



INCLUDED



HARDENED



FLEXIBILITY



UPLINKS



24



2



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

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

