



T3700 Transformer

for Electric-Field Susceptibility Testing

Features

- Up to 3,700 V_{RMS}
- Meets or exceeds voltage requirements of DO 160 Section 19 and Boeing D6-16050-5 Section 7.2
- Robust design, withstand tested to 5,000 VDC
- Durable steel and high-density polyethylene case for impact resistance

Application

The AE Techron T3700 Electric-Field Susceptibility Transformer was designed to meet or exceed the voltage requirements of DO 160 Section 19 and Boeing D6-16050-5 Section 7.2 testing.

It may also be used as a 1-to-37 step-up transformer for voltages up to 3700 V_{RMS}.

Description

The T3700 transformer is able to generate up to a 3700 V_{RMS} potential. It is withstand tested to 135% of rated output to ensure a long, trouble-free life. The turns ratio provides a 1-to-37 step up to the secondary winding.

The T3700 provides convenient input connectors via touch-proof, four-way binding posts. Standard 0.75-inch spacing of binding posts allows use of standard plugs.

A 1-amp fuse protects the unit against over-current conditions. A rugged,

impact-resistant case and robust design protects the transformer from accidental damage.

The T3700's voltage output meets or exceeds the requirements of DO 160 Section 19 and Boeing D6-16050-5 Section 7.2. It is safe for use by experienced staff.

Unit Setup

Safety First

Throughout these instructions, special emphasis is placed on good safety practices. The LIGHTNING FLASH and EXCLAMATION POINT graphics are used to highlight certain topics that require extra precaution.

Watch for These Symbols:



The lightning flash with the arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of “dangerous voltage” inside the product that may constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.

Important Safety Instructions

1. Read and keep these instructions. Follow all instructions and heed all warnings.



2. Do not use this apparatus near water. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.



3. Disconnect this product from all sources of electrical power before cleaning. Use a damp cloth for cleaning. Clean the outside of the product only.

4. Care should be taken so that objects do not fall into the product.

5. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

7. Only use attachments/accessories specified by the manufacturer.



8. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

9. Do not remove product covers. No user serviceable parts inside. Refer servicing to qualified service personnel.

10. Always use the appropriate wire size and insulator for maximum voltage and current expected.

11. Operating conditions: 10°C to 40°C; Humidity: 70% or less, non-condensing.

Unpacking

Carefully unpack and inspect the unit. Please note any damage for future reference and notify the shipping company immediately if damage is found. Also, please save the shipping carton and materials as evidence of damage and/or for returning the unit for repair.

Connecting the T3700

Transformer (see Figure 1)

Before connecting the T3700, make sure all equipment you are connecting is disconnected from AC power.

1. Connect from the signal generator or another signal source to an AE Techron amplifier input.

2. Connect from a power amplifier, another power source, or a simulated load to your equipment under test.

3. Connect from a power amplifier to the T3700 4-way binding post input connectors. Connection can be made with cables terminated with spade lugs, pin connectors or bare wire.

4. Using the supplied connector and suitable cable, construct the output cable.

5. Connect to the T3700 positive (+) output connector.

6. Connect the grounding connector to earth ground using appropriate wire and connector.

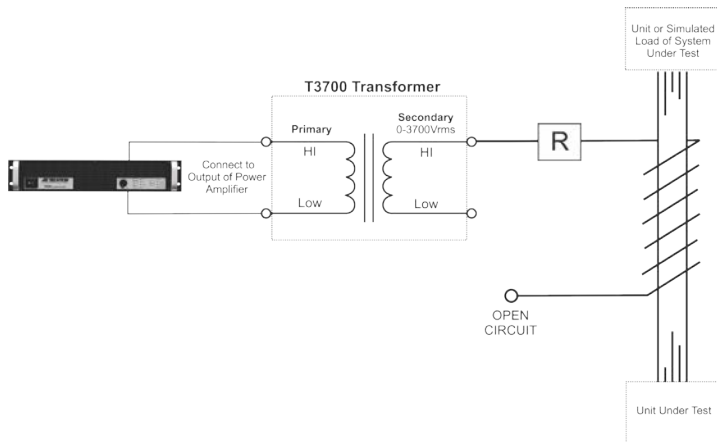


Figure 1 – DO 160 Section 19 Test Load Wiring

⚡ WARNING: This transformer produces potentially lethal voltages. While no direct connections are made with the product chassis, the radiating magnetic field produced by the transformer can produce voltage potentials on the product chassis. Connect the screw terminal grounding connector to earth ground to discharge any possible voltage potentials from the chassis.

NOTE: As per the Standard, the high-voltage output connection is not current limited. A resistor should be installed in the output wire for personal protection.

