comnet
Communication Networks

INSTALLATION AND OPERATION MANUAL

COPPERLINE®

CLFE4+1SMS[POE](C,U) Series

10/100 4TX+1EX ETHERNET SELF-MANAGED SWITCH
WITH POWER OVER ETHERNET (POE+)

This manual serves the following ComNet Model Numbers:

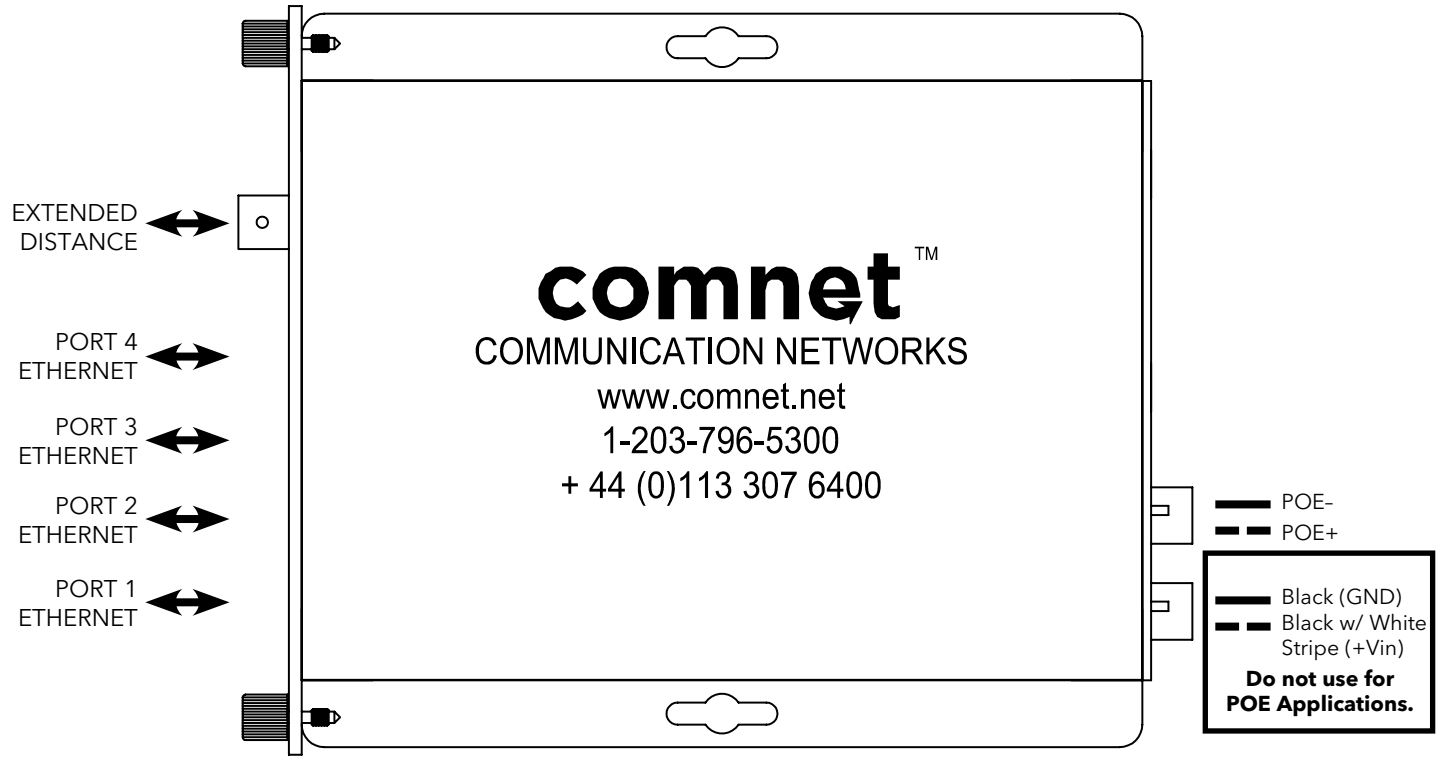
CLFE4+1SMSC
CLFE4+1SMSU
CLFE4+1SMSPOEC
CLFE4+1SMSPOEU

The ComNet CopperLine® CLFE4+1SMS[POE](C,U) is a five-port Ethernet switch with uplink management functionality and provides 4 copper ports operating at 10/100Mbps and is designed to combine four electrical ports into a single electrical Cat5, UTP or Coax CopperLine port that forwards this data to the next network device. There is no programming required to use this product. The ComNet CLFE4+1SMS comes pre-programmed, preventing network video flooding with DIP switch selection of the fifth electrical port as uplink or as an unmanaged switch. Ports 1–4 of the CLFE4+1SMSPOE can supply up to thirty (30) watts of Power over Ethernet (PoE) and incorporate PoE+ features based on the IEEE 802.3at standard. It is "Plug-and-Play".

