PELCO™

**INSTALLATION AND OPERATION MANUAL**

# EC-1500 Series

ETHERNETCONNECT EXTENDER WITH PASS-THROUGH POE TO 15 WATTS

**This manual serves the following Model Numbers:**

EC-1501U-M
EC-1501C-M
EC-1504U-W
EC-1504C-W
EC-1508UL-R
EC-1508CL-R
EC-1516UL-R
EC-1516CL-R

The EthernetConnect EC-1500 series extends 10/100Mbps Ethernet over twisted pair cable or coax.

Single channel units can be powered locally or via Pass-Through PoE.

# IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the points where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases shall be placed on the apparatus.
15. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
16. Installation should be done only by qualified personnel and conform to all local codes.
17. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6, or 6P enclosure, it is designed for indoor use only and it must not be installed where exposed to rain and moisture.
18. Use only installation methods and materials capable of supporting four times the maximum specified load.
19. A CCC-approved power cord must be used to power this equipment when used in China.
20. **CAUTION:** These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The product and/or manual may bear the following marks:

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

**CAUTION:**

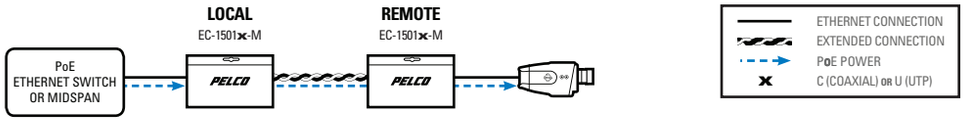
RISK OF ELECTRIC SHOCK.

DO NOT OPEN.

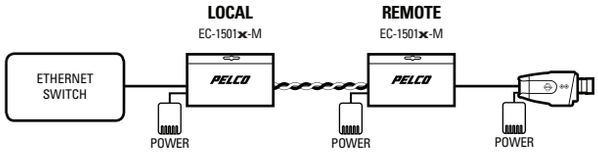
## APPLICATION DIAGRAMS

*Note: Coaxial applications use EC-1500**C** modules; UTP applications use EC-1500**U** modules.*

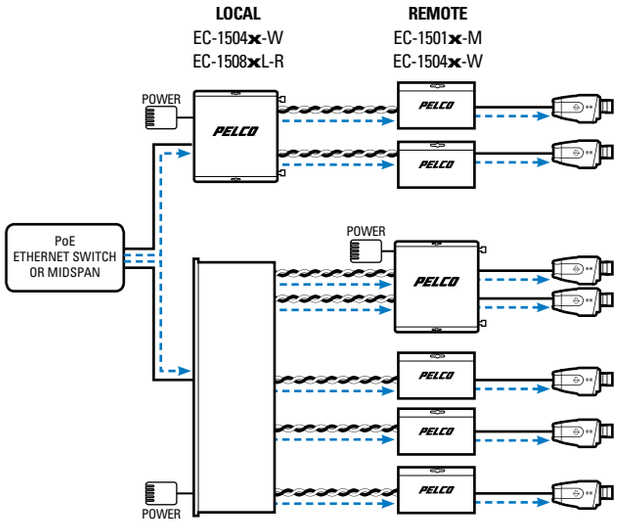
### PoE Pass-Through Mode



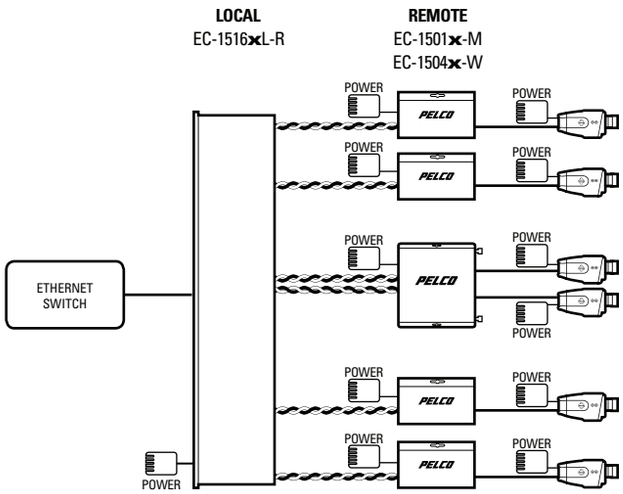

### Non-PoE Mode




### Multichannel PoE Application




### Multichannel Non-PoE Application




***IMPORTANT NOTE. PLEASE READ.*** *The network implementations 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 your local Pelco representative to discuss your specific requirements.*

## INSTALLATION INSTRUCTIONS

**1 - SET 10/100 SWITCH**

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.***

**3 - SET LOCAL/REMOTE SWITCHES (1 AND 4 CHANNEL UNITS ONLY, FOR RACK UNITS SKIP TO STEP 4)**

Locate the Local/Remote Dip switch and set to “LC” at the head end or “RM” at the camera end.
Locate the Local/Remote push button switch (coax units only), and set to the same setting as the dip switch.
The factory setting for these switches is “RM”.
The EC-1508xL-R and EC-1516xL-R units are preconfigured as Local devices.

