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NAPCO NetLink™ NL-MOD-UL

Network Communication Module

INSTALLATION INSTRUCTIONS

WI1523 6/06

GENERAL DESCRIPTION

The NAPCO NetLink™ NL-MOD-UL is a device that allows the reporting of alarms over a TCP/IP based (Intranet or Internet) network. Alarm reporting, previously performed via Telco only, can now be performed over both a TCP/IP network and/or Telco, or via the TCP/IP network as a backup. The NL-MOD-UL is housed in a separate plastic enclosure, and is connected to the Local Download receptacle for the GEM-P816 / P1632 / P1664 / P3200 / P9600 and X255 Napco control panels, and is connected via the parallel inputs with the MA3000 and other file alarm control panels. The NL-MOD-UL is compatible with the following NAPCO control panels:

- GEM-P816 (version 30 or greater)
- GEM-P1632 (version 30 or greater)
- GEM-P1664 (version 30 or greater)
- GEM-P3200 (version 56 or greater)
- GEM-P9600 (version 56 or greater)
- GEM-X255 (version 56 or greater)

Not all control panels can be updated by replacing the existing firmware. The following is a list of minimum existing firmware:

- GEM-P816 (version 30 or greater)
- GEM-P1632 (version 30 or greater)
- GEM-P1664: (version 30 or greater)
- GEM-P3200: (version 20 or greater)
- GEM-P9600: (version 20 or greater)
- GEM-X255: (version 4 or greater)

The NL-MOD-UL is supported by PCD-Windows Quickloader download software version 5.4 or greater. For the panels listed above, the Quickloader software will support downloading through the Internet or an intranet, as well as the uploading of logs and other data.

The NL-MOD-UL includes a small transient protection device (named the NL-ULBD) inside its enclosure. In addition, the NL-MOD-UL is one part of a larger system which includes a software package to allow its configuration before use (the NL-MODCONFIG) and a rack-mountable Receiver (the NL-RCV-RMPCUL) to allow the receipt of alarms, status and supervisory data. A short description of each is provided below:

NL-MODCONFIG Software (version 2.0 or greater):

NL-MODCONFIG is a software program allowing the configuration of the NL-MOD-UL with appropriate information (such as the static IP address of the module, static IP address of the NL-RCV-RMPCUL Receiver, etc.). The NL-MODCONFIG software is run on a PC (see System Requirements) and connects to the NL-MOD-UL via its network connection. In addition, NL-MODCONFIG allows the updating of the NL-MOD-UL firmware. **Note:** The NL-MODCONFIG software and its database should be retained if future access is necessary. For more information, see WI1243.

Central Station Receiver (NL-RCV-RMPCUL)

The NAPCO Net.Link™ NL-RCV-RMPCUL (Receiver) is a fully UL compliant central station receiver platform. This Receiver is rack-mountable in a standard 4U configuration. The NL-RCV-RMPCUL (Receiver) can supervise each NL-MOD-UL, receive alarms, provide a means of maintaining accounts and provide a means of displaying alarms and event history (opening/closing, etc.). For more information, see the NL-RCV-RMPCUL Installation and programming manual, WI1491.

Transient Protection (NL-ULBD)

The NL-MOD-UL includes electromagnetic protection and meets direct and indirect ESD requirements for Information Technology Equipment (ITE), however, burglary applications may call for better protection.

The NL-ULBD is a small device which gives added transient protection and mounts entirely inside the NL-MOD-UL housing. The NL-ULBD protects the NL-MOD-UL from significantly larger transients and surges which may emanate from the network cable or associated devices. It is connected in series between the Ethernet cable that provides network access and the RJ45 connector in the NL-MOD-UL. The NL-ULBD is required for UL compliant installations.

SPECIFICATIONS

Dimensions: 1½" x 7" x 4¾" (H x W x D)

Input Voltage: Regulated 12VDC.

Input Current: Nominal current (@12VDC) = 85mA. **Note:** 12V power must be supplied from a power limited auxiliary power circuit on the control panel. Available panel combined auxiliary current is reduced by 85mA.

Outputs are PGM-style open collector (negative trigger) with a maximum sink current of 50mA.

TABLE OF CONTENTS

GENERAL DESCRIPTION.....	1
SPECIFICATIONS.....	1
MAXIMUM WIRE LENGTH.....	2
SYSTEM REQUIREMENTS.....	2
INSTALLATION INSTRUCTIONS GEM-P3200/P9600/X255.....	2
KEYPAD PROGRAMMING.....	3
LOAD FACTORY DEFAULTS.....	4
INSTALLATION INSTRUCTIONS GEM-P816/P1632/P1664.....	4
INSTALLATION INSTRUCTIONS GENERIC PANELS.....	6
INSTALLATION INSTRUCTIONS FIRE CONTROL PANELS.....	7
INPUT SETUP.....	8
NL-MOD-UL CONFIGURATION OVERVIEW.....	9
DETAILED NL-MOD-UL CONNECTIONS.....	10
WIRING DIAGRAM.....	11
WARRANTEE.....	12

MAXIMUM WIRE LENGTH

The NL-MOD-UL must be mounted inside the NAPCO Gemini control panel or MA3000 enclosure. For Fire Alarm control panels, the NL-MOD-UL must be installed inside a separate UL 864 Listed enclosure. In addition, no more than 20 feet of conduit can be used if connected to a fire alarm control panel. **NOTE:** For a UL Supplemental Listing, the wire length (NL-MOD-UL to control panel) must be no more than 20 feet and the panel shall reside in the same room as the NL-MOD-UL with no intervening walls or barriers. **NOTE:** For best results when making RJ45 cable assemblies, it is recommended to use an AMP Brand Professional crimping tool (part # 3-231652-0), and to always match the type of cable used (stranded or solid) with the correct type of RJ45 plug.

SYSTEM REQUIREMENTS

System Hardware:

- Compatible Gemini Control Panel (see chart below)

Control Panel	Full Zone Reporting Capability	Parallel Inputs Reporting Capability	Remote TCP/IP Download
GEM-P816 (version 30+)	YES	OPT	YES
GEM-P1632 (version 30+)	YES	OPT	YES
GEM-P1664 (version 30)	YES	OPT	YES
GEM-P3200 (version 56+)	YES	OPT	YES
GEM-P9600 (version 56+)	YES	OPT	YES
GEM-X255 (version 56+)	YES	OPT	YES
Other Panels		YES	

- Standard 6 conductor modular RJ12 Cable, 1 foot in length (provided). Required for full zone reporting/downloading (see chart above).
- Access to the local area network.

NL-MODCONFIG Software:

- Windows® XP Professional or Windows® 2000. (Windows® XP Home Edition is **not** supported).

