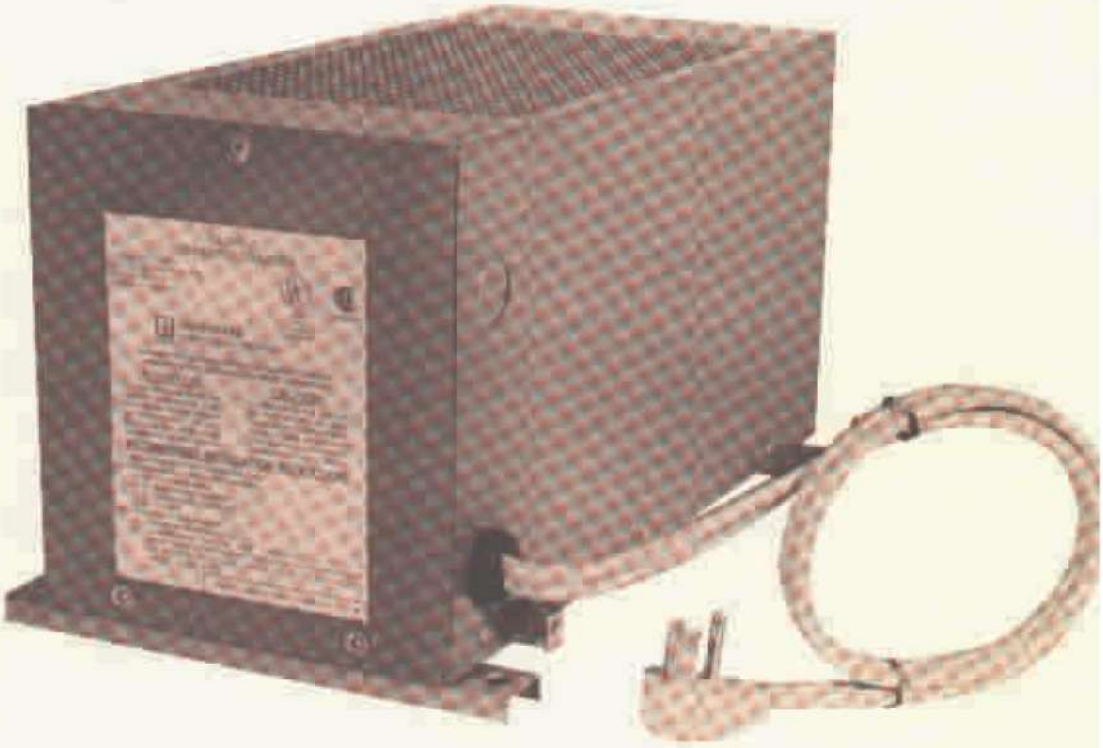
20 amp 30 amp 40 amp 50 amp 70 amp

CONVERTER BATTERY CHARGERS

For More Charging Power



- For Land Mobile and Marine Use
- Reliable Ferroresonant Regulated In/Output
- Full Output Charge Rate

Optional Fuse Panels for Updating Your R.V. Charging System

TRIAD-UTRAD
Litton Distributor Services
305 North Briant Street, Huntington, Indiana 46750
219-356-6500

20 amp 30 amp 40 amp 50 amp 70 amp

TRIAD-UTRAD
Litton Distributor Services

Converter/B

33 years of transformer design and manufacturing experience have provided the basis for a truly trouble free converter/battery charger. The general use and engineering observations compiled in the last seven years of manufacturing and field service of converter/battery chargers have led to the present concept and design.

The Triad-Utrad converter/charger is made with a constant voltage, current limiting, ferro-resonant transformer. This transformer cannot be damaged by overloads and is designed to operate, indefinitely, shorted out. For example, the model TU-540 (40 amp rating) has a current limit of about 50 amps and any current in excess of 50 amps would come directly out of the battery. This condition cannot damage the converter/charger would resume charging when the excess l removed.

Our converter/chargers are designed to op with an input voltage from 90 to 130 volts A.C. out any noticeable change in output voltage by preventing damages to lights, motors, an pliances due to low or high line conditions.

The design has been upgraded to compe for the added power requirements of the "li trend of the R.V. user. This was done by incre the output voltage at rated load without cha the output voltage at no load. This allows the to draw more current without excessive b discharge.

Special Note

The Triad-Utrad Converter/Charger must have as close to *60 cycles* as possible to work correctly. Most R.V. A.C. generators will change in frequency with different RPM settings. It is important that the RPMs that will give you 60 to 63 cycles be when using the 115 volts from the generat battery charging. Voltage being not as imp as frequency.

Converter/Battery Charger Specifications

Triad Part No.	Conv. Rating	Input Volts	Amps	Output Volts	Amps	Automatic Reset Thermal Cutout	Approvals	Wei
TU-323	20 amps (Dual 10)	90 to 130 VAC 60 Hz	3.3 amps	12 VDC min. full load 14.1 VDC max. no load	20 amps	No	None	28
TU-430-2T	30 amps	90 to 130 VAC 60 Hz	5.0 amps	12 VDC min. full load 14.1 VDC max. no load	30 amps	Yes	U.L.	19
TU-540-2	40 amps	90 to 130 VAC 60 Hz	6.4 amps	12 VDC min. full load 14.1 VDC max. no load	40 amps	Yes	U.L. & CSA	32
TU-650-2	50 amps	90 to 130 VAC 60 Hz	7.7 amps	12 VDC min. full load 14.1 VDC max. no load	50 amps	Yes	U.L.	36
TU-570-2	70 amps	90 to 130 VAC 60 Hz	11.0 amps	11.5 VDC min. full load 14.1 VDC max. no load	70 amps	Yes	U.L. & CSA	40
TU-506-2	40 amps	200 to 240 VAC 50 Hz	3.0 amps	12 VDC min. full load 14.1 VDC max. no load	40 amps	No	No	32

Fuse Panel Specifications

Triad P/N	Description	Width	Length
FB-532P	6 Circuit AGU 50 Battery Fuse, 1 SFE 30, 4 SFE 20, Plastic Case	4½"	5¾"
FB-315P	5 Circuit SFE 30 Battery Fuse; 4 AGC 15, Plastic Case	4½"	5⅜"
FB-431P	6 Circuit AGU 40 Battery Fuse, 1 SFE 30, 4 AGC 15, Plastic Case	4½"	5¾"
FB-8532M	9 Circuit AGU 50 Battery Fuse, 1 SFE 30, 7 SFE 20, Metal Case	5⅜"	8⅛"
FB-8315M	8 Circuit SFE 30, Battery Fuse, 7 AGC 15, Metal Case	5⅜"	8⅛"
FB-8532CM	9 Circuit same as FB-8532M except has closed ends to meet CSA	5⅜"	8⅛"

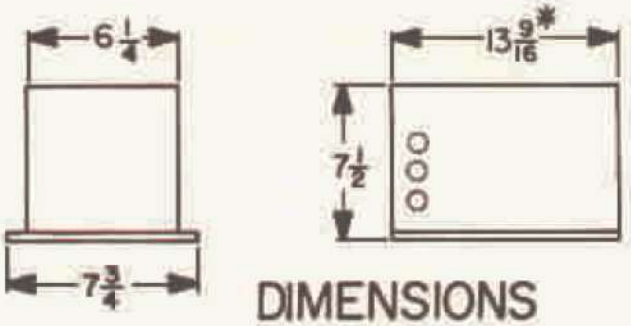
FB-532P Fuse Panel

FB-8532M Fuse Panel

Optional Fuse Panels for Updating Your R.V. Charging System

ery Chargers

Litton **TRIAD-UTRAD** Distributor Services

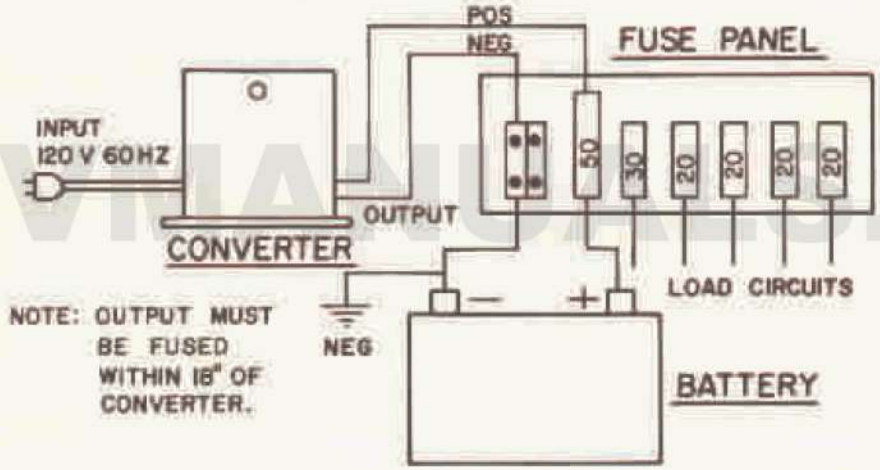


DIMENSIONS

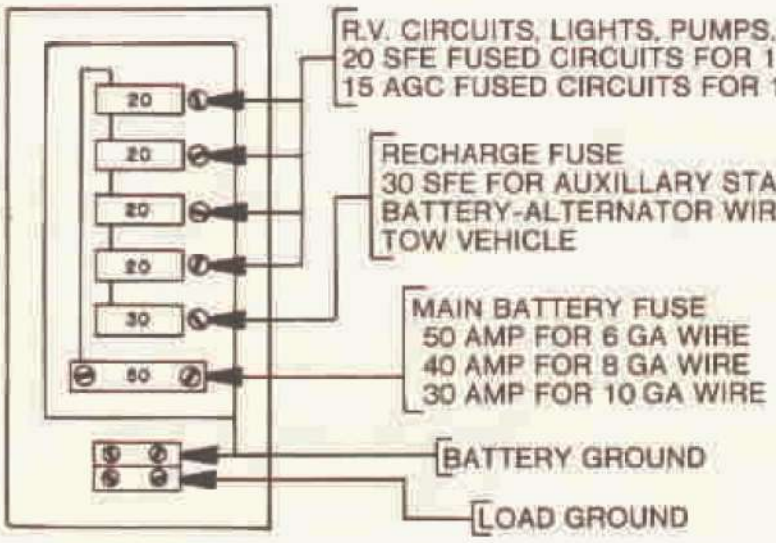
* TU-430-2T IS 9 5/16" IN LENGTH

Converter output power line must be fused within 18" of converter. All models have a 2½ foot long AC power cord and minimum 18" output leads.

TYPICAL CONNECTION DIAGRAM



FUSE PANEL SELECTION



R.V. CIRCUITS, LIGHTS, PUMPS, MOTORS ETC.
20 SFE FUSED CIRCUITS FOR 12 GA WIRE
15 AGC FUSED CIRCUITS FOR 14 GA WIRE

RECHARGE FUSE
30 SFE FOR AUXILLARY STARTING BATTERY-ALTERNATOR WIRE FROM TOW VEHICLE

MAIN BATTERY FUSE
50 AMP FOR 6 GA WIRE
40 AMP FOR 8 GA WIRE
30 AMP FOR 10 GA WIRE

TYPICAL QUESTIONS AND ANSWERS ABOUT TRIAD-UTRAD CONVERTER/BATTERY CHARGERS

1. **Q. Why use the converter/charger instead of a converter?**

   A. A converter/charger is first a converter then a battery charger. It converts the normal 120V AC line voltage found in homes and trailer park hook-ups down to 12 volts DC to operate the wide range of appliances available in most recreational vehicles. The converter/chargers will perform the same basic function as the converter, with the extra convenience of recharging the battery when 115V is available. It also provides for filtered DC operation, meaning longer life for all motor, lights, and other 12 volt appliances. In addition, it is possible to use a lower output current rated supply, with the excess drain by short duration pump motors etc., being supplied by the battery. The converter/charger would then replace this drain automatically as soon as the load is relieved.

2. **Q. What happens if you leave the converter/charger on for long periods of time, unattended?**

   A. The converter/charger is designed to function as an integral part of the battery system. The output voltage of the unit is designed to fully charge the battery without going high enough to overcharge even if the converter/charger is left on indefinitely. The ideal situation for prolonged life of the battery, would be to leave the converter/charger plugged in even when the recreational vehicle is not in use. Periodically check the battery water level at least once a month. Battery failure is most often caused by leaving the battery in a discharged or partially discharged state. Even a completely charged battery will discharge itself if it is not used and kept charged.

3. **Q. What happens when the battery is not used?**

   A. If, at some time, it becomes necessary to remove the battery from the recreational vehicle, the system would still function with no noticeable change except the lights would be slightly dimmer. The condition for short circuit and overload protection described in the following paragraphs would be the same with or without the battery.

4. **Q. What happens when you leave the converter/charger fully loaded for long periods of time?**

   A. At full load, the output voltage of the converter/charger will be approximately 12.3 volts. If the system were loaded to full converter rating, the battery would supply part of the current to the load until the battery terminal voltage was the same as the converter voltage. At this time, the battery would simply be floating and acting as a filter to the system. The converter/charger would then be supplying the total current to the recreational vehicle. At this time, the battery would be in a slightly discharged condition and should return to full charge when the load was decreased. In this type of system, the battery would help absorb sudden changes in output voltage due to sudden changed in load current.

5. **Q. What happens when the system is overloaded?**

   A. It is not possible to damage a converter/charger by indefinite overloads up to and including a dead short. The output voltage, at rated load, is approximately 12.3 volts. This voltage is high enough to maintain a high level of charge on the battery even if the rated current is maintained indefinitely. If there is a demand in excess of rated current, the voltage would decrease slightly, causing a portion of the excess to come directly from the battery. This would continue until the load goes beyond the current limit of the converter/charger. At this point, the current would remain basically the same and the voltage would drop drastically. When this condition exists, the input current will decrease thus preventing an overload on the A.C. line. Also when this condition exists, the battery would supply all the current above the current limit of the converter/charger until either the battery was discharged or part of the load was relieved. When part or all of the load was relieved, the converter/charger would then start to replace the current drawn from the battery. This concept of floating the battery eliminated the sometimes damaging ripple caused by all rectifiers and also helps to prevent sudden changes in voltage to lights, pumps, etc. caused by turning other loads on or off.

6. **Q. What happens with variations in input line voltages?**

   A. One of the major problems in most continuous operation battery charger systems is changes in output voltages due to changes in input voltage. Battery manufacturers say the output voltage of a "floating battery" system should be 2.35 volts per cell, (14.1 volts for a 12 volt battery), in order to bring the battery to a full charge without overcharging. If the output voltage is too far below the value, the battery will not receive a full charge. If the output voltage is above this value, it could cause dangerous gassing and evaporation of the battery water. The output of the Triad-Utrad converter/charger is set in the design of the transformer at 14.1 volts and cannot change by more than .2 volts when operating from 95 volts to 130 volts input. The converter/charger will function with input voltages as low as 60 volts although the output can change as much as .5 volts under this condition. This feature is also important when the converter/charger is under full load operation. DC motors and fluorescent ballasts will overheat when the voltage drops too low as well as when the voltage goes too high. Under full load condition, the voltage can change by .3 V maximum with a 95 volt to 130 volt change in input voltage. For example: if our converter/charger was under full load with an input voltage of 120 V and an output voltage of 12.3 volts, and the AC input voltage suddenly dropped to 95 volts, the output voltage would not drop below 12 volts.

TRIAD-UTRAD
Litton Distributor Services
305 North Briant Street, Huntington, Indiana 46750
219-356-6500

TRIAD-UTRAD CONVERTER - CHARGER

WHAT IS IT? WHAT CAN IT DO?

1. A converter-charger is first a converter then a battery charger. It converts the normal 120V AC line voltage found in homes and trailer park hook-ups down to 12 volts DC to operate the wide range of appliances available in most Recreational Vehicles.

2. When a converter is intended to also serve as a battery charger, several considerations need to be observed. Most battery failure is caused by over or under charging or by non-use rather than by age in proper use. Battery manufacturers recommend a "Tricle Charge" voltage of 2.35 volts per cell, maximum, be used to maintain a battery at full charge for an indefinite period of time. They also recommend that a decreasing current charge is preferable due to the fact a discharged battery can accept more current, without damage, than a partially discharged battery.

3. The general use and engineering observations compiled in the last five years of manufacturing and field service, have led to the present concept and design of the Triad-Utrad Converter/Battery Charger.

4. All of our units operate on the same principal. Elecdrical simplicity is our main consideration. As in all electronic engineering, the more components involved, the more chances for a failure. All three of our individual components (Transformer, capacitor, and diodes) are overrated to prevent accidental and age type failures. The transformer itself is a ferro-resonant, constant voltage, current limiting device which is virtually indestructible in itself.

5. It is not possible to damage a converter-charger by indefinite overloads up to and including a dead short. The output voltage, at rated load, is approximately 12.5 volts. This voltage is high enough to maintain a high level of charge on the battery even if the rated current is maintained indefinitely. If there is a demand in excess of rated current, the voltage would decrease slightly, causing a portion of the excess to come directly from the battery. This would continue until the load goes beyond the current limit of the converter-charger. At this point, the current would remain basically the same and the voltage would drop drastically. When this condition exists, the input current will decrease thus preventing an overload on the A.C. line.

Also when this condition exists, the battery would supply all the current above the current limit of the converter-charger until either the battery was discharged or part of the load was relieved. When part or all of the load was relieved, the converter-charger would then start to replace the current drawn from the battery. This concept of floating the battery eliminated the sometimes damaging ripple caused by all rectifiers and also helps to prevent sudden changes in voltage to lights, pumps, etc. caused by turning other loads on or off.

6. As for line voltage conditions, the converter-charger is designed to operate from 90 volts to 130 volts A.C. without a noticeable change in output voltage, (at any current from no load to rated output). The converter-charger will not be damaged at voltages up to 140 volts and would still charge the battery at voltages down to 40 volts input.

7. Most line voltages in the U.S. and Canada are generally considered to be somewhere between 110 volts and 120 volts. This is not always the case in outlying trailer parks. Due to the great distances between power source and park, the voltage will often range from 130 volts down to 90 volts and sometimes lower.

8. The battery charging capabilities, we feel, are themost important in normal operation. Since the battery is the most perfect form of 12 Volt DC Power (if it would never discharge), then it stands to reason that the charger should be as close to the natural characteristics of the battery as possible. The voltage is set, inside the transformer, at the factory at 14.00 volts to 14.15 volts at no load (tricle charge on a fully charged battery). Since there is no electronic regulating circuit, this voltage can not be changed except in the event of unit failure. In this case, there would be no output voltage. A voltage of 14.1 volts is not required to maintain a battery at full charge, but much lower than 14.00 volts would result in a prolonged time delay from discharge to full charge. A voltage of more than 14.15 volts, could result in needless gassing and loss of battery water.

9. Our design has been upgraded to help compensate for the added power requirement and the trend towards almost "live in" conditions of the R.V. user. This was done by increasing the output voltage at rated load without changing the output voltage at no load. This is to allow the user to draw more current without any discharge of the battery. This charge has not affected the reliability of the converter-charger in anyway. We believe the reliability of our unit is unprecendented in the industry. This statement is based on the number of field returns in the past five years.

10. It is important to note that some R.V. owners use generators to run the converter/charger to charge up their batteries. The Triad-Utrad Converter/Charger must have as close to 60 cycles as possible to work correctly. Most generators will change in frequency with different RPM settings so it is important that the RPMs that will give you 60 to 63 cycles be used. Voltage being not as important as frequency.

If further information is desired, please contact any office of Triad-Utrad.

Triad-Utrad Distributor Services

TYPICAL QUESTIONS AND ANSWERS

Q. Why use a converter?

A. The use of the converter, to the trailer manufacturer, means no more need for dual wiring systems, (no more 115V wiring), no more dual lighting fixtures, or dual voltage motors and pumps. The use of the converter to the recreational vehicle owner means total convenience with or without 115 V available. It also means safer operation of the recreational vehicle.

Q. Why use the converter/charger instead of a converter?

A. The converter/charger will perform the same basic function as the converter, with the extra convenience of recharging the battery when it has become necessary to use the recreational vehicle without 115V available. It also provides for filtered DC operation, meaning longer life for all motor, lights, and other 12 volt appliances. In addition, it is possible to use a lower output current rated supply, with the excess drain by short duration pump motors etc, being supplied by the battery. The converter/charger would then replace this drain automatically as soon as the load is relieved.