**4 - CONNECT EXTENDED WIRING**

Connect Extended Distance Port to field wiring.

**5 - CONNECT NETWORK WIRING**

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

**6 - CONNECT POWER**

Connect power to unit per the following table:

**Table 1 – Power Connections per Use Case**

| Unit | Local Power | Pass-Through PoE |
|---|---|---|
| **EC-1501x-M** | 12 to 32 VDC or 18 to 32 VAC<br><br>Recommended Power Supply:<br>Pelco Part# ECPS-12VDC-0.5A† (12V 0.5A) | No external power required |
| **EC-1504x-W** | 12 VDC (9 VDC† when in a USRACK or EURACK)<br><br>Recommended Power Supply: Pelco Part# ECPS-12VDC-0.5A† (12V 0.5A) | |
| **EC-1508xL-R**<br>**EC-1516xL-R** | 12 VDC<br>Recommended Power Supply: Pelco Part# ECPS-12VDC-3A (12V 3A)†<br>or ECPS07-12VAC-3A † | |

† Contact Pelco pre-sales support, or refer to the appropriate installation and operation manual when configuring and specifying power for a deployment.

**7 - VERIFY FUNCTIONALITY**

See LED table below and Troubleshooting Guide if corrective action is needed. See figures beginning on page 6 for LED configurations for each model.

**Table 2 – Indicating LEDs**

| | PWR | Ethernet Link | Ethernet Activity | EXT LNK |
|---|---|---|---|---|
| **GREEN** | Power Applied | – | Activity Detected | 10Mbps |
| **YELLOW** | – | Link Established | – | 100Mbps |
| **OFF** | Power Off | No Link | No Activity | No Link |

## APPLICATION NOTES

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

2 All Non-PoE systems require local power.

3 PoE powered operation requires that a PoE Camera be connected, and that the camera power requirements are understood.

4 Multiple Channel units (EC-1504x-W, EC-1508xL-R, EC-1516xL-R) require 12 VDC for proper operation. The EC-1504x-W can be used in a USRACK or EURACK with 9 VDC†.

5 Single Channel unit (EC-1501x-M) require power for all Non-PoE applications. Local power can be used in PoE application to minimize PoE consumption.

6 Lower data rates generally provide longer operating distances.

7 Rack units (EC-1508xL-R, EC1516xL-R) are pre-configured for Local (LC) and have no configurable Local/Remote switch. Any unit connected to one of these rack units via an extended distance port must be configured as Remote (RM) for proper operation.

## TABLE 3 – APPROXIMATE MAXIMUM EXTENDED DISTANCES[1]

| Media | COAX - RG59/U | | UTP - 4 pair | |
|---|---|---|---|---|
| **Camera Data Rate** | 10M | 100M | 10M | 100M |
| **Non-PoE Camera[1]** | 5,000 ft<br>1,524 m | 1,800 ft<br>549 m | 3,000 ft<br>914 m | 2,000 ft<br>610 m |
| **PoE CLASS2 Camera (6.5W)[1]** | 3,000 ft<br>914 m | 1,800 ft<br>549 m | 3,000 ft<br>914 m | 2,000 ft<br>610 m |
| **PoE CLASS3 Camera(13W)[1]**<br>**(10W in Pass-Through mode)** | 750 ft<br>228 m | 750 ft<br>228 m | 750 ft<br>228 m | 750 ft<br>228 m |

