

## INSTALLATION AND OPERATION MANUAL

# CNFE1CL1MC(-M)

## FAST ETHERNET OVER VDSL (EoVDSL)

The ComNet™ CNFECL1MC(-M) is an environmentally hardened modem that supports Ethernet over twisted pair or coaxial cable. The devices use VDSL (EoVDSL) technology to support data rates up to 90 Mbs. Ethernet data may be transmitted over a telephone-grade twisted copper pair, legacy serial cabling or standard 75Ω coaxial cable circuits. These modems allow for upgrading of a legacy twisted copper or coaxial cable plant for use with Ethernet rather than installing new network cabling.

The fastest usable data rate is automatically selected, depending upon the transmission distance and cable quality. The CNFECL1MC(-M) may be deployed in most out-of-plant installations, such as those found in intelligent transportation systems and factory automation/control applications. LED status indicators are provided for rapidly ascertaining the operating status of the modem and the link.

See **Figures 1 – 8** for complete installation details.

The CNFE1CL1MC standard size unit may be directly plugged into the ComNet Rack (Part C1) or operated as a standalone module. The CNFE1CL1MC-M small size unit operates as standalone module only. See **Page 5** for mounting instructions.

FIGURE 1 – CNFE1CL1MC STANDARD SIZE UNIT

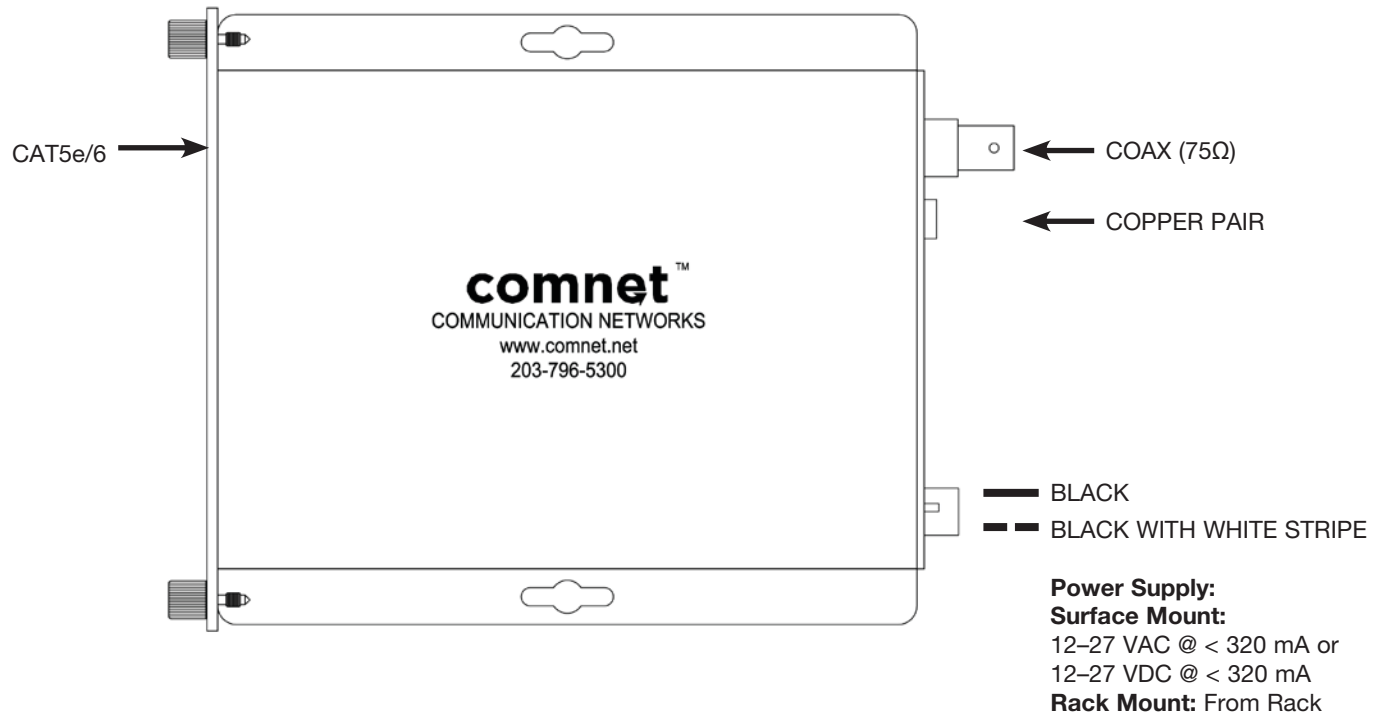
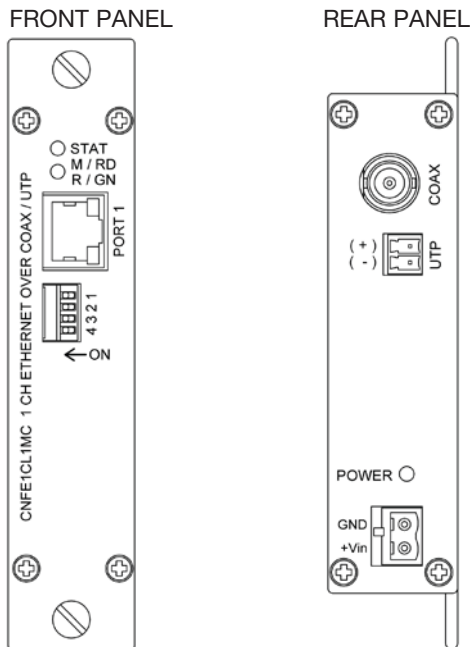


