. When the Start Recv Timer button is clicked, its caption will change to "Stop Timer." Immediate Mode is recommended for the RecvTimer button. Buffered mode is not recommended for the Recv Timer because it could cause data to be missed by the OL2602.

Immediate Mode Click the Start Recv Timer button. If the received data changes as the selected port is polled, you will see it update in the box.



5.5.6 Stopping the Receive Timer

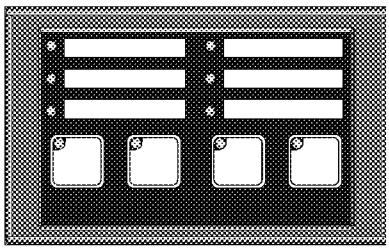
When the Start Recv Timer button is clicked, the button's caption will change to "Stop Timer." When you wish to stop the Recv Timer, simply click the Stop Timer button. The timer will stop and the button's caption will change to "Start Timer."

6.0 Operator Panels

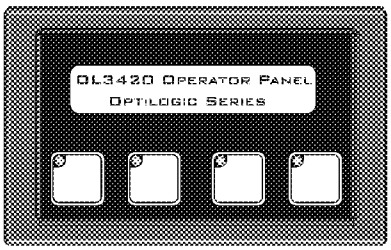
Each OptiLogic™ Operator Panel snaps onto the back of an Ethernet remote terminal unit (RTU) by means of a standard DIN rail molded onto the module's housing. The convenient back-panel mounting provides high speed monitor and control capabilities for your equipment network. A PC with a standard Ethernet connection serves as the central controller in a system of RTUs spread throughout the building, as well as in a simple local setup.

The OptiLogic Operator Panels shown here are currently available from Optimation. As this is a new product line, we expect to make many more modules available in the near future. These are detailed in the following chapters:

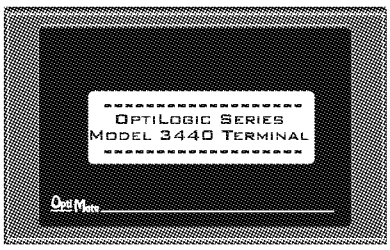
Module	Chapter
OL3406	6.1
OL3420	6.2
OL3440	6.3
OL3850	6.4



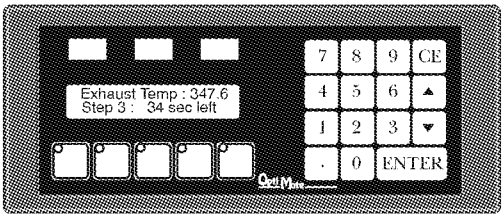
OL3406 Pushbutton/Indicator Panel



OL3420 Operator Panel

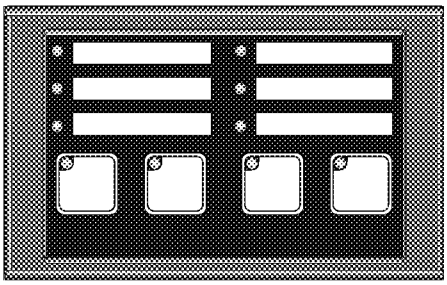


OL3440 Display Panel



OL3850 Operator Terminal

6.1 Operator Panels



6.1

OL3406 Pushbutton/Indicator Panel

The OL3406 Operator Panel contains 6 indicator LEDs and 4 pushbuttons with indicator LEDs. Each pushbutton can be independently configured to act as a momentary-type pushbutton or an alternate-type pushbutton. The LEDs inset in each pushbutton can be used to indicate button status, flash, or function in a separated state to act as an indicator.

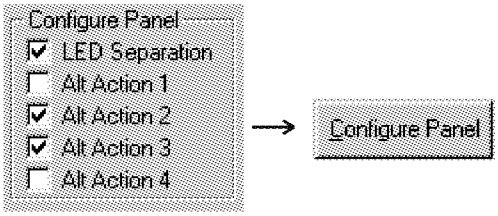
6.1.1 Configuring Panel

Before the OL3406 can be used, it has to be configured. First, decide whether each individual button will operate as a momentary or alternate-type pushbutton. If any of the buttons are momentary, then decide whether you want that button's LED to operate in the separated state or the normal state.