Q. What happens if you leave the converter/charger on for long periods of time, unattended?

A. The converter/charger is designed to function as an integral part of the battery system. The output voltage of the unit is designed to fully charge the battery without going high enough to overcharge even if the converter/charger is left on indefinitely. The ideal situation for prolonged life of the battery, would be to leave the converter/charger plugged in even when the recreational vehicle is not is use. Battery failure is most often caused by leaving the battery in a discharged or partially discharged state. Even a completely charged battery will discharge itself if it is not used and kept charged.

Q. What happens when the battery is not used?

A. If, at sometime, it becomes necessary to remove the battery from the recreational vehicle, the system would still function with no noticeable change except the lights would be slightly dimmer. The condition for short circuit and overload protection described in the following paragraphs would be the same with or without the battery.

TYPICAL QUESTIONS AND ANSWERS (continued)

Q. What happens when you leave the converter/charger fully loaded for long periods of time?

A. At full load, the output voltage of the converter/charger will be approximately 12.3 volts. If the system were loaded to full converter rating, the battery would supply part of the current to the load until the battery terminal voltage was the same as the converter voltage. At this time, the battery would simply be floating and acting as a filter to the system. The converter/charger would then be supplying the total current to the recreational vehicle. At this time, the battery would be in a slightly discharged condition and would return to full charge when the load was decreased. In this type of system, the battery would help absorb sudden changes in output voltage due to sudden changes in load current.

Q. What happens when the system is overloaded?

A. The TRIAD-UTRAD converter/charger uses a ferro-resonant transformer. This transformer cannot be damaged by overloads, and is designed to operate, indefinitely, shorted out. For an example, the Model No. TU-740, (40 amp rating) has a current limit of approximately 50 amps and any current in excess of 50 amps would come directly out of the battery. This condition cannot damage the converter/charger and the battery would return to full charge when the excess load is removed.

Q. What happens with variations in input line voltages?

A. One of the major problems in most continuous operation battery charger systems is changes in output voltages due to changes in input voltage. Battery manufacturers say the output voltage of a "floating battery" system should be 2.35 volts per cell, (14.1 volts for a 12 volt battery), in order to bring the battery to a full charge without overcharging. If the output voltage is too far below the value, the battery will not receive a full charge. If the output voltage is above this value, it could cause dangerous gassing and evaporation of the battery water. The output of the TRIAD-UTRAD converter/charger is set in the design of the transformer at 14.1 volts and cannot change by more than .2 volts when operating from 95 volts to 130 volts input. The converter/charger will function with input voltages as low as 60 volts although the output can change as much as .5 volts under this condition.

This feature is also important when the converter/charger is under full load operation. DC motors and fluorescent ballasts will overheat when the voltage drops too low as well as when the voltage goes too high. Under full load condition, the voltage can change by .3V maximum with a 95 volt to 130 volt change in input voltage. For example: If the converter/charger was under full load with an input voltage of 120V and an output voltage of 12.3 volts, and the AC input voltage suddenly dropped to 95 volts, the output voltage would not drop below 12 volts.

Q. Why use the TRIAD-UTRAD converter/charger?

A. We at TRIAD-UTRAD, feel reliability is one of the most important points to give the customer. We feel the customer should not have to calculate the current he is about to use for fear of burning up his power source. With the converter/charger, there are no electronic circuits to burn up, change values with age, or adjust. The converter/charger will provide years of absolute trouble free operation whenever AC power is available.

Q. What is available in converter/chargers?

A. TRIAD-UTRAD has a wide range of converter/chargers to fit most all Recreational Vehicle Trailers and Motor Homes. A list of them appears below:

TU-730	30ADC at 12VDC
TU-740	40ADC at 12VDC
TU-750	50ADC at 12VDC
TU-570	70ADC at 11.5VDC

Thomas Rufner
Converter Engineer

TR/dw
August 25, 1983

GMC MOTOR HOME SERVICE

Dealer Service Information Bulletin

GMC TRUCK & COACH DIVISION GENERAL MOTORS CORPORATION

GMT 1402

NUMBER: 75-IM-1

GROUP: 24-Misc.-1

DATE: December, 1974

IMPORTANT—All Service Personnel Should Read and Initial

SUBJECT: Triad-Utrad Converters

MODELS: All Motor Homes

Several dealers and customers have commented on the ability of the Triad-Utrad converter to charge the motor home batteries. Through this feedback it has been found that there are several misconceptions about the correct functioning of the system. This bulletin is intended to clear up these misconceptions.

First of all the Triad-Utrad converter is not, strictly speaking, a battery charger. Depending on temperature, a battery requires at least 14 volts to charge at an appreciable rate. While the converter will put out slightly over 14 volts at no load, this voltage begins dropping as soon as a load is applied until it reaches 12 volts when 45 amperes are being drawn (this is full rated load condition). This means that if there is no other load on the converter it will charge the battery slowly, this charge rate falls off however, as other loads are added, and eventually the voltage goes low enough that it will not charge the battery at all.

Secondly on 1973 and 1974 models the converter will not put any charge whatsoever in the motor generator battery or the vehicle battery. The converter is connected into the living area electrical system only and will charge only the living area battery. The exceptions to this rule are as follows:

1. If the third wire modification has been made to parallel the motor generator battery to the living area system, the M/G battery will charge along with the living area battery. If this modification has not been made, the M/G battery is charged only by the small DC alternator built into the motor generator.

2. If the battery boost switch is put in the boost position and there is enough power available in the vehicle battery to energize the boost magnetic switch, the vehicle battery will be charged by the converter. Otherwise the vehicle battery is only charged by the 80 amp. alternator mounted on the engine.

In some cases the performance of the Triad-Utrad converter can be improved by attaching the converter's ground wire directly to the hat section channel that runs along the belt line of the vehicle.

GMC MOTOR HOME SERVICE

Dealer Service Information Bulletin

GMC TRUCK & COACH DIVISION GENERAL MOTORS CORPORATION

IT 1492

IMPORTANT—All Service Personnel Should Read and Initial

NUMBER: 76-IM-2
GROUP: 24-Misc.-2
DATE: November, 1975

SUBJECT: Testing Triad-Utrad Converters

MODELS: All Motor Homes

Many Triad-Utrad converters returned to us for warranty credit, when tested, have proven to be in good operating condition. Before a converter is replaced, it should be tested in the following manner:

1. Check the motor generator frequency setting. It should be 63 cycles at 120 volts no load. The converter is sensitive to frequency and will not function properly below 60 cycles. If you plan to bench test the unit, make sure the wall socket is producing 60 cycles. This can also be checked with your frequency meter.

2. Disconnect the converter leads from the motor home. This assures that only the converter is being checked.

3. Connect the leads to a good, fully charged, battery and plug in the converter (Figure 1).

4. Using a good calibrated voltmeter, read output voltage across the battery. It should be between 13 to 15 volts.

Converter humming is not considered to be a failure. Humming should be corrected by installing mounting pads as described in Dealer Service Technical Bulletin 75-TM-14 dated March, 1975.

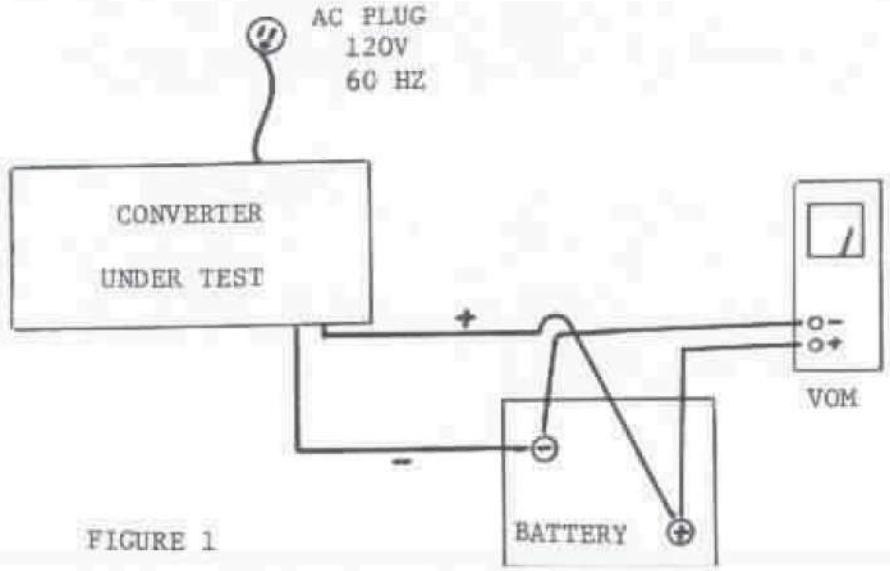


FIGURE 1

GMC MOTOR HOME SERVICE

Dealer Service Technical Bulletin

GMC TRUCK & COACH DIVISION GENERAL MOTORS CORPORATION

GMT 1491

IMPORTANT—All Service Personnel Should Read and Initial

NUMBER: 75-TM-14
GROUP: 24-MISC.-
DATE: March, 197

SUBJECT: Triad-Utrad Voltage Converter Hum

MODELS: All 1973 and 1974 Motor Homes

Many owners have complained of an annoying buzzing sound being made by the Triad-Utrad converter. This noise can be greatly reduced by mounting the converter on special rubber mounts to isolate it from the vehicle.

PARTS INFORMATION

The following parts are necessary to make this modification:

Qty/Vehicle	Part Number	Description
2	792176	Mount
2	792175	Mount
1	790181	Spacer
1	790182	Spacer

The following parts should be procured locally:

Qty/Vehicle	Part Number	Description
2	NPN	3/8-16 x 1-1/4 Bolt
2	NPN	1/4-20 x 1-1/2 Bolt
16	NPN	No. 10-16 x 3/8 Wood Screw

INSTALLATION INSTRUCTIONS

1. Disconnect and remove the voltage converter.

2. Temporarily attach two mounts, part #792176, to spacer, part #790182, using two 3/8-16 x 1-1/4" bolts.

3. In similar manner, attach two mounts, part #792175, to spacer, part #790181, using two 1/4-20 x 1-1/2" bolts.

4. In the same position as the voltage converter was originally mounted, locate the two mount and spacer assemblies with the large mounts toward the back of the compartment and the small mounts in front. Space the mounts 12" apart center to center and be sure the two assemblies are square to each other.

5. Mark the location of the mount attaching holes. Using an 1/8" drill bit, drill the holes for the screws in the compartment floor.

6. Remove the mounts from the spacers and attach them to the floor of the compartment using 10-16 x 3/8" wood screws.

7. Attach the converter to the mounts and spacers with the transformer end (heavy end) over the large mounts. (NOTE: It is necessary to drill out the holes in the converter for the 3/8" bolts.) Reconnect the converter to the electrical system.

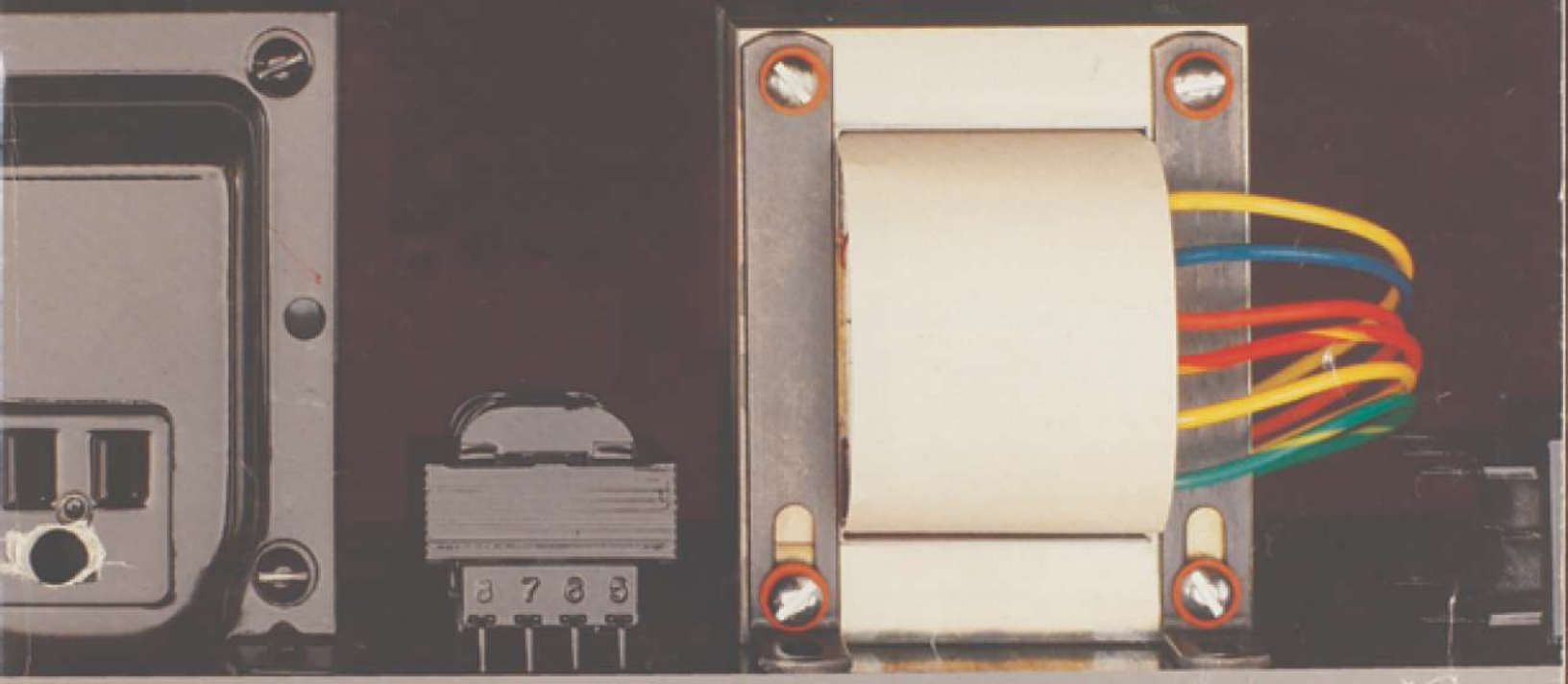
WARRANTY INFORMATION

When the repairs are within the published warranty use:

Labor Operation	Time Allowance	Trouble Code
T025103	.6 Hr.	92

Triad-Utrad Transformers 1987-1988

Transformers · Inductors · Power Supplies



TRIAD-UTRAD

A Division of Magnetek, Inc.

Total Facilities to Serve Industry

Engineering and Development

Triad's design engineering staff employs their combined experience of hundreds of years in the lab and field to keep Triad-Utrad at the forefront of magnetics technology.

Aided by modern test laboratories and a complete sample shop, our engineering staff has dependable expertise to support your own design facilities with production solutions as innovative as our designs.

We maintain close working relationships with all domestic and many international agencies, including UL, BSA, VDE, CSA, IEC and others. This means we can design to the specifications you require.

Manufacturing

Triad-Utrad maintains manufacturing facilities with modern and efficient plants for the production of transformers and related magnetic components. State-of-the-art production equipment and facilities plus a highly skilled workforce enable us to meet the complete range of OEM custom requirements—from simple coils to fully assembled power supplies—in quantities from prototype to millions of units.

Manufacturing is supported by complete purchasing capabilities to procure whatever electronic component is needed. High manufacturing productivity, statistical process controls in key production processes, and sophisticated production equipment enable us to meet the most difficult just-in-time delivery requirements and maintain quality that has become an industry standard.

Quality Assurance

Our formal quality assurance system verifies that your specifications are consistently met or surpassed. We maintain accurate statistical process controls on our product and test all incoming components to MIL-STD-105D. Continued inspection of wire, core, insulation and other components, combined with our supplier quality assurance program, virtually eliminates imperfections.

Standard Transformers

Triad maintains a multimillion-dollar inventory of thousands of transformer designs. These transformers are available off the shelf from one of Triad's nationwide stocking distributors or for 24-hour shipment from the factory. Sales representatives provide local application engineering and sales assistance.

CLASSIFIED INDEX

TRANSFORMER TYPES	COMMERCIAL GRADE	MILITARY GRADE
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Input		45
Interstage		45
Miniature		45
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Input	36,37,38,39	34,35,40,44
Interstage	36,37,38,39	34,35,40,44
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DEFINITION OF TERMS

AMPERE: A unit of electrical current. One volt across one ohm of resistance causes a current flow of one ampere.

AUDIO TRANSFORMER: An iron-core transformer for use with audio-frequency currents to transfer signals from one circuit to another. Used for impedance matching to permit maximum transfer of power.

AUTOTRANSFORMER: A transformer with a single winding (electrically) in which the whole winding acts as the primary winding, and only part of the winding acts as the secondary (step down); or part of the winding acts as the primary and the whole winding acts as the secondary (step up). A voltage, current, or impedance transforming device in which parts of one winding are common to both primary and secondary parts of the circuit.

BRIDGING TRANSFORMER: A transformer designed to couple two circuits having at least nominal ohmic isolation and operating at different impedance levels, without introducing significant frequency or phase distortion.

CHOKE: An inductor (reactor) used to limit or suppress the flow of alternating current without appreciable effect on the flow of direct current.

CURRENT: The movement of electrons through a conductor. Current is measured in amperes.

IMPEDANCE: The total opposition (i.e., resistance and reactance) a circuit offers to the flow of alternating current at a given frequency. It is measured in ohms.

ISOLATION: Electrical separation between two locations.

ISOLATION TRANSFORMER: A transformer designed to provide magnetic coupling (flux coupling) between one or more pairs of isolated circuits, without introducing significant coupling.

LINE MATCHING: A transformer inserted into a system for such purposes as isolation, impedance matching, or additional circuit derivation.

LINE VOLTAGE CORRECTION (STABILIZATION): A device that counteracts variations in the powerline voltage and delivers a constant voltage to the connected load.

POWER TRANSFORMER: A transformer used for raising or lowering the supply voltage to the various values required by the device being operated.

RESISTANCE: A property of conductors which determines the current produced by a given difference of potential. The practical unit of resistance is the ohm.

RMS TEST VOLTAGE: A test voltage for determining the breakdown point of insulating materials and spacings. It consists of applying a voltage higher than the rated voltage between two points or between two or more windings.

TOROIDAL: A coil wound in the form of a toroidal helix. TOROID: A highly efficient type of coil wound upon a ring or 'doughnut' type of core. The toroid provides for high concentrated magnetic field within itself, and has a minimum magnetic flux leakage (external field).

VA: Abbreviation for volt-ampere.

VOLTAGE: Electrical pressure, i.e., the force which causes current to flow through an electrical conductor.

VOLT-AMPERE: Abbreviated VA. A unit of apparent power in an ac circuit containing reactance. It is equal to the potential in volts multiplied by the current in amperes, without taking phase into consideration.

WATT: A measure of electrical power.

WATTAGE: The maximum power that a device can safely handle.

