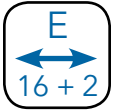


APPEARANCE



DESCRIPTION

The ComNet™ CNGE2FE16MS Managed Ethernet Switch provides robust transmission of (16) 10/100 BASE-TX and (2) 10/100/1000TX or 100/1000FX combo ports, of gigabit Ethernet data. Unlike most Ethernet switches, these environmentally hardened units are designed for direct deployment in difficult out-of-plant or roadside operating environments, and are available for use with either conventional CAT-5e copper or optical transmission media. Diverse media selection allows for easy implementation of point-to-point, linear add-drop, drop-and-repeat, star, or true self-healing ring and mesh network system architectures. The 16 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. 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 (100/1000 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. The CNGE2FE16MS incorporates LED indicators for monitoring the operating status of the managed switch and network. These units are DIN-rail or wall mountable.

APPLICATIONS

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

FEATURES

- › Environmentally hardened for direct deployment in difficult unconditioned out-of-plant and roadside installations
- › Tested and certified by an independent laboratory for 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 CALTRANS Traffic Signal Control Equipment Specifications
- › Compliant with EN60950-1 and UL Class 1, Division 2, Groups A, B, C and D for Hazardous Locations
- › Extended ambient operating temperature range: -40° C to +75° C (Functional to 85°C)
- › 10/100 BASE-TX and 100/1000 BASE-FX compatible
- › Flexible optics configuration via SFP plug-in modules
- › DIN rail or wall-mountable mounting
- › Redundant power supply compatibility reduces possibility of single-point-of-failure for highest possible reliability
- › Fully configurable through web-based or SNMP network management
- › 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)
- › Power Supply Included
- › Lifetime Warranty

SPECIFICATIONS

Spanning Tree

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

X-Ring

- X-Ring, Dual Homing, Couple Ring Topology
- Provide redundant backup feature and the recovery time below 10ms

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 status
- Authentication failure
- X-Ring topology changed
- Port Link Up/ Link Down

TFTP Firmware Update and System Configure Restore and Backup

Supports Electrostatic Discharge Test (ESD, IEC 61000-4-2)

- Air Discharge: 8 KV
- Contact Discharge: 6 KV

Provides EFT protection: 3 KV for power line

Standard Compliance

- IEEE802.3 10Base-T Ethernet
- IEEE802.3u 100Base-TX/100
- IEEE802.3ab 1000Base-T
- IEEE802.3z Gigabit fiber
- 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

System Interface/Performance

- RJ45 port support Auto MDI/MDI-X function
- SFP supports 100/1000 Dual Mode
- Store-and-Forward Switching Architecture
- Back-plane (Switching Fabric): 7.2Gbps
- 1Mbits Packet Buffer
- 8K MAC Address Table
- Wide operating temperature range (-40°C - 75°C)

Power Supply

- Wide-range Redundant Power Design
- Power Polarity Reverse Protect
- Overload Current Protection

VLAN

802.1Q Tag VLAN and Double Tag VLAN (Q-in-Q)
Static VLAN groups up to 256, VLAN ID from 1 to 4094
GVRP up to 256 Groups

Port Trunk with LACP

Support 4 trunk groups and 4 trunk members maximum in each group

QoS (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 Mirror: Monitor traffic in switched networks

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

Security

- SSH/SSL (128-bit encryption): Support Secure Sockets Layer to protect the data access from WEB browser, compliant with SSL V2, V3 and TLS V1.0; Support Security Shell for Telnet and compliant with SSH-V2 Perform with RFC 4252, RFC 4253 and RFC 4254
- Port Security: MAC address entries/filter
- IP Security: IP address security management to prevent unauthorized intruder
- Login Security: IEEE802.1X/RADIUS

IGMP

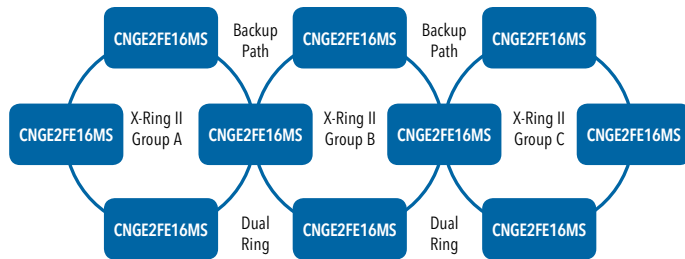
- Query mode for Multi Media Application
- Support multicast filter

