



Cold Cathode Lighting System

Installation Instructions

120MA Transformer System



Cold Cathode Lighting System Installation and Troubleshooting Instructions for 120MA Transformer System

This Cold Cathode Transformer is Outdoor Type 4 Non-Weatherproof.

Installing the Cold Cathode Transformers (see installation diagrams)

- Securely mount the transformer no more than twenty feet (20') from feed lampholders, keeping this distance as short as possible. [Fifty (50') feet from lampholder with use of non-metallic conduit.]
- Remove transformer cover.
- Remove selected conduit knockouts from transformer's primary and secondary wiring compartments. Connect conduit to each secondary wiring compartment knockout location. (A separate conduit is required for each high voltage GTO wire.)
- Run the service wire through conduit and connect to primary wiring compartment.
- Connect the line (black 120 volt or red 277 volt) and neutral (white) service wires to the corresponding transformer wires within the primary wiring compartment.
- Connect the service grounding (green or bare) wire to the identified "Service Ground" terminal.
- From each first cold cathode feed housing, run the GTO wire through its own ½" non-metallic liquidtight flexible conduit, into the secondary wiring compartment. (These wires should be kept as short as possible, but may not exceed fifty (50'). Connect each GTO wire to its respective transformer secondary high voltage bushing.
- Slide ½" non-metallic liquidtight flexible conduit over feed lampholder nipple and secure conduit in place without applying too much pressure, which may crack the porcelain.
- Avoid sharp bends in insulated conductors.
- Install UL listed conduit clamps on non-metallic Sealtite 6" from each feed lampholder and additional UL listed conduit clamps every 4' thereafter.
- Securely tighten the Bakelite knobs (15 lbs. *minimum*. GTO wires should not be stripped more than ¼" from studs).
- Replace transformer cover.

NOTE:

1. Only Normal Power Factor (NPF) Transformers are dimmable.
2. Only one (1) GTO cable shall be installed per length on conduit. 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.
3. GTO, high voltage cable, shall not be smaller than No. 18.



Cold Cathode Lighting System Installation and Troubleshooting Instructions for 120MA Transformer System

Lampholder Installation

1. Mount models 211ST/RT feed and 211S/R interconnected lampholders securely at designated locations with correct fasteners. **Note:** *Lampholders are porcelain and over tightening can crack the housing. Hand tighten only. Do not use power equipment to tighten fasteners.*
2. On 211ST and 211RT model lampholders, remove safety lid by unscrewing nylon crown nut.
3. Wire secondary transformer GTO leads to screw in wiring compartment.

Tube Support

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

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 the electrodes as possible
 - B. Insert electrodes into lampholder
 - 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.
 - C. Repeat procedure on the opposite end to complete removal



Cold Cathode Lighting System Service Instructions

Danger! High Voltage

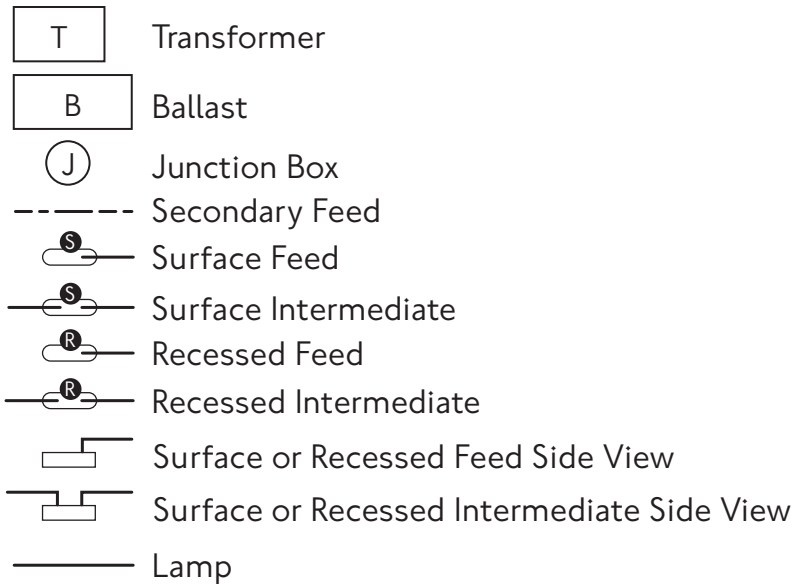
- Remove primary power before servicing the lamps or transformer in any way.
- Secondary-Circuit Ground-Fault Protected (SCGFP) transformers will NOT provide personal protection
- Service and/or installation should only be performed by qualified personnel.
- Do not assume that power is removed from transformer if ground fault trip occurs (The transformer will automatically make 3 attempts within approximately 10 seconds to reset).
- Installation must be in TOTAL compliance with the National Electric Code, the requirements of Underwriters Laboratory and applicable local codes.

