



The ComNet™ CNGE2FE24MS Managed Ethernet Switch provides (24) 10/100 BASE-TX and (2) 10/100/1000T(X) or 1000FX combo ports. The CNGE2FE24MS is environmentally hardened and is designed for deployment in difficult operating environments. It is designed for use with either conventional CAT-5e copper or optical transmission media. The 24 electrical ports support the 10/100 Mbps Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/MDIX features are provided for simplicity and ease of installation. Two ports are 10/100/1000 configurable for copper or fiber media selected by optional SFP\* modules. These network managed layer 2 switches are optically (1000 BASE-FX) and electrically compatible with any IEEE 802.3 compliant Ethernet devices.

## FEATURES

- › Environmentally hardened for direct deployment in difficult unconditioned out-of-plant and roadside installations
- › 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.
- › Extended ambient operating temperature range: -40° C to +75° C (Functional to 85°C)
- › 10/100 BASE-TX and 1000 BASE-FX compatible
- › Uses SFP modules for fiber and connector type, and distance
- › Redundant power supply compatibility reduces possibility of single-point-of-failure
- › Fully configurable through web-based or SNMP network
- › IGMP Snooping V1/V2 for multicast filtering and IGMP Query V1/V2

- › Port based VLAN (IEEE 802.1Q)
- › Rapid Spanning Tree protocol (IEEE 802.1W)
- › Port Based Security
- › LED status indicators confirm operating status
- › Rigid aluminum housing design provides for rack mounting
- › Power Supply Included
- › 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.

## BENEFITS

### System Interface/Performance:

- RJ45 port support Auto MDI/MDI-X function
- Store-and-Forward Switching Architecture
- Back-plane (Switching Fabric): 8.8Gbps
- 4Mbits Packet Buffer
- 8K MAC Address Table
- Redundant Power Supply Design

### VLAN

- Port Based VLAN
- Support 802.1 Q Tag VLAN
- GVRP

### Port Trunk with LACP

### QoS (Quality of Service)

- Support IEEE 802.1p Class of Service
- Per port provides 4 priority queues
- Port Base, Tag Base and Type of Service Priority

### Port Mirror: Monitor traffic in switched networks

- TX packet only
- RX packet only
- Both TX and RX packet

### Security

- Port Security: MAC address entries/filter
- IP Security: IP address security management to prevent unauthorized intruder
- Login Security: IEEE802.1X/RADIUS

### IGMP with Query mode for Multi Media Application

### X-Ring

- X-Ring, Dual Homing, Couple Ring and Central Ring Topology
- Provide redundant backup feature and the recovery time below 20ms

### Provides EFT protection 4KV for power line

### Spanning Tree

- Support IEEE802.1d Spanning Tree
- Support IEEE802.1w Rapid Spanning Tree

### Support up to 256 Policy ACL (Access Control List)

### Support IEEE802.1ab LLDP

### Bandwidth Control

- Ingress Packet Filter and Egress Rate Limit
- Broadcast/Multicast Packet Filter Control

### System Event Log

- System Log Server/Client
- SMTP e-mail Alert
- Relay Alarm Output System Events

### SNMP Trap

- Device cold start
- Power failure
- Authentication failure
- Port Link Up/ Link Down
- Private trap

### TFTP Firmware Update / System Restore and Backup

### Case/Installation

- IP-30 Protection

### Supports 6KV Ethernet ESD protection

### STANDARD COMPLIANCE

- IEEE802.3 10Base-T Ethernet
- IEEE802.3u 100Base-TX/100Base-FX
- IEEE802.3z Gigabit fiber
- IEEE802.3ab 1000Base-T
- IEEE802.3x Flow Control and Back Pressure
- IEEE802.3ad Port trunk with LACP
- IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree
- IEEE802.1p Class of Service
- IEEE802.1q VLAN Tag
- IEEE802.1x User Authentication (Radius)
- IEEE802.1ab LLDP

## SOFTWARE SPECIFICATIONS

### Management

SNMP v1, v2c, v3/ Web/Telnet/CLI Management

### SNMP MIB

RFC 2418 SNMP MIB, RFC 1213 MIBII, RFC 2011 SNMP V2 MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1215 Trap MIB, RFC 1643 Ethernet Like, RFC 1757 RMON1, RSTP MIB, UPS MIB, LLDP MIB, Private MIB

### VLAN

Port based VLAN, up to 24 groups  
IEEE802.1Q Tag VLAN  
Static VLAN groups up to 256, Dynamic VLAN group up to 2048, VLAN ID from 1 to 4094. GVRP up to 256 groups.

### Port Trunk with LACP

LACP Port Trunk: 13 Trunk groups/ Maximum 4 Trunk members

### LLDP

Support LLDP to allow switch to advise its identification and capability on the LAN

### X-Ring

Support X-Ring, Dual Homing and Couple Ring Topology.  
Provide redundant backup feature and the recovery time below 20ms.

