SIEMENS

Installation Instructions
Model NIC-C

Network Interface Card (500-033240 / S24235-B114-A2)

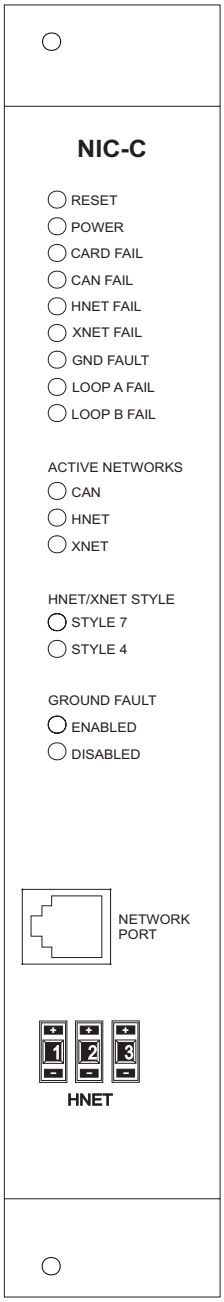


Figure 1
NIC-C Network Interface Card

INTRODUCTION

The SIEMENS Model NIC-C is a card that provides HNET/XNET and CAN network communication within and between enclosures. The HNET/XNET network can be wired either Style 4 or Style 7. For HNET one NIC-C is required in each enclosure. Each NIC-C (HNET or XNET) occupies one HNET address.

When configured for XNET, the NIC-C provides communication between its system and other systems, as well as the NCCNT-G (not in CE applications) in an XNET network. MXL systems (not in CE applications) may also reside on the same XNET. All events occurring in the system will be displayed at the NCCNT-G. Additionally, these events may be acknowledged and the system can be reset via the NCCNT-G. Events initiated by system members can cause output state changes (inter-panel logic) in other FireFinder XLS panels. Inter-panel logic between systems and MXL is not available. One NIC-C configured for XNET is required in each system connected to XNET. This NIC-C must reside in the same enclosure as the PMI.

The CAN network can be isolated within a given enclosure or extended external to the enclosure. External CAN networks require either an RNI, OCM-16 or SIM-16 in the remote enclosure. The CAN address of the NIC-C does not need to be set.

A single NIC-C provides either HNET or XNET. The CAN interface is available regardless of the HNET/XNET selection.

The NIC-C supervises each network to insure proper operation. Any faults that are detected by the NIC-C are reported to the PMI for annunciation. In addition, the NIC-C has diagnostic LEDs that indicate which faults have been found. Individual LEDs are included for HNET/XNET Loop A and Loop B faults, as well as an LED for complete failure of the HNET or XNET network or the CAN network. The

P/N 315-033240-3
A24205-A334-B824

NIC-C can also be configured to perform ground fault detection on both networks.

Features

The NIC-C isolates short circuit faults to each individual segment of the HNET/XNET network. If a short occurs, only the segment of wire between the two NIC-Cs is affected. In a Style 4 system the network will be divided into two sections. Communication in each of the sections will continue. For a Style 7 network, the fault will be detected and the network will continue to operate as a single network.

An HNET/XNET network monitoring jack is included for connection of diagnostic tools. This jack is located on the front bezel.

The NIC-C supports the LCM-8/SCM-8/FCM-6/OCM-16/SIM-16 CAN modules.

LEDs are visible through the front bezel to indicate the NIC-C configuration. All switch selectable options are displayed here. This allows for easy confirmation of the NIC-C configuration settings without removing the card from the CC-5.

OPERATION

Network supervision is accomplished through passive monitoring of the network signals. No additional bandwidth is required. Each NIC-C continuously monitors all networks for activity and reports any problems to the PMI. Restoration of faults is dynamic and does not require a system reset.

Controls and Indicators

The front panel of the NIC-C contains one reset switch, fifteen LEDs, one network port and one HNET address switch as shown in Figure 1

A reset switch is located on the top of the front panel. Pushing the reset switch re-initializes the NIC-C operation.

The LEDs follow the reset switch and their functions are defined as follows:

POWER	(Green)	Normally ON. When illuminated, indicates that power for the NIC-C is applied to the card.
CARD FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the card microprocessor has failed.
CAN FAIL	(Yellow)	Normally OFF. When illuminated, indicates that all CAN modules connected to the NIC-C are not communicating.
HNET FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the HNET communication with the NIC-C has terminated and the card goes into degrade mode.
XNET FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the XNET communication with the NIC-C has terminated.
GND FAULT	(Yellow)	Normally OFF. When illuminated, indicates that the NIC-C has detected either a negative or positive ground fault on its network.

