



# **Network Adaptor Module**

## **NAM - 232**

# Fire Alarm System Limitations

**An automatic fire alarm system**—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premise following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

**Smoke detectors** may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

**Particles of combustion or "smoke"** from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, or chimneys may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets.
- Smoke detectors may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

*While a fire alarm system may lower insurance rates, it is not a substitute for fire insurance!*

Heat detectors do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. *Heat detectors are designed to protect property, not life.*

**IMPORTANT! Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power.** If detectors are not so located, a developing fire may damage the alarm system, crippling its ability to report a fire.

**Audible warning devices** such as bells may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol or medication. Please note that:

- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond or comprehend the meaning of the signal. It is the property owner's responsibility to conduct fire drills and other training exercise to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

**A fire alarm system** will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

**Equipment used in the system** may not be technically compatible with the control. It is essential to use only equipment listed for service with your control panel.

**Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup radio transmission systems are recommended.

**The most common cause** of fire alarm malfunction is inadequate maintenance. To keep the entire fire alarm system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of Chapter 7 of NFPA 72 shall be followed. Environments with large amounts of dust, dirt or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled monthly or as required by National and/or local fire codes and should be performed by authorized professional fire alarm installers only. Adequate written records of all inspections should be kept.

# Installation Precautions

**WARNING** - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until this manual is read and understood.

**CAUTION** - *System Reacceptance Test after Software Changes.* To ensure proper system operation, this product must be tested in accordance with NFPA 72 Chapter 7 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

**This system** meets NFPA requirements for operation at 0-49° C/32-120° F and at a relative humidity of 85% RH (non-condensing) at 30° C/86° F. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15-27° C/60-80° F.

**Verify that wire sizes are adequate** for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

*Adherence to the following will aid in problem-free installation with long-term reliability:*

**Like all solid state electronic devices**, this system may operate erratically or can be damaged when subjected to lightning-induced transients. Although no system is completely immune from lightning transients and interferences, proper grounding will reduce susceptibility. *Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes.* Consult with the Technical Services Department if any problems are anticipated or encountered.

**Disconnect AC power and batteries** prior to removing or inserting circuit boards. Failure to do so can damage circuits.

**Remove all electronic assemblies** prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, and printed circuit board location.

**Do not tighten screw terminals** more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

**Though designed to last many years**, system components can fail at any time. This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static-suppressive packaging to protect electronic assemblies removed from the unit.

**Follow the instructions** in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation by authorized personnel.

## FCC Warning

**WARNING:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing device pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

### Canadian Requirements

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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## Section 1 General

The Network Adaptor Module NAM-232 functions as an interface between the AFP-200, AFP-300/AFP-400, or the AM2020/AFP1010 Fire Alarm Control Panels (FACPs) and the NOTIFIER fire alarm local area network, **NOTI•FIRE•NET™**. The NAM-232 is compatible with the following AFP-200, AFP-300/AFP-400 or AM2020/AFP1010 part numbers:

- AFP-200, Software Part Number #AFP2M3.0
- Display Interface Assembly for AM2020 (DIA-2020), Part Number #DIA2M3.0
- Central Processing Unit for AM2020 (CPU-2020), Part Number #CPU M3.0
- Display Interface Assembly for AFP1010 (DIA-1010), Part Number #DIA1M3.0
- Central Processing Unit for AFP1010 (CPU-2), Part Number #CPU1M3.0
- AFP-300/AFP-400, Software Part Number #AFP4R3.0

### 1.1 Related Documentation

To obtain a complete understanding of specific features within the network, or to become familiar with network functions in general, refer to the documentation listed in Table 1.1 or use Verifire™. Verifire™ is Windows® based, and provides an off-line programming and test utility which reduces installation programming time. The NOTIFIER Document Revision Chart provides the current document revision.

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Title	Number	Title	Number
AM2020/AFP1010 Fire Alarm Control Panel	15088	Annunciator Control System	15842
Liquid Crystal Display (LCD-80)	15037	Lamp Driver Modules (LDM)	15885
Network Control Station (NCS)	51095	Voice Alarm Multiplex	15889
Intelligent Network Annunciator (INA)	15092	The XP Series Transponder System	15888
Universal Zone Coder Installation (UZC-256)	15216	Network Adaptor Module (NAM-232)	50038
Product Installation Document (CCM-1)	15328	The UDACT Universal Digital Alarm Communicator/Transmitter	50050
Product Installation Document (MPS-TR)	15331	Video Graphics Annunciator System (VGAS) Installation Manual	50251
Analog Fire Panel (AFP-300/AFP-400)	50253/ 50259/ 50260	FCPS-24/FCPS-24E Field Charger/Power Supply Installation, Operation and Application Manual	50059
Notifier Device Compatibility Document	15378	Media Interface Board (MIB)	50255
Analog Fire Panel (AFP-200)	15511	Repeater (RPT)	50256
ACT-2 Audio Coupling Transformer	51118	<b>NOTI•FIRE•NET™</b>	50257
Network Interface Board (NIB-96)	15666	Telephone/Panel Interface (TPI-232)	50372
Smoke Control Manual	15712	CHG-120 Battery Charger	50641
AM2020/AFP1010 Operator Instructions	15337	MMX-2 Installation Instructions	M500-03-00
Canadian Requirements for the AM2020/AFP1010	15631	Automatic Fire Alarm Warden Station Series Product Installation Drawing	50705
APS-6R Auxiliary Power Supply	50702	VEC 25/50 Voice Evacuation Control Panel	50686
RM-1 Series Microphones	51138	NBG-12LX Pull Station	51093
XP5 Series Transponders	50786		

**Table 1.1 Related Documentation**

## 1.2 Product Features

The NAM-232 is available in either a wire or a fiber version. The following features are included with the NAM-232W:

- Connects AFP-200, AFP-300/AFP-400 or AM2020/AFP1010 Fire Alarm Panels to **NOTI•FIRE•NET™**
- Supports two channels of twisted pair wire medium
- National Fire Protection Association (NFPA) Style 4 (Class B) or Style 7 (Class A) operation
- Selectable earth fault detection per channel
- Provides electrical isolation between nodes
- Diagnostic indicators
- Selectable data thresholds per channel (high or low)
- Built-in repeater function

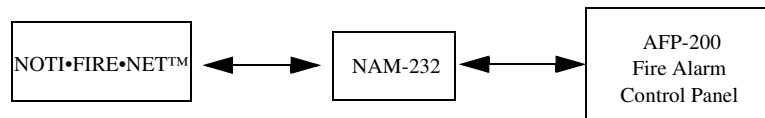
The following features are included with the NAM-232F:

- Connects AFP-200, AFP-300/AFP-400 or AM2020/AFP1010 Fire Alarm Panels to **NOTI•FIRE•NET™**
- Supports two channels of fiber optic cable medium
- NFPA Style 4 (Class B) or Style 7 (Class A) operation
- Diagnostic indicators
- Built-in repeater function
- Fiber type: 62.5/125 micrometers multi-mode
- Wavelength (l): 820 nanometers (use 850 nanometer fiber optic cable)
- Connectors: ST® Style
- Data is immune to all environmental noise
- Optical isolation prevents ground loops

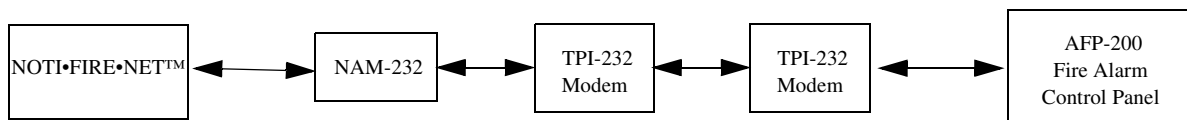
ST® is a registered trademark of AT&T.

## 1.3 Installation

The NAM-232 may be installed locally or remotely. Refer to Figure 1.1 through Figure 1.4 for simplified block diagrams of each type of installation.



**Figure 1.1 Simplified Local Network Connection to AFP-200**



**Figure 1.2 Simplified Remote Network Connection to AFP-200**

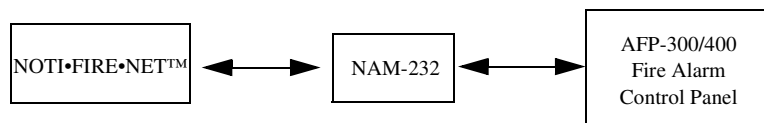


Figure 1.3 Simplified Local Network Connection to AFP-300/AFP-400

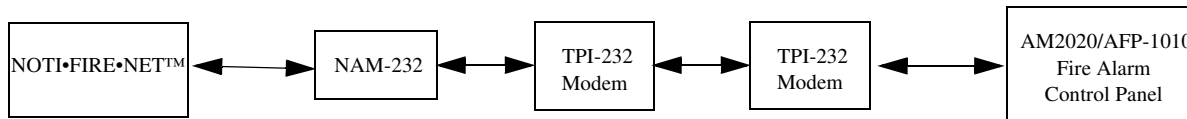


Figure 1.4 Simplified Remote Network Connection to AM2020/AFP1010

## 1.4 Product Description

The following features are supported by the NAM-232:

**Acknowledge** — The NAM-232 automatically acknowledges events at the local panel and transmits signals to the INA/NCS for network operator acknowledgment. This function is inoperative if an INA/NCS is not connected, or if the network is fragmented so that the INA/NCS is disconnected from the NAM-232.

**Signal Silence** — FACP may be silenced locally, or from an INA/NCS.

**Reset** — FACP may be reset locally or from an INA/NCS.

**Network Resound** — All previously silenced devices on the FACP are reactivated when another fire alarm signal is generated by any network node.

**Drill** — Local AFP-200/AFP-300/AFP-400 drill function. An optional network AFP-200/AFP-300/AFP-400 drill function permits the drill switch on any AFP-200/AFP-300/AFP-400 to activate all other networked AFP-200/AFP-300/AFP-400 drill outputs.

**CCBE Zone** — The Cooperative Control By Event (CCBE) zone function consists of zones 01 through 45 on an AFP-200 or zones 1 through 99 on an AFP-300/AFP-400, which may be programmed to activate when a zone on another **NOTI•FIRE•NET™** node is active.

**CCBE Drill** — The Cooperative Control By Event (CCBE) drill function on an AFP-200/AFP-300/AFP-400 may be programmed to activate when a zone on another **NOTI•FIRE•NET™** node is active.

## 1.5 Trouble Conditions/CCBE Messages For AFP-200

The following paragraphs describe the trouble conditions and messages which may display at various times.

1. This message:

TROUBL IN SYSTEM NETWORK FAI LURE  05: 16P WED 04/ 15/ 00
--

will be displayed on the AFP-200 when a break exists in one or more of the following connections and the FACP is configured with a non-zero node address:

- EIA-232 transmit line from the AFP-200 to the NAM-232.
- EIA-232 receive line from the NAM-232 to the AFP-200.
- If TPI-232 is used, may indicate loss of carrier on the leased lines.



- Transmit/receive connection on the NAM-232W to/from **NOTI•FIRE•NET™** on both Port A or Port B.
  - Receive connection from **NOTI•FIRE•NET™** (both Port A and Port B) to the NAM-232F.
2. One of these messages (only when the NAM-232 has been configured for NFPA Style 7 operation or dual port monitoring):

```

TROUBL I N SYSTEM
NETWORK FAI L PORT A

05: 16P WED 04/ 15/ 00

```

```

TROUBL I N SYSTEM
NETWORK FAI L PORT B

05: 16P WED 04/ 15/ 00

```

will be displayed on the AFP-200 when a break exists in the following connection:

- Transmit/receive connection from **NOTI•FIRE•NET™** to the NAM-232W on Port A or Port B, respectively.
  - Receive connection from **NOTI•FIRE•NET™** to the NAM-232F on Port A or Port B, respectively.
3. This message:

```

ACTI VE BY NETWORK
ZONE NUMBER NN

05: 16P WED 04/ 15/ 00

```

where NN is a zone number (01 through 45); will be displayed on the AFP-200 whenever a local zone is activated by CCBE.

