

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

INVENSYS TRICONEX

4329G

NETWORK COMMUNICATION MODULE

Used with the applicable Tricon v9-v10 system configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official pages follow this cover with source pagination retained.

Invensys 9700077-012, February 2009

Network Communication Module (NCM)

The Network Communication Module (NCM) enables a Tricon controller to communicate with other Tricons and with external devices on an Ethernet network. The NCM provides two BNC connectors as ports: NET 1 supports Peer-to-Peer and Time Synchronization protocols for safety networks comprised of Tricons only. NET 2 supports open networking to external systems using Triconex applications such as TriStation, SOE, OPC Server, and DDE Server or user-written applications.

The NCMG module has the same functionality as the NCM as well as the ability to synchronize time based on a GPS system.

The NCM is compatible with the Ethernet (IEEE 802.3 electrical interface) and operates at speeds up to 10 megabits. The NCM and the host computer can be connected by coaxial cable (RG58) at typical distances up to 607 feet (185 meters). Distances up to 2.5 miles (4,000 meters) are possible using repeaters and standard (thick-net) cabling. For more information, contact the IPS Global Client Support (GCS) center.

Two NCMs can be placed in one logical slot of the Tricon controller chassis, but they function independently, *not* as hot-spare modules.

The Main Processors typically refresh data on the NCM once per scan.

For additional information, see the *Communication Guide for Tricon v9-v10 Systems* and [Replacing NCMs on page 228](#).

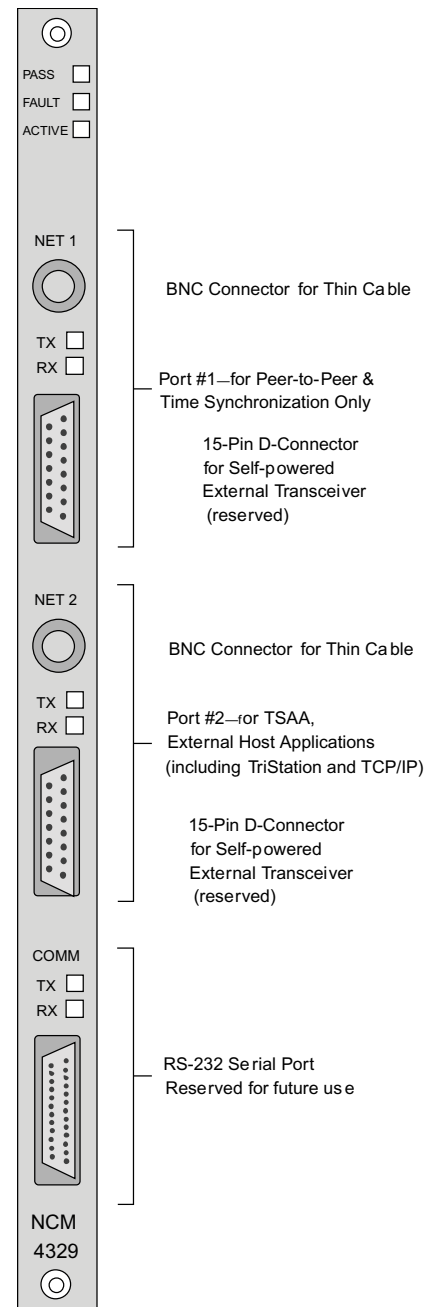


Figure 68 NCM Front Panel

4329 and 4329G Specifications

This table lists specifications for NCM models 4329 and 4329G.

Table 63 NCM Model 4329 and 4329G Specifications

Feature	Description
Network ports	Two BNC connectors using RG58 50-ohm thin cable
External transceiver ports	Not used
Serial port	One RS-232-compatible port
Port isolation	500 VDC, network and RS-232 ports
Protocols supported	Peer-to-Peer, Time Synchronization, TriStation, and TSAA
Communication speed	10 megabits
Status indicator: Module status	Pass, Fault, Active
Status indicator: Port activity	TX (Transmit) – 1 per port RX (Receive) – 1 per port
Logic power	< 20 watts

Communication Configuration

This table describes rules and guidelines for using communication modules. For more information, including installation and configuration instructions, see the *Communication Guide for Tricon v9-v10 Systems*.

Table 69 Communication Rules

Component	Description
Chassis	At least one communication module (TCM, ACM, EICM, or NCM) must be included in the Main Chassis or in Chassis 2, because these modules enable the TriStation PC to communicate with the Tricon controller. • If communication modules are housed in Chassis 2, this chassis must be an I/O Expansion Chassis or a primary RXM Chassis that is connected directly to the Main Chassis using I/O communication cables (model 9001) rather than standard I/O bus cables. • You cannot install an NCM and a TCM in the same Tricon system. You also cannot install an EICM and a TCM in the same system.
COM Slot	The COM slot can only be used for a TCM, EICM, or NCM.
TCM	Up to two logical slots can be configured for TCMs. Matched pairs of TCMs can be installed in the left and right positions of each logical slot, and they can be located in the main chassis or Chassis 2. Model 4351A, 4351B, 4352A, and 4352B TCMs cannot be installed into a system with model 4351 or 4352 TCMs, even if they are installed in different chassis.
NCM	Up to two logical slots can be configured for NCMs. Matched pairs of NCMs can be installed in the left and right positions of each logical slot. If only one logical slot is used, the slot can be in the Main Chassis or Chassis 2. If two logical slots are used, they must be Slot 6 and 7 in the Main Chassis, and Peer to Peer cannot be used.
EICM and ACM	One logical slot is available for EICMs or ACMs, respectively. Matched pairs of these modules can be installed in both the left and right positions of one logical slot.
HIM	Up to two logical slots can be configured for HIMs. Both slots must be in the Main Chassis.
SMM	Up to three logical slots can be configured for SMMs. A matched pair of SMMs can be installed in the left and right positions of each logical slot. All three slots must be in the Main Chassis or Chassis 2.

Replacing NCMs

This procedure explains how to replace Network Communication Modules (NCMs). Two NCMs can be placed in one logical slot of the Tricon controller chassis, but they function independently, *not* as hot-spare modules.

For indicator information, see [NCM Indicators on page 243](#).



All communication through an NCM ceases when you remove the module from the system.

Procedure

- 1 Disconnect all communication cables from the faulty module. Do not break the cables or disconnect the terminations from the ends of the cables — doing this will disrupt communication with other devices on the network.
- 2 Remove the module by loosening the retractable fasteners of the module, grasping the fasteners, and sliding the module out of the chassis.
- 3 Identify the switch setting for the network address.
- 4 Set the switches on the replacement module to the same network address as the removed module. Insert the replacement module into the empty slot and push the module in until it is firmly seated in the chassis.
- 5 Tighten the retractable fasteners of the replacement module to 10 inch-pounds.
The Pass indicator should go on within approximately 1 minute, and the Active indicator should go on within one to two minutes.
- 6 For the faulty module, identify the model and serial numbers. Contact the IPS Global Client Support (GCS) center to obtain a Returned Material Authorization (RMA) number. Then return the module to Triconex for repair.