

THREE PHASE TRANSFORMER TEST DATA SHEET

PART NO. 91407 TESTED BY J. P. Plavin DATE 10-2-80
SERIAL NO. 1216 G

1. Excitation Current Test

a) Apply rated PRIMARY Voltage 208

b) PRIMARY Current Measured

H1 .51A

H2 .52A

H3 .49A

2. Dielectric Withstand Voltage for One (1) Minute

a) 3500 VDC Shield to Core ✓ OK

b) 3500 VDC Winding to Core ✓ OK

c) 1400 VDC Winding to Shield ✓ OK

3. Effective Interwinding Capacitance ██████ pF, .005

4. Insulation Resistance ✓ OK

5. Winding Resistance Test

a) Short Primary Windings

b) Apply 11 amps to Secondary

c) Secondary Voltage Measured

X1 - X2 18.0V

X2 - X3 18.0V

X3 - X1 18.1V

6. Final Three Phase Turn-On

a) Apply Rated Primary Voltage 201V

b) Primary Current

H1 .63A

H2 .75A

H3 .67A

c) Secondary Voltage

X1 - X0 120.2V

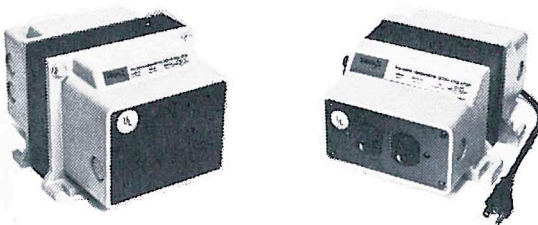
X2 - X0 119.2V

X3 - X0 119.3V

INSTALLATION INSTRUCTIONS

LINE NOISE SUPPRESSING

ULTRA-ISOLATORS



T1 & T3 PRODUCT FAMILIES
125 VA—20 kVA
Single-Phase

INTRODUCTION

Topaz Ultra-Isolators protect sensitive equipment from the voltage transients, spikes, and electrical "noise" appearing on most commercial power lines. A unique triple shielded construction eliminates this interference while providing complete electrical isolation between power line and critical load equipment.

These instructions cover the installation of standard single-phase Ultra-Isolators. Connection diagrams have been included.

LINE CORD—RECEPTACLE MODELS

All models with factory-installed input line cords and output receptacles are pre-wired for 120V input and output.

WIRING INSTRUCTIONS

IMPORTANT: Make certain that the output voltage and power ratings match the available line voltage, phasing and load power requirements prior to connections.

NOTE: These instructions do not supplant national, state or local electrical codes. The user should check the applicable electrical code to assure compliance.

General

Topaz Standard Single-Phase Ultra-Isolators feature dual primary and secondary windings to permit connection in any combination of the listed voltages by moving jumper links on the primary and secondary terminal blocks as shown in the following diagrams.

DIAGRAM A

Connections for models with 120/240V Primary, 120/240V Secondary

Part Numbers: 91091
91092
91095
91097

91001
91018
91002
91005
91007

93010

Primary

Secondary

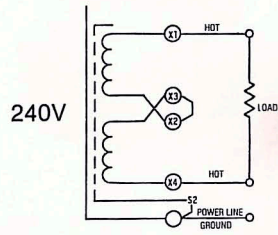
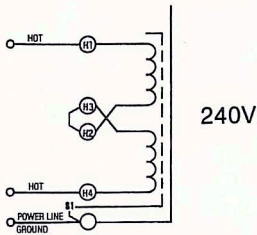
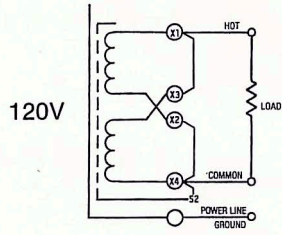
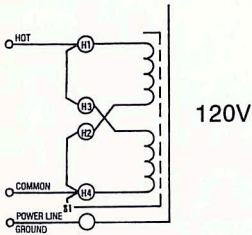


DIAGRAM B

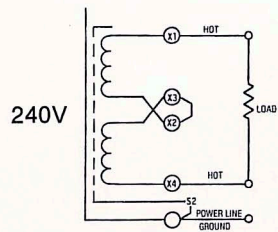
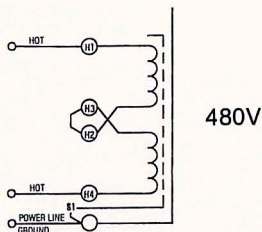
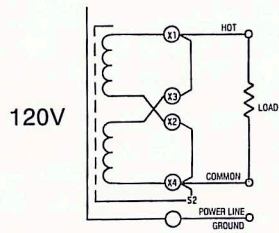
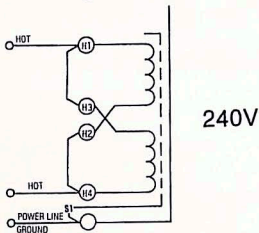
Connections for models with 240/480V Primary, 120/240V Secondary

Part Numbers: 91105
91107

93110
93115
93120

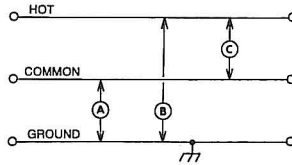
Primary

Secondary



POWER LINE NOISE

Power line noise exists in two forms—*Common-Mode*, which appears between both sides of the power line and ground (A&B in figure below) and *Transverse-Mode*, which appears from line-to-line (C).