LOOP A FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the NIC-C has detected a trouble on Loop A (open circuit or short circuit).
LOOP B FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the NIC-C has detected a trouble on Loop B (open circuit or short circuit).
ACTIVE NETWORKS: CAN	(Green)	Normally OFF. When illuminated, indicates that the CAN network is enabled.
ACTIVE NETWORKS: HNET	(Green)	When illuminated, indicates that the HNET network is enabled.
ACTIVE NETWORKS: XNET	(Green)	When illuminated, indicates that the XNET network is enabled.
STYLE 7	(Green)	When illuminated, indicates that the HNET/XNET is configured as Style 7(see Pre-Installation - S3 on page 4).
STYLE 4	(Green)	When illuminated, indicates that the HNET/XNET is configured as Style 4 (see Pre-Installation - S3 on page 4).
ENABLED	(Green)	When illuminated, indicates that ground fault detection is enabled (see Pre-Installation - S1 below).
DISABLED	(Green)	When illuminated, indicates that ground fault detection is disabled (see Pre-Installation - S1 below.

A three-position switch at the bottom of the front panel is used to set the HNET network address of the NIC-C.

PRE-INSTALLATION

The following components must be set prior to inserting the card into the CC-5 (refer to Figure 2):

S1, Ground Fault Detection Control: Press the lever down to enable ground fault detection. Move the lever to the up position to disable ground fault detection. (Refer to Figure 2.)

NOTE

It is recommended to enable ground fault detection on ONLY one NIC-C in the system. (One for HNET and if used, one for XNET.) If multiple NIC-Cs have ground fault detection enabled, multiple troubles will be reported to the PMI when a ground fault is present.

S2 Network Address Switch: Set the three-digit HNET network address for the NIC-C using the three-position switch located near the bottom of the front panel. (Refer to Figure 1 for the location of the switch.) The address for the NIC-C must be the same as the address selected for it in the Zeus Programming Tool. To increment each digit of the address, press the “+” button above the desired digit; to decrement each digit,

press the “-” button below the desired digit. The range of allowable addresses is from 001 to 251 (leading zeros must be used).

S3, NIC-C Options:

Position 1: Network Selection - Set this switch to the ON position for HNET. Set to the OFF position for XNET.

Position 2: Network Style - Set to ON for Style 4. Set to OFF for Style 7.

Position 3: CAN Network enable- Set to ON if CAN network is used. Set to OFF is CAN network is not used

Position 4: Future Use - Set to OFF.

S4, Reset Switch: Momentarily Closed switch that when pressed will initiate a hard reset to the NIC-C (similar to a cold boot).

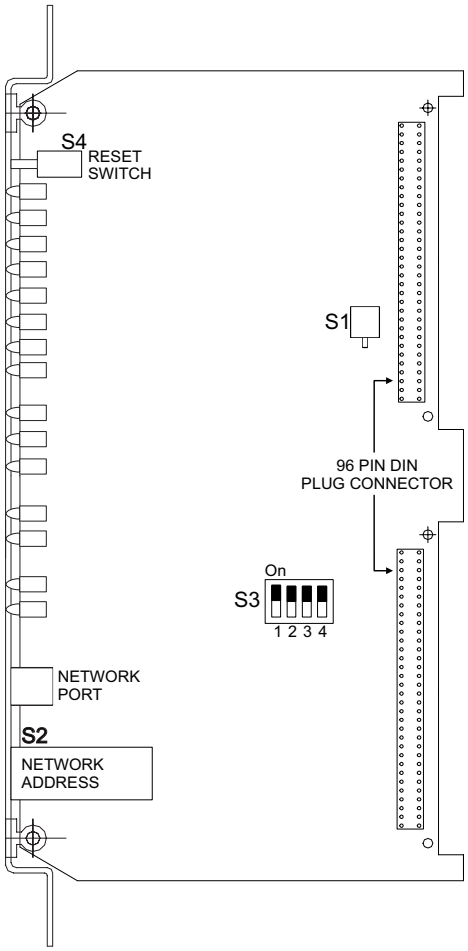


Figure 2
NIC-C Switch Location

WIRING

Disconnect BATTERY and AC prior to wiring on equipment.

