

## EC-TES7000-12 Series DIN/Wall Mount Industrial/Traffic Ethernet Switch

8-GigE Copper+4-GigE SFP | Fully Managed | Fully Secure

### DESCRIPTION:

The Extreme Copper TES7000-12 Series of Ethernet switches is designed with the demands of the Industrial Traffic, Automation, ITS and IOT markets in mind. The Extreme Copper Ethernet switch line is designed to be installed in a DIN rail slot either within an industrial, office or in a road side cabinet located on the corner of an intersection or beside the highway. Extreme Copper Ethernet switches are temperature hardened and can operate from -34C to +74C, making them ideal for operation in harsh environments while not sacrificing any features. Extreme Copper Ethernet switches provide VLAN and ID tagged VLAN (IEEE802.1Q), IGMP snooping, spanning tree algorithm (IEEE 802.1D), IEEE 802.3 compliant flow control, port prioritization and MAC based trunking. Extreme Copper Ethernet switches provide a range of management options for remote installations. Choose from SNMP, Telnet/FTP, and web based management tools. The EC-TES7000-12 Series DIN Industrial Ethernet Switch provides up to 12 ports of connectivity with 8 10/100/1000BaseT PoE PSE capable ports and 4 industry standard SFP ports. If desired, PoE capability helps realize a centralized power supply solution that provides up to 30 watts of power per port. The TES7000-12 meets the high reliability demands of industrial applications including: factory assembly line, automation, transportation, heavy Industrial factory and more. A built-in redundant network protocol provides users with an easy way to establish an extremely reliable Gigabit Ethernet network with an ultra-high speed recovery and fail over time of less than 20ms. The EC-TES7000-12 is full featured supporting Web, SNMP v1/v2c/v3, HTTP, HTTPS, SNT, SSH and Telnet management interfaces that enable remote accessibility. It also features an RS-232 serial console interface for local management. Management of the switch can be accomplished thru the local RS232 port or by an HTTP web based Ethernet Graphical User Interface (GUI) simultaneously. The EC-TES7000-12 Series DIN Industrial Ethernet Switch supports powerful L2/3 switch management functions including: 802.1Q VLAN, 802.1x access control, IGMP v1/v2/v3, proxy and snooping, QoS and Port Mirroring. The EC-TES7000-12 can be delivered in a variety of configurations. For example, the EC-TES7000-12 can be configured for twelve 10/100/1000BaseTx copper ports or eight 10/100/1000BaseTx copper ports and four 100/1000BaseX SFP fiber optic ports. The EC-TES7000-12 series switches utilize standard SFP plug-in modules in either multimode or single- mode configurations to provide installation flexibility. These modules may be specified and included for shipment with the fully tested EC-TES7000-12. The Extreme Copper TES7000-12 is available in several mounting configurations including DIN mount and wall mount for efficient use of cabinet space.

### KEY FEATURES:

- Provides 8 10/100/1000 Base TX PoE ports plus 4 100FX/1000BaseF SFP slots
- IEEE 802.3af 15.4W / IEEE 802.3at 30W High Power PoE, total PoE power budget: 240W
- All Port Gigabit Industrial Switch
- Supports 9K Jumbo frames
- Stores up to 8192 MAC forwarding addresses
- L2 wire-speed Store-and-forward non-blocking switching engine with full wire-speed forwarding rate
- Auto-negotiates for 10/100/1000 Mbps and full/half duplex
- Multicasting support IGMP v1/v2/v3 proxy & snooping
- Multicast/Broadcast/Flooding Storm Control

- IEEE802.1x access control
- Port-based /tag-based VLAN, IEEE 802.1ad/ QinQ VLAN, Add/remove
- Per VLAN mirroring



- CLI/Web/SNMP secure management interfaces
- PoE PSE power management & PD power consumption
- Network redundant LACP, STP, RSTP and MSTP with quick Ring fail-over protection (< 20 ms)
- Supports VLAN, ID Tagged VLAN, MAC based Trunking and Spanning Tree Algorithm
- PoE PSE power management & PD power consumption
- Dual power input & Reverse power protection
- DIN-Rail and Wall mounting option
- Multiple mounting configurations: Industry standard DIN mount and wall mount

- Custom Port Assignment Description Field (PADF) preferred by Caltrans; holds over 250 characters
- ERPS (G.8032) Ethernet Ring Protection Switching
- Ring v2 for millisecond grade failover ring protection will perform better in the following network topologies: Ring, Dual Ring, Chain, and Dual Homing

### FORM FACTOR/ENVIRONMENTAL:

Size	3.00H x 5.00W x 6.00D
Weight	3 lb.
Case Material	Aluminum, black anodized, IP30 Protection
Mounting	DIN rail mount and Wall mount
Temperature	TS-2 1998, Section 2, paragraphs 2.2.7.3, 2.2.7.4, 2.2.7.5, 2.2.7.6 (no fans)
Humidity	95% non-condensing, optional: conformal coating
Vibration	TS-2 1998, Section 2, paragraphs 2.2.8.4
Mechanical Shock	TS-2 1998, Section 2, paragraphs 2.1.10
Electrical Transients	TS-2 1998, Section 2, paragraphs 2.1.6.1, 2.1.6.2, 2.1.7, 2.1.8

