



Cathode Systems of America LLC

Installation Instructions

France™ 150ma and 200ma/E~Tech™ 120ma and 240ma Ballast Operated
Cold Cathode System with Lamp Holders

Installation Instructions

France™ 150ma and 200ma Ballast Operated Cold Cathode System with Lamp Holders

Follow these instructions for the installation of this type of cold cathode lighting system.
(Under 1000V normal or high power factor ballasts)

Installation of the Ballast

- Mount ballast to a metal stud or structure capable of supporting the weight. Attach ballast with a minimum of two, preferably four, bolts or screws. Each bolt or screw must be capable of supporting the entire weight of the ballast.
- Ballast must be installed in a readily accessible space.
- Ambient temperature must not exceed 100 F.
- Securely mount the ballast no more than seventy five (75) feet from the lamp holders. Always keep this distance as short as possible.
- Remove primary and secondary compartment covers and conduit knockouts. Install primary conduit to primary wiring compartment..
- Using the primary service wire, connect the line and neutral service wires to the corresponding wires within the ballast primary wiring compartment with correctly sized wire nuts.
- Connect the service ground wire to the ballast ground wire with correctly sized wire nuts.

One Lamp Normal Power Factor Ballast Wiring

- Use UL listed #16 stranded or solid copper wire rated at 1000V.
- Wire nut an additional white neutral feed to the primary neutral wire inside the primary wiring compartment of the ballast. Run this feed through UL listed ½” conduit to one of the lamp holders.
- Cap off the red wire within the secondary wiring compartment. The blue lead is then run through UL listed ½” conduit to the remaining lamp holder.
- Note: Dimmers may only be used on normal power factor ballasts.
- When using series 212 or ILLV type lamp holders connect conduit to junction boxes via conduit connectors and make electrical connection inside.

Two Lamp Normal and High Power Factor Ballast Wiring

- Wire nut an additional white neutral feed to the primary neutral wire inside the primary wiring compartment of the ballast. Run this feed through UL listed ½” conduit to the intermediate 212 or ILLV type lamp holder junction box and mechanically connect this wire in the porcelain housing.
- Run the red lead through UL listed ½” conduit to one end feed lamp holder.
- Run the blue lead through UL listed ½” conduit to the remaining end feed lamp holder.
- Note: Dimmers may only be used on normal power factor ballasts.

Installation Instructions for the France™ 150ma and 200ma Ballast Operated Cold Cathode System with Lamp Holders (continued)

Installation of Tube Supports

- Tube supports are used as additional lamp supports when curved or angled lamps are used or if lamps are mounted to the ceiling.
- Tube supports are mounted with retaining screws.

Installation and Removal of Lamps

- Always wear leather gloves when installing or removing lamps.
- Remember that lamps must be fully inserted into the bronze clip to insure a proper electrical connection.
- Install:
 1. Hold the lamp as close to the electrode as possible.
 2. Insert the electrode into the lamp holder and gently push until brass cap on the electrode is inserted into the bronze clip.
- Remove:
 1. Grasp the lamp as close to the electrode as possible.
 2. Gently push out lamp by pressing against the top of the lamp holder with your thumb.
 3. Repeat at the opposite end.

***Installation must be in total compliance with the National Electric Code, Underwriters Laboratory and all applicable local codes.