Case/Installation

- IP-30 Protection
- DIN Rail and Wall Mount Design

SOFTWARE SPECIFICATIONS

Switch Architecture Management	Back-plane (Switching Fabric): 7.2Gbps SNMP v1, v2c, v3/ Web/Telnet/CLI/NS-View Management
SNMP MIB	RFC 1215 Trap, RFC 1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB VLAN, & LLDP MIB
Port Based VLAN	IEEE802.1Q Tag VLAN (256 entries)/ VLAN ID (UP to 4K, can be assigned from 1 to 4096) GVRP (256 Groups)
LLDP	Support LLDP to allow switch to advise its identification and capability on the LAN, and also support LLDP-MED (Media Endpoint Discovery) which is an enhancement of LLDP
IPv6	Support dual stack for IPv4 and IPv6 Support Plug and Play function IPv6 Logo Committee certified Perform with following RFCs: <ul style="list-style-type: none"> • RFC 2460 – IPv6 Specification • RFC 4861 – Neighbor Discovery for IPv6 • RFC 4862 – IPv6 Stateless Address Auto-configuration • RFC 1981 – Path MTU Discovery for IPv6
Spanning Tree	Support IEEE802.1d Spanning Tree & IEEE802.1w Rapid Spanning Tree
X-Ring II	Support X-Ring II, Dual Homing, Couple Ring and Multiple Ring Topology. Provide redundant backup feature and the recovery time below 10ms. Multiple Ring can be configured as following topology (up to 250 switches):



Port Security	Support 256 entries of MAC address for static MAC and another 256 for MAC filter
Port Mirror	Support 3 mirroring types: RX, TX and Both packet
IGMP	Support IGMP snooping v1, v2 and MLD snooping v1. Support 256 multicast groups. Support IGMP and MLD query. Static: Support 256 static multicast groups.

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
Bandwidth Control	Support ingress packet filter and egress packet limit. The egress rate control supports all of packet type. Ingress filter packet type combination rules are Broadcast/Multicast/Flooded Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all types of packet. The packet filter rate can be set an accurate value through the pull-down menu for the ingress packet filter and the egress packet limit.
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 SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail. Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Up to 3 trap stations; trap types including: <ol style="list-style-type: none"> 1. Device cold start 2. Authorization failure 3. Port link up/link down 4. MAC violation
DHCP	Provide DHCP Client/ DHCP Server /Port IP Binding
DNS	Provide DNS client feature and support Primary and Secondary DNS server
SNTP	Support SNTP to synchronize system clock in Internet, and setting for synchronization interval
Firmware Update, configuration backup and restore	Support TFTP firmware update, TFTP backup and restore
If Alias	Each port allows an alphabetic string of 128-byte assigned as its own unique name via the SNMP or CLI interface
Configuration Tool	N-Key for configuration backup/restoration (Optional)
DMI	Support administrator to monitor the transceiver's status by ports and set up the action when detecting the exceptional value

HARDWARE SPECIFICATIONS

Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber	MTBF	>100,000 hours
Ethernet port Packet Buffer	1Mbits	Operating Humidity	5% to 95% (Non-condensing)
Mac Address	8K MAC address table	Operating Temperature	-40°C to 75°C Functional to 85°C
Flash ROM	4Mbytes	Storage Temperature	-40°C - 85°C
DRAM	32Mbytes	Case Dimensions	Metal case. IP-30, 72mm (W) × 105mm (D) × 152mm (H) 2.84" (W) × 4.13" (D) × 5.98" (H)
Connector	10/100TX: 16 × RJ45 10/100/1000TX/ SFP Combo 2 × RJ45 + 2 × 100/1000 SFP sockets	Installation:	DIN Rail and Wall Mount Design
RS232 connector	RJ45 type	EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN55022, CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-6-2, CE EN61000-6-4 IETF RFC
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable. EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/5E cable. EIA/TIA-568 100-ohm (100m) 1000Base-TX: 2-pair UTP/STP Cat. 5e or 6 cable. EIA/TIA-568 100-ohm (100m)	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-rstpmmib-03-BRIDGE-MIB, draft-ietf-bridge-bridgemib-smiv2-03- RSTP-MIB, IANAifType-MIB
Optical Fiber*	Multimode: 50/125µm - 62.5/125µm Single Mode: 9/125µm Requires selection of sold-separately SFP Modules. See ComNet data sheet "SFP Small Form-Factor Pluggable Modules" for number and description of SFP modules.	Safety	UL, cUL, CE/EN60950-1, UL 508 Class 1, Division 2, Groups A, B, C, & D for Hazardous Locations
Protocol	CSMA/CD	Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)
LED	16 x 10/100TX: Link/Activity (Green) Full Duplex/Collision (Yellow) Giga Copper: Link/Activity (Green) Speed: 1000Mbps (Green) SFP: Link/Activity (Green) Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red), Master (Green)	* 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	
Reserve Polarity Protection	Present		
Overload Current Protection	Present		
Power Supply	12 - 48VDC, Redundant power with polarity reverse protect function and removable terminal block		
Power Consumption	10.6 Watts		

ORDERING INFORMATION

Part Number	Description
CNGE2FE16MS	Environmentally Hardened Managed Ethernet Switch with (16) 10/100TX + (2) 10/100/1000TX / 100/1000FX Ports
Accessories	24VDC Plug in Power Supply (12VDC in some regions), 90-264VAC, 50/60Hz (Included) PS24-1A - 24VDC DIN Rail Power supply (sold separately)

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.



3 CORPORATE DRIVE | DANBURY, CT 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