comnet
Communication Networks

CNGE8FX4TX4MS

environmentally hardened managed Ethernet switch with (4) 10/100/1000TX + (4) 100/1000FX SFP ports

E
4+4

Description

The ComNet™ CNGE8FX4TX4MS Managed Ethernet Switch provides transmission of (4) 100/1000 BASE-TX and (4) 10/100/1000FX combo ports. Unlike most Ethernet switches, these environmentally hardened units are designed for deployment in difficult operating environments, and are available for use with either conventional CAT-5e copper or optical transmission media. Ports 1 – 4 support the 10/100/1000 Mbps Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/MDIX features are provided for simplicity and ease of installation. Ports 5 – 8 are 10/100/1000 configurable for copper or 100/1000 fiber media for use with multimode or single mode optical fiber without need for configuration, selected by optional SFP modules. These network managed layer 2 switches are optically and electrically compatible with any IEEE 802.3 compliant Ethernet devices. Plug-and-play design ensures ease of installation, and no electrical or optical adjustments are ever required. The CNGE8FX4TX4MS incorporates LED indicators for monitoring the operating status of the managed switch and network.

Features

- Environmentally hardened for direct deployment in difficult unconditioned out-of-plant and roadside installations
- Tested and certified by an independent laboratory for full compliance with the environmental requirements (ambient operating temperature, mechanical shock, vibration, humidity with condensation, high-line/low-line voltage conditions and transient voltage protection) of NEMA TS-1/TS-2 and CALTRANS Traffic Signal Control Equipment Specifications
- Extended ambient operating temperature range: -40˚ C to +75˚ C (Functional to 85°C)
- 10/100/1000 BASE-TX and 100/1000 BASE-FX compatible
- Flexible optics configuration via SFP plug-in modules
- Redundant power supply compatibility reduces possibility of single-point-of-failure for highest possible reliability
- Fully configurable through web-based or SNMP network management
- IGMP Snooping V1/V2 for multicast filtering and IGMP Query V1/V2
- Port based VLAN (IEEE 802.1Q)
- Rapid Spanning Tree protocol (IEEE 802.1W)
- Port Based Security
- Power Supply Included
- Lifetime Warranty

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environmentally hardened managed Ethernet switch with (4) 10/100/1000TX + (4) 100/1000FX SFP ports

specifications

benefits

System Interface/ Performance:
- RJ-45 port support Auto MDI/MDI-X Function
- SFP supports 100/1000 Dual Mode
- Store-and-Forward Switching Architecture
- Back-plane (Switching Fabric): 16Gbps
- 1Mbits Packet Buffer
- 8K MAC Address Table

Power Supply:
- Wide-range Redundant Power Design
- Power Polarity Reverse Protect
- Overload Current Protection

VLAN
- Port Based VLAN
- Support 802.1 Q Tag VLAN
- GVRP

Port Trunk with LACP

QoS (Quality of Service)
- Support IEEE 802.1p Class of Service
- Per port provides 4 priority queues
- Port Base, Tag Base and Type of Service Priority

Port Mirror: Monitor traffic in switched networks
- TX packet only
- RX packet only
- Both TX and RX packet

Security
- Port Security: MAC address entries/filter
- IP Security: IP address security management to prevent unauthorized intruder
- Login Security: IEEE802.1X/RADIUS

IGMP
- Query mode for Multi Media Application

SFP Support DMI (Digital Monitoring Interface)
- RX Received Optical Power
- TX Output Power
- Laser Bias Current
- Temperature
- Supply Voltage

Spanning Tree
- Support IEEE802.1d Spanning Tree
- Support IEEE802.1w Rapid Spanning Tree

X-Ring
- X-Ring, Dual Homing and Couple Ring Topology
- Provide redundant backup feature

Case/Installation
- IP-30 Protection
- DIN Rail and Wall Mount Design

Bandwidth Control
- Ingress Packet Filter and Egress Rate Limit
- Broadcast/Multicast Packet Filter Control

System Event Log
- System Log Server/Client
- SMTP e-mail Alert
- Relay Alarm Output System Events

SNMP Trap
- Device cold start
- Power Status
- Authentication failure
- X-ring topology change
- Port Link Up/ Link Down

Provides EFT protection 4000 VDC for power line

Supports 8000 VDC Ethernet ESD protection

STANDARD COMPLIANCE
- IEEE802.3 10Base-T Ethernet
- IEEE802.3u 100Base-TX
- IEEE802.3ab 1000Base-T
- IEEE802.3z Gigabit fiber
- IEEE802.3x Flow Control and Back Pressure
- IEEE802.3ad Port trunk with LACP
- IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree
- IEEE802.1p Class of Service
- IEEE802.1Q VLAN Tag
- IEEE802.1x User Authentication (Radius)

PART NUMBER	DESCRIPTION
CNGE8FX4TX4MS	4 10/100/1000T + 4 100/1000 SFP w/ X-Ring L2 & Wide Operating Temperature (-40º – 75ºC) Managed Industrial Switch
Accessories	Power Supply Included at No Cost

Complies with FDA Performance Standard for Laser Products, Title 21, Code of Federal Regulations, Subchapter J
In a continuing effort to improve and advance technology, product specifications are subject to change without notice.