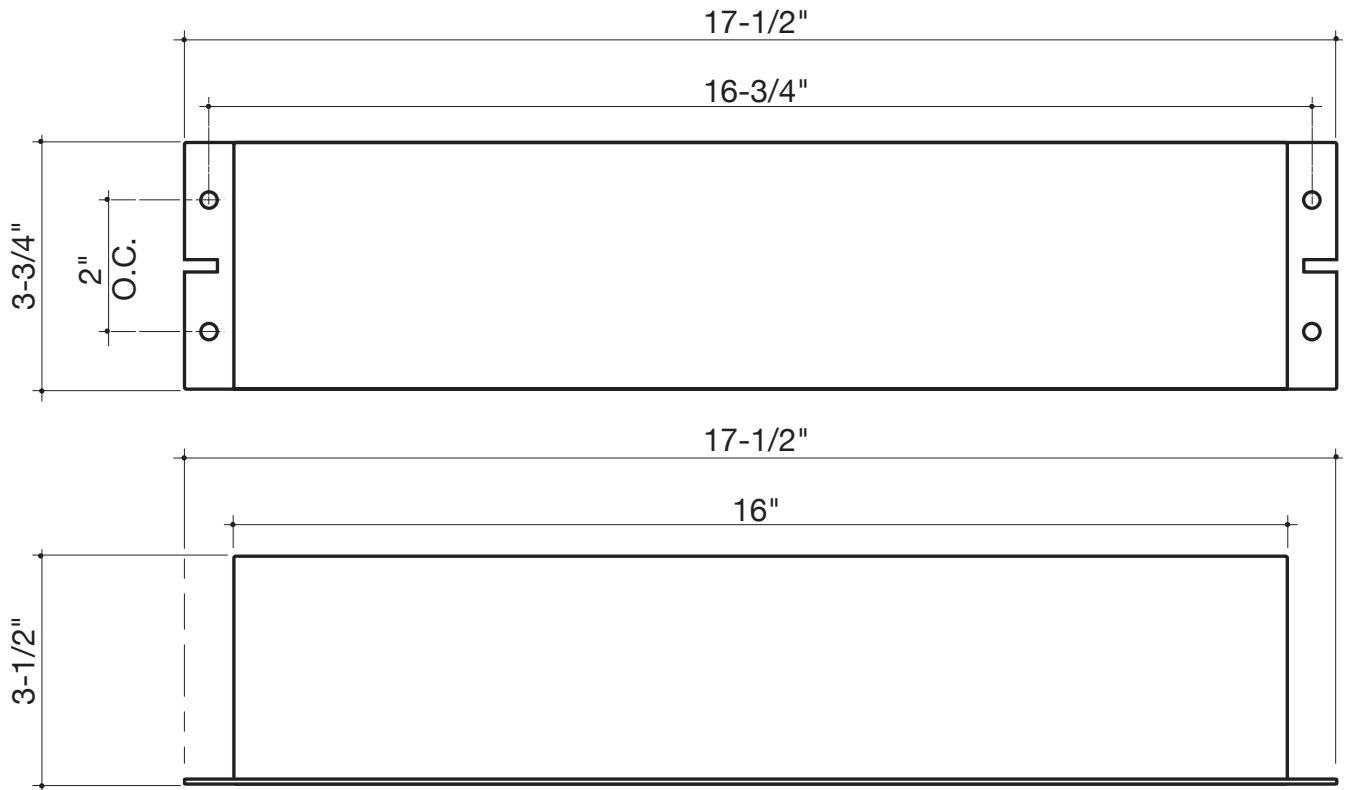
FRANCE™ 150ma and 200ma Ballast Operated Cold Cathode Lighting System Elevations and Specifications

Normal Power Factor (One or two lamps)

