



Cold Cathode Lighting System

Installation Instructions

150MA and 200MA Ballast Systems



Cold Cathode Lighting System

Installation and Troubleshooting Instructions for 150MA and 200MA Ballast Systems

Follow these instructions for the installation of this type of cold cathode lighting system.
(Under 1000V normal and high power factor ballasts) **Page 1 of 3**

A. Ballast Location

1. Mount ballasts as close as possible to feed lampholders. Do not exceed 75'.
2. Ambient temperature shall not exceed 100° F.
3. Ballast must be installed in a readily accessible space.
Above a lay-in ceiling or in an electrical closet are ideal.

B. Ballast Mounting

1. Mount ballasts to a metal structure capable of supporting its weight (approx. 25 lb.)
2. Attach ballast with a minimum of two (2) bolts or screws. Each bolt or screw must be capable of supporting the entire weight of the ballast.

C. Conduit From Ballast to Lampholder

1. Conduit to be ½ metallic or non-metallic liquid tight flexible.
2. Install conduit with a drag line after ballast and lampholders have been installed.
3. Conduit for ballast wiring shall be installed in compliance with NEC requirements and shall not exceed 75' in length.
4. Conduit to be installed in the most direct route possible between the ballast and feed lampholders.
5. Slide 1/2" conduit over feed lampholder nipple and secure in place with a hose clamp. The nipple is porcelain so care must be taken to secure conduit in place without applying too much pressure, which may crack the porcelain.
6. Avoid sharp bends in insulated conductors.
7. Install UL listed conduit clamps or non-metallic Sealtite 6" from each feed lampholder and additional UL listed conduit clamps every 48" thereafter.
8. Non-metallic conduit or flexible non-metallic conduit, when operated at 100Hz or less, shall be spaced at least 1-1/2" from grounded or bonded parts.

D. Wiring the Primary Circuit of the Ballast

1. Ballasts are 120V or 277V at 60Hz on the primary side and must be powered by a dedicated and grounded circuit.
2. Use #16 stranded or solid copper wire rated at 1000 volts.
3. Wiring methods must be in accordance with NEC and applicable local codes.
4. Ballasts are dimmable if they are Normal Power Factor 120V units.
5. Ballasts are NOT dimmable if they are High Power Factor units.
6. The black (hot) ballast and white (neutral) circuit feed are connected to the black and white leads inside the ballast primary wiring compartment with correctly sized wire nut.
7. Make sure that ground wire is connected within the primary wiring compartment with correctly sized wire nut.



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Two Lamp Normal and High Power Factor Wiring

E. Wiring Primary Circuit of the Ballast

1. An additional white neutral feed is wire nuted to the two neutral within the primary wiring compartment. Run this feed through conduit to the intermediate lampholder junction box.

F. Wiring Secondary Circuit of the Ballast

1. Starting at the secondary wiring compartment of the ballast and using correctly sized wire nuts.
 - A. A red lead is run through conduit to one of the end feed lampholders.
 - B. A blue lead is run through conduit to the remaining end feed lampholders.

Note: Dimmers may only be used on Normal Power Factor 120 V ballasts.
Dimmers are to be wired to the black hot primary lead.

G. Lampholder Installation

1. Mount feed and interconnect lampholders junction boxes at designated locations with appropriate fasteners.
2. Wire neutral or secondary ballast leads to brass wire connector on porcelain lampholders.
3. Screw porcelain lampholder into junction box.

Note: Lampholders are porcelain and over tightening can crack the housing-hand tighten only.
Do not use power equipment to tighten fasteners.

H. Tube Supports

1. Tube supports are additional lamp securements used when:
 - A. Curved or angled lamps are used.
 - B. Lamps are mounted to the ceiling facing down.
2. Supports are surface mounted with retaining screws.

I. Installation and Removal of Lamps

1. Lamps must be fully inserted into the lampholder to insure good electrical contact.
2. Wear leather gloves when installing or removing lamps.
3. To install:
 - A. Hold the lamp as close to the electrodes as possible.
 - B. Insert electrodes into lampholders.
 - C. Gently push each end into lampholder.
4. To remove:
 - A. Grasp lamp end with fingers.
 - B. Gently push out lamp by pressing against top of lampholder with thumb.
Repeat procedure on the opposite end to complete removal.



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One Lamp Normal Power Factor Wiring

J. Wiring Primary Circuit of the Ballast

1. An additional white neutral feed is wire nuted to the two neutral within the primary wiring compartment. Run this feed through conduit to one feed lampholder.