Catalog Index

TRIAD-UTRAD
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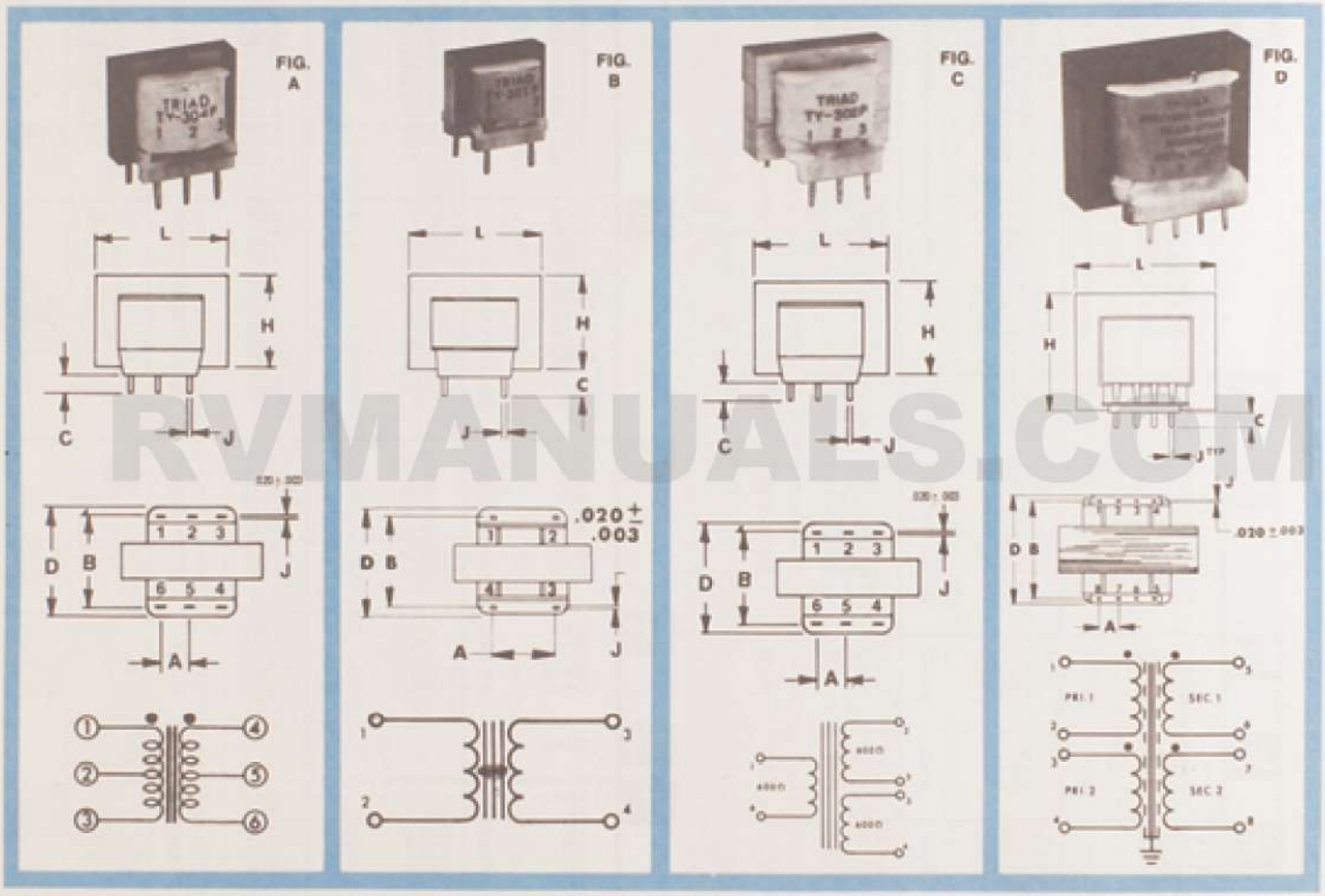
New Item

☛ New Item

PLUG-IN PRINTED CIRCUIT AUDIO TRANSFORMERS

Type No.	Fig.	Output MW	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance	Dimensions H	D	L	A	B	C.	J.	Wt. Oz
TY-141P	A	100	10,000 CT	10,000 CT	4 ma.	⅜	15/32	13/16	⅜	21/64	⅜	.042	1
TY-142P	A	100	10,000 CT	2,000 CT	4 ma.	⅜	15/32	13/16	⅜	21/64	⅜	.042	1
TY-143P	A	100	10,000 CT	1,500 CT	4 ma.	⅜	15/32	13/16	⅜	21/64	⅜	.042	1
TY-144P	A	100	15,000 CT	15,000 CT	4 ma.	⅜	15/32	13/16	⅜	21/64	⅜	.042	1
TY-145P	A	100	600 CT	600 CT	15 ma.	⅜	15/32	13/16	⅜	21/64	⅜	.042	1
TY-146P	D	1 watt	600 CT/150§	600 CT/150§	—	1⅛	1⅛	1⅝	13/64	1 17/32	⅜	.042	3
TY-147P	A	100	150 CT	600 CT	15 ma.	⅜	15/32	13/16	⅜	21/64	⅜	.042	.5

Schematics, Dimensions, Pin Locations for All Plug-In Printed Circuit Audio Transformers



TELEPHONE COUPLING TRANSFORMERS

Frequency Response: 300-3500 Hz ±0.5 db
Longitudinal Balance: 45 db min.
Return Loss: 26 db min.
Distortion: 0.5% max.

Impedance Matching: ±10% over entire frequency range
Power Level: −45 dbm to +7 dbm.
Dielectric: 1500 VRMS
Send for Engineering Bulletin TCT-74

Type No.	Fig. No.	Application	Pri. Imp	Sec. Imp	Dimensions H	D	L	A	B	Pin Dim. C	J	Wt. Oz.
TY-300P	C	Hybrid*	600	600/600	⅜	15/64	⅜	5/16	21/64	13/64	.041	3.2
TY-301P	B	Coupling	600	900	⅜	15/64	⅜	⅜	21/64	13/64	.041	3.2
TY-302P	C	Hybrid*	600	600/600	⅜	15/64	1	13/64	21/32	13/64	.041	3.2
TY-303P	B	Bridging	4000	600	⅜	15/64	⅜	⅜	21/64	13/64	.041	3.2
TY-304P	A	Coupling	600 CT	600 CT	⅜	15/64	⅜	⅜	21/64	⅜	.041	4.8
TY-350P	—	Holding Coil	2.0 hy @ 60 ma, 1.3 hy @ 100 maDC, 180 ohms DCR		1⅛	31/32	1 7/16	⅜	1	¼	.041	4.8

*Two required for hybrid operation. **CT** for Center Tap. §Split winding.

Triad-Utrad has introduced a new line of attractively priced telephone coupling transformers for use in work areas where several telephones are connected to a single incoming-outgoing line. The new TY-PR Series similar to our current TY300P transformers are adaptable for hybrid, bridging or coupling applications. These units comply with FCC Rules Part 68.

Connections for transmission and receiving are made possible by means of transformers. Transformers provide proper impedance coupling as well as the necessary balance and isolation requirements. These requirements are very similar to those associated with telephone repeater and termination sets. Coupling transformers provide suitable means of impedance matching, balancing through close coupling, and isolation. All of these parameters must be taken into consideration so that existing line characteristics are maintained and not degraded. Proper transmission line loading is based upon the characteristic impedance of the line, which has attenuation and propagation.

Specifications

Frequency Response: 300-3500 Hz ±0.5 db
Longitudinal Balance: 45 db min.
Return Loss: 26 db min.
Distortion: 0.5% max.
Impedance Matching: ±10% over entire frequency range
Power Level: −45 dbm to +7 dbm
Dielectric: 1500 VRMS

Longitudinal Balance

The application of good balance within the transformer will help provide for a lower longitudinal noise current to be introduced into the telephone system. In order to maintain good longitudinal balance characteristic, Triad-Utrad units are designed to meet a minimum of 45 db.

"Reflection" Loss or Return Loss

Reflection loss is the amount of impedance discontinuity between the transmission line and the impedance matching device which causes reflection of energy. The amount of reflection loss is dependent upon the ratio of both the transmission line impedance and the reflected load impedance or transformer primary impedance. Triad-Utrad interconnection transformers are designed to conform to a 26 db minimum reflection loss in order to maintain good transmission characteristics.

Insertion Loss

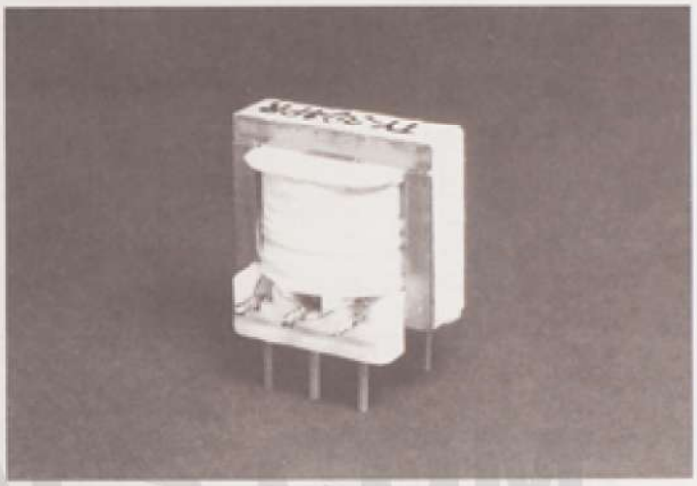
A comparison of the amount of power available with the interconnection transformer in the circuit to the amount of power available without the interconnection transformer in the circuit is called "Insertion Loss". Transformer insertion loss variation over the bandpass of interest should not vary more than .5 db and exceed a total insertion loss of 3 db. The maintained insertion loss for Triad-Utrad interconnection transformers is 3 db maximum.

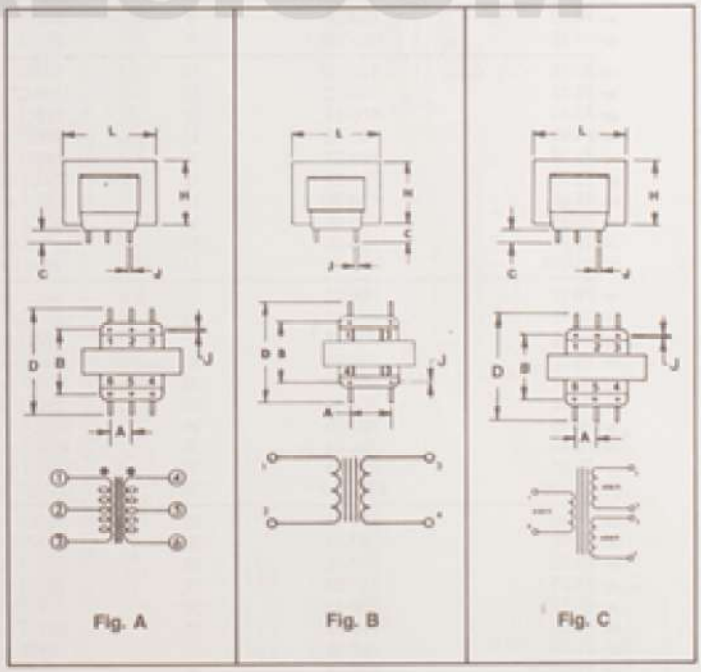
Harmonic Distortion

All of Triad-Utrad interconnection transformers are tested with all windings loaded to proper matching impedance, then checked at a frequency of 275 hertz. All Triad-Utrad interfacing transformers have a harmonic distortion of less than .5 percent as the maximum specification.

Frequency Response

Typical interconnection transformers should have a frequency response that remains within ±.5 db throughout a spectrum of 300 hertz to 3400 hertz. Triad-Utrad interconnection transformers have a dynamic frequency response of 275 hertz through 3500 hertz ±.5 db.





Type No.	Fig. No.	Application	Pri. Imp	Sec. Imp.	Dimensions (inches) H	B	L	A	B	Pin Dim. C	J	Wt. Oz.
☛ TY-300PR	C	Hybrid*	600	600/600	1/8	13/64	1/4	11/32	21/64	13/64	.025 SQ.	.51
☛ TY-301PR	B	Coupling	600	900	1/8	13/64	1/4	1/8	21/64	13/64	.025 SQ.	.51
☛ TY-302PR	C	Hybrid*	600	600/600	1/4	1 11/32	1	13/64	25/32	13/64	.025 SQ.	1.06
☛ TY-303PR	B	Bridging	4000	600	1/8	13/64	1/4	1/8	21/64	13/64	.025 SQ.	.51
☛ TY-304PR	A	Coupling	600 CT	600 CT	1/8	13/64	1/4	11/32	21/64	13/64	.025 SQ.	.51

☛ New Item *Two required for hybrid operation. CT for Center Tap.

Quick Pack Power

TRIAD-UTRAD
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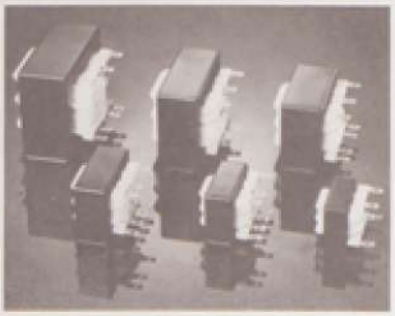
Presenting the Quick Pack series, the latest addition to Triad-Utrad's extensive line-up of small power transformers.



Quick Pack transformers can offer a significant reduction in size and weight for a given VA rating. Plus, these transformers come with a special quick-connect or solder terminal. Quick Pack transformers are available in six sizes for a wide variety of applications.

Bobbin Wound — Reduces transformer size and space.

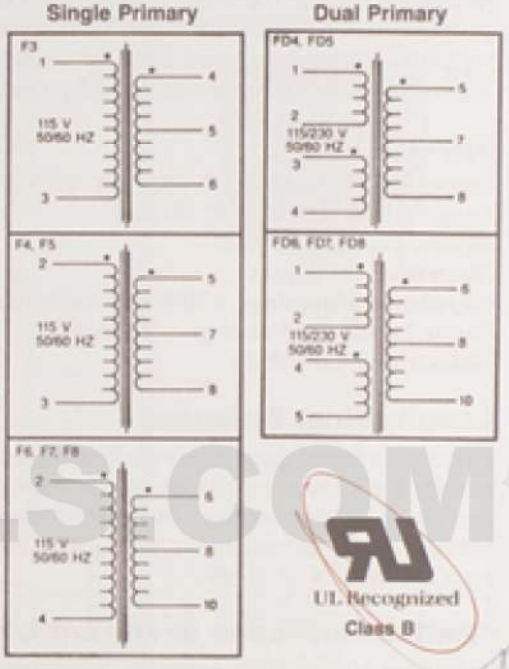
Split Bobbin Non-Concentric Winding — Eliminates costly electrostatic shielding. The Quick Pack transformer's unique construction makes possible higher HiPot testing, 2500V rather than 1500V.

This series is available with single 115V or dual 115/230V primary, rated 50/60 Hz, Class B insulation insures maximum total temperature of 130°C continuous.

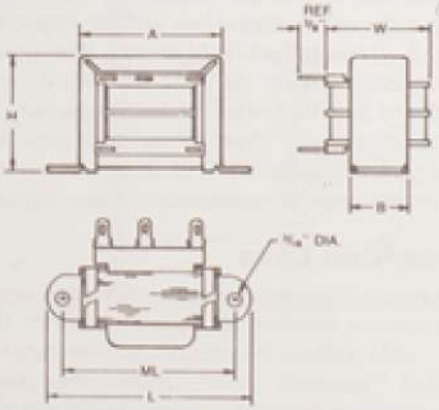
50/60 HZ Primary

115V	115-230V	VA	OUTPUT RATING
F3-10	—	2.4	10VCT @ 0.25A
F3-12	—	2.4	12.6VCT @ 0.2A
F3-16	—	2.4	16VCT @ 0.15A
F3-20	—	2.4	20VCT @ 0.12A
F3-24	—	2.4	24VCT @ 0.1A
F3-28	—	2.4	28VCT @ 0.085A
F3-36	—	2.4	36VCT @ 0.065A
F3-48	—	2.4	48VCT @ 0.05A
F3-56	—	2.4	56VCT @ 0.045A
F3-120	—	2.4	120VCT @ 0.02A
F4-10	FD4-10	6	10VCT @ 0.6A
F4-12	FD4-12	6	12.6VCT @ 0.5A
F4-16	FD4-16	6	16VCT @ 0.4A
F4-20	FD4-20	6	20VCT @ 0.3A
F4-24	FD4-24	6	24VCT @ 0.25A
F4-28	FD4-28	6	28VCT @ 0.2A
F4-36	FD4-36	6	36VCT @ 0.17A
F4-48	FD4-48	6	48VCT @ 0.125A
F4-56	FD4-56	6	56VCT @ 0.11A
F4-120	FD4-120	6	120VCT @ 0.05A
F5-10	FD5-10	12	10VCT @ 1.2A
F5-12	FD5-12	12	12.6VCT @ 1.0A
F5-16	FD5-16	12	16VCT @ 0.8A
F5-20	FD5-20	12	20VCT @ 0.6A
F5-24	FD5-24	12	24VCT @ 0.5A
F5-28	FD5-28	12	28VCT @ 0.42A
F5-36	FD5-36	12	36VCT @ 0.35A
F5-48	FD5-48	12	48VCT @ 0.25A
F5-56	FD5-56	12	56VCT @ 0.22A
F5-120	FD5-120	12	120VCT @ 0.1A
F6-10	FD6-10	30	10VCT @ 3.0A
F6-12	FD6-12	30	12.6VCT @ 2.5A
F6-16	FD6-16	30	16VCT @ 2.0A
F6-20	FD6-20	30	20VCT @ 1.5A
F6-24	FD6-24	30	24VCT @ 1.25A
F6-28	FD6-28	30	28VCT @ 1.1A
F6-36	FD6-36	30	36VCT @ 0.85A
F6-48	FD6-48	30	48VCT @ 0.63A
F6-56	FD6-56	30	56VCT @ 0.54A
F6-120	FD6-120	30	120VCT @ 0.25A
F7-10	FD7-10	56	10VCT @ 5.0A
F7-12	FD7-12	56	12.6VCT @ 4.0A
F7-16	FD7-16	56	16VCT @ 3.5A
F7-20	FD7-20	56	20VCT @ 2.8A
F7-24	FD7-24	56	24VCT @ 2.4A
F7-28	FD7-28	56	28VCT @ 2.0A
F7-36	FD7-36	56	36VCT @ 1.5A
F7-48	FD7-48	56	48VCT @ 1.2A
F7-56	FD7-56	56	56VCT @ 1.0A
F7-120	FD7-120	56	120VCT @ 0.5A
F8-10	FD8-10	100	10VCT @ 10.0A
F8-12	FD8-12	100	12.6VCT @ 8.0A
F8-16	FD8-16	100	16VCT @ 6.25A
F8-20	FD8-20	100	20VCT @ 5.0A
F8-24	FD8-24	100	24VCT @ 4.0A
F8-28	FD8-28	100	28VCT @ 3.6A
F8-36	FD8-36	100	36VCT @ 2.8A
F8-48	FD8-48	100	48VCT @ 2.0A
F8-56	FD8-56	100	56VCT @ 1.8A
F8-120	FD8-120	100	120VCT @ 0.85A

New Item



UL Recognized
Class B



NOTES: Terminals to be quick-connect (.187) or solder lug terminals.
Dielectric strength: 2500 V.
• Indicates like polarity.

Dimensions

Size	VA	L	W	H	A	B	ML	Lbs.
F3	2.4	2 1/16	1 1/16	1 9/16	1 1/16	9/16	1 1/4	0.4
F4 & FD4	6	2 1/16	1 1/4	1 1/16	1 11/16	1 1/16	2	0.44
F5 & FD5	12	2 13/16	1 1/16	1 1/16	1 11/16	9/16	2 1/16	0.7
F6 & FD6	30	3 1/4	1 11/16	1 15/16	2 15/16	1 1/16	2 13/16	1.1
F7 & FD7	56	3 11/16	1 15/16	2 1/4	2 11/16	1 1/16	3 1/16	1.7
F8 & FD8	100	4 1/32	2 1/4	2 5/16	3 1/16	1 5/16	3 5/16	2.75

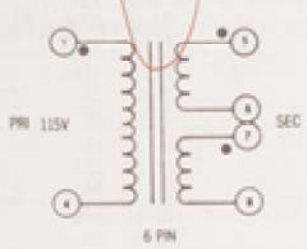
Split Bobbin Transformer

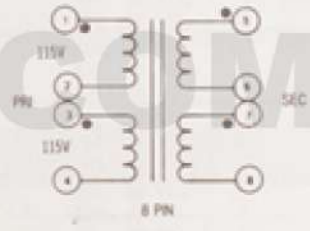
Triad-Utrad's new Split Pack split bobbin transformer increases the depth and versatility of Triad's already extensive line of PC board mounted transformers. Like Triad's recent Flat Pack™ series, the Split Pack transformers are nonconcentrically wound—with primary and secondaries wound side by side, unlike the secondary-on-top-of-primary windings of standard PC board transformers. Split bobbin winding and low capacitive coupling eliminate costly electrostatic shielding. The Split Pack's unique construction make possible higher HiPot testing—2,500V rather than 1,500V.