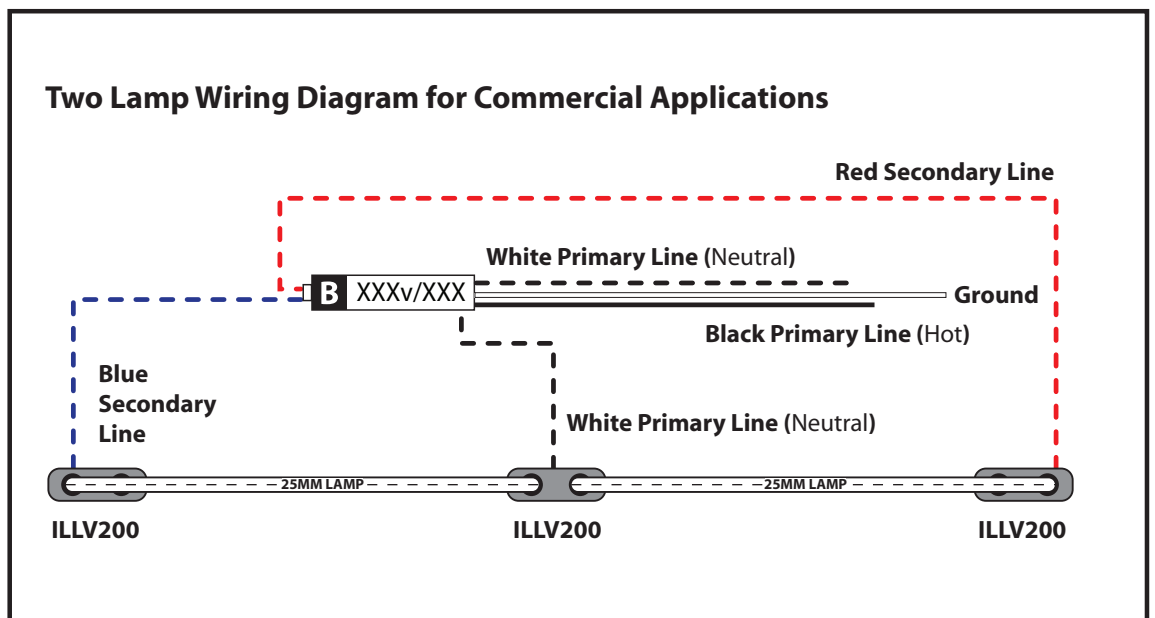
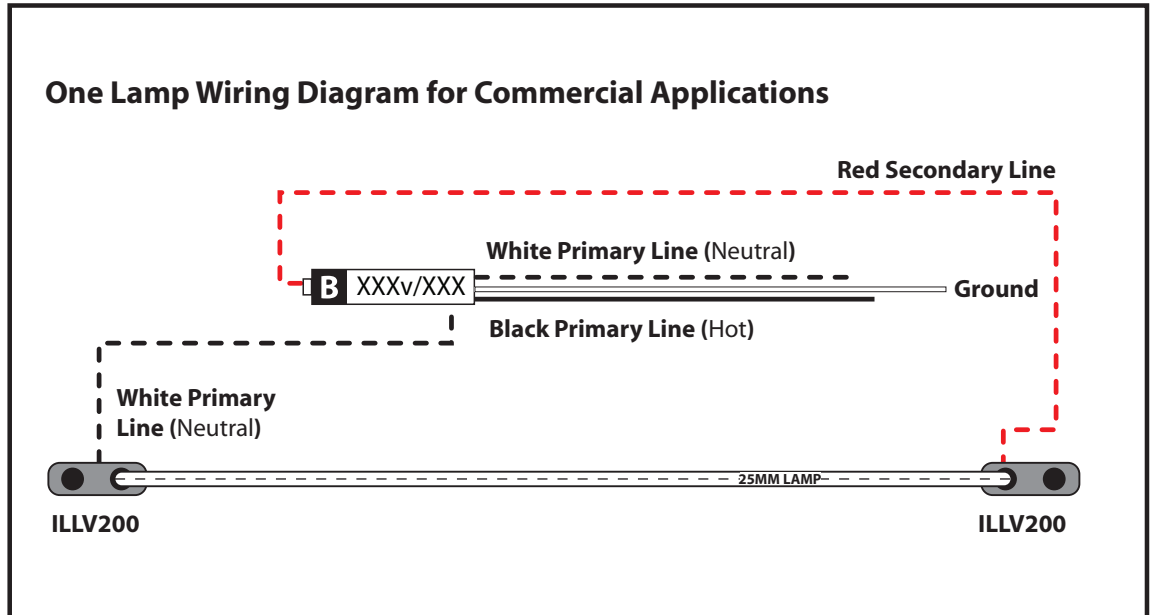
Lamp Footage		Primary				Secondary		Lead Length	Weight (lbs.)
Min	Max	Volts	Hz.	V.A.	Amps	Volts	MA		
8'	16'	120	60	360	3.0	990	150	10"	20
8'	16'	120	60	450	3.7	990	200	10"	21
8'	16'	277	60	415	1.5	990	150	10"	20
8'	16'	277	60	470	1.7	990	200	10"	21

