Cathode Systems of America LLC

Installation Instructions

120ma Transformer Operated Cold Cathode System with Lamp Holders

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

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

Installation of the Transformer

- Mount transformer to a metal stud or other solid structure capable of supporting the weight. Attach transformer with a minimum of two, preferably four, bolts or screws. Each bolt or screw must be capable of supporting the entire weight of the transformer.
- Transformer must be installed in a readily accessible space.
- If using UL listed ½" metallic conduit securely mount the transformer no more than twenty (20) feet from the lamp holders. Always keep this distance as short as possible.
- If using UL listed ½" non-metallic conduit securely mount the transformer no more than fifty (50) feet from the lamp holders. Always keep this distance as short as possible.
- Take out screws and remove transformer cover.
- Select and remove conduit knockouts from the primary and secondary wiring compartments. Connect conduit to primary and secondary wiring compartments. Note that a separate conduit is required for each secondary high voltage line. Metallic or non-metallic conduit operated at 100Hz or less, shall be spaced at least 1 ½" from grounded or bonded parts.
- Using the primary service wire, connect the line and neutral service wires to the corresponding wires within the transformers primary wiring compartment.
- Connect the service ground wire to the service ground lug.
- Run each GTO high voltage wire through its own ½" conduit into the secondary wiring compart ment. Strip wire and connect each high voltage wire to a secondary high voltage lug. Securely tighten the Bakelite knobs to 15 ft. pounds.
- If using series 211 lamp holders use UL listed non-metallic flexible conduit only.
  Slide ½" non-metallic flexible conduit over feed lamp holder nipple and secure in place with clamp. Make mechanical electrical connection.
- If using series 212 or ILLV lamp holders, connect conduit via conduit connector to attached junction box and make mechanical electrical connection inside.

Installation Instructions for the 120ma Transformer Operated Cold Cathode System with Lamp Holders

(continued)

- Avoid any sharp bends in the conduit.

- Install UL listed conduit clamps six (6) inches from the lamp holders and every four (4) feet thereafter.

- Replace transformer cover with screws.

Installation of the Lamp Holders

- Mount lamp holders securely at designated location 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.
- Using 212 and ILLV type lamp holders connect conduit to junction boxes via conduit connector and make electrical connection inside.

Installation of tube supports

- Tube supports are used as additional lamp support 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 in total compliance with the National Electric Code, Underwriters Laboratory and all applicable local codes.

Cold Cathode Lighting System
Servicing Instructions

Danger! High voltage!

- Make sure that primary power is shut down prior to servicing lamps, ballasts or transformers.
- Secondary Circuit Ground Fault Protected transformers will NOT provide you with personal protection.
- Only qualified electricians should service these systems.

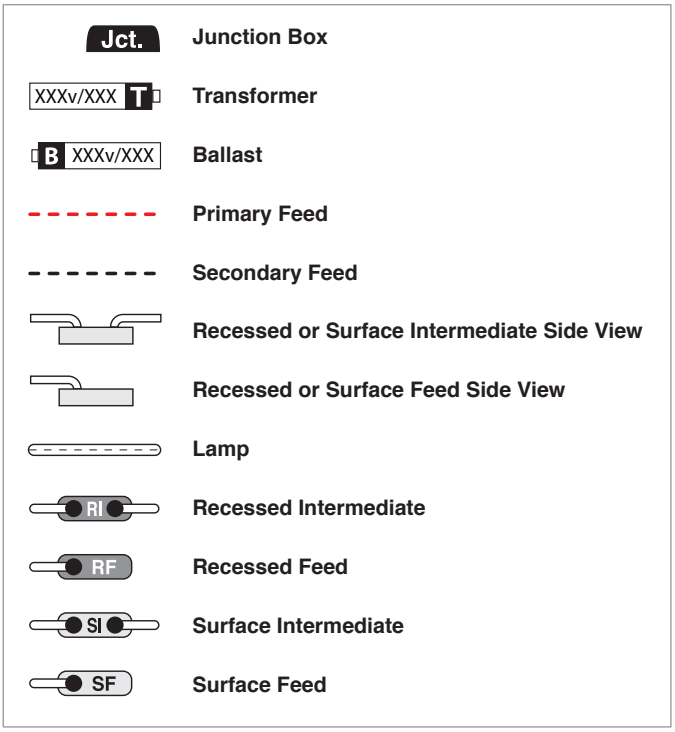
What may cause the S.C.G.F.P. circuit of a transformer to trip:

- Reversal of the hot or neutral input power wires.
- Leaving the service ground unconnected.
- Connecting or grounding the midpoint of a sign to earth ground.
- Excessive leakage currents caused by excessive moisture, tubing installed too close to metal or conductive debris between high voltage components and ground.
- Electrical shorting or arcing from live high voltage to ground.

When will an S.C.G.F.P. circuit in the transformer not trip:

- Ground fault is on the primary side of the transformer
- Series arcs in the system.
- Breaks in the tubing, degassed tubing or opens in the high voltage connections without a corresponding short or arc to ground.
- Shorts to an ungrounded metal part.

Cold Cathode System Symbols



Cold Cathode Symbol Descriptions

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.

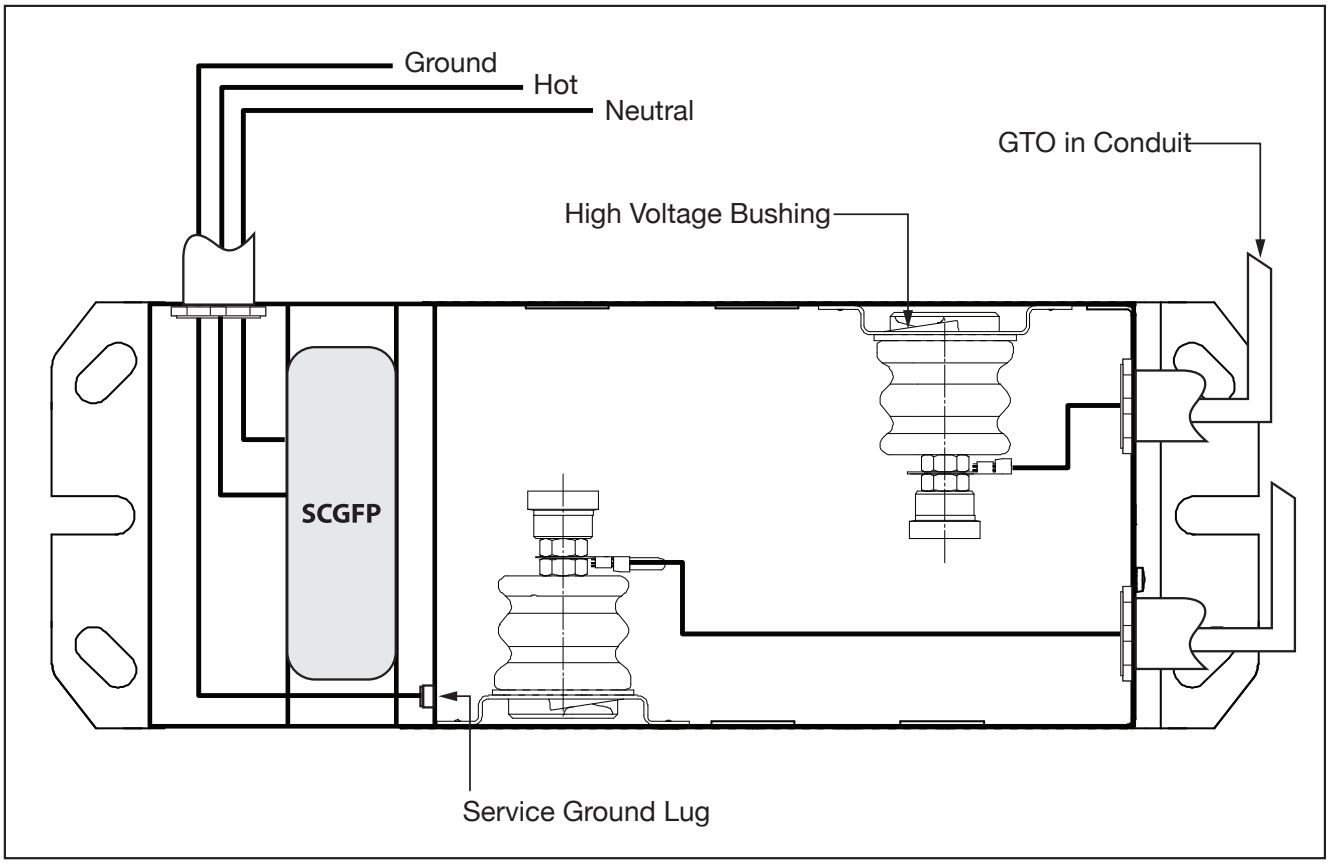
Surface or Recess mounted lamp holders:
Surface or recess feed lamp holders contain the secondary feed connection from the transformer or ballast.
Surface or recessed intermediate lamp holders connect lamp to lamp.

