comnet
Communication Networks

Fiber Optic & Ethernet
Network Solutions

Ethernet
Network Transmission
Solutions

Critical applications demand reliable products. ComNet Ethernet products deliver the highest level of reliability and performance.

ComNet sets the new standard by offering robust transmission equipment backed by an unsurpassed level of support that comes standard with every product we sell. Our innovative equipment is very easy to install and operate. With the ComNet Technical Support Team available when you need them, any challenge you may be facing is easily overcome.

ComNet understands Ethernet and wants to share that knowledge with you.

ComNet offers scheduled Ethernet product training classes, webinars and online subject matter to make your understanding of Ethernet greater than ever. Go to www.comnet.net/resources/product-training for class availability and scheduling.

ComNet is headquartered in Danbury, Connecticut, with sales offices located throughout the world.

Ethernet Network Transmission Products

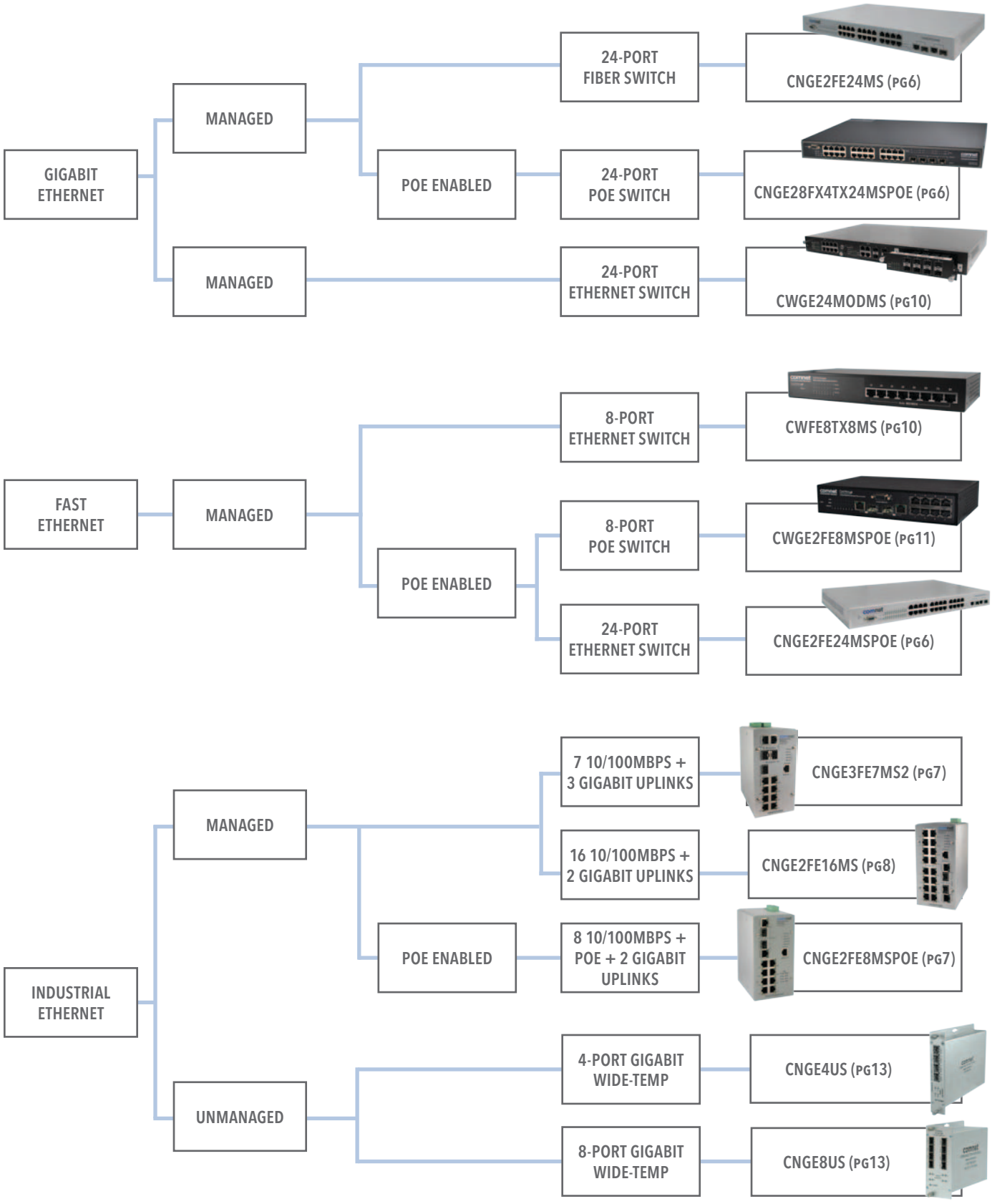
As industry continues the migration toward Ethernet-based network systems, it is more important than ever to be able to turn to a company specifically dedicated to these needs.

ComNet, a USA-based company with the key functions of product development, engineering, manufacturing, customer-care and tech-support headquartered in Danbury, Connecticut, and with sales offices located throughout the world, offers one of the broadest Ethernet product lines in the industry.

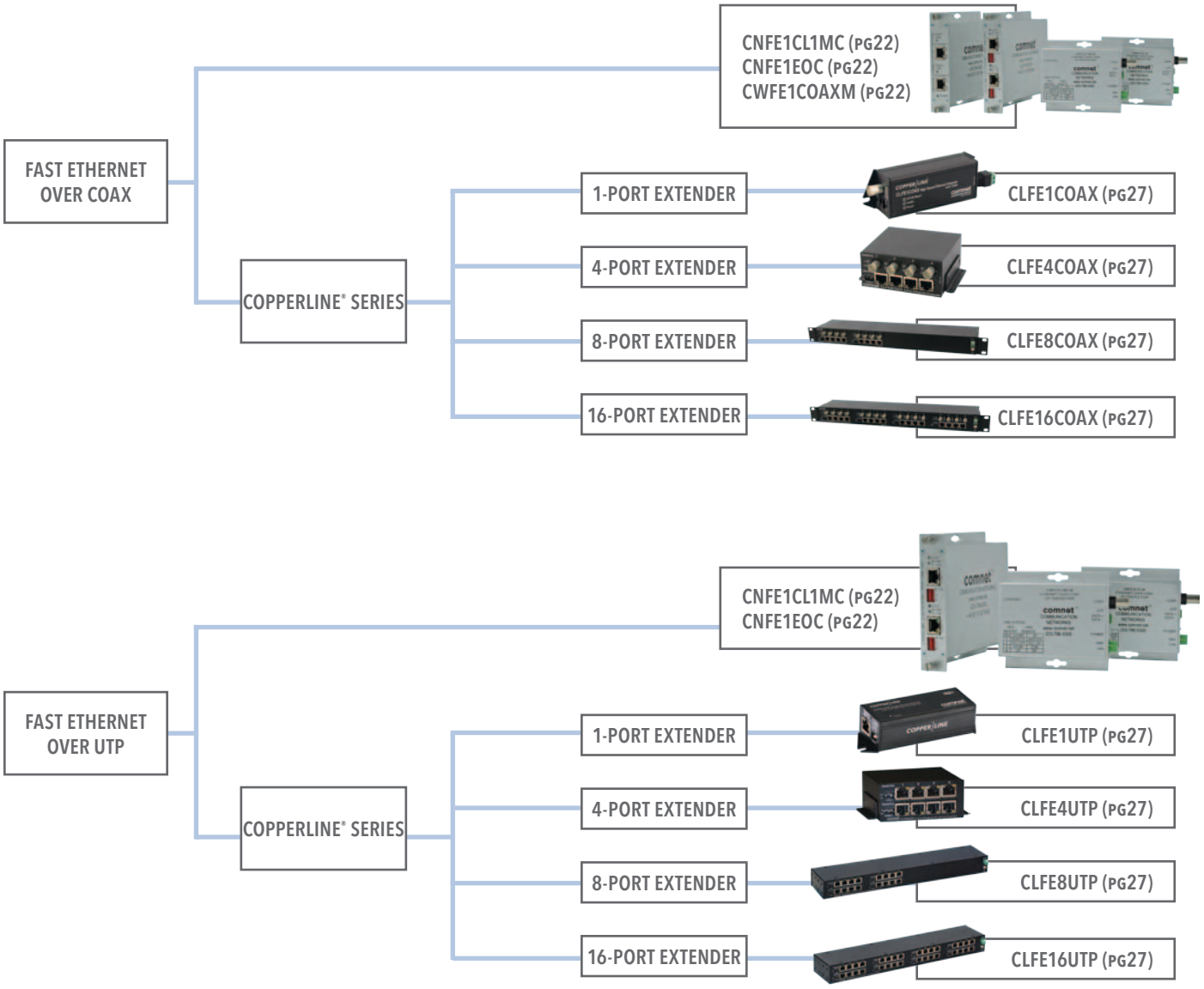
ComNet supports its Ethernet products to the highest level, offering unparalleled customer care, technical support and pre- and post-sale support. That's the ComNet difference, behind you every step of the way with a complete line of Ethernet products for every application.

