

SIEMENS

INSTALLATION INSTRUCTIONS

Model VN2002-A1 Ethernet Module (MM)

Model VN2003-A1 Ethernet Module (SM)

The optional VN2002-A1 Ethernet Module (MM) (multi-mode) and VN2003-A1 Ethernet Module (SM) (single-mode) are optical fiber interface cards which provide dual interconnecting optical links for networked systems.

FEATURES

The principal features of both the VN2002-A1 and the VN2003-A1 include:

- Easily plugged into the host card or assembly
- Automatically identified by the system at power up
- Can be used in the UL and ULC markets

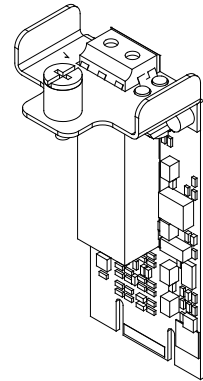


Figure 1
VN2002-A1 Ethernet Module (MM)
VN2003-A1 Ethernet Module (SM)

PRE-INSTALLATION

There are no pre-installation steps associated with installation of either the VN2002-A1 Ethernet Module (MM) or VN2003-A1 Ethernet Module (SM).

1.

OPERATION

The VN2002-A1 Ethernet Module (MM) and VN2003-A1 Ethernet Module (SM) can be used both in Voice networks of FV2025/2050 Fire Voice Control Panels and in generic Ethernet systems.

Operation in a Voice Network of FV2025/2050 Fire Voice Control Panels

The VN2002-A1 Ethernet Module (MM) and the VN2003-A1 Ethernet Module (SM) are optional circuit cards that plug into the VCC2001-A1 Voice CPU card to provide two cable connections which are used for fiber links in an Ethernet Backbone network (see Figure 3). Each link in a Backbone network is independent of any other link. It can be implemented as either copper wire or fiber-optic cable without any regard to what is used for the other links in the network. Each end of a link must use the same type of circuit card. That is, if a VN2002-A1 Ethernet Module (MM) is used at one end of a link, another VN2002-A1 Ethernet Module (MM) has to be installed at the other end of the link for the link to operate correctly. The same constraint applies to using the VN2003-A1 Ethernet Module (SM).

NOTE: For installation instructions applicable to copper-based links see Siemens Industry, Inc., Building Technologies Division, document number A6V10370415 *Installation Instructions for the Model VN2001-A1 Ethernet Module 10/100 BaseTx*.

The Backbone is a dual fiber, self-healing, redundant, ring network that is able to detect failures and then automatically isolate and recover from them using an alternate routing.