High Power Factor (Two lamps)

Lamp Footage		Primary				Secondary		Lead Length	Weight (lbs.)
Min	Max	Volts	Hz.	V.A.	Amps	Volts	MA		
8'	16'	120	60	240	2.0	990	200	10"	21
8'	16'	277	60	249	0.9	990	200	10"	21



**FRANCE™ 150ma and 200ma Ballast Operated Cold Cathode Lighting System
 One and Two Lamp Wiring Diagrams**



Installation Instructions

E~Tech™ 120ma and 240ma Ballast Operated Cold Cathode System with Lamp Holders

*Follow these instructions for the installation of this type of cold cathode lighting system.
(Under 1000V normal power ballasts)*

Installation of the Ballast

- Mount ballast to a metal stud or other solid structure capable of supporting the weight. Attach ballast with a minimum of two, preferably four, bolts or screws. Each bolt or screw must be capable of supporting the entire weight of the ballast.
- Ballast must be installed in a readily accessible space.
- Ambient temperature not to exceed 40 C.
- When not using a raceway, attach and use the optional wiring compartments for all primary and secondary connections. When using the optional wiring compartments, always mechanically bond to case and green wire using star washers to break paint surface.
- Connect primary conduit to primary wiring compartment. Ensure that polarity is correct. Black is hot and White is neutral.
- Insure that the ballast is properly grounded using the green ground wire.
- Metallic or non-metallic conduit operated at 100Hz or less, shall be spaced 2" apart and at least 1 ½" from grounded or bonded parts.
- The secondary leads should be run through UL listed non-metallic conduit. If metallic conduit is used, **DO NOT**, under any circumstances, install more than one lead in each conduit.
- Keep secondary leads as short as possible.
- Maximum lead lengths: Do not use with secondary lead lengths longer than 13 ft. in metallic conduit or 25 ft. in non-metallic conduit. Use of lead lengths in excess of these lengths will cause ballast damage.

Installation of the Lamps

- Wiring of one lamp @ 120ma: Connect one blue lead and one red lead to the electrodes of the tube. Cap off the remaining leads so as to isolate them from any conductive material.
- Wiring of two lamps @ 120ma: Connect one set of blue and red leads to the electrodes of the first tube, then connect the second set of blue and red leads to the electrodes of the second tube.
- Wiring of one lamp @ 240ma: Connect both blue leads together and attach to one electrode. Connect both red leads together and attach to the other electrode.

Installation Instructions for the E~Tech™ 120ma and 240ma Ballast Operated Cold Cathode System with Lamp Holders (continued)

Installation of the Lamp Holders

- Mount lamp holders securely at designated locations with appropriate fasteners. On porcelain 211 type lamp holders, care should be taken in tightening the fasteners. Over tightening can crack the porcelain. Tighten fasteners by hand. Slide conduit over lamp holder nipple and clamp in place. Make high voltage connection inside.
- Using 212 and ILLV type lamp holders connect conduit to junction boxes via conduit connector and make high voltage connection inside.

Installation of Tube Supports

- Tube supports are used as additional lamp supports when curved or angled lamps are used or if lamps are mounted to the ceiling.
- Tube supports are mounted with retaining screws.

Installation and Removal of Lamps

- Always wear leather gloves when installing or removing lamps.
- Remember that lamps must be fully inserted into the bronze clip to insure a proper electrical connection.
- Install:
 1. Hold the lamp as close to the electrode as possible.
 2. Insert the electrode into the lamp holder and gently push until brass cap on the electrode is inserted into the bronze clip.
- Remove:
 1. Grasp the lamp as close to the electrode as possible.
 2. Gently push out the lamp by pressing against the top of the lamp holder with your thumb.
 3. Repeat at the opposite end.