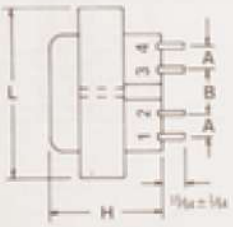
50/60 Hz Dual Secondary

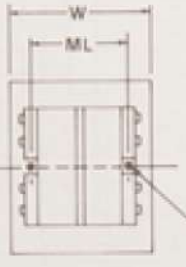
PRIMARY		VA	SECONDARY RATINGS (RMS)		
115V 6 PIN	115-230V 8 PIN		INDIVIDUAL	SERIES	PARALLEL
F10-110	FS10-110	1.1	5V @ .11A	10V CT @ .11A	5V @ .22A
F10-250	FS10-250	2.5	5V @ .25A	10V CT @ .25A	5V @ .5A
F10-600	FS10-600	6	5V @ .6A	10V CT @ .6A	5V @ 1.2A
F10-1200	FS101200	12	5V @ 1.2A	10V CT @ 1.2A	5V @ 2.4A
F10-2000	FS102000	20	5V @ 2A	10V CT @ 2A	5V @ 4A
F10-3600	FS103600	36	5V @ 3.6A	10V CT @ 3.6A	5V @ 7.2A
F12-090	FS12-090	1.1	6.3V @ .09A	12.6V CT @ .09A	6.3V @ .18A
F12-200	FS12-200	2.5	6.3V @ .2A	12.6V CT @ .2A	6.3V @ .4A
F12-500	FS12-500	6	6.3V @ .5A	12.6V CT @ .5A	6.3V @ 1.0A
F12-1000	FS121000	12	6.3V @ 1.0A	12.6V CT @ 1.0A	6.3V @ 2.0A
F12-1600	FS121600	20	6.3V @ 1.6A	12.6V CT @ 1.6A	6.3V @ 3.2A
F12-2850	FS122850	36	6.3V @ 2.85A	12.6V CT @ 2.85A	6.3V @ 5.7A
F16-070	FS16-070	1.1	8V @ .07A	16V CT @ .07A	8V @ .14A
F16-150	FS16-150	2.5	8V @ .15A	16V CT @ .15A	8V @ .3A
F16-400	FS16-400	6	8V @ .4A	16V CT @ .4A	8V @ .8A
F16-800	FS16-800	12	8V @ .8A	16V CT @ .8A	8V @ 1.6A
F16-1250	FS161250	20	8V @ 1.25A	16V CT @ 1.25A	8V @ 2.5A
F16-2250	FS162250	36	8V @ 2.25A	16V CT @ 2.25A	8V @ 4.5A
F20-055	FS20-055	1.1	10V @ .055A	20V CT @ .055A	10V @ .11A
F20-120	FS20-120	2.5	10V @ .12A	20V CT @ .12A	10V @ .24A
F20-300	FS20-300	6	10V @ .3A	20V CT @ .3A	10V @ .6A
F20-600	FS20-600	12	10V @ .6A	20V CT @ .6A	10V @ 1.2A
F20-1000	FS201000	20	10V @ 1.0A	20V CT @ 1.0A	10V @ 2A
F20-1800	FS201800	36	10V @ 1.8A	20V CT @ 1.8A	10V @ 3.6A
F24-045	FS24-045	1.1	12V @ .045A	24V CT @ .045A	12V @ .09A
F24-100	FS24-100	2.5	12V @ .1A	24V CT @ .1A	12V @ .2A
F24-250	FS24-250	6	12V @ .25A	24V CT @ .25A	12V @ .5A
F24-500	FS24-500	12	12V @ .5A	24V CT @ .5A	12V @ 1.0A
F24-800	FS24-800	20	12V @ .8A	24V CT @ .8A	12V @ 1.6A
F24-1500	FS241500	36	12V @ 1.5A	24V CT @ 1.5A	12V @ 3A
F28-040	FS28-040	1.1	14V @ .04A	28V CT @ .04A	14V @ .08A
F28-85	FS28-85	2.5	14V @ .085A	28V CT @ .085A	14V @ .17A
F28-200	FS28-200	6	14V @ .2A	28V CT @ .2A	14V @ .4A
F28-420	FS28-420	12	14V @ .42A	28V CT @ .42A	14V @ .84A
F28-700	FS28-700	20	14V @ .7A	28V CT @ .7A	14V @ 1.4A
F28-1300	FS281300	36	14V @ 1.3A	28V CT @ 1.3A	14V @ 2.6A
F36-030	FS36-030	1.1	18V @ .03A	36V CT @ .03A	18V @ .06A
F36-65	FS36-65	2.5	18V @ .065A	36V CT @ .065A	18V @ .13A
F36-170	FS36-170	6	18V @ .17A	36V CT @ .17A	18V @ .34A
F36-350	FS36-350	12	18V @ .35A	36V CT @ .35A	18V @ .7A
F36-550	FS36-550	20	18V @ .55A	36V CT @ .55A	18V @ 1.1A
F36-1000	FS361000	36	18V @ 1A	36V CT @ 1A	18V @ 2A
F48-023	FS48-023	1.1	24V @ .023A	48V CT @ .023A	24V @ .046A
F48-050	FS48-050	2.5	24V @ .05A	48V CT @ .05A	24V @ .1A
F48-125	FS48-125	6	24V @ .125A	48V CT @ .125A	24V @ .25A
F48-250	FS48-250	12	24V @ .25A	48V CT @ .25A	24V @ .5A
F48-400	FS48-400	20	24V @ .4A	48V CT @ .4A	24V @ .8A
F48-750	FS48-750	36	24V @ .75A	48V CT @ .75A	24V @ 1.5A
F56-020	FS56-020	1.1	28V @ .02A	56V CT @ .02A	28V @ .04A
F56-045	FS56-045	2.5	28V @ .045A	56V CT @ .045A	28V @ .09A
F56-110	FS56-110	6	28V @ .11A	56V CT @ .11A	28V @ .22A
F56-220	FS56-220	12	28V @ .22A	56V CT @ .22A	28V @ .44A
F56-350	FS56-350	20	28V @ .35A	56V CT @ .35A	28V @ .7A
F56-650	FS56-650	36	28V @ .65A	56V CT @ .65A	28V @ 1.3A
F120-010	FS120-01	1.1	60V @ .01A	120V CT @ .01A	60V @ .02A
F120-020	FS120-02	2.5	60V @ .02A	120V CT @ .02A	60V @ .04A
F120-050	FS120-05	6	60V @ .05A	120V CT @ .05A	60V @ .1A
F120-100	FS120100	12	60V @ .1A	120V CT @ .1A	60V @ .2A
F120-160	FS120160	20	60V @ .16A	120V CT @ .16A	60V @ .32A
F120-300	FS120300	36	60V @ .3A	120V CT @ .3A	60V @ .6A

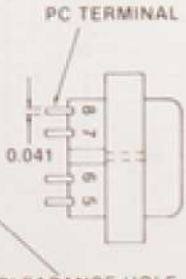
UL Recognized
Class B









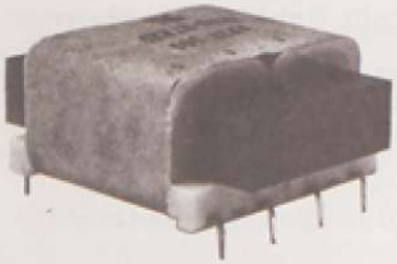


VA	H	W	L	ML	A	B	C	WT
1.1	15/16	1-1/8	1-3/8	—	.250	.250	1.200	.17
2.5	1-3/16	1-1/8	1-3/8	—	.250	.250	1.20	.25
6	1-5/16	1-5/16	1-5/8	1-1/16	.250	.350	1.280	.44
12	1-7/16	1-9/16	1-7/8	1-1/4	.300	.400	1.410	.70
20	1-7/16	1-7/8	2-1/4	1-1/2	.300	.400	1.600	.80
36	1-9/16	2-3/16	2-5/8	!	.400	.400	1.850	1.1

! 36VA size has 4 mtg. holes on 2-3/16 × 1-3/4 centers

Flat Pack Power

TRIAD-UTRAD
A Division of Magnetek Inc.

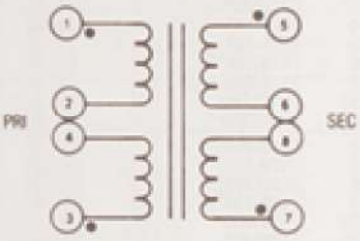


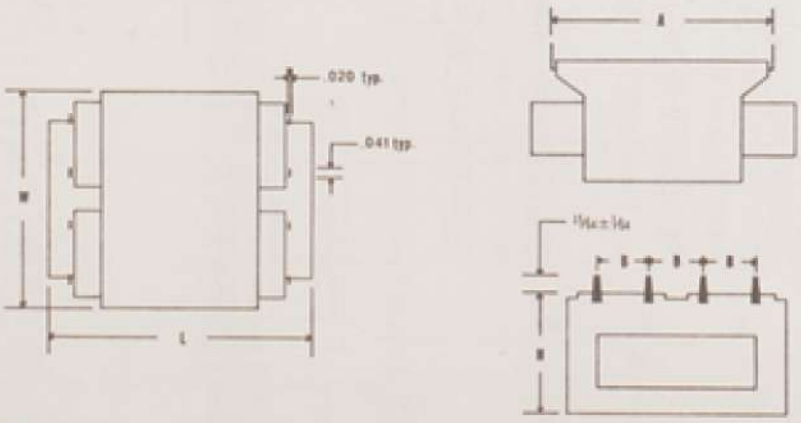
Triad-Utrad's new Flat Pack power transformer is designed to meet the needs of low clearance printed circuit board and solid state power designs. These new units can also be used for control and instrumentation applications. Voltages and currents were chosen for widely used power applications and could be used in single or dual output supplies. The Triad-Utrad Flat Pack has a unique construction feature allowing them to pass a 2000V HiPot test.

115-230 Volts, 50-60 Hz Dual Primary/Dual Secondary

TYPE NO.	OUTPUT WATTS	INDIVIDUAL	SECONDARY SERIES	PARALLEL
FP10-250	2.5	5V @ .25A	10V CT @ .25A	5V @ .5A
FP10-600	6	5V @ .6A	10V CT @ .6A	5V @ 1.2A
FP101200	12	5V @ 1.2A	10V CT @ 1.2A	5V @ 2.4A
FP12-200	2.5	6.3V @ .2A	12.6V CT @ .2A	6.3V @ .4A
FP12-475	6	6.3V @ .475A	12.6V CT @ .475A	6.3V @ .95A
FP12-950	12	6.3V @ .95A	12.6V CT @ .95A	6.3V @ 1.9A
FP16-150	2.5	8V @ .15A	16V CT @ .15A	8V @ .3A
FP16-375	6	8V @ .375A	16V CT @ .375A	8V @ .75A
FP16-750	12	8V @ .75A	16V CT @ .75A	8V @ 1.5A
FP20-125	2.5	10V @ .125A	20V CT @ .125A	10V @ .25A
FP20-300	6	10V @ .3A	20V CT @ .3A	10V @ .6A
FP20-600	12	10V @ .6A	20V CT @ .6A	10V @ 1.2A
FP24-100	2.5	12V @ .1A	24V CT @ .1A	12V @ .2A
FP24-250	6	12V @ .25A	24V CT @ .25A	12V @ .5A
FP24-500	12	12V @ .5A	24V CT @ .5A	12V @ 1.0A
FP30-85	2.5	15V @ .08A	30V CT @ .08A	15V @ .16A
FP30-200	6	15V @ .2A	30V CT @ .2A	15V @ .4A
FP30-400	12	15V @ .4A	30V CT @ .4A	15V @ .8A
FP34-75	2.5	17V @ .075A	34V CT @ .075A	17V @ .15A
FP34-170	6	17V @ .17A	34V CT @ .17A	17V @ .34A
FP34-340	12	17V @ .34A	34V CT @ .34A	17V @ .68A
FP40-60	2.5	20V @ .06A	40V CT @ .06A	20V @ .12A
FP40-150	6	20V @ .15A	40V CT @ .15A	20V @ .3A
FP40-300	12	20V @ .3A	40V CT @ .3A	20V @ .6A
FP56-45	2.5	28V @ .045A	56V CT @ .045A	28V @ .09A
FP56-100	6	28V @ .1A	56V CT @ .1A	28V @ .2A
FP56-200	12	28V @ .2A	56V CT @ .2A	28V @ .4A
FP88-28	2.5	44V @ .028A	88V CT @ .028A	44V @ .056A
FP88-65	6	44V @ .065A	88V CT @ .065A	44V @ .13A
FP88-130	12	44V @ .13A	88V CT @ .13A	44V @ .26A
FP120-20	2.5	60V @ .02A	120V CT @ .02A	60V @ .04A
FP120-50	6	60V @ .05A	120V CT @ .05A	60V @ .1A
FP120100	12	60V @ .1A	120V CT @ .1A	60V @ .2A
FP230-10	2.5	115V @ .01A	230V CT @ .01A	115V @ .02A
FP230-25	6	115V @ .025A	230V CT @ .025A	115V @ .05A
FP230-50	12	115V @ .05A	230V CT @ .05A	115V @ .1A

UL Recognized
Class B





OUTPUT WATTS	H	W	L	A	B	WT OZ
2.5	.650	1.562	1.875	1.600	.375	5
6	.875	1.562	1.875	1.600	.375	7
12	1.062	2.000	2.500	2.000	.500	11

Specifications:

Primary
115/230
50/60Hz

Flat Pack = allows ¾" card spacing for 2.5VA units, 1" card spacing for 6VA units or 1¼" for 12VA units

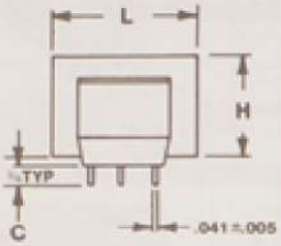
Split Bobbin = side by side windings reduce interwinding capacitance and eliminates the need for a static shield

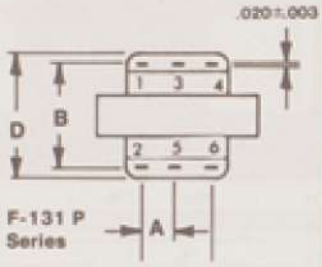
Semi-Toroidal Construction reduces radiated magnetic fields and results in balanced windings

Terminals are precision spaced

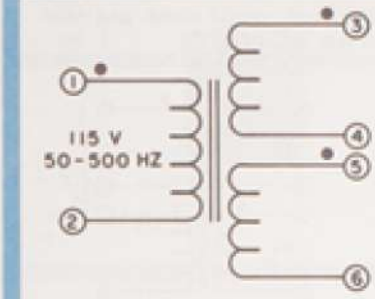
LOW-VOLTAGE, LOW-CURRENT PLUG-IN PRINTED CIRCUIT TYPES—FOR SMALL DC POWER SUPPLIES

Fig. B



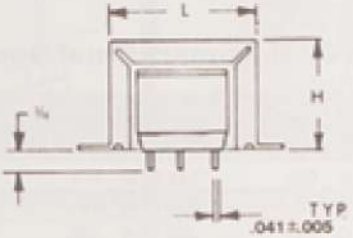


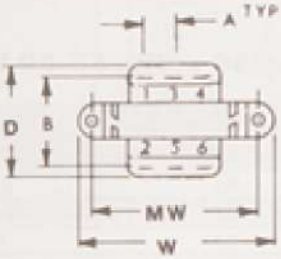
This series of transformers is ideal for single or dual output DC supplies, isolated control circuits and reference supplies in transistorized control and instrumentation. They provide a voltage stepdown and isolation from power line at relatively low power levels of 1½, 4½ and 7 watts at 4 to 58 volts when connected in parallel, and 8 to 116 volts when series connected. Precision spaced plug-in terminals provide fixed mounting centers—the kind usually found only in costly molded units. You get the benefits without the high cost plus maximum power with optimum equipment miniaturization.



Single Primary

Fig. A





F-141XP Series

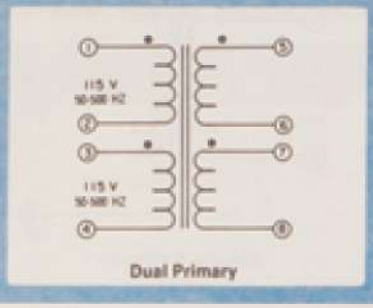
115 volts, 50-60 Hz Primary, Dual Secondaries

Type No.	Fig.	Output Watts	SECONDARY Individual	Series Conn.	Parallel Conn.	Dimensions H.	W.	D.	L.	A.	B.	MW	Wt. Oz.
F-131P	B	1½	4V @ .188A	8V CT @ .188A	4V @ .376A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-139P	B	1½	6.3V @ .12A	12.6V CT @ .12A	6.3V @ .24A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-132P	B	1½	7.5V @ .10A	15V CT @ .100A	7.5V @ .200A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-150P	B	1½	8.5V @ .085A	17V CT @ .085A	8.5V @ .170A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-138P	B	1½	12.6V @ .06A	25.2V CT @ .06A	12.6V @ .12A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-133P	B	1½	15V @ .05A	30V CT @ .050A	15V @ .100A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-160P	B	1½	17V @ .045A	34V CT @ .045A	17V @ .090A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-137P	B	1½	20V @ .038A	40V CT @ .038A	20V @ .076A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-134P	B	1½	27V @ .028A	54V CT @ .028A	27V @ .056A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-135P	B	1½	38V @ .02A	76V CT @ .020A	38V @ .040A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-136P	B	1½	58V @ .013A	116V CT @ .013A	58V @ .026A	1⅛		1 5/32	1 23/64	5/8	1		3.5
F-141XP	A	4½	4V @ .562A	8V CT @ .562A	4.0V @ 1.124A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-149XP	A	4½	6.3V @ .35A	12.6V CT @ .35A	6.3V @ .70A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-142XP	A	4½	7.5V @ .3A	15V CT @ .300A	7.5V @ .600A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-161XP	A	4½	8.5V @ .264A	17V CT @ .264A	8.5V @ .528A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-148XP	A	4½	12.6V @ .178A	25.2V CT @ .178A	12.6V @ .356A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-143XP	A	4½	15V @ .150A	30V CT @ .150A	15V @ .300A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-162XP	A	4½	17V @ .132A	34V CT @ .132A	17V @ .264A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-147XP	A	4½	20V @ .112A	40V CT @ .112A	20V @ .224A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-144XP	A	4½	27V @ .084A	54V CT @ .084A	27V @ .168A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-145XP	A	4½	38V @ .06A	76V CT @ .060A	38V @ .120A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-146XP	A	4½	58V @ .033A	116V CT @ .033A	58V @ .066A	1 25/64	2⅜	1¼	1 45/64	15/32	1 5/32	2	7.5
F-151XP	A	7½	4V @ .94A	8V CT @ .940A	4.0V @ 1.88A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-159XP	A	7½	6.3V @ .6A	12.6V CT @ .60A	6.3V @ 1.2A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-152XP	A	7½	7.5V @ .5A	15V CT @ .500A	7.5V @ 1.000A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-163XP	A	7½	8.5V @ .441A	17V CT @ .441A	8.5V @ .882A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-158XP	A	7½	12.6V @ .3A	25.2V CT @ .30A	12.6V @ .60A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-153XP	A	7½	15V @ .25A	30V CT @ .250A	15V @ .500A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-164XP	A	7½	17V @ .22A	34V CT @ .220A	17V @ .440A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-157XP	A	7½	20V @ .188A	40V CT @ .188A	20V @ .376A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-154XP	A	7½	27V @ .14A	54V CT @ .140A	27V @ .280A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-155XP	A	7½	38V @ .1A	76V CT @ .100A	38V @ .200A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5
F-156XP	A	7½	58V @ .3A	116V CT @ .300A	58V @ .130A	1 41/64	2 13/64	1 15/32	1 45/64	15/32	1 5/16	2⅝	10.5

Power Transformers

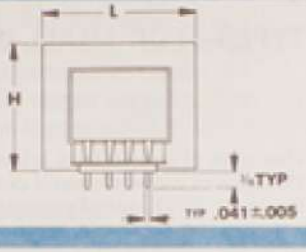
TRIAD-UTRAD
A Division of Magnetek, Inc.

These transformers with dual primaries permit their use in equipment for sale in both foreign and domestic markets. Voltages and currents were chosen particularly for widely-used power applications in semi-conductor circuits such as single or dual output DC supplies and isolated control circuit and reference supplies.