K. Wiring Secondary Circuit of the Ballast

1. Starting at the secondary wiring compartment of the ballast and using correctly sized wire nuts:
 - A. Cap off the blue lead within the ballast compartment. The red lead is run through conduit to the remaining feed lampholder.

NOTE:

Dimmers may only be used on Normal Power Factor 120V ballasts.
Dimmers are to be wired to the black hot primary lead.

L. Lampholder Installation

1. Mount feed and interconnect lampholders junction boxes at designated locations with appropriate fasteners.
2. Wire neutral or secondary ballast leads to brass wire connector on porcelain lampholders.
3. Screw porcelain lampholder into junction box.

NOTE:

Lampholders are porcelain and over tightening can crack the housing-hand tighten only.
Do not use power equipment to tighten fasteners.

M. Tube supports

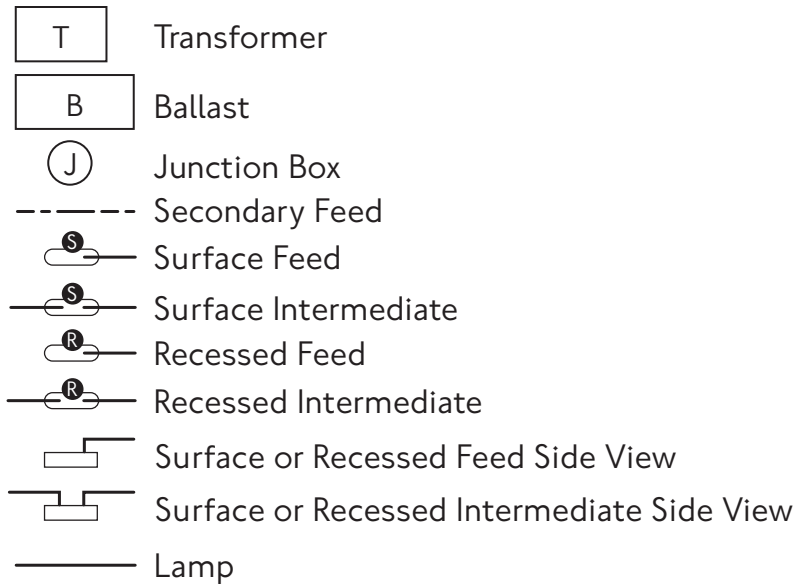
1. Tube supports are additional lamp securements used when:
 - A. Curved or angled lamps are used.
 - B. Lamps are mounted to the ceiling facing down.
2. Supports are surface mounted with remaining screws.

N. Installation and Removal of Lamps

1. Lamps must be fully inserted into the lampholder to insure good electrical contact.
2. Wear leather gloves when installing or removing lamps
3. To install:
 - A. Hold the lamp as close to the electrodes as possible.
 - B. Insert electrodes into lampholders.
- C. Gently push each end into lampholder
3. To remove:
 - A. Grasp lamp end with fingers
 - B. Gently push out lamp by pressing against top lampholder with thumb.
Repeat procedure on the opposite end to complete removal.



Cold Cathode System Symbols



Symbol Descriptions

Transformer or Ballast:

Steps up current to a higher voltage capable of lighting lamps.

Secondary Feed: Carries power from transformer to lamps.

Surface or Recessed Feed and Surface or Recessed Intermediate Lampholders:

1. Surface or recessed feed lampholders contain wiring connections from transformers to lamps.
2. Surface or recessed intermediate lampholders are the connections (or couplers) between the lamps.

Lamps:

Cold cathode lighting systems can be used for virtually any custom shaped lamps.