Bi-color (Red/Green) LED indicators are provided for rapidly ascertaining equipment operating status. **Table 2** on **Page 7** describes the LED indicators for each light on the unit.

These units are interchangeable between stand-alone or card mount configurations, or may be DIN-rail mounted by the addition of ComNet model DINBKT1 or DINBKT4 adaptor plate. See **Figure A** on **Page 10** for mounting instructions.

FIGURE 1 – CLFE4+1SMSPOEC FOUR CHANNEL SURFACE OR RACK MOUNT COAX UNIT WITH POE



Operating Power: 9 to 12 VDC (non-PoE), 48 to 56VDC (PoE)
Power Consumption: 10W (non-PoE), 130W (Max PoE)

FIGURE 2 – CLFE4+1SMSPOEC FOUR CHANNEL SURFACE OR RACK MOUNT COAX UNIT WITH POE

CLFE4+1SMSPOEC Front Panel CLFE4+1SMSPOEC Rear Panel

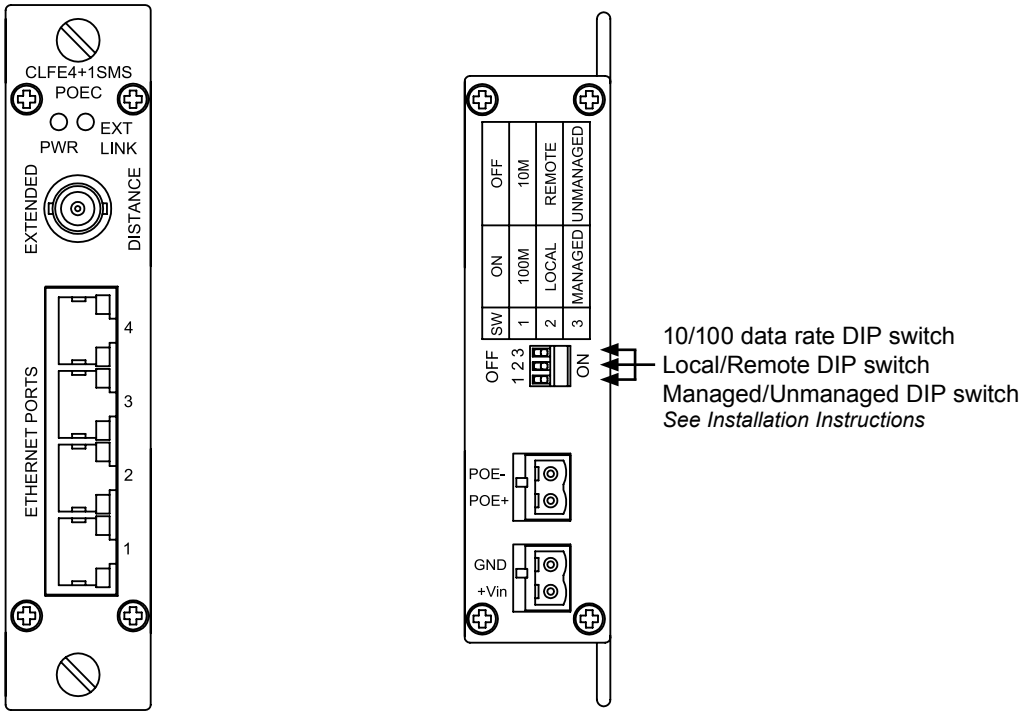
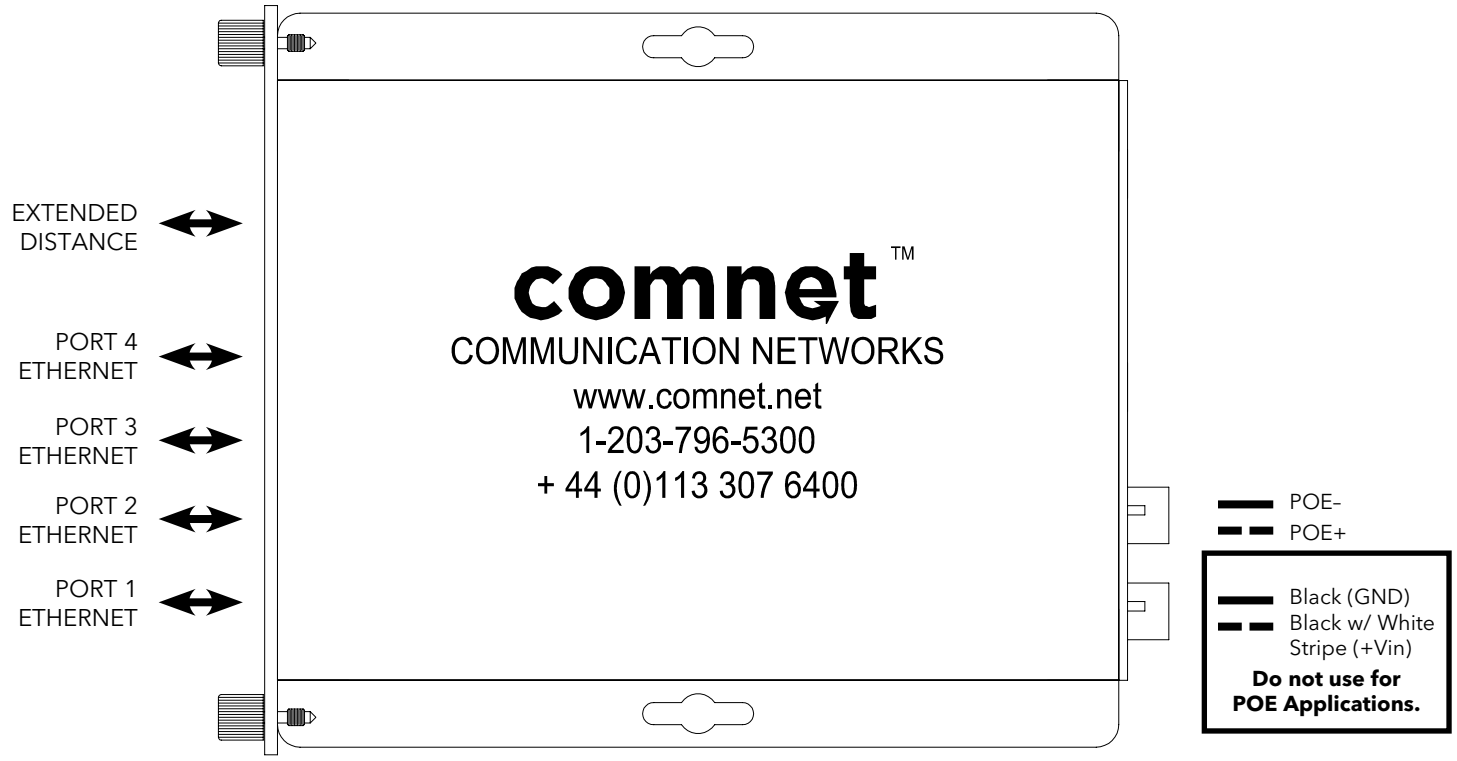


FIGURE 3 – CLFE4+1SMSPOEU FOUR CHANNEL SURFACE OR RACK MOUNT UTP UNIT WITH POE



Operating Power: 9 to 12 VDC (non-PoE), 48 to 56VDC (PoE)
Power Consumption: 10W (non-PoE), 130W (Max PoE)