All HNET/XNET field wiring to the NIC-C is connected to the terminal blocks of the CC-5 card cage slot in which it is installed.

The CAN bus is connected internally to the CC-5 backplane. For CAN modules located on the inner door inside the same enclosure as the NIC-C connect to P3 on the CC-5 using cable CCL. For CAN modules located outside the enclosure connect to TB1 on the PSC-12. See Figures 8, 9 and 10.

Internal Repeaters

The NIC-C provides an electrical repeater for each HNET/XNET pair. The diagram below shows the wiring for each pair. Be sure to connect the pairs following the proper polarity. Do not cross the A and B pairs. Removing the NIC-C from the CC-5

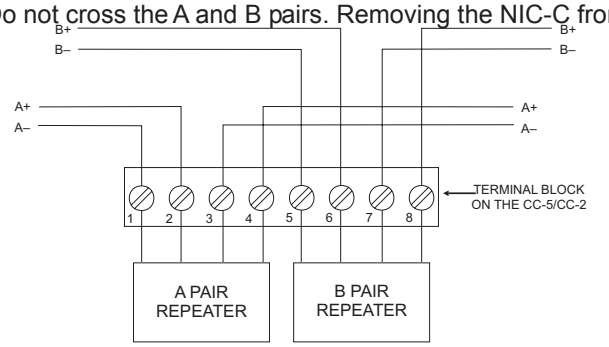


Figure 3
NIC-C Internal Repeaters

NOTES:
1. No EOLR required.
2. 24 AWG (∅ 0.5mm) min., 12 AWG (4mm²) max.
3. 80 Ohms max. per pair between CC-5s.
   Unshielded twisted pair
   .5µF line to line
   Shielded twisted pair
   .3µF line to line
   .4µF line to shield
4. Use twisted pair or twisted shielded pair.
5. Terminate shields at one end only.
6. Power limited to NFPA 70 per NEC 760.
7. CC-5 terminals 9 - 14 are not connected and can be used to tie shields together.

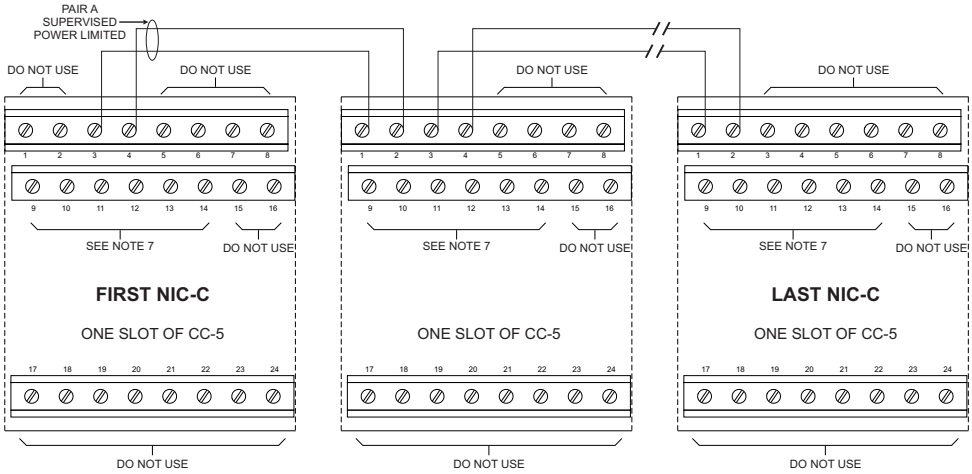


Figure 4
NIC-C Style 4 Network Wiring

NOTES:
1. No EOLR required.
2. 24 AWG (∅ 0.5mm) min., 12 AWG (4mm²) max.
3. 80 Ohms max. per pair between CC-5s.
   Unshielded twisted pair
   .5µF line to line
   Shielded twisted pair
   .3µF line to line
   .4µF line to shield
4. Use twisted pair or twisted shielded pair.
5. Terminate shields at one end only.
6. Power limited to NFPA 70 per NEC 760.
7. CC-5 terminals 9 - 14 are not connected and can be used to tie shields together.

