



4010ES and 4007ES Network Interface and Media Card installation instructions

Introduction

This publication describes the installation procedure for the following Network Interface Cards (NIC) and modules:

Table 1: Network Interface Cards (NICs) electrical and environmental specifications

4010ES		4007ES	
NIC	Modules	NIC	Modules
4010-9902 4010-9922 (566-850)	4010-9818 – Wired Media Card	4007-9810 (566-1192)	4007-9813 – Wired Media Card
	4010-9819 – Fiber-Optic Media Card		4007-9814 – Fiber-Optic Media Card
	4010-6301, 4010-6302, 4010-6303, 4010-6304, 4120 Duplex Fiber Media Cards		4007-6301, 4007-6302, 4007-6303, 4007-6304, 4120 Duplex Fiber Media Cards

Related documentation

- 574-989: *4010ES Fire Alarm System Installation Guide*
- 579-1102: *4007ES/4007ES Hybrid Fire Alarm Systems Installation Manual*

In this publication

This publication discusses the following topics:

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Cautions, Warnings, and Regulatory Information

READ AND SAVE THESE INSTRUCTIONS. Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.



DO NOT INSTALL ANY SIMPLEX® PRODUCT THAT APPEARS DAMAGED - Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify an authorized Simplex product supplier.



ELECTRICAL HAZARD - Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or an authorized agent of your local Simplex product supplier.



STATIC HAZARD - Static electricity can damage components. Handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.



EYE SAFETY HAZARD - Under certain fiber-optic application conditions, the optical output of this device may exceed eye safety limits. Do not use magnification (such as a microscope or other focusing equipment) when viewing the output of this device.

FCC RULES AND REGULATIONS – PART 15 - This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES - To ensure proper system operation, this product must be tested in accordance with NFPA72 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.

Introduction to the NIC

Overview

The 4010ES and 4007ES NICs are slave cards that allow the panel to reside on a 4120 network. This allows for communication between each panel via fiber, modem, or twisted shielded pair wire in a Class B (Style 4) or Class A (Style 7) wiring configuration.

The NICs are designed to be connected in a point-to-point arrangement, so that one wire fault does not cause the entire system to fail. The point-to-point arrangement provides the most secure and fault-tolerant wiring possible.

The following two types of media cards are used with the NIC:

- The Fiber-Optic Media card can be used for electrically noisy environments or for connecting externally to other buildings.
- The Wired Media card is used in all other types of applications.

The Modem Media card is only used for physical bridging of networks. Refer to document *579-184: 4100/4120/4010-Series Physical Bridges and Media Modules*.

Up to two media cards can be plugged into each NIC. The same NIC uses a combination of different types of media boards (for example, a NIC may have a Wired Media card connected to the left port and a Fiber-optic media card connected to the right port).

Introduction to the NIC, Continued

NIC
Illustration

Figure 1. shows the 4010ES and 4007ES NICs listed in Table 1.

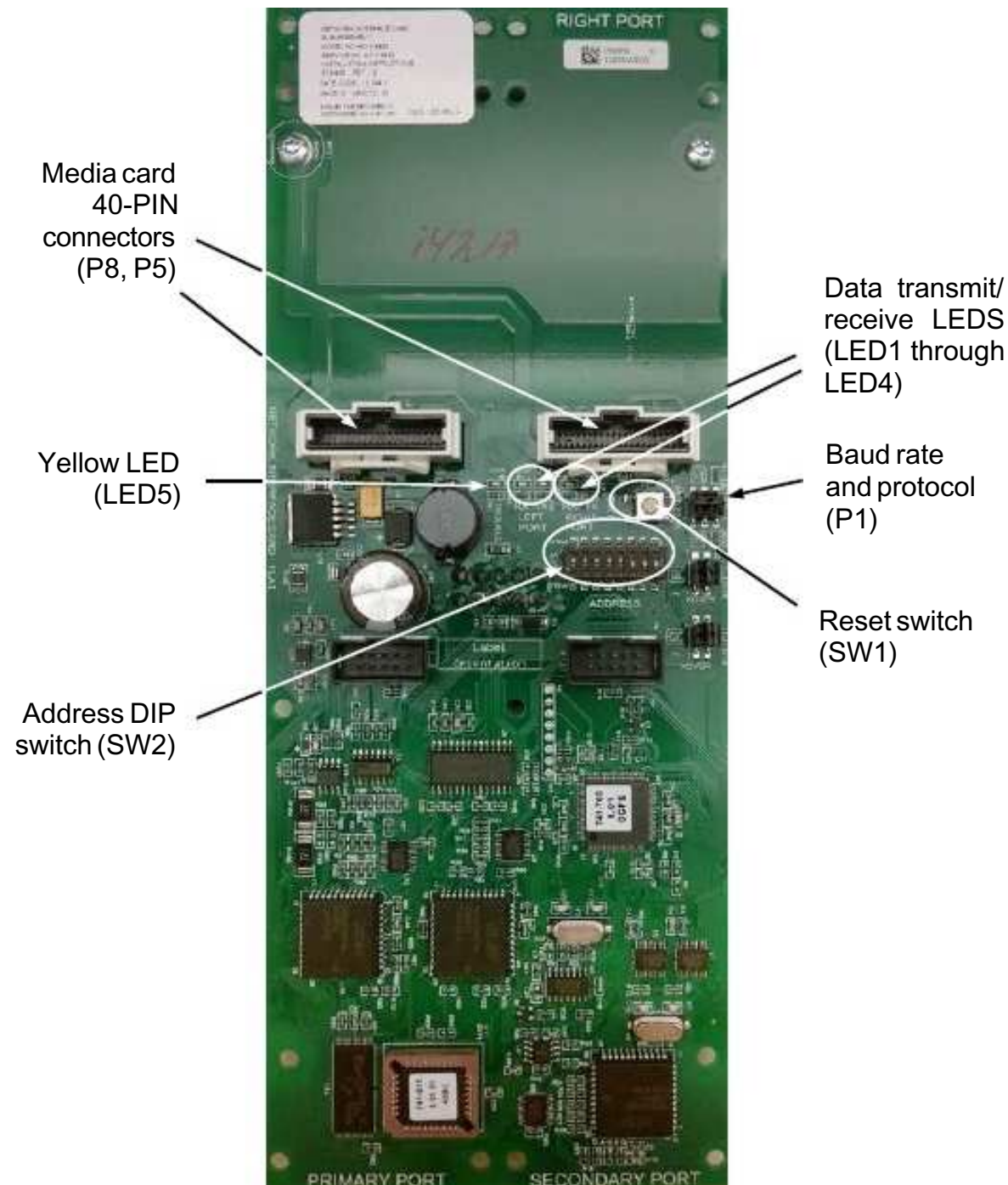


Figure 1. NIC image (566-850, 566-1192)

NIC Card LED
indications

The 4010ES and 4007ES NICs have the following LEDs:

LED5 (yellow): This LED illuminates when:

- A transmission fails.
- The NIC has not established a communications link with the CPU.

LED4 (red): Illuminates when a data '0' is received at the left port.

LED3 (green): Illuminates when a data '0' is transmitted at the left port.

LED2 (red): Illuminates when a data '0' is received at the right port.

LED1 (green): Illuminates when a data '0' is transmitted at the right port.

Introduction to the NIC, Continued

Initial acceptance testing

Initial acceptance test requirements for fiber optic installations are as follows:

- An initial acceptance test of each fiber link shall be performed as stated in NFPA 72. A fiber link is defined as all fiber segments, including patch cords, which create a fiber path from one fiber media board to another. The fiber lines shall be tested using an OTDR. The OTDR will measure the attenuation of the fiber as well as indicate the presence and location of connectors and any defects in the link. The fiber infrastructure shall be accepted for use only after it has been determined it meets or exceeds industry standard ANSI TIA/EIA 568-C.3 or later (Electronic Industries Alliance/Telecommunications Industry Association, Optical Fiber Cabling Components Standard).
- OTDR Launch and Receive cables of appropriate length shall be used. If a single cable is used, each link shall be tested in both directions.
- Multi-mode fiber links shall be measured at 850 nm and 1300 nm.
- Single-mode fiber links shall be measured at 1310 nm and 1550 nm.

Media Module Illustrations

You can plug six modules into the 4010ES and 4007ES NICs:

- 4007-6301, 4010-6301 4120 SM-L Duplex Fiber Media (566-1198)
- 4007-6302, 4010-6302 4120 SM-R Duplex Fiber Media (566-1197)
- 4007-6303, 4010-6303 4120 MM-L Duplex Fiber Media (566-1200)
- 4007-6304, 4010-6304 4120 MM-R Duplex Fiber Media (566-1199)
- 4010-9818/4007-9813 Wired Media Card (565-413)
- 4010-9819/4007-9814 Fiber-Optic Media Card (746-109)

Introduction to the NIC, Continued

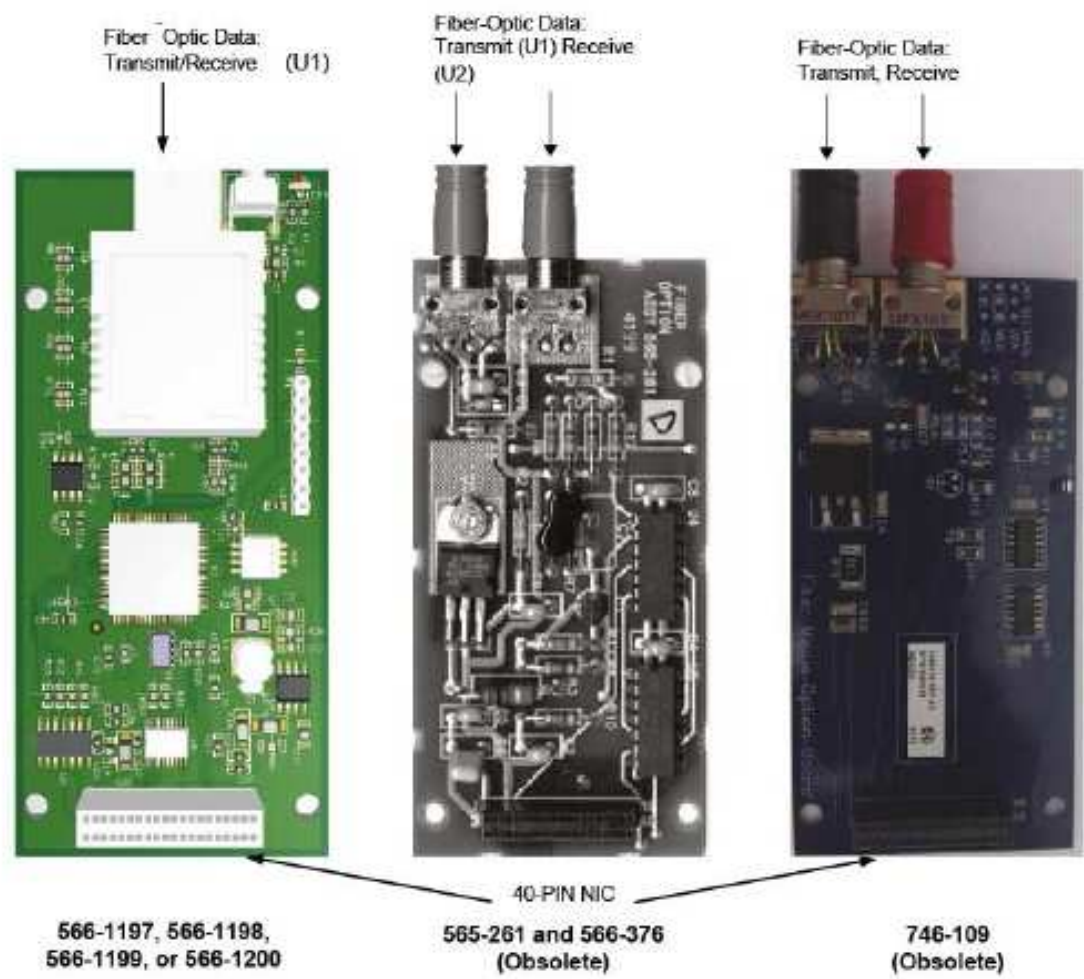


Figure 2. 4007-6301, 4010-6301, 4007-6302, 4010-6302, 4007-6303, 4010-6303, 4007-6304, 4010-6304, 4120 Duplex Fiber Media Cards, 4010-9819 and 4007-9814 Fiber-Optic Media Cards

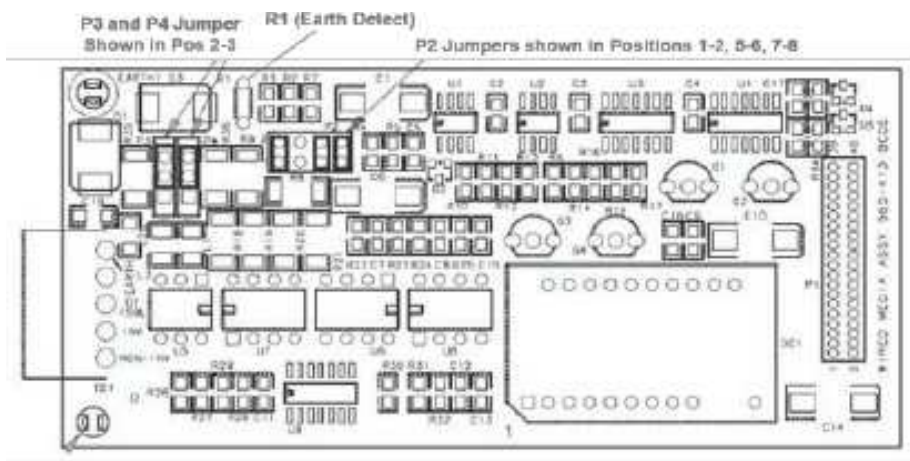


Figure 3. 4010-9818 and 4007-9813 Wired Media Cards

Introduction to the NIC, Continued

Specifications

See Table 2 for electrical and environmental requirements for NIC and media cards.