NL-RCV-RMPCUL Rack-Mount Receiver or NL-CSRCV Software (software not for UL installations):

- See W11491 for the NL-RCV-RMPCUL installation and programming instructions.

INSTALLATION INSTRUCTIONS

GEM-P3200

GEM-P9600

GEM-X255

The instructions in this section below apply to the GEM-P3200, GEM-P9600 and GEM-X255 control panels. (For the GEM-P816, GEM-P1632 and GEM-P1664 control panels, turn to page 4; for other generic control panels, turn to page 6; for fire alarm control panels, turn to page 7).

Note: Initial download must be performed locally.

Follow the steps below for existing systems. For new panel installations, proceed to step 2. After the mounting location and all wire paths are selected, install the NL-MOD-UL as follows:

1. Save the Existing Control Panel Program. To ensure

the panel program is not lost, use PCD-Windows Quickloader software (version 5.4) to upload the existing program (User, Dealer & Descriptions). If PCD-Windows is not available, confirm written records of programming selections. **Note:** Program will be lost after Cold Start (step 3).

2. Update the Control Panel EPROM (if required). The following control panel firmware must be updated to the following revisions:

- GEM-P3200 (version 56 or greater)
- GEM-P9600 (version 56 or greater)
- GEM-X255 (version 56 or greater)

Follow the procedure enclosed with the control panel *Software Enhancement EPROM* installation instructions (W1845).

3. Perform a Cold Start of the Panel.

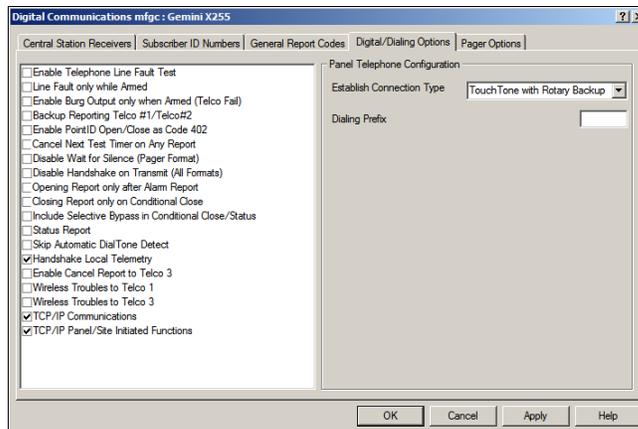
- Press the Dealer Security Code and press **[FUNCTION]** (or **[MENU]**).
- Press **[BYPASS]** until "Activate Program? Y/N" appears, then press **[OFF]** (or **[EMERGENCY]**).
- Press **[RESET]** to enter Dealer Program Mode.
- Press **[4]** **[0]** **[9]** **[3]** **[OFF]** (or **[EMERGENCY]**). Press **[RESET]** twice to exit Dealer Program Mode.

4. Download a New Control Panel Program. The PCD-Windows Quickloader download software can be used to configure the panel to recognize the NL-MOD-UL. Alternatively, the keypad can be used with Direct Address Program Mode to program the panel.

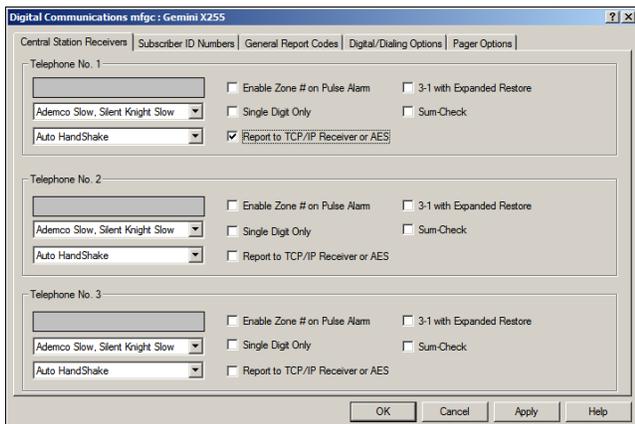
PROGRAM USING PCD-WINDOWS SOFTWARE.

On the **Digital Communications** menu, there are five areas that relate to the NL-MOD-UL operation. Configure as follows:

- Enable TCP/IP Communications.** In PCD-Windows, click the **Digital Communications** button, and select the *Digital/Dialing Options* tab (see image below). Check "TCP/IP Communications". This feature informs the control panel that an NL-MOD-UL will be installed in the system, and thus will make the appropriate adjustments to various downloading timeouts and to reporting properties. Click **Apply** to save.



- b. **Enable Report to AES-TCP/IP.** Select the *Central Station Receivers* tab (see image below). For each telephone number desired, check "Report to TCP/IP Receiver or AES" to enable the panel to report

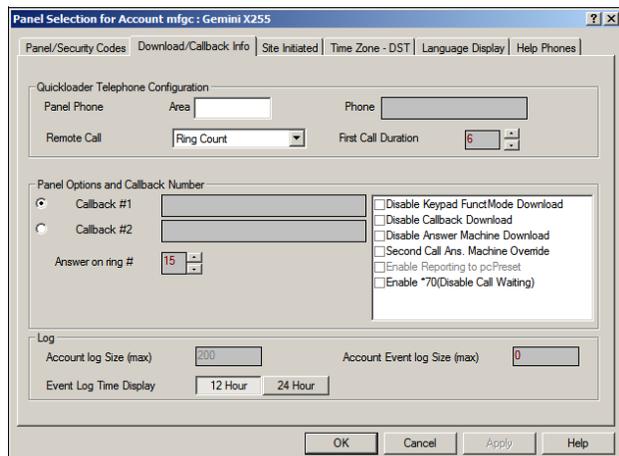


alarms via the NL-MOD-UL accessory. **Note:** All parameters apply as they normally would for Telco reporting. For backup reporting Telephone No. 2 should be enabled. Click **Apply** and **OK** to save.

- c. **Enable Handshake Local Telemetry (Optional).** In the *Digital Communications Options* tab (see previous image), check "Handshake Local Telemetry". This enables the panel to wait for a transmission acknowledgment from the NL-RCV-RMPCUL Receiver. (If the acknowledgment fails to occur within the allotted time, that control panel will generate a "Telemetry Failure" system trouble). Click **Apply** to save. **Note:** The NL-MOD-UL can queue up to 50 alarms and will continuously attempt to transmit the alarm to the NL-RCV-RMPCUL Receiver.