FIGURE 2 – CNFE1CL1MC STANDARD SIZE UNIT



NOTE: Remove Electrical Connector for Rack Mount Units

FIGURE 3 – CNFE1CL1MC-M SMALL SIZE UNIT

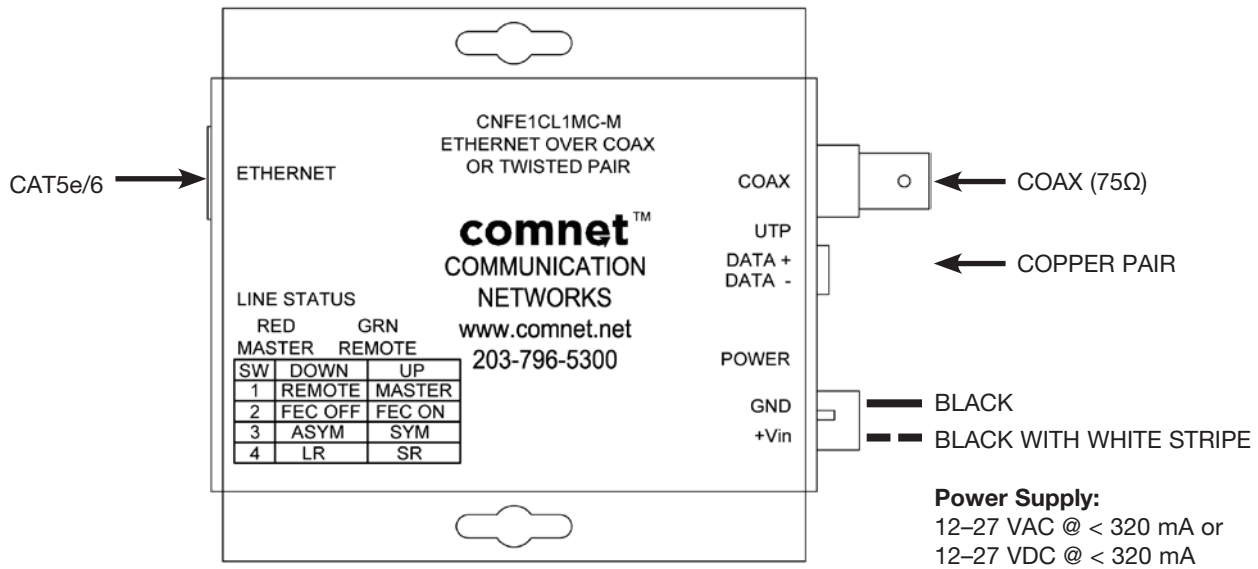
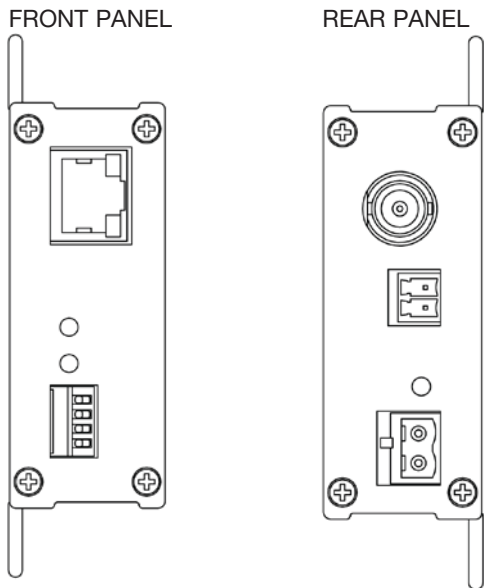
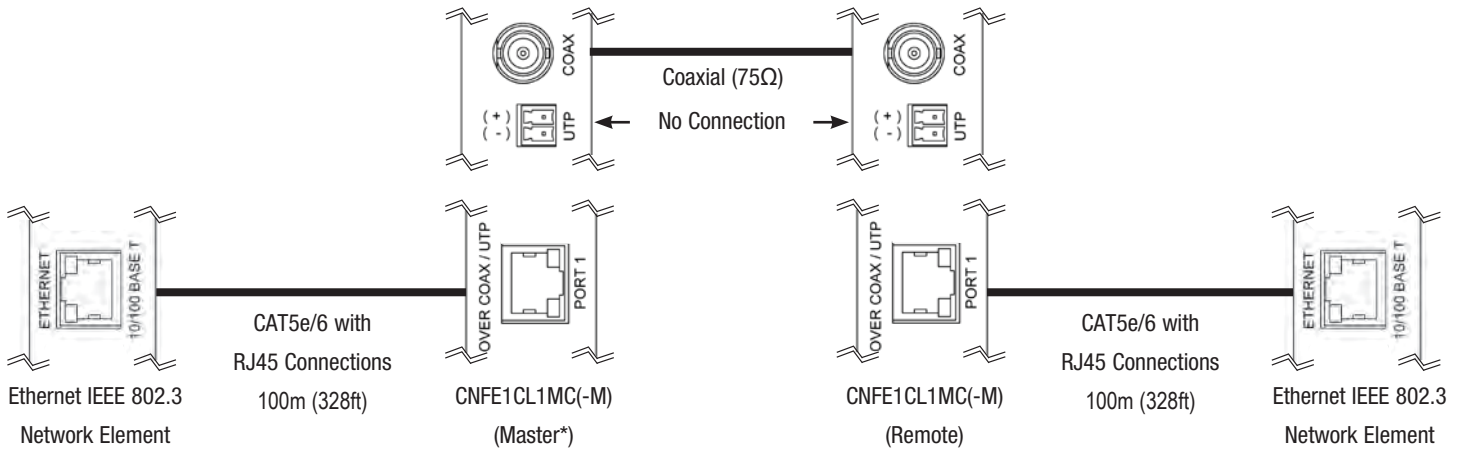