ComNet Ethernet Product Selection Guide

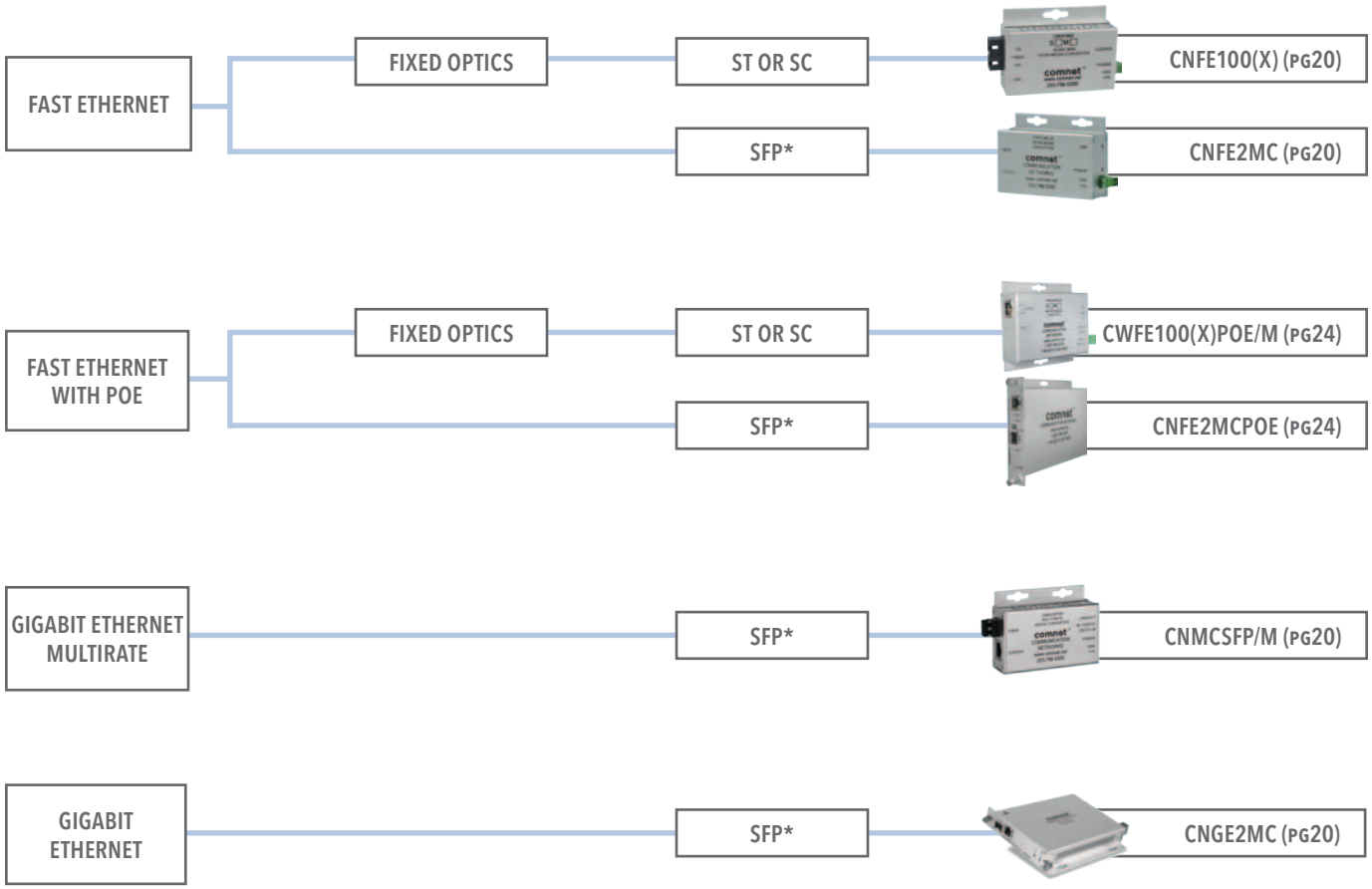
ETHERNET SWITCH SELECTION GUIDE



ETHERNET OVER COPPER SELECTION GUIDE



ETHERNET MEDIA CONVERTER SELECTION GUIDE



* Requires purchase of SFP modules (sold separately). See Page 29.

Environmentally Hardened Managed Ethernet Switches
for Use in the Most Demanding Environments

ComNet switches are engineered to meet virtually any high bandwidth demand your network might require.

In addition, the extra features such as IEEE-compliant PoE and integrated SFP* ports ensure interoperability to other devices and easy to comprehend browser-based interface ensures easy set up and monitoring of your network.

Each ComNet Managed Ethernet Switch features:

› Optional redundant power supply reduces the possibility of single-point-of-failure

› Fastest Redundant Ethernet Ring: ComNet ComRing. Recovery time < 20ms

› Independently tested and certified for full compliance with the environmental requirements of NEMA TS-1/ TS-2 and the CALTRANS Specification for Traffic Signal Control Equipment

› Fully managed, layer 2 switches are optically and electrically compatible with any IEEE 802.3 compliant Ethernet devices

› Auto-negotiating and auto-MDI/MDIX features are provided for simplicity and ease of installation

› Flexible optical and copper-based configuration via SFP* plug-in modules

› IGMP Snooping V1/V2 for multicast filtering and IGMP Query V1/V2

› Rapid Spanning Tree protocol (IEEE 802.1W)

› Port-based VLAN (IEEE 802.1Q)

› Environmentally hardened for deployment in difficult, unconditioned out-of-plant and roadside installations, they have an extended ambient operating temperature range of -40˚ to +75˚ C

› Fully configurable through web-based or SNMP network management

› Port Based Security

› HD Video Compatible

› LED indicators for monitoring the operating status of the managed switch and network.

› Lifetime Warranty

*** Requires purchase of SFP modules (sold separately). See Page 29.**

CNGE2FE24MS & CNGE2FE24MSPOE

26-Port Managed Ethernet Switch

› 2 Combo Ports (SFP/RJ-45))

› 24 Copper (TX) Ports

The ComNet and CNGE2FE24MS and CNGE2FE24MSPOE Managed Ethernet Switches are designed for applications where the highest levels of reliability are required. Each provides twenty-four (24) 10/100BASE-TX and two (2) 10/100/1000TX or 1000FX combo ports. The CNGE2FE24MSPOE provides 24 10/100BASE-TX Power over Ethernet (PoE) ports and (2) 10/100/1000TX or 1000FX combo ports. All 24 electrical ports support IEEE.802.3af based POE. These network fully managed, layer 2 switches are optically (1000BASE-FX) and electrically compatible with any IEEE 802.3 compliant Ethernet devices.

Additional Features

› Twenty-four ports support IEEE.802.3af based POE, and provide 15.4 watts per port.

› 10/100/1000BASE-TX and 1000BASE-FX compatible

CNGE28FX4TX24MSPOE

28-Port Managed Ethernet Switch with Power over Ethernet

› 24 IEE802.3at Copper (TX) PoE Ports

› 4 Gbps SFP Optical (FX) Ports

› Power supply for switch operation and PoE power sourcing is completely self-contained within the switch

The all-gigabit ComNet CNGE28FX4TX24MSPOE managed redundant ring Ethernet switch features twenty-four (24) 10/100/1000BASE-TX ports and four (4) 1000BASE-FX ports of Ethernet data. Fully compliant with IEE802.3at, up to 720 watts of PoE or PoE+ power is available for distribution across all 24 BASE-TX ports. The four 1000 BASE-FX ports can be used with multimode or single-mode optical fiber when used with ComNet SFPs. The exclusive ComRing protects applications from network interruptions or temporary malfunctions with its fast recovery technology.

Additional Features

› IEEE 802.3at Compliant for PSE: 720 watts with 24 ports loaded with PoE+, at a maximum ambient operating temperature of +50° C or derate to a maximum PD demand of 400 watts total across 24 ports, at a maximum ambient operating temperature of 75° C.

› 56Gbps Backplane

› IGMP V2/v3 (IGMP snooping support) for filtering multicast traffic & Port Trunking for ease of bandwidth management

› Supports 24 Gigabit Ports, and four 1000BASE-FX optical ports with optional ComNet SFPs

CNGE3FE7MS2

10-Port Managed Ethernet Switch

› 3 Combo Ports (SFP/RJ-45)

› 7 Copper (TX) Ports

The ComNet CNGE3FE7MS2 Managed Ethernet Switch transports 10/100BASE-TX data through seven RJ-45 electrical ports and 10/100/1000TX or 100/1000FX gigabit Ethernet data through three combo ports. The seven electrical ports support the 10/100Mbps Ethernet IEEE 802.3 protocol, and auto-negotiating and auto-MDI/ MDIX features are provided for simplicity and ease of installation. The three combo 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 (100/1000FX) and electrically compatible with any IEEE 802.3 compliant Ethernet devices.