Table 2: Electrical, environmental, and fiber-optic specifications

Electrical specifications			
NIC (566-850, 566-1192)		Nominal, no media cards: 30 mA @ 24 V DC Regulated	
Dual Fiber Media Card (746-109)		Additional 25 mA max @ 24 V DC Regulated	
Duplex Fiber Media Card (566-1197, 566-1198, 566-1199, 566-1200)		Additional 55 mA max @ 24 V DC Regulated	
Wired Media Card 565-413		Additional 55 mA max @ 24 V DC Regulated Output Voltage: 4.75 V min to 5.25 V	
Environmental specifications			
Operating temperature		32° to 120° F (0° to 49° C)	
Humidity		10% to 93% relative humidity at 90° F (32° C)	
Dual fiber-optic specifications (746-109 only)			
Fiber Type		Multi-mode	
Interface		ST connector	
Wavelength		850nm	
Allowed losses	50/125 um fiber	High setting: 17 Db Medium setting: 11.6 Db Low setting: 6.6 Db	
	62.5 um fiber	High setting: 20.4 Db Medium setting: 16 Db Low setting: 11 Db	
The low power setting is preferred for all 62.5 um fiber links less than 11 Db and 50 um fiber links less than 6.6 dB. JW1 is used to adjust the link power budget. If you encounter communication problems, ensure the fiber connections comply with ANSI/TIA/EIA 568-C.3 or later industry standards.			
Duplex Fiber-optic specifications (566-1197, 566-1198, 566-1199, or 566-1200 only)			
Fiber Type	Multi-mode	Right: 566-1199, Left: 566-1200	
	Single-mode	Right: 566-1197, Left: 566-1198	
Interface	SC Connector		
Wavelength	Right Media (SM and MM)	1310 nm transmit; 1550 nm receive	
	Left Media (SM and MM)	1550 nm transmit; 1310 nm receive	
Allowed losses/distance	Multi-mode	50/125 um fiber	18dB / 5 km
		62.5/125 um fiber	18dB / 5 km
	Single-mode	9/125 um fiber	22dB / 25km
If you encounter communication problems, ensure the fiber connections comply with ANSI/TIA/EIA 568-C.3 or later industry standards.			

Jumper Settings

Overview	The NIC cards, the fiber and the wired media cards all have jumpers that must be set.								
NIC jumper settings	P1 (1-3, 3-5): Determines the NIC data transmission rate, 57.6 kbits/second or 9600 bits/second. - Position 1 – 3 (the left two pins) <i>or</i> no pins jumpered: 57.6 kbits/second. - Position 3 – 5 (the right two pins): 9600 bits/second. P1 (2-4, 4-6): Determines the data protocol, 8-bit or 9-bit, that the NIC card is using. - Position 2 – 4 (the left two pins) <i>or</i> no pins jumpered: 9-bit. - Position 4 – 6 (the right two pins): 8-bit. All settings are labeled on the card. The default settings are 9-bit and 57.6 kbits/second. P2 and P3: Leave jumpers in (1-2 and 3-4).								
Wired media card jumper settings	P2: Tells the system which wire type is to use. - Positions 1 – 2, 5 – 6, and 7 – 8: 18 AWG shielded, twisted pair wiring. - Remove all jumpers to specify 24 AWG twisted pair telephone cable wiring. P3 and P4: Used to improve shorted line sensing with shorter communication lines. - Present on Rev C (and later) of the Media Module (565-413) - For 18 AWG communication lines of 5,000 feet or less, or 24 AWG communication lines of 2,000 feet or less, install P2 and P3 Jumpers in position 2-3. - For longer lines, install jumpers in position 1-2. IMPORTANT: When using the wired media card, Earth fault detection is performed on the left port only. Cut and remove R1 from the media card on the right port.								
Dual Fiber media jumper settings (746-109 only)	Use JW1 to adjust the link power budget. If communication problems occur, ensure the fiber connections comply with ANSI/TIA/EIA 568-C.3 industry standards or later. The low power setting is preferred for all 62.5um fiber links less than 11dB and, 50um fiber links less than 6.6dB. JW1 Link power budget settings <table><tr><td>50/125 um fiber multi-mode</td><td>62.5/125 um fiber multi-mode</td></tr><tr><td>High setting: 17 dB</td><td>High setting: 20.4 dB</td></tr><tr><td>Medium setting: 11.6 dB</td><td>Medium setting: 16 dB</td></tr><tr><td>Low setting: 6.6 dB</td><td>Low setting: 11 dB</td></tr></table>	50/125 um fiber multi-mode	62.5/125 um fiber multi-mode	High setting: 17 dB	High setting: 20.4 dB	Medium setting: 11.6 dB	Medium setting: 16 dB	Low setting: 6.6 dB	Low setting: 11 dB
50/125 um fiber multi-mode	62.5/125 um fiber multi-mode								
High setting: 17 dB	High setting: 20.4 dB								
Medium setting: 11.6 dB	Medium setting: 16 dB								
Low setting: 6.6 dB	Low setting: 11 dB								
Duplex Fiber media diagnostics (566-1197, 566-1198, 566-1199, or 566-1200 only)	SW1 displays the diagnostics on the diagnostic LEDs. Press to display the type and thresholds reached. - Hold for 3 seconds to toggle between the Normal and Advanced diagnostics mode. - Hold for 6 seconds to clear the counters. Note: If SW2-4 is set to advanced diagnostics, and if you press and hold SW1 for 3 seconds, the card does not toggle between the diagnostic modes. The mode is set to advanced. SW2 configures the diagnostics display and the offline test modes. Refer to 579-1233 for more information on 4120 Duplex Fiber Media Card Diagnostics. Switch SW2 is a bank of four DIP switches. From left to right (see Figure 4) these switches are SW2-1 to SW2-4.								

Jumper Settings

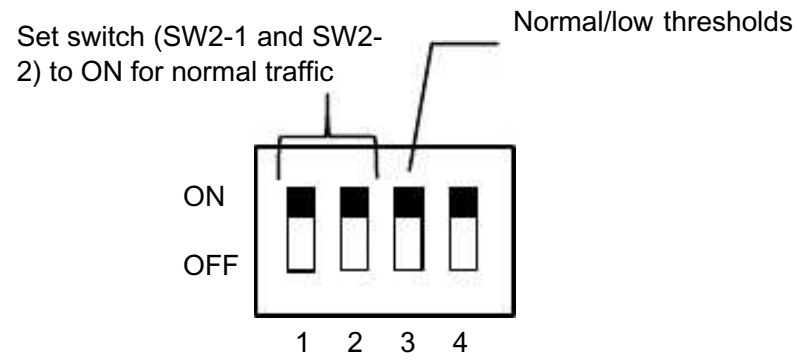


Figure 4. DIP switch SW2

Table 3: DIP switch settings

Position	Description	“ON”	“OFF”
1	Offline test mode	Disable	Enable
2	Fiber data loopback	Disable	Enable
3	Select normal/low thresholds to monitor on diagnostic LEDs	Normal	Low
4	Select normal / advanced diagnostics	Normal	Advanced

Note: Enabling either test mode (SW2-1 and/or SW2-2) disrupts normal 4120 network traffic.

Setting the NIC Daughter Card Address

Overview

Switch SW2 on the NICs is a bank of eight dip switches. From left to right (see Figure 5) these switches are designated as SW2-1 through SW2-8. The function of these switches is as follows:

- SW2-1. This switch sets the card online or offline. When offline, the card will not communicate with the master. Set this switch to ON to bring the card online.
- SW2-2 through SW2-8. These switches set the card’s address within the FACP. Refer to Table 4 for a complete list of the switch settings for all of the possible card addresses.

Note: You must set these switches to the value assigned to the card by the Programmer.

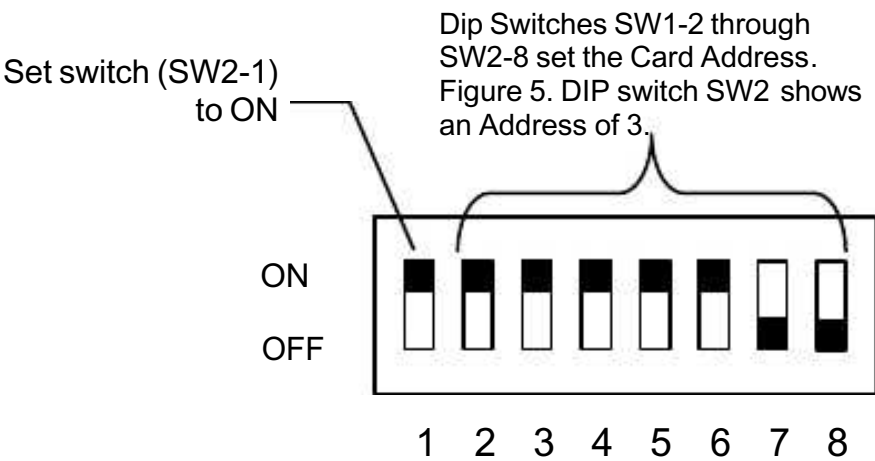


Figure 5. DIP switch SW2

Continued on next page

Setting the NIC Daughter Card Address, Continued

Overview

Table 4: 4010ES and 4007ES NIC Addresses

Address	SW 2-2	SW 2-3	SW 2-4	SW 2-5	SW 2-6	SW 2-7	SW 2-8		Address	SW 2-2	SW 2-3	SW 2-4	SW 2-5	SW 2-6	SW 2-7	SW 2-8
1	ON	ON	ON	ON	ON	ON	OFF		61	ON	OFF	OFF	OFF	OFF	ON	OFF
2	ON	ON	ON	ON	ON	ON	OFF		62	ON	OFF	OFF	OFF	OFF	OFF	ON
3	ON	ON	ON	ON	ON	ON	OFF		63	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	ON	OFF	ON	ON		64	OFF	ON	ON	ON	ON	ON	ON
5	ON	ON	ON	ON	OFF	ON	OFF		65	OFF	ON	ON	ON	ON	ON	OFF
6	ON	ON	ON	ON	OFF	OFF	ON		66	OFF	ON	ON	ON	ON	OFF	ON
7	ON	ON	ON	ON	ON	OFF	OFF		67	OFF	ON	ON	ON	ON	OFF	OFF
8	ON	ON	ON	OFF	ON	ON	ON		68	OFF	ON	ON	ON	OFF	ON	ON
9	ON	ON	ON	OFF	ON	ON	OFF		69	OFF	ON	ON	ON	OFF	ON	OFF
10	ON	ON	ON	OFF	ON	OFF	ON		70	OFF	ON	ON	ON	OFF	OFF	ON
11	ON	ON	ON	OFF	ON	OFF	OFF		71	OFF	ON	ON	ON	OFF	OFF	OFF
12	ON	ON	ON	ON	OFF	OFF	ON		72	OFF	ON	ON	OFF	ON	ON	ON
13	ON	ON	ON	OFF	OFF	ON	OFF		73	OFF	ON	ON	OFF	ON	ON	OFF
14	ON	ON	ON	OFF	OFF	OFF	ON		74	OFF	ON	ON	OFF	ON	OFF	ON
15	ON	ON	ON	OFF	OFF	OFF	OFF		75	OFF	ON	ON	OFF	ON	OFF	OFF
16	ON	ON	OFF	ON	ON	ON	ON		76	OFF	ON	ON	OFF	OFF	ON	ON
17	ON	ON	ON	OFF	ON	ON	ON		77	OFF	ON	ON	OFF	OFF	ON	OFF
18	ON	ON	OFF	ON	ON	OFF	ON		78	OFF	ON	ON	OFF	OFF	OFF	ON
19	ON	ON	OFF	ON	ON	OFF	OFF		79	OFF	ON	ON	OFF	OFF	OFF	OFF
20	ON	ON	OFF	ON	OFF	ON	ON		80	OFF	ON	OFF	ON	ON	ON	ON
21	ON	ON	OFF	ON	OFF	ON	OFF		81	OFF	ON	OFF	ON	ON	ON	OFF
22	ON	ON	OFF	ON	OFF	OFF	ON		82	OFF	ON	OFF	ON	ON	OFF	ON
23	ON	ON	OFF	ON	OFF	OFF	OFF		83	OFF	ON	OFF	ON	ON	OFF	OFF
24	ON	ON	OFF	OFF	ON	ON	ON		84	OFF	ON	OFF	ON	OFF	ON	ON
25	ON	ON	OFF	OFF	ON	ON	OFF		85	OFF	ON	OFF	ON	OFF	ON	OFF
26	ON	ON	OFF	OFF	ON	OFF	ON		86	OFF	ON	OFF	ON	OFF	OFF	ON
27	ON	ON	OFF	OFF	ON	OFF	OFF		87	OFF	ON	OFF	ON	OFF	OFF	OFF
28	ON	ON	OFF	OFF	OFF	ON	ON		88	OFF	ON	OFF	OFF	ON	ON	ON
29	ON	ON	OFF	OFF	OFF	ON	OFF		89	OFF	ON	OFF	OFF	ON	ON	OFF
30	ON	ON	OFF	OFF	OFF	OFF	ON		90	OFF	ON	OFF	OFF	ON	OFF	ON
31	ON	ON	OFF	OFF	OFF	OFF	OFF		91	OFF	ON	OFF	OFF	ON	OFF	OFF
32	ON	OFF	ON	ON	ON	ON	ON		92	OFF	ON	OFF	OFF	OFF	ON	ON
33	ON	OFF	ON	ON	ON	ON	OFF		93	OFF	ON	OFF	OFF	OFF	ON	OFF
34	ON	OFF	ON	ON	ON	OFF	ON		94	OFF	ON	OFF	OFF	OFF	OFF	ON
35	ON	OFF	ON	ON	ON	OFF	OFF		95	OFF	ON	OFF	OFF	OFF	OFF	OFF
36	ON	OFF	ON	ON	OFF	ON	ON		96	OFF	OFF	ON	ON	ON	ON	ON
37	ON	OFF	ON	ON	OFF	ON	OFF		97	OFF	OFF	ON	ON	ON	ON	OFF
38	ON	OFF	ON	ON	OFF	OFF	ON		98	OFF	OFF	ON	ON	ON	OFF	ON
39	ON	OFF	ON	ON	OFF	OFF	OFF		99	OFF	OFF	ON	ON	ON	OFF	OFF
40	ON	OFF	ON	OFF	ON	ON	ON		100	OFF	OFF	ON	ON	OFF	ON	ON
41	ON	OFF	ON	OFF	ON	ON	ON		101	OFF	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF	ON		102	OFF	OFF	ON	ON	OFF	OFF	ON
43	ON	OFF	ON	OFF	ON	OFF	OFF		103	OFF	OFF	ON	ON	OFF	OFF	OFF
44	ON	OFF	ON	OFF	OFF	ON	ON		104	OFF	OFF	ON	OFF	ON	ON	ON
45	ON	OFF	ON	OFF	OFF	ON	OFF		105	OFF	OFF	ON	OFF	ON	ON	OFF
46	ON	OFF	ON	OFF	OFF	OFF	ON		106	OFF	OFF	ON	OFF	ON	OFF	ON
47	ON	OFF	ON	OFF	OFF	OFF	OFF		107	OFF	OFF	ON	OFF	ON	OFF	OFF
48	ON	OFF	OFF	ON	ON	ON	ON		108	OFF	OFF	ON	OFF	OFF	ON	ON
49	ON	OFF	OFF	ON	ON	ON	OFF		109	OFF	OFF	ON	OFF	OFF	ON	OFF
50	ON	OFF	OFF	ON	ON	OFF	ON		110	OFF	OFF	ON	OFF	OFF	OFF	ON
51	ON	OFF	OFF	ON	ON	OFF	OFF		111	OFF	OFF	ON	OFF	OFF	OFF	OFF
52	ON	OFF	OFF	ON	OFF	ON	ON		112	OFF	OFF	OFF	ON	ON	ON	ON
53	ON	OFF	OFF	ON	OFF	ON	OFF		113	OFF	OFF	OFF	ON	ON	ON	OFF
54	ON	OFF	OFF	ON	OFF	OFF	ON		114	OFF	OFF	OFF	ON	ON	OFF	ON
55	ON	OFF	OFF	ON	OFF	OFF	OFF		115	OFF	OFF	OFF	ON	ON	OFF	OFF
56	ON	OFF	OFF	OFF	ON	ON	ON		116	OFF	OFF	OFF	ON	OFF	ON	ON
57	ON	OFF	OFF	OFF	ON	ON	OFF		117	OFF	OFF	OFF	ON	OFF	ON	OFF
58	ON	OFF	OFF	OFF	ON	OFF	ON		118	OFF	OFF	OFF	ON	OFF	OFF	ON
59	ON	OFF	OFF	OFF	ON	OFF	OFF		119	OFF	OFF	OFF	ON	OFF	OFF	OFF
60	ON	OFF	OFF	OFF	OFF	ON	ON									