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

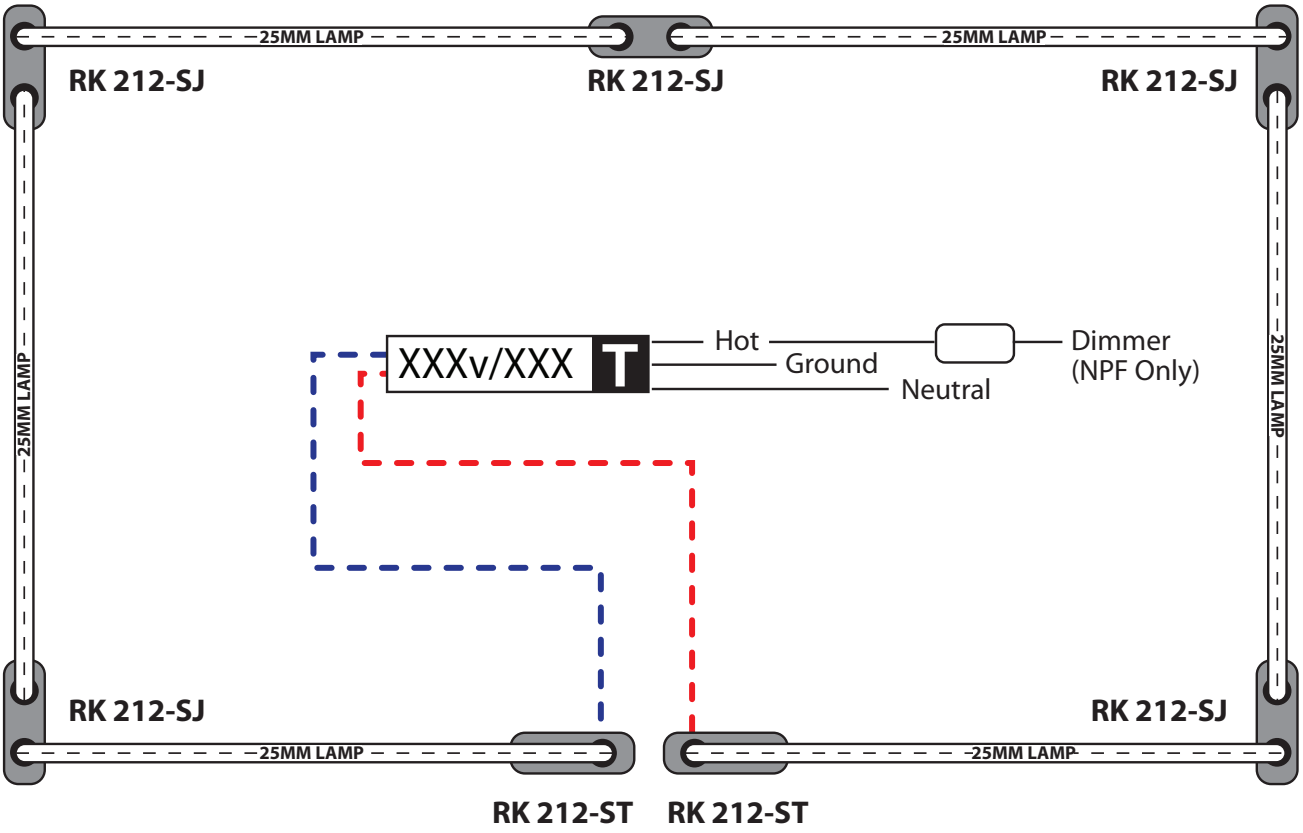
Note:

- 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.