4. This message:

```

MANUAL EVACUATE

05: 16P WED 04/ 15/ 00

```

will be displayed on the AFP-200 whenever the drill function is activated by CCBE or via the front keyboard.

5. If the AFP-200 recognizes that the connected NAM-232 has a different node address, the following message will be displayed:

```

TROUBL I N SYSTEM
NAM CCBE PROG LOST

05: 16P WED 04/ 15/ 00

```

Both the AFP-200 and the NAM-232 store the network node address. Ordinarily, these numbers match since they are programmed simultaneously. However, if later a NAM-232 with a different node number is connected to the AFP-200, the CCBE equations and threshold settings associated with the AFP-200 node address will not be available. When it is used with an AFP-200, the NAM-232 stores CCBE and threshold data which is accessed by a node address. To prevent improper network operation, the NAM-232 will erase all CCBE information when connected to an AFP-200 that has a different node address. Use care to ensure that the NAM-232 is not separated from the matching AFP-200 panel during service and maintenance operations.

To clear the mis-match trouble message, first program the AFP-200 to a new (undesired) node number. Then program the AFP-200 to the actual (desired) node number and enter the CCBE data.

## 1.6 Trouble Conditions/CCBE Messages for AFP-300/AFP-400

The following paragraphs describe the trouble conditions and messages which may display at various times.

1. This message:

TROUBL I N SYSTEM NETWORK FAI LURE 05: 16P WED 04/ 15/ 00
--

will be displayed on the AFP-300/AFP-400 when a break exists in one or more of the following connections and the FACP is configured with a non-zero node address:

- EIA-232 transmit line from the AFP-300/AFP-400 to the NAM-232.
  - EIA-232 receive line from the NAM-232 to the AFP-300/AFP-400.
  - If TPI-232 is used, may indicate loss of carrier on the leased lines.
  - Transmit/receive connection on the NAM-232W to/from **NOTI•FIRE•NET™** on both Port A or Port B.
  - Receive connection from **NOTI•FIRE•NET™** (both Port A and Port B) to the NAM-232F.
2. One of these messages (only when the NAM-232 has been configured for NFPA Style 7 operation or dual port monitoring):

TROUBL I N SYSTEM NETWORK FAI L PORT A 05: 16P WED 04/ 15/ 00
--

TROUBL I N SYSTEM NETWORK FAI L PORT B 05: 16P WED 04/ 15/ 00
--

will be displayed on the AFP-300/AFP-400 when a break exists in the following connection:

- Transmit/receive connection from **NOTI•FIRE•NET™** to the NAM-232 on Port A or Port B, respectively.
  - Receive connection from **NOTI•FIRE•NET™** to the NAM-232F on Port A or Port B, respectively.
3. This message:

ON SOFTWARE ZONE << ZONE LABEL >> NnnnZzzz ZNN
---

where NN is a zone number (01 through 99), Nnnn is a node number (1 through 249), and Zzzz is a network zone number (1-240); will be displayed on the AFP-300/AFP-400 whenever a local zone is activated by CCBE.

4. This message:

MANUAL EVACUATE 05: 16P WED 04/ 15/ 00
---

will be displayed on the AFP-300/AFP-400 whenever the drill function is activated by CCBE or via the front keypad.

## 1.7 Limitations of the AM2020/AFP1010 with a (NAM-232)

The AM2020/AFP1010 occupies a single node address on the network. This configuration has limited capability. Functions are limited to the display of signals at an INA or NCS, network acknowledge, signal silence, and reset functions. Other features such as cooperative-control-by-event, read status, alter status, etc. are not supported in this configuration.

## 1.8 Trouble Conditions/Messages for AM2020/AFP1010

The following paragraphs describe the trouble conditions and messages which may display at various times on the AM2020/AFP1010.

1. This message:

TROUBL	NAM	COMMUNI	CATI	ONS	FAULT
				02: 56P	09/ 10/ 00 TC9

will be displayed on the AM2020/AFP1010 when a break exists in one or more of the following connections and the FACP is configured with a non-zero address:

- EIA-232 transmit or receive line between the AM2020/AFP1010 and a TPI-232 modem.
  - EIA-232 transmit or receive line between the NAM-232 and a TPI-232 modem.
  - The telephone line connection between two TPI-232 modems.
  - Transmit/receive connection on the NAM-232W to/from **NOTI• FIRE• NET™**.
  - Receive connection from **NOTI• FIRE• NET™** (both Port A and Port B) to the NAM-232F.
2. These messages (only when the NAM-232 has been configured for NFPA Style 7 operation or dual port monitoring):

TROUBL	NETWORK	COMMUNI	CATI	ON	LINK	FAI L
PORT A				02: 56P	09/ 10/ 00	TDA

TROUBL	NETWORK	COMMUNI	CATI	ON	LINK	FAI L
PORT B				02: 56P	09/ 10/ 00	TDA

will be displayed on the AM2020/AFP1010 when a break exists in one or more of the following connections:

- Transmit/receive connection from **NOTI• FIRE• NET™** to the NAM-232W on either Port A or Port B.
- Receive connection from **NOTI• FIRE• NET™** to the NAM-232F on either Port A or Port B.

## 1.9 Diagnostic Indicators

The NAM-232 has diagnostic indicators which aid in troubleshooting and assist the installer in connecting the system. Refer to Table 1.2 for a list of diagnostic indicators and their descriptions.

LED		
Indicator	Color	Description
RECON	Yellow	This LED should remain off at all times when the network is operating properly. If it illuminates periodically, check the network media and thresholds using the MET-1 (Media Evaluation Tool).
STATB	Yellow	Illuminates when the NAM-232 is not receiving valid data from <b>NOTI•FIRE•NET™</b> on Port B.
RCVDB	Green	Illuminates when the NAM-232 is receiving data from <b>NOTI•FIRE•NET™</b> on Channel B.
B HI	Green	Illuminates to indicate the NAM-232W Channel B is set for high threshold (N/A on NAM-232F).
A HI	Green	Illuminates to indicate the NAM-232W Channel A is set for high threshold (N/A on NAM-232F).
RCVDA	Green	Illuminates when the NAM-232 is receiving data from <b>NOTI•FIRE•NET™</b> on Channel A.
STATA	Yellow	Illuminates when the NAM-232 is not receiving valid data from <b>NOTI•FIRE•NET™</b> on Port A.
PULSE	Green	Illuminates when the NAM-232 is transmitting data to <b>NOTI•FIRE•NET™</b>
TROUBLE	Yellow	Indicates that the NAM-232 is not functioning.
TXD	Green	Indicates when the NAM-232 is transmitting data to the FACP.
RXD	Green	Indicates when the NAM-232 is receiving data from the FACP.

**Table 1.2 Identifying Indicators**

## 1.10 Configuration Switches

The NAM-232 must be configured using the switches detailed in Table 1.3 (refer to Figure 1.5 and Figure 1.6).

SWITCH	FUNCTION
SW1-1	<p><b>NETWORK DRILL</b></p> <p>OFF: pressing and holding the drill button on the local AFP-200/AFP-300/AFP-400 only activates outputs on that specific AFP-200/AFP-300/AFP-400. The local AFP-200/AFP-300/AFP-400 outputs are not activated by performing the drill function on other network panels.</p> <p>ON: pressing and holding the drill button on the local AFP-200/AFP-300/AFP-400 activates outputs on all AFP-200/AFP-300/AFP-400 network panels which also have SW1-1 set to the on position. The local AFP-200/AFP-300/AFP-400 outputs are activated by performing the function on other network panels.</p>
SW1-2	<p><b>DUAL PORT MONITORING</b></p> <p>OFF: configures the respective node for NFPA style 4 (refer to Note 1) operation (dual port monitoring off, refer to Note 2).</p> <p>ON: configures the respective node for NFPA style 7 (refer to Note 1) operation (dual port monitoring on, refer to Note 2).</p>
SW1-3	<p>OFF: The NAM-232 is connected to an AFP-200 or AM2020/AFP1010.</p> <p>ON: The NAM-232 is connected to an AFP-300/AFP-400.</p>
SW1-4 through SW1-6	Reserved for future use.
SW1-7	<p>This switch sets the threshold for Channel A on NAM-232W when connected to AM2020/AFP1010 only. (OFF=High, ON=Low) SW1-7 serves no purpose to NAM-232F.</p>
SW1-8	<p>This switch sets the threshold for Channel B on NAM-232W when connected to AM2020/AFP1010 only. (OFF=High, ON=Low) SW1-8 serves no purpose to NAM-232F.</p>
SW2 (NAM-232W only)	Channel A Earth Fault Enable: Place SW2 as in Figure 1.5 to enable earth fault detection feed through on Network Channel A. Move SW2 as in Figure 1.5 to disable earth fault detection feed through (refer to Note 3).
SW3 (NAM-232W only)	Channel B Earth Fault Enable: Place SW3 as in Figure 1.5 to enable earth fault detection feed through on Network Channel B. Move SW3 as in Figure 1.5 to disable earth fault detection feed through (refer to Note 3).
NOTES	<p>(1) In a Style 7 system, all nodes must be configured identically. Style 4 or style 7 are activated for the respective node, not the entire network.</p> <p>(2) Dual port monitoring will be automatically activated by the NAM-232 if data is received on both Port A and Port B anytime after power is applied to the NAM-232. If dual port monitoring is not desired connect only one NAM-232 port to the network, set this switch to the off position, and cycle power to the NAM-232.</p> <p>(3) When earth fault detection feed through has been enabled, an earth fault on the network wiring connected to the NAM-232W results in ground fault messages on the local node and INA/NCS. Refer to the <b>NOTI•FIRE•NET™</b> manual for proper application of this feature.</p>

**Table 1.3 Configuration Switches**

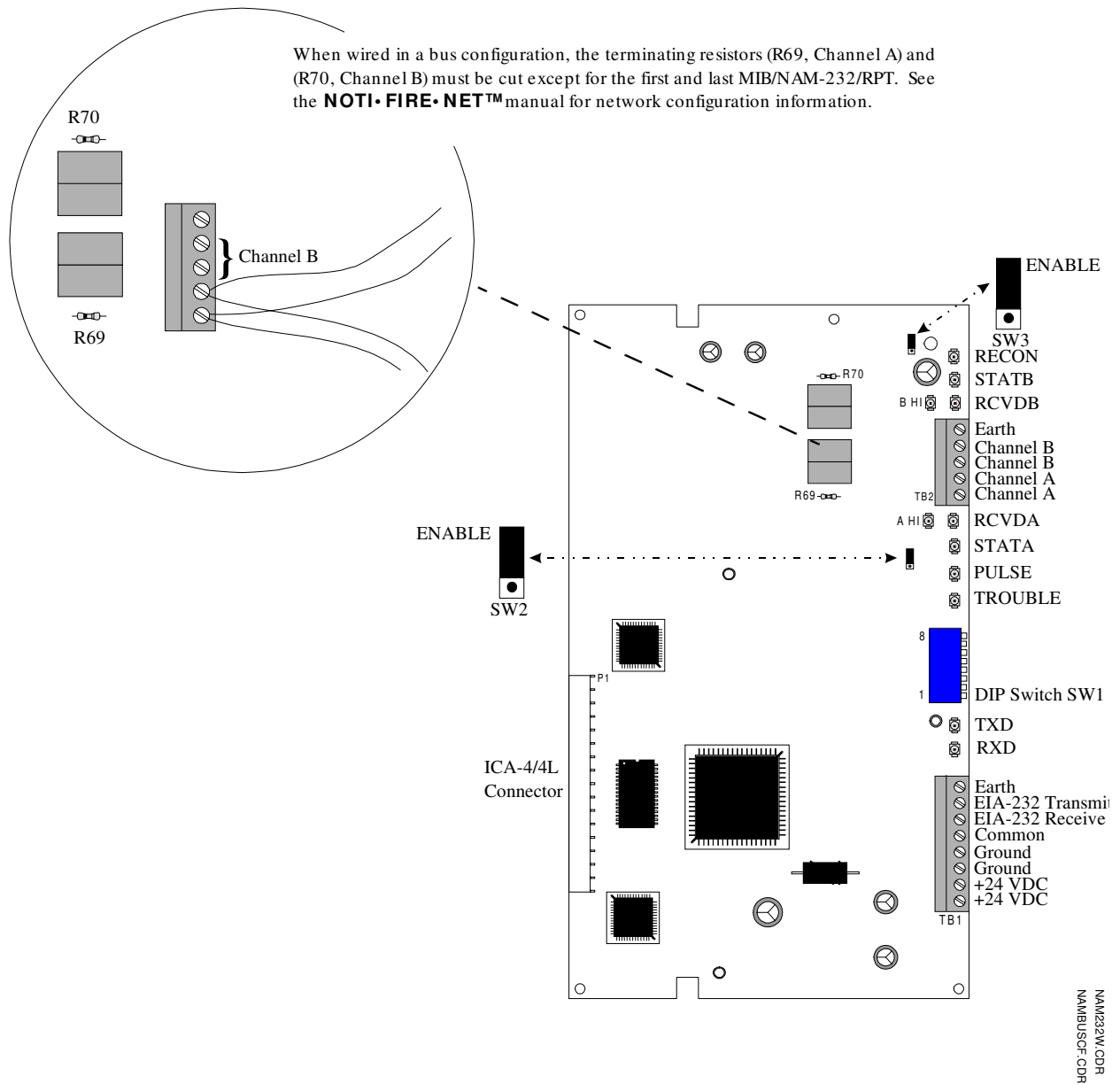


Figure 1.5 Network Adaptor Module-Wire (NAM-232W)