Mounting Media Cards to the NIC

Overview	The first step of the installation process is to identify the media cards that have to be connected to the NIC, and connect them properly.
Media card retainer	The media card retainer provided is required for compliance with California Administrative Code Chapter 6, Seismic Evaluation Procedures for Hospital Buildings and is recommended for all installations. Do not discard the media card retainer.
	Note: For cards that do not have the retainers installed or to order replacements for a broken retainer, use part number 650-1732 (two retainers per card are required).

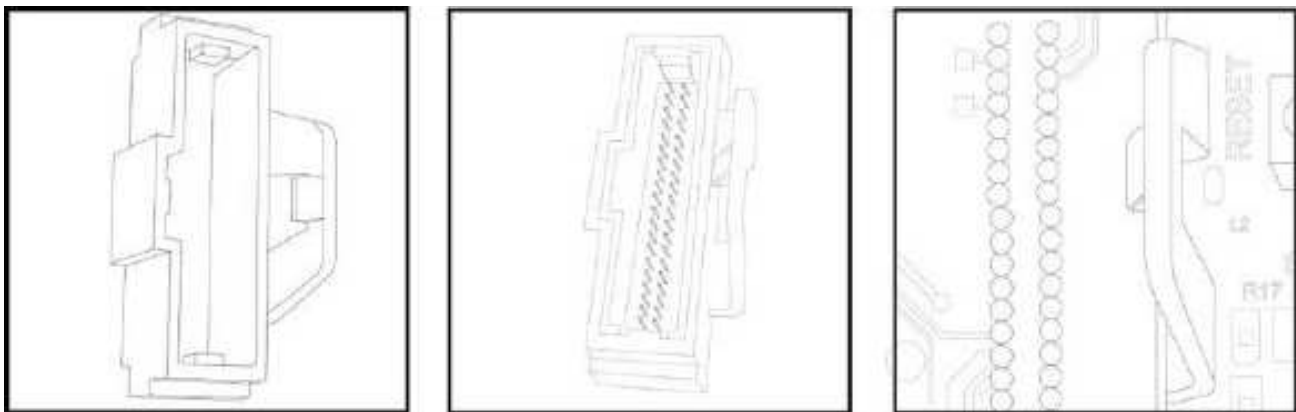


Figure 6. Media Card Retainer

Media Board Mounting	Refer to Figure 7 as you read the instructions that follow. Connect P1 on the media card, or J1 on the fiber media cards, to P8 (the left port) on the NIC. Ensure the card clicks into the media card retainer. To connect a second media card to the same NIC, connect it as described above, but use P5 (the right port) on the NIC. The 4007-6301, 4010-6301 and 4007-6303, 4010-6303 Duplex Fiber Media cards are left cards. Insert the cards in the corresponding network card left port (P8). The 4007-6302, 4010-6302, 4007-6304, and 4010-6304 Duplex Fiber Media cards are right cards. Insert the cards in the corresponding network card right port (P5).
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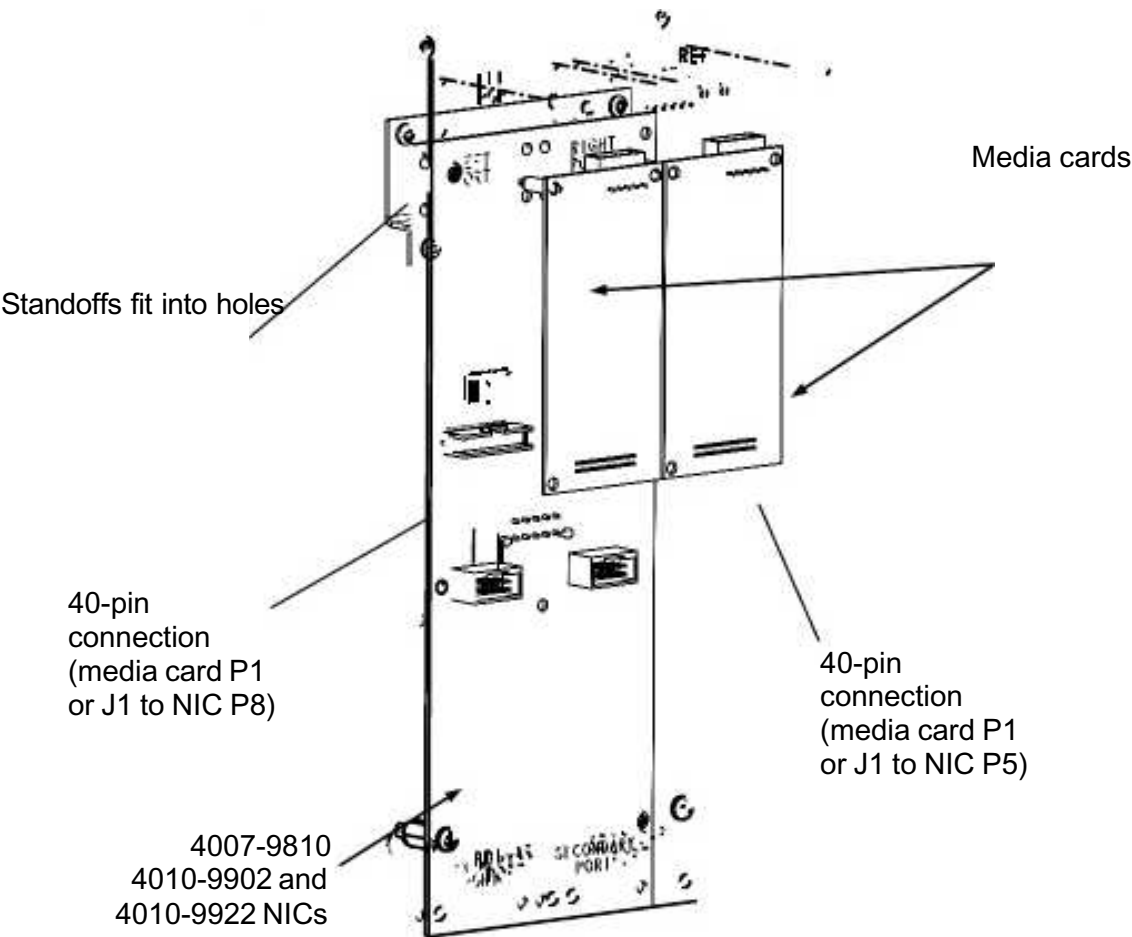


Figure 7. Mounting the media cards

Mounting the NIC

Installing into a 4010ES Panel

Use the following instructions to install the 4010ES NIC into a 4010ES fire panel. Refer to Figure 8:

1. Fasten the add-on metal plate to the base plate of the expansion bay, using #6 screws.
2. Install two metal standoffs on the bottom of the bay pan.
3. Insert the 4010ES NIC into a vertical pair of the PDI blocks.
4. Secure the NIC to the bay using four #6 metal screws.

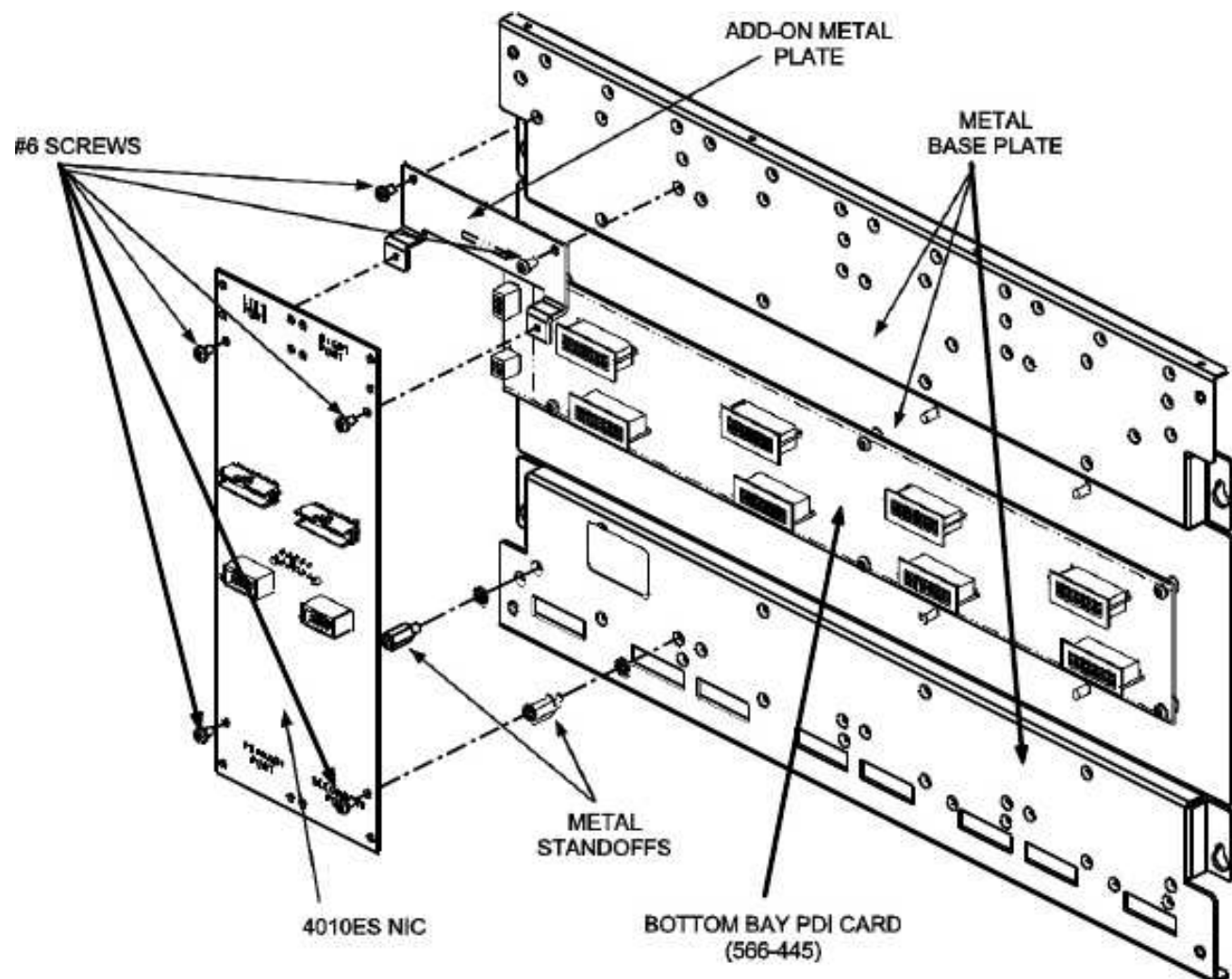


Figure 8. Installing the 4010ES NIC into the expansion bay of the Two-Bay 4010ES Fire Panel

Mounting the NIC, Continued

Installing into a 4007ES Panel

Use the following instructions to mount the 4007ES NIC (4007-9810) into a 4007ES fire panel. Refer to Figure 9.