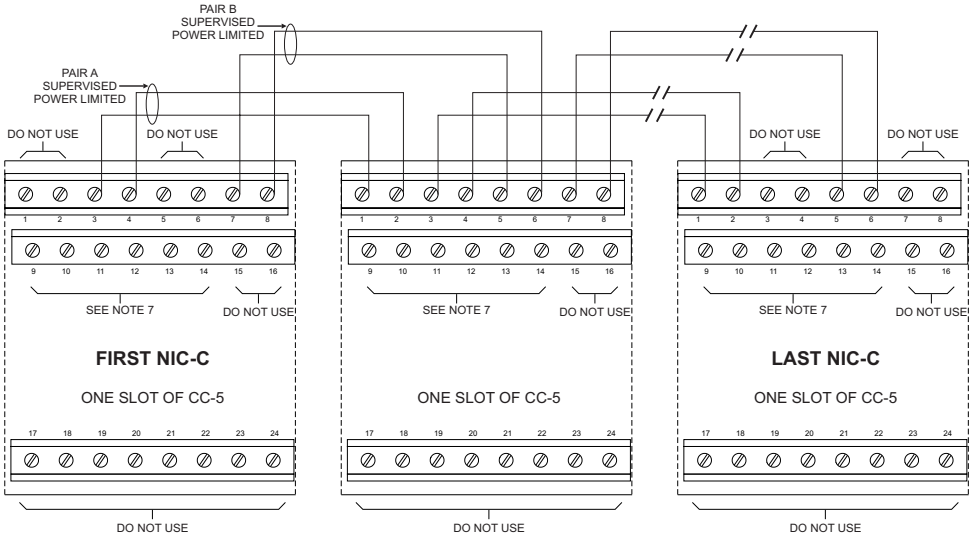


Figure 5
NIC-C Style 7 Network Wiring

will break the network. Removing power from the NIC-C does not break the network.

To Connect the HNET or XNET

1. Lift the WHITE cover on the CC-5 terminal block.
2. Loosen the screw of the terminal by turning it counterclockwise.
3. Insert the wire into the side of the terminal block.
4. Tighten the screw of the terminal block by turning it clockwise.

