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NCM Installation Document

Network Communications Module NCM-W, NCM-F

PN 51533:A1 03/27/03 ECN 03-171

1 Product Overview

The Network Communications Module (NCM) provides a means for connecting specific Notifier fire alarm control products to **NOTI•FIRE•NET™**. There are two types of NCMs available: NCM-W for connecting nodes with twisted-pair wire, and NCM-F for connecting nodes with fiber-optic cable.

1.1 The Network Communications Module for Wire (NCM-W)

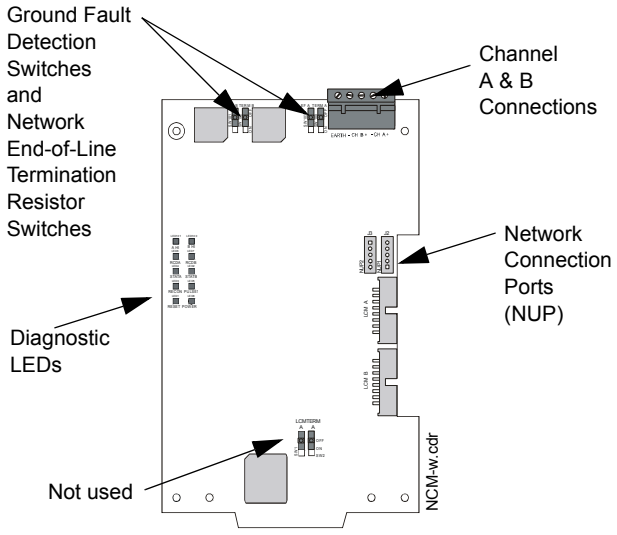


Figure 1 NCM-W

- Supports twisted-pair wire medium.
- NFPA Style 4 (Class B) operation or NFPA Style 7 (Class A) operation.
- Two programmable data thresholds.
- Transformer coupling provides electrical isolation between nodes.
- Pluggable terminal wiring with strain relief.
- Pluggable service connector (feeds signal directly through) in the event that power must be removed from a node.
- 312.5 Kbaud transmission rate.
- Data is regenerated at each node.
- Two network ports to allow simultaneous connection to fire alarm control panel and to programming computer
- Enables software and database upload/download over **NOTI•FIRE•NET™**.
- Refer to the ***NOTI•FIRE•NET™*** *Manual (Network Version 4.0 and Higher)* for wiring length and threshold information.

1.2 The Network Communications Module for Fiber (NCM-F)

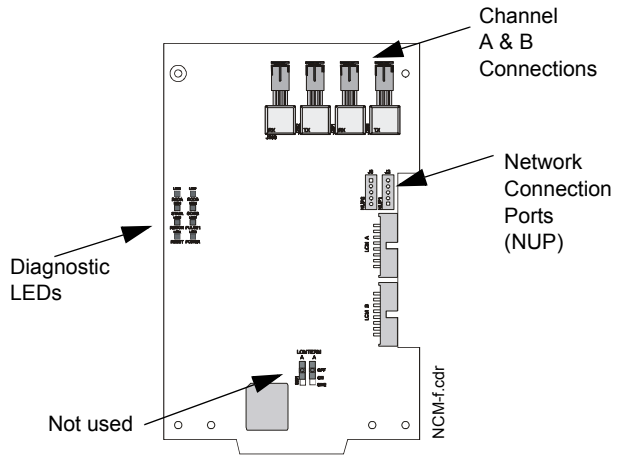


Figure 2 NCM-F

- Supports fiber-optic medium.
- NFPA Style 4 (Class B) or Style 7 (Class A) operation.
- Data is immune to all environmental noise.
- Optical isolation prevents ground loops.
- **NOTI•FIRE•NET™** fiber optic medium.
- Fiber type:
  - 62.5/125 micrometers (multimode, 8 dB limit)
  - 50/125 micrometers (multimode, 4.2 dB limit)
- Wavelength (1): 820 nanometers. (Use standard 850 nm fiber.)
- Connectors: ST® Style (ST® is a registered trademark of AT&T).
- 312.5 Kbaud transmission rate.
- Data is regenerated at each node.
- Two network ports to allow simultaneous connection to fire alarm control panel and to programming computer.
- Enables software and database upload/download over **NOTI•FIRE•NET™**.