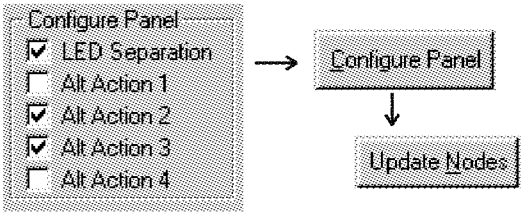
The pushbuttons on the OL3406 are numbered from 1 - 4, left to right. To configure a button as alternate, simply check the box in the Configure Panel frame next to the button(s) that you want to configure as alternate. Any unchecked buttons will be configured as momentary. To enable LED separation for momentary buttons, check the box labeled LED Separation.

The final step depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode After the boxes in the configure panel frame are set the way you want them, click the Configure Panel button. This will configure the panel for your settings.



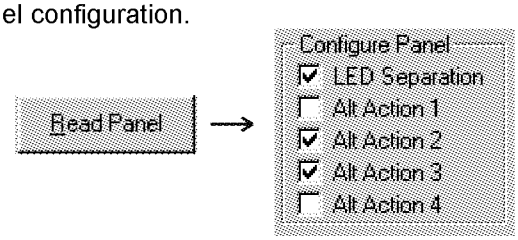
Buffered Mode After the boxes in the configure panel frame are set the way you want them, click the Configure Panel button, then the Update Nodes button. The OL3406 will then be configured to your settings.



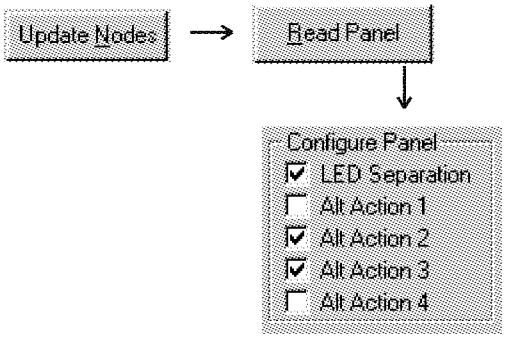
6.1.2 Reading Panel Configuration

Reading the OL3406 panel configuration will show the configuration of the 4 pushbuttons. It will also show whether LED separation is enabled or disabled. The procedure to read the panel configuration depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the Read Panel button. The boxes in the Configure Panel frame will check, uncheck, or remain unchanged. This indicates the panel configuration.



Buffered Mode Click the Update Nodes button, then the Read Panel button. The boxes in the Configure Panel frame will indicate the panel configuration.



6.1 Operator Panels

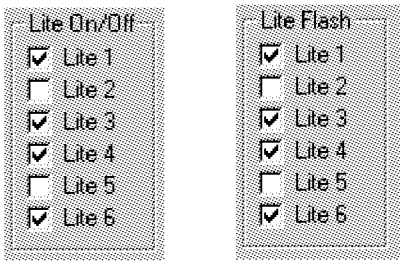
6.1.3 General Status Overview

General Status has two basic functions. (1) It writes indicator LED and pushbutton LED ON/OFF/Flash data to the OL3406 panel and (2) it reads the pushbutton status from the panel and displays it on the screen.

Indicator LEDs

On the OL3406, indicator LEDs are numbered from 1 - 6, left to right, top to bottom. To enable an indicator LED, simply check the box in the Lite On/Off frame corresponding to the LED that you want to turn on. If left unchecked, the indicator LED will either turn off or stay off.

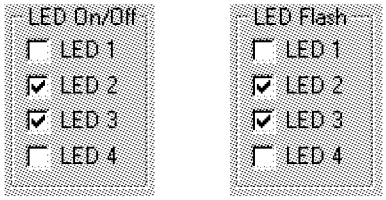
To enable indicator LED flash, check the box corresponding to the LED that you want to flash. In order for the LED to flash, it also has to be on. If it is off it will not flash until you turn it on.



Pushbutton LEDs

If a pushbutton is configured as a *momentary* button with LED separation enabled, then the LEDs inset in each momentary pushbutton will operate independently of the button status. In this case, the pushbutton LEDs are controlled via the LED On/Off frame. If the box corresponding to the LED is checked, it will turn on when the General Status operation is performed. If left unchecked, it will turn off. If a button is configured as *alternate*, or if LED separation is disabled, the pushbutton LED On/Off is controlled by the button status. It ignores the settings in the LED On/Off frame.

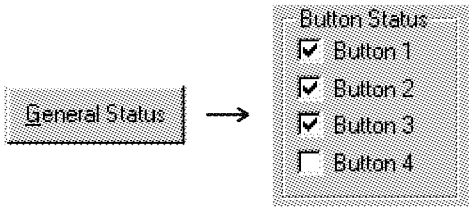
Pushbutton LED flash is available regardless of the button configuration or LED state. If the corresponding box in the LED flash frame is checked, that pushbutton LED will flash when it is on. If unchecked, the LEDs will remain steady when on.