### POWER REQUIREMENTS:

Input Voltage (DC1)	46-57 VDC; redundant inputs
Input Voltage (DC2)	12-48 VDC; temperature hardened power supply (-40 to 75C)
Input Voltage (ACU)	88-264VAC; temperature hardened DIN Power power supply (-40 to 75C)
Power Consumption	15 W (without POE loading)
PoE management	Scheduling; power control; PoE PD power consumption
Total PoE output power	
Budget	240W
PoE PSE port output	
Power management	Scheduling; power control; PoE PD power consumption
Reverse power	
Protection	Yes
Transient protection	> 15,000 watts peak
Critical Alarm Relay	Form-C failsafe contact relay: 1A @ 30 VDC (optional)

### PORT CONFIGURATION:

Copper Ports	8 - 10/100/100BaseTX ports If fiber ports are not fitted 2 extra copper ports can be fitted optional PoE
Copper/Fiber Ports	4 – 100/1000 BaseX SFP ports Supports standard SFP plug-in modules
Fiber Type	Multi-mode – 850 & 1310nm Single-mode – 1310 nm
Fiber Distance	Multi-mode – 2 km Single-mode – 10, 25, 50, 70 & 90 km and others as applicable per SFP module
Typical Link Budgets	Multi-mode 17 dB Single-mode 17 dB (10 km); 19 dB (25 km)
Local Config. Port	DB9 RS232, HTTP/HTTPS Web-based Ethernet Graphical User Interface (GUI)

### SECURITY:

- user password to guard against unauthorized configuration
- SSH/SSL (HTTPS)
- Enable/Disable Ports
- MAC based Port Security
- Port Blocking – block either TX or RX functionality on per port basis

**SWITCH PROPERTIES:**

Switching Method	Store & Forward
Switching Latency	7 us
Switching Bandwidth	over 16Gbps
MAC Addresses	8192
MAC Address Table Size	32kbytes
Priority Queues	4
Frame Buffer Memory	4000kbit
VLANs	4096
IGMP Multicast Groups	8192
Port Rate Limiting	2, 16, 128, 256, 512 kbps, 1, 10, 2, 4, 8, 10, 102Mbps

No head of line blocking

Broadcast Storm Filtering Protection

Port Rate Limiting: limits unicast and multicast traffic

Port Based Network Access Control

Credential System

Standard, Multiple and Rapid Spanning Tree

Event Logging and Alarms

Event, system, configuration and error logging

**IEEE COMPLIANCE/STANDARDS:**

- IPV4
- IPV6
- 802.3-10BaseT
- 802.3u-100BaseTX, 100BaseFX
- 802.3x-Flow Control
- 802.3z-1000BaseLX
- 802.3ab-1000Base, 1000BaseTX
- 802.3ad-Link Aggregation (LACP) with Double Tagging (Q in Q)
- 802.1d-MAC Bridges
- 802.1d-Spanning Tree Protocol (STP)
- 802.1p-Class of Service (QOS)
- 802.1q-VLAN Tagging
- 802.1s/802.1q-2006 (MSTP) Management interface can be a member of MSTI Instance
- 802.1w-Rapid Spanning Tree Protocol (RSTP)
- 802.1x-Port Based Network Access Control (PNAC)
- ERPS (G.8032)

**IETF RFC COMPLIANCE/STANDARDS:**

- RFC768-UDP
- RFC783-TFTP
- RFC791-IP
- RFC792-ICMP
- RFC793-TCP
- RFC826-ARP
- RFC854-Telnet
- RFC894-IP over Ethernet
- RFC1112-IGMP v1
- RFC1541-DHCP (client)

- RFC2068-HTTP
- RFC2236-IGMP v2
- RFC3376-IGMP v3
- RFC2284-EAP
- RFC2475-Differentiated Services
- RFC4330-SNTP

#### **IETF SNMP MIBS:**

- RFC1493-BRIDGE-MIB
- RFC1907-SNMPv2-MIB
- RFC2012-TCP-MIB
- RFC2013-UDP-MIB
- RFC2578-SNMPv2-SMI
- RFC2579-SNMPv2-TC
- RFC2819-RMON-MIB
- RFC2863-IF-MIB

#### **NETWORK MANAGEMENT:**

- HTTP/HTTPS Graphical web-based User Interface (GUI)
- SNMP v1, v2c, v3
- Telnet, VT100
- Cisco-like Command Line Interface (CLI)
- Port Mirroring
- Loss of Link Management: Dynamically scales the bandwidth and provides failover when a link goes down
- Configuration via ASCII Text File, compatible upload
- Ability to update firmware on like switches remotely on a per switch basis via TFTP
- Radius Client for Management

#### **DESIGN FOR FOLLOWING APPROVALS:**

- Hazardous Locations: Class 1, Division 2
- ISO: Designed and manufactured using an ISO9001:2000 certified quality program
- CE Marking
- Emissions: FCC Part 15 (Class A), EN55022 (CISPR22 Class A)
- Safety: cCSAus (Compliant with CSA C22.2 No. 60950, UL 60950, EN60950)
- Laser Eye Safety (FDA/CDRH): Complies with 21 CFR Chapter1, Subchapter J
- 1500 VRMS 1 minute Ethernet isolation

#### **WARRANTY:**

1 Year Standard, applicable to design or manufacturing related product defects  
 5 Years-Available, applicable to design or manufacturing related product defects  
 Lifetime- Available on installed SFP module

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## eXtreme copper

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**Specifications are subject to change without notice.**

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