FIGURE 4 – CNFE1CL1MC-M SMALL SIZE UNIT

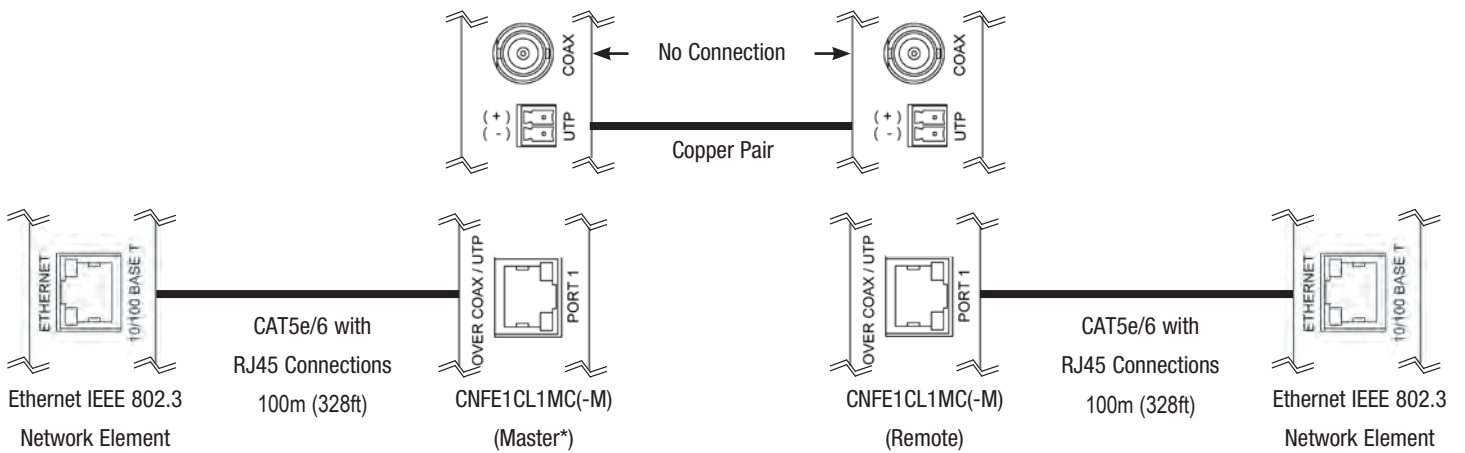


# FIGURE 5 – POSSIBLE ETHERNET CONFIGURATIONS

Ethernet IEEE 802.3 Network Element determined by user.



OR



\* Master unit located at video source.

# FIGURE 6 – DISTANCE VS. SPEED

Line Side Port 1:		
UTP connector:	Screw Terminal Block	
Cable:	Telephone grade 19 to 26 AWG (one twisted pair)	
Throughput:	(Down Stream /	Up Stream)
1000 ft (305 m)	70 Mbps /	65 Mbps
2500 ft (762 m)	26 Mbps /	17 Mbps
5000 ft (1524 m)	16 Mbps /	1 Mbps
7500 ft (2286 m)	5 Mbps /	0.5 Mbps
10,000 ft (3048 m)	1 Mbps /	0.25 Mbps

Line Side Port 2:		
Coax connector:	BNC	
Impedance:	75 ohm coax	
Throughput:	(Down Stream /	Up Stream)
250 ft (76 m)	91 Mbps /	84 Mbps
500 ft (152 m)	86 Mbps /	82 Mbps
1000 ft (305 m)	65 Mbps /	69 Mbps
1500 ft (457 m)	40 Mbps /	52 Mbps

**FIGURE 7 – LED INDICATORS**

	<b>LINE STATUS (STAT)</b>	<b>RED MASTER (M/RD) or GRN REMOTE (R/GN)</b>	<b>POWER</b>
<b>GREEN</b>	Line side activity	Remote Configuration	Unit powered up
<b>RED</b>	–	Master Configuration	–
<b>OFF</b>	No activity		Unit powered down

<b>LED STATUS</b>	Low Constant Flashing	Fast Constant Flashing	On	Intermittent Flashing
<b>UNIT STATUS</b>	Idle (Line Is Not Connected)	Master/Remote Negotiating	Idle (Line Is Connected)	Data Flow

**FIGURE 8 – SWITCH SETTINGS**

<b>SWITCH</b>	<b>DOWN (ON)</b>	<b>UP (OFF)</b>	<b>DEFAULT SETTING</b>
1	Remote	Master	One ON, one OFF as a pair
2	Forward Error Correction Off	Forward Error Correction On	ON
3	Asymmetrical Data	Symmetrical Data	ON
4	Long Reach > 1000ft (305m)	Short Reach < 1000ft (305m)	ON

# MECHANICAL INSTALLATION INSTRUCTIONS

## INSTALLATION CONSIDERATIONS

This fiber-optic link is supplied as a Standalone/Rack module. Units should be installed in dry locations protected from extremes of temperature and humidity.