AGENCY COMPLIANCE
PART 15 COMPLIANT E322911 N24621

specifications

hardware specifications

Switch Architecture	Switching Fabric: 16Gbps Packet throughput ability (Full Duplex): 23.8Mpps @64bytes
Transfer Rate	1,488,000pps for Gigabit Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Flash ROM	4Mbytes
DRAM	32Mbytes
Connector*	10/100/1000TX: 4 × RJ45; 4 × 100/1000 SFP sockets; SFP sockets support DMI (Digital Monitoring Interface) Console port: RS-232 connector
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable. EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/5E cable. EIA/TIA-568 100-ohm (100m) 1000Base-TX: 2-pair UTP/STP Cat. 5/5e cable. EIA/TIA-568 100-ohm (100m)
Optical Fiber[1]	Requires selection of sold-separately SFP Modules. See ComNet data sheet "SFP Small Form-Factor Pluggable Modules" for number and description of SFP modules.
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red), Master (Green); Per port: Link/Activity (Green), Speed (1000Mbps Green); SFP: Link/Activity (Green)
Power Supply	DC 12~48V, Redundant power with polarity reverse protect function and removable terminal block (a 12VDC or 24VDC PSU is included, based on region).
Power Consumption	17 Watts
MTBF	>100,000 hours
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-40˚C to 75˚C (Functional to 85ºC)
Storage Temperature	-40˚C to 85˚C
Case Dimensions	Metal case. IP-30, 72mm (W) × 105mm (D) × 152mm (H) 2.84" (W) × 4.13" (D) × 5.98" (H)
Installation	DIN Rail and Wall Mount Design

* Multimode fiber needs to meet or exceed fiber standard ITU-T G.651. Single mode fiber needs to meet or exceed fiber standard ITU-T G.652

EMI	FCC Part15 Class A – EN61000-6-4 – EN61000-6-2 – EN61000-4-2 (ESD) Contact: ±4KV Air : ±8KV – EN61000-4-3 (Radiated RFI) 10V/m, 80 to 1000MHz ; 80% AM – EN61000-4-4 (Burst) Signal Ports : ±1KV D.C. Power Ports : ±2KV A.C. Power Ports : ±2KV – EN61000-4-5 (Surge) Signal Ports: ±1KV; Line-to-Line D.C. Power Ports: ±0.5KV: Line-to-Earth A.C Power Ports: ±2KV; Line-to-Earth EN61000-4-6 (Induced RFI) Signal Ports: 10Vrms@0.15~80MHz; 80% AM D.C. Power Ports: 10Vrms@0.15~80MHz; 80% AM A.C. Power Ports: 10Vrms@0.15~80MHz; 80% AM – EN61000-4-8 (Magnetic Field) 30A/m@50, 60Hz – EN61000-4-11 (Voltage Dip) – EN61000-3-2 (Harmonics Current) – EN61000-3-3 (Voltage Fluctuation & Flickers)
IETF RFC Compliance	RFC768-UDP, RFC783-TFTP, RFC791-IP RFC792-ICMP, RFC793-TCP, RFC827-ARP, RFC854-Telnet, RFC894-IP over Ethernet, RFC1112-IGMP v1, RFC1519-CIDR, RFC1541-DHCP (client), RFC2030-SNTP, RFC2068-HTTP, RFC2236-IGMP v2, RFC2475-Differentiated Services, RFC2865-Radius, RFC3414-SNMPv3-USM, RFC3415-SNMPv3-VACM
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, draft-ietf-bridge-rstppmib-03-BRIDGE-MIB, draft-ietf-bridge-bridgemib-smiv2-03-RSTP-MIB, IANAifType-MIB
Safety	UL508, UL 508 Class 1, Division 2
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

specifications

software features

Management SNMP v1 v2c, v3/ Web/Telnet/CLI/NS-View Management

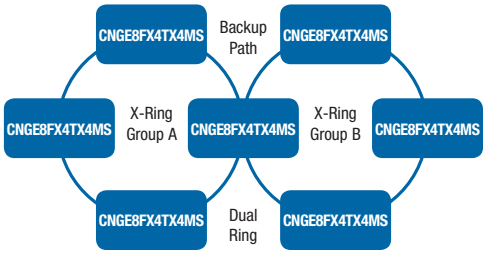
SNMP MIB RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643 , RFC 1757, RSTP MIB, Private MIB

VLAN Port Based VLAN
IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.)
GVRP (256 Groups) Double Tag VLAN (Q in Q) - Optional

Port Trunk w/ LACP LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members

Spanning Tree Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree

X-Ring Support X-Ring, Dual Homing and Couple Ring Topology Provide redundant backup feature and the recovery time below 20ms



Quality of Service The quality of service determined by port, Tag and IPv4 Type of service, IPv4/ IPv6 Different Service

Class of Service Support IEEE802.1p class of service, per port provides 4 priority queues

Port Security Support 100 entries of MAC address for static MAC and another 100 for MAC filter

Port Mirror Support 3 mirroring types: RX, TX and Both packet

IGMP Support IGMP snooping v1,v2 256 multicast groups and IGMP query

IP Security Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder. Login Security
Support IEEE802.1X Authentication/RADIUS

Bandwidth Control
Support ingress packet filter and egress packet limit. The egress rate control supports all of packet type and the limit rates are 100K~250Mbps. Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps.

Flow Control Support Flow Control for Full-duplex and Back Pressure from Half-duplex

System Log Support System log record and remote system log server

SMTP Support SMTP Server and 6 e-mail accounts for receiving event alert

Relay Alarm Provides one relay output for port breakdown, power fail and alarm. Alarm Relay current carry ability: 1A @ DC24V

DMI DMI(Digital Monitoring Interface) supports real time monitoring of RX Received Optical Power, TX Output Power, Laser Bias Current, Temperature and Supply Voltage

SNMP Trap Up to 3 Trap stations. Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, X-Ring topology change

DHCP Provide DHCP Client/ DHCP Server functions

DNS Provide DNS client feature and support Primary and Secondary DNS server

SNTP Support SNTP to synchronize system clock in Internet

Firmware Update Support TFTP firmware update, TFTP backup and restore.

Configuration upload and download
Support binary configuration file for system quick installation

ifAlias Each port allows importing 128bit of alphabetic string of word on SNMP and CLI interface.

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