FIGURE 4 – CLFE4+1SMSPOEU FOUR CHANNEL SURFACE OR RACK MOUNT UTP UNIT WITH POE

CLFE4+1SMSPOEU Front Panel CLFE4+1SMSPOEU Rear Panel

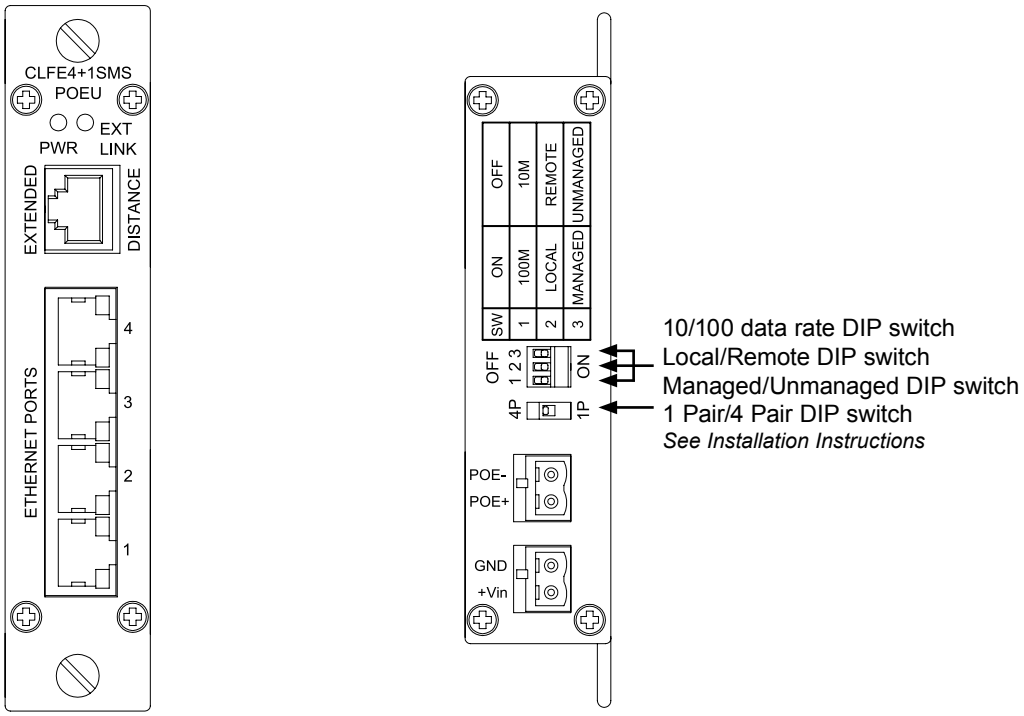


FIGURE 5 – CLFE4+1SMSC FOUR CHANNEL SURFACE OR RACK MOUNT COAX UNIT

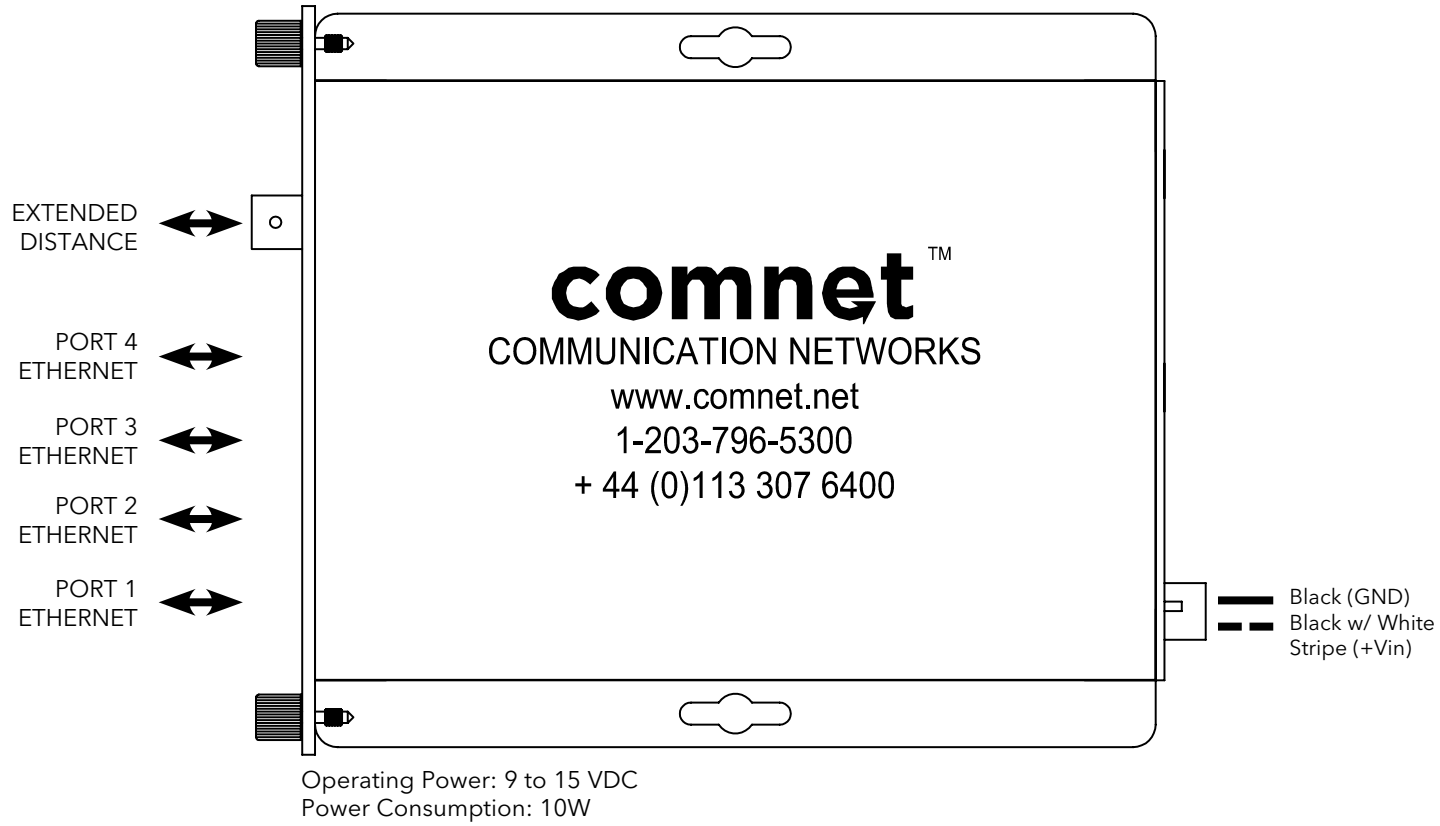
