Product Specifications
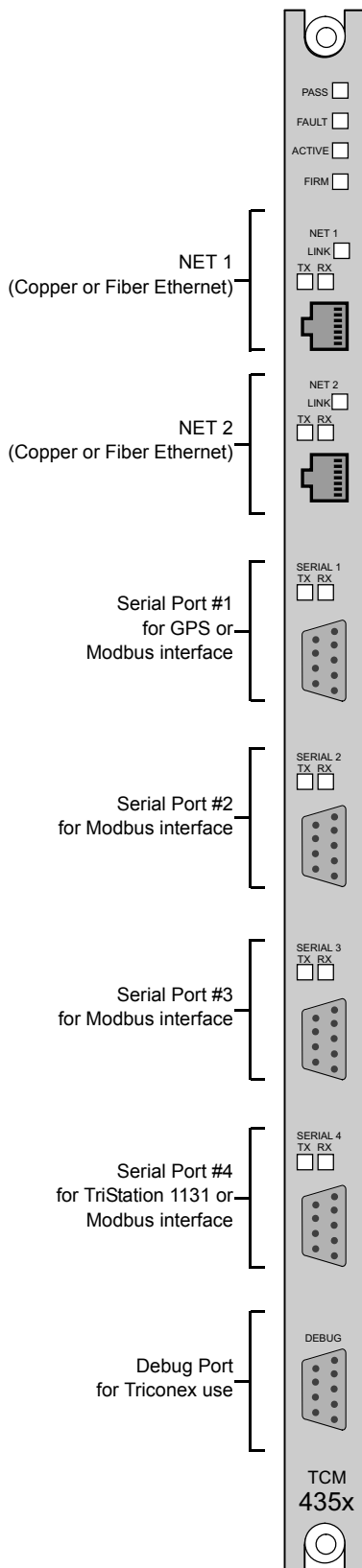
NET 1
(Copper or Fiber Ethernet)

NET 2
(Copper or Fiber Ethernet)

Serial Port #1
for GPS or
Modbus interface

Serial Port #2
for Modbus interface

Serial Port #3
for Modbus interface

Serial Port #4
for TriStation 1131 or
Modbus interface

Debug Port
for Triconex use

PASS
FAULT
ACTIVE
FIRM

NET 1
LINK
TX RX

NET 2
LINK
TX RX

SERIAL 1
TX RX

SERIAL 2
TX RX

SERIAL 3
TX RX

SERIAL 4
TX RX

DEBUG

TCM
435x

computers access the Tricon through other communication modules. See for more information.

TCM Models 4353 and 4354 have an embedded OPC server on NET 2, which allows up to 10 OPC clients to subscribe to data collected by the OPC Server. The embedded OPC Server supports the Data Access 2.05 standard and the Alarms and Events 1.10 standard.

Each TCM contains two network ports—NET 1 and NET 2. Models 4351A, 4351B, and 4353 have two copper Ethernet (802.3) ports and Models 4352A, 4352B, and 4354 have two fiber-optic Ethernet ports.

On TCM Models 4351A, 4351B, 4352A, and 4352B, NET 1 and NET 2 support the TCP/IP, Modbus TCP/IP Slave/Master, TSAA, TriStation, SNTP, and Jet Direct (for network printing) protocols. NET 1 also supports the Peer-to-Peer (UDP/IP) and

Peer-to-Peer Time Synchronization protocols.

On TCM Models 4353 and 4354, NET 2 supports only the embedded OPC server, TriStation, and SNTP protocols, while NET 1 supports all of the listed protocols except the embedded OPC server.

A single Tricon system supports a maximum of four TCMs, which must reside in two logical slots. Different TCM Models cannot be mixed in one logical slot. Each Tricon system supports a total of 32 Modbus masters or slaves—this total includes network and serial ports. The hot-spare feature is not available for the TCM, though you *can* replace a faulty TCM while the controller is online.

TCM Specifications

Model Number	4351A, 4351B, 4352A, 4352B, 4353, 4354
Serial ports	4, RS-232/RS-485 ports, DB-9 connectors
Network ports	2, 10/100BaseT Ethernet ports, RJ-45 connectors (Models 4351A, 4351B, 4353) 2, fiber-optic mode Ethernet ports, MT-RJ connectors with 62.5/125 um fiber cables (Models 4352A, 4352B, 4354)
Port isolation	500 VDC
Protocols	TriStation, Modbus, TCP/IP, ICMP, SNTP, TSAA (with support for IP Multicast), Trimble GPS, Embedded OPC Server (Models 4353 and 4354), Peer-to-Peer (UDP/IP), Peer-to-Peer Time Synchronization, Jet Direct (network printing)
Modbus functions supported	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
Communication speed	Copper Ethernet ports: 10/100 Mbps (Model 4353 supports only 100 Mbps) Fiber Ethernet ports: 100 Mbps Serial ports: up to 115.2 Kbps per port
Status Indicators	PASS, FAULT, ACTIVE, FIRM LINK— 1 per network port, TX (Transmit) — 1 per port, RX (Receive) — 1 per port

Enhanced Intelligent Communication Module

The Model 4119A Enhanced Intelligent Communication Module (EICM) allows the Tricon to communicate with Modbus masters and slaves, TriStation 1131, and printers.

For Modbus connections, the EICM user can select the RS-232 point-to-point interface for one master and one slave, or the RS-485 interface for one master and up to 32 slaves. The RS-485 network trunk can be one or two twisted-pair wires up to a maximum of 4,000 feet (1,200 meters).

Each EICM contains four serial ports and one parallel port which can operate concurrently. Each serial port can be configured as a Modbus master with up to seven Modbus masters per Tricon chassis. A single Tricon system supports a maximum of two EICMs, which must reside in one logical slot. (The hot-spare feature is not available for the EICM, though you can replace a faulty EICM while the controller is online.) Each serial port is uniquely addressed and supports either the Modbus or TriStation interface.

Modbus communication can be performed in either RTU or ASCII mode. The parallel port provides a Centronics interface to a printer.

Each EICM supports an aggregate data rate of 57.6 kilobits per second (for all four serial ports).

Programs for the Tricon 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. An alias number is assigned in TriStation 1131.

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

EICM Specifications

Model Number	4119A, Isolated
Serial ports	4 ports RS-232, RS-422 or RS-485
Parallel ports	1, Centronics, isolated
Port isolation	500 VDC
Protocol	TriStation, Modbus
Modbus functions supported	01 — Read Coil Status
	02 — Read Input Status
	03 — Read Holding Registers
	04 — Read Input Registers
	05 — Modify Coil Status
	06 — Modify Register Content
	07 — Read Exception Status
	08 — Loopback Diagnostic Test
	15 — Force Multiple Coils
	16 — Preset Multiple Registers
Communication speed	1200, 2400, 9600, or 19,200 Baud
Diagnostic Indicators	Pass, FaULT, Active
	TX (Transmit) — 1 per port
	RX (Receive) — 1 per port

PASS
FAULT
ACTIVE

1TX
1RX

Serial Port #1
for Modbus interface

2TX
2RX

Serial Port #2
for Modbus interface

3TX
3RX

Serial Port #3
for Modbus interface

4TX
4RX

Serial Port #4
for TriStation
or Modbus

PRT

Parallel Port #5
for Centronics
compatible printer

EICM
4119A