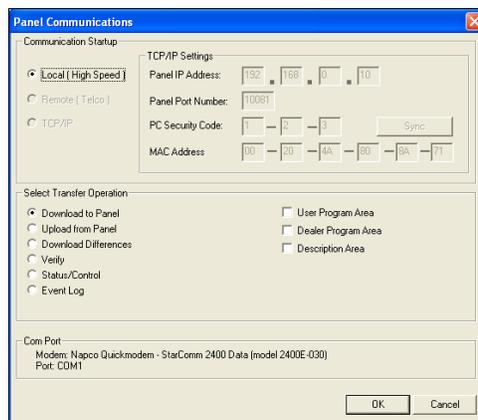
- d. **Enable TCP/IP Panel/Site Functions (Optional).** In the same *Digital Communications Options* tab, check "TCP/IP Panel/Site Initiated Functions" to enable the panel to connect via TCP (rather than dialup) for Auto Event Log Dumps, AutoDL ID, Function 6 and Site Initiated PCPreset connections. Click **Apply** to save.

- e. **Enable Callback Select and Options (Optional).** Click the **Panel Selection** button, and select the



Download/Callback Info tab (see image above). The **Callback Select and Options** radio buttons for Callback #1 or #2 will cause PCPreset IP address #1 or PCPreset IP address #2 to be used, respectively. Therefore, when "TCP/IP Panel/Site Initiated Functions" (see "d" above) is selected, the NL-MOD-UL will try to connect to a PCPreset computer using an IP address determined by the Callback # selection. Click **OK** to save.

Download to Control Panel. Before proceeding, save the information (**File, Save Work**). On the toolbar, click either the **Local** or **Remote Communications** buttons. **Note:** The **TCP/IP Communications** button can be selected only after the initial panel download. In addition, the panel download cannot be performed via TCP/IP until the NL-MOD-UL itself is programmed by the NL-MODCONFIG software.



In the **Select Transfer Operation** area, click the *Download to Panel* radio button. Check **User Program Area**, **Dealer Program Area** and **Description Area**. Click **OK** to initiate the data transfer to the control panel. In UL installations, disable remote downloading (UL does not allow unattended downloading) and after changing the program, always verify panel operation at the panel site.

PROGRAM USING THE KEYPAD

Instead of using PCD-Windows Quickloader download software to program the panel, access the control panel directly through the keypad as detailed below. See previous descriptions for each address.

- a. Enable "TCP/IP Communications" via address 2423, option 3 (press 3 on the keypad).
- b. Enable "Handshake for Local Telemetry" via address 1027, option 8 (press 8 on the keypad).
- c. Enable "TCP/IP Panel/Site Initiated Functions" via address 2423, option 4 (press 4 on the keypad).
- d. For each telephone number desired, enable "Report to TCP/IP Receiver or AES" via addresses 0526 (option 7), 0551 (option 7) and 0576 (option 7) for Telco 1, Telco 2 and Telco 3 respectively.
- e. Enable "Callback Select Options" via address 1022. Press either "1" for Callback Telephone Number 1 or "2" for Callback Telephone Number 2.

4. **Mount NL-MOD-UL.** Remove power to panel. The NL-MOD-UL must be mounted inside the NAPCO Gemini control panel enclosure. **NOTE:** For a UL Supplemental Listing, the wire length (NL-MOD-UL to the control panel) must be no more than 20 feet and the control panel shall reside in the same room as the NL-MOD-UL with no intervening walls or barriers. Mount using the mounting flanges on both sides of the NL-MOD-UL enclosure using the screws appropriate for the location.
5. **NL-MOD-UL Jumper.** Make sure jumper JP2 is installed for normal operation. Refer to "Load Factory Defaults" below for JP2 operation.
6. **NL-MOD-UL Wiring and Connections.** Refer to the wiring diagram.
- Insert the LAN Ethernet connector (RJ45 style) into the receptacle marked "Ethernet" on the NL-MOD-UL circuit board. Insert the other end into the local network connector.
 - Insert the 6-conductor modular cable (supplied) into J1 (RJ12 style) of the control panel. Insert the other end into the "LOCAL DNLD" receptacle (RJ12 style) on the NL-MOD-UL circuit board.
 - Connect the panel Aux Power terminals 13 (+) and 14 (-) to the NL-MOD-UL terminals 1 (+) and 2 (-). See wiring diagram on page 11.
7. **Power Up NL-MOD-UL.** Upon applying power, the DS1 LED on the NL-MOD-UL will turn on and remain on during the NL-MOD-UL startup sequence (duration is approximately 15 seconds). The LED will turn off for up to 20 seconds while the NL-MOD-UL verifies its configuration. The LED will then flash continuously indicating the unit has not been programmed. **Note:** Once the unit has been programmed with an acceptable program, the DS1 LED will flash for 1 second and not continuously. After the power up sequence ends and normal operation begins, the LED will turn on only when the NL-MOD-UL is communicating over the network.
8. **Program the NL-MOD-UL with NL-MODCONFIG.** The NL-MODCONFIG software is used to program the NL-MOD-UL. Before using the NL-MODCONFIG software, obtain a static IP address, subnet mask and gateway that will be dedicated to network communication. This information can be obtained from your network administrator. In addition, the Receiver static IP address must be obtained from the monitoring center. Install the NL-MODCONFIG software on a PC (see System Requirements on page 2). Then use NL-MODCONFIG to program the NL-MOD-UL. Use one of two methods:
- Connect to the NL-MOD-UL through the LAN.
 - Use a laptop or a PC connected to a network crossover cable (not supplied).
- Be sure to have the IP address, subnet mask and gateway address. See W11243 for more information regarding programming with the NL-MODCONFIG software.

Refer to the parallel **Input Setup** section on page 8 for more information.

9. **Test Installation.** Test the system by sending a Digital Dialer Test report out through the LAN (Ethernet) into the NL-RCV-RMPCUL Receiver. **Note:** The NL-MOD-UL will attempt to send check-in signals immediately after the unit is configured with NL-MODCONFIG software. Therefore, if the NL-MODCONFIG programming was performed via a crossover cable, then the control panel will indicate a System Trouble E25 within two minutes of NL-MOD-UL programming.

LOAD FACTORY DEFAULTS (Erase)

(if needed)

"Defaulting" the NL-MOD-UL will return it to its original "out of box" condition. Default the NL-MOD-UL as follows:

- Remove power from the NL-MOD-UL device.
- Remove jumper JP2
- Re-apply power. After about 40 seconds, the NL-MOD-UL will flash the LED continuously indicating the default configuration has been loaded.
- Upon continuous flashing of the LED, replace jumper JP2.

Once the NL-MOD-UL has been re-programmed using the NL-MODCONFIG software, the LED will flash once (for 1 second) upon powerup indicating the NL-MOD-UL has a valid configuration programmed.

INSTALLATION INSTRUCTIONS

GEM-P816

GEM-P1632

GEM-P1664

The instructions in this section below apply to the GEM-P816, GEM-P1632 and GEM-P1664 control panels. (For the GEM-P3200, GEM-P9600 and GEM-X255 control panels, turn to page 2; for other generic control panels, turn to page 6; for fire alarm control panels, turn to page 7). **Note:** Initial download must be performed locally.