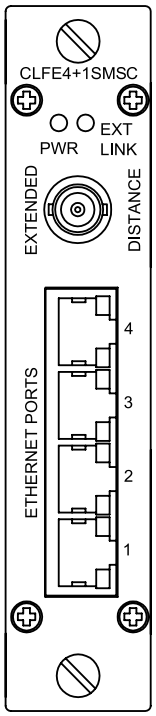


FIGURE 6 – CLFE4+1SMSC FOUR CHANNEL SURFACE OR RACK MOUNT COAX UNIT

CLFE4+1SMSC Front Panel



CLFE4+1SMSC Rear Panel

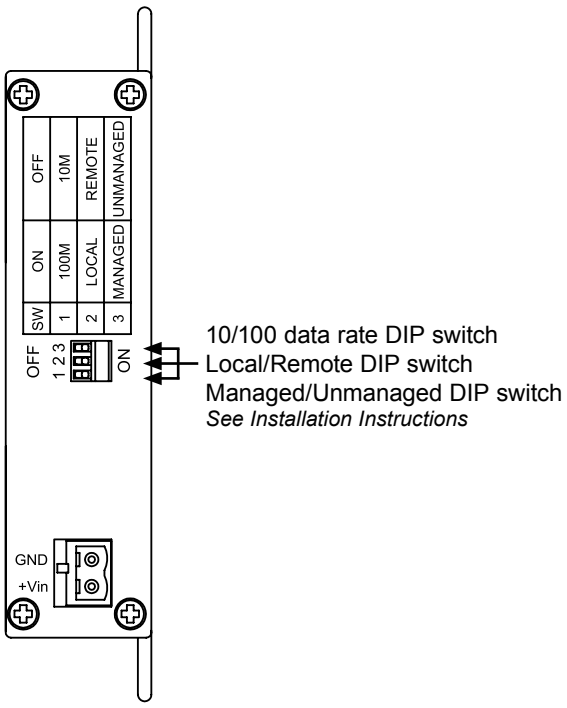
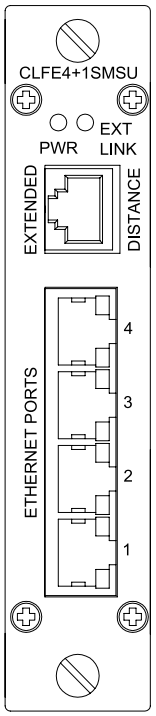