The NIC-C supports Style 4 and Style 7 HNET/XNET wiring. Check the Zeus configu-

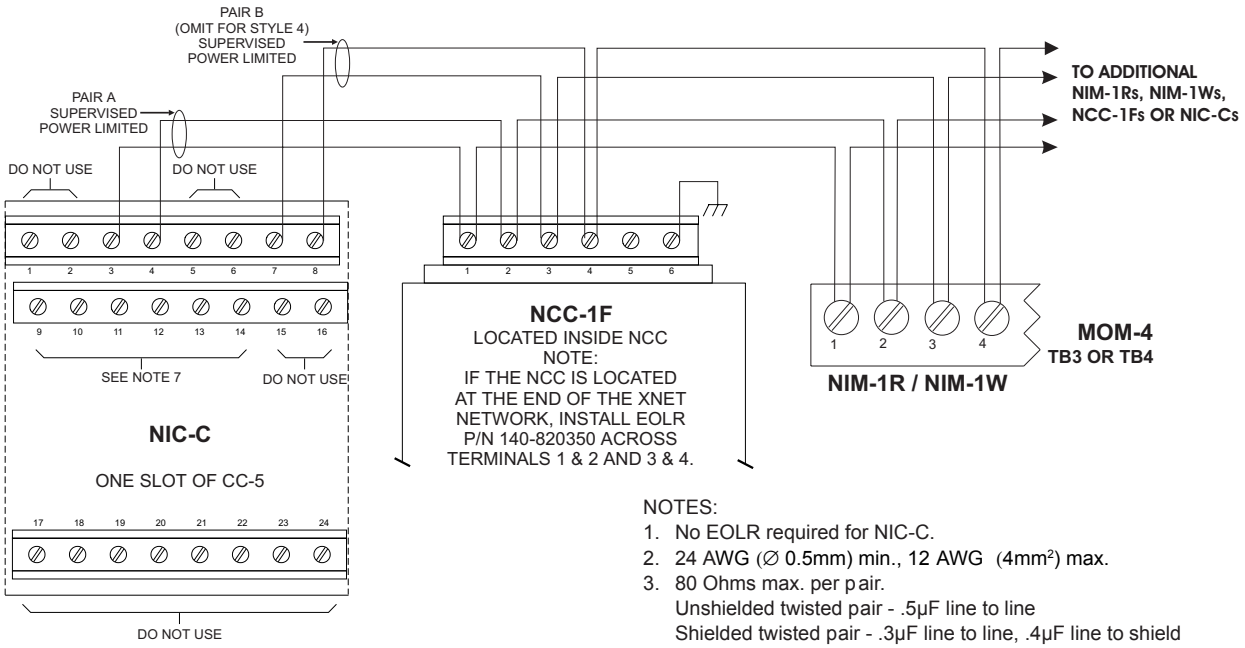


Figure 6
Connecting To An XNET

NOTES:
1. No EOLR required for NIC-C.
2. 24 AWG (∅ 0.5mm) min., 12 AWG (4mm²) max.
3. 80 Ohms max. per pair.
   Unshielded twisted pair - .5µF line to line
   Shielded twisted pair - .3µF line to line, .4µF line to shield
4. Use twisted pair or twisted shielded pair.
5. Terminate shields at one end only.
6. Power limited to NFPA 70 per NEC 760.
7. CC-5 terminals 9 - 14 are not connected and can be used to tie shields together.

ration for the proper network Style (refer to Figures 4 and 5).

NOTE

The screw terminals can accommodate one 12 -24 AWG (∅ 0.5mm - 4mm²) or two 16-24 AWG (∅ 0.5mm - 2.5mm²).

To Connect the Internal CAN Bus

1. Install the CCL cable into P3 of the CC-5 in the upper left corner of the enclosure.
2. Install the other end of the CCL cable into the first CAN module on the inner door.
3. Observe the location of the CAN termination devices. Install one CAN terminator P/N 110-134215 / C24235-A1-K2 in the last CAN module on the inner door. Install the 120 Ohm CAN termination resistor P/N 140-820150 / C24235-A1-K12 into TB1 10 and 11 on the PSC-12.
4. The NIC-C may be installed into any open slot of a CC-5.

To Connect The External CAN Bus

1. Lift the WHITE cover on the PSC-12 TB1 terminal block.
2. Loosen the screw of the terminal by turning it counterclockwise.
3. Insert the wire into the side of the terminal block
4. Tighten the screw of the terminal block by turning it clockwise.
5. Observe the location of the CAN termination devices. Install one CAN terminator P/N 110-134215 / C24235-A1-K2 in the last CAN module on the inner door. If no CAN modules are installed on the inner door inset the CAN terminator into P3 of the CC-5 where the NIC-C is installed.
6. Install the second CAN terminator in the last CAN module in the remote enclosure.
7. The NIC-C may be installed into any open slot of a CC-5.