1. Install the mounting plate in the top right corner of the 4007ES panel. Since the mounting plate of the 4007ES NIC can also accommodate up to two Zone/Relay cards, see Table 5 for mounting details with and without zone/relay cards:

Note: The NIC card cannot be installed if that spot is taken by another 4007ES option card.

Table 5: Mounting zone/relay cards

Installing with zone/relay cards	Installing without zone/relay cards
1. Install the Zone/Relay cards in the top right corner of the 4007ES panel using 9/16-inch metal standoffs that come with the cards. 2. Attach the four 1 1/4-inch metal standoffs to the Zone/Relay cards and mount the mounting plate on top of these standoffs.	1. Install the mounting plate in the top right corner of the 4007ES panel using four 1 1/4-inch and four 5/8-inch metal standoffs that come with the 4007-9810 kit.

2. Attach one end of the 734-335 power harness (supplied with the 4007-9810 kit) to the 10-pin connector on the back of the NIC.
3. Fasten the NIC to the top and bottom of the mounting plate using two #6 screws. The NIC can be mounted with media cards pointing upward or downward, depending on the type of media being installed.
 - When both ports are wired media, the NIC can be installed upward or downward.
 - When at least one port is fiber media, the NIC must be installed downward.

Note: An SDACT card must be mounted with a flat bracket (650-1838) when the NIC is installed in the panel to provide for adequate cabling space.

4. Attach the free end of the 734-335 power harness to the J17 connector on the power supply.

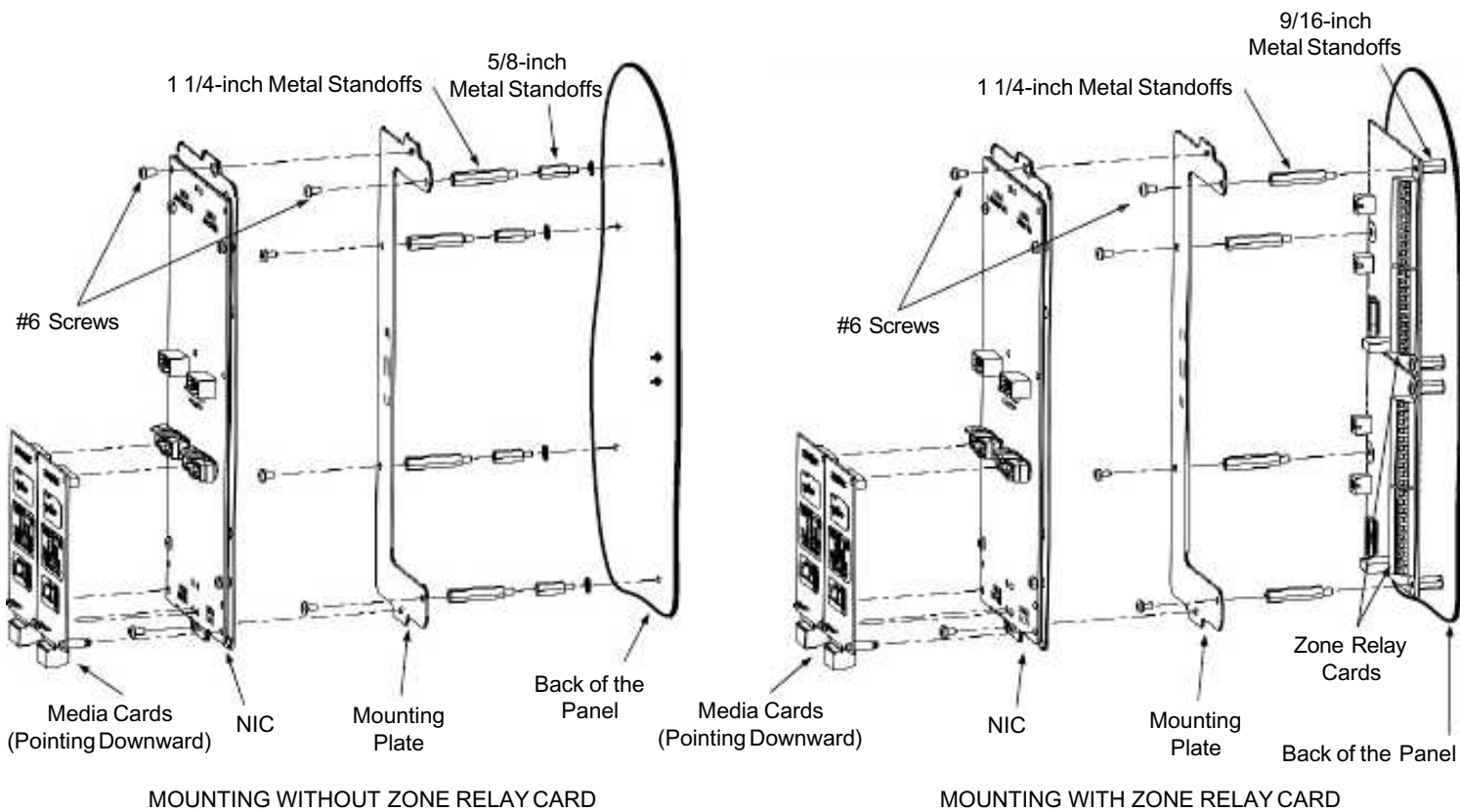


Figure 9. 4007ES NIC mounting

Wiring

Overview

The type of wiring used depends on the type of media cards being used in the system. All connections terminate directly to the media card being used.

General guidelines

Make sure these guidelines are accounted for before wiring:

- All wires must be 18 AWG, or as the local code dictates.
- Conductors must test free of all grounds.
- All wiring must be done using copper conductors only, unless noted otherwise.
- If shielded wire is used;
 - The metallic continuity of the shield must be maintained throughout the entire cable length.
 - The entire length of the cable must have a resistance greater than 1 Megohm to earth ground.
- Underground wiring must be free of all water.
- Only system wiring can be run together in the same conduit.

NIC wiring guidelines

- Network nodes must be wired right to left port, regardless of the media type selected. Media types for each link must match (i.e., wired to wired, fiber to fiber)
- Class A (Style 7) protection is achieved by wiring the nodes in a loop fashion. A single fault (except an Earth fault) causes the network to reconfigure for degraded Class A (Style 7) Class B (Style 4) operation. A second fault (except an Earth fault) results in the network dividing into two separate networks.
- Class B (Style 4) is achieved by wiring the nodes in a linear fashion. Class B (Style 4) networks are not fault-tolerant and a single fault (except an Earth fault) will result in the network dividing into two separate networks.
- For wired links, earth fault detection is performed on the left port only. When a network Earth fault occurs, the trouble is only reported on the node whose left port is connected to the span.
- All 18 AWG wiring used with 4010-9818 and 4007-9813 Wired Media Cards must be twisted shielded pair. When shielded cable is used, the shield must be terminated to chassis Earth on the left port only.
- It is permissible to use mixed media in a network. For example, some spans may be “wired media” while others are optical fiber.
- Each NIC has a jumper for selecting between network data rates of 57.6 kbps and 9.6 kbps. All cards in the network must be set for the same rate. (When physical bridging is used in the network, the data rate must be set for 9.6 kbps).
- Each NIC has a jumper for selecting between 8- and 9-bit network protocols. All cards in the network must be set for the same network protocol. (When physical bridging is used in the network, the protocol must be set for 8-bit).
- All network wiring except the shield is supervised.
- When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.

Wiring, Continued

Dual Fiber-optic wiring (746-109 only)

Connectors U1 (transmitter) and U2 (receiver) on the Fiber-Optic Media Card are used to connect NICs across parts of a network.

Note: When using fiber-optic cable, use ST connectors with long strain relief boots.

Figure 10 shows how two network nodes are connected via fiber-optic cable.

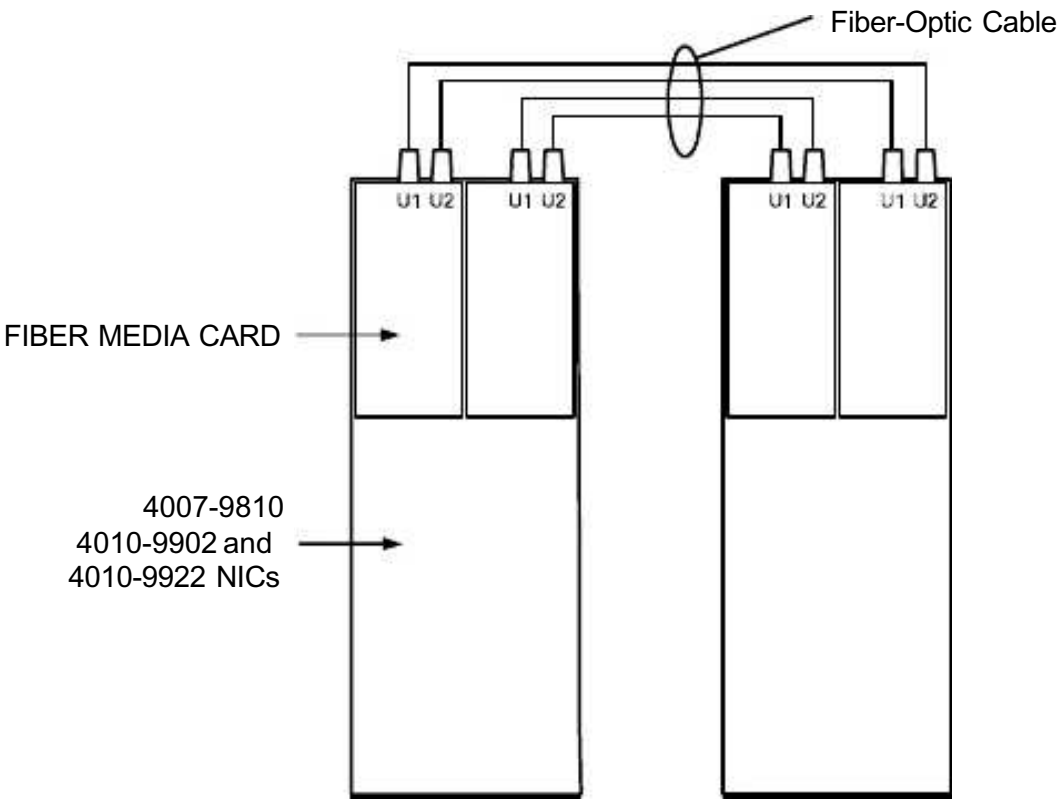


Figure 10. Dual fiber wiring

Dual fiber-optic connection types 746-109 only

Dual Fiber-Optic Cable Connections. The standard fiber-optic connection between the 4120 Network nodes uses two fiber-optic cables: one for transmit, and the other for receive. This connection allows for optimum communications distance. Distances can be determined using the information and examples shown below in Table 6.

Single fiber-optic cable connections. For applications where a single fiber cable is available, or where use of a single cable is desired, using a model 4190-9010 Bi-Directional Coupler at each node combines the separate transmit and receive signals into a single path. This connection allows use of a single fiber cable, but it reduces communications distance, as indicated in the information and examples shown in Table 7.

Wiring, Continued

4190-9010 coupler requirements
746-109 only

The 4190-9010 Coupler (271-012) is used with the 565-261 Fiber-Optic Media Board, revision C or higher, the 566-376, or the 746-109. Two 4190-9010 Bi-Directional Couplers are required per connection, one at each node.

The 4190-9010 is equipped with type ST connectors. To make type ST to type ST connections, an ST to ST coupler (from a third-party supplier) is required. ST to ST Couplers are available from: Black Box (part # FO20), Fiber Instrument Sales (part # F1-8101) and Newark Electronics (part # 95F2097), or equivalent.

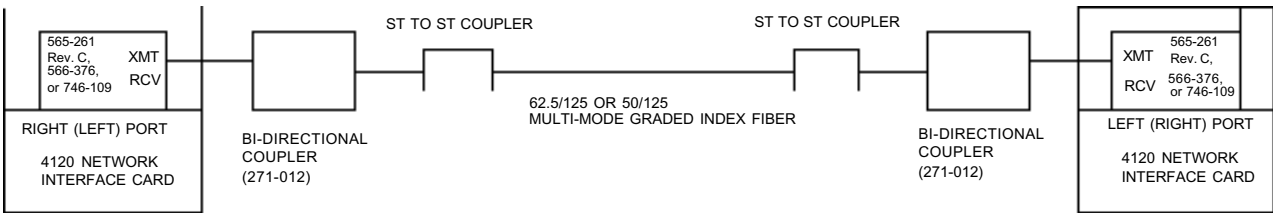


Figure 11. Coupler wiring (746-109 only)

Dual fiber-optic cable distance specifications
746-109 only

The available communications distance is determined by the properties of the specific fiber cable used, the overall link topology, and the available power budget.

Table 6: Dual fiber-optic cable communications distance examples

Fiber Type ^{1*}	MIFL ²	Power margin	Distance ³	Budget ^{3, 4}	Coupler/Splice Loss
50/125 numerical aperture = 0.2	3 dB/km	3 dB	15,000 ft (4.57 km)	17 dB	0.75dB max for each mated pair connection 0.30dB max for each fusion splice
62.5/125 numerical aperture = 0.275	3.50 dB/km	3 dB	15,000 ft (4.57 km)	20.4 dB	

Table 7: Single fiber-optic cable communications distance examples using 4190-9010 Bi-Directional Couplers

Fiber Type ¹	MIFL ²	Power margin	Distance ³	Budget ^{3, 4}	4190-9010 Coupler Loss	ST to ST Coupler Loss
50/125 numerical aperture = 0.2	3 dB/km	2 dB	7,650 ft (2.33 km)	21.4 dB	9.4 dB	3 dB
62.5/125 numerical aperture = 0.275	3.2 dB/km		8,200 ft (2.5 km)			2 dB

- Notes:
- 1. Fiber Type: Cable specifications are for 50 or 62.5 micron core with 125 micron cladding, multi-mode graded index fiber. Wavelength = 850 nm.
 - 2. MIFL: Maximum individual fiber loss. Numbers shown are for example reference only, refer to specific cable for exact specification.
 - 3. Distance: The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss and safety margin) or the maximum distance listed, whichever is smaller. Budget using 4190-9010 Bi-Directional Coupler is the same with either size cable. The coupler input cables are 62.5/125 fiber which allows launch power to be the same.
 - 4. Link Budget: Measure attenuation at wavelength 850nm.
 - 5. Dual Fiber optic distances are for 746-109, 565-261, 565-376, fiber media modules. Single fiber optic distances require use of 4190-9010 Bi-Directional Couplers.

