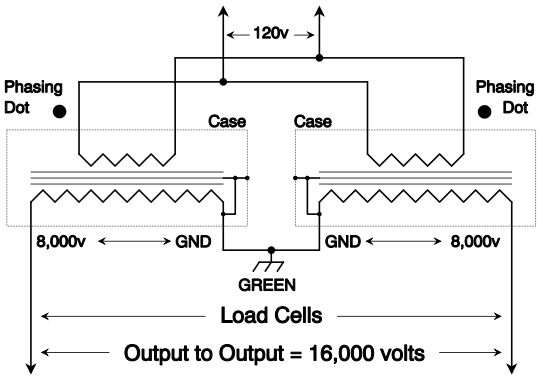
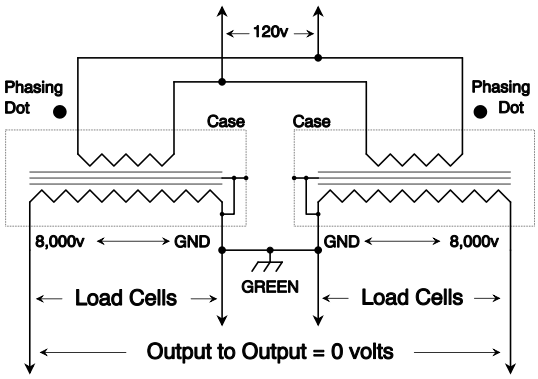
Plasma Technics Inc.

PTI

INSTALLATION & OPERATION MANUAL HIGH VOLTAGE TRANSFORMERS

Typical Transformer Wiring Configurations





Application and Handling Information:

Items 1 > 4 are suggestions to avoid the mechanical problems that cause terminal post seal damage.

1. If the transformers have any liquid leakage or dampness, they have been damaged in shipment and must not be used. While it is likely that the transformers will continue to operate with a minor top seal leak, they are capable of malfunction or catching on fire. As with any transformer this occurrence is remote, but possible. Therefore transformers that have visible leakage should not be used.
2. Be very careful not to over-tighten any of the wire binding post nuts. A torque of 25 oz-lb should not be exceeded. This is especially true for the case ground post. Over-tightening can compromise the case seal. Do not use a wrench to tighten any binding post nuts as this will most certainly apply excessive torque as well as substantial side loading thereby rupturing a feed-thru seal.
3. The ceramic posts are susceptible to mechanical handling damage and if cracked will leak. **Do NOT carry the transformer by it's posts!**
4. While the transformers will operate in any plane, it's best to orient it with the terminals up if possible.

5. Transformers should be individually fused. Fusing can be between 1/2 to 1 amp over the normal operational current. Use a time delay or slow-blow type. Individual transformer fusing is a must, especially in systems with several transformers.

6. Systems with multiple transformers will encounter excessive corona and possibly high voltage flash-over if conventional high voltage transformers are used for ozone generation purposes. The PTI transformers are unique in that the high voltage output phase is guaranteed. This is accomplished by simply connecting the same line voltage wire (black for example) to the colored dot on all primary terminal posts. This results in all high voltage wires being at the same potential. The transformer output leads should never be connected in series or parallel to achieve greater output.

7. Properly matching the ozone load to the transformer is essential if optimum systems longevity is to be achieved. While normal electrical measurements should always be taken and are of relative usefulness, they cannot be used alone as an absolute sizing criteria. When the input power begins to exceed 50% of the transformer rating, case temperature rise should be looked at more carefully. A maximum case temperature of **185°F (85°C) should not be exceeded**, 65°C for fabricated products. The maximum operating temperature encountered by the complete system under the most extreme field temperatures must be evaluated. For example, a transformer in an enclosure, on a roof in Phoenix, is basically installed in an oven. That temperature rise must be accounted for when calculating the anticipated maximum transformer case temperature. First measure the transformer case temperature in the final system while at maximum load conditions(all covers closed, fans running, etc.). It takes 5 to 7 hours for the transformer to reach thermal equilibrium. Next note the lab ambient temperature. For the purpose of this example say the lab is 70°F and the transformer case is 120°F. If the Phoenix roof example raises the ambient temperature to 125°F then the ambient increase is 125 - 70 = 55°F. We would therefore expect, at the field location, a transformer case temperature of 120 + 55 = 175°F. This is within the transformers working limits.