Additional Features

› 10/100BASE-TX and 100/1000BASE-FX compatible

› Multiple mounting options, DIN rail or wall mount.

› Redundant power supply reduces possibility of single-point-of-failure

CNGE2FE8MSPOE

10-Port Managed Ethernet Switch with Power over Ethernet

› Power Over Ethernet (PoE)

› 10-Port 10/100Mbps Managed Ethernet Switch

› 2 Combo Ports (SFP/RJ-45)

› 8 Copper (TX) PoE Ports

The ComNet CNGE2FE8MSPOE Managed Ethernet Switch provides eight (8) 10/100BASE-TX Power over Ethernet (PoE) ports and two (2) 10/100/1000TX or 100/1000FX combo ports. All 8 ports support IEEE.802.3af based POE. Two ports are 10/100/1000Mbps configurable for copper or fiber media for use with multimode or single mode optical fiber, selected by optional SFP modules. These hardened units are designed for deployment in difficult operating environments, and are available for use with either CAT-5e copper or optical transmission media. The 8 electrical ports support the 10/100Mbps Ethernet IEEE 802.3 af PoE protocol, and auto-negotiating and auto-MDI/MDIX features are provided for simplicity and ease of installation. These network managed layer 2 switches are optically (100/1000BASE-FX) and electrically compatible with any IEEE 802.3 compliant Ethernet devices.

Additional Features

› Eight ports support IEEE.802.3af based PoE and provide 15.4 watts per port

› 10/100BASE-TX and 100/1000BASE-FX compatible

› Flexible optical configuration via SFP plug-in modules

› Redundant power supply reduces possibility of single-point-of-failure

› Fully configurable through CLI, web-based or SNMP network management

CNGE8FX4TX4MS

8-Port All Gigabit Managed Ethernet Switch

› 4 Copper (TX) Ports

› 4 Optical (FX) Ports

The ComNet CNGE8FX4TX4MS Gigabit Managed Ethernet Switch provides four 100/1000TX electrical ports and four 100/1000FX SFP ports. 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. Ports 1-4 are designated for 10/100/1000TX transmission through RJ-45 electrical ports. Ports 5 – 8 are designated for 100/1000FX transmission with multimode or single mode optical fiber selected by optional ComNet MSA compliant SFP modules. These network managed layer 2 switches are optically and electrically compatible with any IEEE 802.3 compliant Ethernet devices.

Additional Features

› Fully configurable through web-based or SNMP network management – IGMP Snooping V1/V2 for multicast filtering and IGMP Query V1/V2

CNGE8MS

8-Port All Gigabit Managed Ethernet Switch

› 4 Gbps Combo Ports (SFP/RJ-45)

› 4 Gbps Copper (TX) Ports

The all-Gigabit ComNet CNGE8MS managed redundant-ring Ethernet switch provides four (4) 10/100/1000BASE-TX and four (4) gigabit SFP or RJ-45 combo ports. The four combo ports are either 10/100/1000Mbps configurable for CAT-5e copper, or 100/1000FX multimode or single-mode optical fiber by the use of optional ComNet SFPs. The exclusive ComNet ComRing redundancy feature protects applications from network interruptions or temporary malfunctions with its fast recovery technology. It also features Open-Vision, a powerful, easy-to-use Windows-based utility, allows the CNGE8MS to be centrally managed.

Additional Features

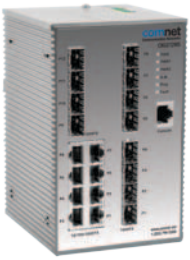
› 16 Gbps Switching bandwidth: 4 Combo Gigabit Ports & 4 10/100/1000TX Ports

› Port Trunking for ease of bandwidth management

› STP/RSTP/MSTP supported

› Open architecture-based Open-Ring technology supports the use of non-ComNet switches within the network

› Windows utility (Open-Vision) supports centralized management



CNGE12MS

12-Port All Gigabit Managed Ethernet Switch

› 8 Gbps Combo Ports (SFP/RJ-45)

› 4 Gbps SFP Optical (FX) Ports

The all-Gigabit ComNet CNGE12MS managed redundant-ring Ethernet switch provides four (4) 1000BASE-FX and eight (8) 100/1000BASE-FX SFP or RJ-45 combo ports. The eight combo ports are 10/100/1000Mbps configurable for either CAT-5e copper, or multimode or single-mode optical fiber by the use of optional ComNet SFPs. The exclusive ComNet ComRing redundancy feature protects applications from network interruptions or temporary malfunctions with its fast recovery technology. It also features Open-Vision, a powerful, easy-to-use Windows-based utility, allows the CNGE12MS to be centrally managed.

Additional Features

› Supports Jumbo Frame up to 9K Bytes for streaming video applications

› STP/RSTP/MSTP supported

CNGE2FE16MS

18-Port Managed Ethernet Switch

› 2 Gbps Combo Ports (SFP/RJ-45)

› 16 10/100Mbps Copper (TX) Ports

The ComNet CNGE2FE16MS managed Ethernet switch provides sixteen (16) 10/100BASE-TX and two (2) 10/100/1000TX or 100/1000FX (gigabit) combo ports. These environmentally hardened units are designed for direct deployment in difficult operating environments, and are available for use with either conventional CAT-5e copper or optical transmission media by user selectable SFPs. The CNGE2FE16MS is approved for use in most industrial control applications.

Additional Features

› Compliant with EN60950-1 and UL Class 1, Division 2, Groups A, B, C and D for Hazardous Locations

› STP/RSTP supported

ValueLine: Feature-Rich, Cost-Effective
Managed Ethernet Switches For Commercial Applications

ComNet offers the ValueLine Ethernet transmission products designed for use in commercial operating environments.

These ValueLine switches and media converters offer many of the same operational features as environmentally hardened and are some of the most competitively priced Ethernet equipment currently available.

ValueLine Managed Ethernet Switches feature:

- Fully managed, layer 2 switches are optically and electrically compatible with any IEEE 802.3 compliant Ethernet devices
- Auto-negotiating and auto-MDI/MDIX features are provided for simplicity and ease of installation
- Flexible optical and copper-based configuration via SFP* plug-in modules
- IGMP Snooping V1/V2 for multicast filtering and IGMP Query V1/V2
- Rapid Spanning Tree protocol (IEEE 802.1W)
- Port-based VLAN (IEEE 802.1Q)
- Fully configurable through web-based or SNMP network management
- Rack mounting brackets available which allow CW Series switches to be mounted in 19-inch electronics racks
- Port Based Security
- HD Video Compatible
- Five-Year Warranty

*** Requires purchase of SFP modules (sold separately). See Page 29.**

The CWGE24MODMS Managed Ethernet Switch provides twenty-four Gigabit Ethernet Ports with the use of three eight-port expansion modules. This Ethernet switch is easily configurable by selecting any three of the five available eight port modules, sold separately. These modules make this switch available for use with either conventional copper or optical transmission media.

Additional Features

› Ambient operating temperature range of 0˚ to +45˚ C

› Flexible configuration with the following eight-port plug-in modules:

CWGE24MODMS/8TX	8 × 10/100/1000T RJ-45
CWGE24MODMS/8FXSCM1	8 × 1000FX SC, MM 550m
CWGE24MODMS/8FXSCS1	8 × 1000FX SC, SM 10km
CWGE24MODMS/8FXSFP	8 × 1000FX SFP
CWGE24MODMS/8TX4SFP4	4 × 10/100/1000T + 4 1000FX SFP

CWGE24MODMS

24-Port Modular Managed Ethernet Switch

› User Configurable – All Gbps

CWGE2FE24MODMS

26-Port Modular Managed Ethernet Switch

› 2 Gbps Combo Ports (SFP/RJ-45)

› 24 100Mbps Copper (TX) or Optical (FX) Ports

The CWGE2FE24MODMS Managed Ethernet Switch chassis provides two 1000Mbps uplink ports and twenty-four ports of 10/100Mbps Ethernet connectivity through the use of three eight-port expansion modules. This Ethernet switch is easily configurable by selecting any three of the two available eight port modules, sold separately. These modules make this switch available for use with either conventional copper or optical transmission media.