Wiring, Continued

Duplex Fiber-optic connection types (0566-1197, 0566-1198, 0566-1199, or 0566-1200 only)

Use the transceiver U1 on the Duplex Fiber-Optic Media Card to connect 4007/4010ES NICs across parts of a 4120 network. Figure 12 shows how two network nodes are connected via fiber-optic cable.

- Do not mix single-mode and multi-mode cards on the same link (ie. do not connect a single mode right card to a multi-mode left card).
- The 4007/4010 series Duplex Fiber Cards are not compatible with Dual Fiber-Optic Media Cards. Existing media cards at both ends of the link must be replaced.
- The 4007/4010 series Duplex Fiber Cards are not compatible with all modular network cards. Refer to Appendix A for additional information.
- When using fiber optic cable, use SC connectors with long strain relief boots.

When servicing Dual Fiber-Optic Media Cards (on retrofit jobs where multimode fibers with ST connectors are already installed), order service kits 650-2013/650-2016 for 62.5/125um installations) or 650-2014/650-2015 (for 50/125um installations).

650-2013 Fiber Media Card Service Kit MM 62.5um 650-2016 Fiber Media Card Service Kit MM 62.5um w/566-807 4010 NIC			650-2014 Fiber Media Card Service Kit MM 50um 650-2015 Fiber Media Card Service Kit MM 50um w/566-807 4010 NIC		
Qty	Part #	Description	Qty	Part #	Description
1	566-1199	4120 MM-R Duplex Fiber Media Assy	1	566-1199	4120 MM-R Duplex Fiber Media Assy
1	566-1200	4120 MM-L Duplex Fiber Media Assy	1	566-1200	4120 MM-L Duplex Fiber Media Assy
2	171-100	Multi-Mode 62.5/125 ST-SC Patch Cord .46m	2	171-099	Multi-Mode 50/125 ST-SC Patch Cord .46m
2	166-747	ST- ST Coupler	2	166-747	ST- ST Coupler
2	156-087	Wire Clamp	2	156-087	Wire Clamp
2	650-2077	Insulating Sleeve	2	650-2077	Insulating Sleeve

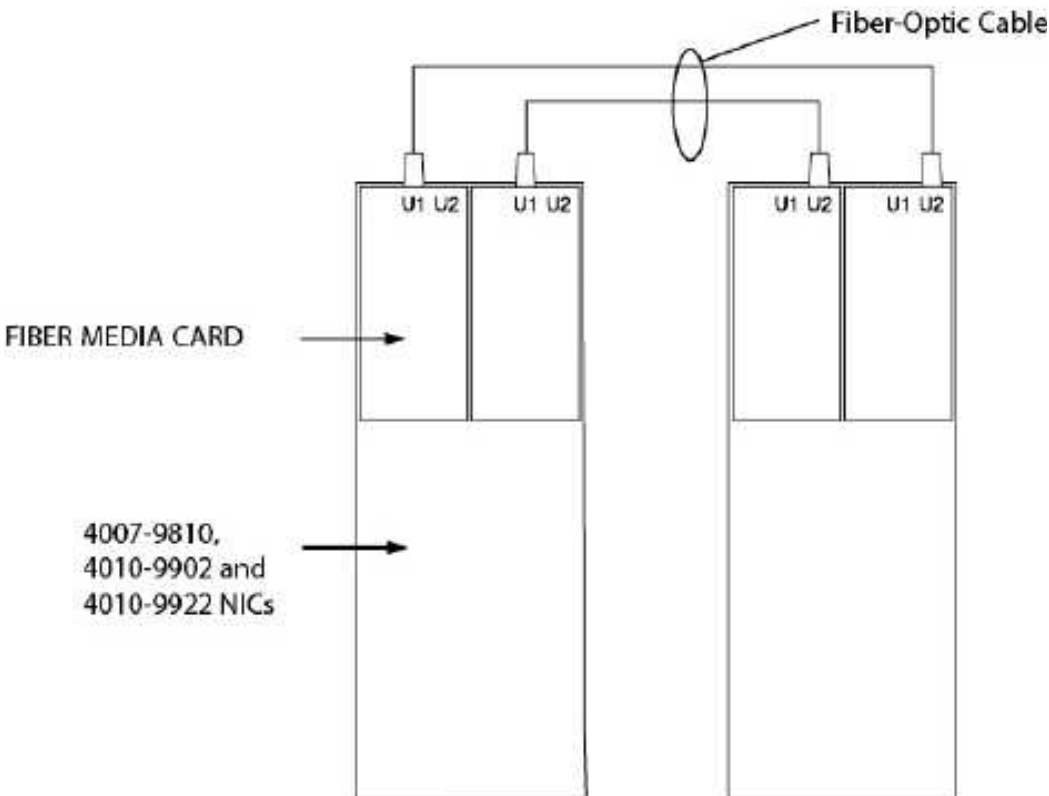


Figure 12. Fiber wiring

Wiring, Continued

Duplex Fiber-Optic Cable Distance Specifications (566-1197, 566-1198, 566-1199, 566-1200)

The available communications distance is determined by the properties of the specific fiber cable used, the overall link topology and the available power budget.

Table 8: Allowed Losses (0566-1197, 0566-1198, 0566-1199, or 0566-1200 only)

	Fiber type ¹	MIFL ²	Power margin	Distance ³	Budget ^{3,5}	Coupler/Splice Loss
Multi-mode	50/125 or 62.5/125 numerical aperture = 0.275	1.5dB/km @1300nm	3dB	5 km	18dB	.75dB max for each mated pair connection .30dB max for each fusion splice
Single-mode	9/125 numerical aperture = 0.2	1dB/km @1310nm	3dB	25km	22dB	

1. Fiber Type: Cable specifications are for:
 - 9 micron core with 125 micron cladding, single-mode graded index fiber or
 - 50 or 62.5 micron core with 125 micron cladding, multi-mode graded index fiber.
2. MIFL: Maximum Individual Fiber Loss. Numbers shown are for example reference only, refer to specific cable for exact specification.
3. Distance: The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss and safety margin) or the maximum distance listed, whichever is smaller.
4. Wavelength: Left media = Tx 1550/Rx1310 nm. Right media = Tx 1310/Rx1550.
5. Link Budget: Attenuation should be measured at the following wavelengths.
 - Multi-mode @ 1300nm
 - Single-mode @ 1310nm

Wiring with the Wired Media Card

Refer to the guidelines and figures in this topic to use wired media cards.

- The shield should only be connected at one end of the line. The shield is connected to the left port.
- When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.

Table 9: Connections for the Wired Media Card

Wired Media Card Connector Ports	Labels
TB1-1	Non-inverting (+)
TB1-2	Inverting (-)
TB1-3	0 V isolated
TB1-4	None
TB1-5	Earth Ground

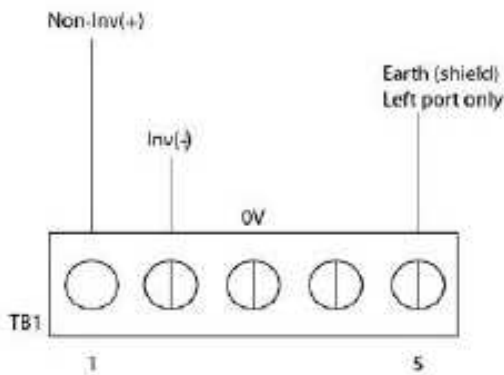


Figure 13. 565-413 TB1 (component side up)

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Wiring, Continued

The following section describes how to connect NICs together in Class B (Style 4) or Class A (Style 7) connections, using either wired or fiber-optic media cards.

Wired Media Cards, Class B (Style 4) wiring

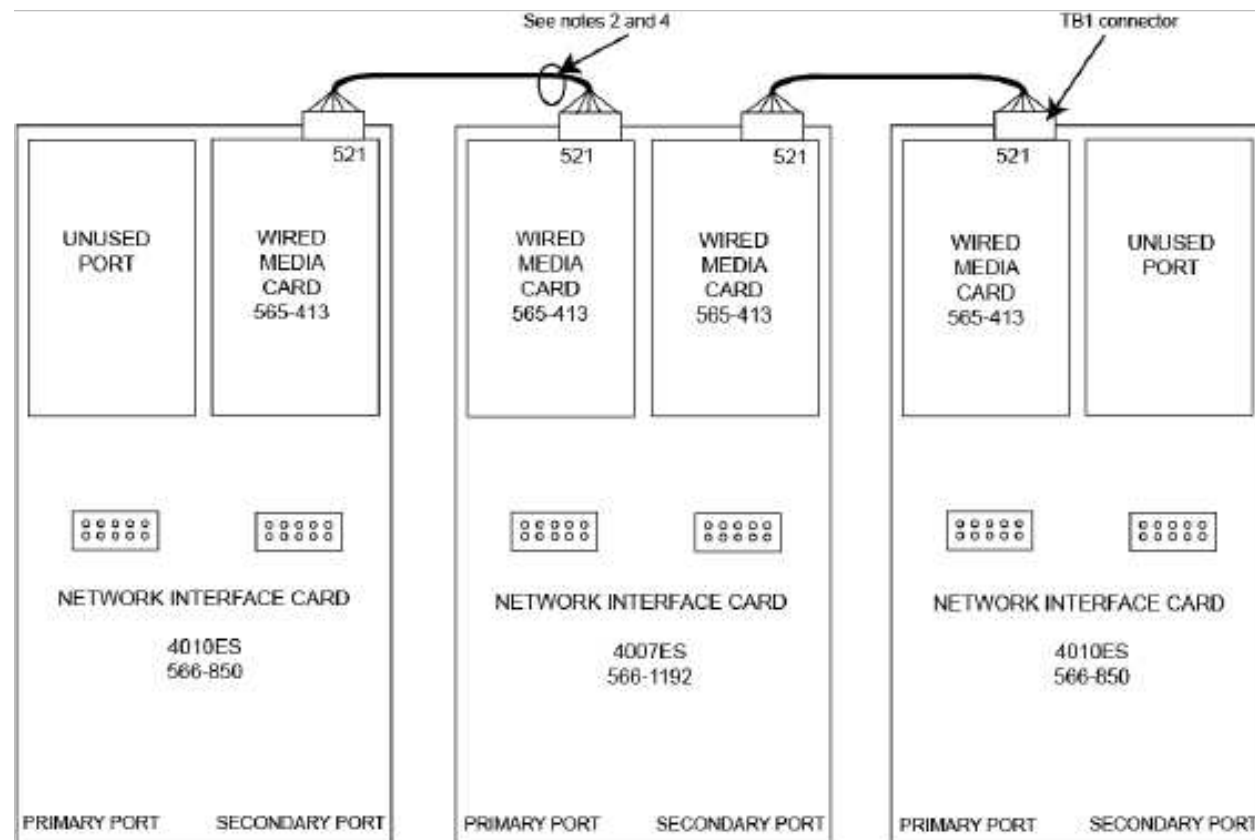


Figure 14. Wired Media Cards, Class B (Style 4) Wiring

Notes

1. Refer to general wiring precautions in this document.
2. If a shield is used, it should only be connected to the left port.
3. When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.
4. Each "wired" media cable requires two ferrite beads, one at each end (included in the shipping group). Refer to installation instructions document 574-041 for proper bead mounting.