6.1.4 Updating General Status

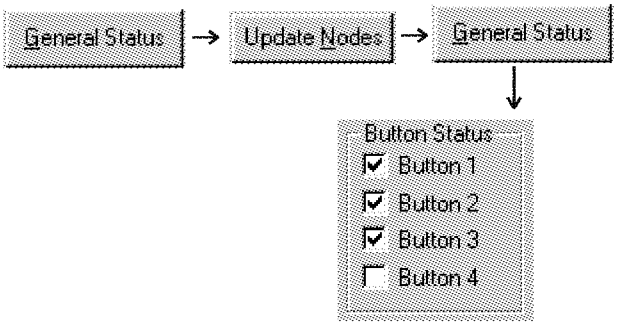
A General Status operation will update the pushbutton and indicator LEDs on the panel with the settings shown in the software. It will also return the button status and display it on the screen. The procedure to update the General Status depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the General Status button. This will update the LEDs on the panel and the button status on the screen.



In the Button Status frame, if a button check box is checked, the button status is active. If unchecked, the button is off.

Buffered Mode Click the General Status button, followed by the Update Nodes button. Then click the General Status button again to update the pushbutton status on the screen.



6.1 Operator Panels

6.1.5 Forcing Pushbuttons

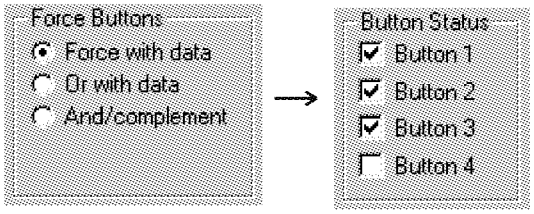
Any pushbutton that is configured as an alternate-action button can be forced to an on or off state. The OL3406 will ignore the attempted forcing of a momentary-action button. There are three kinds of force:

(1) Force with data This function forces the buttons to the status set in the Button Status frame. If a button's box is checked, it will be forced on. If it is not checked, that button will be forced off.

(2) Or with data This function forces on all buttons whose boxes are checked in the Button Status frame. Any buttons that are not checked are not changed. Their status stays the same.

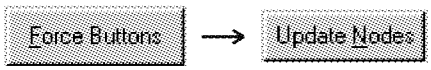
(3) And with complement This function forces off all buttons whose boxes are checked in the Button Status frame. Any buttons that are not checked will remain unchanged.

The first step in forcing buttons is to decide which type of forcing you want to use. Then click the corresponding option button in the Force Buttons frame. Next, check or uncheck the buttons in the Button Status frame to set the buttons properly for your force operation. The final step depends on whether you are in *Immediate* or *Buffered* mode.

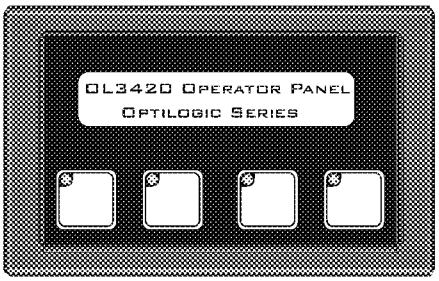


Immediate Mode After selecting the force function and the pushbuttons simply click on Force Buttons. The pushbutton LEDs on the panel will change accordingly.

Buffered Mode After completing the steps mentioned above, click on Force Buttons, followed by the Update Nodes button. The pushbutton LEDs on the panel will change to indicate the new status.



6.2 Operator Panels cont.



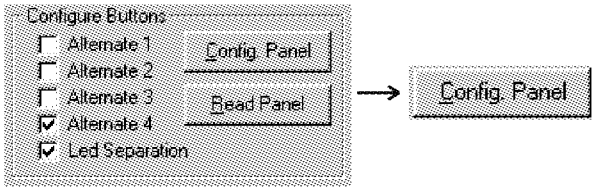
6.2
OL3420 Operator Terminal

The OL3420 Operator Panel has 4 user-legendable pushbuttons and a 2 line x 20 character LCD display. The buttons can be configured for either momentary or alternate-action operation. The LEDs inset in each pushbutton can be used to indicate button status, flash, or function in a separated state to act as an indicator.