***Installation must be total compliance with the National Electric Code, Underwriters Laboratory and all applicable local codes.

E-Tech™ 120MA and 240MA Ballast Operated Cold Cathode Lighting System Elevation & Specifications



Model:

2CC416-1 (120VAC Unit)
 2CC416-2 (240VAC Unit)
 2CC416-3 (277VAC Unit)
 UL Listed 935



Electronic Power Supply for Indoor and Outdoor Protected Use

Features:

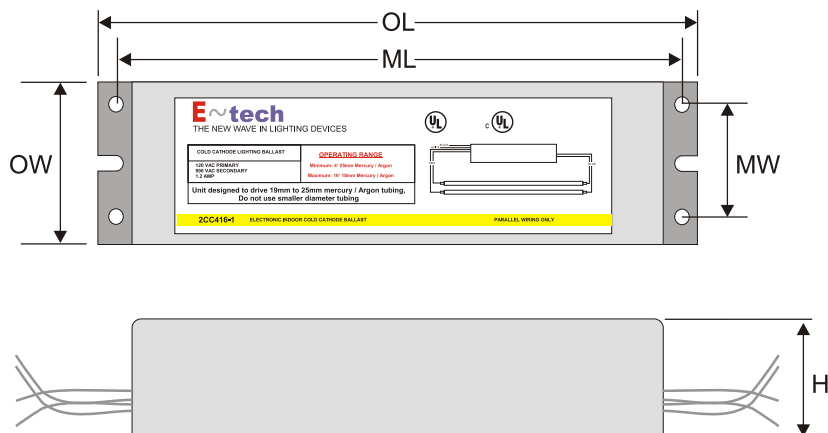
Self adjusting output.
 Fully dimable without flicker (To 10%)
 EMI Filtering
 Light Weight

Electrical Specifications:

	2CC416-1	2CC416-2	2CC416-3
Input Voltage:	120 VAC	240VAC	277VAC
Input Frequency:	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Input Current @ Rated Load:	1.6A	0.8A	0.7A
Output Voltage:	<1000 VAC RMS		
Output Current:	120 mA RMS		

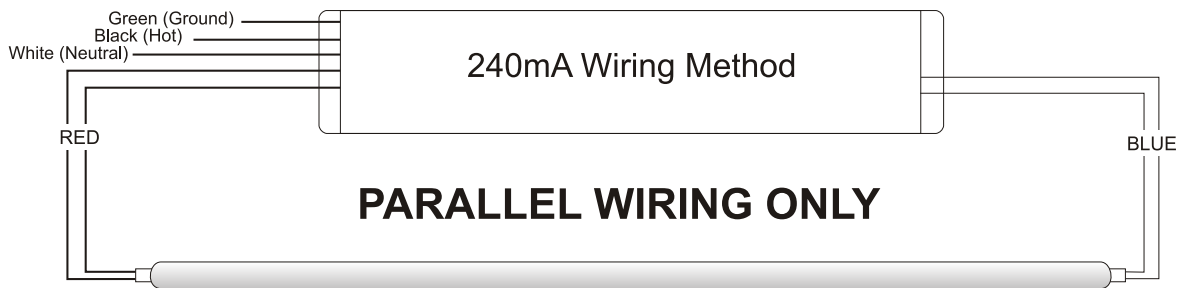
Mechanical Specifications:

Weight:	2.4 Lbs
Height (H):	1.75"
Width (OW):	2.30"
Mounting Width (MW):	1.70"
Length (OL)	8.50"
Mounting Length (ML):	7.90"



