



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

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|---------------------------|---|
| 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

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|------------------|--|
| 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

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|----------------------|--|
| 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

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|-----------------------------|-----------------------------|
| 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 control | 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



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.