Additional Features

› Ambient operating temperature range of 0˚ to +45˚ C

› Flexible configuration with the following eight-port plug-in modules:

CWGE2FE24MODMS/8TX	8 × 10/100T RJ-45
CWGE2FE24MODMS/8SFP	8 × 100Mbps SFP

The CWFE8TX8MS and CWFE8MS/DIN Managed Ethernet Switches use conventional copper transmission media for connectivity. Up to eight electrical ports are available for easily implementing point-to-point, linear add-drop/drop-and repeat, star or true self-healing ring, and mesh network system architectures. The CWFE8TX8MS is shelf mounted and the CWFE8MS/DIN is DIN rail mounted.

Additional Features

› Ambient operating temperature range of the CWFE8TX8MS is 0˚ to +50˚ C

› Ambient operating temperature range of the CWFE8MS/DIN is -10˚ to +70˚ C

› Stand-alone mounting

CWFE8TX8MS and CWFE8MS/DIN

8-Port 10/100Mbps Managed Ethernet Switch

› 8 Copper (TX) Ports

CWGE2FE8MSPOE

10-Port Managed Ethernet Switch with Power over Ethernet

› 2 Combo Ports (SFP/RJ-45)

› 8 Copper (TX) PoE Ports

The CWGE2FE8MSPOE Managed Ethernet Switch provides eight (8) 10/100TX and two (2) 10/100/1000TX or 100/1000FX uplink ports. This switch is for use with either conventional copper or optical transmission media. All eight ports support IEEE 802.3af based PoE with a maximum PoE budget of 77W. Two ports are 10/100/1000 configurable for copper or Multimode or Single-mode optical fiber, selected by optional ComNet MSA-compliant SFP modules.

Additional Features

› 8 ports support IEEE 802.3af based PoE and provide 15.4 watts per port (maximum PoE budget of 77W)

› Ambient operating temperature range of 0˚ to +50˚ C

› Exclusive ComNet X-Ring technology provides network recovery time of <300ms

› 100/1000FX compatible

› Flexible optical configuration using SFP plug-in modules

The ValueLine CWGE9MS Managed Ethernet Switch provides seven 10/100/1000TX and two 1000FX uplink ports. This switch uses either conventional copper or optical transmission media. Ports 1 through 7 support the 10/100/1000Mbps Ethernet IEEE 802.3 protocol. Ports 8 and 9 are 10/100/1000TX configurable for copper or 1000FX fiber media for use with Multimode or Single-mode optical fiber as selected by optional ComNet MSA-compliant SFP modules.

Additional Features

› Ambient operating temperature range of 0˚ to +50˚ C

› Exclusive ComNet X-Ring technology provides network recovery time of <300ms

› 1000FX compatible

› Flexible optical configuration using SFP plug-in modules

CWGE9MS

9-Port Managed Ethernet Switch

› 2 Combo Ports (SFP/RJ-45)

› 7 Copper (TX) Ports

Unmanaged Ethernet Switches

The ComNet unmanaged Ethernet switch series consists of 10/100TX and Gigabit Ethernet models in four and eight port channel counts. These hardened devices are made in the USA for the highest level of reliability and are available in all-electrical, electrical and optical and all optical configurations. The ComNet unmanaged switch series uses MSA-compliant ComNet SFP modules for maximum versatility with regard to distance, fiber type and optical connector type.

Unmanaged Ethernet Switches feature:

› Environmentally hardened for deployment in difficult, unconditioned out-of-plant and roadside installations, they have an extended ambient operating temperature range of -40˚ to +75˚ C

› 10/100/1000TX and 100/1000FX compatible

› Flexible optical and copper-based configuration via SFP* plug-in modules

› Auto-negotiating and auto-MDI/MDIX features for simplicity and ease of installation

› HD Video Compatible

› Made in the USA

› Lifetime Warranty

*** Requires purchase of SFP modules (sold separately). See Page 29.**

CNFE4US Series

100Mbps Four Port Unmanaged Switches

ComNet CNFE4US Ethernet four (4) port unmanaged switch series transport 100Mbps data over optical fiber through user selectable SFP options or 10/100Mbps data over CAT-5e/6 electrical cable. The series consists of models in all electrical, electrical and SFP optical and all optical. The ComNet unmanaged switch series uses MSA-compliant ComNet SFP optical interfaces for maximum configuration versatility with regard to distance, fiber type and optical connector requirements.

Available Models

CNFE4FX4US	4 Port, 100Mbps, 4 SFP Optical
CNFE4FX2TX2US	4 Port, 100Mbps, 2 SFP Optical, 2 10/100Mbps Copper
CNFE4TX4US	4 Port, 100Mbps, 4 10/100Mbps Copper

ComNet CNFE8US Ethernet eight (8) port unmanaged switch series transport 10/100Mbps data over optical fiber through user selectable SFP options or 10/100Mbps data over CAT-5e/6 electrical cable. The series consists of models in all electrical, electrical and SFP optical and all optical. The ComNet unmanaged switch series uses MSA-compliant ComNet SFP optical interfaces for maximum configuration versatility with regard to distance, fiber type and optical connector requirements.

Available Models

CNFE8FX8US	8 Port, 100Mbps, 8 SFP* Optical
CNFE8FX4TX4US	8 Port, 100Mbps, 4 SFP* Optical, 4 10/100Mbps Copper
CNFE8TX8US	8 Port, 100Mbps, 8 10/100Mbps Copper

CNFE8US Series

10/100Mbps Eight Port Unmanaged Switches

CNGE4US

All Gigabit Four Port Unmanaged Switches

The ComNet CNGE4US Ethernet four (4) port unmanaged switch transports 1000Mbps data over optical fiber or 10/100/1000Mbps data over CAT-5e/6 electrical cable through user selectable SFPs. The ComNet unmanaged switch series uses MSA-compliant ComNet SFP modules for maximum configuration versatility with regard to media, distance, fiber type and optical connector requirements.

CNGE8US

All Gigabit Eight Port Unmanaged Switches

The ComNet CNGE8US Ethernet eight (8) port unmanaged switch transports 1000Mbps data over optical fiber or 10/100/1000Mbps data over CAT-5e/6 electrical cable through user selectable SFPs. The ComNet unmanaged switch series uses MSA-compliant ComNet SFP modules for maximum configuration versatility with regard to media, distance, fiber type and optical connector requirements.

Self-Managed Ethernet Switches

No Programming Required

The ComNet Self-Managed Switch Series are a line of switches that allow incoming Ethernet data to be electrically or optically forwarded to another Ethernet device.

The ComNet self-managed switch series with uplink management functionality is designed to combine data from the electrical ports to the last electrical or optical port and forwards this data to the next network device. There is no programming required to use this product. The ComNet SMS line is pre-programmed, preventing network video flooding with dip switch selection of the last port as an uplink or as an unmanaged switch. PoE models of the SMS series supply up to thirty (30) watts of power ("power over Ethernet") and incorporate PoE+ features based on the IEE802.3at standard.

Self-Managed Ethernet Switches feature:

- No Programming Required
- 10/100Mbps Ethernet
- Four or Six 10/100BASE-TX electrical ports supporting PoE+
- One or Two 100BASE-FX optical ports
- Multimode or Single-mode Fiber, SC or ST connector types
- Electrical ports support Auto-Negotiation for 10Mbps or 100Mbps, full duplex or half duplex data
- Optical port model supports 100Mbps full duplex data
- Pre-programmed Port for uplink

CNFE6+2USPOE

10/100TX Drop/Insert/Repeat 6TX/2FX Ethernet Self-Managed Switch with PoE

The ComNet CNFE6+2USPOE provides eight (8) Ethernet ports operating at 10/100 Mbs and is designed to combine six electrical ports into a second optical port that forwards this data to the next CNFE6+2USPOE. The optical ports are designed to forward the data from the six electrical ports to the next switch, to a PC, or another Ethernet connection. In addition, the electrical ports can supply up to thirty (30) watts of power ("Power Over Ethernet") to remote Ethernet devices. This product uses ST optical connections and can be supplied to operate over Singlemode or Multimode optical fiber.

Available Models

CNFE6+2USPOE-S	8 port 10/100Mbps, 2FX Single mode, 6TX (PoE)
CNFE6+2USPOE-M	8 port 10/100Mbps, 2FX Multimode, 6TX (PoE)

The ComNet CNFE4+1SMS(M,S)2 is a five (5) port self-managed Ethernet switch with uplink management functionality. It provides four ports operating at 10/100Mbs and is designed to combine Ethernet data from the four electrical ports into a single optical port and forward that data to the next network device, using two-fiber ST or SC optical connectors.