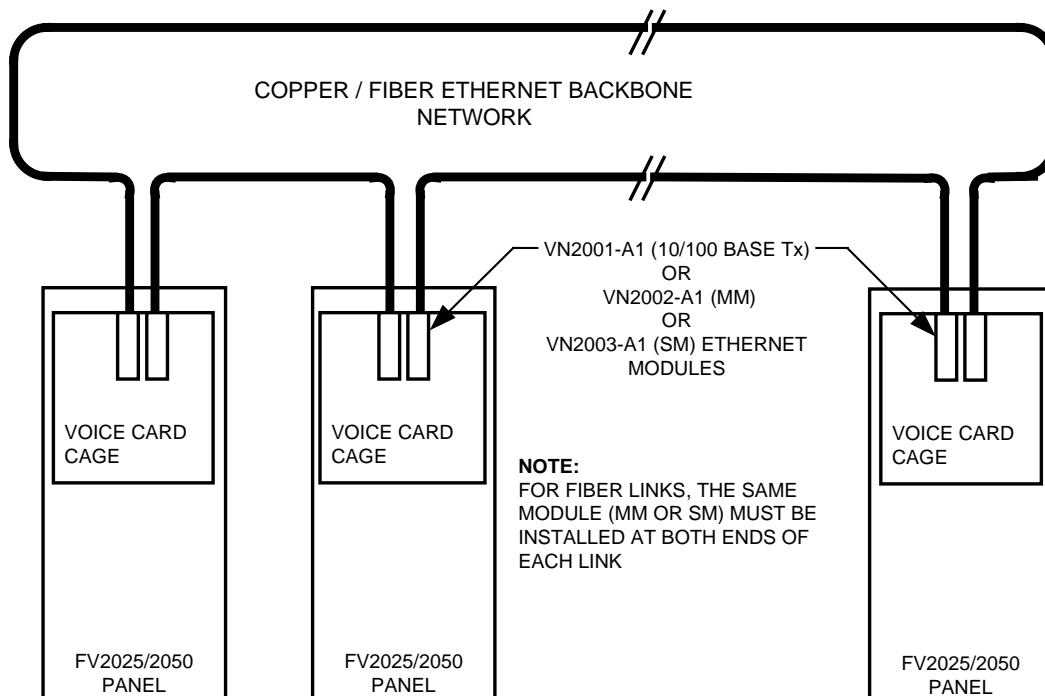


Figure 3
Ethernet Network Topology in a Voice Network of FV2025/2050 Panels

Operation in a Generic Ethernet Network

In addition to their use in Ethernet backbone networks of FV2025/2050 Fire Voice Control Panels (as illustrated in Figure 3), the VN2002-A1 Ethernet Module (MM) and the VN2003-A1 Ethernet Module (SM) can be used to support fiber connections among standalone FN2012-A1 Ethernet Switches (modular).

Controls and Indicators

The two LEDs on the VN2002/3-A1 which are located next to the fiber connectors indicate the following:

- Green = Link established
- Yellow = Signal activity

MOUNTING

Mounting the VN2002/3-A1 Ethernet Module (MM or SM) in a Voice Network of FV2025/2050 Fire Voice Control Panels

CAUTION: Power down the FV2025/2050 Fire Voice Control Panel before mounting the VN2002/2003-A1.

1. Open the middle door of the FV2025/2050 Panel.
2. Unscrew the latch on the front of the Card Cage and remove the Card Cage cover.
3. If a VCC2001-A1 Voice CPU is installed in card slot X202, remove it. If no VCC2001-A1 is installed, proceed to the next step.
4. Referring to Figure 4, if either or both of the knockouts for Ethernet modules are still present in the Card Cage top panel, remove them. To avoid damage to sensitive electronic components, remove any burrs that may be present in the knockout opening.

5. Install the VCC2001-A1 Voice CPU card into card slot X202 according to instructions provided in Siemens Industry, Inc., Building Technologies Division, document number A6V10397772 *Installation Instructions for the Voice CPU Card*.
6. Refer to the site specific shop drawings to determine which type of fiber (multi-mode or single-mode) is to be installed on the link to be implemented and which position on the Voice CPU Card is to use that link.
 - For a link to be implemented using multimode fiber, install a VN2002-A1 Ethernet Module (MM).
 - For a link to be created using single-mode fiber, install a VN2003-A1 Ethernet Module (SM).