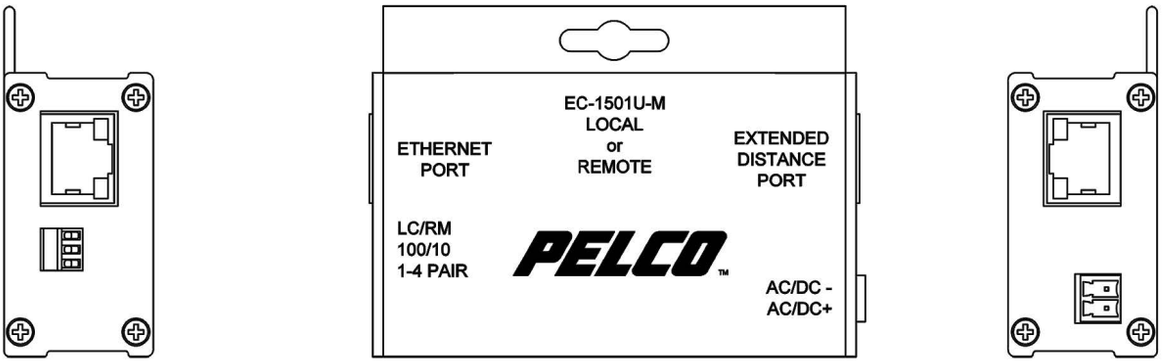
*[1] See www.pelco.com for latest spec. Distance figures are based on a 50V PSE PoE power source, and external power supplies for the extenders. Distance figures are obtained using in-house testing mirroring installations. Factors such as coaxial/copper cable quality, the number of connectors/ splices 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. Due to advanced negotiation signaling required in IEEE 802.3at applications, Pass-through applications are limited to IEEE 802.3af PD devices only.*

*[2] PoE over extended distance is not available in 1 Pair mode. Remote PoE injection is required for this case.*

## TABLE 4 – TROUBLESHOOTING GUIDE

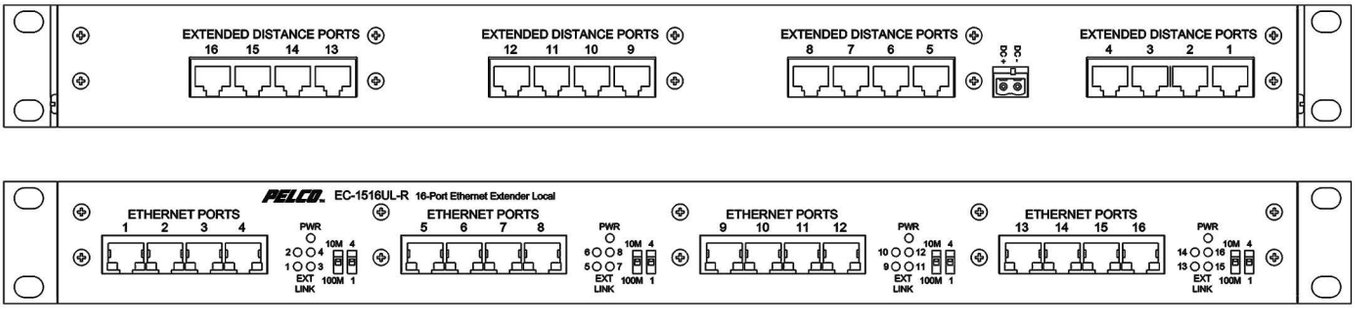
| Problem | Steps to Take |
|---|---|
| Indicating LEDs not lighting | Non-PoE: Check that power is properly applied to the unit<br>PoE: Check that PoE camera is connected, PoE source is enabled. |
| No Communication | Check Ethernet Link LEDs, Extended Link LEDs, All Connections, Local/Remote and 10/100 switches are set properly. Verify that Local units are installed at the head end and that Remote units are installed in the field. |
| Bad Video | Make sure Data Rate Switch is set properly, and the extended distance is within specifications (see Table 3 – Approximate Maximum Extended Distances). |
| PoE Not Supplied to PD | Make sure camera is IEEE 802.3af rated, PoE Source switch is 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 CAT5/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. |