Follow the steps below for existing systems. For new panel installations, proceed to step 2. After the mounting location and all wire paths are selected, install the NL-MOD-UL as follows:

- Save the Existing Control Panel Program.** To ensure the panel program is not lost, use PCD-Windows Quick-loader software (version 5.4) to upload the existing program (User, Dealer & Descriptions). If PCD-Windows is not available, confirm written records of programming selections. **Note:** Program will be lost after Cold Start (step 3).

2. Update the Control Panel EPROM (if required). The following control panel firmware must be updated to the following revisions:

- GEM-P816 (version 30 or greater)
- GEM-P1632 (version 30 or greater)
- GEM-P1664 (version 30 or greater)

Follow the procedure enclosed with the control panel *Software Enhancement EPROM* installation instructions (WI845).

3. Perform a Cold Start of the Panel.

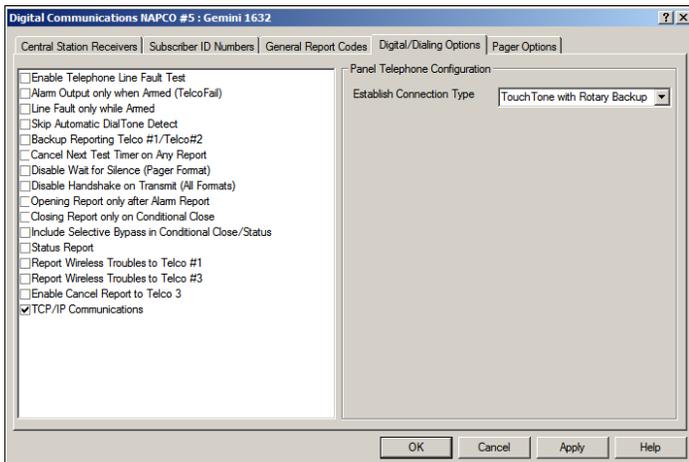
- Press the Dealer Security Code and press **FUNCTION** (or **MENU**).
 - Press **BYPASS** until "Activate Program? Y/N" appears, then press **OFF** (or **ENTER**).
 - Press **RESET** to enter Dealer Program Mode.
 - Press **1** **1** **9P** **8A** **ON** (or **ENTER**).
- Press **RESET** twice to exit Dealer Program Mode.

4. Download a New Control Panel Program. The PCD-Windows Quickloader download software can be used to configure the panel to recognize the NL-MOD-UL. Alternatively, the keypad can be used with Direct Address Program Mode to program the panel.

PROGRAM USING PCD-WINDOWS SOFTWARE.

On the **Digital Communications** menu, there is one option that relates to the NL-MOD-UL operation. Configure as follows:

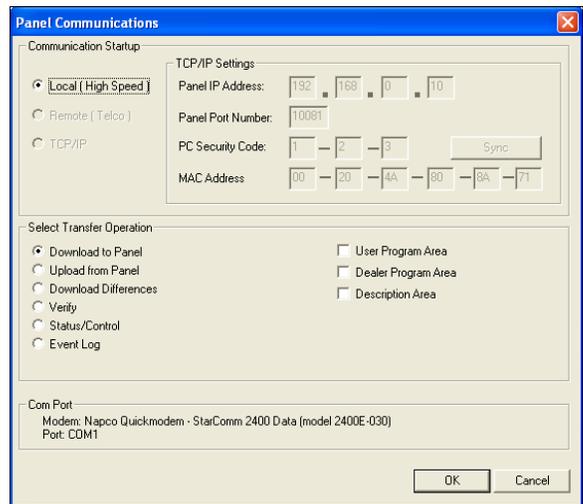
- **Enable TCP/IP Communications.** In PCD-Windows, click the **Digital Communications** button, and select the *Digital/Dialing Options* tab (see image below). Check "TCP/IP Communications". This feature informs the control panel that an NL-MOD-UL will be installed in the system, and thus will make the appropriate adjustments to various downloading time-outs and to reporting properties. Click **Apply** to save.
- **Enable TCP/IP Panel/Site Functions (Optional).** In the same *Digital/Dialing Options* tab, check "TCP/IP Panel/Site Initiated Functions" to enable the panel to connect via TCP (rather than dialup) for Auto Event Log Dumps, AutoDL ID, Function 6 and Site Initiated



PCPreset connections. Click **Apply** to save.

Download to Control Panel. Before proceeding, save the information (**File, Save Work**). On the toolbar, click either the **Local** or **Remote Communications** buttons. **Note:** The **TCP/IP Communications** button can be selected only after the initial panel download. In addition, the panel download cannot be performed via TCP/IP until the NL-MOD-UL itself is programmed by the NL-MODCONFIG software.

In the **Select Transfer Operation** area, click the *Download to Panel* radio button. Check **User Program Area**, **Dealer Program Area** and **Description Area**. Click **OK** to initiate the data transfer to the control panel. In UL installations, disable remote downloading (UL does not allow unattended downloading) and after changing the program, always verify panel operation at the panel site.



PROGRAM USING THE KEYPAD

Instead of using PCD-Windows Quickloader download software to program the panel, access the control panel directly through the keypad as detailed below. See previous descriptions for each address.

- Enable "TCP/IP Communications" via address 1063, option 1.
- Enable "TCP/IP Panel/Site Functions" via address 2054, option 3 (for GEM-P1664 panels only).

5. Mount NL-MOD-UL. Remove power to panel. The NL-MOD-UL must be mounted inside the NAPCO Gemini control panel enclosure. In addition, no more than 20 feet of conduit can be used if connected to a fire alarm control panel. **NOTE:** For a UL Supplemental Listing, the wire length (NL-MOD-UL to the control panel) must be no more than 20 feet and the control panel shall reside in the same room as the NL-MOD-UL with no intervening walls or barriers.

Mount using the mounting flanges on both sides of the NL-MOD-UL enclosure using the screws appropriate for the location.

6. NL-MOD-UL Jumper. Make sure jumper JP2 is installed for normal operation. Refer to "Load Factory

Defaults" on page 4 for JP2 operation.

7. NL-MOD-UL Wiring and Connections. Refer to the wiring diagram.

- a. Insert the LAN Ethernet connector (RJ45 style) into the receptacle marked "Ethernet" on the NL-MOD-UL circuit board. Insert the other end into the local network connector.
- b. Insert the 6-conductor modular cable (supplied) into J1 (RJ12 style) of the control panel. Insert the other end into the "LOCAL DNLD" receptacle (RJ12 style) on the NL-MOD-UL circuit board.
- c. Connect the panel Aux Power terminals 5 (+) and 6 (-) to the NL-MOD-UL terminals 1 (+) and 2 (-). See wiring diagram on page 11.