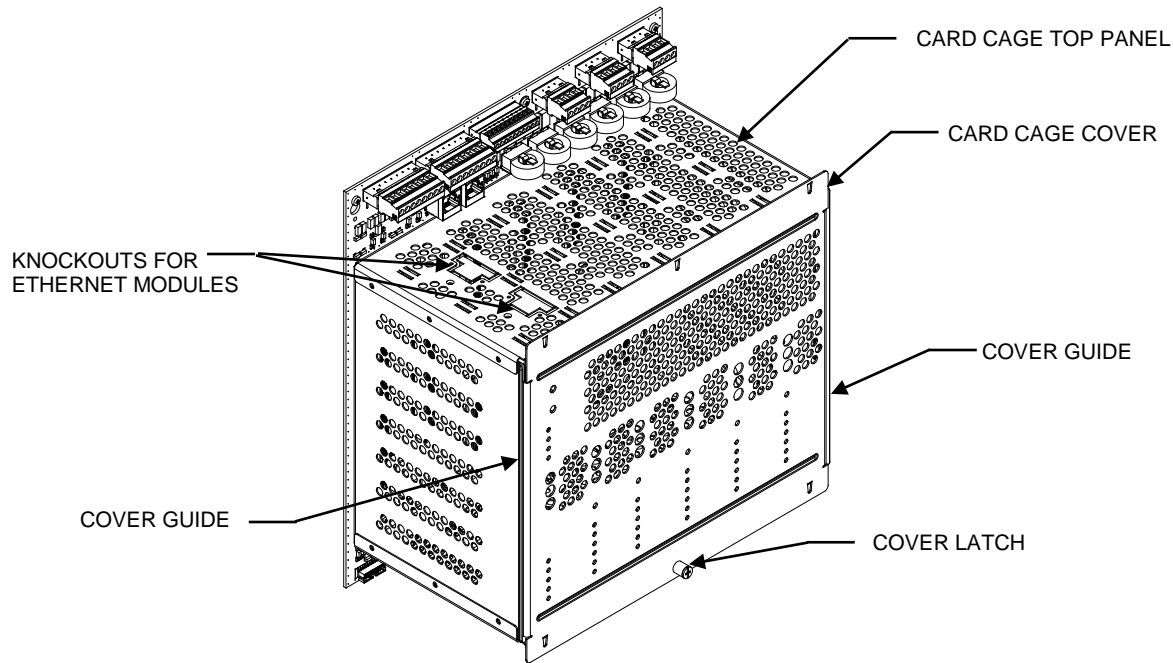


Figure 4
VCA2002-A1 Card Cage

7. Insert the first VN2002/3-A1 Ethernet Module through the specified knockout opening on top of the VCA2002-A1 Card Cage and press it into the multi-pin connector mounted on the VCC2001-A1 Voice CPU card. The multi-pin connector is located approximately 2¹/₂" below the knockout opening, as illustrated in Figure 5. Install the second module for the other link in the same manner through the remaining knockout opening.
8. Tighten the fastening pin on the top of each module (see Figure 6) by turning it clockwise until the modules are firmly held in place by the Card Cage.

NOTE: If it becomes necessary to deinstall the VCC2001-A1 Voice CPU Module, first remove the Ethernet modules that have been mounted on it.

9. Replace the Card Cage cover by re-inserting it into the top of the Card Cage and sliding it downward until it reaches bottom.
10. Screw the cover latch back into the Card Cage cover.