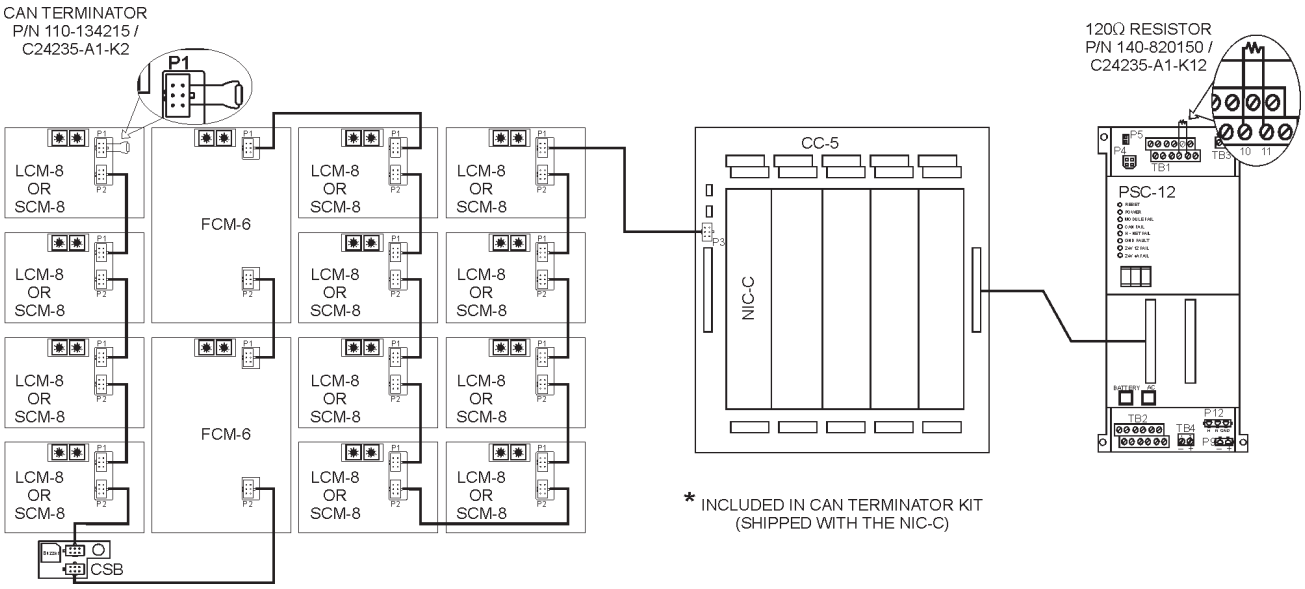


Figure 7
CAN Wiring - Single Enclosure

NOTES:
1. 18 AWG (1mm²) min.,
   12 AWG (4mm²) max.
2. 15 ohms max. for CAN network.