Available Models

CNFE4+1SMSS2	5 Port 10/100Mbps, 4 TX, 1 FX, Single Mode
CNFE4+1SMSM2	5 Port 10/100Mbps, 4 TX, 1 FX, Multimode
CNFE4+1SMSS2POE	5 Port 10/100Mbps, 4 TX PoE, 1 FX, Single Mode
CNFE4+1SMSM2POE	5 Port 10/100Mbps, 4 TX PoE, 1 FX, Multimode

CNFE4+1SMS(M,S)2 and CNFE4+1SMS(M,S)2POE

10/100 4TX+1FX Ethernet Self-Managed Switches

CNFE4SMS and CNFE4SMSPOE

10/100TX 4TX Ethernet Self-managed Switches

The ComNet CNFE4SMS and CNFE4SMSPOE are four-port switches with uplink management functionality providing four (4) Ethernet ports operating at 10/100Mbs and are designed to combine three electrical ports into an electrical port that forwards this data to the next network device. All four ports of the CNFE4SMSPOE can supply up to thirty (30) watts of power ("Power over Ethernet") and incorporate PoE+ features based on the IEEE 802.3at standard.

Additional Features

› 10/100Mbps Ethernet

› CNFE4SMSPOE Provides 4 10/100BASE-T/TX electrical ports supporting PoE+

› Automatic MDI/MDI-X crossover

The ComNet CNFE5SMS and CNFE5SMSPOE are five (5) port switches with uplink management functionality providing five (5) Ethernet ports operating at 10/100Mbs and are designed to combine four electrical ports into an electrical port that forwards this data to the next network device. Four ports of the CNFE5SMSPOE can supply up to thirty (30) watts of power ("Power over Ethernet") and incorporate PoE+ features based on the IEEE 802.3at standard.

Additional Features

› 10/100Mbps Ethernet

› CNFE5SMSPOE Provides 4 10/100BASE-T/TX electrical ports supporting PoE+

› Automatic MDI/MDI-X crossover

CNFE5SMS and CNFE5SMSPOE

10/100TX 5TX Ethernet Self-managed Switches

Going the Distance

ComNet Ethernet Extenders

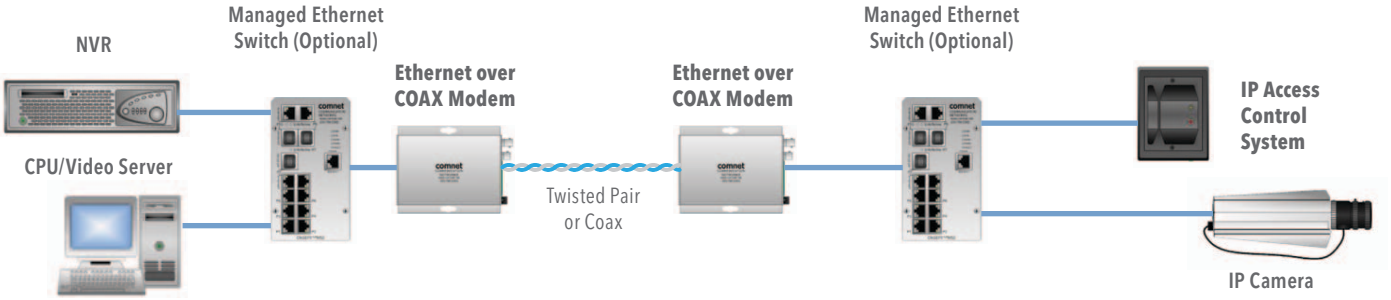
ComNet offers Ethernet extender products that take advantage of existing cable infrastructure or utilize newly installed media.

Fiber optic transmission offers the major advantage when migrating from an existing optical-based video or data installation to an IP system is that the existing fiber optic media can be easily adapted to Ethernet by changing the transmission equipment on each end.

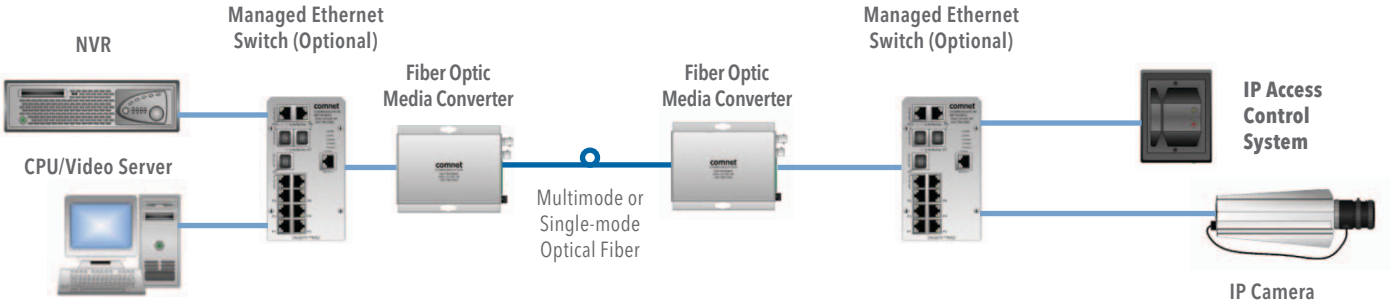
ComNet also offers Ethernet over COAX/Twisted Pair equipment that allows you to use existing coaxial cable and twisted pair copper wire as Ethernet transmission media. ComNet Ethernet over COAX/Twisted Pair equipment is typically used in applications where an existing analog CCTV or access control system is in place currently using twisted pair, unshielded twisted pair or coaxial cable and a transition to Ethernet-based systems is required.

TYPICAL ETHERNET NETWORKS

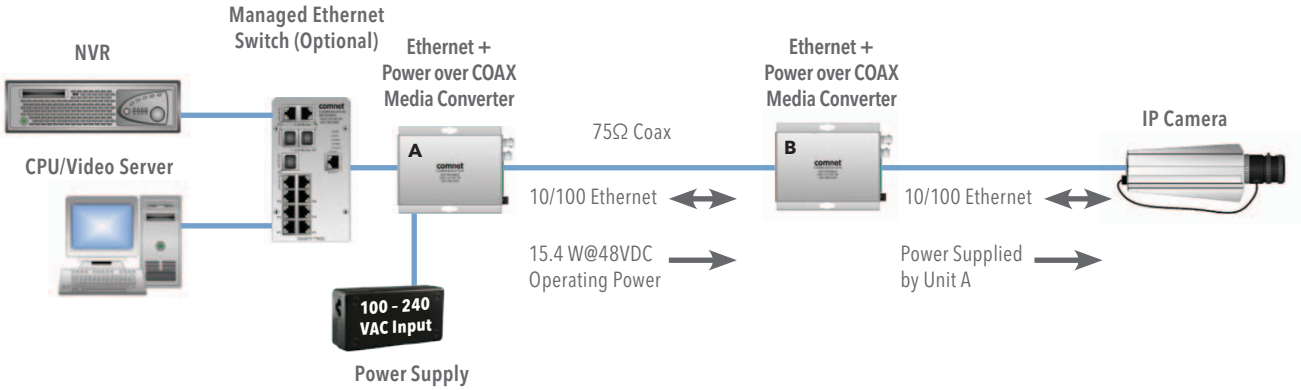
Ethernet over COAX/UTP



Ethernet over Optical Fiber



Ethernet and PSE Device Power over COAX



Ethernet Electrical-to-Optical Media Converters

ComNet offers many different variations of simple media converters with numerous optical connector options. The ComNet media converter line consists of one and two fiber fixed SC and ST optical connector models as well as 10/100TX and Gigabit models that utilize MSA-compliant ComNet SFP optical interfaces for maximum configuration versatility with regard to distance, fiber type and optical connector requirements.

ComNet Media Converters feature:

- 10/100Mbps Ethernet with MDI/MDI-X crossover
- 10/100/1000TX electrical port and 100/1000FX optical port
- Electrical port supports Auto-Negotiation for 10Mbps or 100Mbps, full or half duplex data
- Optical port supports 100Mbps or 1000Mbps full duplex data
- Distances up to: 3km (2mi) in Multimode or 20km (12mi) in Single Mode (greater distances achievable with SFP* models)
- Extended ambient operating temperature range: -40˚ to +75˚ C
- ST, SC or LC optical connectors
- Flexible optical and copper-based configuration via SFP plug-in modules
- 1 or 2 fiber design
- AC or DC powered models available
- Standard size is interchangeable between stand-alone or rack mount use – smaller size available
- IEEE 802.3 compliant
- HD Video Compatible

*** Requires purchase of SFP modules (sold separately). See Page 29.**

CNFE100(X) Series

10/100Mbps Ethernet 2 Port Media Converters

ComNet two port media converters are designed to transmit and receive 10/100Mbps data over multimode or single mode optical fiber. The electrical interface will Auto-Negotiate to a 10Mbps or 100Mbps Ethernet rate without any adjustments. Also available as an ultra-miniature 5cm x 5cm PCB for space restricted installations and direct-to-fiber In-Dome mounting for Bosch, Pelco and Vicon cameras.