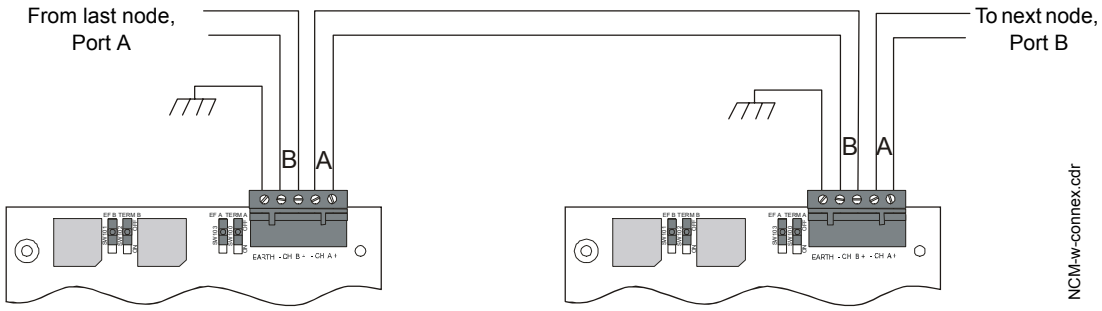
2 Installing the NCM

2.1 Interconnecting the NCM-W

When wiring consecutive NCM-W boards, note that wiring may enter or exit at Port A or Port B as shown in Figure 4. NCM-W port-to-port wiring is not polarity sensitive. The use of Port A or Port B is arbitrary. An NCM-W may be connected to any of the following devices:

- MIB-W
- MIB-WF
- NAM-232W
- NCM-W (in another panel)
- NCS-W network connection
- RPT-W
- RPT-WF

For information regarding these devices, refer to the documentation listed in Table 4 “Supplemental Documentation”.



Note: Wiring from the NCM-W that is installed outside the building:
- Cannot exceed 1000m (3280 ft.).
- Must be in conduit and is to be buried in a trench separate from any power lines.
- Cannot cross any power lines.

Figure 3 The NCM-W

TB100-1	CH-A (+)	Channel-A Driver/Receiver
TB100-2	CH-A (-)	Channel-A Driver/Receiver
TB100-3	CH-B (+)	Channel-B Driver/Receiver
TB100-4	CH-B (-)	Channel-B Driver/Receiver
TB100-5	Earth Ground	

Table 1 NOTI•FIRE•NET™ Connections: NCM-W

Switch Functions: Ground Fault Detection and Line Termination

The NCM-W provides two sets of switches to simplify network setup; in Figure 4 all are in the “off” position.

- Enable ground fault detection by setting switches “on”: SW103 for Channel A, and SW101 for Channel B.
- Activate on-board end-of-line resistors by setting switches “on”: SW100 for Channel A; SW102 for Channel B.

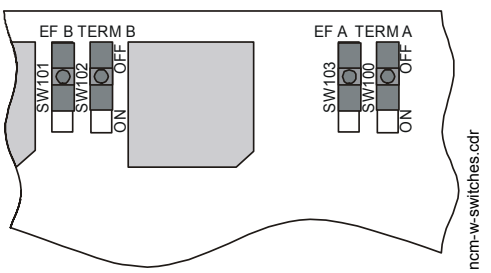


Figure 4 NCM-W Switches

Note: Correct configuration depends on your network design; refer to the ***NOTI•FIRE•NET™*** *Manual (Network Version 4.0 and Higher)*.

2.2 Interconnecting the NCM-F

When connecting consecutive nodes/repeaters, note that fiber cable must exit one board on transmit (TX) and enter the next node/repeater on receive (RX). Also, note that the fiber-optic pair (RX, TX) from port A of one Node/Repeater may be connected to either Port A or Port B of another node/repeater (refer to Figure 5). An NCM-F may be connected to any of the following devices:

- MIB-F
- MIB-WF
- NAM-232F
- Another NCM-F
- Network connection for NCS-F
- RPT-F
- RPT-WF

For information regarding these devices, refer to the NAM-232 and Repeater manuals listed in Table 4 “Supplemental Documentation”.