Wired Media Cards, Class A (Style 7) wiring

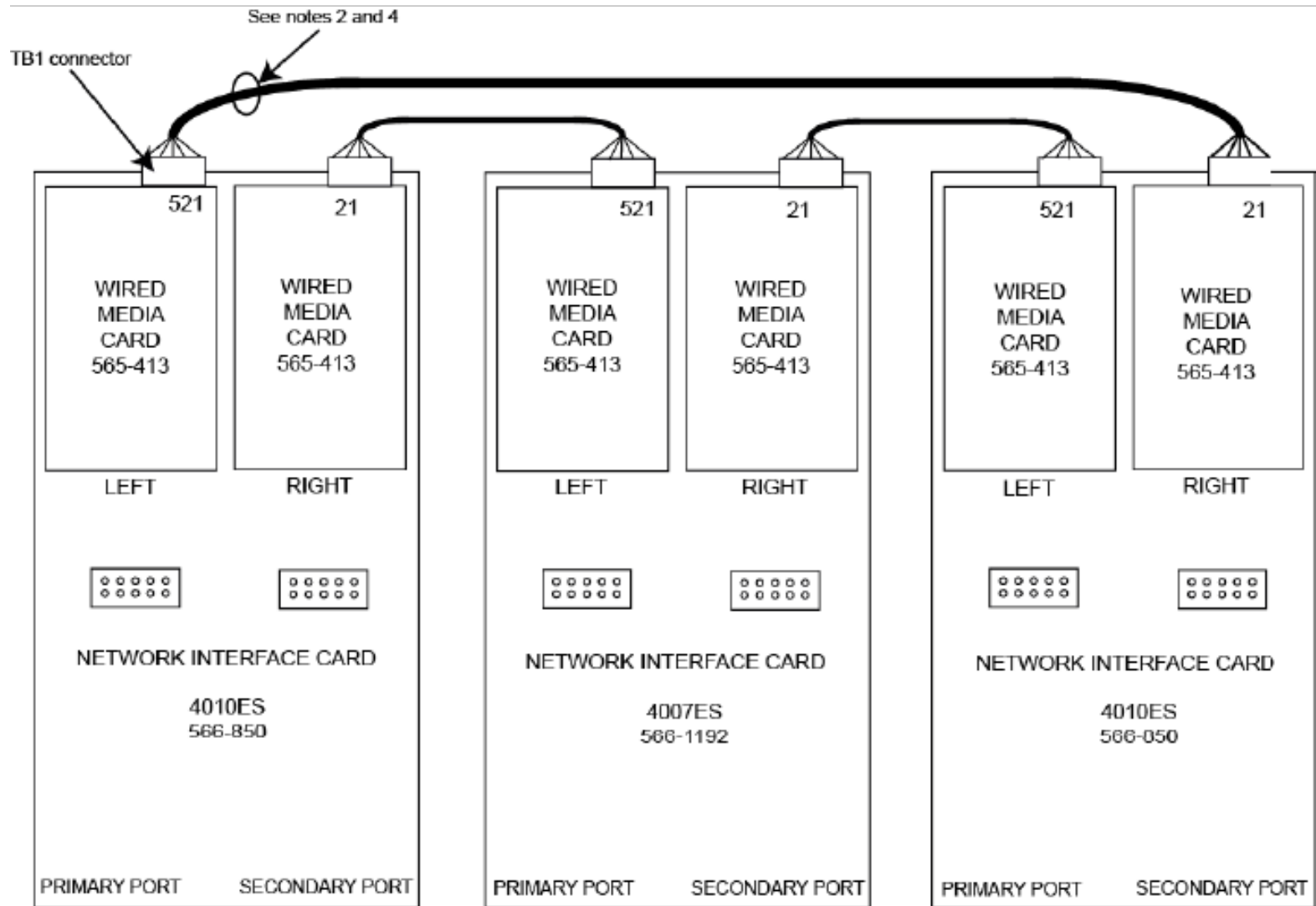


Figure 15. Wired Media Cards, Class A (Style 7) wiring

Notes

1. Refer to general wiring precautions in this document.
2. The shield should only be connected at one end of the line. The shield is connected to the left port.
3. When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.
4. Each "wired" media cable requires two ferrite beads, one at each end (included in the shipping group). Refer to installation instructions document 574-041 for proper bead mounting

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Dual Fiber-Optic Media Cards, Class B (Style 4) wiring

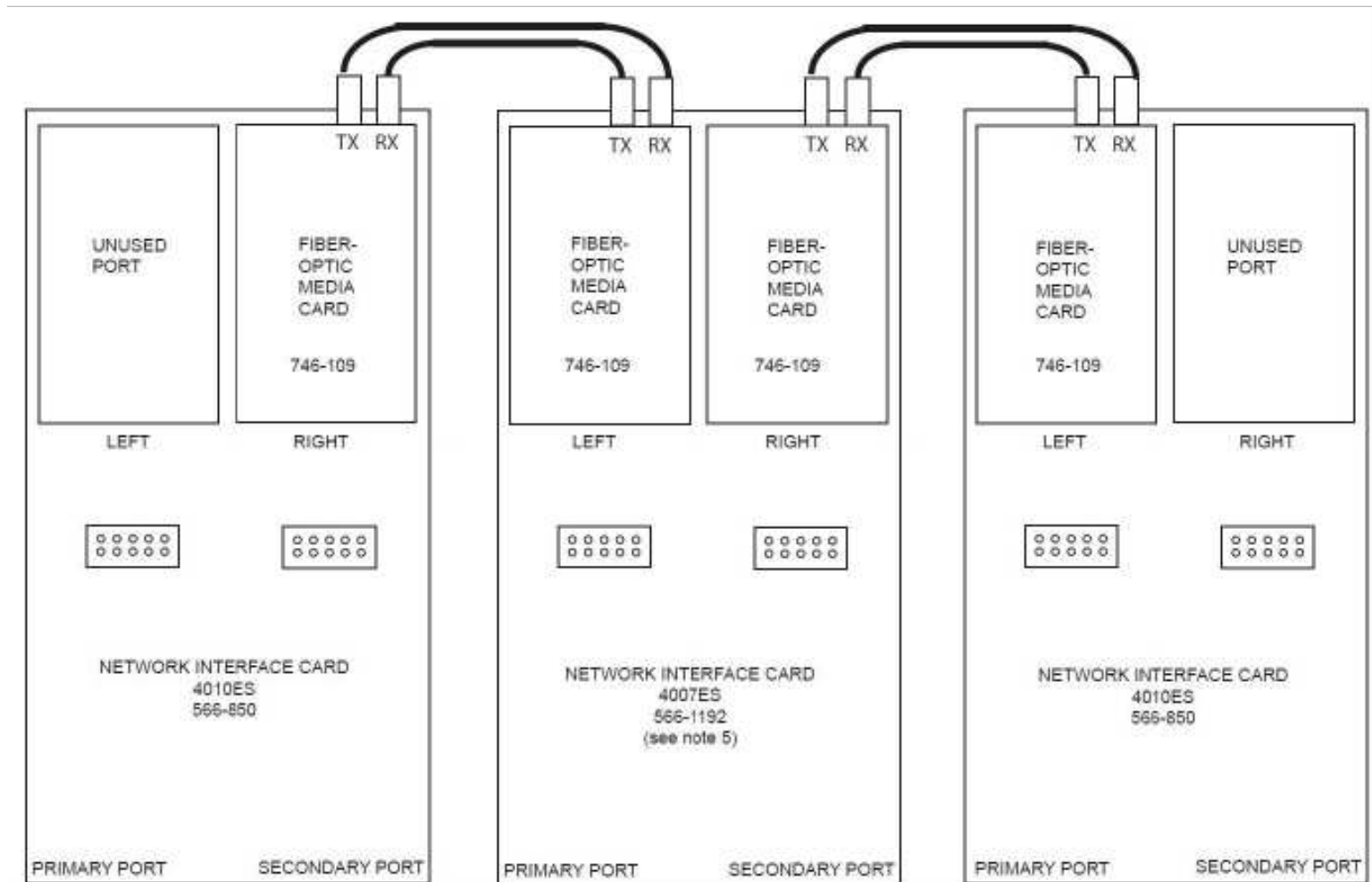


Figure 16. Dual Fiber-Optic Media Cards, Class B (Style 4) wiring

Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 6 for allowed losses.
3. When using fiber-optic cable, use ST connectors with long strain relief boots.
4. Use cable clamps supplied with 748-531 to secure the fiber cable.
5. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.

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Dual Fiber-Optic Media Cards, Class A (Style 7) wiring (746-109 only)

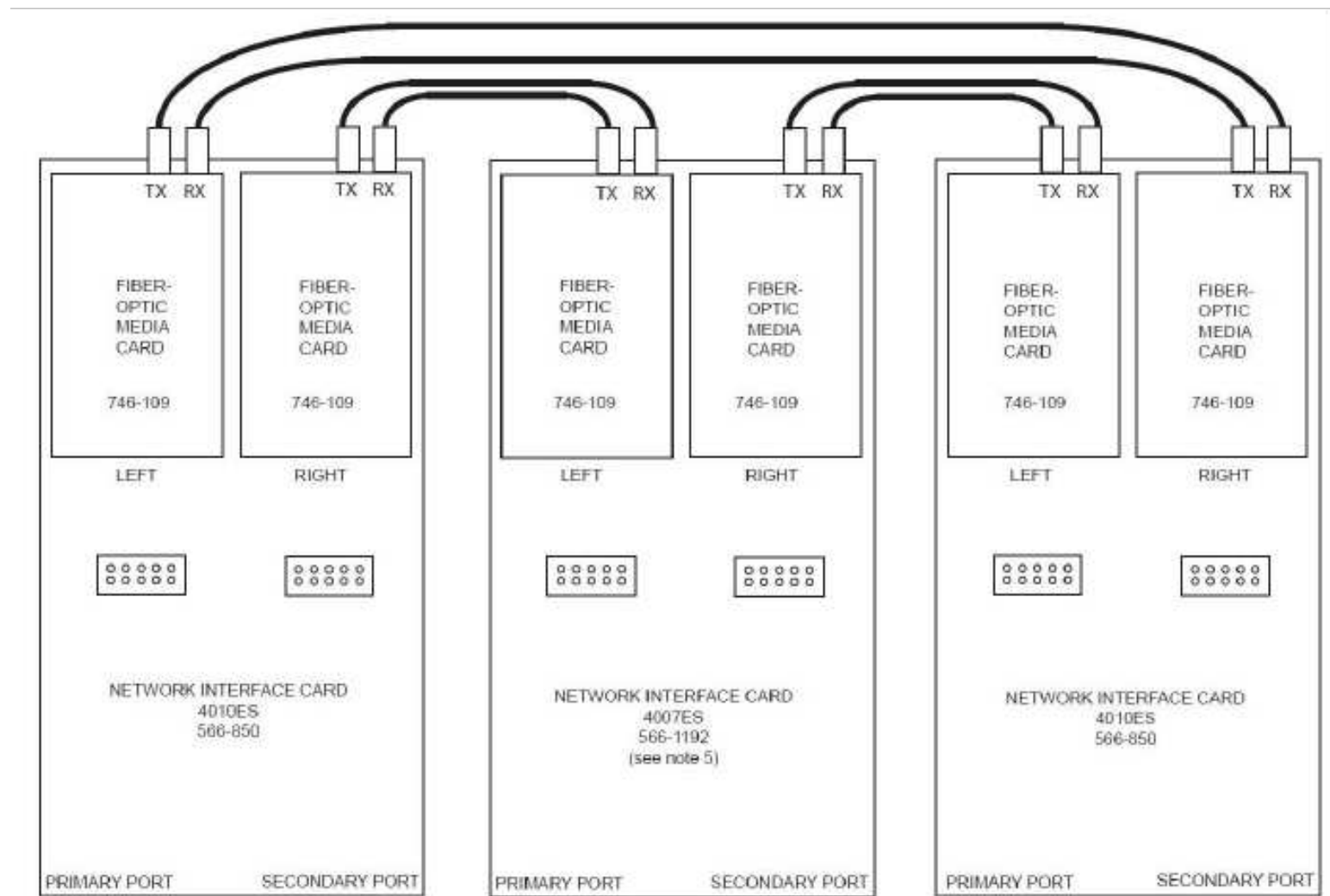


Figure 17. Dual Fiber-Optic, Class A (Style 7) wiring

Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 6 for allowed losses.
3. When using fiber-optic cable, use ST connectors with long strain relief boots.
4. Cable clamps supplied with 748-531 are used to secure the fiber cable.
5. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.

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Wired and Dual Fiber-Optic Media Cards, Class B (Style 4) wiring (746-109 only)

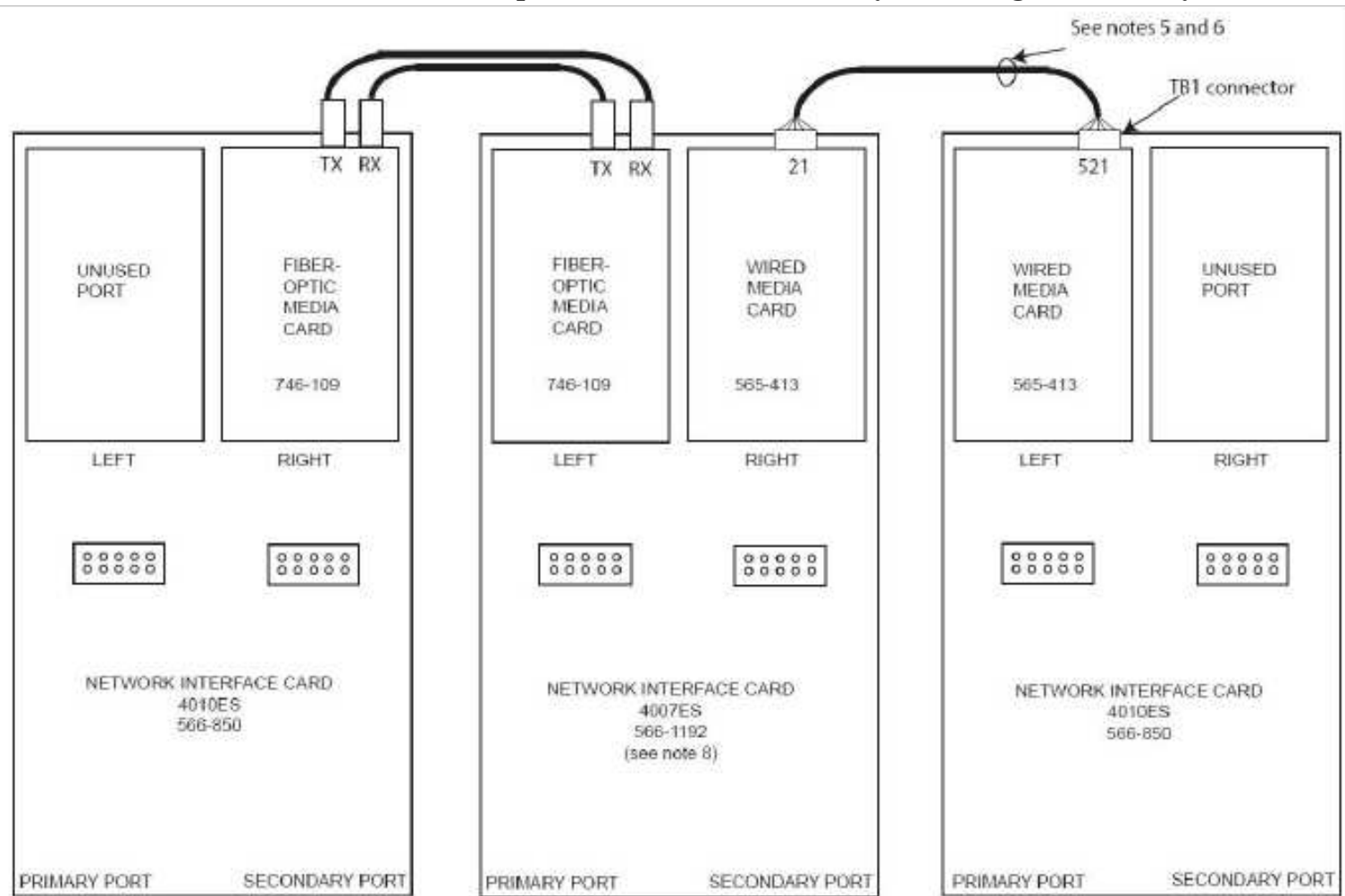


Figure 18. Wired and Dual Fiber-Optic Media Cards, Class B (Style 4) wiring

Notes:

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 6 for allowed losses.
3. When using fiber-optic cable, use ST connectors with long strain relief boots.
4. Cable clamps supplied with 748-531 are used to secure the fiber cable.
5. The shield should only be connected at one end of the line. The shield is connected to the left port.
6. Each "wired" media cable requires two ferrite beads, one at each end (included in the shipping group). Refer to installation instructions 574-041 for proper bead mounting.
7. When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.
8. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.