**E-Tech™ 120MA and 240MA Ballast Operated Cold Cathode Lighting System
 One and Two Lamp Wiring Diagrams**

One Lamp Wiring Diagram

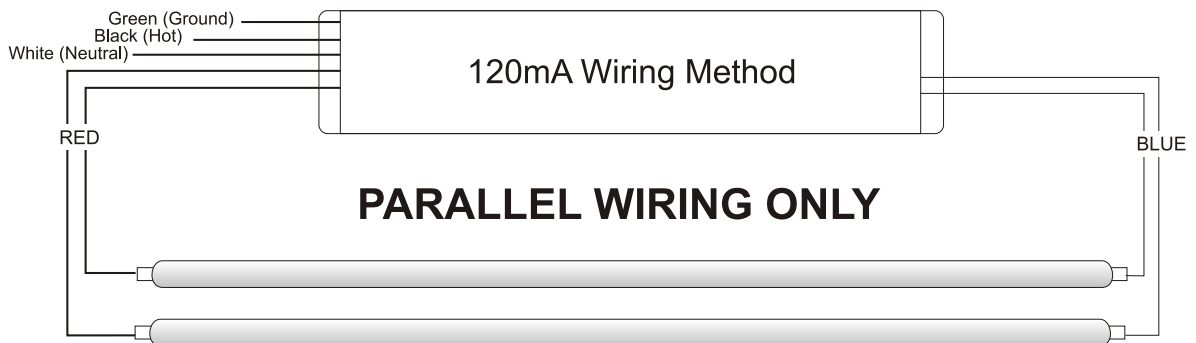


Single Lamp Only

25mm Mercury / Argon
 Minimum: 4 Feet
 Maximum: 8 Feet

18mm Mercury / Argon
 Minimum: 3 Feet
 Maximum: 6 Feet

Two Lamp Wiring Diagram


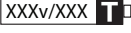
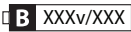








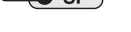


25mm Mercury / Argon
 Minimum: 4 Feet
 Maximum: 16 Feet

18mm Mercury / Argon
 Minimum: 3 Feet
 Maximum: 12 Feet

Cold Cathode System Symbols

Cold Cathode Symbol Descriptions

	Junction Box
	Transformer
	Ballast
	Primary Feed
	Secondary Feed
	Recessed or Surface Intermediate Side View
	Recessed or Surface Feed Side View
	Lamp
	Recessed Intermediate
	Recessed Feed
	Surface Intermediate
	Surface Feed

Transformer or ballast:

These are the power sources that step up the current to a voltage high enough to light the lamps.

Secondary feed:

Delivers the power from the transformer or ballast to the lamp.

Surface or Recess mounted lamp holders:

Surface or recess feed lamp holders contain the secondary feed connection from the transformer or ballast. Surface or recessed intermediate lamp holders connect lamp to lamp.

Lamps:

For architectural and design purposes the lamps can be manufactured to conform to any interior or exterior surface.

Note:

- 120ma transformer operated Cold Cathode systems are not UL listed for residential use.
- Only UL listed Cold Cathode housings may be used, as PK housings and spring contact housings pose a fire risk.
- 120Ma, 150ma, 200ma and 240ma ballasts may be used in residential applications with circuit interrupt intermediate lamp holders.
- In Cold Cathode wet applications, transformers or ballasts must be placed in NEMA enclosures. Lamp holders, conduit and lamps must be protected by a polycarbonate lens. Gaps and penetrations must be sealed.



Installation of Polycarbonate Lens for Exterior Wet Condition Cold Cathode Systems

- Install polycarbonate lens with neoprene gasket contacting lens flange and mounting surface. Make sure that both sides of the lens are level.
- Use supplied stainless steel screws to attach polycarbonate lens. The lens flange has predrilled holes on both sides 18 inches apart on center.
- Install the aluminum end cap with supplied stainless steel screws.
- Seal any gaps or open penetrations with silicon caulking.
- Installer is to use UL listed exterior rated conduit. Conduit to enter through aluminum end cap knockout. Again, seal any gaps or open penetrations with silicon caulking.
- Lens exceeding 96” in length shall be joined using supplied lap joint connector and nylon pop rivets.