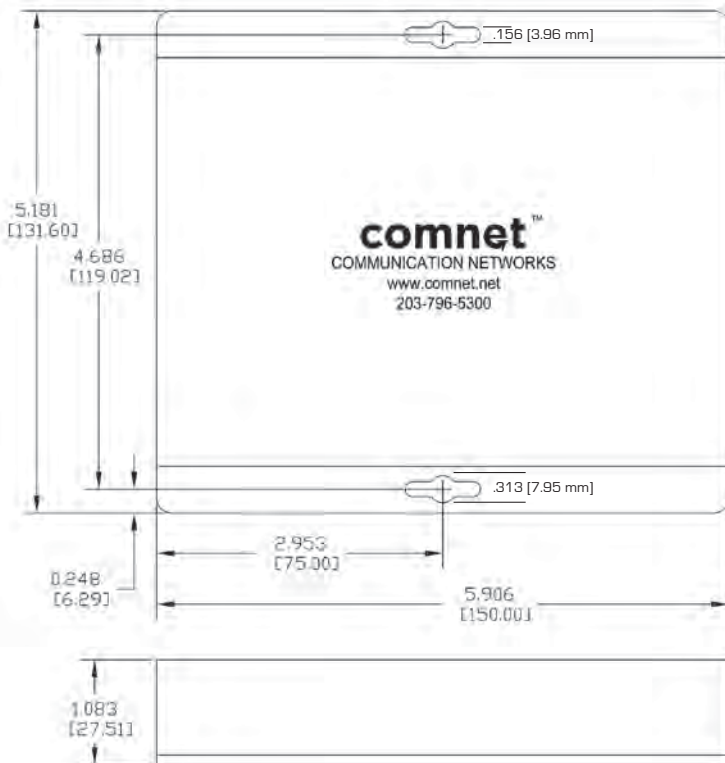
### C1-US, C1-EU, C1-AU OR C1-CH CARD CAGE RACKS

**CAUTION:** Although the units are hot-swappable and may be installed without turning power off to the rack, ComNet recommends that the power supply be turned off and that the rack power supply is disconnected from any power source. **Note:** Remove electrical connector before installing in card cage rack.

1. Make sure that the card is oriented right side up, and slide it into the card guides in the rack until the edge connector at the back of the card seats in the corresponding slot in the rack's connector panel. Seating may require thumb pressure on the top and bottom of the card's front panel.

## FIGURE A

Dimensions are for a standard ComNet™ one slot module



**CAUTION:** Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the rack.

**WARNING:** Unit is to be used with a Listed Class 2 or LPS power supply.

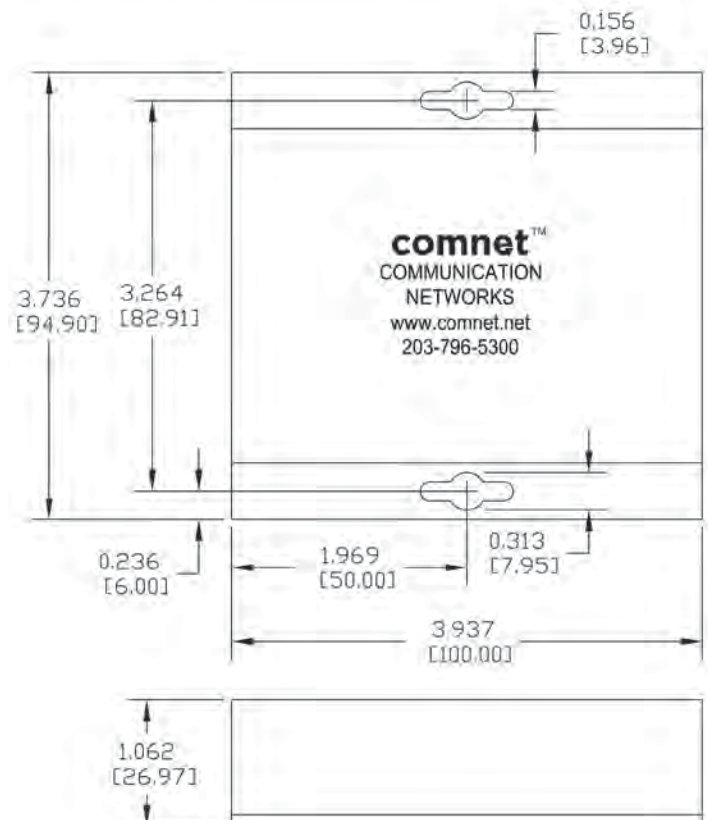
### IMPORTANT SAFEGUARDS:

**A) Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature ( $T_{ma}$ ) specified by the manufacturer.

**B) Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

## FIGURE B

Dimensions are for a small size ComNet™ surface mount module



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