FRANCE Smart™ Series

P6KA2NG Cold Cathode Transformer Installation Guide

⚠DANGER! High Voltage

- **Remove primary power before servicing the sign or transformer in any way.**
- **Secondary-Circuit Ground-Fault Protected (SCGFP) transformers will NOT provide protection against electrical shock. Potentially hazardous high voltage can be present.**
- **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 Electrical Code®, the requirements of Underwriters Laboratories and applicable local codes.**

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

INSTALLING the France P6KA2NG *Smart*™ Series Cold Cathode Transformers (see installation diagrams on reverse):

- Securely mount the transformer.
- Remove transformer cover.
- Remove selected conduit knockouts from transformer's primary and secondary wiring compartments. Connect conduit to each wiring compartment knockout location. (A separate conduit is required for each high voltage GTO wire).
- Run the service wires through conduit connected to primary wiring compartment.
- Connect the line (or "hot") (black - 120 volt or red - 277 volt) and neutral (white) service wires to the corresponding transformer wires.
- Connect the service grounding (green or bare) wire to the identified "Service Ground" terminal.
- From each first neon tubing electrode, run a GTO wire through its own conduit into the secondary wiring compartment. (These wires should be kept as short as possible, but may not exceed 20 feet). Connect each GTO wire to its respective transformer secondary high voltage bushing.
- Securely tighten the bakelite knobs (15 in-lbs. Minimum. GTO wire should not be stripped more than 1/4 inch from studs).
- Replace transformer cover.

TROUBLESHOOTING a tripped P6KA2NG *Smart*™ Series Cold Cathode Transformer:

- Insure the line and neutral service 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 wires are reversed. If the supply wires appear to be connected properly, the polarity of the service wires themselves may be 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 ground 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) to the sign enclosure. A poorly grounded transformer will not turn on.
- Check for excessive leakage currents caused by moisture within or on the sign, tubing installed too close to metal, contaminated insulators or standoffs, or conductive debris such as insects, dirt, etc. between live high voltage sign components and ground.
- Check for electrical shorts or arcs from live high voltage sign components to ground.
- After the source of any fault is removed, the transformer can be reset by cycling the power switch "OFF", then "ON".

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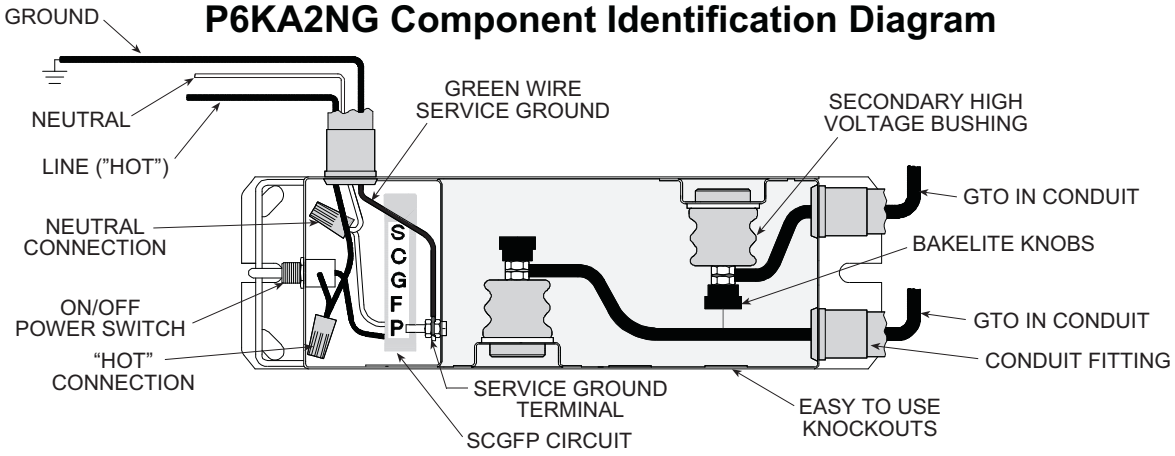
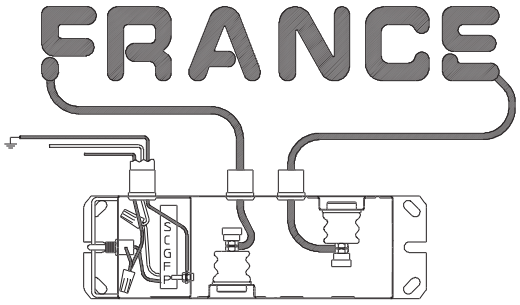
Smart™ P6KA2NG Series