## SINGLE CHANNEL UTP UNITS

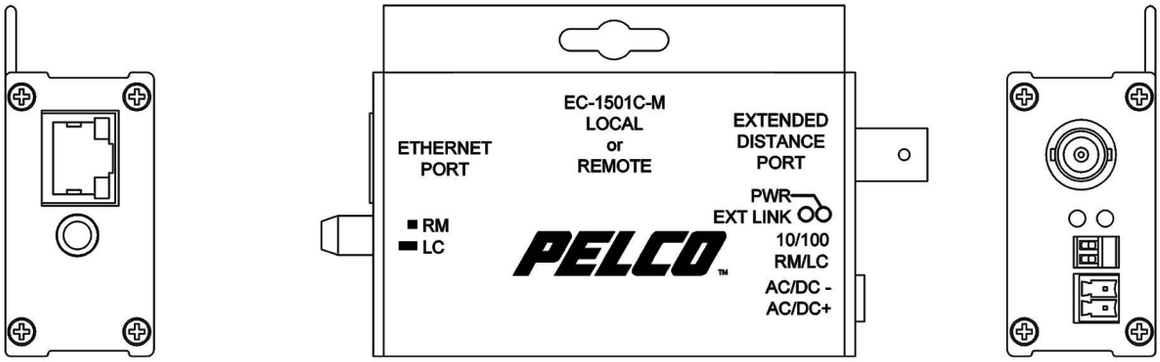



## FOUR CHANNEL SURFACE OR RACK MOUNT UTP UNITS

## MULTICHANNEL RACK UTP UNITS

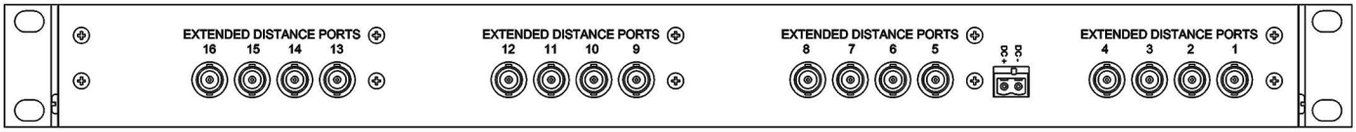


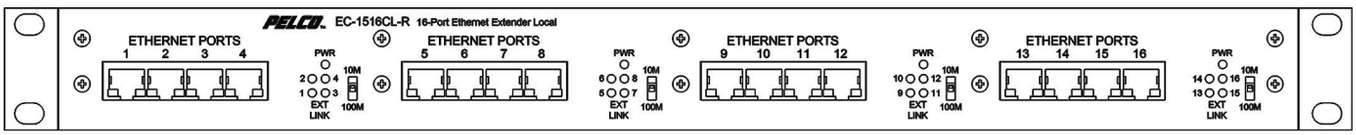
## SINGLE CHANNEL COAX UNITS




## FOUR CHANNEL SURFACE OR RACK MOUNT COAX UNITS

## MULTICHANNEL RACK COAX UNITS



**PRODUCT DIMENSIONS**

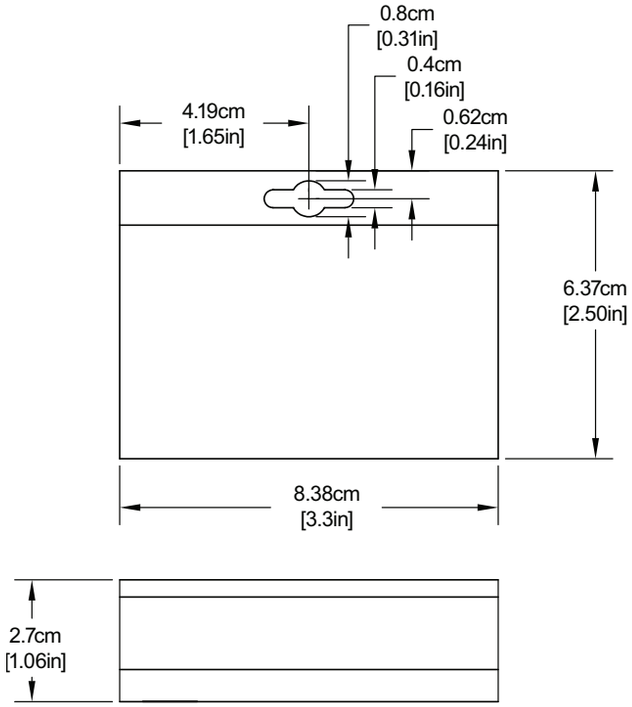
The EC-1501x-M is supplied as a standalone/surface mount (small size) module.

The EC-1504x-W is supplied as a standalone/surface/rack (standard size) module.

The EC-1508xL-R and EC-1516xL-R are supplied as 19″ wide rack units for standalone or rack installation.

