

Triconex 4351A

Tricon Communication Module

Manufacturer	Triconex
Model / order number	4351A
Product identification	Tricon Communication Module
System / family context	Tricon Systems

Verified scope

4351A has four serial ports and two copper 10/100Base-T Ethernet ports. The original TCM tables distinguish A-variant functions, release compatibility and port assignments.

Engineering checks before replacement

- Check Tricon v10.1 or later approved release compatibility.
- Record serial roles, baud rates and network addressing.
- Do not assign B-variant multicast or embedded OPC features.
- Follow TCM mixing rules and the controlled replacement procedure.

Original manufacturer source reference

Planning and Installation Guide for Tricon v9-v11 Systems, 9700077-019, June 2014. Original PDF pages 199, 200, 201, 202.

Open manufacturer document (hosted copy)

This cover is an independent Sales PLC reference, not a manufacturer-issued datasheet. The following manufacturer pages retain their original text, layout and page numbering.

Request model verification or a quotation

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Tricon Communication Module (TCM)

The Tricon Communication Module (TCM), which is compatible with only Tricon v10.0 and later systems, allows the Tricon controller to communicate with TriStation 1131, other Tricon or Trident controllers, Modbus master and slave devices, and external hosts over Ethernet networks.

Each TCM contains four serial ports, two network ports, and one debug port (for Invensys use).

Each serial port is uniquely addressed and can be configured as a Modbus master or slave. Serial port 1 supports either the Modbus or the Trimble GPS interface. Serial port 4 supports either the Modbus or the TriStation interface. Each TCM supports an aggregate data rate of 460.8 kilobits per second, for all four serial ports.

Programs for the Tricon system use variable names as identifiers, but Modbus devices use numeric addresses called *aliases*. Therefore, an alias must be assigned to each Tricon variable name that will be read by, or written to, a Modbus device. An alias is a five-digit number which represents the Modbus message type and the address of the variable in the Tricon system. An alias number is assigned in TriStation.

Any standard Modbus device can communicate with the Tricon controller through the TCM, provided that aliases are assigned to the Tricon variables. Alias numbers must also be used when host computers access the Tricon system through other communication modules, such as the NCM.

Each Tricon system supports a total of 16 Modbus masters or slaves – this total includes network and serial ports.

TCM Models 4353 and 4354 have an embedded OPC server, which allows up to 10 OPC clients to subscribe to data collected by the OPC server. The embedded OPC server supports the Data Access standard and the Alarms and Events standard.

Each TCM contains two network ports – NET 1 and NET 2. Models 4351, 4351A, 4351B, and 4353 have two copper Ethernet ports. Models 4352, 4352A, 4352B, and 4354 have two fiber-optic Ethernet ports. See Table 74 for a list of supported protocols on the TCM network ports.

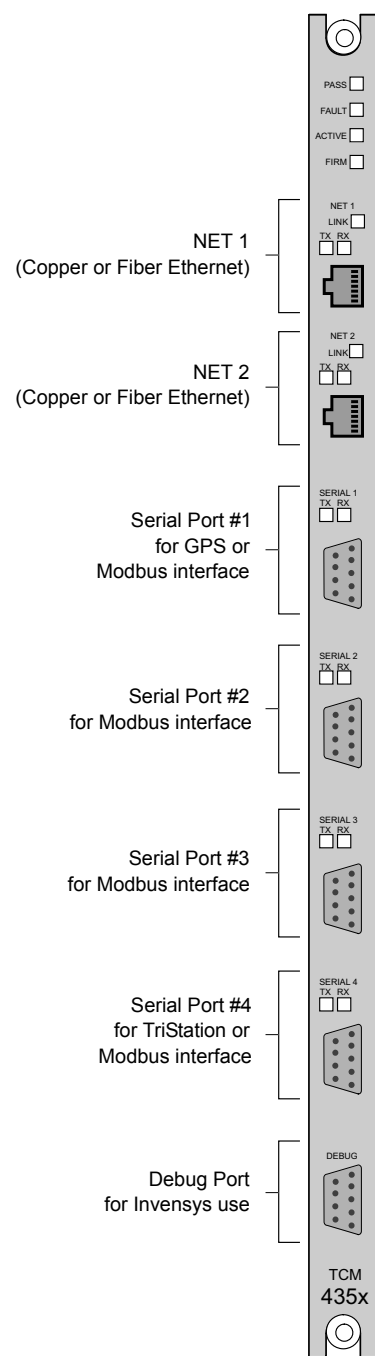


Figure 77 TCM Front Panel

The fiber-optic Ethernet ports on Models 4352, 4352A, 4352B, and 4354 use 1300 nanometer optical transceivers, which are fully compliant with the Optical Performance Requirements of the 100Base-FX version of IEEE 802.3u and ANSI X3.166 - 1990 standards.

A single Tricon v10.x or v11.x system supports a maximum of four TCMs, which must reside in two logical slots located in chassis 1 or chassis 2 only. You cannot install model 4351/4352 TCMs in a system that also has model 4351A/B, 4352A/B, or 4353/4354 TCMs installed, even if they are installed in different chassis.