Dual Primary


Fig. B-1



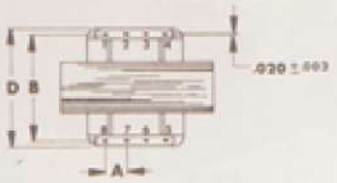
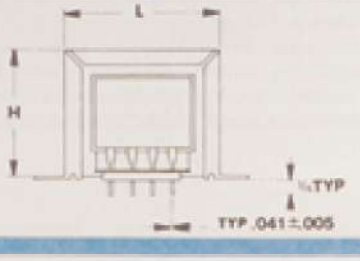
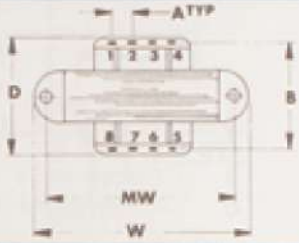



Fig. A-1, A-2





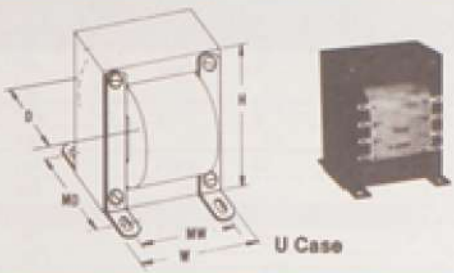
115-230 volts, 50-60 Hz Dual Primary/Dual Secondaries

Type No.	Fig.	Output Watts	SECONDARY Individual	Series Conn.	Parallel Conn.	Dimensions H.	W.	D.	L.	A.	B.	MW	Wt. Oz.
F-3458P	B-1	1	6.3V @ .07A	12.6V CT @ .07A	6.3V @ .14A	5/16	-	1 1/16	1	13/16	1 13/16	-	2.5
F-3132P	B-1	1 1/8	7.5V @ .1A	15V CT @ .1A	7.5V @ .2A	1 1/8	-	1 1/8	1 1/8	13/16	1	-	4.0
F-333P	B-1	1 1/8	15V @ .05A	30V CT @ .50A	15V @ .100A	1 1/8	-	1 1/8	-	13/16	1	-	4.0
F-367P	B-1	1 1/8	115V @ .0065A	230V CT @ .0065A	115V @ .013A	1 1/8	-	1 1/8	1 1/8	13/16	1	-	4.0
F-348XP	A-1	4 1/8	6.3V @ .35A	12.6V CT @ .350A	6.3V @ .700A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-3142XP	A-1	4 1/8	7.5V @ .3A	15V CT @ .3A	7.5V @ .6A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-349XP	A-1	4 1/8	8V @ .28A	16V CT @ .280A	8V @ .560A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-350XP	A-1	4 1/8	12V @ .18A	24V CT @ .180A	12V @ .360A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-358XP	A-1	4 1/8	10V @ .225A	20V CT @ .225A	10V @ .450A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-3143XP	A-1	4 1/8	15V @ .15A	30V CT @ .15A	15V @ .3A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-363XP	A-1	4 1/8	115V @ .02A	230V CT @ .020A	115V @ .040A	1 1/8	2 3/8	1 1/4	1 1/8	1/4	1 3/16	2	6.5
F-3152XP	A-1	7 1/8	7.5V @ .5A	15V CT @ .5A	7.5V @ 1.0A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-3153XP	A-1	7 1/8	15V @ .25A	30V CT @ .25A	15V @ .5A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-368XP	A-1	7 1/8	115V @ .065A	230V CT @ .065A	115V @ .13A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-359XP	A-2	10	12V @ .45A	24V CT @ .450A	12V @ .900A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-362XP	A-2	10	10V @ .5A	20V CT @ .500A	10V @ 1.0A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-365XP	A-2	10	6.3V @ .8A	12.6V CT @ .800A	6.3V @ 1.6A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-366XP	A-2	10	8V @ .64A	16V CT @ .640A	8V @ 1.28A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-369XP	A-2	10	115V @ .087	230V CT @ .087A	115V @ .174A	1 1/8	2 15/16	1 1/16	1 1/8	1/4	1 1/16	2 5/8	11.0
F-370P	B-1	24	5V @ 2.4A	10V CT @ 2.4A	5V @ 4.8A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-371P	B-1	24	6.3V @ 2A	12.6V CT @ 2A	6.3V @ 4A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-372P	B-1	24	8V @ 1.5A	16V CT @ 1.5A	8V @ 3A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-373P	B-1	24	10V @ 1.2A	20V CT @ 1.2A	10V @ 2.4A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-374P	B-1	24	12V @ 1A	24V CT @ 1A	12V @ 2A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-375P	B-1	24	14V @ .8A	28V CT @ .8A	14V @ 1.6A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-376P	B-1	24	17V @ .7A	34V CT @ .7A	17V @ 1.4A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-377P	B-1	24	20V @ .6A	40V CT @ .6A	20V @ 1.2A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-378P	B-1	24	28V @ .42A	56V CT @ .42A	28V @ .84A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3
F-379P	B-1	24	60V @ .2A	120V CT @ .2A	60V @ .4A	1 1/8	-	2 1/16	1 1/8	1/4	2 3/16	-	13.3

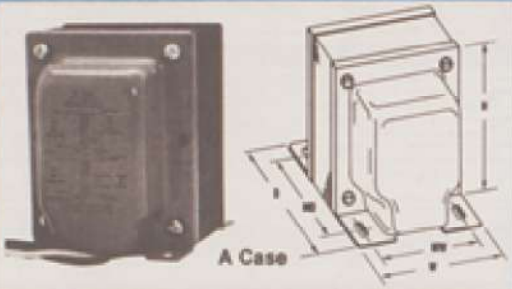
for Power Supply, Control and Filament Circuits

X Case
Most units in case type X also available on special order with shields added or with channel frame removed.

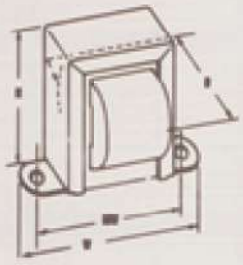
Z Case



U Case



A Case



K Case

* 60 cycle only

Single secondary / 50-60 Hz. Listed in order of increasing secondary voltages

Type No.	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-50X#	Sec. 6.3-5 Pri. 6.3-5	2		Pri. 500 Sec. 5000	X	Leads	1 13/16	3 5/16	2	2 13/16		3/16	1.2
Special Fil. Line Matching Transformer													
F-1X# F-301X	2.5 CT	3	115 115/230	1500	X	Leads	1 5/8	2 13/16	1 5/8	2 5/8		3/16	.68
F-72Z#	2.5 CT	5	115	Pri. 1500 Sec. 7500	Z	Pri. Leads Sec.-Lugs	2 9/32	3 1/8	2 1/8	2 13/16		3/16	1.7
F-6X# F-306X	2.5 CT	6	115 115/230	Pri. 1500 Sec. 2500	X	Leads	1 13/16	3 5/16	1 5/8	2 13/16		3/16	1
F-3X#	2.5 CT	10	115	Pri. 1500 Sec. 3000	X	Leads	2 9/32	3 1/4	2 1/8	3 1/8		3/16	1.7
F-5U	2.5 CT	10	115	Pri. 1500 Sec. 7500	U	Leads	3 5/16	2 1/2	2 5/16	2	1 3/8	5/16×5/16	2.2
F-71U#	2.5 CT	10	115	Pri. 1500 Sec. 10,000	U	Pri. Leads Sec. Leads	3 5/16	2 13/16	2 5/16	2 1/4	2 1/8	5/16×5/16	2.6
F-7X	5 CT	3	115	1500	X	Leads	1 13/16	3 5/16	2	2 13/16		3/16	1.3
F-8X	5 CT	6	115	1500	X	Leads	2 9/32	3 1/4	2 1/8	3 1/8		3/16	1.7
F-12X	5 CT	8	115	2500	X	Leads	2 13/32	4	2 1/4	3 5/16		3/16	2.5
F-10U#	5 CT	14	115	Pri. 1500 Sec. 10,000	U	Leads	3 13/16	3 5/16	3 1/4	2 1/2	2 5/16	5/16×5/16	4.75
F-15U#	5 CT	15	115	Pri. 1500 Sec. 3000	U	Leads Lugs	3 1/2	2 5/8	2 11/16	2 1/4	2 5/16	5/16×5/16	3.25
F-9U	5.2 CT	13	115	1500	U	Leads	3 5/16	2 13/16	3 1/4	2 1/4	2 5/8	5/16×5/16	4
F-11U	5.2 CT	24	115	1500	U	Leads	3 13/16	3 5/16	3 1/4	2 1/2	3 1/16	5/16×5/16	6.75
F-13X F-313X	6.3	.6	115 115/230	1500	X	Leads	1 5/8	2 5/8	1 5/8	2		3/16	.37
R-84K	6.3‡	.6	115	Pri. 1500 Sec. 3500	K	2-Leads	2 5/8	2 5/8	2 13/16	1 5/8	2 5/8	3/16	1.5
F-14X# F-314X	6.3 CT	1.2	115 115/230	Pri. 1500 Sec. 2500	X	Leads	1 5/8	2 13/16	1 5/8	2 5/8		3/16	.7
F-14Z#	6.3 CT	1.2	115	Pri. 1500 Sec. 2500	Z	Leads	1 13/16	2 5/8	1 5/8	2		3/16	.7

‡Static shield. †Tapped primary to produce lower voltages. #60 cycle operation

for Power Supply, Control and Filament Circuits

Single secondary / 50-60 Hz (Continued)

Type No.	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Voltage		Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-52X	6.3‡	1.2	115	Pri.	1500	X	Leads	1 15/16	3 5/16	1 5/8	2 1/16		5/16	1
				Sec.	5000									
F-51X#	6.3-5‡	2	115	Pri.	1500	X	Leads	1 15/16	3 5/16	2	2 1/16		5/16	1.25
				Sec.	5000									
F-16X	6.3 CT	3	115	Pri.	1500	X	Leads	1 15/16	3 5/16	2	2 1/16		5/16	1.3
F-316X			115/230	Sec.	2500									
F-53X	6.3	4	115	Pri.	1500	X	Leads	2 1/32	4	2 1/4	3 5/16		5/16	2.1
				Sec.	5000									
F-43X#	6.3	4	115		1500	X	Leads	1 15/16	3 5/16	2	2 1/16		5/16	1.25
F-18A	6.3 CT	6	115		1500	A	1-Leads	3 5/16	2 21/32	2 5/8	2	1 11/16	5/16 x 5/16	2.5
F-18X	6.3 CT	6	115		1500	X	Leads	2 1/32	4	2 1/4	3 5/16		5/16	2.3
F-318X			115/230											
F-19X†	6.3 CT-6 CT	6	115		2000	X	Leads	2 1/32	4	2 1/4	3 5/16		5/16	2.3
F-69X	6.3 CT	8	115		1500	X	Leads	2 5/16	4	2 1/4	3 5/16		5/16	2.3
F-21A	6.3 CT	10	115		1500	A	1-Leads	3 1/32	2 21/32	3 1/8	2 1/4	2	5/16 x 5/16	3.8
F-20U†	6.3 CT-6 CT	11	115	Pri.	1500	U	Leads	3 1/2	2 1/8	3	2 1/4	2 1/16	5/16 x 5/16	4
				Sec.	3000									
F-17U	6.3 CT	15	115	Pri.	1500	U	Pri. Leads	4 1/4	3 1/2	3 3/4	2 3/4	2 13/16	5/16 x 5/16	7.5
	Lo-Cap.			Sec.	10,000		Sec. Leads							
F-22A	6.3 CT	20	115		2000	A	2-Leads	3 1/8	3 9/32	4 1/8	2 1/2	3	5/16 x 5/16	7
F-24U†	7.5 CT-	8	115	Pri.	1500	U	Leads	3 1/2	2 1/8	2 13/16	2 1/4	2 5/16	5/16 x 5/16	3.65
	6.3 CT			Sec.	3000									
F-28U†	7.5 CT-	25	115	Pri.	1500	U	Leads & Lugs	4 1/8	3 13/16	3 5/8	3	3 1/16	5/16 x 5/16	7.5
	6.3 CT			Sec.	3000									
F-180X	10 CT	1	115		1500	X	Leads	1 15/16	3 5/16	1 5/8	2 1/16		5/16	.9
F-31X	10 CT	3	115		2000	X	Leads	2 5/32	3 1/4	2 1/8	3 1/4		5/16	1.7
F-95X	10 CT	4	115		1500	X	Leads	2 5/8	4	2 1/8	3 5/16		5/16	2.1
F-33U	10 CT	5	115		2000	U	Leads	3	2 1/2	2 5/8	2	2 1/16	5/16 x 5/16	2.5
F-96U	10 CT	6	115		1500	U	Leads	3	2 1/2	2 1/4	2	2 5/16	5/16 x 5/16	2.1
F-23U	10 CT	7	115		1500	U	Leads	3 1/2	2 5/8	2 13/16	2 1/4	2 5/16	5/16 x 5/16	3.9
F-97U	10 CT	8	115		1500	U	Leads	3 5/16	2 5/16	3	2 1/4	2 1/2	5/16 x 5/16	4.0
F-35U	10 CT	10	115		2000	U	Leads	4 1/8	3 1/16	3 1/4	2 3/4	2 5/16	5/16 x 5/16	9.1
F-113X	12	0.15	115		1500	X	Leads	1 1/8	2 1/8	1 1/8	2		5/16	.4
F-216X#	12	.35	115		1500	X	Leads	1 1/8	2 1/8	1 1/8	2		5/16	.37
F-114X	12	0.7	115		1500	X	Leads	1 1/8	2 5/16	1 1/8	2 1/8		5/16	.8
F-217X#	12	1.2	115		1500	X	Leads	2	3 1/4	1 1/4	2 5/16		5/16	1.0
F-218X#	12	2	115		1500	X	Leads	2	3 1/4	1 1/8	2 1/8		5/16	1.13
F-219X#	12	4	115		1500	X	Leads	2 5/16	4	2 1/4	3 5/16		5/16	2.3
F-220U#	12	6	115		1500	U	Leads	3 5/16	2 5/16	2 1/2	2 1/4	2 5/8	5/16 x 5/16	3.5
F-221U#	12	8	115		1500	U	Leads	3 5/16	3 1/8	2 5/8	2 1/2	2 5/8	5/16 x 5/16	4.0
F-29U†	12 CT-11 CT	11	115	Pri.	1500	U	Leads	4 1/8	3 1/2	3 5/8	2 3/4	2 13/16	5/16 x 5/16	6.5
	10 CT			Sec.	3000									
F-70X	12.6 CT	1.0	115		1500	X	Leads	1 15/16	3 5/16	1 5/8	2 1/16		5/16	1.3
F-25X	12.6 CT	1.5	115		1500	X	Leads	1 15/16	3 5/16	2	2 1/16		5/16	1.3
F-325X			115/230											
F-44X#	12.6 CT	2	115		1500	X	Leads	1 15/16	3 5/16	2	2 1/16		5/16	1.25
F-344X			115/230											
F-26X#	12.6 CT	2.5	115		1500	X	Leads	2 5/32	3 1/16	2	3 1/8		5/16	1.55
F-326X			115/230											
F-224X#	12.6	3	115		1500	X	Leads	2 1/16	3 1/4	2 1/8	3 1/8		5/16	1.6
F-225X#	12.6	4	115		1500	X	Leads	2 1/8	4	2 1/16	3 5/16		5/16	2.3
F-181U	12.6 CT	4	115		1500	U	Leads	3 1/16	2 5/16	2 5/16	2	2	5/16	2.3
F-3181U			115/230											
F-182U	12.6 CT	6	115		1500	U	Leads	3 1/8	2 13/16	2 5/16	2 1/4	2 5/8	5/16 x 5/16	3.8
F-183U	12.6 CT	8	115		1500	U	Leads	3 15/16	3 5/16	2 15/16	2 1/2	2 5/8	5/16 x 5/16	5

‡Static shield. †Tapped primary to produce lower voltages. #60 cycle operation

for Power Supply, Control and Filament Circuits

Single secondary / 50-60 Hz (Continued)

Type No.	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-112X	14 CT	0.25	115	1500	X	Leads	1⅜	2⅝	1⅜	2		¼	.4
F-3112X	14 CT	0.25	115/230	1500	X	Leads	1⅜	2⅝	1½	2		¼	.3
F-250X	14 CT	1	115	1500	X	Leads	1 11/16	3⅛	1¾	2 3/16		¼	1.2
F-251X	14 CT	2	115	1500	X	Leads	2⅛	3 1/16	1 15/16	3⅛		¼	1.5
F-252U	14 CT	4	115	1500	U	Leads	3	2½	2 1/16	2	2⅛	5/16×⅜	3
F-253U	14 CT	6	115	1500	U	Leads	3⅜	2 13/16	2⅛	2¼	2⅜	5/16×⅜	4
F-410X	18 CT	.75	115	1500	X	Leads	1 15/16	3 5/16	2	2 13/16		¼	1.3
F-411X	18 CT	1	115	1500	X	Leads	1 15/16	3 5/16	2⅛	2 13/16		¼	1.45
F-412X	18 CT	1.5	115	1500	X	Leads	2 5/32	3¼	2⅛	3⅛		¼	1.7
F413X	18 CT	2	115	1500	X	Leads	2 5/32	3¼	2¼	3⅛		¼	1.95
F-254X	20 CT	1	115	1500	X	Leads	2⅛	3 1/16	1 15/16	3⅜		¼	1.5
F-255X	20 CT	2	115	1500	X	Leads	2 5/16	4	2⅛	3 5/16		¼	2.5
F-256U	20 CT	4	115	1500	U	Leads	3⅜	2 13/16	2⅛	2¼	2⅜	5/16×⅜	4
F-257U	20 CT	6	115	1500	U	Leads	3⅜	3⅛	3⅛	2½	2⅜	5/16×⅜	5.7
F-258U	20 CT	8	115	1500	U	Leads	3⅜	3⅛	3½	2½	2⅜	5/16×⅜	6.4
F-259U	20 CT	10	115	1500	U	Leads	4¼	3 1/16	3½	2¾	2¾	5/16×⅜	7.4
F-115X F-3115X	24 CT	0.085	115 115/230	1500	X	Leads	1 5/16	2 1/16	1⅜	1¾		¼	.3
F-116X F-3116X	24 CT	0.2	115 115/230	1500	X	Leads	1⅜	2⅝	1½	2		¼	.45
F-117X	24 CT	0.4	115	1500	X	Leads	1⅜	2 13/16	1⅜	2⅝		¼	.8
F-3117X	24 CT	.4	115/230	1500	X	Leads	1⅜	2 13/16	1½	2⅝		¼	.75
F-246X#	24 CT	.5	440	1500	X	Leads	2	3 1/16	1⅜	2 13/16		¼	.8
F-118X F-3118X	24 CT	.7	115 115/230	1500	X	Leads	2	3¼	2	2 13/16		¼	1.3
F-45X# F-345X	24 CT	1	115 115/230	1500	X	Leads	1 15/16	3 5/16	2	2 13/16		¼	1.3
F-230X	24 CT	1	440	2000	X	Leads	2⅛	3 1/16	1 15/16	3⅛		¼	1.7
F-46X# F-346X	24	1	115 115/230	1500	X	Leads	1 11/16	3¼	2⅛	2 13/16		¼	1.4
F-229X#	24	2	115	1500	X	Leads	2 5/16	4	2	3 5/16		¼	2.3
F-192X	24 CT	2	115	1500	X	Leads	2 5/32	4	2¼	3 5/16		¼	2.3
F-231X	24 CT	2	440	2000	X	Leads	2 5/16	4	2¼	3 5/16		¼	2.4
F-193U	24 CT	4	115	1500	U	Leads	3 1/16	3⅛	2 13/16	2½	2⅜	5/16×⅜	4
F-232U	24 CT	4	440	2000	U	Leads	3⅛	3⅛	2⅛	2½	2⅜	5/16×⅜	4.6
F-260U	24 CT	6	115	1500	U	Leads	3⅛	3⅛	3½	2½	2⅜	5/16×⅜	6.4
F-261U	24 CT	8	115	1500	U	Leads	4⅛	3 1/16	3½	2⅝	2⅝	5/16×⅜	7.4
F-401U	24 CT	10	115	1500	U	Leads	4⅛	3 1/16	3⅝	2⅝	3	⅜×⅜	8.0
F-226U#	24 CT	12	115	1500	U	Leads	4 5/16	3⅝	4⅛	3	3⅛	⅜×⅜	10.4
F-57X F-357X	25.2 CT	1	115 115/230	1500	X	Leads	1 15/16	3 1/16	2	2 13/16		¼	1.5
F-341X#	25.2 CT	2	115	1500	X	Leads	2 1/32	4	2¼	3 5/16		¼	2.2
F-56X	25.2 CT	2.8	115	1500	X	Leads	2 11/32	4	2¼	3 5/16		¼	2.5
F-119X	26.8 CT	0.15	115	1500	X	Leads	1⅜	2⅝	1½	2		¼	.45
F-120X	26.8 CT	0.5	115	1500	X	Leads	1 11/16	3⅛	2	2 13/16		¼	1.3
F-40X# F-340X	26.8 CT	1	115 115/230	1500	X	Leads	1 15/16	3 5/16	2	2 13/16		¼	1.3
F-55X F-355X	26.8 CT	1.7	115 115/230	1500	X	Leads	2 1/32	4	2¼	3 5/16		¼	2.3
F-121X	28 CT	.085	115	1500	X	Leads	1 5/16	2 1/16	1⅜	1¾		¼	.25
F-122X	28 CT	.175	115	1500	X	Leads	1⅜	2⅝	1½	2		¼	.35
F-123X	28 CT	.300	115	1500	X	Leads	1⅜	2 13/16	1⅜	2⅝		¼	.60
F-124X	28 CT	.800	115	1500	X	Leads	1 15/16	3⅛	2	2 13/16		¼	1.00
F-184X	28.0 CT	1	115	1500	X	Leads	2 5/16	3 11/16	2¼	3⅛		¼	1.4
F-185U F-3185U	28.0 CT	2	115 115/230	1500	U	Leads	3 1/16	2½	2 1/16	2	2⅛	⅜×⅜	2.9
F-187U	28.0 CT	4	115	1500	U	Leads	3½	2⅝	3 1/16	2⅛	2⅜	5/16×⅜	5.3

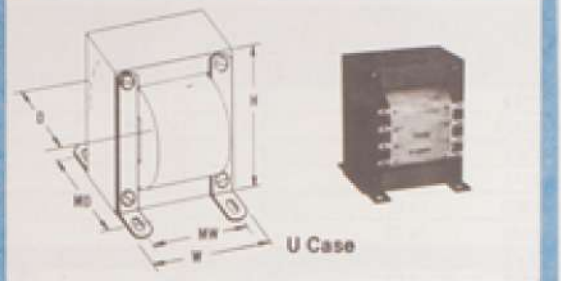
#60 cycle operation.