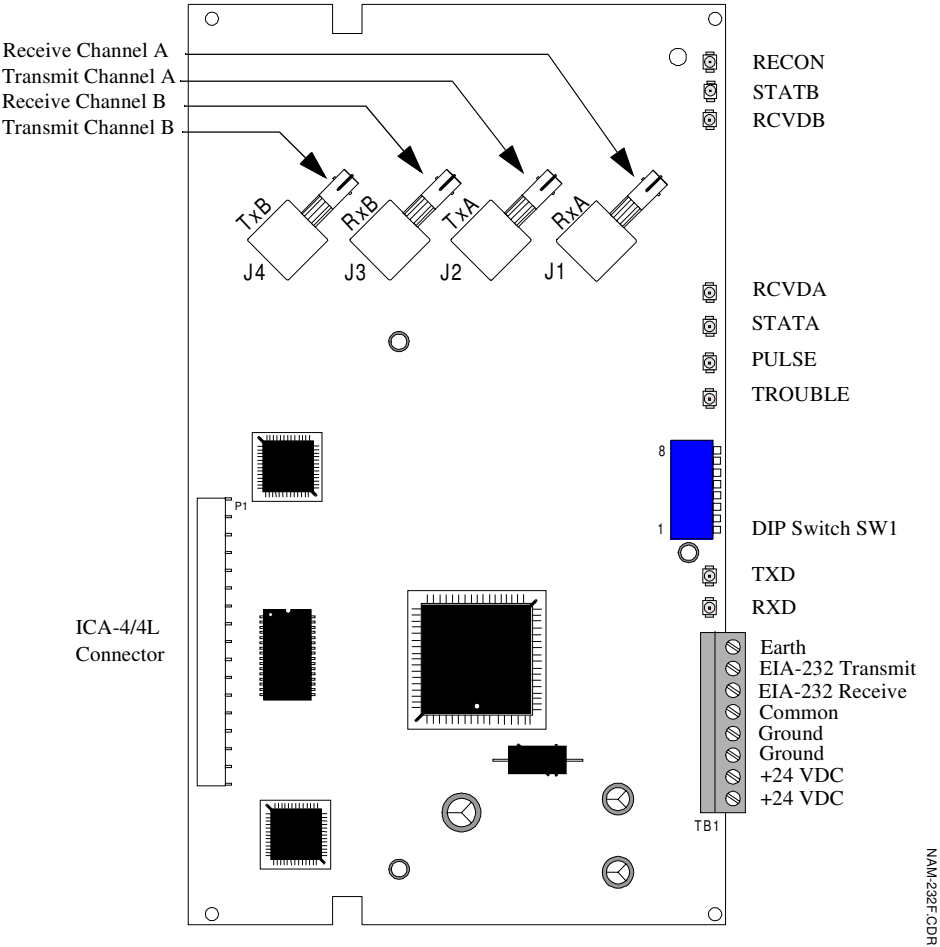


Figure 1.6 Network Adaptor Module-Fiber (NAM-232F)

## Section 2 Installing the NAM-232

The NAM-232 may be mounted in the following locations:

- In the AFP-200 cabinet, behind the motherboard (NIB-96 cannot be present).
- In a CAB-3 series cabinet mounted to one of the following chassis:
- ICA-4/4L Interconnect Chassis Assembly.
- CHS-4 standard four position chassis.

### 2.1 Installing the NAM-232 in an AFP-200 Cabinet

It is recommended that the NAM-232 be installed in the AFP-200 cabinet. When the NAM-232 is installed in the AFP-200 cabinet, the EIA-232 serial connection from the NAM-232 to the AFP-200 motherboard may be easily made without concern of exceeding the 50 feet (15.24 m) maximum wiring distance. The following options are acceptable when installing the NAM-232 in the AFP-200 cabinet:

#### Option 1:

The AFP-200 motherboard must first be removed and set aside while the NAM-232 is mounted in the rear of the cabinet. The NAM-232 is mounted to the four PEM studs in the cabinet using the holes indicated in Figure 2.1. The AFP-200 motherboard may then be replaced and fastened using the four mounting screws.

**Note:** Four # 4-40 hex nuts and standoffs must be assembled prior to installing the backbox into the wall.

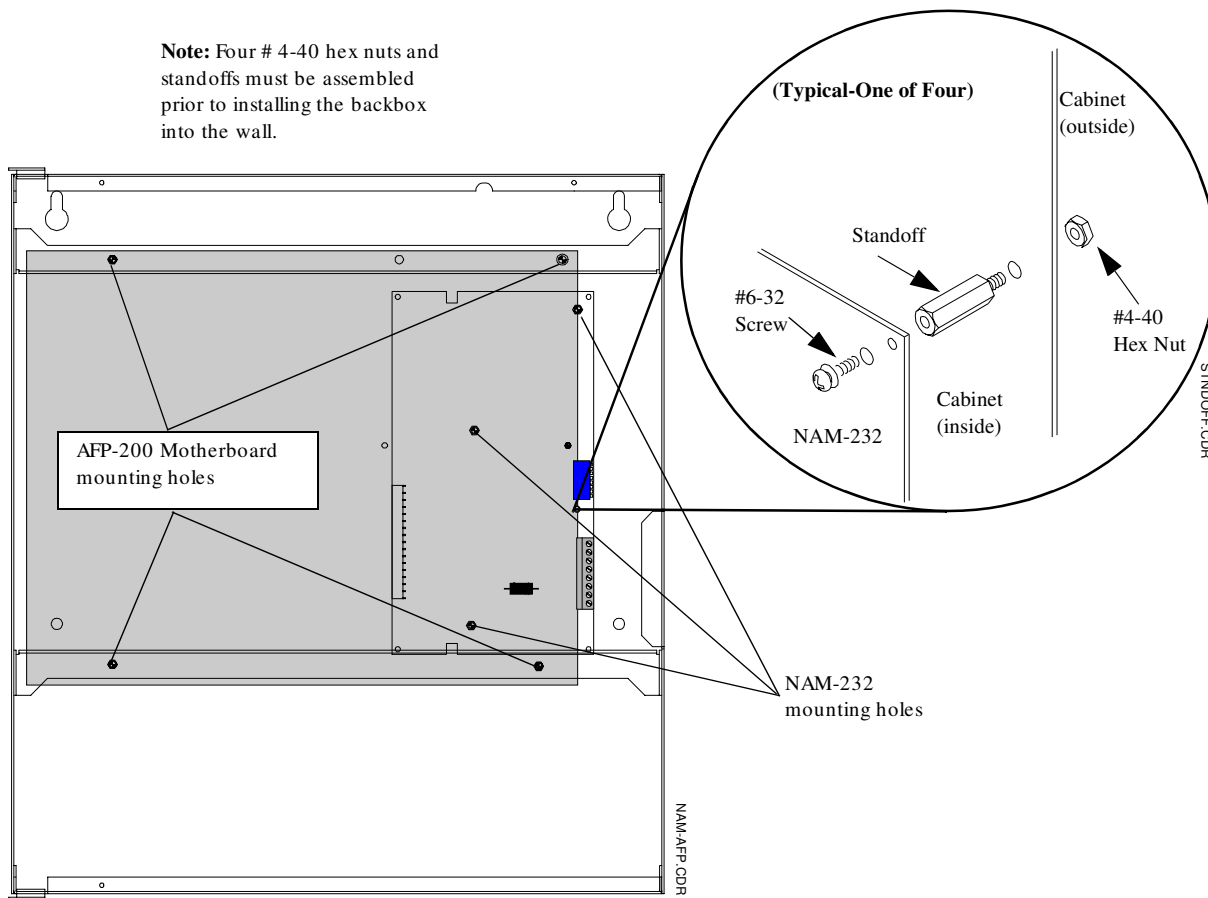
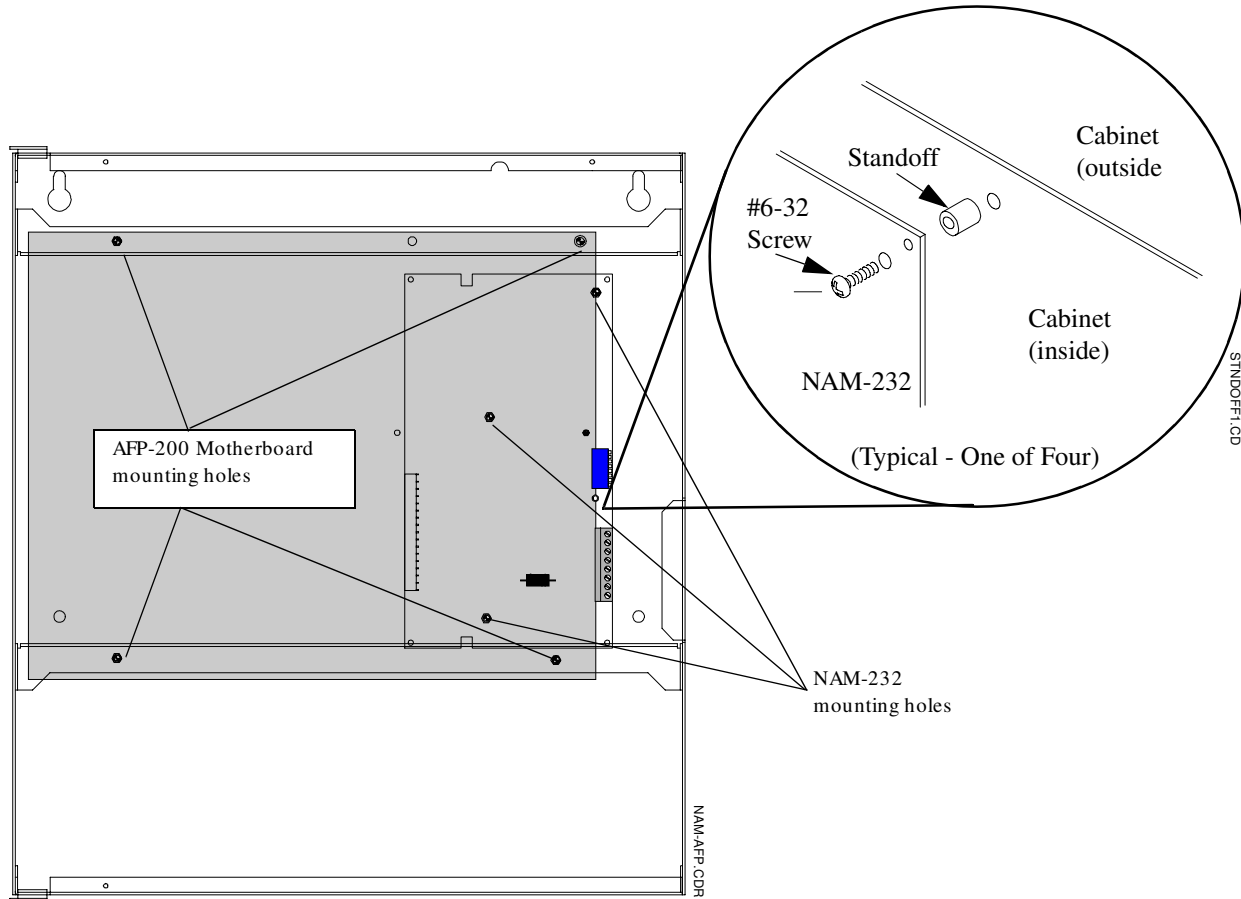


Figure 2.1 Removing the AFP-200 Motherboard to Mount the NAM-232



**Option 2:**

When using the self-tapping sheet metal screws provided, it is not necessary to remove the AFP-200 cabinet to mount the NAM-232. The AFP-200 Motherboard must first be removed and set aside while the NAM-232 is mounted on the four standoffs in the cabinet using the holes and screw indicated in Figure 2.2. The AFP-200 Motherboard may then be replaced and fastened using the four mounting screws.