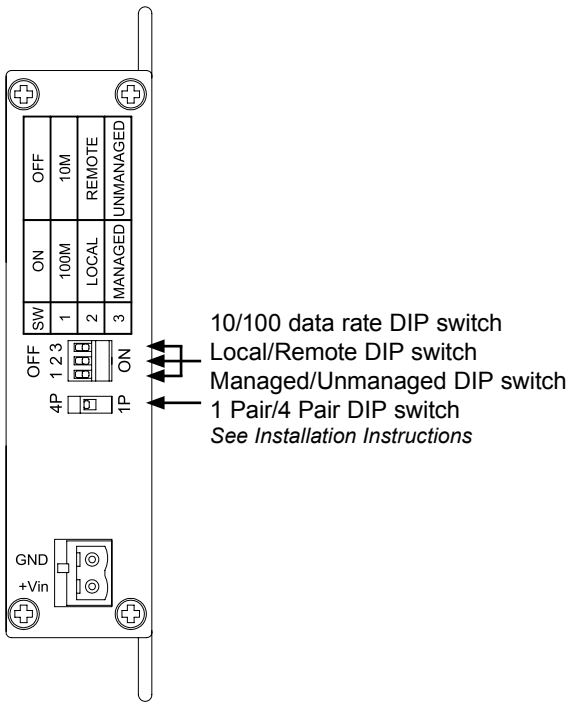
FIGURE 7 – CLFE4+1SMSU FOUR CHANNEL SURFACE OR RACK MOUNT COAX UNIT

FIGURE 8 – CLFE4+1SMSU FOUR CHANNEL SURFACE OR RACK MOUNT UTP UNIT

CLFE4+1SMSU Front Panel

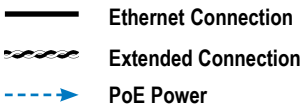


CLFE4+1SMSU Rear Panel

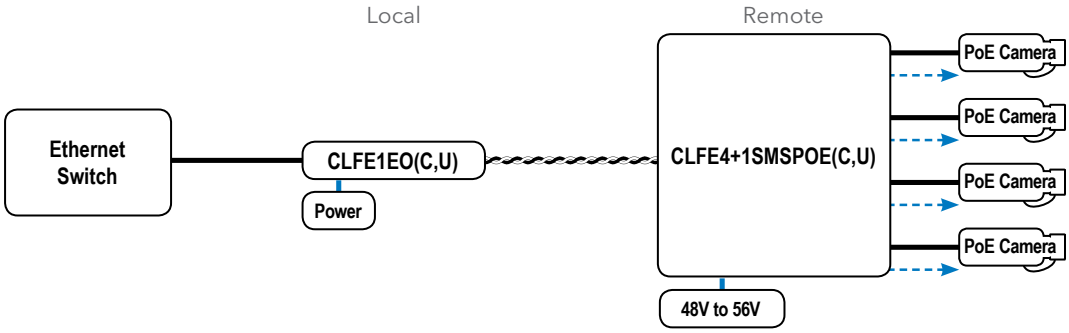


APPLICATION DIAGRAM

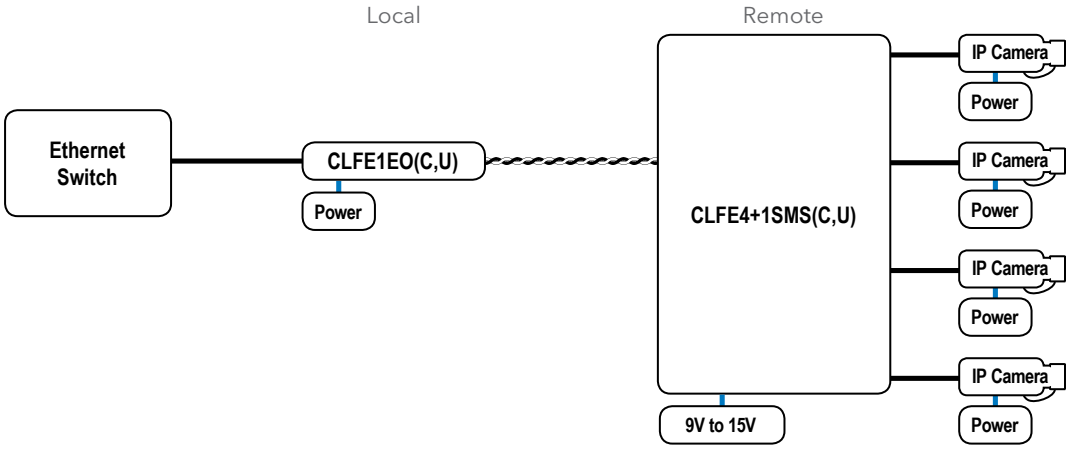
*Note: Coaxial applications use the CLFE4+1SMS[POE]**C** and CLFE1EO**C**; UTP applications use the CLFE4+1SMS[POE]**U** and CLFE1EO**U**.*



