EN50121-4	DIN RAIL	-40° TO +75°	FLEXIBILITY	ALL GIGABIT	4 + 16
		HARDENED	SFP	1G GIGABIT	GIGABIT ETHERNET

The ComNet CNGE20FX4TX16MS Managed Ethernet Switch provides robust transmission of (16) 10/100/1000BASE-TX and (4) 100/1000FX SFP 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 10/100/1000 Mbps Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/ MDIX features are provided for simplicity and ease of installation. All SFP ports utilize ComNet SFP modules for fiber and connector type and distance. 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 CNGE20FX4TX16MS incorporates LED indicators for monitoring the operating status of the managed switch and network. These units are DIN-rail or wall mountable.

FEATURES

› 16 Gigabit Ethernet ports + 4 SFP ports

› Flexible optics configuration via SFP plug-in modules

› Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)

› Fast Redundancy/Recovery – MSTP/RSTP/STP (IEEE802.1s/w/D)

› Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS

› Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB

› 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.

› Designed to meet full compliance with EN50121-4 approval for Railway trackside deployment

› -40 - 75°C wide-range operating temperature

› Dual 12-48 VDC power input and 1 relay output

› 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

Ethernet

Mac Address	8K MAC address table
Jumbo Frame	9216 Bytes
VLAN Group	256 (VLAN ID 1-4094)
VLAN Arrange	Port Based VLAN, Q-in-Q (VLAN Stacking), GVRP
Port Mirroring	Per Port, Multi-source port
IP Multicast	IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
Storm Control	Broadcast, Multicast, Unknown unicast
Redundancy	IEEE802.1D-STP, IEEE802.1s-MSTP, IEEE802.1w-RSTP, X-Ring Pro with ultra high-speed recovery time less than 20 ms

QoS

Priority Queue Scheduling	WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
Class of Service	IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
Rate Limiting	Ingress Rate limit, Egress Rate limit
Link Aggregation	IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

Security

Port Security	Static, Dynamic
Authentication	802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

Management

DHCP	Client, Server, Option66/67/82
Access	SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
Security access	SSH2.0, SSL
Software upgrade	TFTP, HTTP, Dual Image
NTP	SNTP client

Connectors

10/100/1000Base-T(X)	16 × RJ45
100/1000Base-FX	4 × 100/1000 SFP sockets
	Requires selection of sold-separately SFP[1] Modules. See ComNet data sheet "SFP Small Form-Factor Pluggable Modules" for number and description of SFP modules.
Console	RS232 connector, RJ45
Power	6-pin Screw Terminal Block (including relay)

Power

Reserve Polarity Protection	Present
Overload Current Protection	Present
Power Supply	12 - 48VDC, Redundant power
Fault Output	1 Relay Output
Power Consumption	15 W

Mechanical

LED	Link/Activity/Speed, R.M., SYS, Alarm, Power 1, Power 2
Case	IP-30 Metal
Case Dimensions	2.91 × 4.13 × 5.98 in (7.4 × 10.5 × 15.2 cm)
Installation	DIN Rail (35mm track) or Wall Mount

Environmental

MTBF	>220,000 hours
Operating Humidity	10% to 95% (Non-condensing)
Operating Temperature	-40°C to 75°C
Storage Temperature	-40°C – 85°C

Compliance

EMI	CE, FCC Class A
Safety	UL61010-2-201, IEC60950 compliant
EMC	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN50121-4
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Traffic/Environmental	NEMA TS2

[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

AGENCY COMPLIANCE

FC PART 15 COMPLIANT CE RoHS

ORDERING INFORMATION

Part Number	Description
CNGE20FX4TX16MS	Environmentally Hardened Managed Ethernet Switch with (16) 10/100/1000Base-T(X) + (4) 100/1000Base-FX SFP Ports
Included Accessories	DC Plug in Power Supply (Included for North America only, for benign 0° to 50°C applications only. Hardened power supply available, consult factory)
Options	PS-AMR2-24 – 24VDC DIN Rail Power supply (sold separately) Small Form-Factor Pluggable Modules (See SFP Data sheet)

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