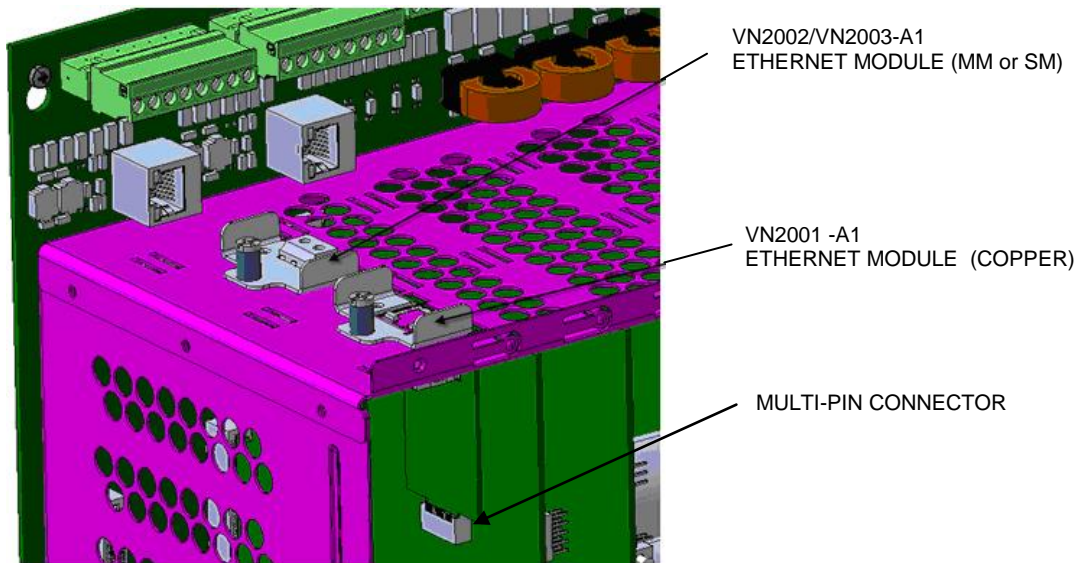


Figure 5
Ethernet Modules installed in VCA2002-A1 Card Cage

Mounting the VN2002/3-A1 Ethernet Module (MM or SM) in an FN2012-A1 Ethernet Switch (Modular)

1. Remove the screws fastening the cover to the body of the FN2012-A1 Ethernet Switch (modular) and lift the cover off the assembly.
2. Please refer to Figure 6. If necessary, remove the knockouts in the side panel of the FN2012-A1 Ethernet Switch (modular).

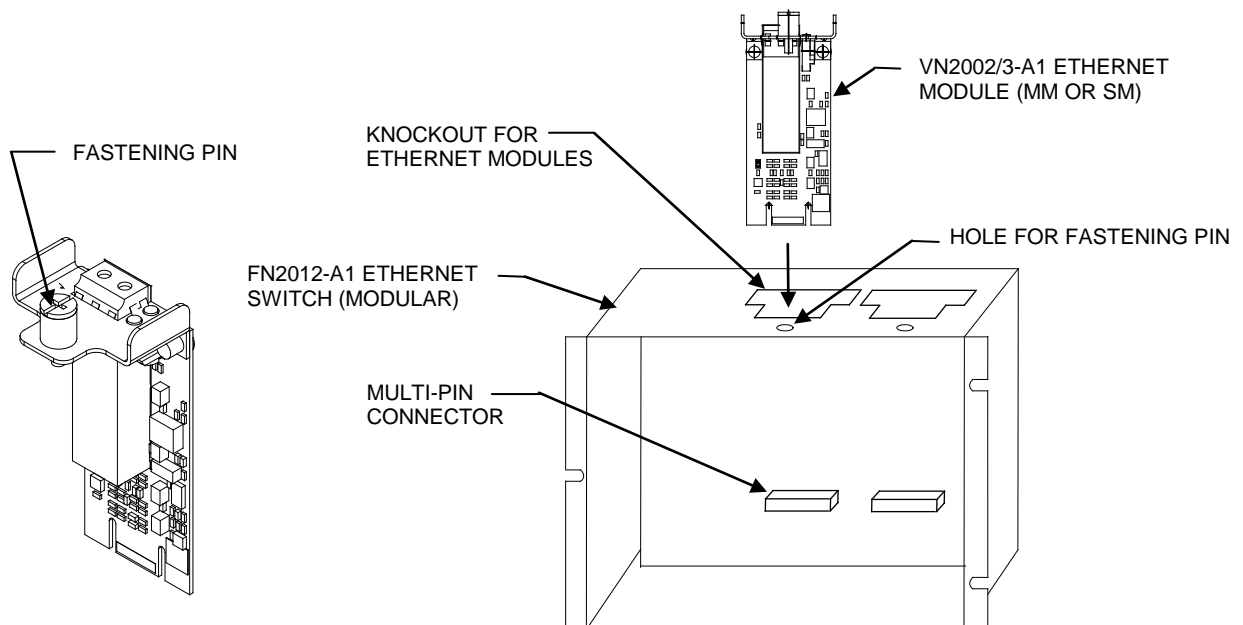


Figure 6
Mounting the VN2002/3-A1 Ethernet Module in the FN2012-A1 Ethernet Switch

