



-40° TO 75° C



FLEXIBILITY



IEEE 802.3at
30W PoE+



ALL GIGABIT



8 + 4



The ComNet CNGE12FX4TX8MS[POE]/TS is a twelve port, managed Ethernet switch. The switch is mechanically designed to fit into the input file of a NEMA TS2 traffic detector rack and derives power and ground from the backplane. The small form factor allows the user to take advantage of existing rack space already dedicated within an already space limited traffic cabinet making installation clean and easy. The four SFP ports are 100/1000Mbps capable, allowing single-mode or multimode optical fiber transmission with the use of optional SFPs. The density of the SFP ports allows for an optical drop-and-repeat, ring or star (north-south-east-west) topology to address the majority of traffic applications. The remaining eight RJ-45 ports allow for high-throughput 10/100/1000TX Gigabit connectivity on the local copper Ethernet access ports. The CNGE12FX4TX8MSPOE/TS features IEEE 802.3at (30W) PoE on all eight RJ-45 Ethernet ports for PoE-compliant devices such as wireless radios or IP cameras. The ideal solution when footprint within the traffic cabinet is limited.

FEATURES

- › Four (4) SFP ports support 100/1000 Mbps SFP modules
- › Eight (8) electrical ports support 10/100/1000 Mbps Ethernet IEEE802.3 protocol, with IEEE 802.3at PoE (CNGE12FX4TX8MSPOE/TS only)
- › SNMPv3, HTTPS, SSH security features, TACACS+, IEEE1588v2 Timing, 802.1x, & DDMI
- › EMC Performance: Industrial Level 4 / Jumbo Frame
- › Redundant technology: Supports RSTP/MSTP for ring and mesh topologies
- › Supports IGMP Snooping, GMRP, and static multicast
- › Supports VLAN and PVLAN
- › Supports QoS
- › Supports port trunking, port speed limit, and broadcast storm control
- › Supports Network Management and Monitoring
- › Supports SSH, SSL, and ACL for Network Security
- › Supports FTP Device Upgrade Management
- › Supports Port Mirroring for Device Maintenance
- › Supports IP/MAC conflicts, Power, Port, and Ring Alarm Output
- › Multicast VLAN Registration, IEEE 802.1Q with GVRP
- › Windows utility, eConsole, supports centralized management, and is web-based configurable, or by Telnet and console (CLI) ports
- › Lifetime Warranty

APPLICATIONS

- › Municipal Signal and ITS applications

** Small Form-Factor Pluggable Module. Sold separately.*

SPECIFICATIONS

Connectors

100/1000BASE-X	4 × SFP Ports ¹
10/100/1000BASE-T(X)	8 × RJ-45 Ports, with Auto MDI/MDIX
Serial Console	RS-232 @ 115,200 bps 8,N,1 w/ console cable (incl.)
Alarm Contact	2-pin plug in terminal block, 250VAC/350VDC Max, 120mA Max
Power	6 pin Terminal Block

Ethernet Standards Supported

IEEE 802.3i for 10Base-T
 IEEE 802.3u for 100Base-TX and 100Base-FX
 IEEE 802.3b for 1000Base-T
 IEEE 802.z for 1000Base-X
 IEEE 802.3x for Flow control
 IEEE 802.3ad for LACP (Link Aggregation Control Protocol)
 IEEE 802.3at for Power over Ethernet
 IEEE 802.1p for COS (Class of Service) Real-Time Traffic
 IEEE 802.1Q for VLAN Tagging
 IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)
 IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol)
 IEEE 802.1x for Authentication
 IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)
 IEEE 802.1AE-2013
 IEEE 802.1AEbn
 IEEE 802.1AEbw
 RFC1887 - IPv6 Architecture
 RFC2460 - IPv6 Protocol Specification
 RFC2464 - IPv6 Transmission
 RFC2246 - SSH FTP
 RFC4250 - SSH PAN
 SFTPv4
 SFTv6 (future release)
 RFC4253 - SSH Transport

Switch Properties

Switching Latency	<5 μs
Switching Bandwidth	26 Gbps, non-blocking wire speed on all ports 99.999% error free data integrity
Number of VLANs	4095
VLAN ID	1-4095
Max. VLANs Available	256
IGMP Multicast Groups	128 for each VLAN
Port Rate Limiting	User Defined
MAC Table	8000 MAC addresses available
Packet Buffer	16 Mb
Packet Forwarding Rate	42 Gbps Fabric, Wire Speed on all ports
Priority Queues	8
Processing	Store-and-Forward
Security Queues	16 per VLAN
Jumbo Frame	Up to 9.6K bytes

