

24-Port Unmanaged Ethernet Switch



Front View of the 24-Port Twisted Pair Unmanaged Ethernet Switch with Expansion Slot

- High-performance rugged Ethernet switch technology
- Operating temperature range 0 to 60 °C, Fanless
- 10/100M auto negotiation speed, Full/Half duplex, MDI/MDI-X auto sensing
- Optional 2 port fiber module (SC connector, Multi mode)
- Tested with DeltaV Network

Introduction

The 24-Port Unmanaged Ethernet Switch provides an economical solution for DeltaV network Ethernet connections. The modular design lets you expand the number of ports from 24 to 26 ports, by adding 2 fiber ports with the fiber module FO-2MSC. The rugged hardware design makes it perfect for ensuring that your Ethernet equipment can withstand the rigors of industrial applications. The Ethernet switch complies with FCC and CE Standards.

DeltaV Control Network Description and Specification

The DeltaV Control Network can be physically connected as a star or cascade (daisy-chain) topology. Other network configurations are possible, such as a combination of a star and cascade topology. (DeltaV does not support network ring topologies).

Refer to the latest DeltaV installation and planning manual(s) for details of network layouts and network cable shielding requirements and power and grounding requirements for the overall DeltaV automation system.

The Control Network can use one or more Ethernet switches for communications connections.

Wiring

The maximum twisted-pair cable length for the DeltaV control network for any Ethernet-connected device is 100 meters (328 feet). If longer cable distances are needed for these workstation-to-switch, controller-to-switch, or switch-to-switch connections, there are various fiber-optic cable and transceiver solutions available from Emerson Process Management as a standard supported solution. For special network designs that go beyond the supported diagrams shown in the DeltaV installation and planning manuals, consult with the Emerson Process Management SureService team. The DeltaV Control Network supports the use of auto-negotiated 10-half, 100-half, 10 full, and 100-full duplex communications where the industry standard auto-negotiation process determines the highest speed at which two devices will communicate with each other. The latest DeltaV

network products make use of gigabit Ethernet for switch-to-switch communications and can support distances up to 108 Km using standard product fiber optic communications.

The DeltaV workstations and controllers contain two Ethernet ports to provide the recommended redundant communications. Early models of DeltaV controllers supported 10 megabit Ethernet at half-duplex only. The latest DeltaV controllers auto-negotiate to any speed and duplex from 10-half to 100-full, depending on what the controller is attached to. The workstations do the same: they auto-negotiate to the highest speed and duplex available from their attached device.

Ethernet Cable

The DeltaV system requires the use of Category 5e screened (ScTP) cable for the 10/100/1000 BaseT/TX control network.

Fiber-optic Wiring

Because fiber-optic cables do not conduct electricity, they should be used in connections between buildings or in plant areas where electromagnetic interference is present.

Fiber-optic cabling should also be used where wire runs are longer than 100 meters (328 ft).

General Specifications for the CE6052M03 Unmanaged Ethernet Switch

Technology:

Standards: IEEE802.3 .802.3u. 802.3x

Processing type: Store and Forward, with IEEE802.3x full duplex

MAC table size: 8K

Interface:

RJ45 Port: 10/100BaseTX auto negotiation speed, Full/Half duplex mode and auto MDI/MDI-X connectio

Fiber Port: 100BaseFX (SC connector)

LED:

Power. ACT/LINK. 100M

Optical Fiber: See table below

Power requirement:

Input Voltage: 110/220 VDC/VAC. 47~63 Hz

Overload Current Protection: 2A

Physical Characteristics:

Housing: IP30 protection

Dimensions: 440 x 44 x 254 mm

Installation: 19" rack mounting

Environmental Limits:

Operating Temperature: 0 to 60°C (-32 to 140°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications:

EMI: FCC Part 15,CISPR (EN55022) class

EMS: EN61000-4-2 (ESD), Level 3

EN61000-4-3 (RS), Level 3

EN61000-4-4 (EFT), Level 3

EN61000-4-5 (Surge), Level 3

EN61000-4-6 (CS), Level 3

EN61000-4-8, 100 A/m continuous

EN61000-4-12

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

General Specifications for Optional Accessories: Optic Fiber Modules	
Category	CE6052M02
Mode	Muti mode
Distance	5km
Wavelength	1300nm
Min. TX Output	-20dBm
Max. TX Output	-14dBm
Sensitivity	34 to -30 dBm
Recommended	50/125 μ m (1dB/km, 800 MHz x km)