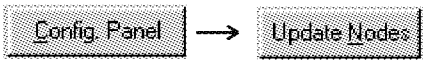
6.2.1 Configuring Pushbuttons

Before the OL3420 can be used, it has to be configured. First, decide whether each individual button will operate as a momentary or alternate-type pushbutton. If any of the buttons are momentary, then decide whether you want that button's LED to operate in the separated state or the normal state.
The pushbuttons on the OL3420 are numbered from 1 - 4, left to right. To configure a button as alternate, simply check the box in the Configure Buttons frame next to the button(s) that you want to configure as alternate. Any unchecked buttons will be configured as momentary. To enable LED separation for momentary buttons, check the box labeled LED Separation.
The final step depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode After the boxes in the Configure Buttons frame are set the way you want them, click the Config. Panel button. This will configure the panel for your settings.



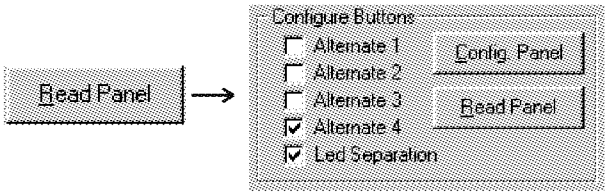
Buffered Mode After the boxes in the Configure Buttons frame are set the way you want them, click the Config. Panel button, then the Update Nodes button. The OL3420 will then be configured to your settings.



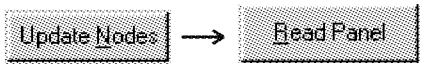
6.2.2 Reading Panel Configuration

Reading the OL3420 panel configuration will show the configuration of the 4 pushbuttons. It will also show whether LED separation is enabled or disabled. The procedure to read the panel configuration depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the Read Panel button. The boxes in the Configure Buttons frame will check, uncheck, or remain unchanged. This indicates the panel configuration.



Buffered Mode Click the Update Nodes button, then the Read Panel button. The boxes in the Configure Buttons frame will indicate the panel configuration.



6.2 Operator Panels cont.

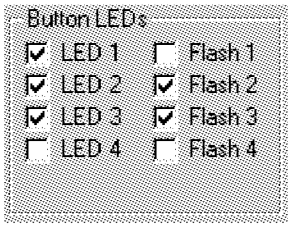
6.2.3 Status Request Overview

Status Request has two basic functions. (1) It writes pushbutton LED ON/OFF/Flash Data to the OL3420 panel and (2) it reads the pushbutton status from the panel and displays it on the screen.

Pushbutton LEDs

If a pushbutton is configured as a *momentary* button with LED separation enabled, then the LEDs inset in each momentary pushbutton will operate independently of the button status. In this case, the pushbutton LEDs are controlled via the Button LEDs frame. If the box corresponding to the LED is checked, it will turn on when the Status Request operation is performed. If left unchecked, it will turn off. If a button is configured as *alternate*, or if LED separation is disabled, the pushbutton LED On/Off is controlled by the button status. It ignores the settings in the Button LEDs frame.

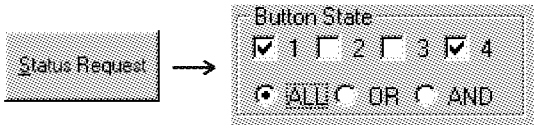
Pushbutton LED flash is available regardless of the button configuration or LED state. If the corresponding box in the Button LEDs frame is checked, that pushbutton LED will flash when it is on. If unchecked, the LEDs will remain steady when on.



6.2.4 Updating Status

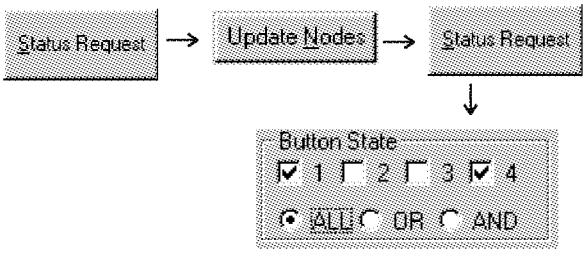
A Status Request operation will update the pushbutton and indicator LEDs on the panel with the settings shown in the software. It will also return the button status and display it on the screen. The procedure to update the Status Request depends on whether you are in *Immediate* or *Buffered* mode.

Immediate Mode Click the Status Request button. This will update the LEDs on the panel, if applicable, and the button status on the screen.



In the Button State frame, if a button check box is checked, the button status is active. If unchecked, the button is off.

Buffered Mode Click the Status Request button, followed by the Update Nodes button. Then click the Status Request button again to update the pushbutton status on the screen.



