

PROTECTOR™ (BPX, CPX, FPX) 120V

Installation and Application Instructions

PROTECTOR™ (BPX/CPX/FPX) 120V.

INTRODUCTION

Should you require information further to these instructions, please call Allanson's Technical Support Hotline at: 800-755-6366 or log onto: www.allanson.com, and send your question(s) through our technical support section. The protection relay of this transformer is intended to provide added security for luminous tube signs by detecting abnormalities in the high voltage secondary circuit and interrupting the primary power.

Primary power interruption will take place if any of the following conditions develop:

- a) Arcing of secondary to ground.
- b) Direct short of the secondary circuit to ground.
- c) Improper grounding that causes high potentials to develop between the transformer enclosure and ground.
- d) Reversed Line - Neutral connections

OPERATION:

The solid-state relay monitors the secondary winding voltage and current of the neon transformer. Under normal operating conditions the two secondary windings produce balanced voltages and currents. If any of the aforementioned abnormal conditions develop, the balance is lost. The relay detects the imbalance and interrupts the primary power of the transformer. If improper ground or loss of ground occurs, capacitive currents from the sign can cause the enclosure of the transformer to become charged. The relay detects this voltage rise and trips disconnecting the power to the transformer. After the fault has been corrected, the sign can be reset remotely by switching the power off at the panel or by the transformer on-off switch, for at least one second and then restored.

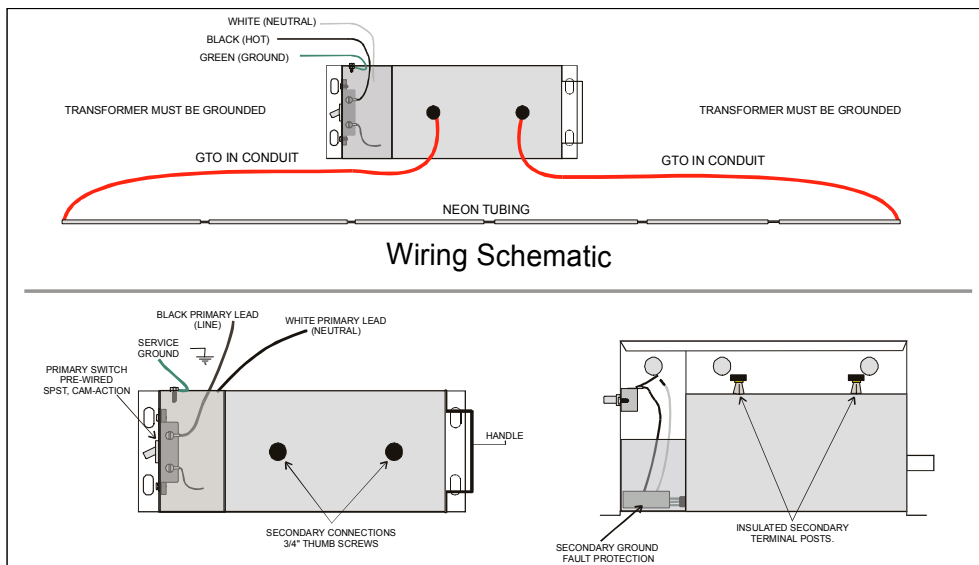
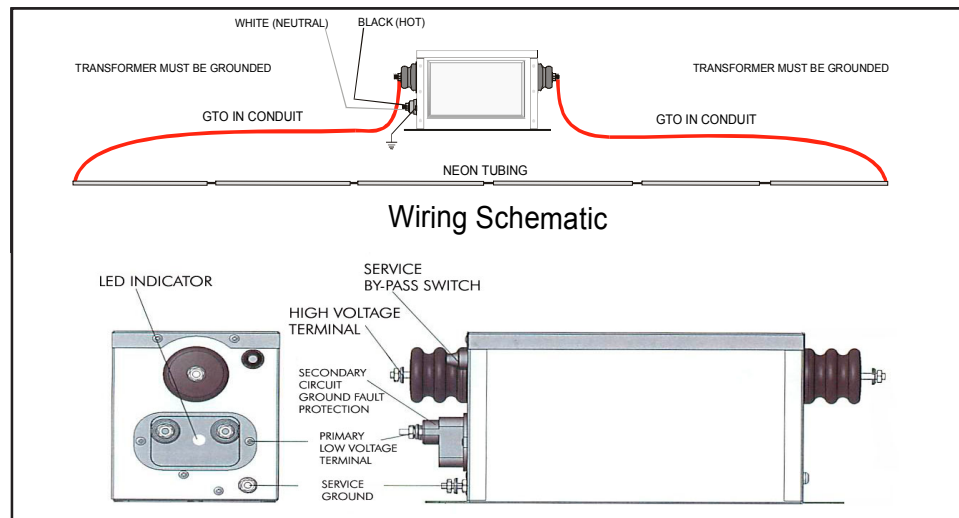
INTENDED USE:

- a) For application in a grounded system only.
- b) To supply high voltage power to luminous neon tubing.
- c) For use in commercial applications only (**Not** Residential Dwellings).
- d) In compliance with CSA (Canada), NEC (USA) and all local ordinances.

