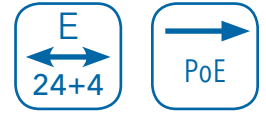


APPEARANCE



DESCRIPTION

The ComNet™ CNGE28FX4TX24MSPOE Managed Redundant Ring Ethernet Switch provides robust transmission of (24) 10/100/1000 BASE-TX ports and (4) 1000BASE-FX ports of Ethernet data. Fully compliant with IEEE 802.3at, up to 720 watts of PoE or PoE+ power is available for distribution across all 24 Base-TX ports. The four 1000BASE-FX ports may be used with multimode or single-mode optical fiber when used with ComNet SFPs*. The exclusive ComRing protects mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. Open-Vision, a powerful, easy-to-use Windows-based utility, allows the CNGE28FX4TX24MSPOE to be centrally managed. Diverse media selection provides for easy implementation of point-to-point, linear add-drop, drop-and-repeat, star, or true self-healing ring and mesh network system architectures. The electrical ports support the 10/100/1000 Mbps Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/MDIX features are included for simplicity and ease of installation. These network-managed layer 2 switches are optically (1000 BASE-FX) and electrically compatible with any IEEE 802.3 compliant Ethernet device. Unlike most Ethernet switches, the environmentally hardened CNGE28FX4TX24MSPOE is designed for direct deployment in difficult out-of-plant or roadside operating environments. Featuring a low-profile 1-RU high rack-mountable package, these units may be mounted within any standard 19-inch rack cabinet, and the high-capacity power supply for operation of the switch and PoE PSE (Power Sourcing Equipment) is completely self-contained.

* SFP = Small Form-Factor Pluggable Module

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

APPLICATIONS

- › HD Surveillance
- › High-Port Count Ethernet Hub Locations for Industrial Automation, Industrial Security and Transportation Networks

FEATURES

- › IEEE 802.3at Compliant for PSE. Up to 30 watts of PoE+ power available per port. 720W total PoE power available.
- › 56 Gbps Backplane
- › IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic & Port Trunking for ease of bandwidth management
- › Supports 24 Gigabit Ports, and four 1000BASE-FX optical ports with optional ComNet SFPs
- › Power supply for switch operation and PoE power sourcing is completely self-contained within the switch
- › Fully Compliant with the Environmental Requirements of NEMA TS-1/TS-2 & the Caltrans Specification for Traffic Signal Control Equipment
- › STP/RSTP/MSTP supported
- › Open architecture-based Open-Ring technology supports the use of non-ComNet switches within the network
- › Windows utility (Open-Vision) supports centralized management, and is web-based configurable, or byTelnet and console (CLI) ports
- › Port lock to prevent access from unauthorized MAC address
- › SNMP v1/v2c/v3 for secure network management
- › Fastest Redundant Ethernet Ring: ComRing. Recovery time < 30ms, with > 250 switches within the ring
- › Low-profile 1-RU (1.75-inch) high rack-mountable chassis mounts within any standard 19-inch equipment rack
- › Operating Temperature: -40° C to +74° C (-40° F to +167° F). Functional to +85° C (185° F)
- › Lifetime Warranty
- › Event notification through Syslog, E-mail, SNMP trap
- › RMON for traffic monitoring
- › Supports LLDP (Link Layer Discovery Protocol)
- › PTP Client (Precision Time Protocol) for clock synchronization

SPECIFICATIONS

Ethernet Ports

RJ-45 Ports:	(24) 10/100/1000Base-TX, with Auto MDI/MDIX & PoE
SFP Ports:	(4) 1000Base-FX

Ethernet Standards Supported

IEEE 802.3 for 10Base-T
 IEEE 802.3u for 100Base-TX and 100Base-FX
 IEEE 802.3z for 1000Base-X
 IEEE 802.3ab for 1000Base-T
 IEEE 802.3at for Power Sourcing Equipment (PSE) and PoE (up to 30 watts per port)
 IEEE 802.3x for Flow control
 IEEE 802.3ad for LACP (Link Aggregation Control Protocol)
 IEEE 802.1D for STP (Spanning Tree Protocol)
 IEEE 802.1p for COS (Class of Service)
 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)

Switch Properties

Switching Latency:	7 µs
Switching Bandwidth:	56 Gbps
Max. Number of VLANs Available:	256
IGMP Multicast Groups:	128 for each VLAN
Port Rate Limiting:	User Defined
MAC Table:	8000 MAC addresses available
Priority Queues:	4
Processing:	Store-and-Forward
Jumbo Frame:	Up to 9000 Bytes