Additional Features

› Environmentally hardened for deployment in difficult unconditioned out-of-plant and roadside installations

› Made in the USA

› Lifetime Warranty

ComNet CNGE2MC and CNGE22MC two-port and dual two-port media converters provide full-duplex fiber optic transmission of 10/100/1000Mbps Ethernet data (10/100/1000TX) through optical fiber when used with the appropriate ComNet MSA-compliant SFP. The two-port CNGE2MC provides full-duplex transmission of one Ethernet channel through one or two fibers, depending upon the SFP selected. The dual two-port model CNGE22MC supports full-duplex transmission of two separate Ethernet channels over one or two optical fibers, also depending upon the SFP selected, in one compact package, making this unit ideal for those applications where rack density or shelf-space may be limited.

Additional Features

› Distances up to 120 km

› Made in the USA

› Lifetime Warranty

CNGE2MC(-M) and CNGE22MC

10/100/1000Mbps Ethernet 2 Port Media Converters

CNFE2MC(-M) and CNFE22MC

10/100Mbps Media Converters

› SFP modules as Optical Interfaces

ComNet CNFE2MC and CNFE2MCM Ethernet two-port media converter and CNFE22MC dual two-port transport 10/100Mbps data over optical fiber through user selectable MSA-compliant ComNet SFP optical interfaces for maximum configuration versatility with regard to distance, fiber type and optical connector requirements.

The CNFE2MC transmits and receives a single channel of Ethernet data and the CNFE22MC transmits and receives two independent channels in one unit.

Additional Features

› Distances up to 80km

› Made in the USA

› Lifetime Warranty

The ComNet CNMCSFP/M is a multi-rate media converter that accepts a 10/100 or 1000Mbps electrical input and converts this to a 100 or 1000Mbps optical output, selected by a dip switch. This device uses either one or two optical fibers, depending upon the selection of sold-separately SFP optical module.

Additional Features

› User Selectable 100FX or 1000FX Transmission Rate

› Uses ComNet SFPs for Fiber and Connector Type and Distance

› Environmentally Hardened

CNMCSFP/M

User-Selectable 100FX or 1000FX Single Media Converter

Ethernet Electrical-to-Optical Media Converters with Power over Ethernet (PoE)

Many applications require power for the Power Sourcing Equipment (PSE) device be supplied through the Ethernet cable including those where an Electrical-to-Optical media converter is being used to extend distances Typical applications can include IP CCTV cameras, access control equipment, VoIP telephony and more.

ComNet Media Converters with Power over Ethernet (PoE) feature:

› Meets the requirements of the latest PoE standard (IEEE 802.3at)

› Power Sourcing Equipment (PSE): Provides 30 watts or up to 60 watts (PoE+) in A and B modes for high power demand applications of remote powered devices

› SC or ST fixed optical connectors

› SFP* models available

Applications:

› PoE+ Operating Power for IP Cameras, with pan-tilt-zoom capability

› PoE+ Operating Power for IP cameras with heated/cooled housings

› PoE+ Operating Power for remote telemetry and sensing devices for industrial/SCADA networks

› PoE+ Operating Power for transportation-specific/ITS field equipment

*** Requires purchase of SFP modules (sold separately). See Page 29.**

CNFE2MCPOE

10/100Mbps Ethernet to Optical Media Converter

› Power over Ethernet (PoE)

› Powered by 12 or 24 VDC

ComNet CNFE2MCPOE Ethernet two-port media converters are designed to transmit and receive 10/100Mbps data over optical fiber through user selectable SFP* options. These media converters transmit and receive a single channel of Ethernet data, and also support the IEEE 802.3at standard for power sourcing equipment (PSE) at up to 30 Watts (PoE+).

Additional Features

› Made in the USA

› Lifetime Warranty

ComNet CNGE2MCPOE Ethernet two-port media converters are designed to transmit and receive 10/100/1000Mbps data over optical fiber through user selectable SFP* options. These models transmit and receive a single channel of Ethernet data, and also support the IEEE 802.3at standard for power sourcing equipment (PSE) at up to 30 Watts (PoE+).

Additional Features

› Made in the USA

› Lifetime Warranty

CNGE2MCPOE/M

10/100/1000Mbps Ethernet to Optical Media Converter

› Power over Ethernet (PoE)

CWFE100(X)POEM Series

10/100Mbps Ethernet Media Converters

› Electrical to ST/SC/SFP Optical with PoE+

The CWFE100(X)POE/M Series media converters provide full-duplex fiber optic transmission of a single channel of 10/100Mbps data over multimode or single mode optical fiber. Type ST, SC or SFP optical connectors are available. They provide full compliance with IEEE 802.3at as Power Sourcing Equipment (PSE) with a maximum power of 30 watts, making them ideal for those applications where the remote equipment draws significant power. A higher output 60 watt model is available.

Additional Features

› Provides 30 watts in two modes at 48 VDC, for high output demand applications

› 60 watt higher output version available

› SC, ST or SFP optical connectors available

› Made in the USA

› Five Year Warranty

A low-cost Power over Ethernet (PoE) mid-span injection module, this product is ideally suited to fiber optic, wireless, or other networks where it may be difficult to furnish operating power to PoE peripheral devices. It injects power to the unused pairs of any UTP or STP CAT-3, CAT-4, or CAT-5 network cable, and features auto-detection of powered devices.

Additional Features

› Supplies 48 VDC @ 0.3A operating power for PSE devices drawing a maximum of 15.4 watts

› Designed for deployment in benign/conditioned 0° C to +45° C operating environments

› PoE and 10/100TX Ethernet Data

› Fully Compliant with IEEE Standard 802.3af for Power Sourcing Equipment

› Internal 100 – 240 VAC PSE Provides Short Circuit Protection for PDs

CWPOEIPS-15 PoE Injector

Power over Ethernet (PoE) Mid-Span Injection Module

› Transmission distances up to 100m

› Five Year Warranty

Ethernet COAX/Copper Twisted Pair Media Converters

There are many retrofit applications where systems are migrating from analog systems to IP networks and can benefit from using the already installed coaxial cable or twisted pair wiring. ComNet offers you a cost-saving alternative by eliminating all the costs that come with installing new media. The ComNet Ethernet over Coax/Unshielded Twisted Pair line consists of three series of Ethernet over existing copper media transmission products.

Ethernet over Coax/UTP Media Converters feature:

- Supports transmission distances of up to 3km (10,000 ft) over twisted copper, or up to 500m (1500 ft) over coaxial cable
- Up to 91Mbps throughput using EoVDSL2 technology
- Automatically sets fastest possible data rate vs. cable quality and transmission distance
- User-configurable master/remote, forward error correction, asymmetrical/symmetrical data, and long-reach/short-reach selection
- IEEE 802.3 Compliant – 10/100TX Ethernet port with automatic MDI/MDI-X crossover
- Made in the USA

The CNFE1CL1MC series media converters accept common 10/100TX Ethernet data and transport it over common 75Ω coaxial cable or twisted pair telephone wire. The CNFE1CL1MC-M is a single, small-sized unit that can be surface mounted where space is limited, while the CNFE2CL2MC is a dual channel media converter that can be surface mounted or installed in a rack. These units can extend distances between devices to as much as 500 meters on Coaxial Cable or up to 3000 meters on twisted pair versus traditional CAT-5e/6 cable. The output ports are standard BNC connectors or terminal blocks and the input ports are standard RJ-45 connectors.

Additional Features

› Distances up to 3km

› Lifetime Warranty

CNFE1CL1MC-M and CNFE2CL2MC

Hardened Ethernet to COAX/UTP Media Converters

› EoVDSL2 Technology

CNFE1EOC-M and CNFE2EOC

Commercial Grade Ethernet to COAX/UTP Media Converters

› EoVDSL2 Technology

The ValueLine CNFE1EOC-M single channel and CNFE2EOC dual channel are cost-effective, feature-rich media converters that support Ethernet over twisted pair or coaxial cable. These units can extend distances between devices to as much as 500 meters on Coaxial Cable or up to 3 kilometers on twisted pair at data rates of up to 91 Mbps. Ethernet data may be transmitted over telephone-grade twisted copper pair, legacy serial cabling, or standard 75Ω coaxial cable circuits, making this unit ideal for those applications where it is desired to utilize an existing installed base of copper wiring for Ethernet transmission.

Additional Features

› Distances up to 3km

› Five Year Warranty

The CWFE1POCOAX Series transports Ethernet and camera/device operating power between the remote device and head-end location using existing coaxial cable. It eliminates the need to have a separate power source at the remote location and provides operating power for the remote ComNet modem and PoE device. Based on the IEEE 802.3af standard for Power over Ethernet (PoE), the CWFE1POCOAX provides 15 Watts of operating power to the remote PSE device. The CWFE1POCOAX transports Ethernet data at rates of up to 100Mbps over a distance of 230 meters (750 feet) over standard 75Ω coaxial cable.