Software Features

Dos/DDoS Auto Prevent on: Port & Flow Security
 IEEE 1588v2 Clock Synchronization
 IEEE 802.1D Bridge, Auto MAC Address Learning / Aging and MAC address (Stat c)
 Multiple Registration Protocol (MRP)
 RSTP / MSTP (IEEE 802.1w/s)
 Per Port Power Saving Feature
 Redundant Ring with a recovery time of <20 ms over 300 switches
 TOS/DiffServ Supported
 QoS IEEE 802.1p for real time traffic
 VLAN IEEE 802.1Q with VLAN Tagging
 Voice VLAN
 Guest VLAN
 IGMP v2 / v3 Snooping
 IP-Based Bandwidth Management
 Application Based QoS Management
 Port Configuration, Status Statistics, Monitoring & Security
 DHCP Server / Client / Snooping
 DHCP Relay
 ModBUS TCP
 DNS Client Proxy
 ARP Inspection
 SMTP Client
 IP Policing / Protocol 41 (IPv6 & IPv6 Secure)
 Media Redundancy Protocol Ultra-Fast Ring
 Broadcast Storm Control
 SSH / FTP / AES / SHA2 Encryption

Security Features

Device Binding Security Features with Silicon Enhancements
 Enable/Disable Ports, MAC Based Port Security
 Port Based Network Access Control (802.1x)
 Single 802.1x and Multiple 802.1x
 MAC Based Authentication
 IP Address Based Authentication
 QoS Assignment
 Flow-check
 Guest VLAN
 MAC Address Limit
 TACACS+
 Keep-Alive Check
 VLAN (802.1Q) Segregate and Secure Network Traffic
 Radius Centralized Password Management
 SNMPv3 Encrypted Authentication and Access Security
 WEB and CLI Authentication and Authorization
 Security (Access) Authorization (15 Levels)
 IP Source Guard
 HTTPS / SSH Enhanced Network Security
 SSH FTP / Advanced Encryption
 Selectable Backup Security Defaults

Network Redundancy

Ring	Ring+
Com-Ring	VRRP
MRP	MSTP (RSTP/STP)

SPECIFICATIONS

Alarms & Monitoring Systems

Relay Output	For fault event alarming. Relay contacts rated at 1 A @ 24 VDC
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Power

Input Power	12 V rear power input, 48 V front power input
Operating Voltage Range	Non-PoE: 9 to 36 VDC PoE: 44 to 56 VDC
Power Consumption	Non-PoE: 10 W, Max PoE: 260 W, Max (240 W PoE budget)
Current Protection	Overload Current Protected
Polarity Protection	Reverse Polarity Protected

Electrical & Mechanical

LED Status Indicators	PWR1 Ring R.M. Link/Activity/Speed PoE
Size	2.23 × 4.51 × 8.08 in (5.67 × 11.45 × 20.53 cm)
Enclosure	IP-30 Aluminum
Installation	DIN Rail (35 mm Track) or Wall Mount
Construction	All parts and conductive surfaces are made of Noncorrosive materials.
Shipping Weight	3.19 lb / 1.45 kg

Environmental

MTBF	>100,000 hours calculated using Bellcore// Telcordia SR-332 standard
Operating Temperature	-40° C to +75° C
Storage Temperature	-40° C to +85° C
Relative Humidity	5% to 97% (non-condensing)

Regulatory Approvals

EMI	FCC CFR47 Part 15
CE	CISPR EN55022 Class A
ESD	EN61000-4-2
RS	EN61000-4-3
EFT	EN61000-4-4
Electrical Surge	EN61000-4-5
CS	EN61000-4-6, EN61000-4-8
Damped Oscillatory Wave	IEC61000-4-12/18
Damped Oscillatory	IEC61000-4-10
Common Mode Conduct	IEC61000-4-16
Mechanical Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1
NEMA TS1/TS2 Certified Device	
Industrial Standards	IEC61000-6-2
Substations	IEC61850-3
Electric Power Substations	IEEE1613
Railway Applications	EN50121-4
Multi-Cast Certified for High Definition Video	
Electro-Magnetic Pulse (EMP)	
Non-Nuclear Electro Magnetic Pulse (NNEMP)	



ORDERING INFORMATION

Part Number	Description
CNGE12FX4TX8MS/TS	12-port Hardened Managed Gigabit Layer 2 Traffic Switch with 8 × 10/100/1000Base-TX Ports & 4 × 100/1000Base-FX Ports
CNGE12FX4TX8MSPOE/TS	12-port Hardened Managed Gigabit Layer 2 Traffic Switch with 8 × 10/100/1000Base-TX PoE+ Ports & 4 × 100/1000Base-FX Ports
Included Accessories	Console cable, Product Support CD
Options	User Selection of SFPs (See SFP Modules Data sheet for compatibility and ordering information)

[1] 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. This product requires a fiber installation with a minimum 30 dB connector return loss.

The use of Super Polish Connectors is recommended. 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.