6.2 Operator Panels cont.

6.2.5 Forcing Pushbuttons

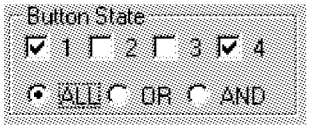
Any pushbutton that is configured as an alternate-action button can be forced to an on or off state. The OL3420 will ignore the attempted forcing of a momentary-action button. There are three kinds of force:

(1) ALL This function forces the buttons to the status set in the Button State frame. If a button's box is checked, it will be forced *on*. If it is not checked, that button will be forced *off*.

(2) OR This function forces *on* all buttons whose boxes are checked in the Button State frame. Any buttons that are not checked are not changed. Their status stays the same.

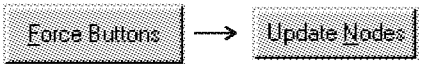
(3) AND This function forces *off* all buttons whose boxes are checked in the Button State frame. Any buttons that are not checked will remain unchanged.

The first step in forcing buttons is to decide which type of forcing you want to use. Then check or uncheck the buttons in the Button State frame to set the buttons properly for your force operation. The final step depends on whether you are in *Immediate* or *Buffered* mode.



Immediate Mode After selecting the force function and the pushbuttons simply click on Force Buttons. The pushbutton LEDs on the panel will change accordingly.

Buffered Mode After completing the steps mentioned above, click on Force Buttons, followed by the Update Nodes button. The pushbutton LEDs on the panel will change to indicate the new status.



6.2.6 Showing Messages on the Display

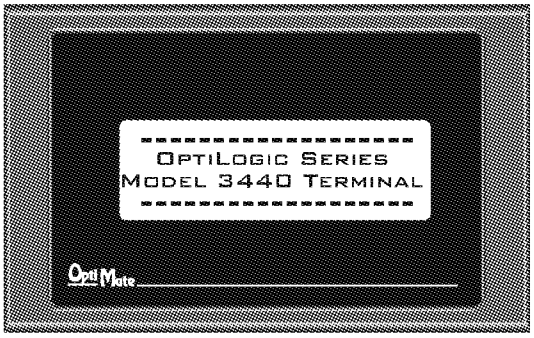
Displaying messages on the OL3420 is very easy. If you can type it with a keyboard, it can be displayed on the panel. Each line's message is limited to 20 characters in length. Any message longer than 20 characters will have to be broken up into multiple lines.

Immediate Mode To display a message on the top line, simply type the message into the box initially displaying "Top Line." The message will change as you type it.

To show a message on the bottom line, follow the procedure for the top line.

Buffered Mode Follows the same procedure as in Immediate mode except the messages aren't updated as you type them. They are updated after the Update Nodes button is clicked.

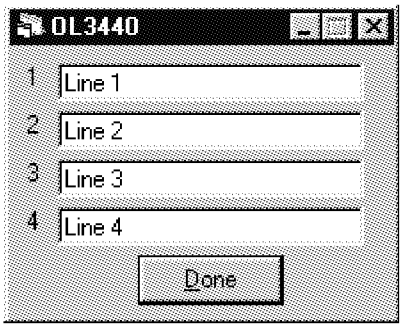
6.3 Operator Panels cont.



6.3
OL3440 Display Panel

The OL3440 Display Panel is a 4 line x 20 character display which can be used to display text and/or data.

After selecting the OL3440 from the Node List, the following screen will appear.



At this point, you are now ready to display messages on the panel.

6.3.1 Showing Messages on the Display

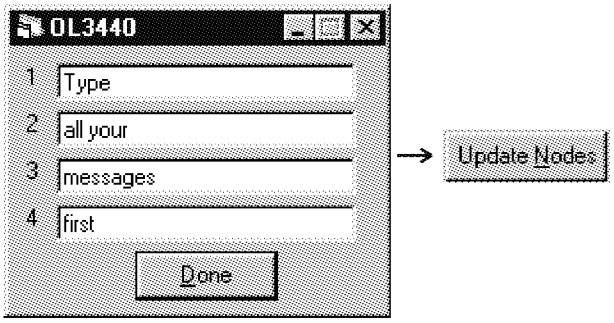
Displaying messages on the OL3440 is very easy. If you can type it with a keyboard, it can be displayed on the panel. Each line's message is limited to 20 characters in length. Any message longer than 20 characters will have to be broken up into multiple lines.

Immediate Mode To display a message on the top line, simply type the message into the box next to the 1. The message will change as you type it.