Additionally, different TCM models cannot be mixed in the same logical slot. Exceptions to this rule are the 4351A/B and 4352A/B modules, where A and B modules with the same model number can be installed in the same slot.

The hot-spare feature is not available for the TCM, though you can replace a faulty TCM while the controller is online.

This table describes TCM model and Tricon system version compatibility.

Table 72 TCM Model and Tricon System Version Compatibility

Tricon System Version	Compatible TCM Models
10.0	4351, 4352
10.1 or later	4351A, 4352A
10.3 or later	4351B, 4352B, 4353, 4354

For complete compatibility information, see the Tricon Product Release Notices available on the Global Customer Support (GCS) center website. For additional information, see the *Communication Guide for Tricon v9–v11 Systems* and *Replacing TCMs* on page 300.

TCM Specifications

This table lists the specifications for TCM Models 4351, 4351A, 4351B, 4352, 4352A, 4352B, 4353, and 4354.

CAUTION

Different TCM models cannot be mixed in the same logical slot. Exceptions to this rule are the 4351A/B and 4352A/B modules, where A and B modules with the same model number can be installed in the same slot.

Table 73 TCM Specifications

Feature	Description										
Serial ports	4, RS-232/RS-485 ports, DB-9 connectors										
Network ports	2, 10/100BaseT Ethernet ports, RJ-45 connectors (Models 4351, 4351A, 4351B, and 4353) 2, fiber-optic mode Ethernet ports, MT-RJ connectors with 62.5/125 um fiber cables (Models 4352, 4352A, 4352B, and 4354)										
Port isolation	500 VDC										
Communication protocols	TriStation, Embedded OPC Server (Models 4353 and 4354), Modbus, Modbus TCP, TCP/IP, SNTP, TSAA (with support for IP Multicast), Trimble GPS, Peer-to-Peer, Triconex Time Synchronization, Jet Direct (network printing)										
Modbus functions supported	<table> <tr> <td>01 – Read Coil Status</td><td>06 – Modify Register Content</td></tr> <tr> <td>02 – Read Input Status</td><td>07 – Read Exception Status</td></tr> <tr> <td>03 – Read Holding Registers</td><td>08 – Loopback Diagnostic Test</td></tr> <tr> <td>04 – Read Input Registers</td><td>15 – Force Multiple Coils</td></tr> <tr> <td>05 – Modify Coil Status</td><td>16 – Preset Multiple Registers</td></tr> </table>	01 – Read Coil Status	06 – Modify Register Content	02 – Read Input Status	07 – Read Exception Status	03 – Read Holding Registers	08 – Loopback Diagnostic Test	04 – Read Input Registers	15 – Force Multiple Coils	05 – Modify Coil Status	16 – Preset Multiple Registers
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Communication speed	Copper Ethernet ports: 10/100 Mbps (Model 4353 only supports 100 Mbps connections) Fiber Ethernet ports: 100 Mbps Serial ports: up to 115.2 Kbps per port, aggregate data rate of 460.8 Kbps for all four ports										
Status indicators	PASS, FAULT, ACTIVE, FIRM LINK – 1 per network port TX (Transmit) – 1 per port RX (Receive) – 1 per port										
Logic power	< 10 watts										

This table lists the protocols and standards supported on TCM ports for Models 4351, 4351A, 4351B, 4352, 4352A, 4352B, 4353, and 4354.

Table 74 TCM Protocols/Standards

Protocol or Standard	Network Ports (Models 4351 and 4352)	Network Ports (Models 4351A, 4351B, 4352A, and 4352B)	Network Ports (Models 4353 and 4354)	Serial Ports (All Models)
TriStation	NET 2	NET 1, NET 2	NET 1, NET 2	Port 4
TSAA (UDP/IP)	NET 2	NET 1, NET 2	NET 1	—
TSAA with IP Multicast (UDP/IP)	— ^a	NET 1, NET 2 (Models 4351B and 4352B)	NET 1	—
Peer-to-Peer (UDP/IP)	NET 1	NET 1, NET 2	NET 1	—
Peer-to-Peer (DLC)	NET 1	NET 1	NET 1	—
Embedded OPC Server (OPC Data Access and OPC Alarms and Events)	—	—	NET 2	—
Modbus Slave (ASCII or RTU)	—	—	—	Any port
Modbus Master (RTU)	—	—	—	Any port
Modbus Master or Slave (TCP)	NET 2	NET 1, NET 2	NET 1	—
GPS Time Synchronization	—	—	—	Port 1
Triconex Time Synchronization via DLC	NET 1	NET 1	NET 1	—
Triconex Time Synchronization via UDP/IP	NET 1	NET 1, NET 2	NET 1	—
SNTP Triconex Time Synchronization	NET 2	NET 1, NET 2	NET 1, NET 2	—
Network Printing using Jet Direct	NET 2	NET 1, NET 2	NET 1	—

a. — means the protocol or standard is not supported on these ports.