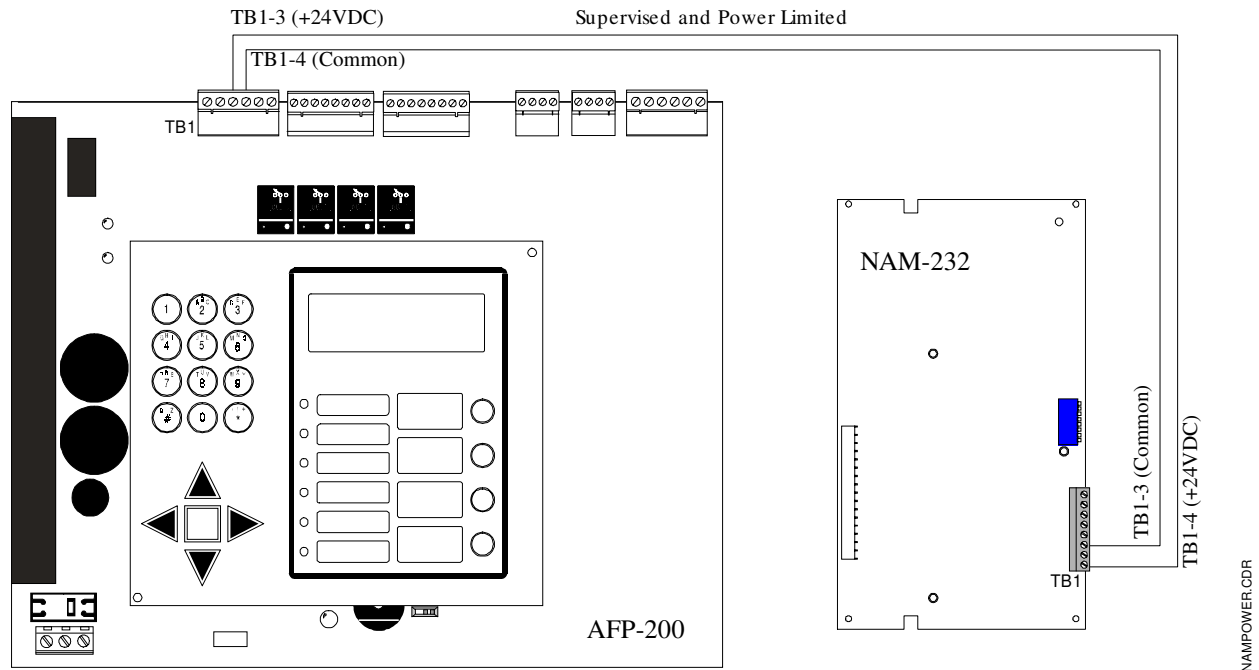
**Figure 2.2 Mounting the NAM-232 Without Removing the AFP-200 Cabinet**

## 2.2 Powering the NAM-232 From the AFP-200

When the NAM-232 is mounted in the AFP-200 cabinet, power must be wired from the AFP-200 motherboard to the NAM-232 (refer to Table 2.1). Refer to Figure 9 for a wiring diagram which details this connection.

Power	NAM-232	AFP-200
<b>+24 VDC</b>	TB1 terminal 1	TB1 terminal 3
<b>Common</b>	TB1 terminal 3	TB1 terminal 4
<b>NOTE:</b>	The current draw for the NAM-232W is 58 mA. The current draw for the NAM-232F is 55 mA.	

**Table 2.1 Powering From the AFP-200**



**Figure 2.3 Powering the NAM-232 From the AFP-200**

Refer to the section, *Powering the NAM-232 From the MPS-24A or MPS-24AE Main Power Supply*, for information on powering the NAM-232 when used with the AM2020/AFP1010.

## 2.3 Installing the NAM-232 in the AFP-300/AFP-400

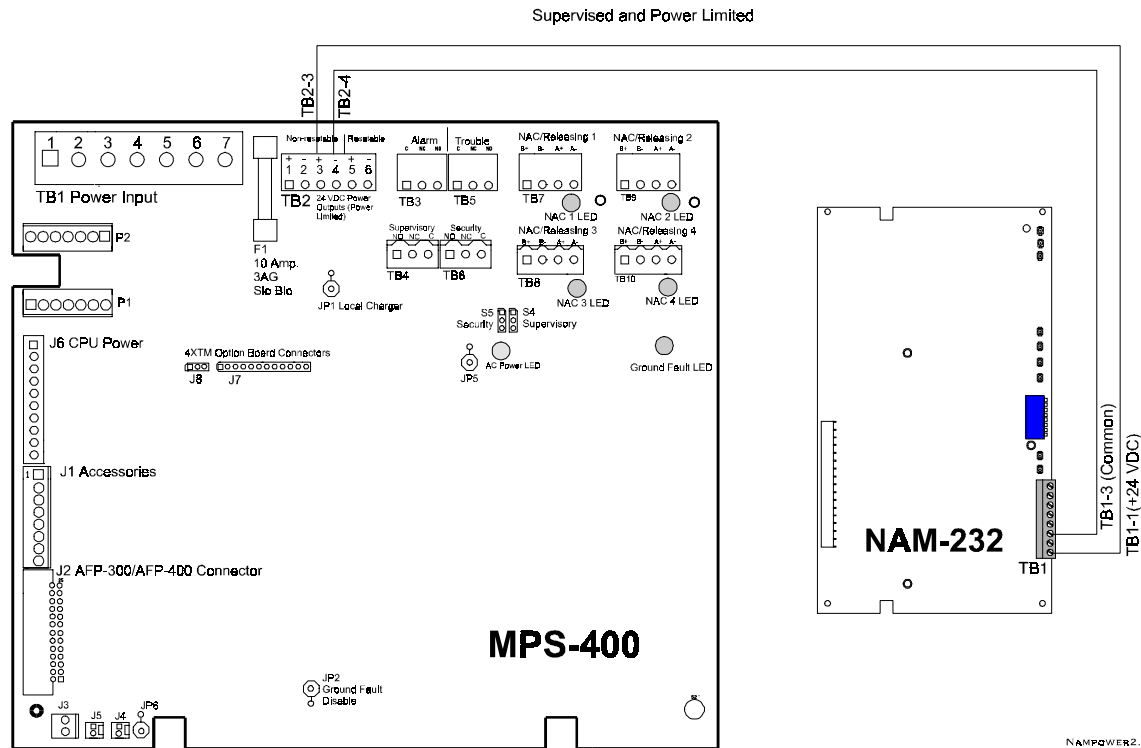
The NAM-232 is installed in the AFP-300/AFP-400 mounted in a CHS-4 chassis. Refer to Figure 2.5, for chassis installation.

## 2.4 Powering the NAM-232 From the MPS-400 Power Supply

When the NAM-232 is mounted in an AFP-300/AFP-400 cabinet, power must be wired from the MPS-400 to the NAM-232 (refer to Table 2.2). Refer to Figure 2.4 for a wiring diagram which details this connection.

Power	NAM-232	AFP-300/AFP-400
<b>+24 VDC</b>	TB1 terminal 1	TB2 terminal 3
<b>Common</b>	TB1 terminal 3	TB2 terminal 4
<b>NOTE:</b>	The current draw for the NAM-232W is 58 mA. The current draw for the NAM-232F is 55 mA.	

**Table 2.2 Powering From the MPS-400**

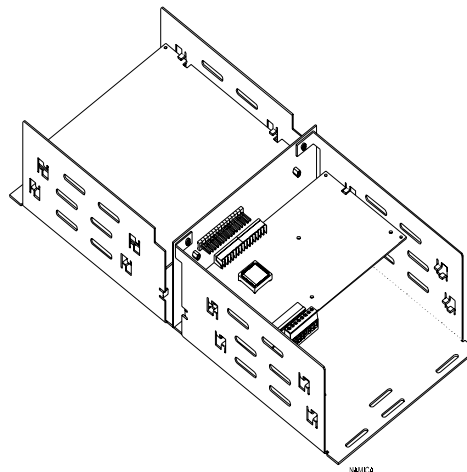


### Figure 2.4 Powering the NAM-232 From the MPS-400

## 2.5 Installing the NAM-232 in an ICA-4/4L Chassis

The NAM-232 may be installed in an ICA-4/4L chassis. When this configuration is used, it is important that the maximum wiring distance of 50 feet (15.24 m) for the EIA-232 serial communications loop not be exceeded (in many cases, TPI-232 modems may be used to extend this distance). This EIA-232 serial communications loop is used to connect the AFP-200/AFP-300/AFP-400/AM2020/AFP1010 to the NAM-232.

The NAM-232 mounts in a similar manner as the LIB, CPU, and SIB (refer to Figure 1). Align the cutouts in the NAM-232 board with the tabs of the ICA-4/4L chassis and slide the NAM-232 into position until the male pins of the interconnect chassis board are engaged. When the NAM-232 is installed in the ICA-4/4L, power is delivered to the NAM-232 through the male pins of the interconnect chassis board. Separate power does not have to be wired to the NAM-232.



### Figure 1 Mounting the NAM-232 in an ICA-4/4L Chassis

## 2.6 Installing the NAM-232 in a CHS-4 Chassis

The NAM-232 may be installed in an CHS-4 chassis (refer to Figure 2.5). When this configuration is used, it is important that the maximum wiring distance of 50 feet (15.24 m) for the EIA-232 serial communications loop not be exceeded (in many cases, TPI-232 modems may be used to extend this distance). This EIA-232 serial communications loop is used to connect the AFP-200/AFP-300/AFP-400/AM2020/AFP1010 to the NAM-232.

The NAM-232 may be mounted in either the left or right-hand position of a CHS-4. The NAM-232 is mounted by using four PEM studs on the CHS-4 chassis. The necessary mounting hardware is included with the NAM-232.

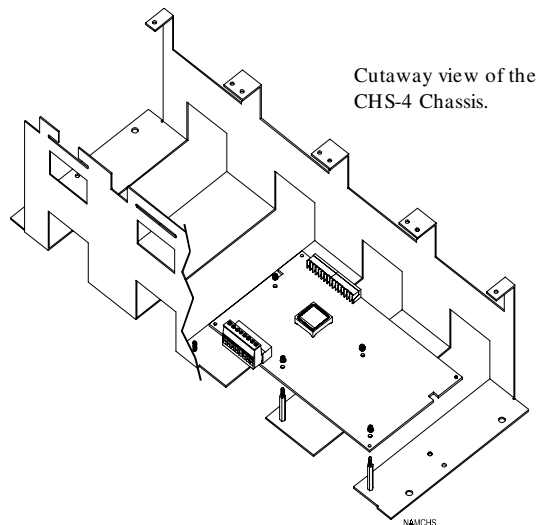


Figure 2.5 Mounting the NAM-232 in the CHS-4 Chassis

## 2.7 Powering the NAM-232 From the MPS-24A or MPS-24AE Main Power Supply

The NAM-232 may be powered from the MPS-24A Main Power Supply. The power should be connected according to Table 2.3. When the NAM-232 is installed in an ICA-4L chassis, power is supplied through the chassis and the connections shown in Table 2.3 are not required.

