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Communication Networks

Traffic Detector Rack Industrially Hardened Managed Switch Kit with (8) 10/100/1000Base-TX & (4) 100/1000Base-FX Ports & Optional PoE+

CNGE12FX4TX8MS[POE]/TSK Complete Kit

POWER SUPPLY	HARDENED	SFP	PoE 30W PoE+	1G GIGABIT	GIGABIT ETHERNET
INCLUDED	-40° TO 75°C	FLEXIBILITY	IEEE 802.3at	ALL GIGABIT	8 + 4

The ComNet CNGE12FX4TX8MS[POE]/TSK is a twelve port, managed Ethernet switch. The switch is mechanically designed to fit into 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/TSK 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.

The Device-Binding function can prevent unauthorized network access, increasing security. The unit also provides advanced DOS/DDOS auto prevention. If IP flow becomes too large, too quickly, the switch will lock the source IP address for a set period preventing unauthorized access. Includes power supply and two SFP-6 modules.

FEATURES

› Kit includes switch, power supply, and two SFP-6 modules

› 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

› Supports Jumbo Frame

› Redundant technology: Supports RSTP/MSTP/C-Ring & G.8032 ERPS for ring and mesh topologies

› Supports IGMP Snooping, GMRP, and static multicast

› Supports VLAN, Voice 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

› 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

› Supports DOS/DDOS auto prevention

APPLICATIONS

› Municipal Signal and ITS applications

* Small Form-Factor Pluggable Module. Sold separately.

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SPECIFICATIONS

Connectors

100/1000BASE-X	4 × SFP Ports[1]
10/100/1000BASE-T(X)	8 × RJ-45 Ports, with Auto MDI/MDIX
SFP-6	2 × 1000 Mbps, 15 km, 2 fiber, LC connector
Serial Console	RS-232 @ 115,200 bps 8,N,1 w/ console cable (incl.)
PoE Power	2-pin plug in terminal block (CNGE12FX4TX8MSPOE/TS Only)
Power	From NEMA TS/2 Traffic Detector Rack

Ethernet Standards Supported

IEEE 802.3 for 10Base-T
IEEE 802.3u for 100Base-TX and 100Base-FX
IEEE 802.3ab 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)
RFC1887 - IPv6 Architecture
RFC2460 - IPv6 Protocol Specification
RFC2464 - IPv6 Transmission

Switch Properties

Switching Latency	<5 µs
Switching Bandwidth	24 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
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 (Static)
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
IGMP v2 / v3 Snooping
IP-Based Bandwidth Management
Application Based QoS Management
Port Configuration, Status Statistics, Monitoring & Security
DHCP Server / Client
DHCP Relay
ModBUS TCP
SMTP Client
Broadcast Storm Control

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
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
IP Source Guard
HTTPS / SSH Enhanced Network Security

Network Redundancy

C-Ring	Legacy Ring
G.8032 ERPS	MSTP (RSTP/STP)

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SPECIFICATIONS

Power

Input Power	12 or 24 V rear power input (from rack), 48 V front power input
Operating Voltage Range	Non-PoE: 9 to 36 VDC
	PoE: "9 to 36VDC rear; 48 to 57 VDC front
Power Consumption	Non-PoE: 18 W, Max
	PoE: 260 W, Max (240 W PoE budget)
Current Protection	Overload Current Protected

Electrical & Mechanical

LED Status Indicators	Power 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	NEMA TS/2 Traffic Detector Rack
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
Multi-Cast Certified for High Definition Video	

AGENCY COMPLIANCE

FC PART 15 COMPLIANT   CE   c UL us   RoHS   Low Power Consumption

ORDERING INFORMATION

Part Number	Description
CNGE12FX4TX8MS/TS	NEMA RACK 12-port All Gigabit Hardened Managed Traffic Switch For NEMA Traffic Detector Rack, 4 100/1000 SFP ports and 8 10/100/1000TX ports. Kit includes two SFP-6 and external hardened power supply PS-AMR2-12.
CNGE12FX4TX8MSPOE/TS	12-port Hardened Managed Gigabit Layer 2 Traffic Switch with 8 × 10/100/1000Base-TX PoE+ Ports & 4 × 100/1000Base-FX Ports - fits inside detector rack. Kit includes two SFP-6 and external hardened power supply PS-DRA240-48.

[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.

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