8. Power Up NL-MOD-UL. Upon applying power, the DS1 LED on the NL-MOD-UL will turn on and remain on during the NL-MOD-UL startup sequence (duration is approximately 15 seconds). The LED will turn off for up to 20 seconds while the NL-MOD-UL verifies its configuration. The LED will then flash continuously indicating the unit has not been programmed. **Note:** Once the unit has been programmed with an acceptable program, the DS1 LED will flash for 1 second and not continuously. After the power up sequence ends and normal operation begins, the LED will turn on only when the NL-MOD-UL is communicating over the network.

9. Program the NL-MOD-UL with NL-MODCONFIG. The NL-MODCONFIG software is used to program the NL-MOD-UL. Before using the NL-MODCONFIG software, obtain a static IP address, subnet mask and gateway that will be dedicated to network communication. This information can be obtained from your network administrator. In addition, the Receiver static IP address must be obtained from the monitoring center. Install the NL-MODCONFIG software on a PC (see System Requirements on page 2). Then use NL-MODCONFIG to program the NL-MOD-UL. Use one of two methods:

- a. Connect to the NL-MOD-UL through the LAN.
- b. Use a laptop or a PC connected to a network crossover cable (not supplied).

Be sure to have the IP address, subnet mask and gateway address. See WI1243 for more information regarding programming with the NL-MODCONFIG software. Refer to the parallel **Input Setup** section on page 8 for more information.

10. Test Installation. Test the system by sending a Digital Dialer Test report out through the LAN (Ethernet) into the NL-RCV-RMPCUL Receiver. **Note:** The NL-MOD-UL will attempt to send check-in signals immediately after the unit is configured with NL-MODCONFIG software. Therefore, if the NL-MODCONFIG programming was performed via a crossover cable, then the control panel will indicate a System Trouble E25 within two minutes of NL-MOD-UL programming.

INSTALLATION INSTRUCTIONS

OTHER GENERIC PANELS

The instructions in this section below apply to other generic control panels. (For the GEM-P3200, GEM-P9600 and GEM-X255 panels, turn to page 2; for the GEM-P816, GEM-P1632 and GEM-P1664 panels, turn to page 4).

After the mounting location and all wire paths are selected, install the NL-MOD-UL as follows:

1. Mount NL-MOD-UL. Remove power to panel. For a UL Supplemental Listing for the panels, it is required that the NL-MOD-UL be installed in the same housing or in the same room as the control panel, with no intervening walls or barriers.

Mount using the mounting flanges on both sides of the NL-MOD-UL box using the screws appropriate for the location.

2. NL-MOD-UL Jumper. Make sure jumper JP2 is installed for normal operation. Refer to "**Load Factory Defaults**" on page 4 for JP2 operation.

3. NL-MOD-UL Wiring and Connections. Refer to the wiring diagram.

- a. Insert the LAN Ethernet connector (RJ45 style) into the receptacle marked "Ethernet" on the NL-MOD-UL circuit board. Insert the other end into the local network connector.
- b. Connect the panel positive and negative Aux Power outputs to the NL-MOD-UL terminals 1 (+) and 2 (-) respectively. See wiring diagram on page 11.

The Supervisory Output (SUPV) will be active low if the NL-MOD-UL fails to check in with the NL-RCV-RMPCUL Receiver four consecutive times. Connect this output to a 24 hour supervisory zone in the control panel.

The Ringback Output (R.B.) will be active low for 2 seconds if the NL-MOD-UL receives an acknowledgement from the NL-RCV-RMPCUL Receiver after reporting a closing.

4. Power Up NL-MOD-UL. Upon applying power, the DS1 LED on the NL-MOD-UL will turn on and remain on during the NL-MOD-UL startup sequence (duration is approximately 15 seconds). The LED will turn off for up to 20 seconds while the NL-MOD-UL verifies its configuration. The LED will then flash continuously indicating the unit has not been programmed. **Note:** Once the unit has been programmed with an acceptable program, the DS1 LED will flash for 1 second and not continuously. After the power up sequence ends and normal operation begins, the LED will turn on only when the NL-MOD-UL is communicating over the network.

5. Program the NL-MOD-UL with NL-MODCONFIG. The NL-MODCONFIG software is used to program the NL-MOD-UL. Before using the NL-MODCONFIG software, obtain a static IP address, subnet mask and gateway that will be dedicated to network communication.

This information can be obtained from your network administrator. In addition, the Receiver static IP address must be obtained from the monitoring center.

Install NL-MODCONFIG software on a PC (see System Requirements on page 2). Then use NL-MODCONFIG to program the NL-MOD-UL.

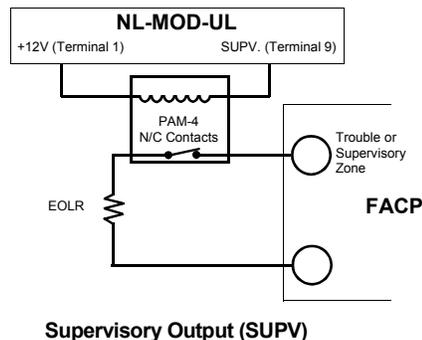
Use one of two methods:

- a. Connect to the NL-MOD-UL through the LAN.
- b. Use a laptop or a PC connected to a network cross-over cable (not supplied).

Be sure to have the IP address, subnet mask and gateway address. See WI1243 for more information regarding programming with the NL-MODCONFIG software.

- d. Be sure fire alarm panel is programmed for delayed AC Fail Report for 1-3 hours.

The Supervisory Output (SUPV) will be active low if the NL-MOD-UL fails to check in with the NL-RCV-RMPCUL four consecutive times. Connect this Supervisory Output to control an *Air Products and Controls* "PAM-4" relay. Wire the relay contact to a zone that can be programmed for a trouble or supervisory



INSTALLATION INSTRUCTIONS

FIRE ALARM CONTROL PANELS

The instructions in this section below apply to generic fire alarm control panels. (For the GEM-P3200, GEM-P9600 and GEM-X255 panels, turn to page 2; for the GEM-P816, GEM-P1632 and GEM-P1664 panels, turn to page 4. For other (generic) control panels, turn to page 6).

Note: The cable modem at the premises requires standby power, therefore a UL 1481 Listed UPS must be used at the premises to power the modem. In addition, the installation must meet the requirements of NFPA 72. All external circuits must be electrically rated to permit proper installation of this product using wiring methods permitted by the National Electrical Code, ANSI/NFPA 70.