### Spanning Tree

Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree

### Quality of Service

The quality of service determined by port, Tag and IPv4 Type of Service, IPv4 Different Service

### Class of Service

Support IEEE802.1p class of service, per port provides 4 priority queues

### Port Security

Support 50 entries of MAC address for static MAC and another 50 for MAC filter

### Port Mirror

Support 3 mirroring types: RX, TX and Both packet

### IGMP

Support IGMP snooping v1, v2; 256 multicast groups and IGMP query

### IP Security

Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.  
Login Security  
Support IEEE802.1X Authentication/RADIUS

### Access Control List (ACL)

Support up to 255 Policy

### Bandwidth Control

Support ingress packet filter and egress packet limit. The egress rate control all of the packet types and the limit rates are 0-100Mbps. Ingress filter packet type combination rules are Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 0 to 100Mbps.

### Flow Control

Support Flow Control for Full-duplex and Back Pressure from Half-duplex

### System Log

Support System log record and remote system log server

### SMTP

Support 1 SMTP Server and 6 e-mail accounts for receiving event alert

### SNMP Trap

1. Device cold start	2. Authorization failure
3. X-Ring topology changed	4. Port link up/ link down

Trap station up to 3

### Relay Alarm

Provides one relay output for port breakdown, power fail.  
Alarm Relay current carry ability: 1A @ DC24V

### DHCP

Provide DHCP Client/ DHCP Server/ IP Relay functions

### DNS

Provide DNS client feature and support primary and Secondary DNS server

### SNTP

Support SNTP to synchronize system clock in Internet

### Firmware Update

Support TFTP & Console firmware update, TFTP & Console backup and restore

### Configuration upload and download

Support binary format configuration file for system quick installation

### If Alias

Each port allows importing 128 bit of alphabetic string of words on SNMP and CLI interface

## HARDWARE SPECIFICATIONS

<b>Switch Architecture</b>	Back-plane (Switching Fabric): 8.8Gbps Packet throughput ability (Full Duplex): 13.1 Mpps @64bytes
<b>Transfer Rate</b>	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
<b>Packet Buffer</b>	4 Mbits
<b>Mac Address</b>	8K MAC address table
<b>Flash ROM</b>	4 Mbytes
<b>DRAM</b>	32 Mbytes
<b>Jumbo Frame</b>	9022 bytes (for Gigabit ports)
<b>Connectors</b>	(Front) RS232: Female DB-9 (for Console) 10/100TX: 24 × RJ45 Combo: 2 × 10/100/1000T 2 × SFP 1000FX <sup>1</sup>
<b>Indicating LEDs</b>	Gigabit Fiber: Link/Activity (Green) Gigabit Copper: Link/Activity (Green) Full Duplex/Collision (Amber) Mini GBIC Link/Activity (Green)
<b>Power</b>	
Power Supply	12 to 48 V
Redundant Power Supply	12 to 8 V
Power Consumption	16.2 W
<b>Mechanical</b>	
Case Dimensions	17.32 × 11.0 × 1.73 in (44.0 × 28.0 × 4.4 cm)
Installation	19" Rack Mount
Cooling	Natural convection.

### Environmental

MTBF	>100,000 hours
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-40°C to 75°C
Storage Temperature	-40°C to 85°C (Functional to 85°C)

### Compliance

EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN61000-4-4 (EFT), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-6-2, CE EN61000-6-4, UL, cUL, CE/EN60950-1
IETF RFC Compliance	RFC768-UDP, RFC783-TFTP, RFC791-IP, RFC792-ICMP, RFC793-TCP, RFC827-ARP, RFC854-Telnet, RFC894-IP over Ethernet, RFC1112-IGMP v1, RFC1519-CIDR, RFC1541-DHCP (client), RFC2030-SNTP, RFC2068-HTTP, RFC2236-IGMP v2, RFC2475-Differentiated Services, RFC2865-Radius, RFC3414-SNMPv3-USM, RFC3415-SNMPv3-VACM
IETF SNMP MIBS	RFC1493-BRIDGE-MIB, RFC1907-SNMPv2-MIB, RFC2012-TCP-MIB, RFC2013-UDP-MIB, RFC2578-SNMPv2-SMI, RFC2579-SNMPv2-TC, RFC2819-RMON-MIB, RFC2863-IF-MIB, draft-ietf-bridge-rstp-mib-03-BRIDGE-MIB, draft-ietf-bridge-bridgemib-smiv2-03-RSTP-MIB, IANAifType-MIB
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)

[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



## ORDERING INFORMATION

Part Number	Description
CNGE2FE24MS	Environmentally Hardened Managed Ethernet Switch with (24) 10/100TX + (2) 10/100/1000TX RJ45 or 1000 FX SFP Ports
Included Accessories	24VDC Plug in Power Supply, 90-264VAC, 50/60Hz (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.