Remote PoE Injection Mode



Non-PoE Mode



IMPORTANT NOTE. PLEASE READ. *The applications are shown as general representations only and are not intended to show detailed network topologies. Your actual network will differ, requiring changes or perhaps additional network equipment to accommodate the systems as illustrated. Please contact ComNet's Design Center to discuss your specific requirements.*

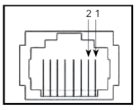
INSTALLATION INSTRUCTIONS

1 - SET DATA RATE DIP SWITCHES

Locate the 10/100 data rate DIP switch on the unit.
Set the data rate according to bandwidth required. The default setting for the data rate DIP switch is 100Mbps.
NOTE: The data rate must be set the same on both the local and remote units.

2 - SET WIRE PAIR DIP SWITCHES (UTP MODELS ONLY, FOR COAX MODELS SKIP TO STEP 3)

Locate the wire pair DIP switch on the unit.
Set the pair according to number of twisted wire pairs used (1 or 4). The default setting for the wire pair DIP switch is 4 pair.
NOTE: The number of pairs selected must be set the same on both the local and remote units.



For 1-pair mode, use the first pair of pins (pins 1 and 2) of the "Extended Ethernet" RJ-45 port.

3 - SET LOCAL/REMOTE DIP SWITCHES

Set the Local/Remote switch to Local (L) for Local (head end) devices or Remote (R) for Remote (field end) devices.
The default setting for this switch is Remote.

4 - SET MANAGED/UNMANAGED DIP SWITCHES

Set the Managed/Unmanaged switch to the "Managed" position. The default setting for this switch is Managed.
NOTE: In most cases, you will want to set the unit to "Managed" to prevent port flooding.

5 - CONNECT EXTENDED WIRING

Connect Extended Distance Port to field wiring.

6 - CONNECT NETWORK WIRING

Using CAT5/5e, connect Local unit to network and Remote unit to camera.

7 - CONNECT POWER

Connect power to unit per the following table:

Table 1 – Power Connections per Use Case

	Non-PoE	PoE
Operating Voltage	9 to 15 VDC (9 VDC † when in C1 or C2)†	48 to 56 VDC
Use Power Connectors	GND and +Vin	POE+ and POE-

Note: For the PoE models only use the PoE power connectors.

† Contact the ComNet Design Center, or refer to the appropriate installation and operation manual when configuring and specifying power for a deployment.

8 - VERIFY FUNCTIONALITY

See LED table below and Troubleshooting Guide if corrective action is needed.

Table 2 – Indicating LEDs

	PWR	POE	Link (Ethernet Port)	Activity (Ethernet Port)	EXT LNK
GREEN	Power Applied	PoE Applied	–	–	10M or 100M Link Detected
YELLOW	–	–	Link Detected	–	–
OFF	Power Off	No PoE Present	No Link	–	No Link
BLINK	–	–	–	Data Activity	Data Activity

APPLICATION NOTES

1 Mixed PoE and Non-PoE systems can be implemented.

2 Lower data rates generally provide longer operating distances.

TABLE 3 – APPROXIMATE MAXIMUM EXTENDED DISTANCES[1]

Media	COAX - RG59/U		UTP - 1 pair		UTP - 4 pair	
Extended Port Data Rate	**10M**	**100M**	**10M**	**100M**	**10M**	**100M**
Extended Distance[1]	5,000 ft 1,524 m	2,000 ft 610 m	3,000 ft 914 m	1,000 ft 305 m	3,000 ft 914 m	2,000 ft 610 m

[1] Distance figures are obtained using in-house testing mirroring installations. Factors such as coaxial/copper cable quality, the number of connectors/ splices in the cable run, the use of PoE, and environmental conditions encountered within the installation may affect the actual transmission distance, and should be taken into consideration.