Troubleshooting A Tripped Cold Cathode Transformer:

- Ensure the line and neutral wires are connected properly and are not reversed. Black or red wires should be "hot" while white wires should be neutral. The transformer will never energize the tubing if the line and neutral wire are reversed (i.e. the black or red wire is actually the neutral and the white wire is actually the hot wire).
- Verify the service grounding wire is actually grounded and is properly connected to the transformer's "Service Ground" terminal. Verify the transformer's identified service ground terminal is grounded via wire (or via the transformer mounting plate). A poorly grounded transformer will not turn on.
- Check for excessive leakage currents caused by moisture, tubing installed too close to metal, contaminated insulators or standoffs, or conductive debris such as insects, dirt, etc., between live high voltage components and ground.
- Check for electrical shorts or arcs from live high voltage components to ground.
- After the source of any fault is removed, the transformer can be reset by cycling the power switch "OFF" then "ON".



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.

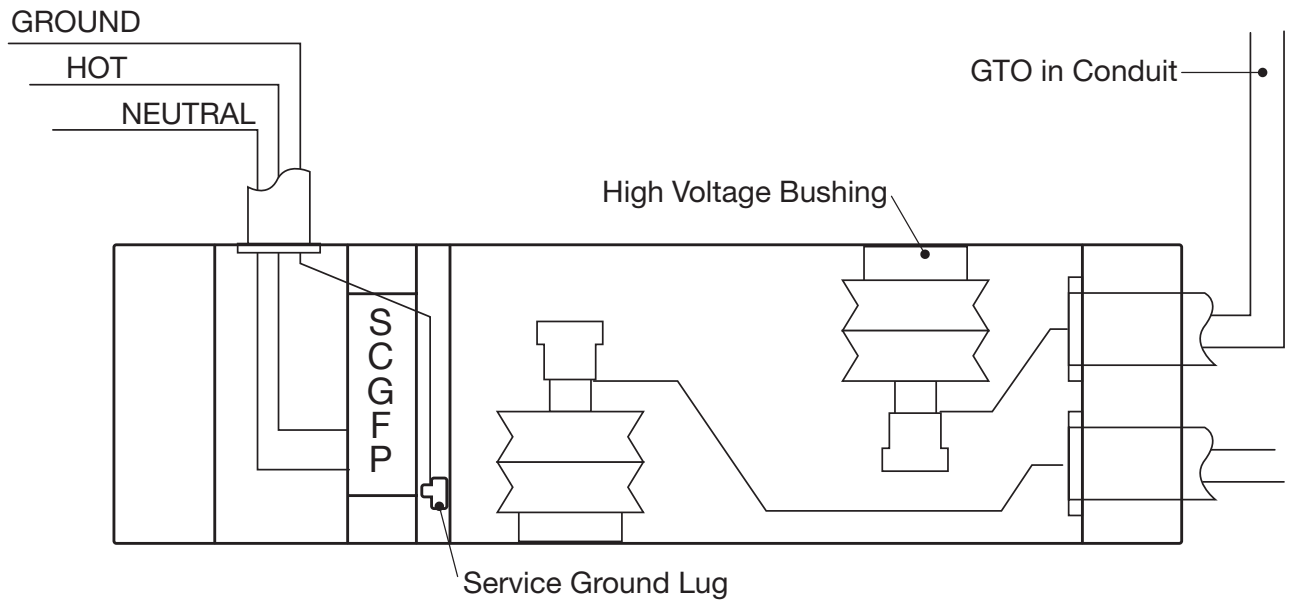
(a) Straight; (b) Curved; (c) Angular; (d) Free-formed

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.