TRIAD-UTRAD
A Division of Magnetek Inc.

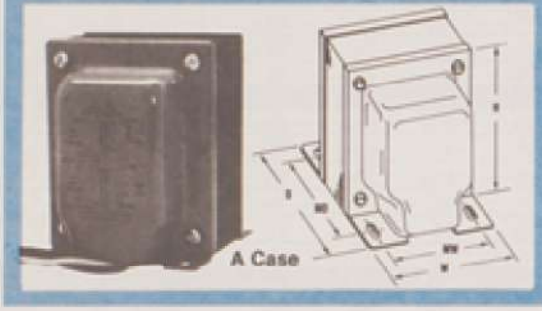
for Power Supply, Control and Filament Circuits

X Case
Most units in case type X also available on special order with shields added or with channel frame removed.

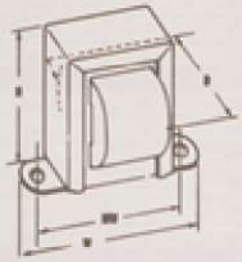
Z Case

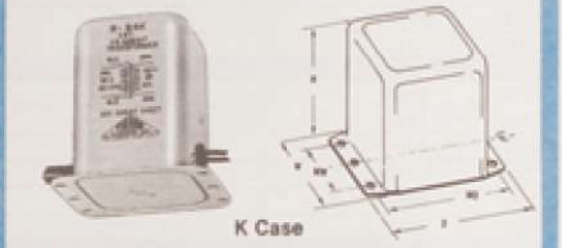


U Case



A Case





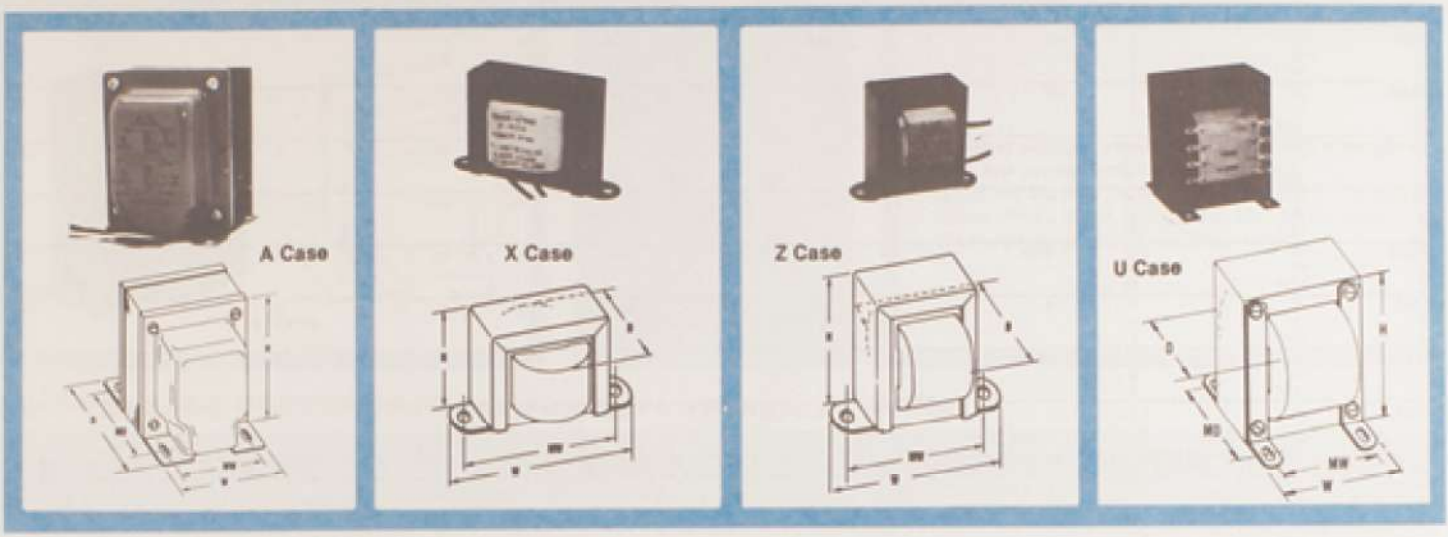
K Case

Single secondary / 50-60 Hz. Listed in order of increasing secondary voltages

Type No.	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-262X	30.0 CT	1	115	1500	X	Leads	2¼	3 5/16	1 11/16	3⅛		¼	1.5
F-210X	30.0 CT	1.7	115	1500	X	Leads	2 13/16	4	2⅛	3 5/16		¼	2.3
F-263U	30.0 CT	2	115	1500	U	Leads	3	2½	2 5/16	2	2⅜	¼×⅜	3.2
F-264U	30.0 CT	4	115	1500	U	Leads	3⅜	3⅛	3⅛	2½	2⅜	¼×⅜	5.7
F-265U	30.0 CT	6	115	1500	U	Leads	4⅛	3 7/16	3½	2⅝	2¾	¼×⅜	7.4
F-266U	30.0 CT	8	115	1500	U	Leads	4½	3¾	4	3	3	¼×⅜	10.0
F-227X#	35 CT	.065	115	1500	X	Leads	1 5/16	2 1/16	1 1/16	1⅜		⅜	.3
F-188X	35.0 CT	.1	115	1500	X	Leads	1⅜	2 5/16	1 1/16	2⅛		⅜	.35
F-228X#	35 CT	.3	115	1500	X	Leads	1⅜	2 5/16	1⅜	2⅛		⅜	.6
F-189X	35.0 CT	.5	115	1500	X	Leads	2 1/16	3 1/16	1 11/16	3⅛		⅜	1.0
F-54X F-354X	35 CT	1.5	115 115/230	1500	X	Leads	2 13/16	4	2¼	3 5/16		¼	2.2
F-190U	35.0 CT	2	115	1500	U	Leads	3⅜	2 5/16	2⅛	2¼	2⅜	¼×⅜	3.5
F-191U	35.0 CT	4	115	1500	U	Leads	3 5/16	3 1/16	3 1/16	2⅝	2½	¼×⅜	6.0
F-267U	35.0 CT	6	115	1500	U	Leads	4⅛	3 1/16	3½	2⅝	2¾	¼×⅜	7.4
F-268U	35.0 CT	8	115	1500	U	Leads	4½	3⅜	4⅛	3	3⅛	¼×⅜	11.0
F-269U	35.0 CT	10	115	1500	U	Leads	5¼	4⅜	4⅛	3½	2⅝	⅜×1 3/4	12.0
F-270X	40.0 CT	1	115	1500	X	Leads	2 13/16	4	2⅛	3 5/16		¼	2.6
F-271U	40.0 CT	2	115	1500	U	Leads	3⅜	2 5/16	2⅛	2¼	2⅜	¼×⅜	4.0
F-272U	40.0 CT	4	115	1500	U	Leads	3⅜	3⅛	3½	2½	2⅜	¼×⅜	6.4
F-273U	40.0 CT	6	115	1500	U	Leads	4½	3⅜	4	3	3	¼×⅜	10.0
F-274U	40.0 CT	8	115	1500	U	Leads	4½	3⅜	4⅛	3	3⅜	¼×⅜	10.5
F-275U	40.0 CT	10	115	1500	U	Leads	5⅜	4⅜	4½	3½	3¼	⅜×1 3/4	14.5
F-276X	50.0 CT	1	115	1500	X	Leads	2 13/16	4	2⅛	3 5/16		¼	2.4
F-277U	50.0 CT	2	115	1500	U	Leads	3⅜	3⅛	2⅜	2½	2⅜	¼×⅜	4.7
F-278U	50.0 CT	4	115	1500	U	Leads	4⅛	3 5/16	3½	2⅝	2⅜	¼×⅜	7.4
F-58A	50 CT	5	115	1500	A	Leads	4⅜	3 1/16	4½	3	3⅜	⅜×⅝	10.0
F-59X	60 CT	.4	115	1500	X	Leads	1 1/16	3 5/16	2	2 1/16		¼	1.3
F-279U	60.0 CT	1	115	1500	U	Leads	3	2½	2⅜	2	2⅜	¼×⅜	3.4
F-280U	60.0 CT	2	115	1500	U	Leads	3⅜	3⅛	3⅛	2½	2⅜	¼×⅜	5.6
F-281U	60.0 CT	4	115	1500	U	Leads	4½	3⅜	4	3	3	¼×⅜	10.0
F-282U	60.0 CT	6	115	1500	U	Leads	5¼	4⅜	4⅛	3⅜	2⅝	¼×⅜	12.5
F-283U	70.0 CT	1	115	1500	U	Leads	3⅜	2 5/16	2⅜	2⅛	2¼	¼×⅜	4.0
F-284U	70.0 CT	2	115	1500	U	Leads	3⅜	3⅛	3⅛	2½	2⅜	¼×⅜	6.0

#60 cycle operation.

for Power Supply, Control and Filament Circuits



Multiple secondary / 50-60 Hz

Type No.	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	W	D	Mounting Dimension MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-27U	10 CT 2.5 CT	10 10	115	1500 7500	U	Leads	4⅜	3½	3¾	2⅝	2⅝	⅝×⅜	6.2
F-32A	6.3 CT* 6.3 CT*	3 3	115	1500	A	1-Leads	3⅜	2 11/32	2⅝	2	1 11/16	⅝×⅜	2.5
F-34A	6.3 CT* 6.3* 6.3* 6.3*	1.75 1.75 1.75 1.75	115	1500	A	2-Leads	3⅜	2 11/32	3	2	2⅜	⅝×⅜	3.3
F-36A	6.3 CT* 6.3* 6.3* 6.3*	3.5 3.5 3.5 3.5	115	1500	A	1-Leads	3⅜	3 5/32	3⅜	2⅜	2⅜	⅝×⅜	5
F-38A	6.3 CT* 6.3* 6.3 5 CT 5	5 5 1 2 4	115	1500	A	2-Leads	3⅜	3 5/32	3¾	2½	2⅝	⅝×⅝	6
F-233Z	6* 6*	2 2	96	1500	Z	Lugs	2 1/16	3⅛	2	2 1/16		⅜	1.5
F-234Z#	12 CT 12 CT	.1 .1	115	1500	Z	Lugs	1⅜	2	1 5/16	1⅜		⅜	.3
F-235Z#	12 CT 12 CT	.25 .25	115	1500	Z	Lugs	2	2⅛	1 5/16	2		⅜	.6
F-236Z#	12 CT 12 CT	.5 .5	115	1500	Z	Lugs	2 1/16	2⅛	1⅜	2⅛		⅜	.9
F-237Z#	12 CT 12 CT	1 1	115	1500	Z	Lugs	2⅛	2 13/16	2 1/16	2⅛		⅜	1.1
F-238U#	12 CT 12 CT	2 2	115	1500	U	Lugs	2½	3	2 5/16	2½	2	⅝×⅝	2.2
F-239U#	12 CT 12 CT	4 4	115	1500	U	Lugs	3⅛	3⅜	2⅝	3⅛	2¼	⅝×⅝	4.25
F-240U#	12 CT 12 CT	6 6	115	1500	U	Lugs	3⅝	4⅛	3 1/16	3 1/16	2¼	⅝×⅝	5.4
F-293X#	12 12	.5 .5	277	Pri. Sec. 2500 Sec. Core 1500	X	Leads	2	3⅛	1 5/16	2 1/16		⅜	.8
F-294X	12 12	1 1 -	277	1500	X	Leads	2	3⅛	2	2 1/16		⅜	1.2
F-42A	12.6 CT* 12.6*	2.5 2.5	115	1500	A	1-Leads	3 15/32	2 11/32	3⅛	2¼	2	⅝×⅜	3.7
F-83A# ¶	12.6 CT* 12.6 CT*	5 5	115	Pri. Sec. 1500 Sec. core 2500	A	2-Leads	3⅜	3 5/32	3⅜	2½	2⅝	⅝×⅜	6

*Windings may be connected in series to obtain their combined voltage when properly phased: Current will be equal to the current of the lowest winding. Example: Two 6.3V windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain combined current. Example: Two 6.3V, windings @ 2A. in parallel would be 6.3V. @ 4A.

#60 cycle operation ¶ Tapped primary 105-115-125

Power Transformers

TRIAD-UTRAD
A Division of Magnetics, Inc.

Type No.	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-295Z	15 12 12 CT	.1 .1 .1	115	1500	Z	Leads	1⅛	2	1⅛	1⅝		¼	.4
F-329SZ	15 12 12 CT	.1 .1 .1	230	1500	Z	Leads	1⅛	2	1⅛	1⅝		¼	.41
F-296ZP	15 12 12 CT	.15 .15 .15	115	1500	Z	Leads	1 13/16	2⅜	1⅛	2		¼	.6
F-297ZP	15 12 12 CT	.25 .25 .25	115	1500	Z	Leads	1 13/16	2 11/16	1⅛	2		¼	.7
F-329TZ	15 12 12 CT	.25 .25 .25	115/230	1500	Z	Leads	2⅛	2⅛	1⅛	2⅝		¼	.8
F-298Z	15 12 12 CT	.5 .5 .5	115	1500	Z	Leads	2⅛	3⅛	1⅛	2⅝		¼	1.25
F-329SZ	15 12 12 CT	.5 .5 .5	115/230	1500	Z	Leads	2⅛	2 13/16	2	2⅝		¼	1.25
F-299X	15 12 12 CT	1.5 1.5 1.5	115	1500	X	Leads	3 1/16	4	2⅛	3 1/16		¼	2.3
F-241GP*	18 CT 18 CT	1 1	115	1500	U	Lugs	2⅛	3	2⅛	2⅞	2	⅜×¼	2.2
F-242GP*	18 CT 18 CT	2 2	115	1500	U	Lugs	3⅛	3⅝	2 11/16	3¼	2⅝	⅜×¼	4.0
F-243GP*	18 CT 18 CT	4 4	115	1500	U	Lugs	3⅛	4⅛	3⅛	3 1/16	2⅝	⅜×¼	5.2
F-244GP*	18 CT 18 CT	8 8	115	1500	U	Lugs	3⅝	4⅝	4	3⅝	2⅝	⅜×¼	8.3
F-245GP*	18 CT 18 CT	12 12	115	1500	U	Lugs	4⅝	5 1/16	4⅝	4⅝	2⅝	⅜×¼	11.9
F-194X	32.0 CT 15.5 CT	.050 .20	115	1500	X	Leads	1⅝	2⅝	1⅝	2⅝		¼	.45
F-195X	32.0 CT 15.5 CT	.250 .750	115	1500	X	Leads	2⅛	3⅛	1⅛	3⅛		¼	1.3
F-395X	32 CT 15 CT	.250 .750	230	1500	X	Leads	2⅛	3⅛	1⅛	3⅛		¼	1.3
F-196U	32.0 CT 15.0 CT	1 2	115	1500	U	Leads	3⅛	2 13/16	2⅛	2⅝	2⅛	⅜×¼	4.0
F-396U	32 CT 15 CT	1 2	230	1500	U	Leads	3⅛	2 13/16	2⅛	2⅝	2⅛	⅜×¼	4.0
F-197U	32.0 CT 15.0 CT	1 4	115	1500	U	Leads	3⅛	3⅛	2 11/16	2⅝	2⅛	⅜×¼	4.7
F-397U	32 CT 15 CT	1 4	230	1500	U	Leads	3⅛	3⅛	2 11/16	2⅝	2⅛	⅜×¼	4.7
F-198U	32.0 CT 15.0 CT	1 6	115	1500	U	Leads	3⅛	3⅛	3 1/16	2⅝	2⅛	⅜×¼	6.2
F-199U	32.0 CT 15.0 CT	1 10	115	1500	U	Leads	4⅛	3 1/16	3⅛	2⅝	2⅛	⅜×¼	7.4

115 volts, 50-60 Hz Primary / Triple Output Secondaries for ± 15V and + 5V DC

TYPE No.	Fig.	Output Watts	Secondary #1	Secondary #2	Dimensions H.	W.	D.	L.	A.	B.	MW	Wt. Oz.
F-165P	C-1	1½	24V CT @ .025A	9V CT @ .100A	1⅛	1 15/16	1½	1 15/16	⅝	1		3.5
F-167P	C-1	1½	32V CT @ .020A	15V CT @ .060A	1⅛	1 15/16	1½	1 15/16	⅝	1		3.5
F-166XP	D-1	4½	32V CT @ .050A	15V CT @ .193A	1 15/16	2⅜	1½	1 15/16	½	1½	2	7.5
F-168XP	D-1	7½	24V CT @ .125A	9V CT @ .500A	1 15/16	2 13/16	1½	1 15/16	½	1 15/16	2⅜	10.5
F-169XP	D-1	7½	32V CT @ .100A	15V CT @ .287A	1 15/16	2 13/16	1½	1 15/16	½	1 15/16	2⅜	10.5

Fig. C-1

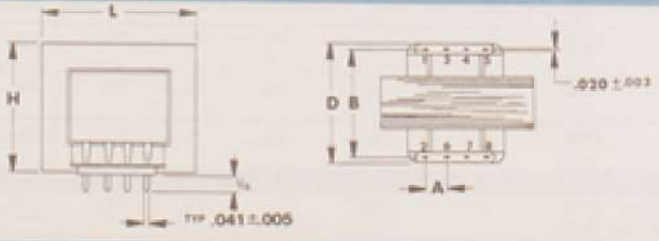
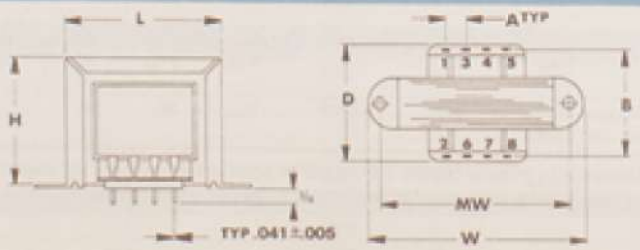
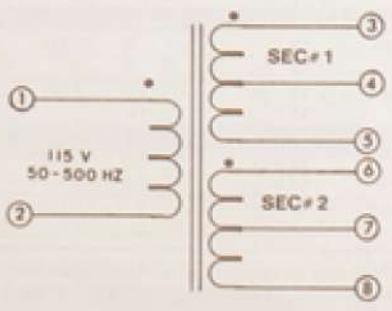


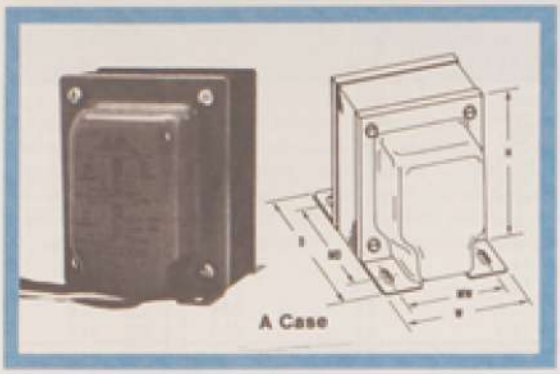
Fig. D-1

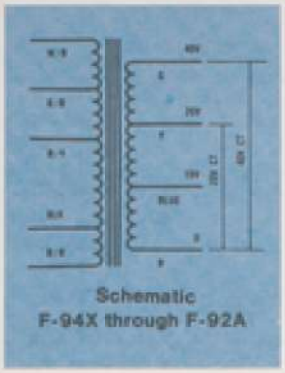




Dual Tapped Secondaries

for Power Supply, Control and Rectifier Circuits





Secondary voltages obtainable from F-94X through F-92A low voltage rectifier transformers:
7v, 7.5v, 8v, 8.5v, 9.5v, 10v, 14vct, 15vct, 16vct, 17vct, 19vct, 20vct, 21v, 22.5v, 24v, 25.5v, 28vct, 28.5v, 30vct, 32vct, 34vct, 38vct, 40vct.