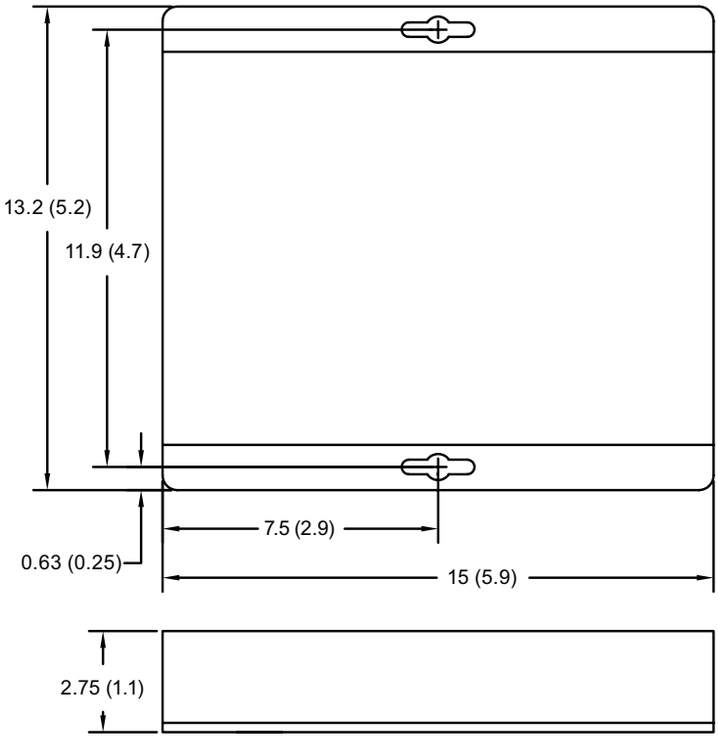
## FIGURE A

*Dimensions are for a small size module*



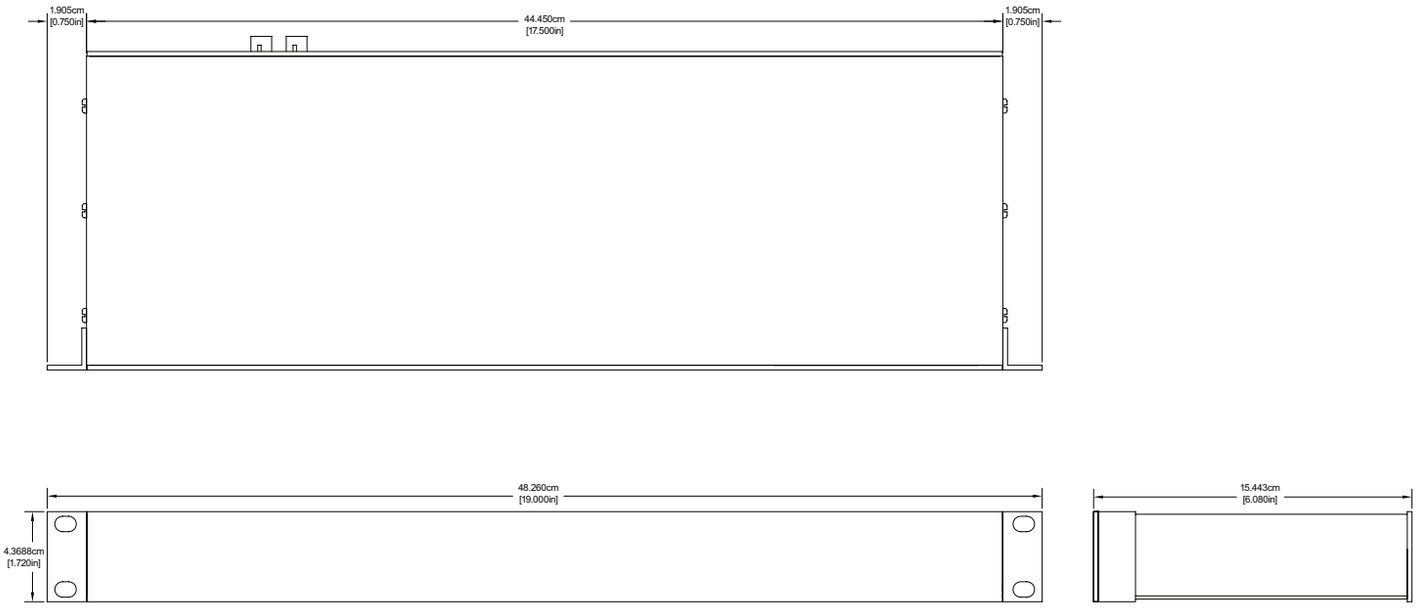

## FIGURE B

*Dimensions are for a standard size module*




## FIGURE C

*Dimensions are for a EthernetConnect 19" Rack Unit*



**INSTALLATION CONSIDERATIONS**
Units should be installed in dry locations protected from extremes of temperature and humidity.

**CARD CAGE RACKS**

**CAUTION:** Although the rack mount modules are hot-swappable and may be installed without turning power off to the rack, Pelco 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.

**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.

**ADDITIONAL CONSIDERATIONS**
Units should be installed in dry locations protected from extremes of temperature and humidity.

**WARNING:** Units are to be used with Listed Class 2 power supplies.

**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 operating temperature specified in the data sheet.

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.

**WARRANTY STATEMENT**
For information about Pelco's product warranty and thereto related information, refer to www.pelco.com/warranty.

This equipment contains electrical or electronic components that must be recycled properly to comply with Directive 2002/96/EC of the European Union regarding the disposal of waste electrical and electronic equipment (WEEE). Contact your local dealer for procedures for recycling this equipment.

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