WARNINGS

High voltage is hazardous. Installation, handling, service, and use of the Protector should only be performed by qualified personnel, and only in accordance with these instructions. The Protector is not to be used in any other application, but its intended use and in accordance with these operating instructions. Disconnect and lock out primary power before handling, testing or servicing!

The relay is an electrical latch that will reset if power is momentarily interrupted and then restored. Failure to disconnect and lock out the primary circuit could create a serious shock hazard to personnel working on the high voltage circuit!



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INSTALLATION : Primary Power Supply

- a) +/- 5% of nominal voltage rating of unit.
- b) As per NEC & CEC a proper ground must be present and utilized. Attach ground to proper green ground stud supplied.
- c) Supply conductors must be rated for total current load.
- d) Connect the Line and Neutral supply wires in the right position on primary bushing (See L, N marks on bushing)

MOUNTING

- a) Upright mounting is recommended.
- b) Fasten securely to structure using mechanical fasteners.
- c) Mount in a position to facilitate unobstructed accessibility for service.
- d) For exterior damp and/or wet locations, a watertight enclosure is required.
 - Enclosure should be at least 3 times the volume of the transformer allowing it to accommodate the unit with space for air flow. Enclosure Volume = 3xLxWxH of transformer.
 - Enclosure should be painted inside and outside to reduce the operating temperature of the neon supply.

SECONDARY WIRING

- a) All secondary conductors must be rated at 15,000 Volts and 105°C. Conductors must be UL Listed and/or CSA Approved.
- b) All secondary conductors must be enclosed in a UL Listed and/or CSA Approved enclosure or ½" metallic conduit.
- c) All secondary conduits must be bonded back to the transformer.
- d) All secondary conductors must be as short as possible. Lengths of secondary conductors must not exceed the maximum limit as put forth by NEC and/or CEC.
- e) There must be no sharp bends in the secondary conductors.
- f) Ideally both secondary conductors should be of equal length.
- g) Load must NOT be mid-point grounded. To avoid excessive GTO runs, use Virtual Wiring Method.

Step 1

Allanson's Recommendations for Troubleshooting Neon Signs and Wiring:

Upon arrival, Allanson recommends that you take the following steps to help identify the cause of a fault for any of the following models: BPX/CPX/FPX.

- a) Visually investigate entire circuit and insure that no fault or potential for a fault exists.
- b) If you have determined that no fault exists, it is possible that an intermittent spike or water in secondary interconnections could have caused the unit to trip.
- c) Check primary power supply control devices.
- d) Has breaker or fuse tripped?
- e) Are all control or service switches in the ON position?
- f) Check for broken and/or disconnected neon tubing.
- g) Check for tube and conductor clearance from sign or building structure.
- h) At transformer, check for proper supply voltage +/- 5% of nominal.
- i) At transformer, check that a reliable ground is present at transformer connections.
- j) Check all secondary wiring for faults.

If none of the above mentioned procedures yields an answer it is necessary to proceed by testing the transformer.

Step 2

Transformer Testing:

- a) Disconnect and lock out the primary power.
- b) Remove the secondary leads from the terminal screws.
- c) Re-connect the primary power.
- d) While unit is energized, check open circuit voltage with a True RMS Multi-Meter and High Voltage probe.

Step 3:

If you have determined that the transformer is operating properly, the sign must have a fault. Reconnect your sign and press the bypass button to locate the fault in the sign.

Step 4

Diagnostics & Bypass Operation

- Led Off = Normal Operation,
- Led On = Transformer in Bypass Service Mode
- 2 Flashes, Pause = Transformer Case Missing Service Ground,
- Continuous Flashing = Secondary Fault or Case Missing Service Ground
- 1 Flash long Pause = Overheated Transformer

TO RESET TRANSFORMER, CYCLE POWER OFF AND ON

This transformer is equipped with the option that allows the SCGFP to be by-passed for a maximum of 29 minutes.

To activate this feature simply push the service button provided. The LED located near the primary connections will illuminate to indicate that the sign is in bypass mode and the sign is not provided with secondary ground fault protection. You may use this period to determine what causes the SCGFP to trip.

At the end of the 29 minutes, normal protection mode automatically resumes and the LED is off / unlit. If you wish to terminate the by-pass and resume secondary protection during the 29 minutes, simply switch power off for one second and then on to reset and resume SCGFP.

Always ensure that you check to make sure sign is not in bypass mode when you leave site.

AUTORESET

This transformer is also equipped with the option that allows it to reset 3 times after the detection of a fault. After the first trip the circuit starts a timer and at 2 seconds the power to the secondary is restored. If no fault is present normal operation resumes. If a fault is present, the circuit will attempt to reset 2 more times after 2 seconds delay each time. If the fault is still present after the third try, the circuit will lock power out and will require an action from the user to restore the power.

DANGER

Do not handle the High Voltage circuit at any time without first locking out the primary power. The auto-reset feature may restore power and will cause severe electrical shocks.