Typical Network Examples using Unmanaged Ethernet Switch

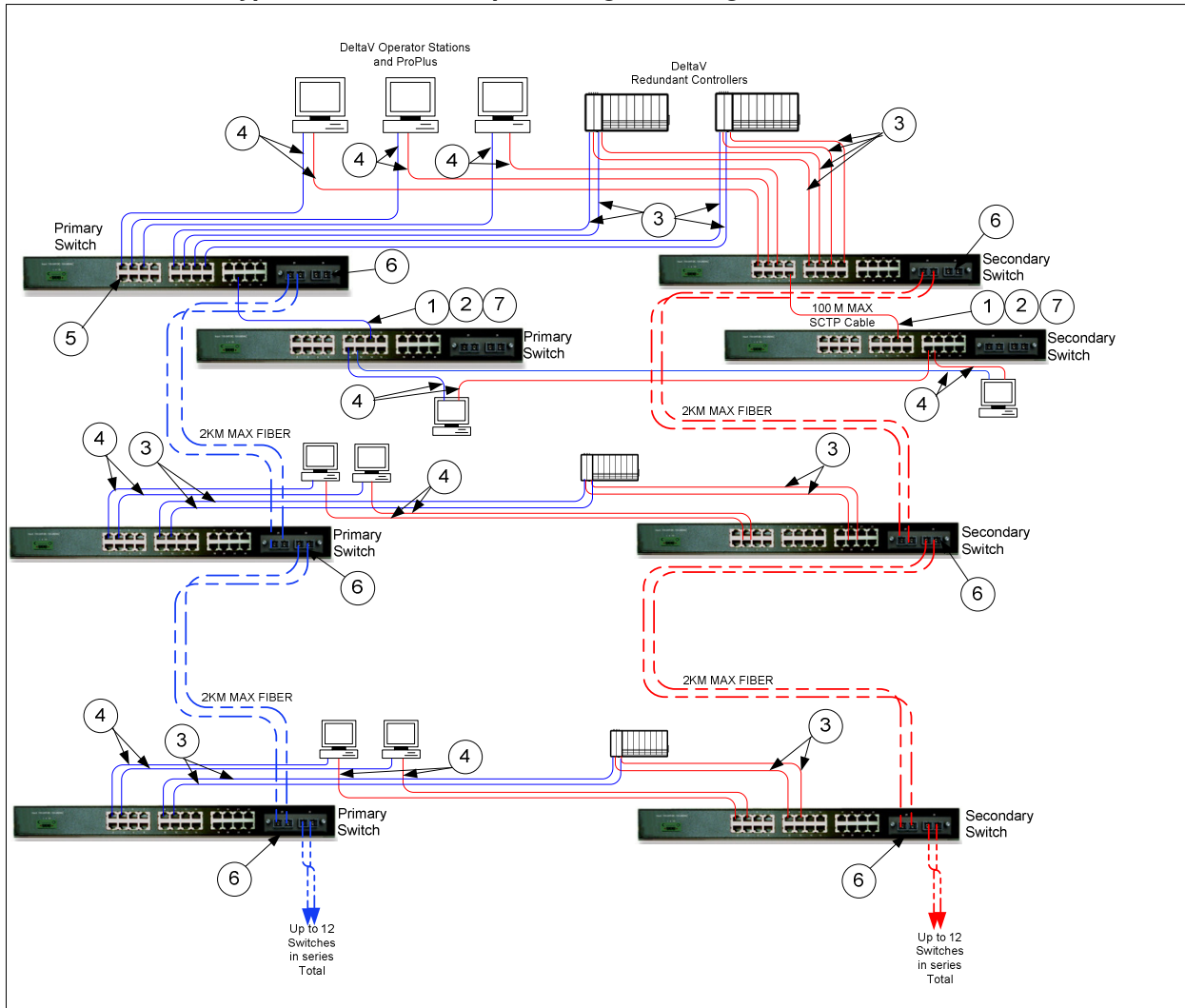


Figure 1: Twisted Pair and Fiber Optic Network Switches

See Notes for Figure 1 on page 6.

Notes for Figure 1 Twisted Pair and Fiber Optic Network

Note 1	100 m (max) straight-through or crossover cable. Cat. 5(e) Screened Twisted Pair cable is required between switches. Refer to “Control Network Specifications” in the M-series Hardware Manual in DeltaV Books Online for DeltaV control network diagrams.
Note 2	To prevent ground loops, build this cable assembly with a shielded, metal-enclosed RJ45 connector on <u>one end</u> and an isolated, plastic-enclosed RJ45 connector on the other end. The metal connector end of this cable assembly/link can be placed on either switch. Refer to “Control Network Specifications” in the M-series Hardware Manual in DeltaV Books Online for DeltaV control network diagrams.
Note 3	100 m (max) straight-through or crossover cable. The shield on the controller’s RJ45 connector connects only to a Faraday cage in the controller; not to the controller’s DC ground. Therefore, the RJ45 connectors are floating and the single point of ground is made at the hub or switch to which the controller is connected. Build this cable assembly with a shielded, metal-enclosed RJ45 connector on both ends. Refer to “Control Network Specifications” in the M-series Hardware Manual in DeltaV Books Online for DeltaV control network diagrams.
Note 4	100 m (max) straight-through or crossover cable. To prevent ground loops, build this cable assembly with a shielded, metal-enclosed RJ45 connector on one-end and an isolated, plastic-enclosed RJ45 connector on the other end. The metal connector end of this cable assembly/link must be placed on the switch and not on the PC. Refer to “Control Network Specifications” in the M-series Hardware Manual in DeltaV Books Online for DeltaV control network diagrams.
Note 5	All twisted pair ports are 10/100 MB/S auto-negotiating duplex and auto-speed sensing. Do not hard-set PC NIC cards to a particular speed or duplex setting – always be sure the PC NIC cards are configured to be auto-negotiating.
Note 6	The fiber optic ports on this media module are 100 MB/S Full Duplex (100 Base-FX) and should only be connected to the same type of fiber optic module on the other end of the link. Only 62.5/125 micron or 50/125 micron fiber optic cable may be used with this module. Maximum transmission distance can be up to 2KM. The form factor of each fiber optic port is SC. Fiber optic patch panels and splices in a fiber optic channel can degrade the fiber optic signal which may reduce the overall operating distance.
Note 7	In this example two switches are linked together with twisted pair cable to gain more ports in the same area when switches are physically together in a cabinet or rack room.

Ordering Information

Description	Model Number
24-Port Unmanaged Ethernet Switch with Expansion Slot. 24-Port (RJ45) 10/100BASE-TX auto negotiation speed, Full/Half duplex mode, Unmanaged Ethernet Switch, Expansion Slot is compatible with Extended 2 Port Fiber Module.	CE6052M03
Fiber Module, 2-Port Fiber Optic, MM, 100BASE-FX, SC. MOXA, FO-2MSC	CE6052M01

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