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Wired and Dual Fiber-Optic Media Cards, Class A (Style 7) wiring (746-109 only)

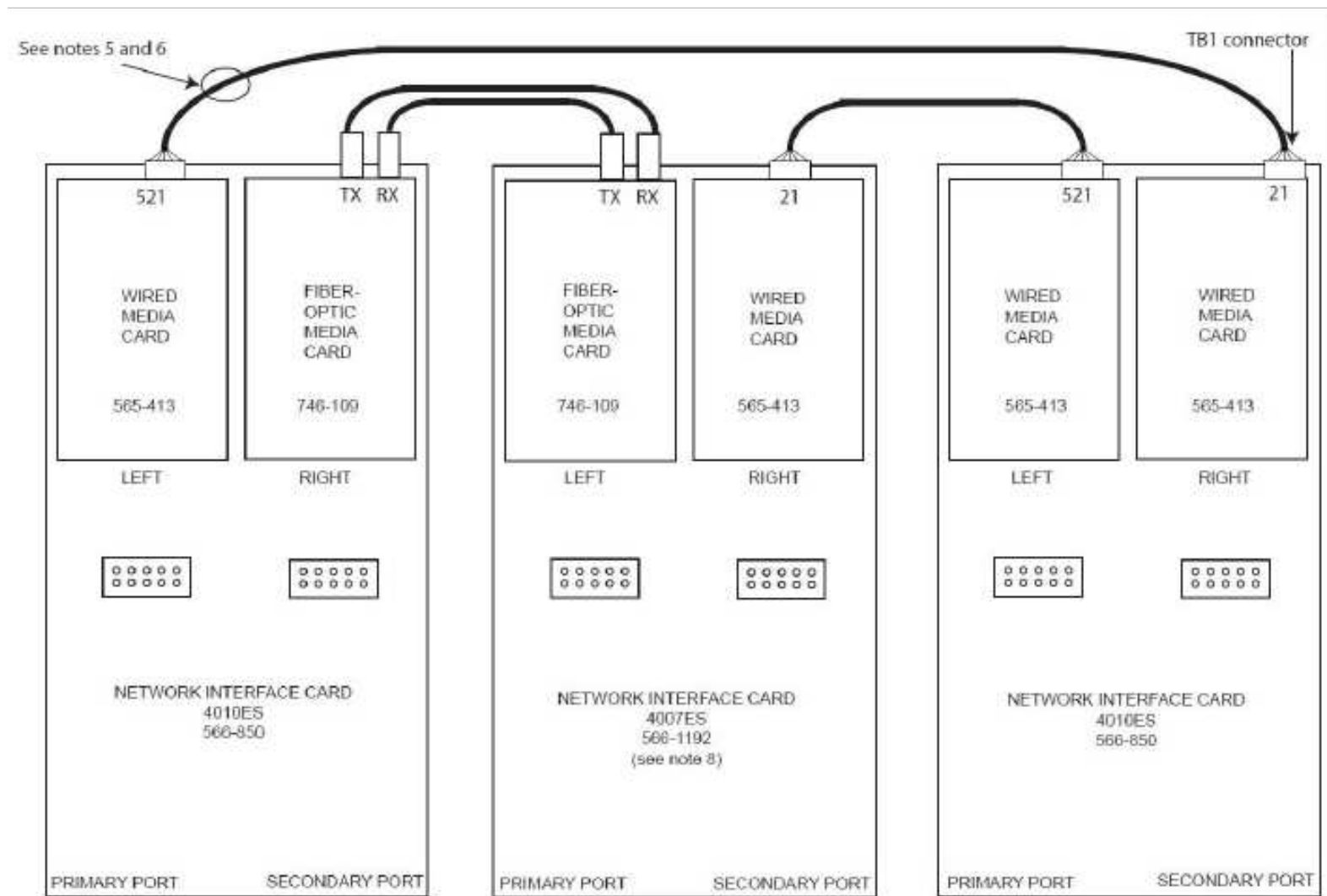


Figure 19. Wired media and dual fiber-optic Class A (Style 7) wiring

Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 7 for allowed losses.
3. When using fiber-optic cable, use SC connectors with long strain relief boots.
4. Cable clamps supplied with 748-531 are used to secure the fiber cable.
5. If a shield is used, it should only be connected to the left port.
6. Each "wired" media cable requires two ferrite beads, one at each end (included in the shipping group). Refer to installation instructions 574-041 for proper bead mounting.
7. When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.
8. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.

Duplex Fiber-Optic Media Cards Class B (Style 4) wiring (0566-1197, 0566-1198, 0566-1199, or 0566-1200 only)

The transceiver U1 on the duplex fiber media card is used to connect 4010-9902, 4010-9922 and 4007-9810 NICs across parts of a network.

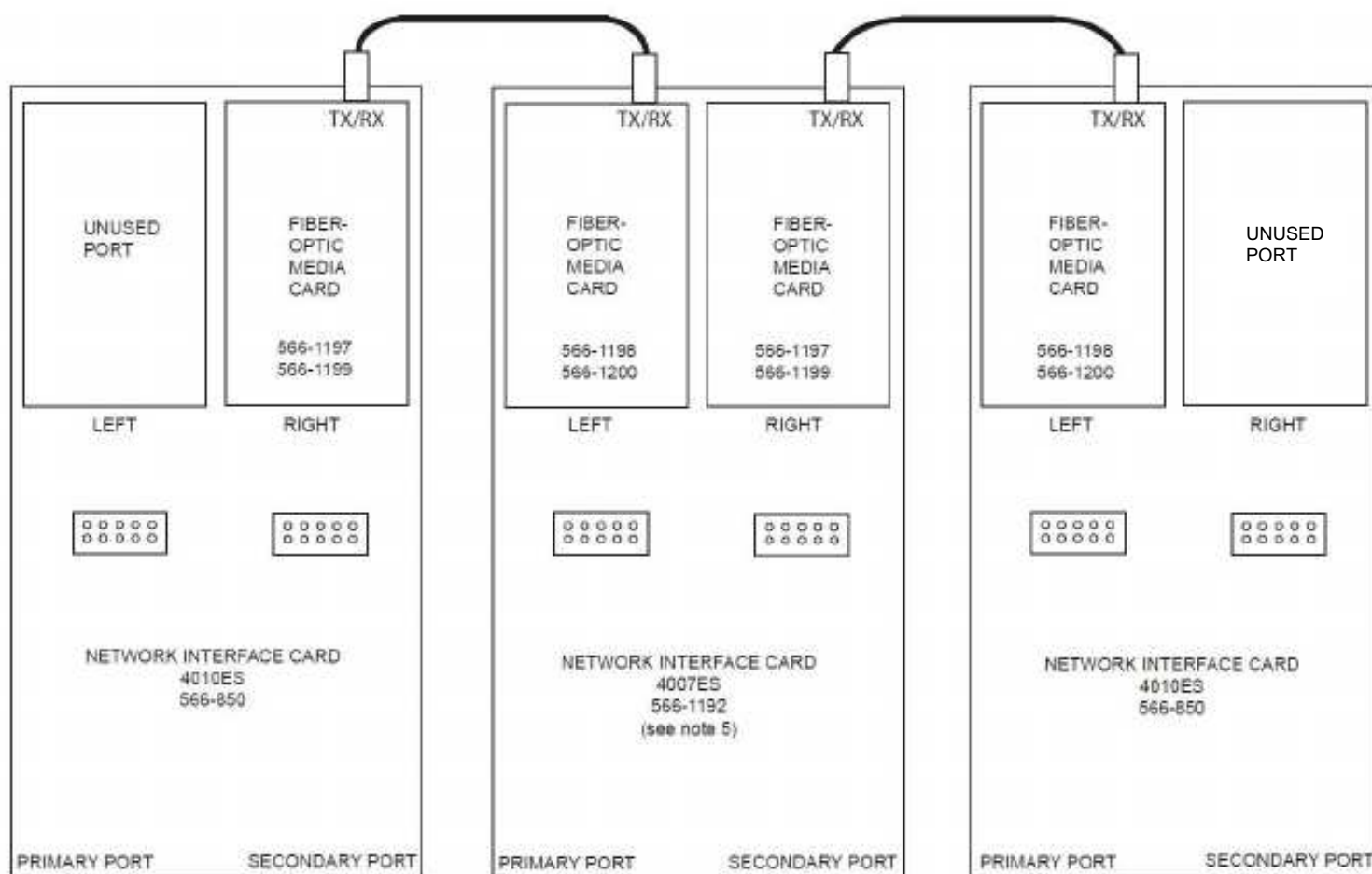


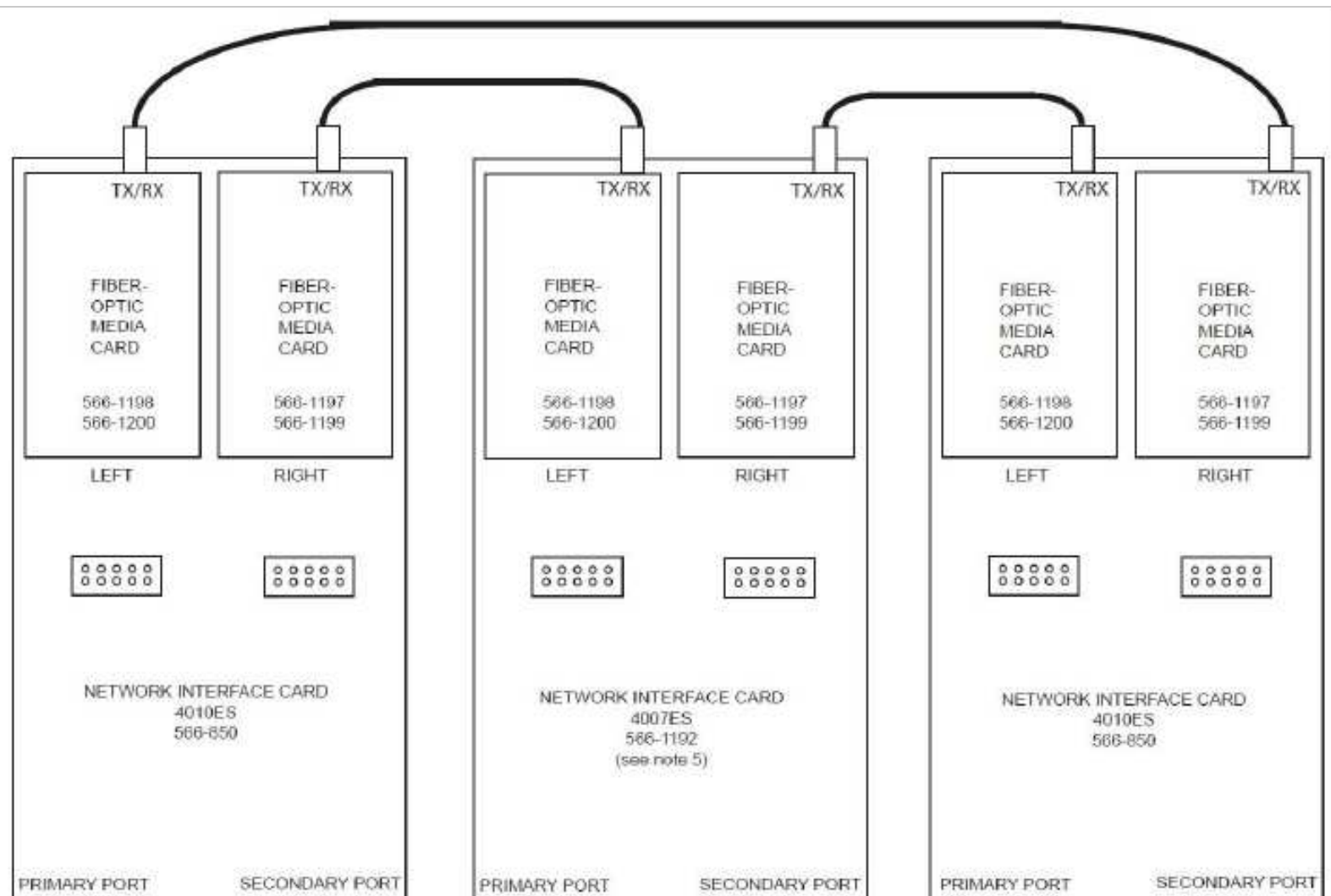
Figure 20. Duplex fiber-optic media cards, Class B (Style 4) wiring

Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 8 for allowed losses.
3. When using fiber-optic cable, use SC connectors with long strain relief boots.
4. Use cable clamps supplied with 748-531, 650-2013, 650-2014, 650-2015, and 650-2016 to secure the fiber cable.
5. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.
6. Use fiber media service kits 650-2013, 650-2014, 650-2015, and 650-2016 on retrofit jobs where fibers with ST connectors are already installed.