LOW VOLTAGE RECTIFIER / transistor drive voltage, 50-60 Hz

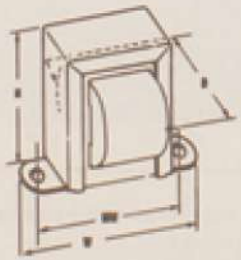
Type No.	Primary Volts	Secondary AC		DC Volts		RMS Test	Case	Connec-	Case Dimension			Mounting Dimension		Mtg. Hole	Max. Unit Wt.
		AC Volts	DC Amps*	Half Wave	FW Bridge	Voltage	Type	tions	H	W	D	MW	MD	Size	Lbs.
F-94X F-394X	115† 230†	10-20 CT-40 CT	.035	15	30	1500	X	Leads	1⅛	2⅜	1⅛	2		⅜	.5
F-90X F-390X	115† 230†	10-20 CT-40 CT	.1	15	30	1500	X	Leads	1⅛	2 13/16	1⅛	2⅜		⅜	.7
F-91X F-391X	115† 230†	10-20 CT-40 CT	.3	15	30	1500	X	Leads	2 5/32	3 1/16	2	3⅛		⅜	1.5
F-93X F-393X	115† 230†	10-20 CT-40 CT	.75	15	30	1500	X	Leads	2 15/32	4	2¼	3 5/16		⅜	2.4
F-92A F-392A	115† 230†	10-20 CT-40 CT	1	15	30	1500	A	Leads (2 Holes)	3 5/16	2 25/32	3	2	2 1/16	⅜×⅜	3.25

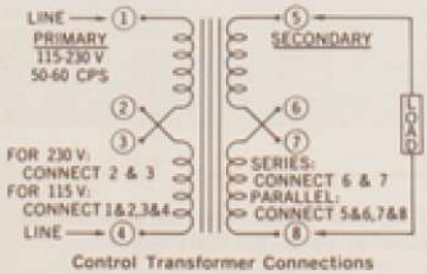
*FWB Rectifier Circuit NOTE: 230 volt primaries can also be used with 277v. †Tapped primary to produce lower voltages.

CONTROL TRANSFORMERS / primary 115/230V, 50-60 Hz, 6, 12, 24 volt secondaries

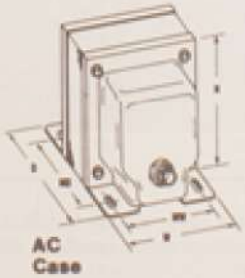
For use with relays, solenoids, small motors, speed changers, pumps, heating elements, control valves for fluids and gases, fans and blowers, electronic tubes, automatic assembly equipment, recording devices, elevators, door openers, low voltage lamps and similar applications.

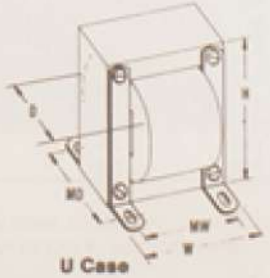
Type No.	Secondaries			VA Rating	Case Type	Connec-	Case Dimensions			Mounting Dimension		Mtg. Hole	Shpg. Wt.
	Individual	Parallel	Series CT			tions	H	W	D	MW	MD	Size	in Lbs.
F-105Z	6V @ 1A	6V @ 2A	12V @ 1A	12	Z	Lugs	2⅜	2⅛	1¾	2⅜		⅜	1
F-106Z	6V @ 2A	6V @ 4A	12V @ 2A	24	Z	Lugs	2¾	3⅛	2	2 13/16		⅜	1½
F-107Z	12V @ 2A	12 @ 4A	24V @ 2A	48	Z	Lugs	3⅛	3⅜	2⅜	3⅛		⅜	2½
F-398U	12V @ 3A	12V @ 6A	24V @ 3A	72	U	Lugs	3 15/32	2 13/16	2 13/16	2¼	2¼	⅜×⅜	4¼
F-108U	12V @ 4A	12V @ 8A	24V @ 4A	96	U	Lugs	3 15/32	2 13/16	2 13/16	2¼	2¼	⅜×⅜	4¼
F-399U	12V @ 6A	12V @ 12A	24V @ 6A	144	U	Lugs	3⅝	3⅛	3½	2½	2⅜	⅜×⅜	5.9
F-109U	12V @ 8A	12V @ 16A	24V @ 8A	192	U	Lugs	4 5/16	3 5/16	3 5/16	2¾	3	⅜×⅜	8
F-211Z	24V @ .25A	24V @ .5A	48V @ .25A	12	Z	Lugs	2⅜	2⅛	1¾	2⅜		⅜	.678
F-212Z	24V @ .5A	24V @ 1.0A	48V @ .50A	24	Z	Lugs	2¾	3⅛	2	2 13/16		⅜	1.05
F-213Z	24V @ 1A	24V @ 2.0A	48V @ 1.0A	48	Z	Lugs	3⅛	3⅜	2⅜	3⅛		⅜	2.25
F-214U	24V @ 2A	24V @ 4.0A	48V @ 2.0A	96	U	Lugs	3 15/32	2 13/16	3 5/16	2¼	2⅜	⅜×⅜	3.24
F-400U	24V @ 3A	24V @ 6A	48V @ 3A	144	U	Lugs	3⅝	3⅛	3½	2½	2⅜	⅜×⅜	5.9
F-215U	24V @ 4A	24V @ 8.0A	48V @ 4.0A	192	U	Lugs	4 5/16	3 5/16	3⅝	2¾	3	⅜×⅜	6.06





Control Transformer Connections


AC Case


U Case

Other control transformers in standard commercial constructions, with single and multiple primaries and secondaries will be found on pages 8, 9, 10, and 11. They are listed in order of increasing secondary voltages. Low voltage, low current plug-in types will be found on pages 4, 5, 6, and 7, in single and dual primaries, dual and triple secondaries.

Power Transformers

TRIAD-UTRAD
A Division of Magnetek Inc.

F-204U

		FULL WAVE CENTER-TAPPED 8.0 ADC				FULL WAVE BRIDGE		4.0 ADC	
		Resistive Load		Capacitive Load (4000 mfd)		Resistive Load		Capacitive Load (2000 mfd)	
Input Terminals	Tie Terminals	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2		29.3	11.8	29.7	14.5	29.3	24.4	29.2	34.0
1-7	2-6	26.0	10.3	26.2	12.2	26.0	21.4	25.8	29.2
1-6	2-5	23.2	9.0	23.3	10.5	23.2	18.9	23.0	25.4
1-7	2-5	20.9	8.1	21.0	9.2	20.8	16.8	20.7	22.4
1-3		19.5	7.5	19.6	8.5	19.4	15.7	19.4	20.8
1-7	3-6	17.8	6.6	17.9	7.6	17.8	14.2	17.7	18.6
1-6	3-5	16.5	6.0	16.5	6.5	16.4	12.9	16.4	16.8
1-7	3-5	15.3	5.5	15.3	5.9	15.2	11.9	15.2	15.2
1-4		14.5	5.1	14.5	5.6	14.4	11.2	14.4	14.3
1-7	4-6	13.6	4.7	13.6	5.1	13.5	10.4	13.5	13.0
1-6	4-5	12.7	4.3	12.7	4.6	12.6	9.6	12.6	12.0
1-7	4-5	12.0	4.0	12.0	4.2	11.9	9.0	11.9	11.0

F-205U

		FULL WAVE CENTER-TAPPED 12.0 ADC				FULL WAVE BRIDGE		6.0 ADC	
		Resistive Load		Capacitive Load (6000 mfd)		Resistive Load		Capacitive Load (3000 mfd)	
Input Terminals	Tie Terminals	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2		30.0	12.0	29.8	14.8	29.7	24.6	29.7	33.6
1-7	2-6	26.2	10.3	26.0	12.3	25.9	21.3	25.9	28.4
1-6	2-5	24.0	9.4	23.8	11.2	23.8	19.4	23.8	25.4
1-7	2-5	21.6	8.3	21.3	9.4	21.3	17.2	21.3	22.2
1-3		19.9	7.6	19.8	8.8	19.7	15.9	19.7	20.2
1-7	3-6	18.2	6.8	18.0	7.7	18.0	14.2	17.9	17.9
1-6	3-5	17.2	6.3	17.0	7.0	16.9	13.3	16.8	16.5
1-7	3-5	15.8	5.7	15.6	6.2	15.5	12.1	15.5	14.8
1-4		14.8	5.2	14.8	5.7	14.7	11.4	14.6	13.8
1-7	4-6	13.8	4.7	13.8	5.2	13.8	10.5	13.7	12.6
1-6	4-5	13.1	4.4	13.0	4.7	13.1	9.9	13.0	11.7
1-7	4-5	12.3	4.1	12.2	4.3	12.3	9.2	12.2	10.8

F-206U

		FULL WAVE CENTER-TAPPED 15.0 ADC				FULL WAVE BRIDGE		8.0 ADC	
		Resistive Load		Capacitive Load (7500 mfd)		Resistive Load		Capacitive Load (4000 mfd)	
Input Terminals	Tie Terminals	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2	–	30.1	12.5	30.0	16.0	30.0	25.0	30.0	36.0
1-7	2-6	26.7	10.9	26.8	13.9	26.7	21.8	26.8	31.2
1-6	2-5	23.9	9.6	23.9	12.0	23.7	19.1	23.7	27.5
1-7	2-5	21.5	8.6	21.5	10.4	21.2	17.1	21.2	24.4
1-3	–	19.8	7.8	19.9	9.5	19.8	15.7	19.8	22.3
1-7	3-6	18.2	7.2	18.2	8.4	18.0	14.4	18.0	20.6
1-6	3-5	16.8	6.5	16.8	7.4	16.7	13.1	16.7	18.2
1-7	3-5	15.5	6.0	15.5	6.7	15.3	11.9	15.3	16.5
1-4	–	14.8	5.6	14.8	6.3	14.6	11.3	14.6	15.3
1-7	4-6	13.8	5.2	13.8	5.7	13.6	10.4	13.6	14.0
1-6	4-5	12.7	4.8	12.9	5.1	12.8	9.6	12.8	12.9
1-7	4-5	12.1	4.5	12.1	4.8	12.0	8.9	12.0	12.0

F-207U

		FULL WAVE CENTER-TAPPED 22.5 ADC				FULL WAVE BRIDGE		12.0 ADC	
		Resistive Load		Capacitive Load (11,250 mfd)		Resistive Load		Capacitive Load (6000 mfd)	
Input Terminals	Tie Terminals	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2	–	29.6	12.2	29.5	15.9	29.7	24.3	30.0	35.5
1-7	2-6	26.9	10.8	26.5	13.6	26.4	21.4	26.3	31.0
1-6	2-5	24.2	9.5	23.9	12.0	24.0	19.3	23.8	27.8
1-7	2-5	21.8	8.5	21.8	10.6	21.8	17.3	21.7	24.8
1-3	–	19.6	7.6	19.7	9.2	19.7	15.6	19.6	21.9
1-7	3-6	18.2	7.0	18.1	8.3	18.1	14.3	18.1	19.9
1-6	3-5	16.9	6.4	16.8	7.5	16.8	13.2	16.8	18.2
1-7	3-5	15.8	6.0	15.8	6.9	15.6	12.0	15.7	16.8
1-4	–	14.5	5.4	14.3	6.1	14.6	11.2	14.4	15.0
1-7	4-6	13.8	5.1	13.5	5.5	13.6	10.3	13.6	14.0
1-6	4-5	13.0	4.8	12.9	5.2	13.0	9.6	12.9	12.9
1-7	4-5	12.1	4.4	12.1	4.8	12.2	9.0	12.2	12.2

The voltages in these tables were obtained using silicon rectifiers, and capacitor values shown for capacitive loads. Actual voltages obtained may vary slightly from values shown due to voltage drops across rectifiers, actual capacitor values, and lead losses.

It may be necessary to de-rate current values in capacitive circuits by 15-20% for lower transformer and rectifier temperatures if the higher temperatures produced by these circuits are objectionable. Be sure to choose rectifiers with suitable characteristics to handle voltages and currents shown, as well as PIV and surge currents which will be encountered.

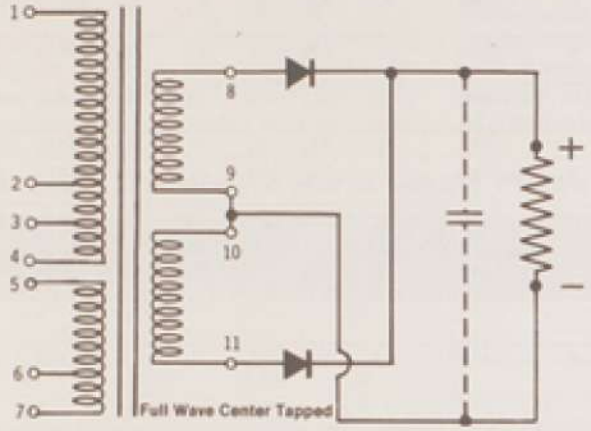
UNIVERSAL RECTIFIER POWER / primary 117 volts, 50-60 Hz

These Triad units give maximum flexibility when integrated into full-wave CT or bridge type circuits with silicon or selenium rectifiers.

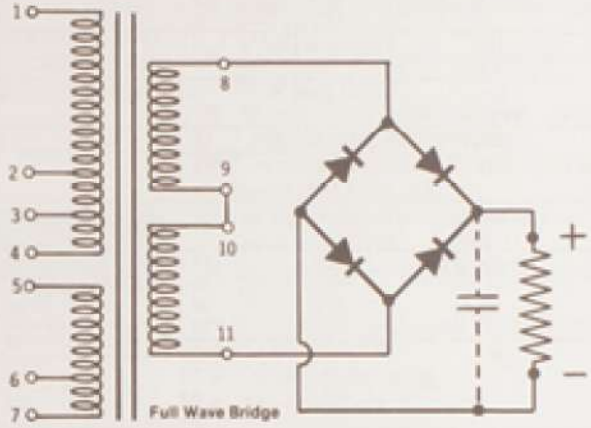
No. F-200A has two identical secondary windings, each supplying 13 or 18 AC volts at 900 DC ma. Secondary voltages are selected by primary taps. The other 6 units have primaries connected to terminals 1, 2, 3 and 4. A separate winding connected to terminals 5, 6, and 7 is used in series with the primary to increase or decrease the secondary voltage output. The secondaries of these 6 transformers consist of two identical windings which may be connected to give a wide variety of output voltages. Instructions packed with each unit indicate specific terminal connections and voltage combinations which may be obtained by using the taps on both primary and secondary windings, plus the "bucking" action of the additional primary winding.

The voltages in these tables were obtained using silicon rectifiers, and capacitor values shown for capacitive loads. Actual voltages obtained may vary slightly from values shown due to voltage drops across rectifiers, actual capacitor values, and lead losses.

It may be necessary to de-rate current values in capacitive circuits by 15-20% for lower transformer and rectifier temperatures if the higher temperatures produced by these circuits are objectionable. Be sure to choose rectifiers with suitable characteristics to handle voltages and currents shown, as well as PIV and surge currents which will be encountered.



Full Wave Center Tapped



Full Wave Bridge

Type No.	Secondary No. 1 AC Volts	Secondary DC Amps Full Wave CT	Secondary DC Amps Bridge	Secondary No. 2 AC Volts DC Amps	RMS Test Volts	Case Type	Connections	Case Dimensions H	W	D	Mounting Dimension MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-200A	13 or 18 @ .9 ADC	-	-	13 or 18 @ .9 ADC	1500	A	Leads	3 1/32	2 11/32	2 1/4	2	2	3/8 × 3/16	2.7
F-202U	11.0 to 29.5	2.0	1.25	-	1500	U	Lugs	3	2 1/2	3	2	2 1/8	5/16 × 5/16	2.5
F-203U	12.0 to 30.0	4.0	2.0	-	1500	U	Lugs	3 3/8	2 13/16	3 1/4	2 1/4	2 5/8	5/16 × 5/16	3.8
F-204U	11.5 to 29.0	8.0	4.0	-	1500	U	Lugs	3 3/8	3 3/8	4 1/8	2 1/2	2 5/8	5/16 × 5/16	6.1
F-205U	12.0 to 29.5	12.0	6.0	-	1500	U	Lugs	4 1/8	3 1/16	5 1/8	2 3/4	3 1/4	5/16 × 5/16	9.1
F-206U	12.1 to 29.2	15.0	8.0	-	1500	U	Lugs	4 5/16	3 3/4	5	2 15/16	3 5/8	5/16 × 5/16	12.6
F-207U	12.2 to 29.0	22.5	12.0	-	1500	U	Lugs	5 5/16	4 5/8	5 1/8	3 1/2	4 1/4	5/16 × 5/16	20.5

F-202U

		FULL WAVE CENTER-TAPPED 2.0 ADC				FULL WAVE BRIDGE		1.25 ADC	
		Resistive Load		Capacitive Load (1000 mfd)		Resistive Load		Capacitive Load (500 mfd)	
Input Terminals	Tie Terminals	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2		30.2	12.2	30.0	15.3	29.3	24.6	29.3	33.3
1-7	2-6	27.0	10.6	26.9	13.0	26.2	21.7	26.0	28.6
1-6	2-5	23.8	9.2	23.7	11.1	23.0	18.9	23.0	24.6
1-7	2-5	21.7	8.2	21.7	9.8	20.7	16.9	20.7	21.8
1-3		19.7	7.3	19.7	8.7	19.1	15.5	18.9	19.7
1-7	3-6	18.3	6.6	18.1	7.8	17.5	14.1	17.4	17.7
1-6	3-5	16.6	5.9	16.6	6.9	15.9	12.6	15.8	15.7
1-7	3-5	15.4	5.4	15.4	6.1	14.7	11.7	14.7	14.4
1-4		14.7	5.1	14.7	5.7	14.1	11.1	14.0	13.4
1-7	4-6	13.8	4.7	13.7	5.1	13.2	10.2	13.1	12.4
1-6	4-5	12.8	4.3	12.8	4.6	12.2	9.4	12.2	11.2
1-7	4-5	12.2	3.9	12.1	4.2	11.5	8.8	11.4	10.3

F-203U

		FULL WAVE CENTER-TAPPED 4.0 ADC				FULL WAVE BRIDGE		2.0 ADC	
		Resistive Load		Capacitive Load (2000 mfd)		Resistive Load		Capacitive Load (1000 mfd)	
Input Terminals	Tie Terminals	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts	Secondary AC Volts	D. C. Volts
1-2		29.8	12.0	29.7	15.0	29.5	24.7	29.5	34.7
1-7	2-6	26.7	10.6	26.6	12.8	26.3	21.9	26.3	30.3
1-6	2-5	24.7	9.7	24.5	11.7	24.3	20.1	24.2	27.4
1-7	2-5	22.4	8.6	22.2	10.2	22.0	18.0	22.1	24.4
1-3		21.3	8.2	21.2	9.6	21.0	17.2	21.0	23.2
1-7	3-6	19.4	7.2	19.4	8.6	19.2	15.6	19.2	21.0
1-6	3-5	18.2	6.7	18.2	8.0	18.0	14.5	18.0	19.3
1-7	3-5	16.9	6.2	17.0	7.1	16.6	13.4	16.6	17.6
1-4		14.8	5.2	14.7	5.8	14.5	11.4	14.5	14.8
1-7	4-6	13.8	4.8	13.8	5.3	13.7	10.6	13.6	13.6
1-6	4-5	13.2	4.5	13.2	4.9	13.1	10.1	12.9	12.8
1-7	4-5	12.9	4.2	12.4	4.6	12.3	9.4	12.3	11.9

Power Transformers

TRIAD-UTRAD
A Division of Magnetek, Inc.