3. Use twisted pair or twisted shielded pair.
4. Power limited to NFPA 70 per NEC 760.
5. All field wiring supervised.

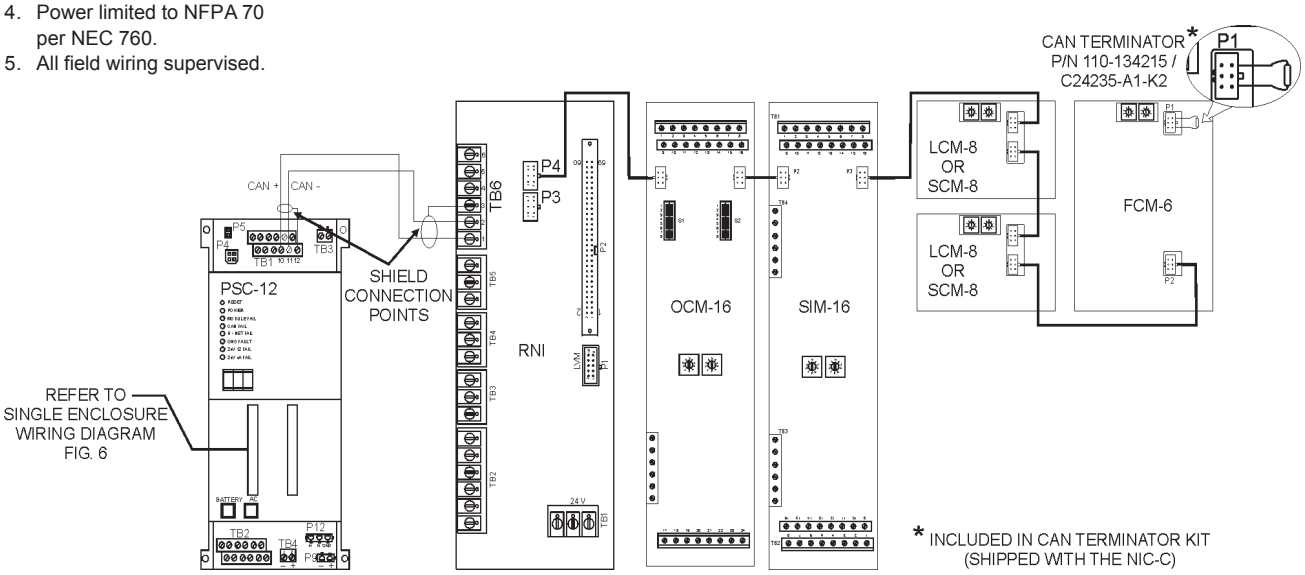
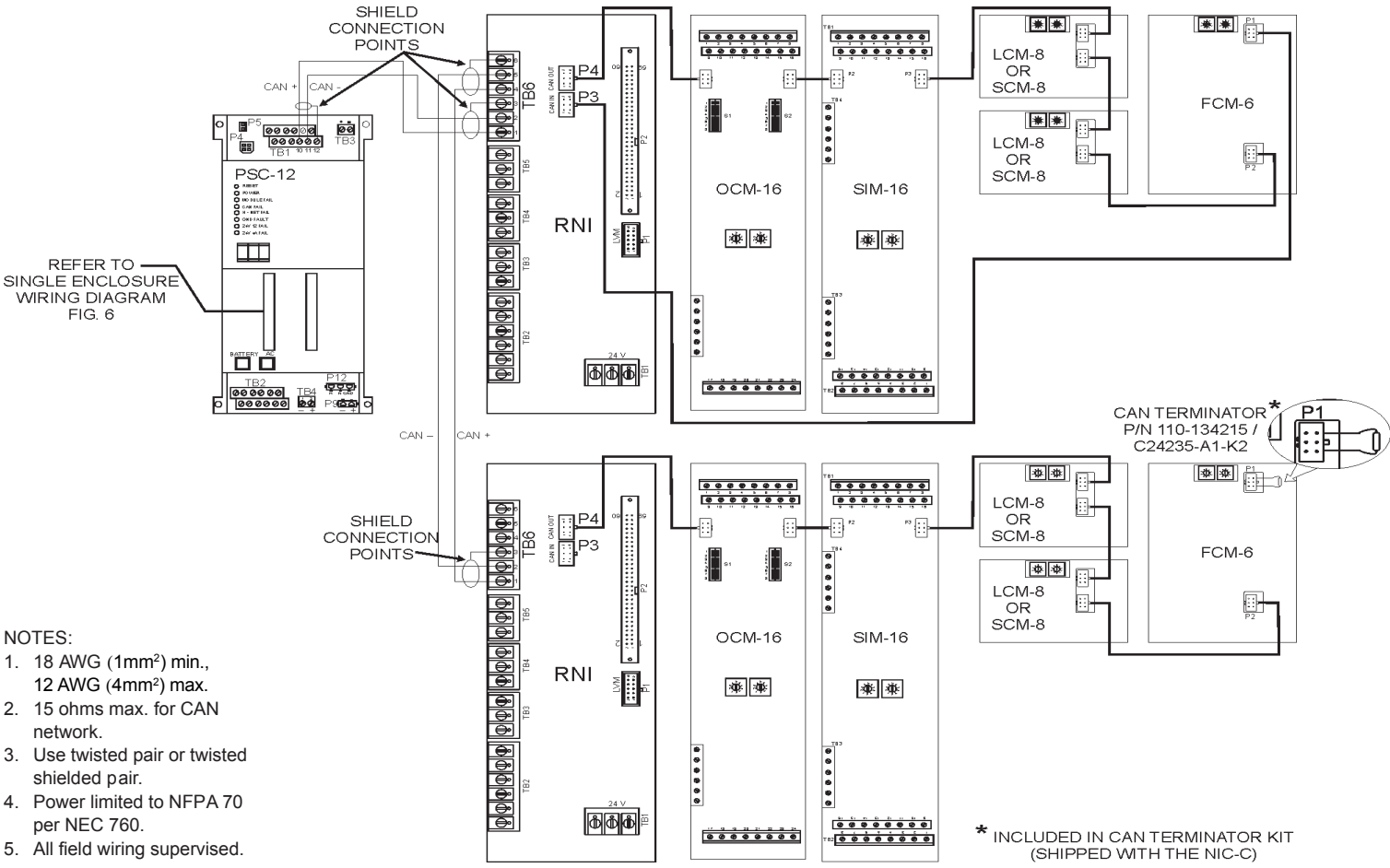