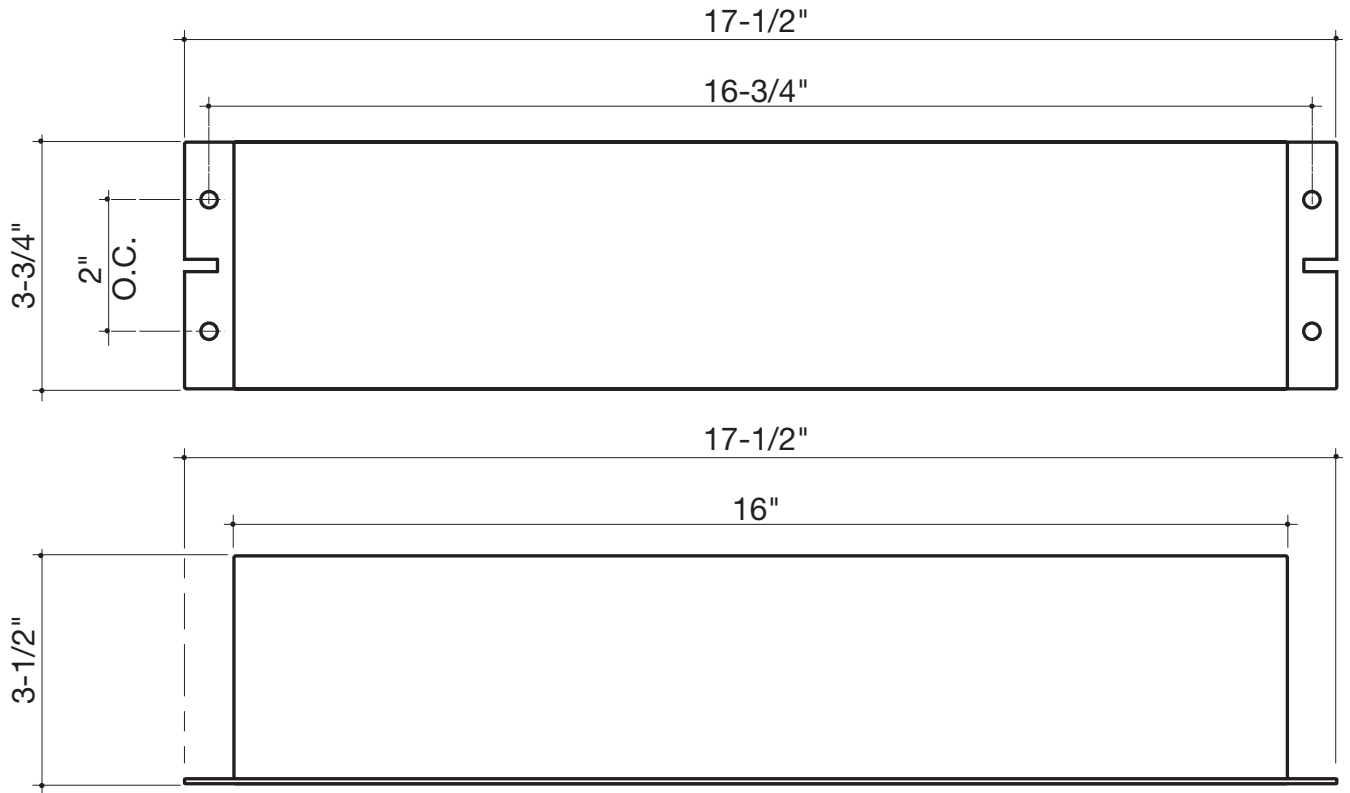
(a) Straight; (b) Curved; (c) Angular; (d) Free-formed

Note:

1. American Cathode's 120MA transformer lighting systems are not UL listed for residential use.
2. "PK" housings and/or spring contact housings are unacceptable as they pose a potential fire hazard.
3. 150MA and 200MA ballast may only be used in residential applications with circuit interrupt intermediate lampholders.
4. Wet applications require transformers or ballasts to be placed in NEMA enclosures, lampholders to be mounted within a #20 gauge steel 2-1/2" x 4-1/2" housings and that lampholders, conduit connecting lampholders and lamps must be protected from rain or snow by Lexan lens. All gaps and penetrations must be sealed with silicone.



High Lumen 150MA and 200MA Ballast Elevations Cold Cathode Lighting System



Normal Power Factor (One or two lamps)

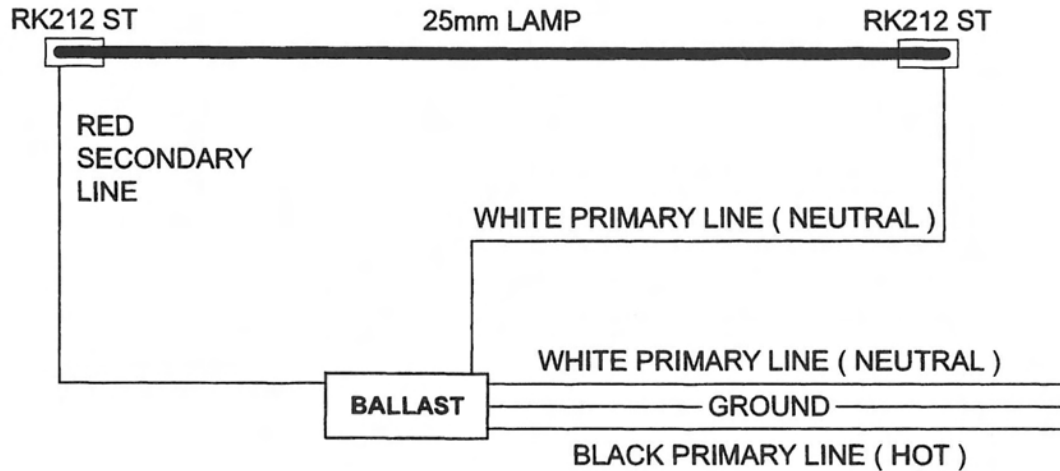
Lamp Footage		Primary				Secondary		Lead Length	Weight (lbs.)
Min	Max	Volts	Hz.	V.A.	Amps	Volts	MA		
8'	16'	120	60	360	3.0	990	150	10"	20
8'	16'	120	60	450	3.7	990	200	10"	21
8'	16'	277	60	415	1.5	990	150	10"	20
8'	16'	277	60	470	1.7	990	200	10"	21