Equipment Maintenance

⚡ To prevent electric shock, do not remove product covers. No user serviceable parts inside. Internal fuses should only be replaced by a service technician. Refer all servicing to qualified service personnel.

Disconnect this product before cleaning. Use a damp cloth for cleaning. Clean the outside of the product only.

Factory Service

If the unit fails to perform, it may need to be returned for Factory Service. All units under warranty will be serviced free of charge (customer is responsible for one-way shipping charges as well as any custom fees, duties, and/or taxes). Please review the Warranty included with this Instruction Sheet for more information.

All service units must be given Return Authorization by AE Techron, Inc. before being returned. Return Authorizations can be requested on our website or by contacting our Customer Service Department.

Please take extra care when packaging your unit for repair. It should be returned in its original packaging or a suitable alternative. Replacement packaging materials can be purchased for a nominal fee.

Please send all service units to the following address and be sure to include your Return Authorization Number on the box.

AE Techron, Inc.
Attn: Service Department / RMA#
2507 Warren Street
Elkhart, IN 46516

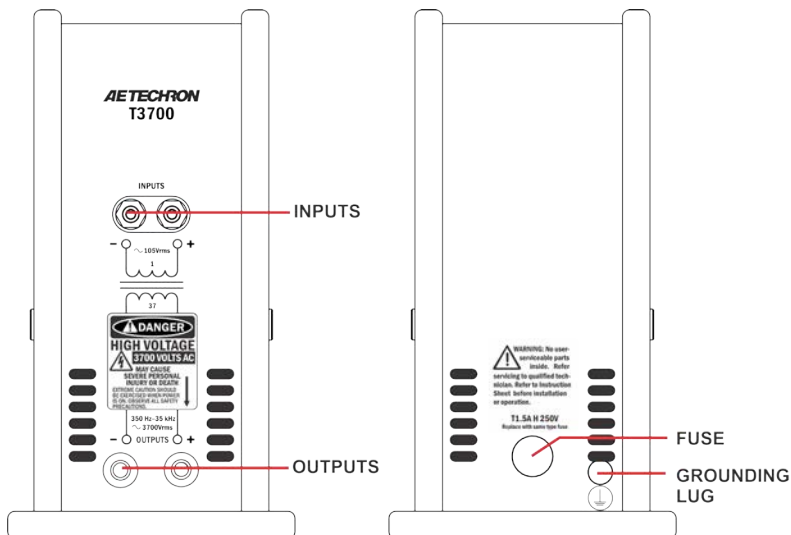


Figure 2 – T3700 Controls and Connectors

Specifications

Performance Specifications

Primary:

100 V_{RMS} maximum or 1 A_{RMS} maximum

Secondary:

3700 V_{RMS} maximum output

Physical Turns Ratio:

1-to-37 step up

Dielectric Test:

5 kVDC primary to case
5 kVDC secondary to case

Frequency Range:

250 Hz to 35 kHz

Protection:

Current-protected input

Controls and Connectors

(see Figure 2)

Input Terminals:

4-way binding posts

Output Terminals:

LGH high-voltage connector (+)
Banana jack (-)

Over-Current Protection:

Primary input limited via fuse to 1A (T1A H 250V)

Grounding Lug:

Screw terminal grounding connector. Connect to earth ground using appropriate wire and connector.

Physical Characteristics

Case:

Steel interior shell with a durable external shell made from high-density polyethylene for impact resistance.

Operating Conditions,

Temperature: 10°C to 40°C (50°F to 104°F)

Humidity: 70% or less, non-condensing

Recommended Ambient Temperature: 25°C (77°F)

Cooling:

Natural air convection

Weight:

16 lbs. (7.3 kg)

Dimensions (WxDxH):

5.25 in. x 10.375 in. x 9.75 in. (13.3 cm x 26.4 cm x 24.8 cm)

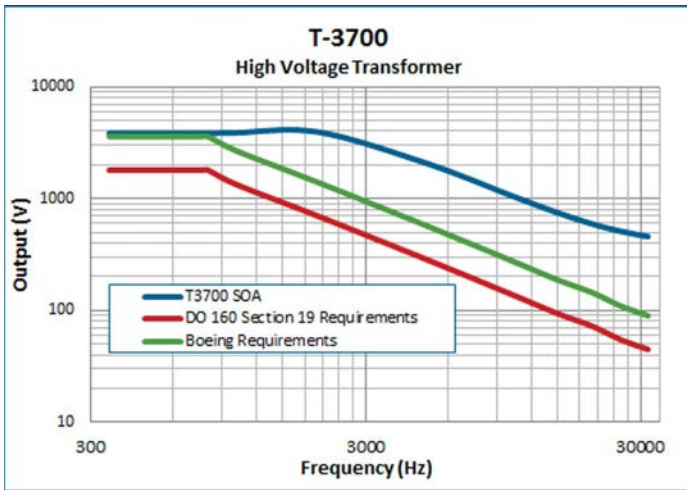


Figure 3 – T3700 Maximum SOA (safe operating area)