3. Refer to the site specific shop drawings to determine which type of fiber (multi mode or single mode) is to be installed on the link to be implemented and in which position of the switch box it is to be installed in.
 - For a link to be implemented using multi-mode fiber up to 5 km (~3 mi) long, install a VN2002-A1 Ethernet Module (MM).
 - For a link to be created using single-mode fiber up 40 km long (~25 mi) long install a VN2003-A1 Ethernet Module (SM).
4. Insert the VN2002/3-A1 Ethernet Module (MM or SM) through the knockout opening and carefully press it into the multi-pin connector mounted on the circuit card inside the switch body. The multi-pin connector is located approximately 2¹/₂ inches inside the opening.
5. Screw the fastening pin on the VN2001-A1 module into the mating hole in the side of the FN2012-A1 Ethernet Switch (modular).
6. Replace the cover on the FN2012-A1 Ethernet Switch (modular).

WIRING

There are no wiring operations associated with installing the VN2002/3-A1 onto the VCC2001-A1 Voice CPU card or into an FN2012-A1 Ethernet Switch (modular).

See the site-specific shop drawings for instructions on connecting FV2025/2050 Panels together to establish Ethernet rings using the VN2002-A1 Ethernet Module (MM) or the VN2003-A1 Ethernet Module (SM). Two fiber optic cables which are of the same mode type as the installed modules are required to connect one module to the other in order to establish working a link.

The fiber optic cables shall use LC connector type.

ELECTRICAL RATINGS

The following table lists the power requirements for the two types of fiber Ethernet modules. There are three variations of the power requirements for each type of module. Those variations are caused by where the module is installed, either in the Voice CPU Card or the Ethernet Switch (with either Aux or Monet Bus power for the switch).

VN2002-A1 and VN2003-A1 Ethernet Modules Power Requirements	
Module Type	Power Usage
VN2002-A1 Mult-Mode	Installed in the VCC2001-A1 Voice CPU Card: 36 mA Installed in the FN2012-A1 Ethernet Switch using power from Aux(20-30VDC): 57mA Installed in the FN2012-A1 Ethernet Switch using power from the MoNET Bus: 50mA
VN2003-A1 Single-Mode	Installed in the VCC2001-A1 Voice CPU Card : 36 mA Installed in the FN2012-A1 Ethernet Switch using power from Aux(20-30VDC): 49mA Installed in the FN2012-A1 Ethernet Switch using power from the MoNET Bus: 40mA

OUTPUT SIGNAL ATTENUATION

As a signal travels down an optical fiber, its level is reduced due to absorption by the fiber. This sets the maximum length of an optical connection. The actual length is determined by the transmitter output level, the length of the fiber, and the receiver sensitivity. The maximum length is reached when the fiber attenuation is the same as the difference between the transmitter output and the receiver sensitivity less 3 dBm for an error margin. These values are different depending upon the module type used and the kind of optical fiber which is used to connect the modules.

The following table gives the maximum allowable signal attenuation for the different kinds of fiber used with each type of module. It also gives the maximum length of an optical link using that combination of module and fiber.

Ethernet Module Output Signal Maximum Attenuation and Link Length			
Module Type	Fiber Type	Signal Attenuation	Link Length
VN2002-A1 Multi-Mode	50/125 μm	7.5 dBm	1.9 km
	62.5/125 μm	11 dBm	4.2 km
VN2003-A1 Single-Mode	9/125 μm	30 dBm	62 km

Cyber security disclaimer

Siemens products and solutions provide security functions to ensure the secure operation of building comfort, fire safety, security management and physical security systems. The security functions on these products and solutions are important components of a comprehensive security concept.

It is, however, necessary to implement and maintain a comprehensive, state-of-the-art security concept that is customized to individual security needs. Such a security concept may result in additional site-specific preventive action to ensure that the building comfort, fire safety, security management or physical security system for your site are operated in a secure manner. These measures may include, but are not limited to, separating networks, physically protecting system components, user awareness programs, defense in depth, etc.

For additional information on building technology security and our offerings, contact your Siemens sales or project department. We strongly recommend customers to follow our security advisories, which provide information on the latest security threats, patches and other mitigation measures.

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