POWER	NAM-232	MPS-24A or MPS-24AE
+24 VDC	TB1 terminal 1	TB3 terminal 3
Common	TB1 terminal 3	TB3 terminal 4
NOTE:	The current draw for the NAM-232W is 58 mA. The current draw for the NAM-232F is 55 mA.	

Table 2.3 Powering From the MPS-24A or MPS-24AE

## 2.8 NAM-232 Connections

Figure 2.6 through Figure 2.15 depict the point-to-point connections between NAM-232s in combination with other NAM-232s, MIBs and RPTs. When using twisted-pair wiring, polarity need not be observed.

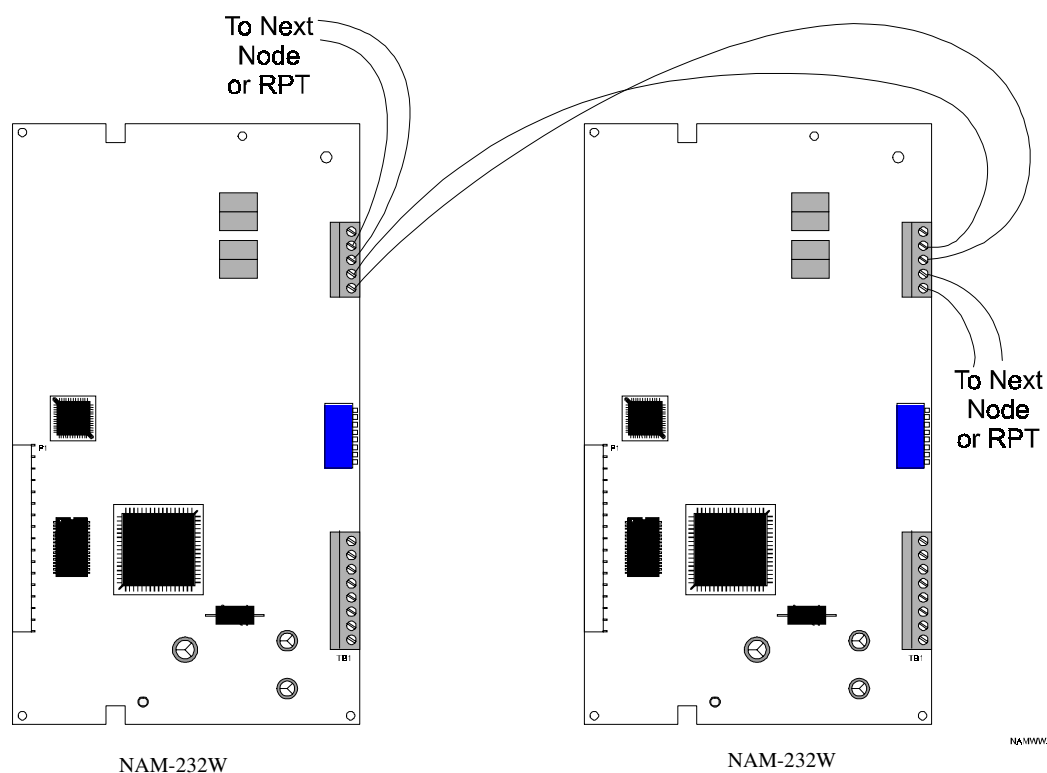


Figure 2.6 NAM-232W to NAM-232W

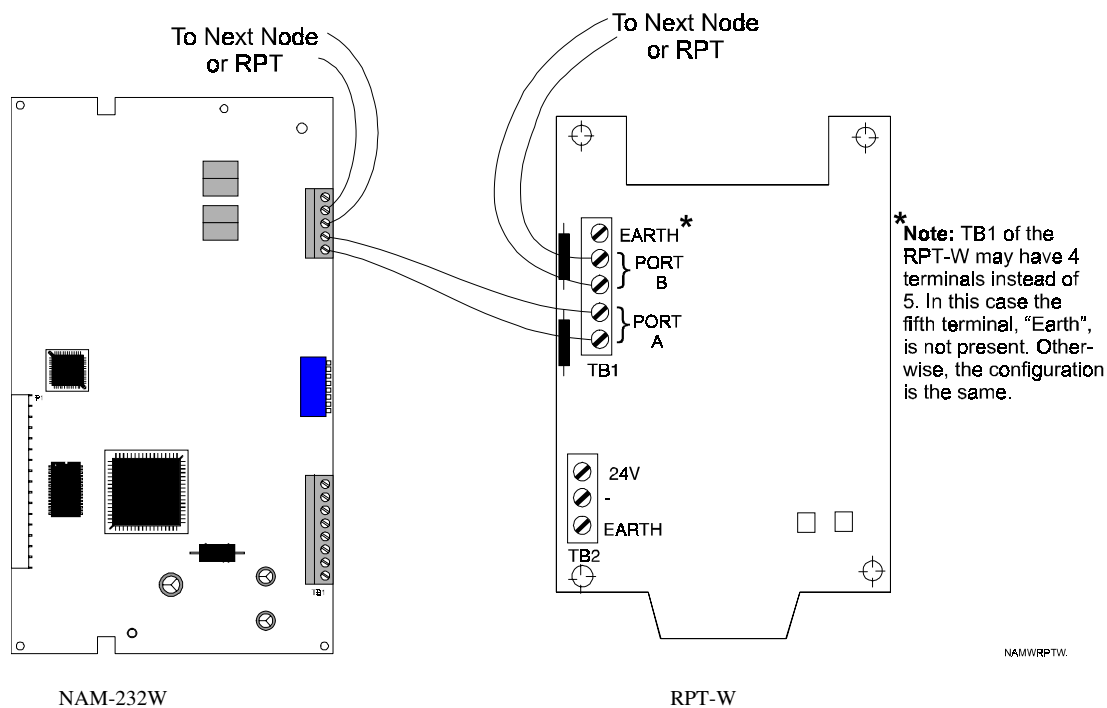


Figure 2.7 NAM-232W to RPT-W Connections

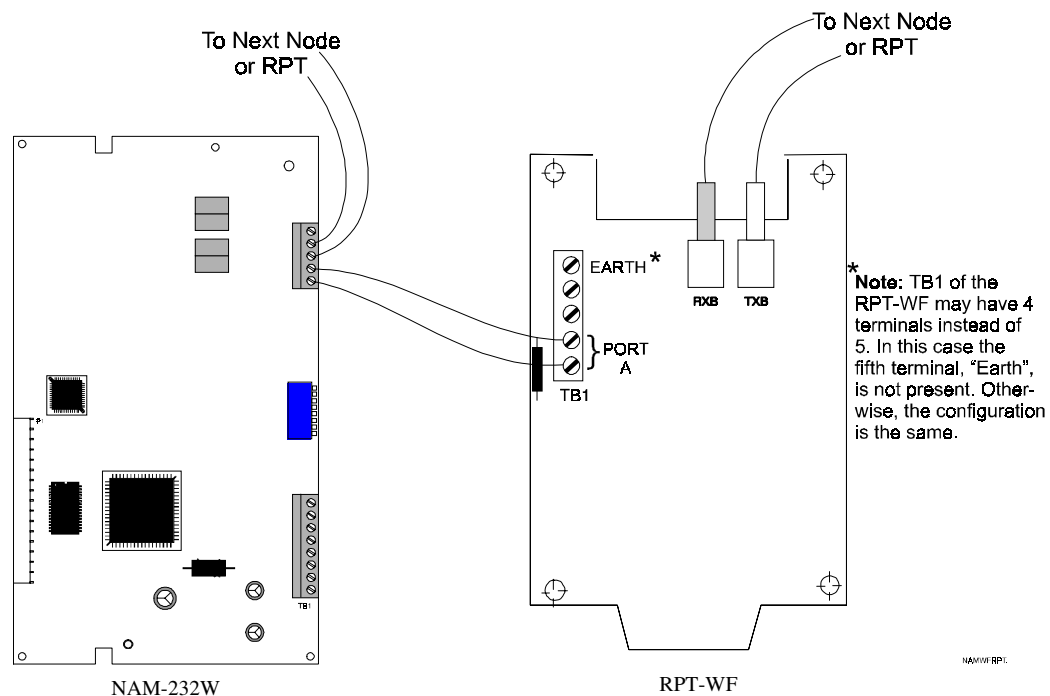


Figure 2.8 NAM-232W to RPT-WF Connections

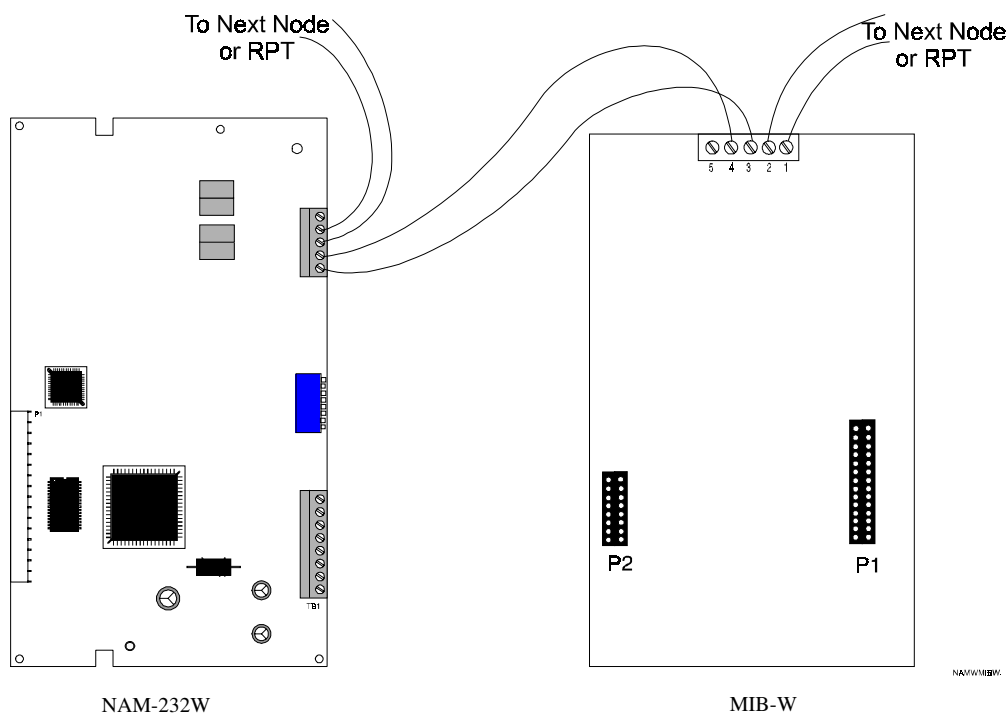