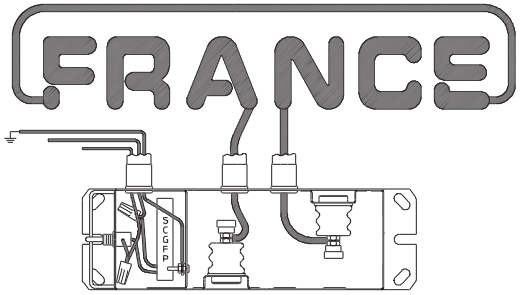
P6KA2NG Component Identification Diagram



Standard Series Wiring Method:
(Please read instructions on reverse)



Virtually-Grounded Series Wiring Method:
(Please read instructions on reverse)



When will a SCGFP circuit in the P6KA2NG *Smart* Series Transformer not trip:

- Ground faults on the primary (line) side of the transformer. **Secondary-Circuit Ground-Fault Protected units will NOT provide protection against electrical shock.**
- Series arcs in the sign system (arcs associated with defective tubing interconnections or between sign tubing sections).
- Breaks in the sign tubing, degassed tubing, or opens in the high voltage connections without a corresponding short or arc to ground.
- Shorts to an ungrounded metal part within or near a sign.

LUMINOUS TUBE FOOTAGE CHART

TRANSFORMER RATING		Approximate Number of Feet of Tubing Operated[1]																						
Secondary Voltage V	Short-Circuit Current mA	Clear or Fluorescent Red Neon (Also Recommended for Neon Fluorescent Gold) Tube Size, Millimeters												Clear or Fluorescent Mercury Filled Tubes All Colors (All Enclosed Applications)[2] Tube Size, Millimeters											Secondary Voltage V
		25	22	20	18	15	14	13	12	11	10	9	25	22	20	18	15	14	13	12	11	10	9	
9,000	120	77	65	55	46	38	34	33	30	25	22	17	92	77	63	52	46	41	38	35	30	26	20	9,000
	30 / 60	67	57	48	40	33	30	29	26	24	21	18	80	67	55	45	40	36	33	31	28	25	22	
	20					28	26	24	22	19	18	16					34	31	29	26	23	20	18	
7,500	120	59	47	39	32	28	26	25	23	18	15	13	70	55	45	36	32	31	31	27	22	18	14	7,500
	30 / 60	51	41	34	28	26	24	22	21	19	17	15	61	48	39	35	31	28	27	25	23	20	18	
	20					22	21	20	18	16	15	13					27	25	24	21	19	18	16	
6,000	120	46	39	32	26	22	20	19	18	15	12	10	55	46	37	30	26	24	23	20	17	14	13	6,000
	30 / 60	40	34	28	23	20	19	18	16	15	13	12	48	40	32	28	24	23	21	19	18	16	14	
	20					18	17	16	14	13	11	10					22	20	18	17	15	13	12	
5,000	120	38	32	26	22	19	18	17	14	11	10	8	46	38	31	25	22	22	18	16	14	12	9	5,000
	30 / 60	33	28	23	19	17	16	15	12	11	10	8	40	33	27	23	20	19	16	15	13	12	10	
	20					15	13	13	11	9	8	7					18	16	15	13	12	11	9	
Recommended Gas Pressure mm/Hg		6	7	7 1/2	8	9	10	10	11	12	13	15	6	7	7 1/2	8	9	10	10	11	12	13	15	

(1) Based on average grade. (2) All enclosed applications. Exposed and extremely cold climates may require footage be reduced by 10-20%.
NOTE 1: Deduct approximately 1 foot from above figures for each pair of electrodes.
NOTE 2: Recommended gas pressure for 10-ft plus lengths. Increase 10% for tube lengths under 10 ft.