Additional Features

› Distances up to 230m

› Power over Coax source – meets IEEE 802.3af standard for PoE

› Five Year Warranty

CWFE1POCOAXM

Commercial Grade Ethernet + Power to COAX Media Converter

› Ethernet data rates of up to 100Mbps

CWFE1COAXM

Commercial Grade Single Ethernet to COAX Media Converter

› 305m distance

A cost-effective ValueLine product that allows Ethernet based equipment to be connected over coaxial cable. The CWFE1COAXM accepts common 10/100TX Ethernet data and transports it over standard 75Ω coaxial CCTV cable at data rates up to 100Mbps. The CWFE1COAXM can extend distances between IP devices to as much as 305 meters on coaxial cable. The input port is a standard RJ-45 connector and the output port is a standard BNC connector. This media converter is designed to operate in environments typical for commercial security.

Additional Features

› Distances up to 305m

› Five Year Warranty

CopperLine® Ethernet over Copper Transmission Extenders

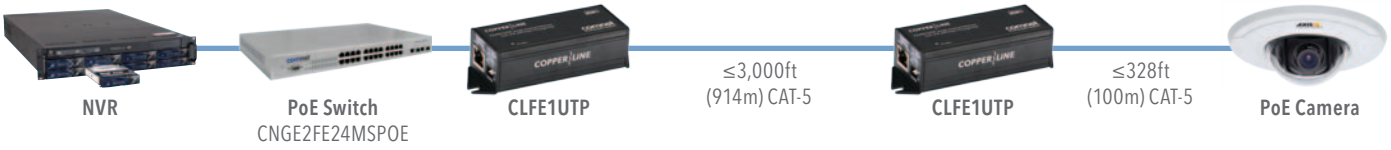
CopperLine is an advanced and unique technology that extends Ethernet networks beyond the 100 meter limitation encountered when using COAX or UTP for IP Video and Ethernet-based applications. CopperLine is a cost-saving alternative that enables you to use existing COAX and UTP cables for significantly greater Ethernet transmission distances.

COPPER LINE®

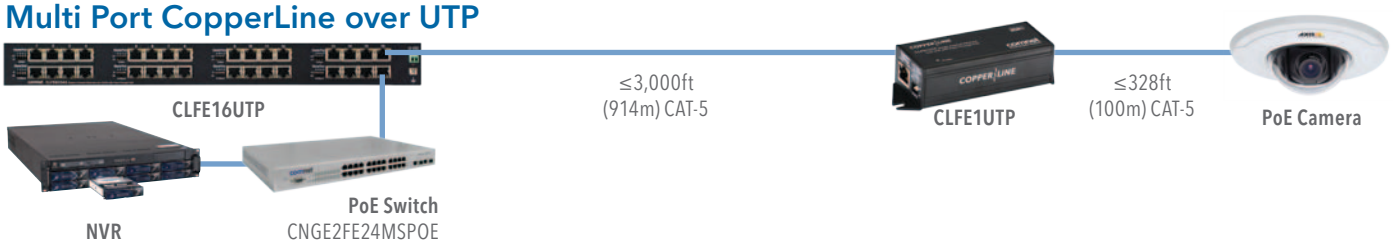
CopperLine Features:

- Longest Available Transmission Distances
- All UTP Models Support Pass-Through PoE
- Fixed Data at Maximum Specified Distance
- All COAX Models Provide PoE Support
- Consumes Less than 2.5 Watts per Port
- Price and Performance – CopperLine
- Extends Ethernet Networks beyond 100m limitation for CCTV and IT projects
- Extends standard Ethernet – 10BASET up to 3,000ft (914m) and 100BASET up to 2,100ft (640m) over UTP
- Extends standard Ethernet – 10BASET up to 5,000ft (1524m) and 100BASET up to 1,800ft (548m) over Coax
- Switch selectable LAN rate – optimizes the best possible rate/distance design for each application
- High data rate – ideal for high bandwidth requirements of Mega-pixel cameras or multiple IP cameras
- Small footprint – fits inside most camera housings
- Compatible with any LAN device – fully transparent to Ethernet networks and higher layer protocols
- Easy to install – no IP address programming or other networking setup required
- LED Indicators – provide link status and data rate
- Very low power – can share power supply with camera
- Hardened to operate from -40° to +75°C
- Meets NEMA TS-1/TS-2 and Caltrans Standards
- Supports one or four pairs of UTP wires
- Lifetime Warranty
- Designed and made in the USA – uses a unique state-of-the-art data transmission technology

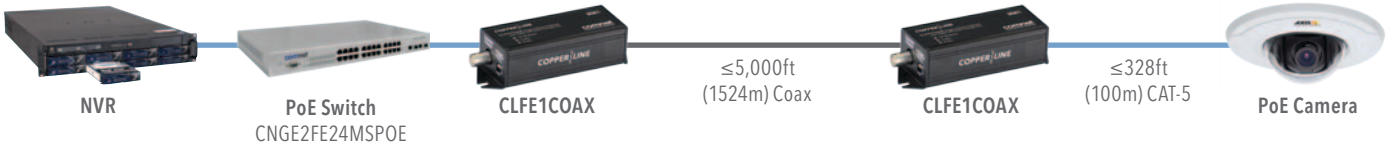
Single Port CopperLine over UTP



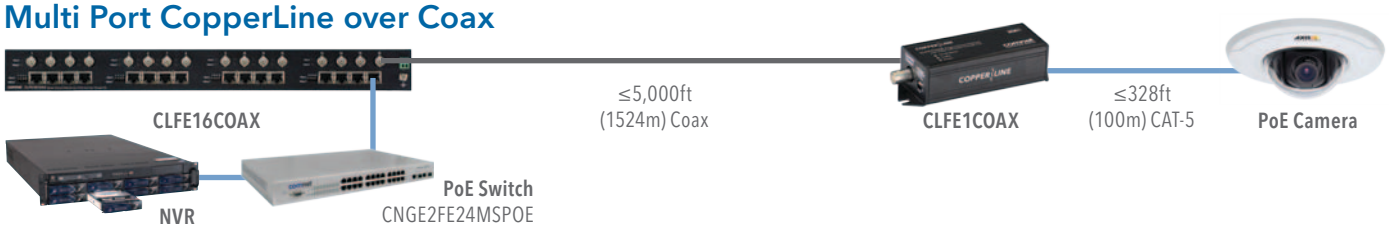
Multi Port CopperLine over UTP



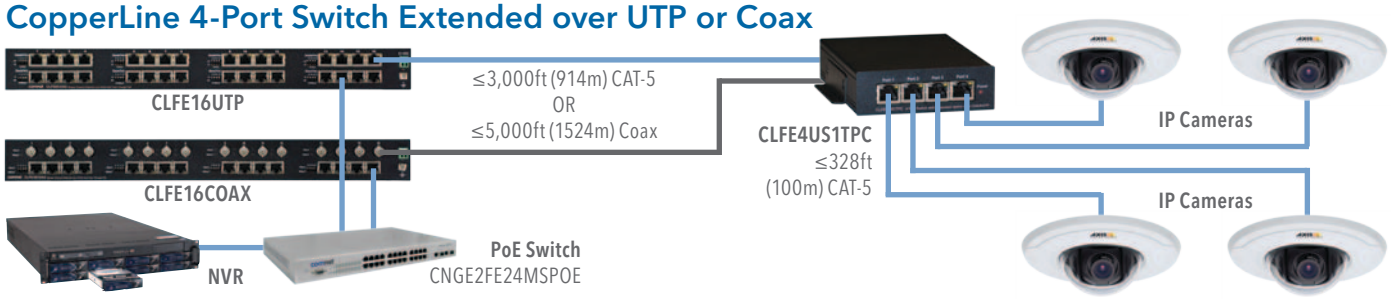
Single Port CopperLine over Coax



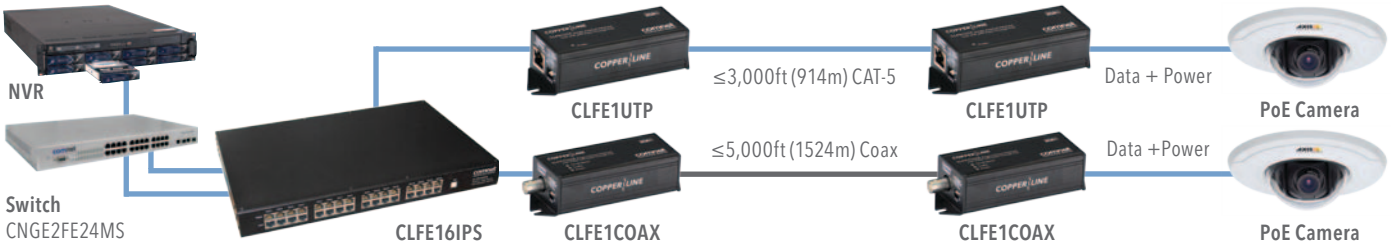
Multi Port CopperLine over Coax



CopperLine 4-Port Switch Extended over UTP or Coax



CopperLine Managed High Power Midspan



CLFE(X)UTP

Copperline Ethernet over Unshielded Twisted Pair (UTP)

› Supports Pass-Through PoE

The ComNet CopperLine CLFE(X)UTP Ethernet over UTP line consists of four models that support 100Mbps Ethernet as well as Pass-through Power over Ethernet (PoE) over twisted pair cable (CAT-5, UTP). These models support transmission distances of up to 3,000 feet (914m) at 10Mbps, or 2,100 feet (640m) at 100Mbps. The CLFE1UTP, the CLFE4UTP, CLFE8UTP and the CLFE16UTP transport one, four, eight or sixteen channels respectively. The IEEE 802.3-compliant Ethernet electrical interface of these Ethernet extenders also meets the requirements for IEEE 802.3af/ PoE power, passing-through up to 30 watts of power per port to the powered device (PD).