After the mounting location and all wire paths are selected, install the NL-MOD-UL as follows:

1. **Mount NL-MOD-UL.** Remove power to panel. The NL-MOD-UL must be mounted in an adjacent UL 864 Listed enclosure, and no more than 20 feet of conduit can be used.
Mount using the mounting flanges on both sides of the NL-MOD-UL box using the screws appropriate for the location.
2. **NL-MOD-UL Jumper.** Make sure jumper JP2 is installed for normal operation. Refer to "Load Factory Defaults" on page 4 for JP2 operation.
3. **NL-MOD-UL Wiring and Connections.** Refer to the wiring diagram.
 - a. Insert the LAN Ethernet connector (RJ45 style) into the receptacle marked "Ethernet" on the NL-MOD-UL circuit board. Insert the other end into the local network connector.
 - b. Connect the panel positive and negative Aux Power outputs to the NL-MOD-UL terminals 1 (+) and 2 (-) respectively. See wiring diagram on page 11.
 - c. Connect dry contacts into the parallel inputs. See parallel **Input Setup** on page 8 for more information.

4. **Power Up NL-MOD-UL.** Upon applying power, the DS1 LED on the NL-MOD-UL will turn on and remain on during the NL-MOD-UL startup sequence (duration is approximately 15 seconds). The LED will turn off for up to 20 seconds while the NL-MOD-UL verifies its configuration. The LED will then flash continuously indicating the unit has not been programmed. **Note:** Once the unit has been programmed with an acceptable program, the DS1 LED will flash for 1 second and not continuously. After the power up sequence ends and normal operation begins, the LED will turn on only when the NL-MOD-UL is communicating over the network.

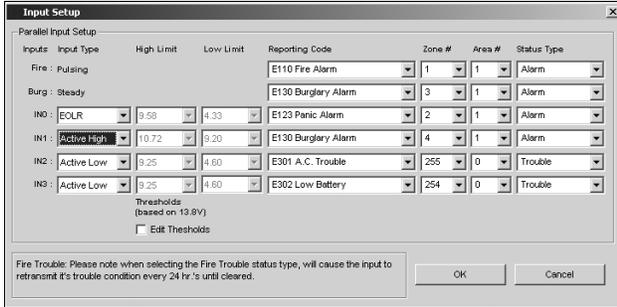
5. **Program the NL-MOD-UL with NL-MODCONFIG.** The NL-MODCONFIG software is used to program the NL-MOD-UL. Before using the NL-MODCONFIG software, obtain a static IP address, subnet mask and gateway that will be dedicated to network communication. This information can be obtained from your network administrator.
Install NL-MODCONFIG software on a PC (see System Requirements on page 2). Then use NL-MODCONFIG to program the NL-MOD-UL.
Use one of two methods:

- a. Connect to the NL-MOD-UL through the LAN.
- b. Use a laptop or a PC connected to a network cross-over cable (not supplied).

Be sure to have the IP address, subnet mask and gateway address. See WI1243 for more information regarding programming with the NL-MODCONFIG software. Refer to the parallel **Input Setup** section on page 8 for more information.

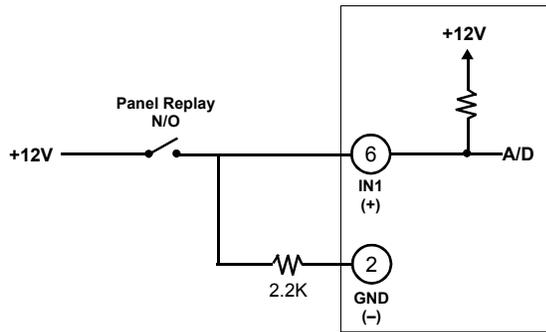
6. **Test Installation.** Test the system into the NL-RCV-RMPCUL Receiver.

INPUT SETUP (IN0 - IN3)



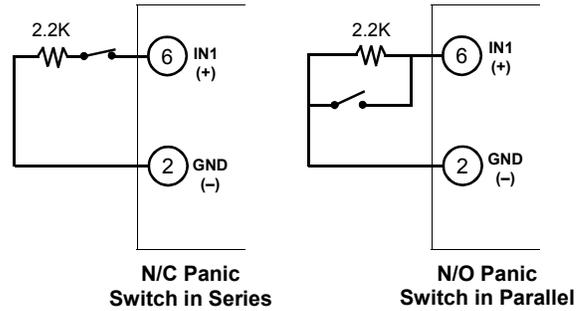
In the NL-MODCONFIG software, use the **Optional Input Setup** button (located at the bottom of the NL-MODCONFIG main screen) to allow the configuration of four parallel inputs located on the NL-MOD-UL board terminal strip. In the **Input Setup** dialog, use the **Input Type** drop down to select as follows:

- If **Active-low** selected from the drop-down list, the input is considered normal if it is above the upper threshold ("High Limit") and faulted if it is below the lower threshold ("Low Limit"). An input value between the lower and upper thresholds maintains the current state.
- If **Active-high** is selected from the drop-down list, the input is considered normal if it is below the lower threshold ("Low Limit") and faulted if it is above the upper threshold ("High Limit"). An input value between the lower and upper thresholds maintains the current state. A 2.2k EOL resistor is needed. See diagram below.



Active high Example: N/O Relay Contact

- If **EOLR** is selected from the drop-down list, this enables the 2.2K EOL Resistor. The default input is in a normal state if the input is between the lower threshold ("Low Limit") and the upper threshold ("High Limit"). If not between these two thresholds the input is considered faulted. If EOLR is selected, the values programmed are identical to the values used in the panel. For example, to install a panic button, connect between the NL-MOD-UL terminals 2 and 6. If button is normally closed, connect EOL resistor in series. If button is normally open, then connect EOL resistor in parallel. See diagrams below.



Example: Select EOLR in the I/O Setup Screen

Note: For advanced users, the upper and lower voltage limits can be programmed into the NL-MOD-UL. To enable these settings to be changed, check **Edit Thresholds**.

⚠ **Do NOT check Edit Thresholds for Fire Installations.**

- If **Disabled** is selected from the drop-down list, the input is disabled and will not respond to any input voltage. The Optional Inputs (IN1, IN2 and IN3 on the NL-MOD-UL terminal strip) are configured with the lower limits set to zero and the upper limits set to 255. This results in all the Optional Inputs being normal (i.e. "non-activated") regardless of the actual input voltage.

Reporting Code

Select a Contact ID Code (E130 =Burglary, E110 = Fire, etc.) to be displayed by the Receiver or the automation system.

Note: If **E301 A.C. Trouble** is selected for input **IN3**, and the **IN3** input is tripped, reporting for this input will be delayed 2 hours (if the input opens before the 2 hour delay ends, the **E301 A.C. Trouble** report will not be sent). If **E301 A.C. Trouble** is selected for the other inputs (**IN0-IN2**) the report is sent immediately.

Zone

Assign a Zone number to the input.