Note: See the ***NOTI•FIRE•NET™*** *Manual (Network Version 4.0 and Higher)* for maximum fiber-optic cable attenuation.

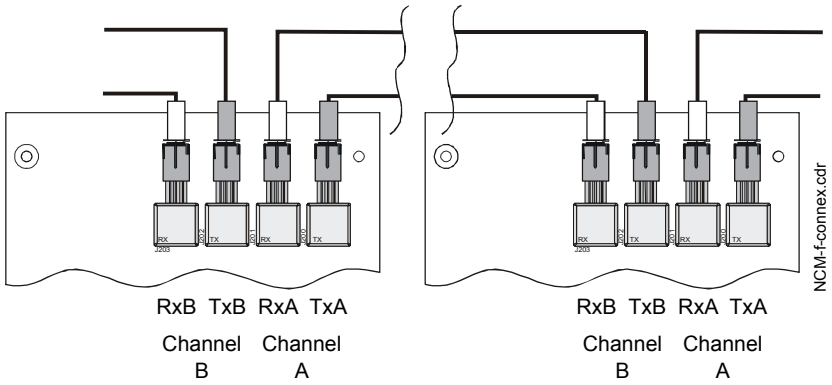


Figure 5 NCM-F Connection

J200	CH A	Transmit
J201	CH A	Receive
J202	CH B	Transmit
J203	CH B	Receive

Table 2 NOTI•FIRE•NET™ Connections: NCM-F

2.3 Mixing Wire & Fiber on One Network

In some networks, it may be necessary to mix twisted-pair wire and fiber-optic cable. There are two solutions for this situation.

1. In any network, an RPT-WF may be used as an interface between wire and fiber.
2. In a network that uses an AFP1010 or AM2020, a MIB-WF may also be used as the interface between wire and fiber.

See 1.2 “The Network Communications Module for Fiber (NCM-F)” for requirements and restrictions on the use of fiber optic cable. See the ***NOTI•FIRE•NET™*** *Manual (Network Version 4.0 and Higher)* for a discussion of all compatible configurations.

3 Diagnostic Indicators

The NCM has LEDs that serve as diagnostic indicators to help in troubleshooting and system connection. Refer to Table 3 for a list of diagnostic indicators and their descriptions. Refer to Figure 6 for location of the diagnostic indicators.