Figure 2.9 NAM-232W to MIB-W

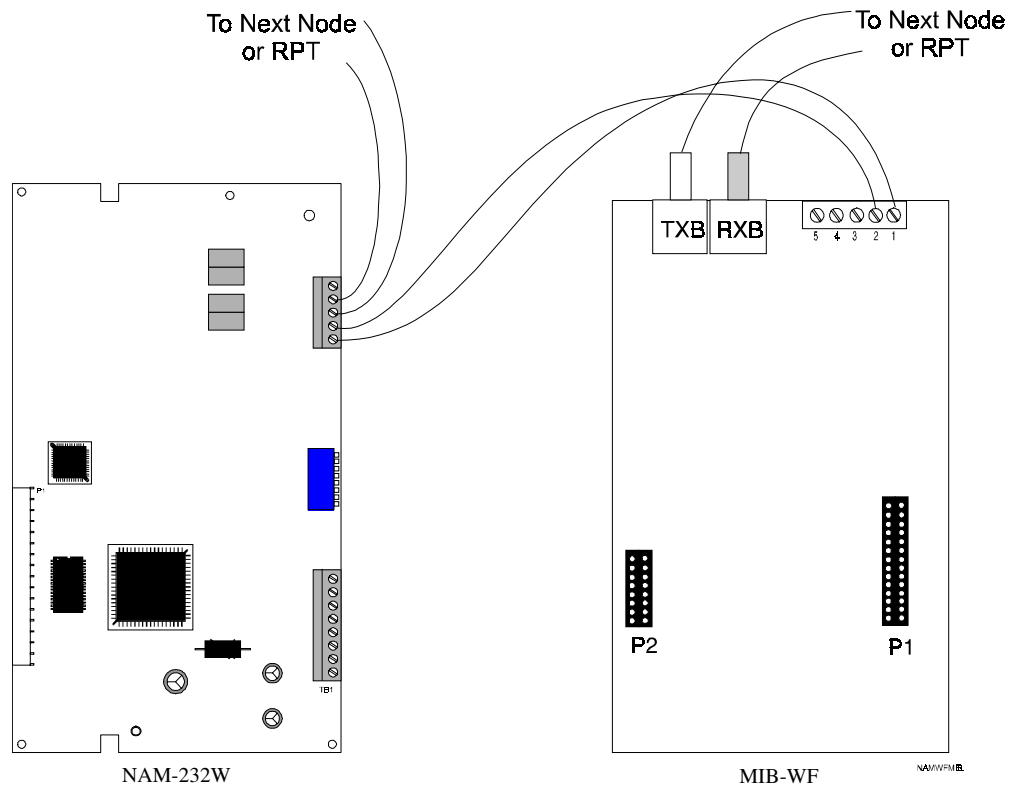


Figure 2.10 NAM-232W to MIB-WF Connections

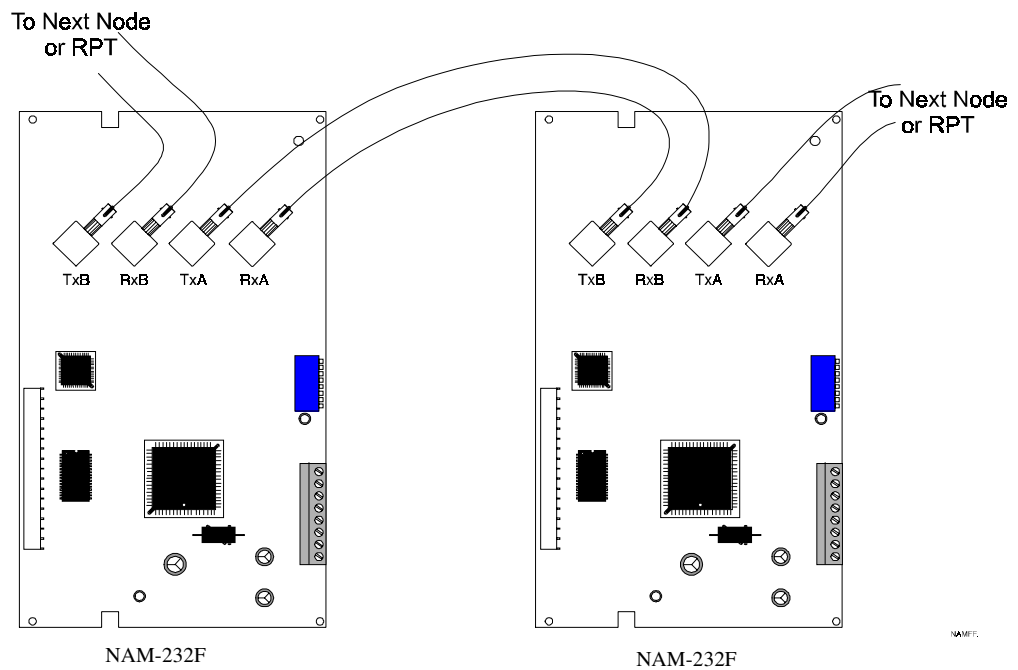


Figure 2.11 NAM-232F to NAM-232F Connections

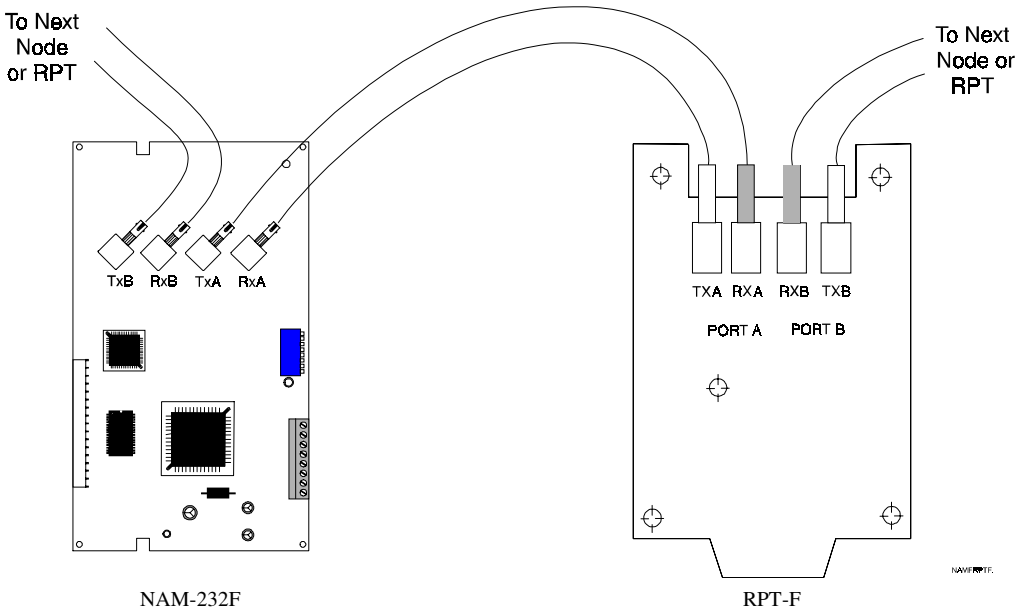


Figure 2.12 NAM-232F to RPT-F

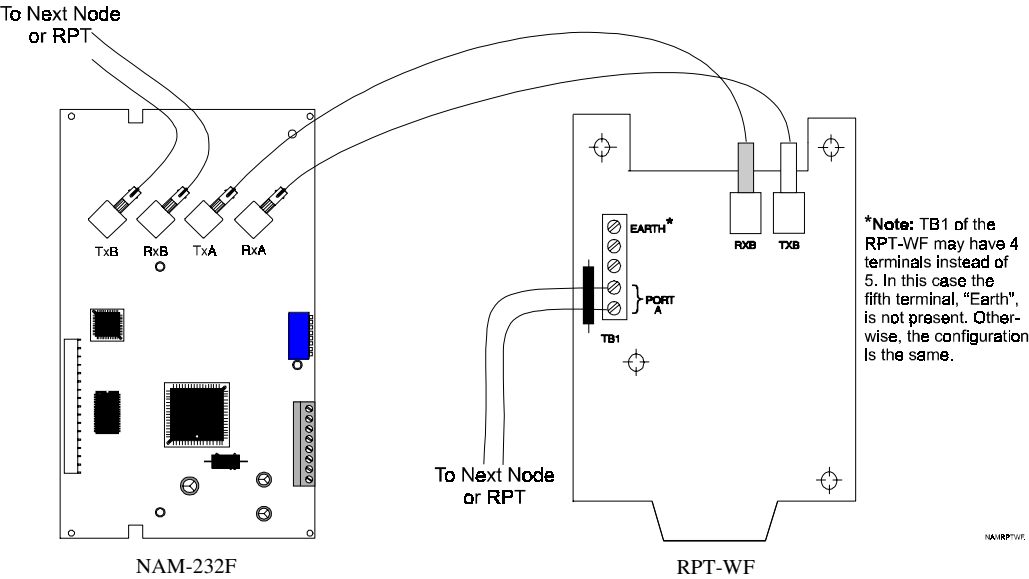


Figure 2.13 NAM-232F to RPT-WF Connections



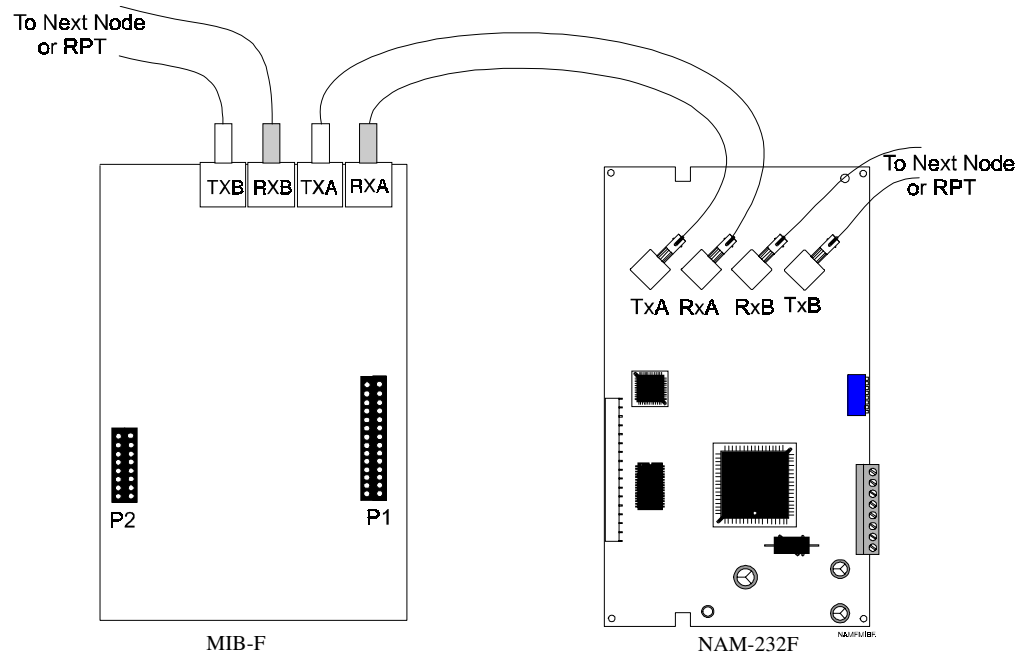


Figure 2.14 NAM-232F to MIB-F

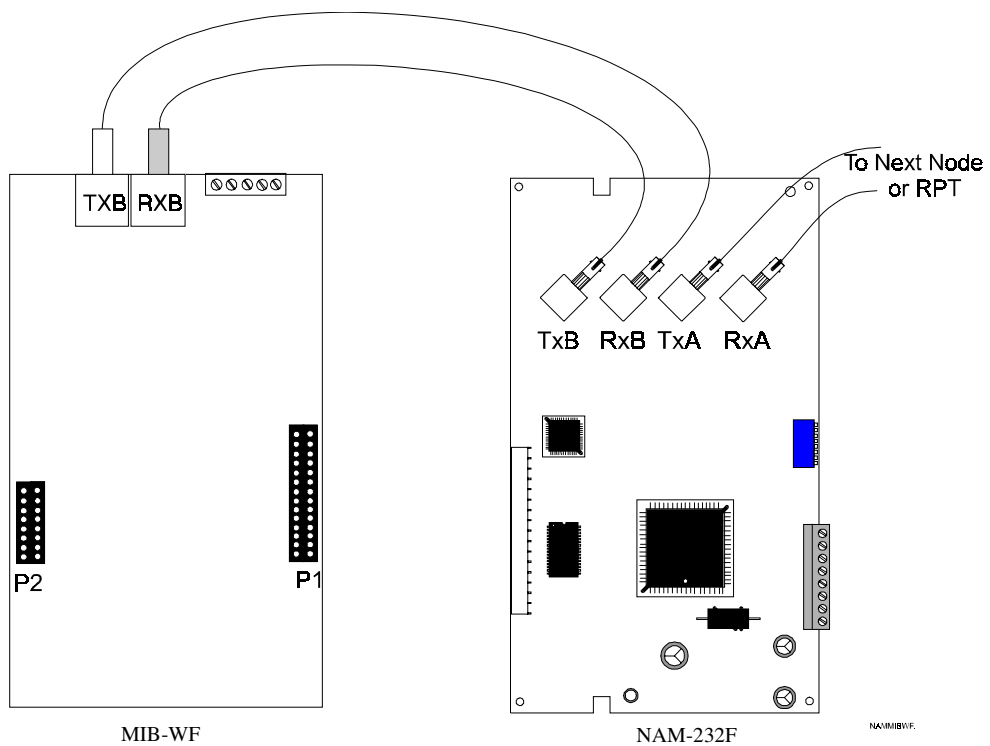


Figure 2.15 NAM-232F to MIB-WF Connections

## 2.9 Connecting the NAM-232 to an AFP-200

The EIA-232 serial communications interface of the AFP-200 must be wired to a NAM-232 (refer to Table 2.4), to communicate with other nodes in a **NOTI•FIRE•NET™** system.



