



The ComNet CNGE28FX4TX24MSPOE2/48 Layer 2 Managed 28 Port Ethernet Switch supports twenty-four 10/100/1000 BASE-TX ports and four 10/100/1000 BASE-TX or 100/1000 BASE-FX SFP Combo ports of Ethernet data. PoE+ power is available for distribution across all 24 BASE-TX ports. The four combination ports are 10/100/1000TX or 100/1000FX SFP\* configurable for fiber type (multimode or single-mode), connector type and distance. Dual 48 VDC input power design ensures vital network capabilities with minimum downtime. Utilizing RSTP/STP (802.1w/1D) MSTP, and X-Ring redundant ring topologies, a network recovery time of <20 ms is provided for protection from network faults or temporary interruptions. The CNGE28FX4TX24MSPOE2/48 is optically (100/1000BASE-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 for layer 2 traffic forwarding
- › IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic & Port Trunking for ease of bandwidth management
- › Supports 24 Gigabit Ports, and four combo ports with 100/1000BASE-FX optical ports with optional ComNet SFPs
- › Uses SFP modules for fiber and connector type, and distance
- › Dual redundant power supply inputs allow for external power supplies with no moving parts (fans) to be used.
- › 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
- › 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
- › Event notification through Syslog, E-mail, SNMP trap
- › RMON for traffic monitoring
- › Lifetime Warranty

## APPLICATIONS

- › ITS Traffic Signalization & Surveillance/ Incident Detection Networks
- › Industrial and Factory Automation
- › Integrated IP-Video and Data Transmission Networks
- › Industrial Security Access Control Systems

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

## SPECIFICATIONS

### Connectors

Electrical	28 × 10/100/1000Base-TX RJ-45 Ports 10/100/1000 Mbps, Auto-Negotiation
Optical <sup>1</sup>	4 × SFP Ports, 100/1000Base-FX, Requires selection of sold-separately SFP modules.
Power	4-pin terminal
Fault Relay	3-pin terminal
Digital I/O	6-pin terminal

### 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 802.1x for Authentication
- IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol)
- 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 9216 Bytes

### Network Management

Configuration	Web browser, Telnet, Serial console, SNMP v1/v2c/v3, TFTP, Port Speed/Duplex Configuration, IPv6
VLAN	GVRP, Port-based VLAN
Redundancy	X-Ring, STP/RSTP/MSTP
Security	IP Access security, port security, DHCP client, Port and IP Binding, Port Access Control, SSH, HTTPS, 802.1x, DoS
Traffic Control	IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, QoS CoS/TOS/DSCP priority queuing, flow control
Diagnostics	Port Mirroring, Real-time traffic statistic, MAC Address Table, SNMP, Syslog, E-Mail Alert, SNMP Trap, RMON, DDM

### 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	48 VDC (External PSU Required) 46-57 VDC for 15W PoE, 53 - 57 VDC for 30 W PoE
Power Consumption, Max	720 W
Fault Output	1 Relay Output

### Electrical & Mechanical

Indicator LEDs	10/100T (X)Link/Activity, Duplex/Collision Gigabit Copper Link/Activity, Speed (1000 Mbps) SFP Link/Activity
Current Protection	Overload Current Protected
Power Reverse	Present
Enclosure	IP30, metal shell with solid mounting kits 1-RU high, 19-inch rack-mountable
Size (L×W×H)	17.24 × 1.72 × 10.2 in (43.8 × 4.36 × 25.92 cm)
Shipping Weight	<13 lb / 6 kg

### Environmental

MTBF	>100,000 hours
Operating Temp	-40° to +75° C
Storage Temp	-40° to +85° C
Relative Humidity	10% to 95% (non-condensing) <sup>2</sup>

### Regulatory Approvals

Safety	IEC EN60950, UL60950, UL508
EMI	CE FCC 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
Railway	EN50121-4
Mechanical Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6

[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. 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.



## ORDERING INFORMATION

Part Number	Description
CNGE28FX4TX24MSPOE2/48	24 × 10/100/1000 BASE-TX + 4 × 10/100/1000 BASE-TX or 100/1000 BASE-FX Managed Switch, 30 W Power over Ethernet (PoE+), 48V Input
Options/Accessories	48 V Power Supply (Extra charge, consult factory) User-selection of SFP modules (Extra charge, see SFP data sheets for product numbers and compatibility before ordering) [2] Add suffix '/C' for Conformally Coated Circuit Boards to extend to condensation conditions (Extra charge, consult factory)

In a continuing effort to improve and advance technology, product specifications are subject to change without notice.