comnet
Communication Networks

(24) 10/100/1000 BASE-TX + (4) 1000BASE-FX with Power over Ethernet (PoE+)

CNGE28FX4TX24MSPOE+

The ComNet™ CNGE28FX4TX24MSPOE+ Layer 2 Managed 28 Port Ethernet Switch supports twenty-four (24) 10/100/1000 BASE-TX ports and four (4) 1000BASE-FX ports of Ethernet data. PoE+ power is available for distribution across all 24 BASE-TX ports. The four 1000BASE-FX combination ports are 1000TX or SFP* configurable for fiber type (multimode or single-mode), connector type and distance. The exclusive C-Ring redundant ring feature protects networks from interruptions or temporary malfunctions with its fast recovery technology. The electrical ports support the 10/100/1000 Mbps Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/MDIX features are included. The CNGE28FX4TX24MSPOE+ are optically (1000BASE-FX) and electrically compatible with any IEEE 802.3 compliant Ethernet device and are hardened for use in harsh operating environments.

FEATURES

› IEEE 802.3at Compliant for PSE. Up to 30W 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

› Designed to meet 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 the Caltrans Specification for Traffic Signal Control Equipment.

› STP/RSTP/MSTP supported

› Windows utility, eConsole, supports centralized management, and is web-based configurable, or by Telnet 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: C-Ring. Recovery time <30ms over 250 switches within the ring

› Legacy ring allows the switch to be used in an existing ring of ComNet X-Ring enabled switches

› Low-profile 1-RU (1.75-inch) high rack-mountable chassis mounts within any standard 19-inch equipment rack

› Operating Temperature: -40˚ to +75˚ C (-40˚ 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

APPLICATIONS

› HD Surveillance

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

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

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. 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)
C-Ring Redundant Ring: Recovery time <30ms over 250 switches in a 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

C-Ring
Legacy Ring
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).

Indicating LEDs

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

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

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SPECIFICATIONS

PoE pin assignment

RJ45 port #1 - #24 support IEEE802.3at End-point, Alternative A mode.
Positive (VCC+): RJ45 pin 1, 2
Negative (VCC-): RJ45 pin 3, 6

Power

Operating Voltage Range	100 to 240 VAC, 50-60 Hz..
Power Consumption, Typical	36 W. 720 W 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 W total with 24 ports loaded, at a maximum ambient operating temperature of 75° C.

Electrical & Mechanical

Current Protection	Overload Current Protected
Enclosure	1-RU high, 19-inch rack-mountable
Size (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˚ to +75˚ C (-40˚ to +167˚ F) Functional to +85˚ C
Storage Temp	-40˚ to +85˚ C (-40 to 185°F)
Relative Humidity	5% to 95% (non-condensing)[1]

Compliance

Designed to meet 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 the Caltrans Specification for Traffic Signal Control Equipment.

[1] May be extended to humidity with condensation conditions by adding suffix '/C'

AGENCY COMPLIANCE
PART 15 COMPLIANT E322911 N24621

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 (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.

Low Power Consumption

comnet Communication Networks
3 CORPORATE DRIVE | DANBURY, CONNECTICUT 06810 | USA | T: 203.796.5300 | F: 203.796.5303 | TECH SUPPORT: 1.888.678.9427 | INFO@COMNET.NET
8 TURNBERRY PARK ROAD | GILDERSOME | MORLEY | LEEDS, UK LS27 7LE | T: +44 (0)113 307 6400 | F: +44 (0)113 253 7462 | INFO-EUROPE@COMNET.NET