Available Models

CLFE1UTP	Single channel Ethernet over UTP with Pass-through PoE
CLFE4UTP	Four channel Ethernet over UTP with Pass-through PoE
CLFE8UTP	Eight channel Ethernet over UTP with Pass-through PoE
CLFE16UTP	Sixteen channel Ethernet over UTP with Pass-through PoE

The ComNet CopperLine CLFE(X)COAX Ethernet over COAX line consists of four models that supports 100Mbps Ethernet as well as Pass-through Power over Ethernet (PoE) over standard 75Ω coaxial cable. These models support transmission distances of up to 5,000 feet (1524m) at 10Mbps, or 1800 feet (548m) at 100Mbps. The CLFE1COAX, the CLFE4COAX, CLFE8COAX and the CLFE16COAX transport, one, four, eight or sixteen channels respectively. The IEEE 802.3-compliant extenders also meets the requirements for IEEE 802.3af PoE power, passing through up to 30 watts of power per port to the powered device (PD).

Available Models

CLFE1COAX	Single channel Ethernet over COAX with Pass-through PoE
CLFE4COAX	Four channel Ethernet over COAX with Pass-through PoE
CLFE8COAX	Eight channel Ethernet over COAX with Pass-through PoE
CLFE16COAX	Sixteen channel Ethernet over COAX with Pass-through PoE

CLFE(X)COAX

Copperline Ethernet over Coaxial Cable

› Supports Pass-Through PoE

CLFE4US1TPC

4-port Ethernet Unmanaged Switch with UTP/Twisted Copper and Coaxial Cable Extender

The ComNet CopperLine CLFE4US1TPC is an unmanaged switch that combines four individual Ethernet data channels over a single standard COAX or UTP cable. Symmetric bandwidth assures full bandwidth transmission is maintained over the entire operational distance for both uploads and downloads with virtually zero packet loss. Bandwidth assurance provides the ability to transmit multiple cameras on single camera runs with no information loss. Combined with the CopperLine CLFE(X)COAX series or CLFE(X)UTP series multi-port extenders up to 64 cameras can be transmitted to a central location on just 16 cables. The CLFE4US1TPC can be powered using standard camera 12 VDC or 24 VAC power supplies. It also can be powered by PoE eliminating the need for remote site extra cost power supplies.

CLFE(X)IPS

Copperline High-Power PoE Mid-Span Injector

› 1 RU High for Rack Installation

The ComNet CopperLine CLFE8IPS and CLFE16IPS are eight (8) and sixteen (16) port high power PoE midspans. They are compatible with 10/100/1000BASET Ethernet networks. They meet IEEE 802.3af and IEEE 802.3at standards and deliver up to 37W per port simultaneously on all ports without requiring power management. The PoE function can be set up with Windows GUI or use the default plug and play option.

Available Models

CLFE8IPS	Eight Port, High Power POE Midspan Injector, 37W Per Port
CLFE16IPS	Sixteen Port, High Power POE Midspan Injector, 37W Per Port

Copperline Accessories

The ComNet CopperLine CLSETUP is an IP Camera Setup and PoE Tester tool that is compatible with IEEE 802.3af and IEEE 802.3at PoE standards up to 30W. The CLESP provides highly effective voltage surge and transient protection for Ethernet-compatible equipment. The ComNet CopperLine SFP-CL is a small form-factor pluggable Ethernet extender module that improves bandwidth and distance of existing copper networks to help avoid installation costs of new fiber lines on site by allowing full 100Mbps Ethernet bandwidth to be extended over 2-wire, 4-wire or 8-wire copper lines with full duplex on each pair.

Available Models

CLSETUP	IP Camera Setup and POE Tester
CLESP	Single Port Ethernet Surge Protector
SFP-CL	Copper Range Extending SFP (must be used in pairs)

Data and Contact Closure over Ethernet

Integrating legacy serial data and Contact Closure devices over an Ethernet network has never been easier.

CNFE2DOE2

RS232/422/485 Data over Ethernet Terminal Server

The ComNet CNFE2DOE2 allows any combination of two RS-232, RS-422, or 2 or 4-wire RS-485 serial data channels be transported by any Ethernet-based network. It includes two serial data input/output ports, and two Ethernet ports. Serial data appearing on either of the two serial data ports is converted to Ethernet, and transmitted to both the SFP and RJ-45 ports, permitting the unit to be used as a media converter and a terminal server.

Additional Features

› Environmentally Hardened -40° to +75°C

› Two RS232/422/485 selectable serial ports

› Easy configuration through web interface (HTTP)

The ComNet CNFE8(X)COE transmits eight contact closures over an Ethernet network. It is available with a 10/100TX RJ45 Ethernet connector and an SFP fiber optic interface. These units can be one-to-one mapped over Ethernet or controlled via a PC. Included is a driver that allows the CoE to read or write contact information from a PC based application. A software utility allows customers to search for this device that is installed on the network. The transmitter and receiver support Windows® Discovery.

Additional Features

› NTCIP compatible

› Remote network configuration

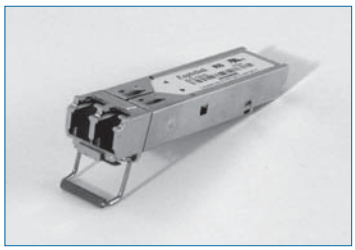
› Saved to a web server based configuration, needs no electrical or optical adjustments

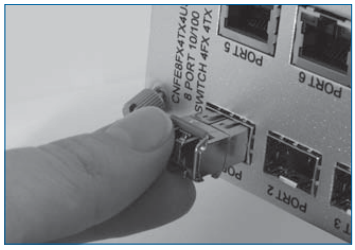
CNFE8(X)COE

Eight Channel Contact Closure over Ethernet

Small Form-Factor Pluggable Modules (SFPs)

ComNet Flexibility





ComNet's **Small Form-Factor Pluggable modules** provide an optical or copper interface when using any ComNet managed or unmanaged switch or SFP-configurable media converters. These SFP modules are available for use with copper media, or Multimode or Single-mode optical fiber. The optical fiber SFP modules provide 10/100 or 10/100/1000FX transmission in one or two fiber versions. They are available with LC or SC optical connectors. These ComNet SFPs offer distances from 300 meters to 120 kilometers. Industrially rated to perform in the **most difficult operating environments**, ComNet SFPs are **MultiSource Agreement (MSA) compliant.**

Fiber Optic Video, Audio and Data Transmission Products

ComNet offers a comprehensive selection of single and multiple channel video and video and data transmission products as well as serial data and audio transmission products designed to the specific requirements for Access Control, Intrusion, Burglar and Fire Alarms and CCTV Surveillance/Incident Detection and the Intelligent Transportation Systems (ITS) market. ComNet manufactures a complete line of in-dome video and data and Ethernet fiber optic modules for many of today's leading CCTV manufacturers.

Technical Support

The ComNet Technical Support and Design Center provides pre-sale and post-sale support for Ethernet transmission network and fiber optic system design. The department is staffed by some of the most highly experienced, regarded and recognized experts in the industry.

Our direct Design Center phone number is **1-888-678-9427** or you can call **1-203-796-5300** in the US or **+44 (0)113 307 6409** throughout Europe and ask for the Design Center, or contact us by E-mail at **designcenter@comnet.net**

comnet
Communication Networks

www.comnet.net

3 Corporate Drive | Danbury, CT 06810 | USA
T: 1 (203) 796-5300 | F: 1 (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

AGENCY COMPLIANCE

ComNetB4 – Rev. 09.12