Environmentally Hardened Managed Ethernet Switch With (24) 10/100T(X) + (2) 10/100/1000T(X) RJ45 or 1000FX SFP Ports

CNGE2FE24MSPOE

HARDENED | FLEXIBILITY | 802.3af | UPLINKS | 24 | 2

The ComNet™ CNGE2FE24MSPOEPoE Managed Ethernet Switch provides transmission of (24) 10/100 BASE-TX and (2) 10/100/1000T(X) or 1000FX combo ports. Unlike most Ethernet switches, these environmentally hardened units are designed for deployment in difficult operating environments, and are available 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. All 24 ports support IEEE.802.3af Class 1 – 3 based Power over Ethernet (PoE). 2 ports are 10/100/1000 configurable for copper or fiber media for use with multimode or single mode optical fiber, 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. Plug-and-play design ensures ease of installation, and no electrical or optical adjustments are ever required.

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)

› IEEE802.3af Class 1 – 3 PoE

› Rapid Spanning Tree protocol (IEEE 802.1W)

› Port Based Security

› LED status indicators confirm operating status

› Rigid aluminum housing design provides for rack mounting

› 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.*

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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)
- IEEE802.3af Class 1 – 3 Power over Ethernet
- 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
5. DC disconnect trap-PoE port Event 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

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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
4Mbits

Mac Address
8K MAC address table

Flash ROM
4Mbytes

DRAM
32Mbytes

Jumbo Frame
9022bytes (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)

PoE pin assignment
RJ45 port #1 - #24 support IEEE802.3af End-point Alternative A mode.
Positive (VCC+): RJ45 pin 1, 2
Negative (VCC-): RJ45 pin 3, 6
Data (1, 2, 3, 6)
System Power (Green)

Max. PoE current per port
350mA continuous

Power

Power Supply	45V- 52V DC (sold separately)
Redundant Power Supply	45V- 52V DC
Max. Power Consumption	400 Watts

AGENCY COMPLIANCE
PART 15 COMPLIANT E322911 N24621

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-rstppmib-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
CNGE2FE24MSPOE	Environmentally Hardened Managed Ethernet Switch with (24) 10/100TX + (2) 10/100/1000TX RJ45 or 1000 FX SFP Ports
Options	ComNet 48V Recommended Power Supply (Not 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