Area

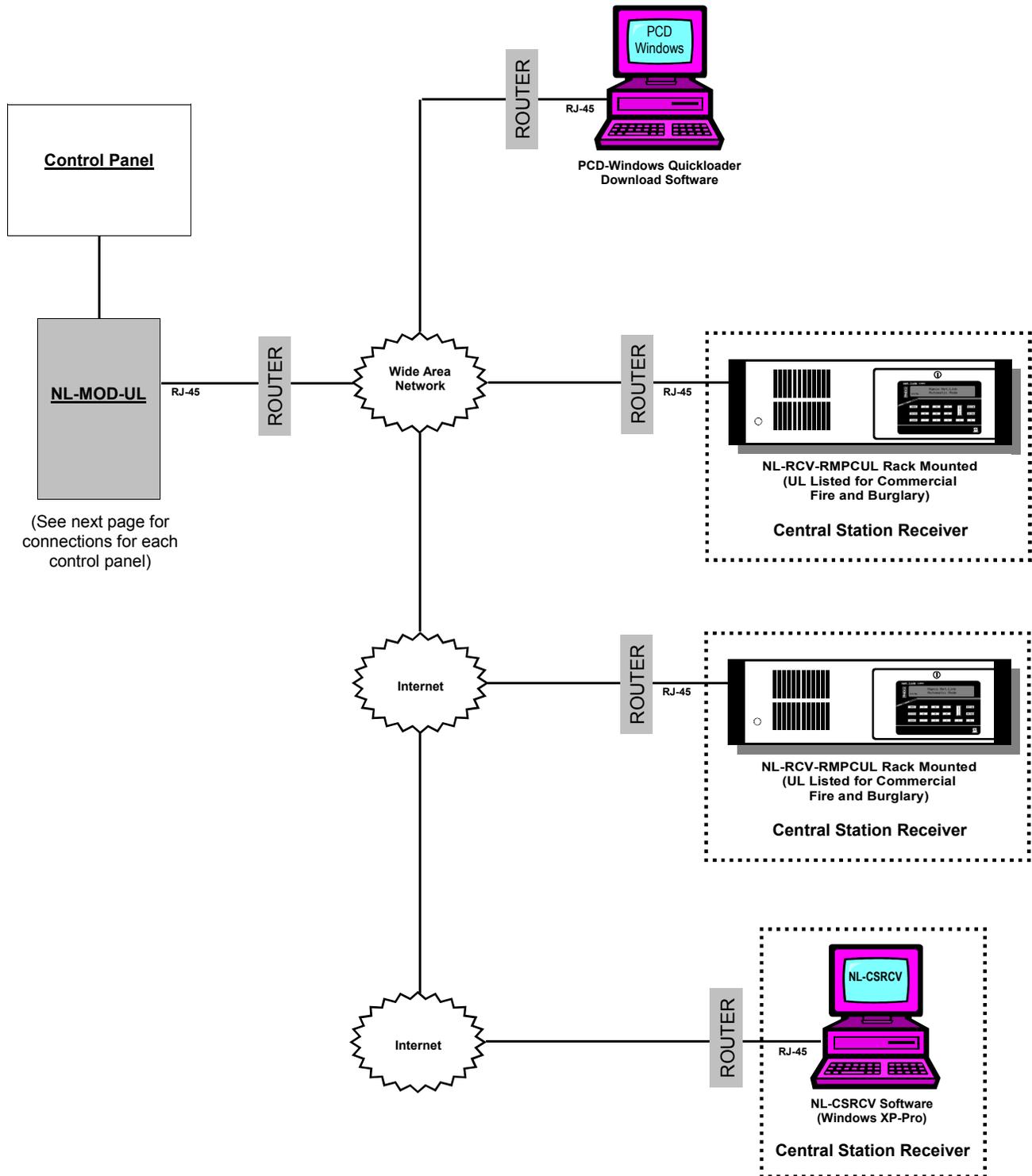
Assign the input to an area number.

Status Type

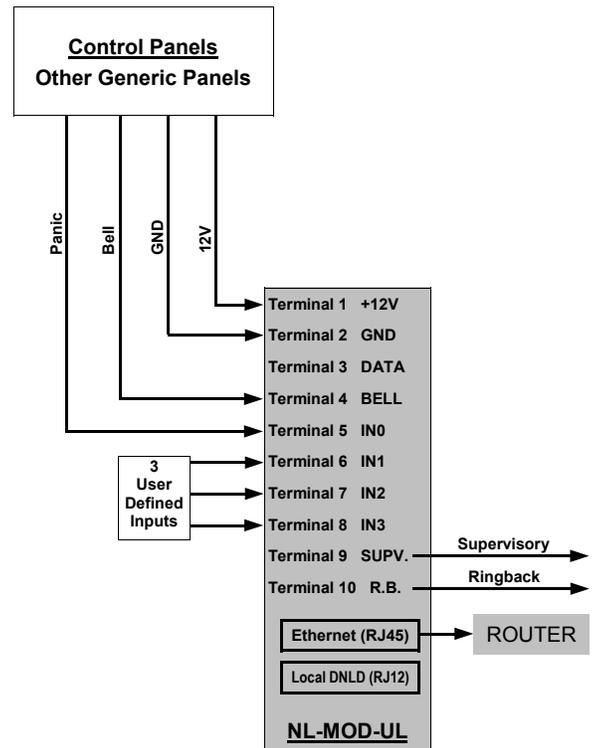
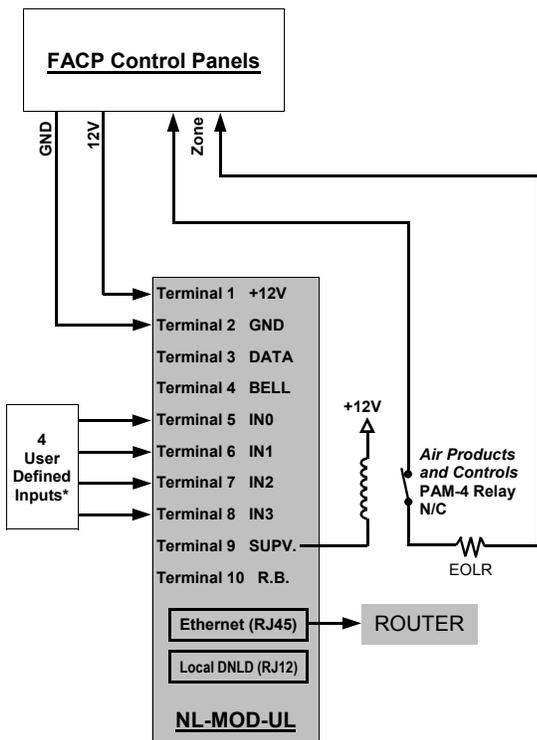
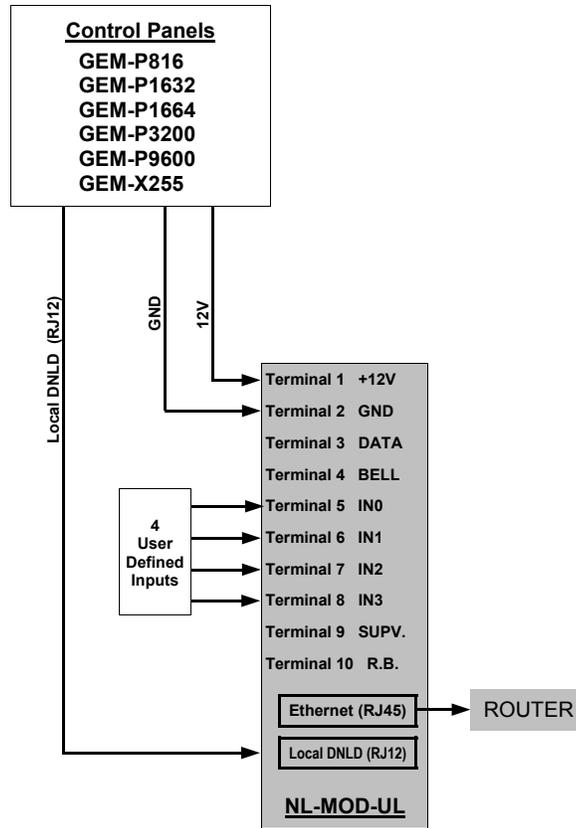
Select the status category to be assigned to the zone when the NL-MOD-UL reports a status to the Receiver. The Receiver Service Application **Panel Status** screen displays the attribute selected here, including **Check-In Status**.