Note: When the EIA-232 connection exceeds 50 feet (15.24 m), TPI-232 modems must be used. Refer to the Telephone/ Panel Interface (TPI-232) manual.

The use of a printer or CRT in the AFP-200 is not permitted when the NAM-232 is present.

AFP-200	NAM-232
TB4 terminal 1 EIA-232 Transmit	TB1 terminal 6 EIA-232 Receive
TB4 terminal 2 Reference	TB1 terminal 5 Reference
TB4 terminal 3 EIA-232 Receive	TB1 terminal 7 EIA-232 Transmit

Table 2.4 EIA-232 Serial Connections

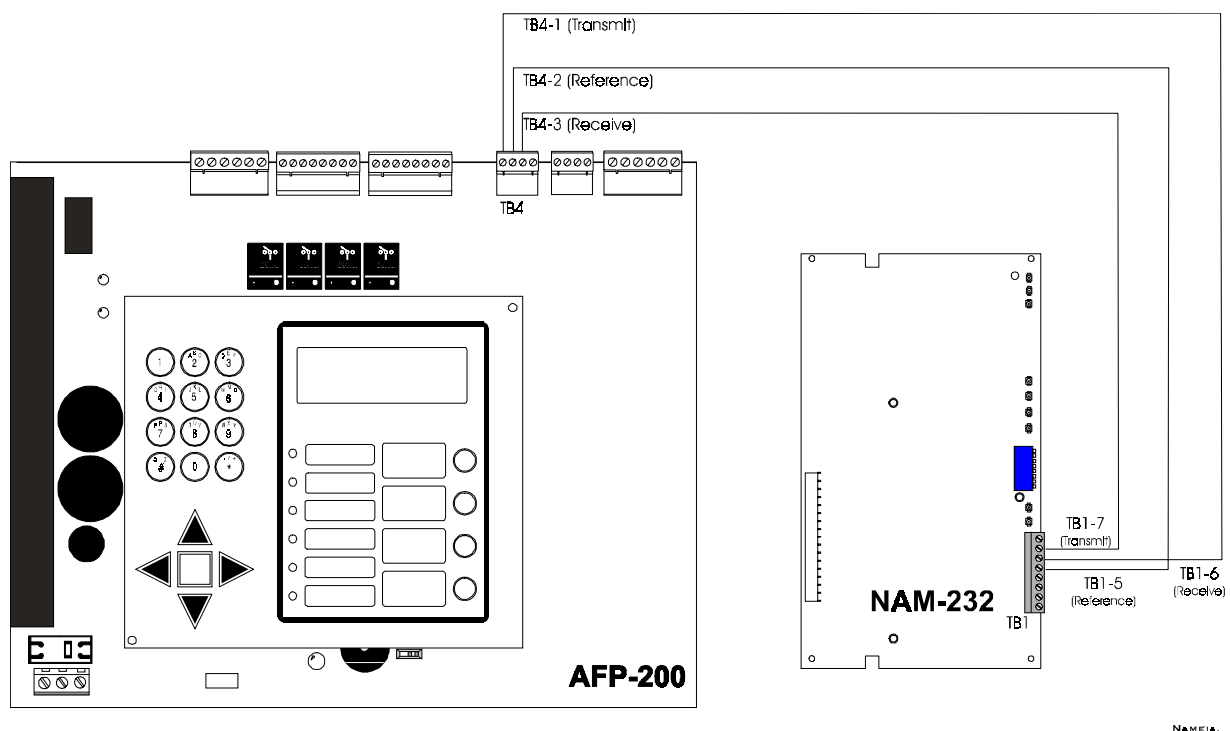


Figure 2.16 Connecting the EIA-232 Interface to the AFP-200

## 2.10 Connecting the NAM-232 to an AFP-300/AFP-400

The EIA-232 serial communications interface of the AFP-300/AFP-400 must be wired to a NAM-232 (refer to Table 2.5), to communicate with other nodes in a **NOTI•FIRE•NET™** system.



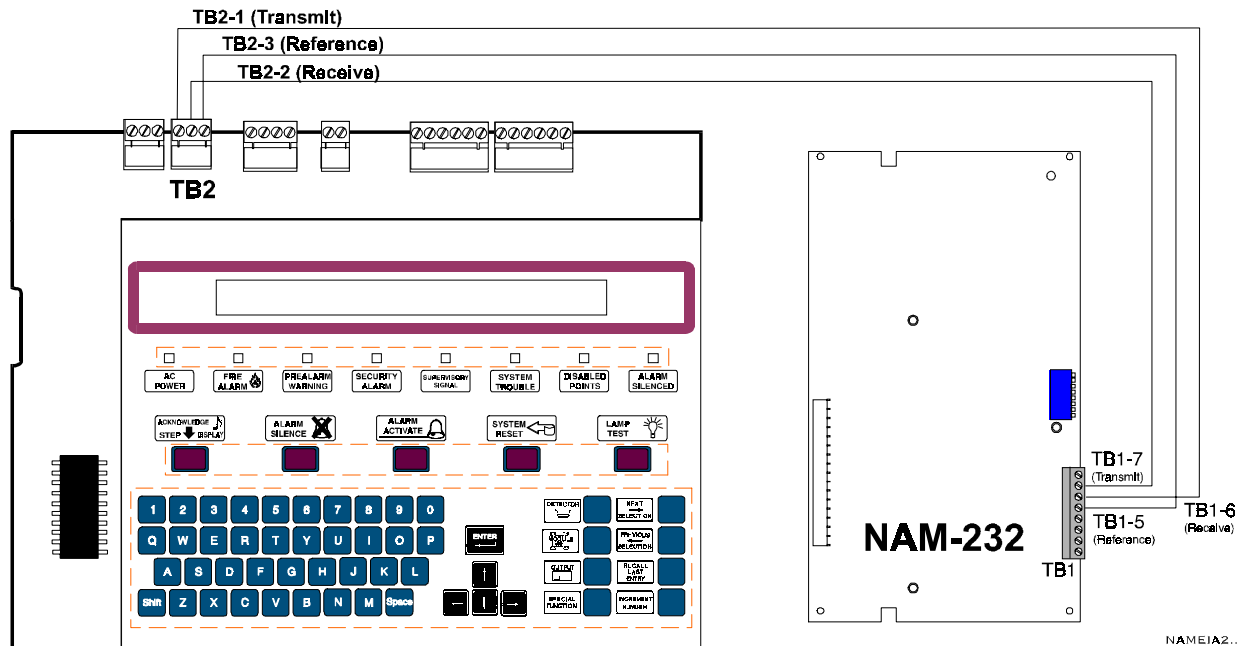
Note: When the EIA-232 connection exceeds 50 feet (15.24 m), TPI-232 modems must be used. Refer to the Telephone/Panel Interface (TPI-232) manual.

AFP-300/AFP-400	NAM-232
TB2 terminal 1 EIA-232 Transmit	TB1 terminal 6 EIA-232 Receive
TB2 terminal 2 EIA-232 Receive	TB1 terminal 7 EIA-232 Transmit
TB2 terminal 3 EIA-232 Reference	TB1 terminal 5 EIA-232 Reference

**Table 2.5 EIA-232 Serial Connections**



Note: Be sure to connect the EIA-232 to **TB2**. TB1 is the printer port and will not work.



**Figure 2.17 Connecting the EIA-232 Interface to the AFP-300/AFP-400**

## 2.11 Connecting an AM2020/AFP1010 Through TPI-232 Modems to a NAM-232

Refer to the Telephone/Panel Interface (TPI-232) manual for information on connecting the AM2020/AFP1010 through TPI-232 modems to a NAM-232. The use of a CRT in the AM2020/AFP1010 is not permitted when the NAM-232 is present.

## Section 3 AFP-200 Programming Requirements

When adding an AFP-200 with a NAM-232 to **NOTI•FIRE•NET™**, certain programming must be performed in the AFP-200. The AFP-200 must be programmed with network channel thresholds, node address, LocT, and (if desired) CCBE.

### 3.1 NOTI•FIRE•NET™ Channel Threshold Programming

To program **NOTI•FIRE•NET™** channel thresholds, first enter programming on the AFP-200. After entering the programming password, press 2 to enter network programming at the following prompt:

```
ENTER
1=BASI C PROGRAM
2=NETWORK PROGRAM
```

The following network programming menu will display:

```
ENTER
1=CHANNEL THRESHOLD
2=NODE ADDRESS
3=ZONE CCBE
```

Press 1 to change channel thresholds and the following will display:

```
ENTER
1=CH A THRESHOLD( H)
2=CH B THRESHOLD( H)
```

The current high or low thresholds for each channel are given by an 'H' or 'L' inside the parentheses. Press 1 or 2 to toggle the threshold for channel A or channel B. Press <ENTER> when complete. Refer to the **NOTI•FIRE•NET™** manual prior to selecting either a high or low threshold. If a NAM-232 on a system is replaced, the thresholds for that panel must be reprogrammed.

### 3.2 Node Address Programming

The AFP-200 must be programmed with a node address before the NAM-232 will connect to **NOTI•FIRE•NET™**. Enter network programming on the AFP-200 in the same manner as described in 3.1. Press 2 at the network programming menu to enter node address programming and the following will display:

```
NODE ADDRESS=NNN
TO CHANGE, ENTER #
( 001- 249) , THEN ENTER
```

The current node address will be given by 'NNN'. Enter a non-zero node address between the specified range, and press <ENTER> when complete. If a NAM-232 on a system is replaced, the node address for that panel must be reprogrammed.

### 3.3 CCBE Zone Programming

Zones 01 through 45 on an AFP-200 may be individually programmed to activate when a zone on another **NOTI•FIRE•NET™** node activates. CCBE output activation may be performed in addition to CBE activation in an AFP-200. CCBE activation and CBE activation are "OR'ed" together to produce local output activation.

Enter network programming on the AFP-200 in the same manner described in 3.1. Press 3 at the network programming menu to enter CCBE programming and the following will display:

```
ZONE NUMBER=01
SELECT ZONE#( 01 - 89) ,
THEN ENTER:
```

Enter a zone number (01 through 45), press <ENTER> and the following will display:

```
Zxx CCBE = N* * * Z* * *
           OR N* * * Z* * *
           OR N* * * Z* * *
           OR N* * * Z* * *
```

← Note: Do not  
← use the lower  
← three lines of  
← this display.

Ignore the lower three lines of the display. Enter a network node number followed by a zone number and press <ENTER> when complete (precede one and two digit node/zones with zeroes). To delete network node and zone numbers, an asterisk must be entered instead of the number.

Example:

To activate zone 1 on an AFP-200 whenever **NOTI•FIRE•NET™** node 5, zone 20 is active, enter the following:

```
Z01 CCBE = N005Z020
           OR N* * * Z* * *
           OR N* * * Z* * *
           OR N* * * Z* * *
```

To delete network node and zone numbers, an asterisk must be entered instead of the number. If a NAM-232 on a system is replaced, the CCBE for that panel must be reprogrammed.