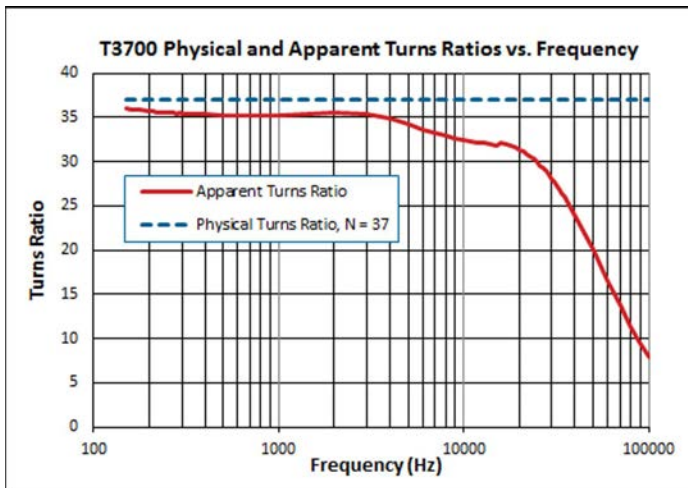


Figure 4– Physical and Apparent Turns Ratios vs. Frequency

Additional Product Information

This manual does not include all of the details of design, production, or variations of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance.

Additional information may be included with your unit via digital media and is also available at the AE Techron website at www.aetechron.com.

Information Accuracy

The information provided in this manual was deemed accurate as of the publication date. However, updates to this information may have occurred. To obtain the latest information for your unit, please visit the AE Techron website at www.aetechron.com.

Limited One-Year Warranty

SUMMARY OF WARRANTY

AE TECHRON INC. of Elkhart, Indiana (Warrantor) warrants to you, the ORIGINAL COMMERCIAL PURCHASER ONLY of each NEW **AE TECHRON INC.** product, for a period of one (1) year from the date of purchase, by the original purchaser (warranty period) that the product is free of defects in materials or workmanship and will meet or exceed all advertised specifications for such a product. This warranty does not extend to any subsequent purchaser or user, and automatically terminates upon your sale or other disposition of our product.

ITEMS EXCLUDED FROM WARRANTY

We are not responsible for product failure caused by misuse, accident or neglect. This warranty does not extend to any product on which the serial number has been defaced, altered, or removed. It does not cover damage to loads or any other products or accessories resulting from **AE TECHRON INC.** product failure. It does not cover defects or damage caused by the use of unauthorized modifications, accessories, parts, or service.

WHAT WE WILL DO

We will remedy, at our sole discretion, any defect in materials or workmanship by repair, replacement, or refund. If a refund is elected, you must make the defective or malfunctioning component available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers or at our factory. Expenses in remedying the defect will be borne by **AE TECHRON INC.**, including one-way surface freight shipping costs within the United States. (Purchaser must bear the expense of shipping the product between any foreign country and the port of entry in the United States and all taxes, duties, and other customs fees for such foreign shipments.)

HOW TO OBTAIN WARRANTY SERVICE

When you notify us of your need for warranty service, we will give you an authorization to return the product for service. All components must be shipped in a factory pack or equivalent which, if needed, may be obtained from us for a nominal charge. We will take corrective actions within a reasonable time of the date of receipt of the defective product. If the repairs made by us are not satisfactory, notify us immediately.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

You are not entitled to recover from us any consequential or incidental damages resulting from any defect in our product. This includes any damage to another product or products resulting from such a defect.

WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this warranty. The warranty is not extended by the length of time for which you are deprived of the use of this product. Repairs and replacement parts provided under the terms of this warranty shall carry only the unexpired portion of this warranty.

DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

LEGAL REMEDIES OF PURCHASER

There is no warranty that extends beyond the terms hereof. This written warranty is given in lieu of any oral or implied warranties not contained herein. We disclaim all implied warranties, including, without limitation, any warranties of merchantability or fitness for a particular purpose. No action to enforce this Warranty shall be commenced later than ninety (90) days after expiration of the warranty period.

AE Techron, Inc.

Customer Service Department

2507 Warren Street

Elkhart, IN 46516

U.S.A.

574.295.9495

www.aetechron.com