Topaz Ultra-Isolators are effective in removing both types of noise. The shield connections shown in the wiring diagram section are recommended for good overall protection.

Alternate connections for severe transverse-mode and ground noise problems are discussed in the "Special Noise Problems" section below.

Contact Topaz Customer Service if assistance is required in identifying or correcting specific problems.

SPECIAL NOISE PROBLEMS

Extreme Transverse-Mode Noise

Topaz Ultra-Isolators are designed to eliminate virtually all transverse-mode noise that results from common-mode noise on the primary. In addition, they exhibit sufficient leakage inductance when loaded to provide the greatest possible attenuation of transverse-mode power line noise consistent with the transfer of the fundamental power frequency. Further improvement in the attenuation of transverse-mode noise appearing in the primary can be accomplished by the addition of ac capacitors connected across the output terminals of the transformer.

Capacitors should be of the ac oil type with a voltage rating equal to or greater than the Ultra-Isolator output voltage. The capacitance value should be selected such that the ac current in the capacitor does not exceed approximately 10% of the output current rating (much lower values of capacitance may be highly effective and this value should be considered a maximum). Determine the load current and find the maximum capacitor value by the following relationship:

$$C_{(\max)} = \frac{265}{E} I$$

where C = maximum capacitor value in microfarads
 I = rated load current in amperes
 E = output voltage

$$\text{or } C_{(\max)} = \frac{265 \cdot VA}{E^2}$$

where VA = power rating of the transformer in volt amperes

Ground Noise

In cases where the power line ground is excessively noisy, it may be advantageous to eliminate the power line ground to the Ultra-Isolator input and run a separate "clean" ground to the transformer frame and to the sensitive load.

For optimum results, the separate ground point should be as close as possible to the Ultra-Isolator.

The actual ground point itself may be a suitable ground rod, the nearest available effectively grounded structural member of the building, or the nearest available effectively grounded metal water pipe (National Electrical Code, 1978, Article 250-26).

SERVICE & FACTORY REPAIR

Service Information

Questions concerning the operation, repair or servicing of this equipment should be directed to the Topaz field representatives or to Customer Service at the factory.

NOTE: Please include the model number and/or part number and serial number in any correspondence concerning this equipment.

Factory Repair

Should it be necessary to return this equipment to the factory for repair, contact Customer Service at Topaz for authorization to make shipment.

WARRANTY

Topaz warrants its products, when properly applied and operated under normal conditions, to be free from faulty workmanship or defective materials (except in those cases where the materials are supplied by Buyer) for a period of one year (five years for standard Ultra-Isolators) from the date of original shipment. Topaz products repaired or replaced pursuant to this warranty shall be warranted for the unexpired portion of the warranty applying to the original products. The liability of Topaz under this warranty shall exist provided that:

- (a) Topaz is promptly notified upon discovery of such defects by Buyer, and is allowed to inspect for defects at Buyer's site; and
- (b) The defective product is returned to Topaz, transportation charges paid by Buyer, or (at Topaz' discretion) said product is inspected and repaired by Topaz at Buyer's site; and
- (c) Topaz' examination of such product discloses that there was a defect in Topaz material or Topaz workmanship; and
- (d) Topaz nameplates and markings have not been altered or removed.

In the event the defect is determined to be within the terms of this warranty, then Topaz agrees to repair and/or replace the product or the defective portion at no charge to the Buyer and to pay for ground transportation costs of shipment back to Buyer, or (at Topaz' discretion) to refund purchase price. This warranty does not apply to consumable items nor to normal wear and tear and is conditioned upon performance of normal preventive maintenance procedures and alignment.

Any technical advice furnished before or after delivery in regard to the use or application of Topaz product is furnished without charge and on the basis that it represents Topaz' best judgment under the circumstances, but it is used at recipient's sole risk.

Topaz shall in no event be liable for other direct, special, incidental, consequential, indirect or penal damages. This warranty is in lieu of all other warranties, expressed or implied, including suitability for specific use, total life expectancy, or other obligation or liability on the part of Topaz. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

The warranty on repaired products shall be the same as for new products except it will be for 90 (ninety) days and shall only apply to component parts repaired or replaced by Topaz. No separate warranty shall apply to repaired products as a whole or to component parts not repaired or replaced by Topaz.

NOTE: Most instances of initial failure to operate properly can be remedied through a telephone conversation between the user and Topaz Customer Service personnel. Users will be assessed recalibration and inspection charges for returned products which are found to be operating properly.