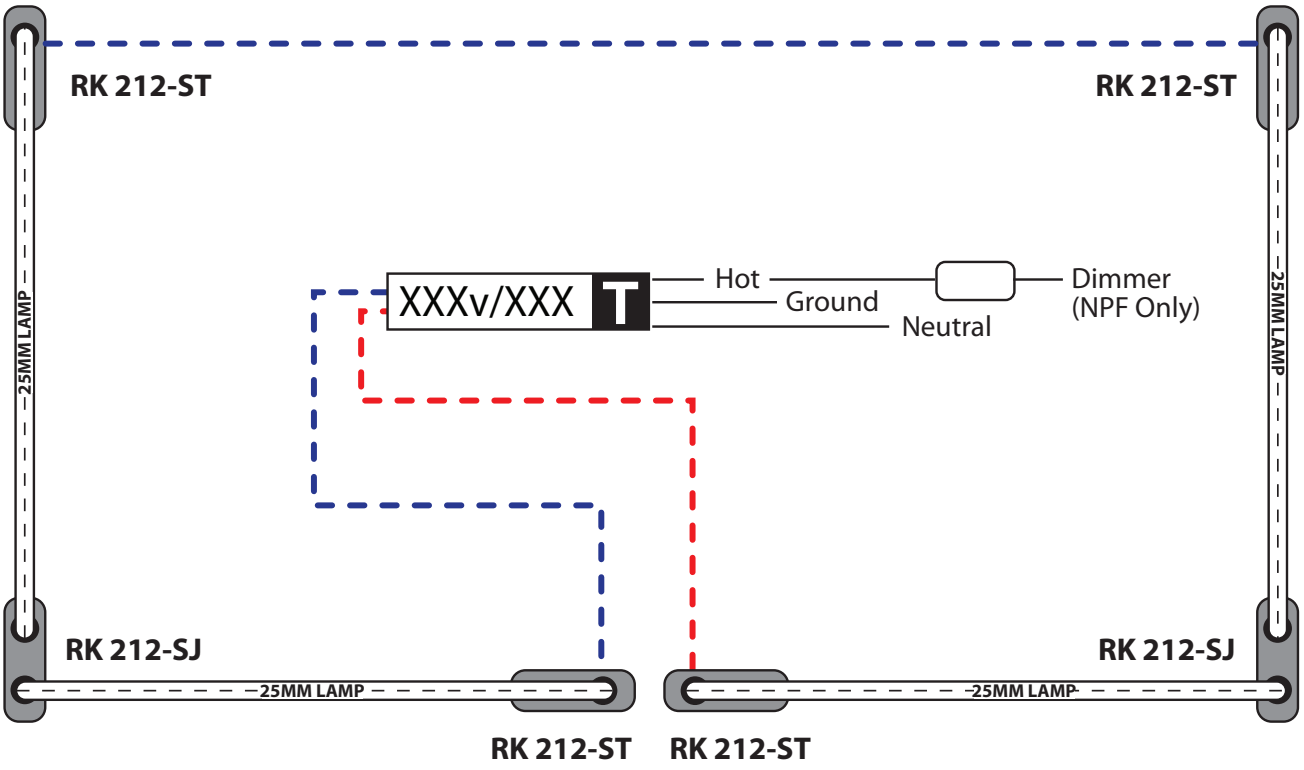
Secondary Ground Fault Transformer Wiring Schematic



Typical Series Wiring Method



Typical Virtual Ground Wiring Method



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.