Secondary Ground Fault Transformer Diagram A

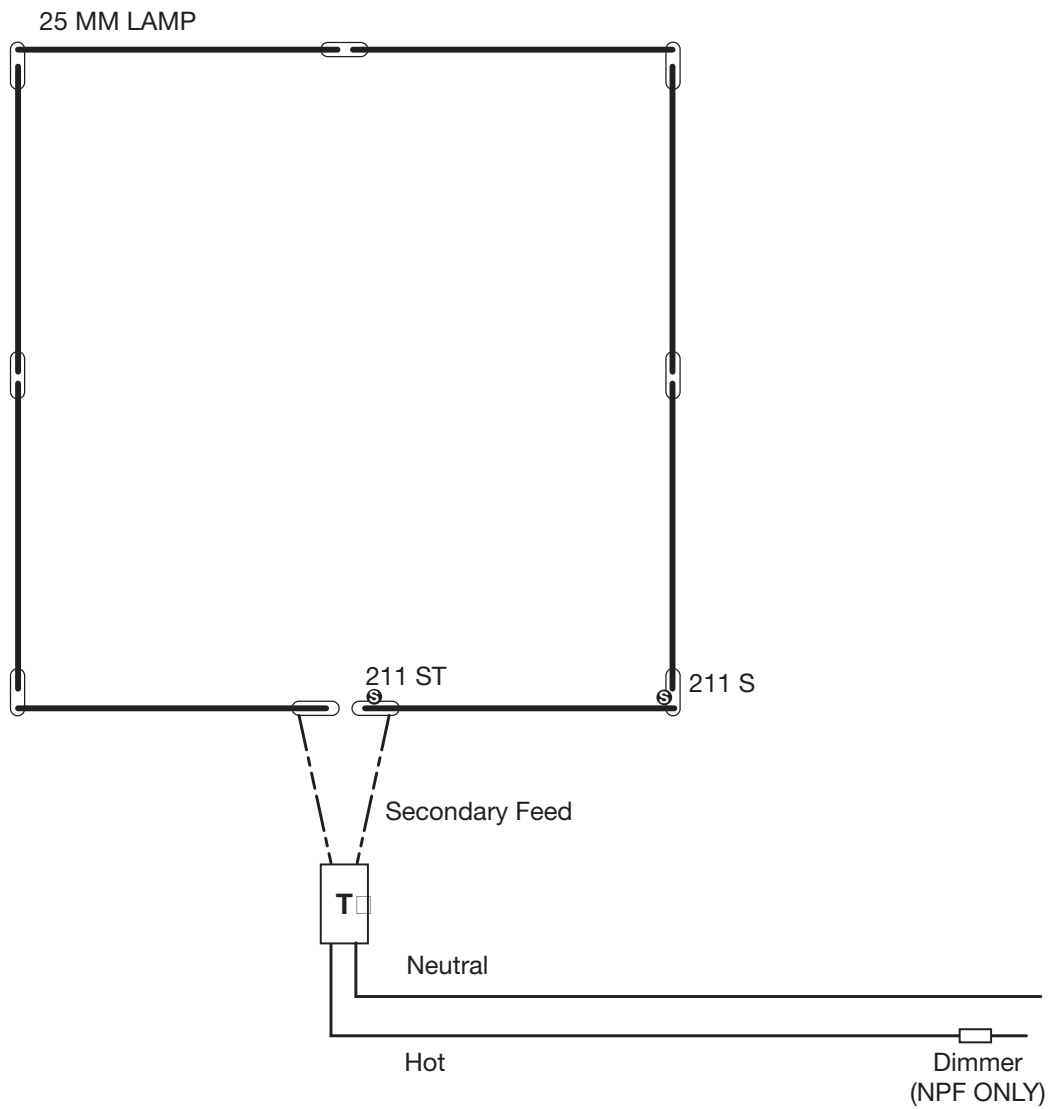


SECONDARY GROUND FAULT TRANSFORMER WIRING SCHEMATIC SECTION

NOT TO SCALE



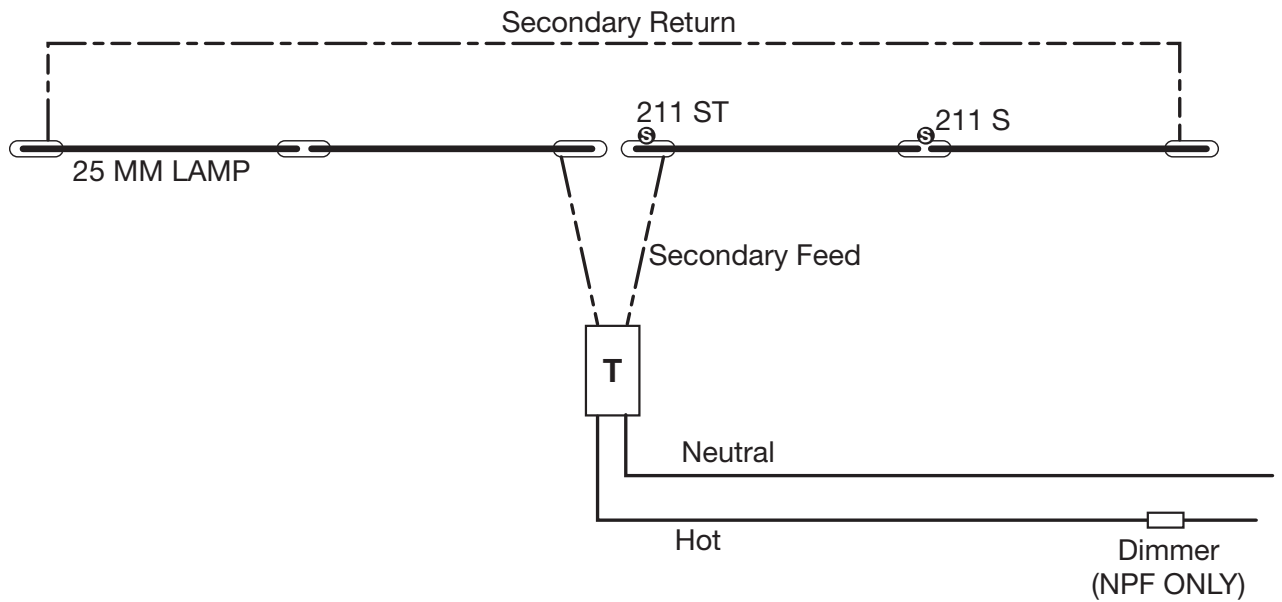
Typical Series Wiring Method Diagram B



TYPICAL SERIES WIRING METHOD
NOT TO SCALE



Typical Virtual Ground Wiring Method Diagram C - Normal Power Factor



TYPICAL VIRTUAL GROUND WIRING METHOD NOT TO SCALE



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.