Note: If **Fire Trouble** is selected for any input, the NL-MOD-UL will *retransmit* the reporting code signal every 24 hours as long the associated input remains tripped.

NL-MOD-UL Configuration Overview



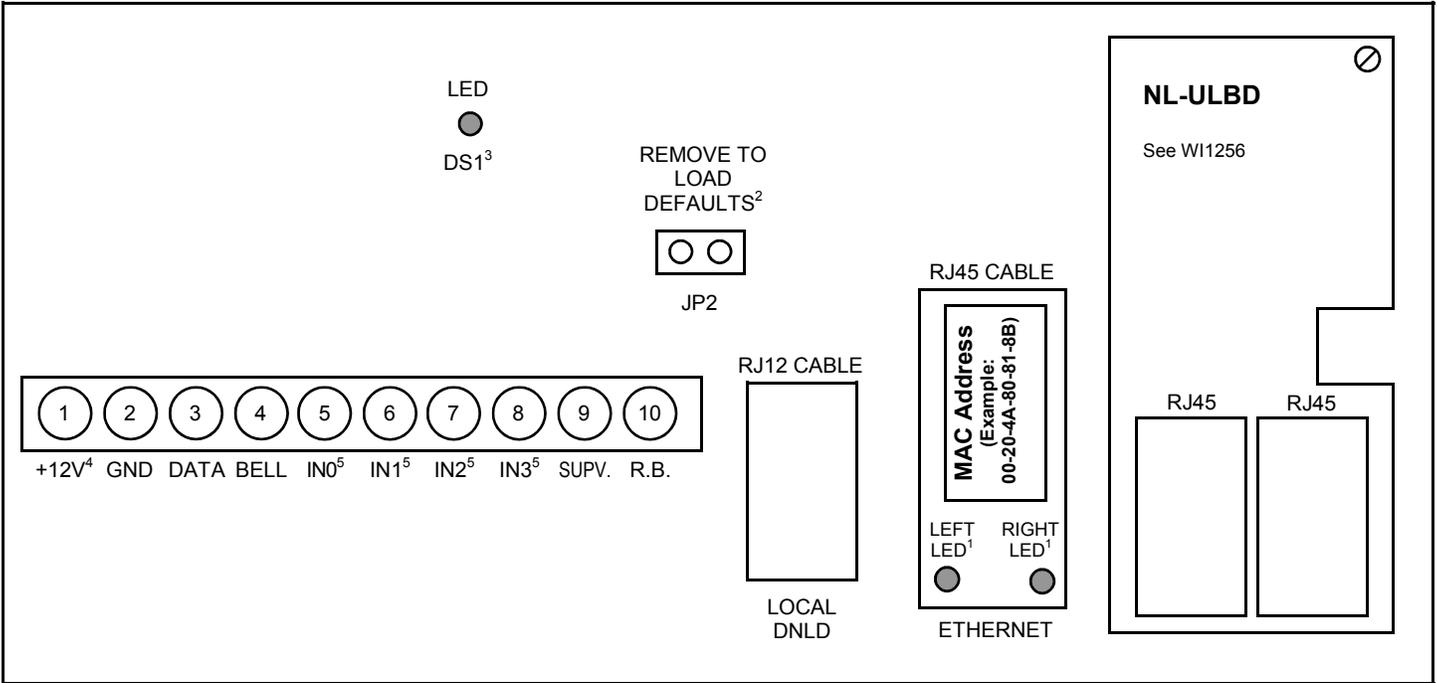
Detailed NL-MOD-UL Connections



*See Reporting Code on page 8 for more information regarding IN3 reporting delays.

NL-MOD-UL WIRING DIAGRAM

REFER TO WI1523



NL-MOD-UL Wiring Diagram Notes:

1. See table below for description of right and left Ethernet Connection LED Functions.
2. Normal operation requires this shunt connector to be placed on top of JP2.
3. See pages 4, 6 and 7 for DS1 LED operation.
4. **Voltage Input:** 12VDC **Input Current:** 85mA.
5. **Rated Current:** 6.5mA **Rated Voltage:** 12VDC.

NL-MOD-UL TERMINAL DESCRIPTIONS	
TERMINAL NUMBER	DESCRIPTION
1	Positive 12 Volts
2	Ground
3	Data (not currently used)
4	Bell
5	User Defined Parallel Input 0. Configured by the Optional Input Setup screen.
6	User Defined Parallel Input 1. Configured by the Optional Input Setup screen.
7	User Defined Parallel Input 2. Configured by the Optional Input Setup screen.
8	User Defined Parallel Input 3. Configured by the Optional Input Setup screen.
9	Supervisory (Active Low)
10	Ringback (Active Low)

ETHERNET CONNECTION LED FUNCTIONS			
LEFT LED		RIGHT LED	
COLOR	MEANING	COLOR	MEANING
OFF	NO LINK	OFF	NO ACTIVITY
SOLID AMBER	10 MBPS	MOMENTARY AMBER	HALF DUPLEX
SOLID GREEN	100 MBPS	MOMENTARY GREEN	FULL DUPLEX

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