Wiring, Continued

Duplex Fiber-Optic Class A (Style 7) wiring (0566-1197, 0566-1198, 0566-1199, or 0566-1200 only)



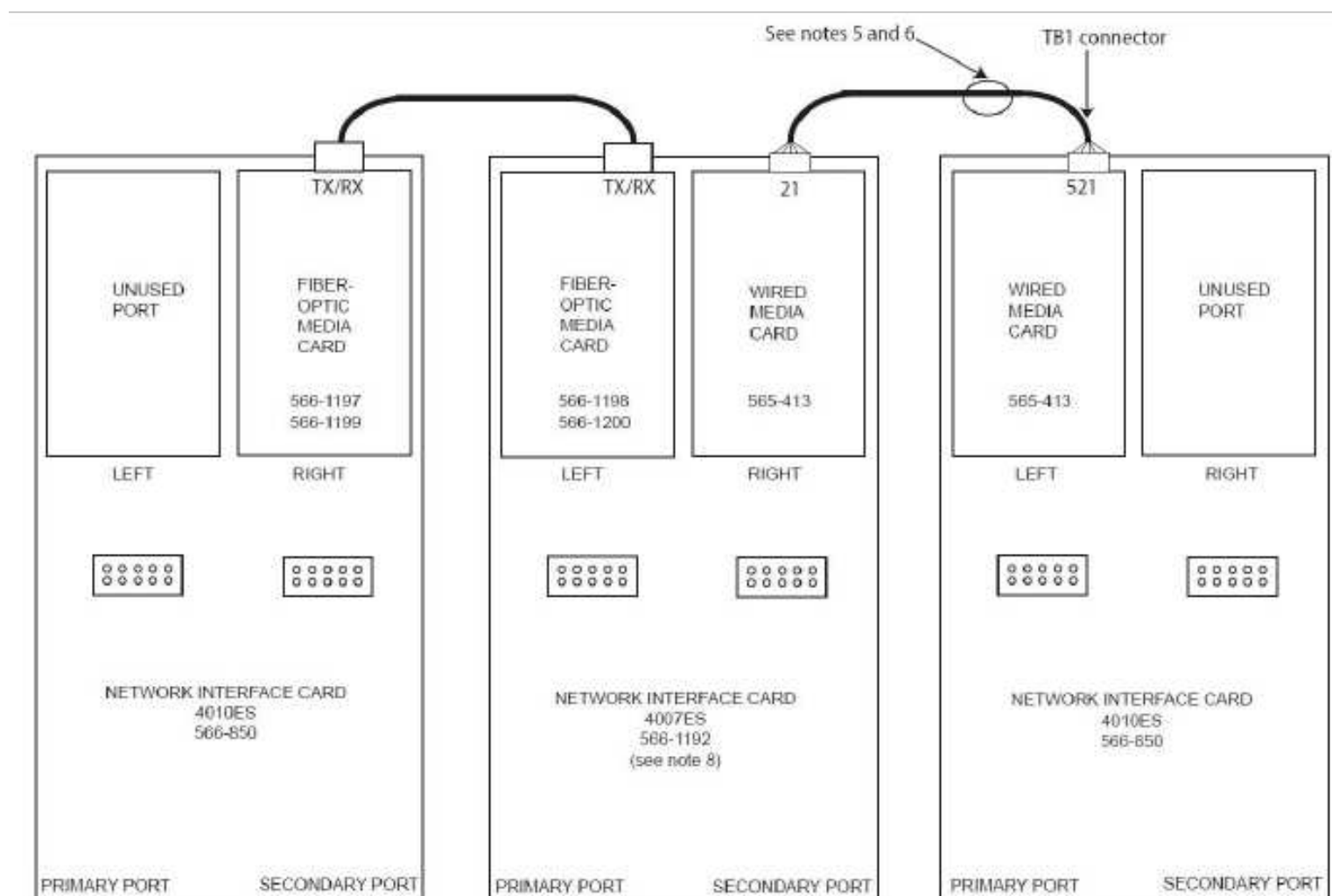
Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 8 for allowed losses.
3. When using fiber-optic cable, use SC connectors with long strain relief boots.
4. Use cable clamps supplied with 748-531, 650-2013, 650-2014, 650-2015, and 650-2016 to secure the fiber cable.
5. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.
6. Use fiber media service kits 650-2013, 650-2014, 650-2015, and 650-2016 on retrofit jobs where fibers with ST connectors are already installed.

Figure 21. Duplex Fiber-Optic Media Cards, Class A (Style 7) wiring

Wiring, Continued

Wired and Duplex Fiber-Optic Media Cards, Class B (Style 4) wiring (0566-1197, 0566-1198, 0566-1199, or 0566-1200 only)



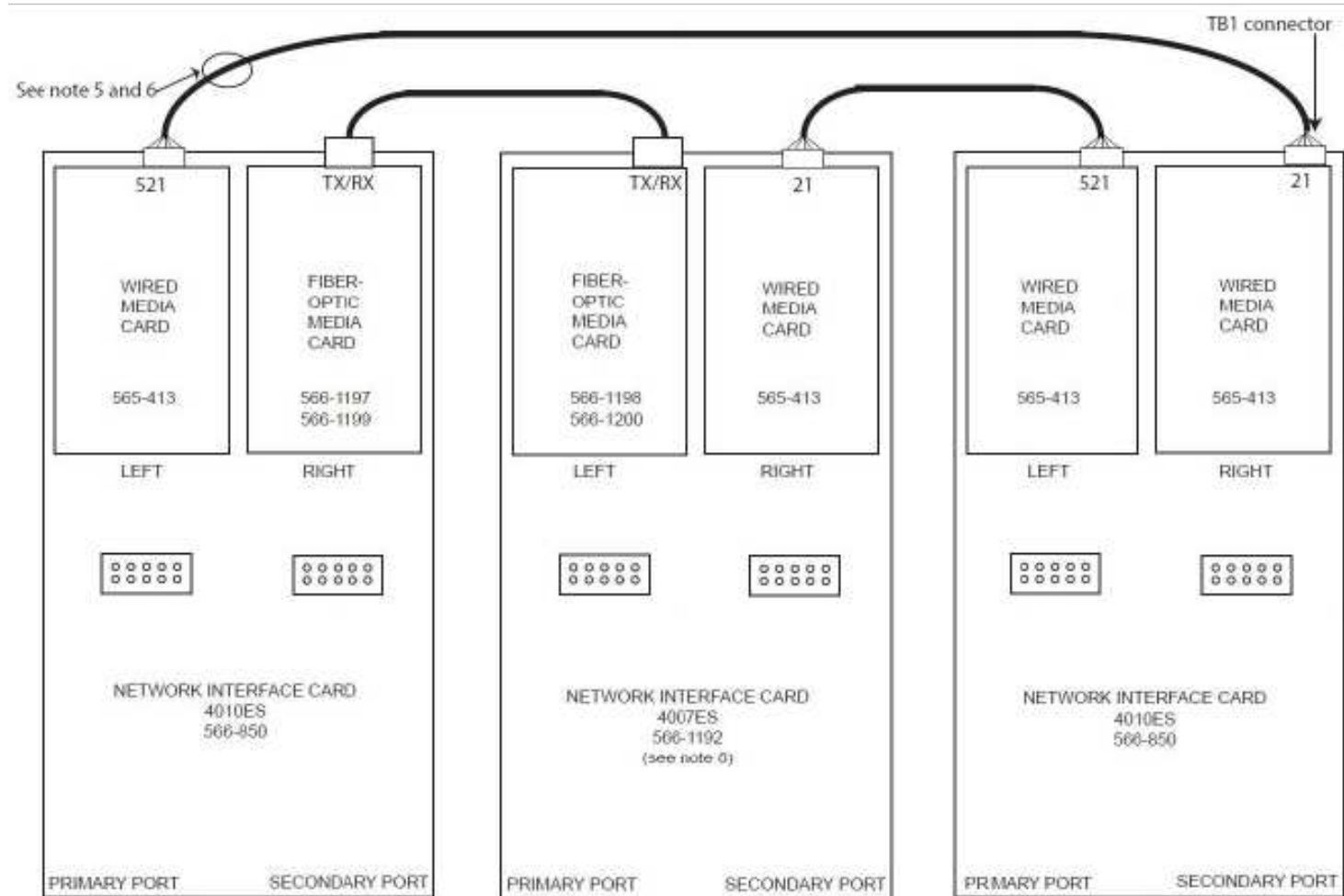
Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 8 for allowed losses.
3. When using fiber-optic cable, use SC connectors with long strain relief boots.
4. Use cable clamps supplied with 748-531, 650-2013, 650-2014, 650-2015, and 650-2016 to secure the fiber cable.
5. The shield should only be connected at one end of the line. The shield is connected to the left port.
6. Each "wired" media cable requires two ferrite beads, one at each end (included in the shipping group). Refer to installation instructions 574-041 for proper bead mounting.
7. When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.
8. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.
9. Use fiber media service kits 650-2013, 650-2014, 650-2015, and 650-2016 on retrofit jobs where fibers with ST connectors are already installed.

Figure 22. Wired and Duplex Fiber-Optic Media Cards, Class B (Style 4) wiring

Wiring, Continued

Wired and Duplex Fiber-Optic Media Cards, Class A (Style 7) Wiring (0566-1197, 0566-1198, 0566-1199, or 0566-1200 only)



Notes

1. Refer to general wiring precautions in this document. For specific information about fiber-optic wiring, refer to the 900-143 Fiber Tutorial.
2. The available communications distance is determined by the properties of the specific fiber cable used, and the available power budget. The maximum distance between nodes is determined by the total loss from the transmitter to the associated receiver (fiber loss, connector loss, splice loss, safety margin, etc.) or the maximum distance listed, whichever is smaller. See Table 2 and Table 8 for allowed losses.
3. When using fiber-optic cable, use SC connectors with long strain relief boots.
4. Use cable clamps supplied with 748-531, 650-2013, 650-2014, 650-2015, and 650-2016 to secure the fiber cable.
5. If a shield is used, it should only be connected to the left port.
6. Each "wired" media cable requires two ferrite beads, one at each end (included in the shipping group). Refer to installation instructions 574-041 for proper bead mounting.
7. When wiring leaves the building, 2081-9044 Overvoltage Protectors are required. One overvoltage protector is installed where wiring leaves the building; another is installed where wiring enters the next building.
8. Install the 4007ES NIC with the media cards pointing downward if at least one of the cards is a fiber optic media card.
9. Use fiber media service kits 650-2013 and 650-2014 on retrofit jobs where fibers with ST connectors are already installed.

Figure 23. Wired and Duplex Fiber-Optic Media Cards, Class A (Style 7) wiring

Checkout Procedure

Checkout Procedure	When the NIC installation is completed, verify its operation using the Network Programmer's Reports. In addition, do the following: • Test point status changes • Test common annunciation • Interrogate the network about point information • Test common trouble point status reports and responses Use the ES Programming Unit to make any corrections to the network CFIG chips. (Refer to Publication NET-41-003 for programming information.)
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Appendix A: Modular network card compatibility

Table 10: Duplex Fiber Media Cards Modular Network Card compatibility

4007-6301, 4010-6301, 4007-6302, 4010-6302, 4007-6303, 4010-6303, 4007-6304, 4010-6304 Duplex Fiber Media Cards			
Part #	PID	Description	Compatible
4100/4100U/4100ES			
566-793	4100-6014/6078	4100/4100ES SMT 2D Modular Network Card	Yes
566-793	4100-9863/9864	4100/4100ES SMT TCP/IP Physical Bridge Card	Yes
566-794	4100-6101/6102 4100-6036/6037	4100/4100ES SMT Modem Physical Bridge Card (a 566-793 card with Physical Bridge firmware)	Yes
565-649	4100-6023/6024 4120-6023/6024	4100/4120 2D Modem Physical Bridge Card (a 565-516 card with Physical Bridge firmware)	No
565-516	4100-9849/9850	4100/4120 TCP/IP 2D Modular Physical Bridge Card	No
565-516	4100-6014	4100/4120 2D Modular Network Card	No
565-409	4120-6014/0149	4100 1D Modular Network Card	No
565-245		4100 Modular Network Card	No
4010ES			
566-850	4010-9922	4010ES SMT Modular Network Card	Yes
566-851	4010-9903/9904 4010-9924/9925	4010ES SMT Modem Physical Bridge Card	Yes
566-857	4010-9926/9927	4010ES TCP /IP Physical Bridge Card	Yes
4007ES			
566-1192	4007-9810	4007ES SMT Modular Network Card (Flat)	Yes
4020			
566-826	N/A	4020 SMT 2D Modular Network Card	Yes
566-827	N/A	4020 SMT Modem Physical Bridge Card	Yes
565-518	4020-6014	4020 2D Modular Network Card	Yes
565-411		4020 1D Modular Network Card	No
565-277		4020 Modular Network Card	No
565-650	4020-6023	4020 Modem Physical Bridge Card (a 565-518 card with Physical Bridge firmware)	Yes
4002			
566-825	N/A	4002 SMT 2D Modular Network Card	Yes
565-519	4002-6012	4002 2D Modular Network Card	Yes
565-432		4002 1D Modular Network Card	No
NSI			
566-829	4190-9830/9831	Network System Integrator	Yes
566-729	4190-9826/9827	Network System Integrator (Old)	Yes
IMS/TSW			
746-208	4190-6033/6061	TSW PCI Modular Network Card	Yes
655-272	4190-9821/9829	IMS/TSW PCI Modular Network Card	No
655-222		IMS/TSW PCI Modular Network Card	No
GCC/NPU			
565-695	4190-6031	GCC/NPU ISA Modular Network Card (short card)	No
565-202		GCC/NPU ISA Modular Network Card (long card)	No
4010			
566-807	4010-9817	4010 SMT Modular Network Card (Rev-C and later)	Yes
566-807		4010 SMT Modular Network Card (Rev-B and earlier)	No
565-818		4010 SMT Modular Network Card	No