High Power Factor (Two lamps)

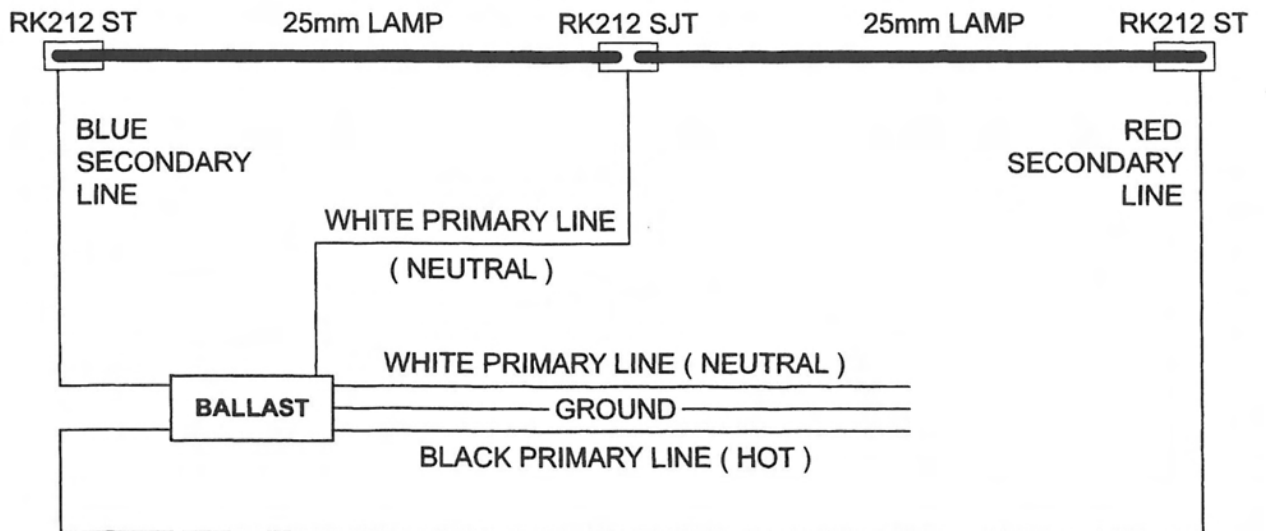
Lamp Footage		Primary				Secondary		Lead Length	Weight (lbs.)
Min	Max	Volts	Hz.	V.A.	Amps	Volts	MA		
8'	16'	120	60	240	2.0	990	200	10"	21
8'	16'	277	60	249	0.9	990	200	10"	21



High Lumen 150MA or 200MA Cold Cathode Lighting System
One Lamp Wiring Diagram for Commercial Applications



High Lumen 150MA or 200MA Cold Cathode Lighting System
Two Lamp Wiring Diagram for Commercial Applications





Installation of Polycarbonate Lens For Exterior Application of Cold Cathode Systems

1. Install lens with neoprene gasket contacting mounting surface. Make sure that in cross section, both sides of the lens are level.
2. Lens flange has mounting holes on both sides, spaced 24" on center. Use supplied stainless steel screws to attach lens.
3. Aluminum end caps are installed with supplied stainless steel self-drilling screws, three (3) screws per side.
4. Any gaps between lens and mounting surface are to be sealed with contractor grade silicone.
5. Contractor to use conduit rated for exterior application. Conduit to enter lens through 7/8" knockout on end cap. Seal any gaps between end cap and lens or conduit and end cap with contractor grade silicone.
6. Should lens exceed 96" in length, fitter lens to be attached using supplied off-white nylon pop rivets at lap joints.