8. The 110 transformer series incorporate a number of enhanced features. One such feature is a isolated secondary ground. This enables the measuring of the secondary current to be safely done on the ground side. This additional green ground wire connects the low voltage side of the secondary to the case ground and must always be connected or the transformer can be damaged if operated. The green jumper wire can be extended if desired. A typical use would loop the green through torriodal current measuring units like those available from companies like SSAC. Then each ozone cell group ground can be routed through current sensing devices, so as to enable each ozone cell cluster to be monitored.

Proper grounding of all the system components is essential. Do not depend on mounting hardware as an electrical connection. The service green must be connected **by wire** to the cabinet (if metal) **and** the high voltage transformer. Each high voltage transformer **must** have a ground wire between it's ground lug and the ozone cell (or cells) that it energizes.

9. Some customers wish to use Rajah™ type, clip-on high voltage termination's. The PTI threaded high voltage terminal can easily be fitted with a screw-on post which converts it to a spark plug connection. This then enables the use of commonly available spark plug boots which provide a simple corona and corrosion free installation. **We suggest item # 50700-50**. A large variety of termination's are available from: Crown Engineering, P.O. Box 846, Farmingdale, NJ, 07727, 1-800-631-2153, Fax 1-908-938-3969.

10. Over time the transformer termination's can oxidize if the transformer enclosure has minimal ventilation or is located in a caustic chemical environment. Long term serviceability can be preserved by using a high voltage anti-corrosive grease. The selection of the grease that best solves your particular problems is completely up to you. Following are some suggested materials:

    Nonfluid Oil Corp., 298 Delancy St., Newark, NJ 07105, 1-201-344-5954, Fax 1-201-995-4417.
    Suggested material: Chemplex #825

    Novagard (formerly GE Silicone), 2720 East 79th St., Cleveland, OH, 44104, 1-216-344-1737, Fax 1-216-881-6977, Thomas Mylott.
    Suggested materials: G661, G623, G624.

PTI Transformer
Limited Warranty

The PTI Transformer is warranted by Plasma Technics, Inc., to the original purchaser to be free from defects in material and workmanship under normal use and service for a period of **Four (4) years** from the date of purchase under the following terms and conditions:

The obligation of Plasma Technics, Inc. is expressly limited to repairing or replacing, at the option of Plasma Technics, Inc., any PTI Transformer returned to it during the warranty period, which is determined by PTI to be defective in material or workmanship.

Any improper use /operation or installation other than in accordance with the published application materials, instructions and specifications established by Plasma Technics, Inc. shall void this warranty.

The obligation of Plasma Technics, Inc. Shall not include any transportation charges, costs of removal or installation, labor charges or any direct, indirect, consequential or delay damages.

Attachment or use of components or accessories not compatible with the PTI Transformer shall void this warranty.

Any alteration not authorized by Plasma Technics, Inc. in writing, accident, misuse, abuse or damage to the PTI Transformer shall void this warranty.

The transformer subject to this warranty is not warranted as suitable for any particular purpose or use of the purchaser. The suitability of any PTI Transformer for any purpose particular to the purchaser is for the purchaser in the purchaser's sole judgment, to determine. Plasma Technics, Inc. assumes no responsibility for the selection or furnishing of a transformer suitable to the purchaser's needs or the purposes of any particular purchaser.

This warranty is in lieu of any other warranty express or implied, including specifically but without limitation warranties of merchantability or efficacy and of all other obligations or liabilities in connection with the sale or use of the PTI Transformer.