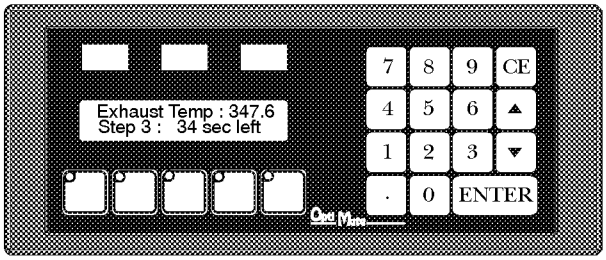
Each number corresponds to a line:
1 to the top line, 2 to the 2nd line, and so on.

To show a message on the other lines, follow the procedure for line 1.

Buffered Mode Follows the same procedure as in Immediate mode except the messages aren't updated as you type them. They are updated after the Update Nodes button is clicked.



6.4 Operator Panels cont.



6.4
OL3850 Operator Terminal

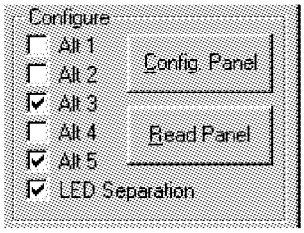
The OL3850 Operator Terminal has a 2 line x 20 character LCD display, a numeric keypad, five user-definable function keys, and three LED indicator light bars. This panel can be used to display messages, accept numeric data input, and display status indications. All lights and pushbuttons can be custom labeled by the user.

6.4.1 Configuring the OL3850

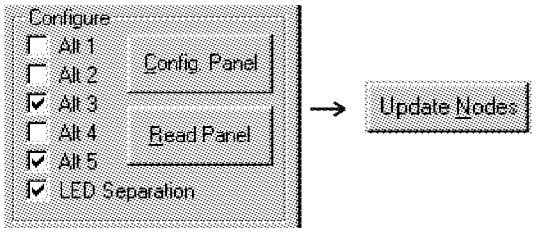
Each pushbutton can be independently configured to act as an alternate-action or a momentary-action button. Each has an LED inset in the upper left corner. This LED normally indicates the pushbutton's state but it can also be used as an indicator lamp, provided that the button(s) is configured as a momentary button.

To configure a button, click the check box in the Configure frame next to Alt 1, Alt 2, etc. Any buttons that are checked will be configured as alternate-action pushbuttons. Any boxes left unchecked will be configured as momentary-action. To enable LED separation, check the box with the same name.

Immediate Mode Click the "Config Panel" button to send the configuration to the panel.



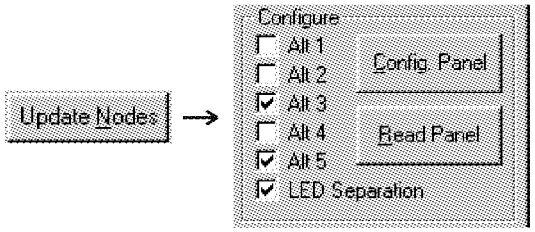
Buffered Mode Click the "Config Panel" button followed by the Update Nodes button.

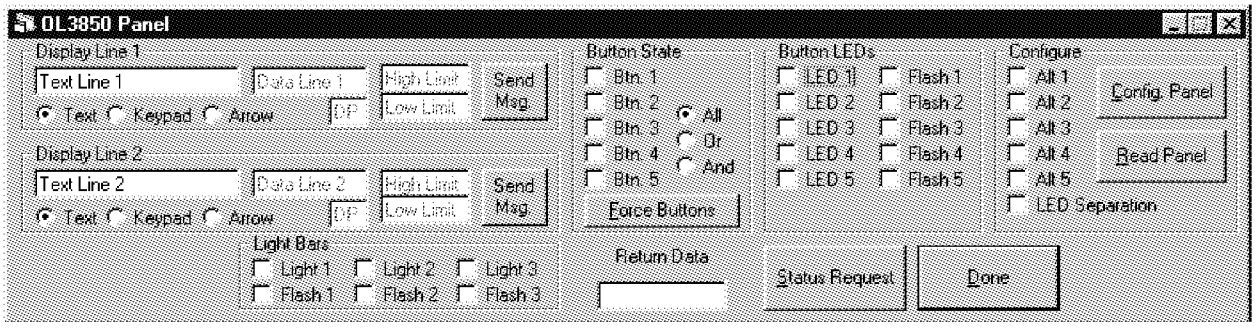


6.4.2 Reading the Configuration returns the pushbutton and LED separation configurations.

Immediate Mode Click on the Read Panel button. The panel's configuration will be updated in the Configure frame. A checked box means the pushbutton is alternate-action, unchecked denotes momentary.