Figure 8
CAN Wiring - Single Remote Enclosure



NOTES:
1. 18 AWG (1mm²) min., 12 AWG (4mm²) max.
2. 15 ohms max. for CAN network.
3. Use twisted pair or twisted shielded pair.
4. Power limited to NFPA 70 per NEC 760.
5. All field wiring supervised.

Figure 9
CAN Wiring - Multiple Remote Enclosures

NOTES:
1. 18 AWG (1mm²) min., 12 AWG (4mm²) max.
2. 15 ohms max. for CAN network.
3. Use twisted pair or twisted shielded pair.
4. Power limited to NFPA 70 per NEC 760.
5. All field wiring supervised.

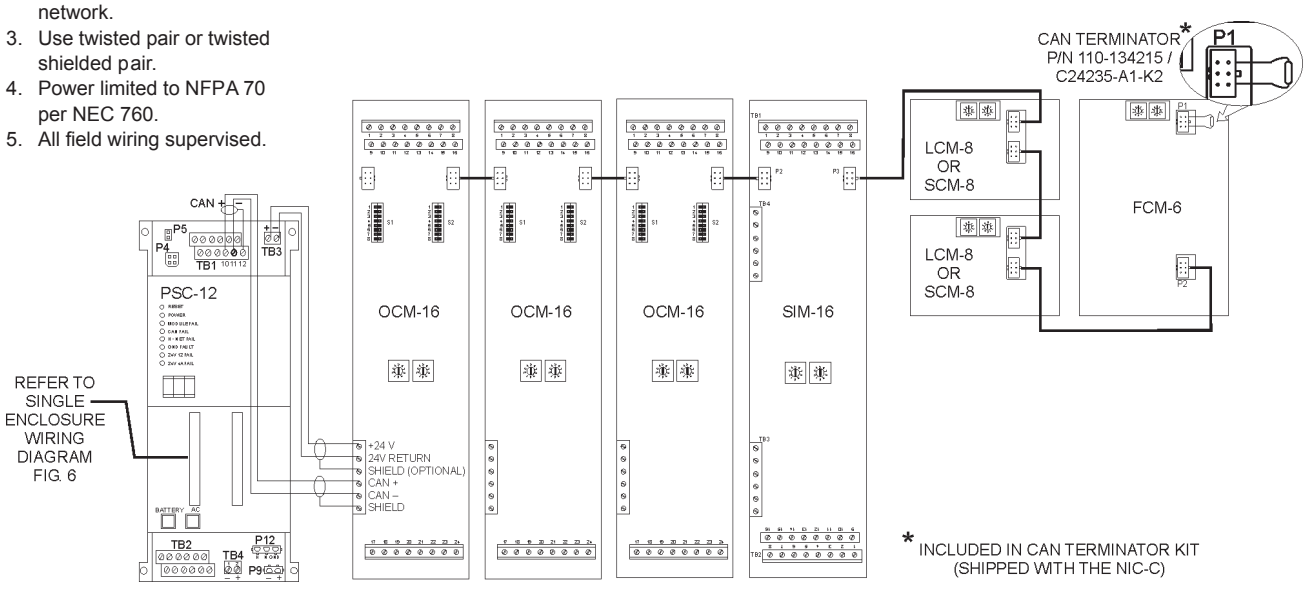


Figure 10
CAN Wiring - Remote Enclosure Without An RNI

NOTE The screw terminals can accommodate one 12 -24 AWG (∅ 0.5mm - 4mm²) or two 16-24 AWG (∅ 0.5mm - 2.5mm²).

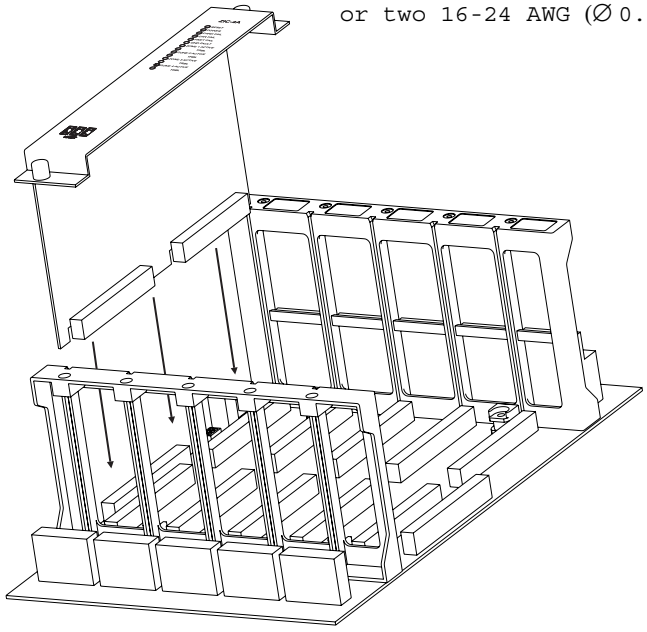


Figure 11
Installing The NIC-C

INSTALLATION The NIC-C plugs perpendicularly into one slot in the CC-5 card-cage via two 96-pin DIN connectors and can occupy any slot in the card cage. (Refer to Figure 11.)

Insert the NIC-C card into the card guides rightside up (lettering on the front panel is legible)

Slide the card in until the card edge connectors contact the receptacles on the motherboard.

Verify that the DIN connectors of the card and the card-cage aligned properly. The card can only plug in one direction to the card cage, if it does not align, DO NOT FORCE the card.

Place thumbs on the front panel adjacent to the captive screws and gently apply even pressure on the card until the connectors seat in the receptacles on the motherboard. Secure with the captive screws.

ELECTRICAL RATINGS

Input Power		Output Power	
24V Back Plane Current	120mA	Each HNET/XNET And CAN Network Pair	8V peak to peak max.
Screw Terminal 24V Current	0		75mA max. (during msg transmission)
6.2V Back Plane Current	0		
24V Standby Current	120mA		

For CE applications in Cerberus E100 systems refer to
Installation Instruction A24205-A334-B844 (English) or A24205-A334-A844 (German).

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