Security Features

Device Binding Security
 Enable/Disable Ports, MAC based port security
 Port-Based Network Access Control: 802.1x
 VLAN (802.1Q): To segregate and secure network traffic
 Radius Centralized Password Management
 SNMPv3 Encrypted Authentication and Access Security
 SSH
 TACACS+

Software Features

STP/RSTP/MSTP (IEEE 802.1D/w/s)
 ComRing Redundant Ring: Recovery time less than 30ms, with over 250 switches within ring network
 TOS/Diffserv Supported
 Quality of Service (802.1p) for Real-Time Traffic
 VLAN (802.1Q) with VLAN Tagging and GVRP Supported
 IGMP Snooping for Multicast Filtering
 Port Configuration, Status, Statistics, Monitoring, & Security
 DHCP Server / Client support
 IP-Based Bandwidth Management
 Application-Based QoS Management
 DOS/DDOS Auto Prevention

Network Redundancy

ComRing
 RSTP
 STP
 MSTP

Alarms & Monitoring Systems

Relay Output:	For fault event alarming
Syslog Server / Client:	To record and view events
SMTP:	For event warning notifications via email
Event Selection Support	
RS-232 Serial Console DB-9 Port:	RS-232 @ 115,200 bps, with console cable (included).

LED Status Indicators

Power Indicators:	For AC operating power & DC operating power
System Ready Indicator:	Indicates switch is in the "ready" mode, or switch is upgrading firmware
Ring Master Indicator:	Indicates switch is operating in the ComRing Master mode
ComRing Indicator (Ring):	Indicates switch is operating in the ComRing mode. A flashing LED in this mode indicates the network ring has broken or faulty.
System Running Indicator:	Switch is operating continuously
Supervisor Log-In Indicator:	Switch is being accessed remotely
Reset to Default Running Indicator (DEF):	Switch is reset to the default configuration
Ping Command to the Switch Indicator:	Switch is processing a Ping request
PoE Indicator:	PSE (Power Sourcing Equipment) power output
10/100/1000BASE-TX RJ-45 Port Indicator:	Bi-color LED indicates 1000 Mbps or 10/100 Mbps port/link activity
1000BASE-FX SFP Port Indicator:	Port/link activity

SPECIFICATIONS

Regulatory Approvals

EMI:	FCC Part 15, CISPR (EN55022) Class A
EMS:	EN61000-4-2
ESD:	EN61000-4-3
RS:	EN61000-4-4
(EFT:	EN61000-4-5
Electrical Surge:	EN61000-4-6
CS:	EN61000-4-8, EN61000-4-11
Mechanical Shock:	IEC60068-2-27
Free Fall:	IEC60068-2-32
Vibration:	IEC60068-2-6

Electrical & Mechanical

AC Input:	100 to 240 VAC, 50-60 Hz..
AC Power Consumption, Typical:	36 Watts. 720 watts with 24 ports loaded with PoE+, at a maximum ambient operating temperature of +50° C. De-rate to any combination of PoE or PoE+ at a maximum PD demand of 400 watts total with 24 ports loaded, at a maximum ambient operating temperature of 75° C.
Current Protection:	Overload Current Protected
Enclosure:	1-RU high, 19-inch rack-mountable
Size (in./cm) (L×W×H)	13.46 × 16.97 × 1.73 in. (34.2 × 43.1 × 4.4 cm)
Shipping Weight:	<13 lbs./6 kg

Environmental

MTBF:	>100,000 hours
Operating Temp:	-40° C to +74° C (-40° F to +167° F) Functional to +85° C
Storage Temp:	-40° C to +85° C (-40 to 185°F)
Relative Humidity:	5% to 95% (non-condensing)*
Compliance:	Fully compliant with the environmental requirements (ambient operating temperature, storage temperature, mechanical shock, vibration, humidity with condensation, high-line/low-line voltage conditions, and voltage transient protection) of NEMA TS-1/TS-2 and the Caltrans specification for Traffic Signal Control Equipment.



* May be extended to humidity with condensation conditions by adding suffix '/C'

ORDERING INFORMATION

Part Number	Description
CNGE28FX4TX24MSPOE	(24) 10/100/1000 BASE-TX + (4) 1000BASE-FX Managed Switch with Power over Ethernet (PoE)
Options/Accessories	Add suffix '/C' for Conformally Coated Circuit Boards (Extra charge, consult factory) Rack-mount installation kit (Included) Console cable (Included) AC Power cable for U.S./North American Market Only (Included). Order AC power cable for other markets separately. ComRing Tool CD (Included)

NOTE: 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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