Buffered Mode Click on the Update Nodes button, followed by the Read Panel button.

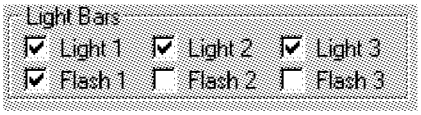




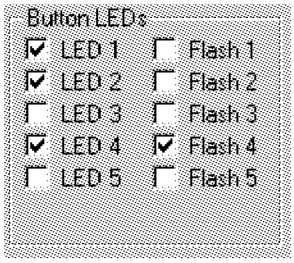
6.4 Operator Panels cont.

6.4.3 Status Request

This command performs two functions:
(1) It updates light bars and LEDS and
(2) it reads the button status, as well as current data entry value.
To turn on the light bars, check the corresponding box in the Light Bars frame labeled "Light 1, 2, 3." To flash the light bars, check the corresponding Flash 1, 2, 3 box(es) in the Light Bars frame, and also check the box(es) to turn the light bars on. If the light bar is not On, it will not flash.

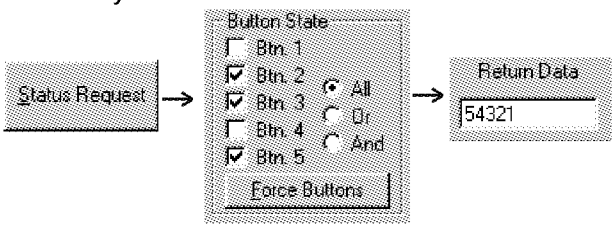


There are two ways pushbutton LEDs can be turned on. If a pushbutton is alternate or momentary with LED separation *disabled*, the LED will turn on when the pushbutton is activated. If the pushbutton is momentary with LED separation *enabled*, the LEDs are controlled separately from the pushbutton status. Simply check the box in the Button LEDs frame labeled LED 1, 2, 3, etc. If the pushbutton is not configured for momentary with LED separation enabled, the panel will ignore the LED On/Off command.
Any pushbutton LED can be flashed, but the LED must be On before that will happen. To flash the pushbutton LEDs, check the Flash 1, 2, 3, etc. boxes in the Button LEDs frame.

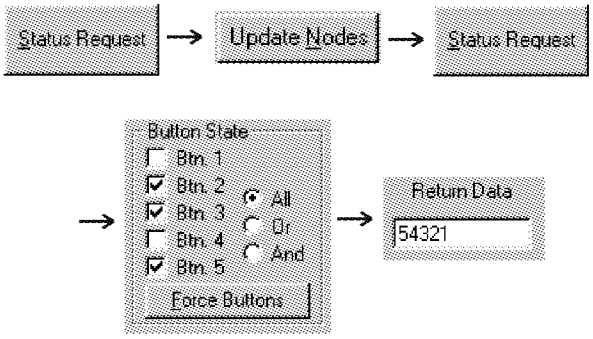


6.4.4 Updating Status Request

Immediate Mode Click the Status Request button. This will update the LED and light bar states on the panel, return the pushbutton status and the current data entry value.



Buffered Mode Click the Status Request button, followed by the Update Nodes button. Then click the Status Request button again to update the pushbutton status and the data entry value.



The boxes that are checked in the Button State frame correspond to pushbuttons that are on. The unchecked boxes denote pushbuttons that are off.

6.4 Operator Panels cont.

6.4.5 Forcing Pushbuttons

All alternate-action pushbuttons can be forced On or Off. Momentary-action pushbuttons cannot be forced and will ignore the command if force is attempted. There are three ways that pushbuttons can be forced:

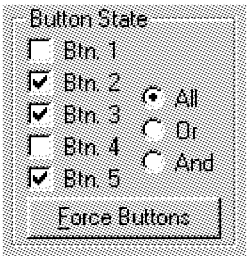
(1) All - Forces all alternate-action pushbuttons to the status set in the Button State frame. All buttons corresponding to boxes that are checked will be forced On and all buttons corresponding to boxes that are not checked will be forced Off.

(2) Or - Forces On all alternate-action buttons whose checked boxes are checked. Any buttons whose corresponding check boxes are not checked will remain unchanged.

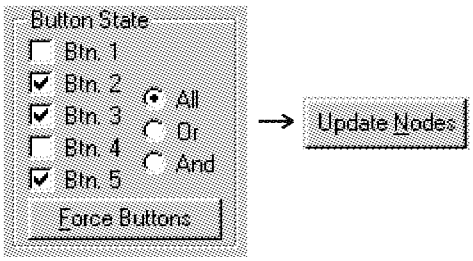
(3) And - Forces Off all alternate-action pushbuttons whose check boxes are checked. Any buttons whose correspondig check boxes are not checked will remain unchanged.