### 3.4 CCBE Drill Programming

The Drill function on an AFP-200 can be programmed to activate when a zone on another **NOTI•FIRE•NET™** node activates. Zones 46 through 89 are reserved for activation of the AFP-200 CCBE drill function, and they are programmed in the same manner as zones 0 through 45. Zones 46 through 89 on the AFP-200 cannot be activated individually through CCBE. When the drill function is activated on an AFP-200, signals can only be silenced through a reset or signal silence.

Enter network programming on the AFP-200 in the same manner described in 3.1. Press 3 at the network programming menu to enter CCBE programming and the following will display:

```

ZONE NUMBER=01
SELECT ZONE#( 01 - 89) ,
THEN ENTER:

```

Enter a zone number (46 through 89) and press <ENTER>:

```

Zxx CCBE = N* * * Z* * *
           OR N* * * Z* * *
           OR N* * * Z* * *
           OR N* * * Z* * *

```

Note: Do not  
use the lower  
three lines of  
this display.

Ignore the lower three lines of the display. Enter a network node number followed by a zone number and press <ENTER> when complete (precede one and two digit node/zones with zeroes).

Example:

To activate the drill function on an AFP-200 whenever **NOTI•FIRE•NET™** node 9, zone 50 is active, use a local AFP-200 zone 46 through 89:

```

Z46 CCBE = N009Z050
           OR N* * * Z* * *
           OR N* * * Z* * *
           OR N* * * Z* * *

```

To delete network node and zone numbers, an asterisk must be entered instead of the number. If a NAM-232 on a system is replaced, the CCBE for that panel must be reprogrammed.

### 3.5 Additional Programming Requirements

Program the AFP-200 for LocT mode in system function programming. Do not use an AFP-200 CMX device type "blank" as it will incorrectly appear as an MMX device type on the INA/NCS.

## Section 4 AFP-300/AFP-400 Programming Requirements

When adding an AFP-300/AFP-400 with a NAM-232 to **NOTI•FIRE•NET™**, certain programming must be performed in the AFP-300/AFP-400. The AFP-300/AFP-400 must be programmed with network channel thresholds, node address, LocT (Local Terminal), and (if desired) CCBE.

### 4.1 AFP-300/AFP-400 (LocT)

To program the AFP-300/AFP-400 for LocT, first press <ENTER>

1=PROGRAMMI NG ( ESCAPE TO ABORT)	2=READ STATUS ENTRY
--------------------------------------	---------------------

Press 1 to enter Programming and enter the high level programming password.

ENTER PROG OR STAT ( ESCAPE TO ABORT)	PASSWORD, THEN ENTER. *****
--	--------------------------------

Press <ENTER>

1=BASI C PROGRAM 3=UTI LI TY	2=NETWORK PROGRAM ( ESCAPE TO ABORT)
---------------------------------	---

Press 1 to enter the Basic Programming Screen:

0=CLR 1=AUTO 2=POI NT 3=PASSWD 4=MESSAGE 5=ZONES 6=SPL FUNCT 7=SYSTEM 8=CHECK PRG
--

Press 7 to enter the System Function programming screen:

SIL I NH=000 AUTO=000 VERI FY=30 USA TI ME TERM=N AC DLY=N LocT BLI NK=Y ST=4 ACS=N
--

Ensure that LocT is selected. If not, navigate to it and change its state by using the *NEXT* or *PREVIOUS* keys.

### 4.2 NOTI•FIRE•NET™ Channel Threshold Programming

To program **NOTI•FIRE•NET™** channel thresholds, first enter programming on the AFP-300/AFP-400. After entering the programming password, press 2 to enter network programming at the following prompt.

1=BASI C PROGRAM 3=UTI LI TY	2=NETWORK PROGRAM ( ESCAPE TO ABORT)
---------------------------------	---

The following network programming menu will display:

```
THRESHOLD CH. A: H, THRESHOLD CH. B: H,
NODE: 000, SPECIAL ACS OFFSET: 00, <ENTER>
```

The default Channel A threshold is set to High. To change this to Low press the + or - key or type "L". Navigate using the *arrow* key to bring the cursor to the Channel B threshold setting.



Note: Refer to the **NOTI•FIRE•NET™** manual prior to selecting channel thresholds.

### 4.3 Node Address Programming

The AFP-300/AFP-400 must be programmed with a node address before the NAM-232 will connect to **NOTI•FIRE•NET™**. Navigate the cursor to the second line and the default Node:000 will be highlighted. Enter a valid node address between 001 and 249.

```
THRESHOLD CH. A: H, THRESHOLD CH. B: H,
NODE: 000, SPECIAL ACS OFFSET: 00, <ENTER>
```

### 4.4 Special ACS Offset

If an ACS Offset is desired, position the cursor over the default "00" and enter an offset between 1 and 30.

```
THRESHOLD CH. A: H, THRESHOLD CH. B: H,
NODE: 000, SPECIAL ACS OFFSET: 00, <ENTER>
```

Example: An offset of 10 would make the special annunciators appear to the network as annunciator addresses 11 and 12.

### 4.5 CCBE Zone Programming

Zones 01 through 99 on an AFP-300/AFP-400 may be individually programmed to activate when a zone on another **NOTI•FIRE•NET™** node activates. CCBE output activation may be performed in addition to CBE activation in an AFP-300/AFP-400. CCBE and CBE activations are "OR'ed" together to produce local output activation. CCBE programming must be done using the Verifire™ 400 UP/Download Utility (Version 3.0 or higher). From the Systems Parameters screen, select the **NOTI•FIRE•NET™** tab and the screen in Figure 26 will appear.



Note: If these parameters were uploaded from an AFP-300/AFP-400 whose Node Address and Channel Thresholds were programmed at the panel, the parameters would appear in their respective selection boxes.



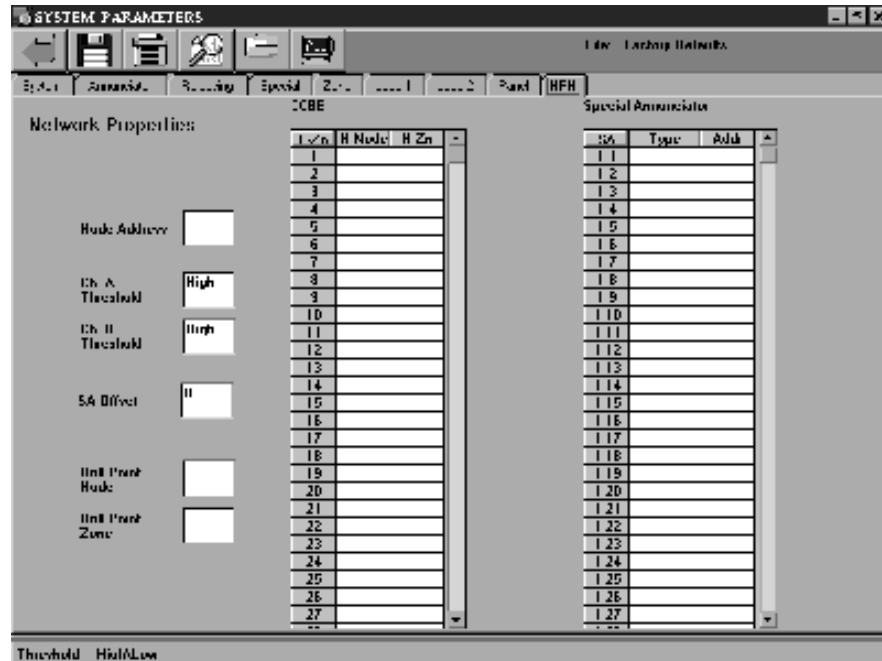


Figure 4.1 Verifire™ Version 3.0 System Parameter Screen

#### CCBE Zone Programming Example

In the following example (Figure 4.2), the AFP-300/AFP-400 whose Node Address is 74 will activate its Zone 1 when Zone 3 of Node 5 is active. Zone 2 will activate when Zone 15 in Node 25 activates. Zone 3 will activate when Zone 6 in Node 75 activates.

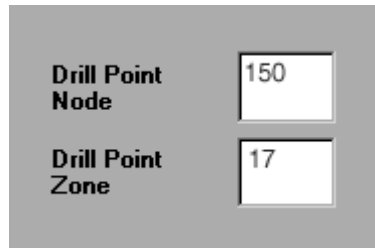


Figure 4.2 CCBE Zone Programming Example

## 4.6 CCBE Drill Programming

The Drill function on an AFP-300/AFP-400 can be programmed to activate when a zone on another **NOTI•FIRE•NET™** node activates. All outputs that are programmed as silenceable and not switch inhibited will activate. When the drill function is activated on an AFP-300/AFP-400, signals can be silenced only through a reset or signal silence.

In the example shown in Figure 4.3, the Drill function of the AFP-300/AFP-400 will activate when Zone 17 in Node 150 is activated.



Drill Point Node	150
Drill Point Zone	17

Figure 4.3 CCBE Drill Programming Example

## 4.7 Additional Programming Requirements

- Do not use an AFP-300/AFP-400 CMX device type “blank”, as it will incorrectly appear as an MMX device type on the INA/NCS.
- If a non-fire input is activated while a 300/400 is in programming mode, or just after leaving programming mode, its activation will be reported over **NOTI• FIRE• NET**.
- When changing an AFP-400’s panel label, the panel must be powered down to transfer this information to the NAM-232.

## Section 5 Programming

### 5.1 AM2020/AFP1010 Programming Requirements

The NAM-232 requires special programming to be completed in the AM2020/AFP1010 before the NAM-232 and TPI-232 modems are connected. The last five characters of the AM2020/AFP1010 "All Systems Normal" message are reserved for identifying the AM2020/AFP1010 node address on. This node address must be in the range of 001 to 249. The node address must be in the format of "\_Nxxx", where "\_" is a blank space separating the node address from the rest of the custom message and "xxx" is the node address (001 to 249) as shown below.

NOTI FI ER WORLD HEADQUARTERS	N001
ALL SYSTEMS NORMAL 11:00A	09/ 9/ 00

Node Address

In addition, the NAM-232 must be enabled by selecting it in the Additional Parameters options in Systems Programming. The devices with the following Software Type I.D.s will not report on **NOTI•FIRE•NET™**.

- **SACM:** MMX Monitor Module used to monitor a security device.
- **SEQM:** MMX Monitor Module that functions identical to Type I.D. SEQM.
- **NONA:** MMX Monitor Module or XPM-8 circuit used to monitor normally open contact, shorting-type non-alarm devices.
- **NOA:** MMX Monitor Module or XPM-8 that functions identically to Type I.D. NONA.
- **SUPR:** MMX Monitor Module or an XPM-8 circuit dedicated to a normally open supervisory switch.

## Section 6 AFP-200, AFP-300/AFP-400 Message Translations

The AFP-200/AFP-300/AFP-400 contains features which are not presently included on the INA/NCS. Alarm, trouble, and other messages which appear on the LCD of the AFP-200 may be modified prior to display on the INA/NCS. For example, an AFP-200 may display the following message:

SECURI TY TAMPER PANEL DOOR OPEN  03:12A WED 11/18/00
--

while at the same time, the INA will display the following message:

TROUBL N148 SSYM PANEL DOOR OPEN SECURI TY TAMPER 03:12A 11/18/00 301
--

Note: AFP-200/AFP-300/AFP-400 devices and conditions which have no equivalent in an AM2020/AFP1010 will appear at the INA/NCS as devices on Loop 3 (which does not physically exist).

For a complete list of message translations and specific information on AFP-200 and AFP-300/AFP-400 addressable device types, refer to the AFP-200, AFP-300/AFP-400, INA, and NCS manuals.

## NOTES

## NOTES

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World Headquarters  
One Fire-Lite Place, Northford, CT 06472-1653 USA  
203-484-7161 • Fax 203-484-7118  
[www.notifier.com](http://www.notifier.com)