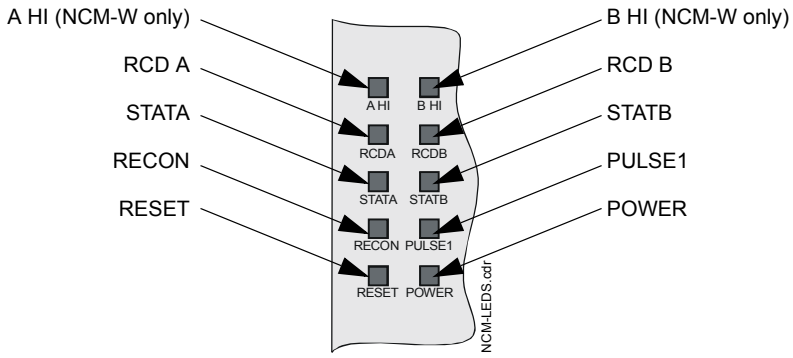


Figure 6 Diagnostic Indicator Locations

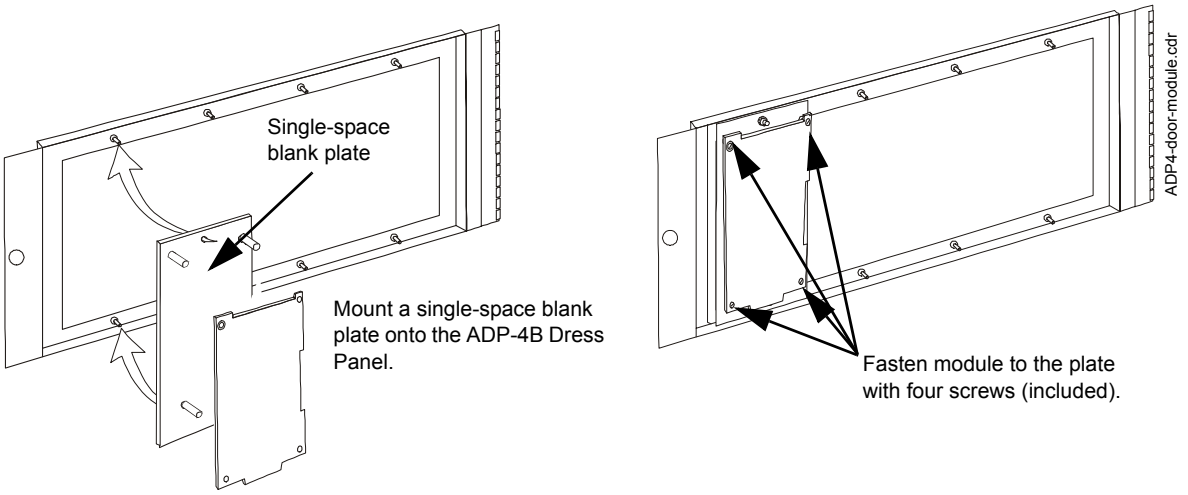
LED Indicator	LED Color	LED Description
A HI (NCM-W only)	Green	Illuminates to indicate the NCM-W Port A is set for high threshold.
B HI (NCM-W only)	Green	Illuminates to indicate the NCM-W Port B is set for high threshold.
RCD A	Green	Illuminates when the NCM is receiving data from **NOTI•FIRE•NET™** on Port A.
RCD B	Green	Illuminates when the NCM is receiving data from **NOTI•FIRE•NET™** on Port B.
STATA	Yellow	Illuminates when the NCM has not received valid data from **NOTI•FIRE•NET™** on Port A for at least 16 seconds.
STATB	Yellow	Illuminates when the NCM has not received valid data from **NOTI•FIRE•NET™** on Port B for at least 16 seconds.
RECON	Yellow	Illuminates when a reconfiguration on **NOTI•FIRE•NET™** is in progress.
PULSE1	Green	Illuminates when the NCM is transmitting data to **NOTI•FIRE•NET™**.
RESET	Yellow	Illuminates when the microcontroller fails.
POWER	Green	Illuminates when +5 VDC is available

Table 3 Diagnostic Indicator Functions and Colors

4 Door-Mounting

Both NCM-W and NCM-F can be installed in any panel circuit module position; see your control panel installation manual. Additionally, the NCM-W can be door-mounted on the ADP-4B Dress Panel on a single-space blank plate (BMP-1) for mounting in a CAB-4 Series cabinet.

Note: The module cannot be mounted in the ADP-4B Dress Panel when a front slot of the CHS-4 or CHS-4N is occupied, or when either of the two front right positions of the CHS-M2 is occupied. Always be certain there is enough clearance to close the cabinet door when this installation is used.



5 Supplemental Documentation

The table below provides a list of document sources (manuals) containing additional information regarding the NCM and products that it can connect to. The NOTIFIER document (DOC-NOT) chart provides the current document revision.

For information on…	Refer to…	Part No.
Networking	**NOTI•FIRE•NET™** Manual (for Network Version 4.0 and Higher)	51584
	Onyx NCS Network Control Station (for Network Version 4.0 and Higher)	51658
	NCS Network Control Station (for Network Version 4.0)	51585
	NFS-640 Installation	51332
	Operations	51333
	Programming	51334
	NCA Network Control Annunciator	51482
	Media Interface Board (MIB) Manual	50255
	NAM-232 Network Adaptor Module	50038
	RPT - W/WF/F Repeaters for **NOTI•FIRE•NET™**	50256
Off-line Programming Utility	VeriFire™ Tools CD on-line help file	VeriFire-TCD
Compatible Devices	Device Compatibility Document	15378
Cabinets & Chassis	CAB-3/CAB-4 Series Installation Document	15330
	BMP-1 Product Installation Document	51119
	Also see your panel's Installation Manual	

Table 4 Supplemental Documentation

Note: For module mounting instructions, refer to the documentation for your control panel