After you have decided which force option to use, click the corresponding option button in the Button State frame. Then set the pushbutton boxes to the proper state.

Immediate Mode Click on Force Buttons. The button LEDs will change to indicate their new state.



Buffered Mode Click on Force Buttons, followed by the Update Nodes button. The button LEDs will change to indicate their new state.



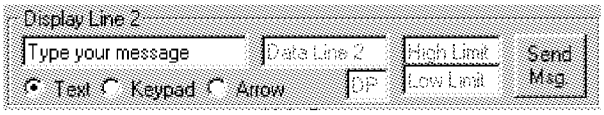
6.4.6 Placing Messages on the LCD

The OL3850 has the ability to display text messages, keypad entry messages, or arrow adjust messages. When configuring messages, notice that the frame Display Line 1 applies to the top line and the frame Display Line 2 applies to the bottom line. Messages must be up to 20 characters in length. Text messages can be displayed on both lines simultaneously or they can be on the line opposite a data entry message. Data entry messages (keypad entry and arrow adjust) are limited to 1 at a time. If data entry messages are on both lines simultaneously, unexpected results will occur.

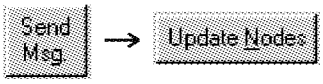
Text Messages

These consist of any message other than a data entry. They can be used to display data or for simple messaging. To display a text message, simply type the message in the Text Line 1 or 2 box.

Immediate Mode Click on the Send Msg. button in the corresponding line's frame. The message should be displayed immediately.



Buffered Mode Click the Send Msg. of the corresponding line, followed by the Update Nodes button, and the message will be displayed on the LCD.



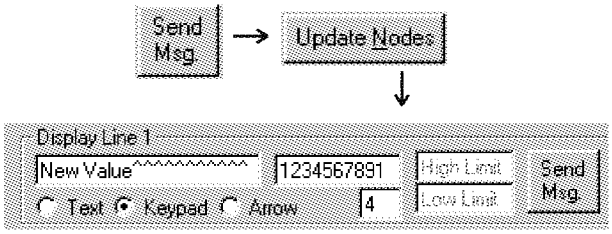
6.4 Operator Panels cont.

Keypad Messages

A keypad entry message consists of a 20 character message and an initial value. The message must contain a caret symbol, ^, as a placeholder for each numeric digit. Keypad messages can handle numbers up to 10 digits, or 11 counting a decimal point. To display a keypad message, type the message in the proper line field, select the keypad option button, then enter a starting value in the box labeled Data Line 1 or 2. If there is not a decimal point embedded in the message text, it can be specified using the small box under the initial data. If there is to be *no* decimal point the box must be set to 0.

Immediate Mode Click the Send Msg. button to send the message to the panel.

Buffered Mode Click Send Msg., followed by the Update Nodes button, to send your message to the panel.



To read the current data, perform the Status Request operation mentioned earlier in this section.

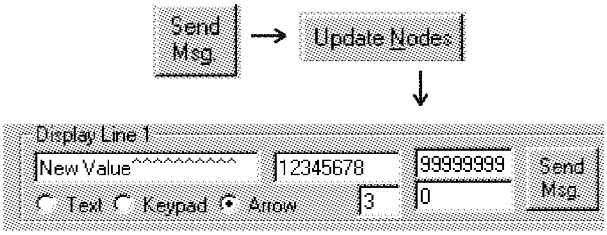
Arrow Adjust Messages

An arrow adjust message consists of a 20 character message, a starting value, and an upper and lower limit. The message must contain a caret symbol,^, as a placeholder for each numeric digit. Arrow adjust messages can handle numbers up to 8 digits, or 9, counting the decimal point, with a range from 0 to 99999999.

To display an arrow adjust message, type the message in the Text Line 1 (or 2) field. Then select the arrow option button and enter your initial data in the Data Line 1 (or 2) field. If there is not a decimal point embedded in the message text, it can be specified using the small box under the starting data. If there is to be *no* decimal point the box must be set to 0. Finally, enter the minimum and maximum limits in the Low Limit and High Limit fields, respectively.

Immediate Mode Click the Send Msg. button to send the message to the panel.

Buffered Mode Click the Send Msg. button, followed by Update Nodes, to send the messages to the panel.



To read the current data, perform the Status Request operation mentioned earlier in this section.