TABLE 4 – TROUBLESHOOTING GUIDE

Problem	Steps to Take
Indicating LEDs not lighting	Check that power is properly applied to the unit using the correct connector pair.
No Communication	Check Ethernet Link LEDs, Extended Link LEDs, All Connections, Local/Remote switch is set properly. Verify that Local units are installed at the head end and that Remote units are installed in the field. Verify that the Data Rate switches are set to the same data rate on both the Local and Remote units.
Bad Video	Make sure Data Rate and 1/4 Pair Switches are set properly, and the extended distance is within specifications (see Table 3 – Approximate Maximum Extended Distances).
Units not reaching estimated max distances over COAX or UTP	Check extended distance cable and connections. Try connection on a short cable to eliminate possibility of faulty cabling. Check that the extended distance wire is connected to Extended Distance Port. Verify that there is no additional equipment (e.g. surge protector) on the Extended Link. The cable should be continuous from end to end, with no active components.
Not all cameras visible	Check that the Managed/Unmanaged DIP switch is set to “Managed.”

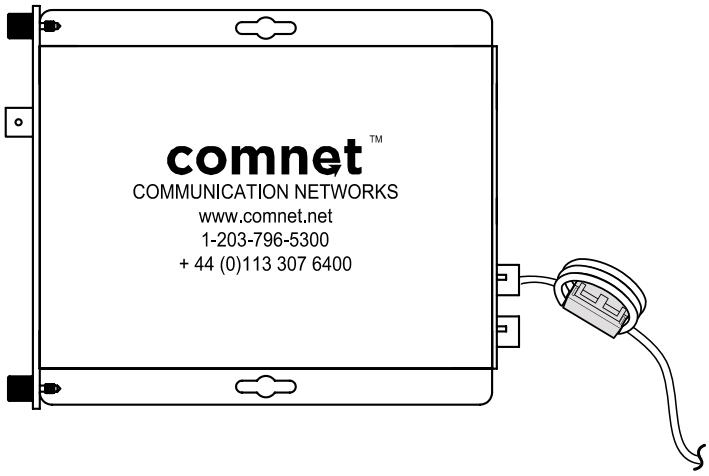
ATTACHING THE FERRITE CORE TO THE POWER CORD OF THE UNIT (Ferrite core not included, must be purchased separately)

When using v48VDC Power Supplies

Attaching the ferrite core to the power cord of the unit helps prevent RF interference from radio signals.

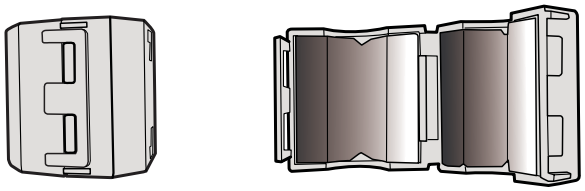
1. Pull the fixing tab of the ferrite core to open it.
2. Make three loops around the core with the power cable of the unit.
3. Attach the ferrite core to the unit power cord as shown and press it until it clicks.

Recommended part is Wurth Part 742 711 32 S
(Not included). Equivalent parts may be substituted.



LOOPING THE POWER CABLE AROUND THE FERRITE CORE

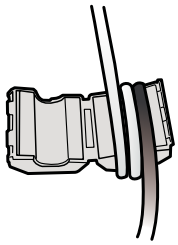
Lift up to release the lock and open the core.



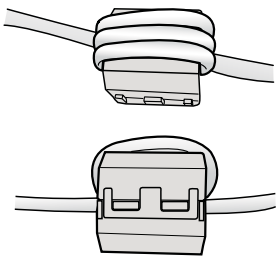
Closed Open

Make three loops around the core with the power cable.

Start winding 5 to 10 cm (2 to 3.9 in) away from the power connection.



Close the lock. You may now operate the unit according to instructions.



INSTALLATION CONSIDERATIONS

These units are supplied as Standalone/Rack mounted module. Units should be installed in dry locations protected from extremes of temperature and humidity.

WARNING: Unit is to be used with a Listed Class 2 power supply. Although the units may be mounted inside a ComNet rack the PoE models cannot be powered from the built-in rack PSU; they must be powered by an external 48-56VDC PSU.

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.

MADE IN THE USA

FIGURE A

Dimensions are for a ComFit module