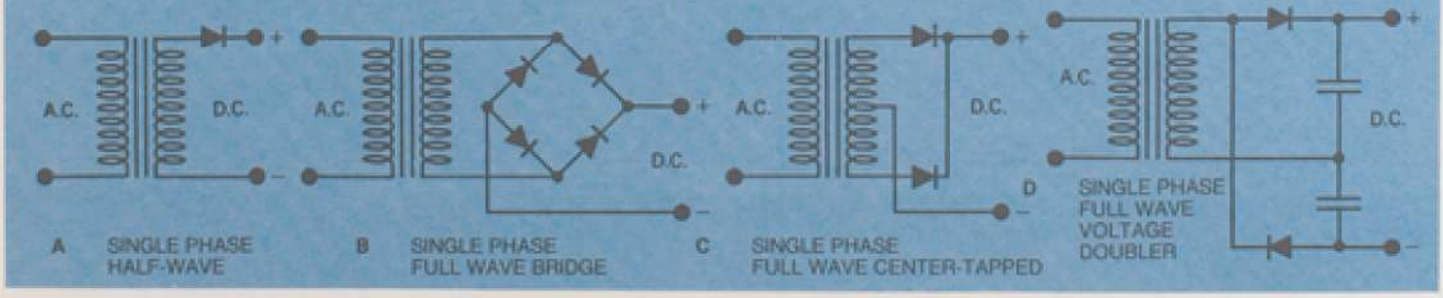
Triad Universal Rectifier Power Transformers are designed for solid-state rectifier supplies. The DC voltage shown is for circuits A and B. Higher voltage can be obtained through the use of capacitor input filters; in that case, however, rated DC current must be reduced approximately by 2. If a voltage doubler circuit (D) is used, current must be reduced approximately by 4.

UNIVERSAL RECTIFIER POWER / primary 50-60 Hz

Type No.	Primary Volts	Secondary AC Volts	Secondary AC Amps	DC Volts Half Wave	DC Volts Bridge	RMS Test Voltage	Case Type	Connections	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-47U F-347U	115 115/230	0-17-18	3	6-7	13-14	1500	U	Leads	3	2½	2¾	1⅝	2⅜	¼×⅜	3.2
F-48U	115	0-17-18	6	6-7	13-14	1500	U	Leads	3 13/16	3⅜	3⅜	2⅛	2 11/16	⅜×⅝	5.5
F-49U	115	36* 36*	3 3	13 13	26 26	1500	U	Leads	4⅜	3 13/16	3¾	3	3¼	⅜×⅝	9.75
F-60U● F-360U	115 115/230	0-6.5-13-19.5-26	3	9	18	1500	U	Leads	3⅜	2 13/16	2⅝	2¼	2⅝	⅜×⅝	3.5
F-61U F-361U	115 115/230	0-24-27-30-33-36	3	13	26	1500	U	Leads	3⅜	3⅛	3¼	2⅛	2⅝	⅜×⅝	5.65
F-67U#	110-120	0-24-27-30-33-36	8	13	26	1500	U	Leads	4⅜	3 13/16	4⅜	3	3⅝	⅜×⅝	10.75
F-63U	115	0-8-9* 0-8-9*	2 2	-	6-7 6-7	1500	U	Leads	2	2½	2½	2	2¼	⅜×⅝	2.3
F-64U F-364U	115 115/230	0-7-8-9	7	-	5-6-7	1500	U	Leads	3⅜	2 13/16	2¾	2¼	2⅝	⅜×⅝	3.5
F-62U#	105-115-125	9* 9* 9* 9*	10 10 10 10	-	7 7 7 7	1500	U	Leads	4⅜	3 13/16	5¼	3	4⅝	⅜×⅝	16
F-68U#	115	9CT* 9* 9* 9*	3.5 3.5 3.5 3.5	-	7 7 - 7	1500 7 	U	Leads	3 13/16	3⅝	3¾	2½	2⅞	⅜×⅝	5
F-65U	110-120	0-140-150-160	.75	60	115	1500	U	Leads	3 13/16	3⅝	3⅝	2½	2 13/16	⅜×⅝	5.8
F-74U	117	28CT* 28CT*	2 2	-	-	1500	U	Lugs	3 13/16	3 13/16	3¼	2½	2⅝	⅜×⅝	5.7
F-75U	117	28CT* 28CT*	4 4	-	-	1500	U	Lugs	4⅛	3¾	4⅜	2⅝	3⅜	⅜×⅝	10
F-79U#	115	0-24-26-28-30	15	11.4	22.8	1500	U	Leads, Lugs	3 13/16	4⅝	5½	3¾	4⅝	⅜×⅝	18.5
F-80U#	115†	0-12-13.5-15-16.5-18* 0-12-13.5-15-16.5-18*	20 20	-	13 13	1500	U	Leads	5⅛	4 13/16	5½	2¾	4½	⅜ Dia.	25
F-86U	115	12CT	10			1500	U	Leads	3⅜	3⅛	3½	2½	2⅜	⅜×⅝	6.2
F-84AC#	115 or 230§	12CT* 12CT*	10 10	-	8.5 8.5	2000	AC	Leads (2 Holes)	4⅜	3 13/16	5⅛	3	3⅝	⅜×⅝	12.7
F-85U	115†	5-7.5* 5-7.5*	20 20	-	8-12.5	1500	U	Leads	4½	3¾	4½	3	3½	⅜×⅝	12

*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A. ●Intermittent duty at max. rated output; continuous duty limited to both 50VA and 3A max.
‡Static Shield. #60 cycle operation. †Tapped primary to produce lower voltages. §Split winding. **CT** for Center Tap.

RECTIFIER CIRCUITS



SIGNALING / 50-60 Hz

Type No.	Primary Volts	Secondary AC Volts	Amps	RMS Test Voltage	Case Type	Connections	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-102X	115	4-8-12-16-20-24	2	2500	X	Leads	2 5/16	3 1/16	2⅛	3⅛		⅜	1.75
F-104U	115	4-8-12-16-20-24	4	2500	U	Leads	3½	2⅞	2 13/16	2¼	2¾	⅜×⅝	3.13

Portable and Hard Wire Voltage Regulators

From small or large computers, point-of-sale terminals, word processors — to virtually any microprocessor-based industrial control, the Linestar voltage regulators from Triad protect your equipment and operation with accurate voltage control.

Low voltage, noise, power surges, transients or even short time power disruptions can cause loss of memory or errors in your system.

Triad's Linestar series provides voltage regulation with the added feature of both common and transverse mode noise attenuation. With complete isolation from the power line, Linestar voltage regulators can be used as a portable dedicated line.

The Linestar voltage regulator suppresses transients and is current limiting so it protects against overloading. If you work from an AC source, the Linestar voltage regulator is a must for your equipment.

Linestar portable and hard wire voltage regulators provide better than 120 DB of common mode noise attenuation and greater than 60 DB of transverse (normal) mode noise attenuation. The waveshape is sinusoidal and contains less than 3 percent harmonic distortion, making the Linestar regulator excellent for any type of electronic load.

Output regulation is a ±3 percent with input line voltage as great as ±15 percent. Linestar voltage regulators will still maintain voltage output for inputs outside this range. Units up to 2kVA are portable and are designed for office operation.

Linestar Features (Portable Models)

- Accurate voltage regulation.
- Rejection of common mode noise of 120 DB.
- Rejection of transverse mode noise of 60 DB.
- Absolutely no installation costs with Linestar portable models.
- Complete isolation from power line — less than 2.5 PFD.
- Suitable for office operation — sound level of 45 DB.
- Operation in ambients of −20° to 50°C.
- No loss of output for up to 3 m/s.
- Input line cord.
- Output receptacles.
- Power switch.

Portable Models 60 Hertz Single Phase

Output VA Rating	Catalog Number	Input Voltage Range	Nominal Output Voltage	Approx. Unit Wt. (lbs.)	Figure Code	Dimensions (inches) A (Length)	B (Width)	C (Height)
140	K6-0600	95-130	120	15½	1	12⅝	4⅛	7⅛
250	K6-0700	95-130	120	20	1	12⅝	4⅛	7⅛
300	K6-0800	95-130	120	30	1	16⅛	9¼	8⅛
500	K6-0900	95-130	120	40	1	16⅛	9¼	8⅛
750	K6-1000	95-130	120	49	1	16⅛	9¼	8⅛
1000	K6-1100	95-130	120	59	1	16⅛	9¼	8⅛
1500	K6-1200	95-130	120	80	1	16⅛	11½	10¾
2000	K6-1300	95-130	120	101	1	16⅛	11½	10⅜

Hard Wire Models 60 Hertz Single Phase

Output VA Rating	Catalog Number	Input Voltage Range	Nominal Output Voltage	Approx. Unit Wt. (lbs.)	Figure Code	Dimensions (inches) A (Length)	B (Depth)	C	D (Width)	E	Mounting Slots
300	K6-0810*	95-130, 190-260	120	28	2	12¼	6	5⅛	8⅛	5	⅜x⅝
500	K6-0910*	95-130, 190-260	120	37	2	13	6	5⅛	8⅛	5	⅜x⅝
500	K6-0922*	190-260, 380-520	120x240	37	2	13	6	5⅛	8⅛	5	⅜x⅝
500	K6-0937*	95-130, 175-235, 190-260	120x208	47	2	15¼	6	5⅛	8⅛	5	⅜x⅝
750	K6-1032*	95-130, 175-235, 190-260	120x240	47	2	15¼	6	5⅛	8⅛	5	⅜x⅝
1000	K6-1122*	190-260, 380-520	120x240	59	2	16¼	6	5⅛	8⅛	5	⅜x⅝
1000	K6-1132*	95-130, 175-235, 190-260	120x240	59	2	16¼	6	5⅛	8⅛	5	⅜x⅝
1000	K6-1137*	95-130, 175-235, 190-260	120x208	59	2	16¼	6	5⅛	8⅛	5	⅜x⅝
1500	K6-1232*	95-130, 175-235, 190-260	120x240	78	3	18¼	6	6⅛	8⅛	5	⅜x⅝
2000	K6-1322*	190-260, 380-520	120x240	101	3	19	9¼	3¾	11¾	5	⅜x⅝
2000	K6-1332*	95-130, 190-260, 175-235	120x240	101	3	19	9¼	3¾	11¾	5	⅜x⅝
2000	K6-1337*	95-130, 175-235, 190-260	120x208	101	3	19	9¼	3¾	11¾	5	⅜x⅝
2500	K6-1422*	190-260, 380-520	120x240	120	3	19⅛	9¼	4⅛	11¾	5	⅜x⅝
2500	K6-1432*	95-130, 175-235, 190-260	120x240	120	3	19⅛	9¼	4⅛	11¾	5	⅜x⅝
3000	K6-1522*	190-260, 380-520	120x240	130	3	20⅛	9¼	5⅛	11¾	5	⅜x⅝
3000	K6-1532*	95-130, 175-235, 190-260	120x240	130	3	20⅛	9¼	5⅛	11¾	5	⅜x⅝
3000	K6-1537*	95-130, 175-235, 190-260	120x208	130	3	20⅛	9¼	5⅛	11¾	5	⅜x⅝
3750	K6-1622*	190-260, 380-520	120x240	158	3	21⅛	9¼	6⅛	11¾	5	⅜x⅝
3750	K6-1632*	95-130, 175-235, 190-260	120x240	158	3	21⅛	9¼	6⅛	11¾	5	⅜x⅝

Portable Model

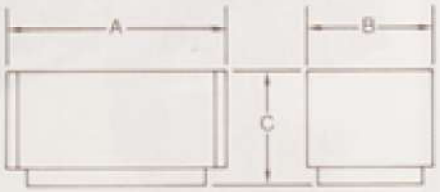


Figure 1

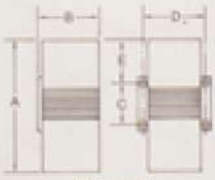


Figure 2

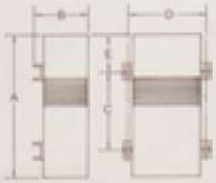
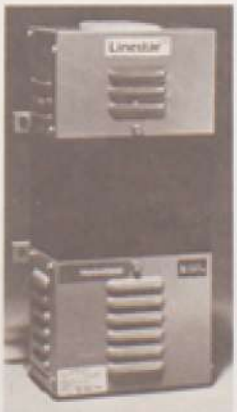


Figure 3

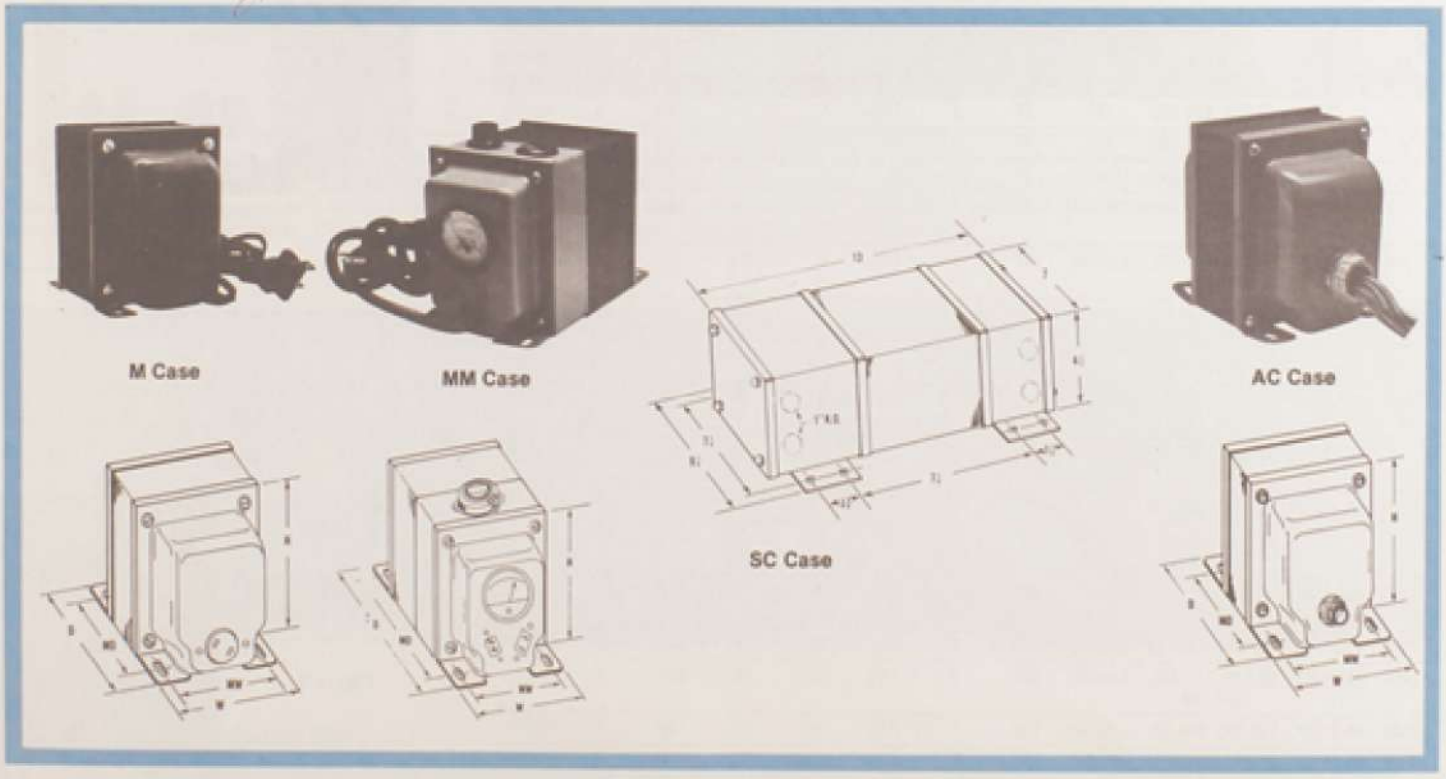


Hard Wire Model

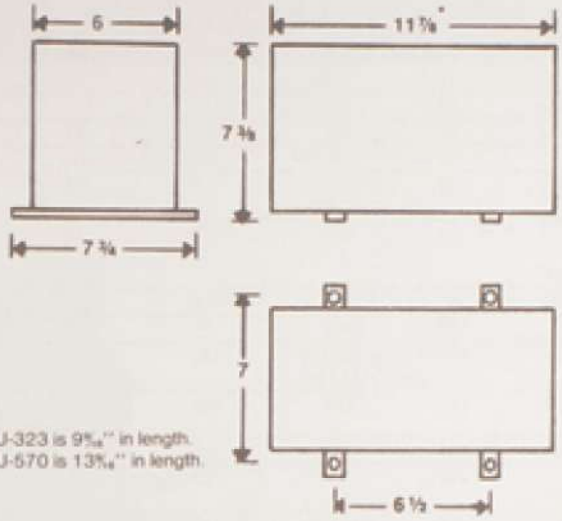
ISOLATION / 50-60 Hz

All units on this page have static shields

Type No.	Output Watts (VA)	Primary Volts	Secondary AC Volts ±5%	Secondary AC Amps	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
N-48X	15	115	115	.13	1500	X	Leads	-	1 15/64	3 1/64	2	2 13/64	-	7/64	1.35
N-49X	35	115	57.5-115§	.3	1500	X	Leads	-	2 9/32	3 11/64	2 1/8	3 1/8	-	7/64	1.9
N-51X	35	115	115	.3	1500	X	Leads	-	2 9/32	3 11/64	2 1/8	3 1/8	-	7/64	1.7
N-68X	50	115-230§	115	.435	1500	X	Leads	-	2 9/32	3 11/64	2 1/8	3 1/8	-	7/64	1.7
N-53M N-53MG*	85	115	115	.74	1500	M	6" Cord, Plug & Socket	-	3 15/32	2 11/32	3 5/8 4 1/8	2 1/4	2 3/8 2 7/8	9/64 x 7/64	4.7
N-76U	100	115	115	.86	1500	U	Leads	-	3 7/64	2 13/64	3	2 1/4	2 1/2	9/64 x 7/64	4
N-77U	100	115/230	115	.86	1500	U	Leads	-	3 7/64	2 13/64	3	2 1/4	2 1/2	9/64 x 7/64	4
N-78U	100	115	115/230	.43	1500	U	Leads	-	3 7/64	2 13/64	3	2 1/4	2 1/2	9/64 x 7/64	4
N-54M N-54MG*	150	115	115	1.3	1500	M	6" Cord, Plug & Socket	-	3 3/8	3 5/32	4 1/4 5 13/64	2 1/2	3 3 1/2	9/64 x 7/64	7
N-73A	150	115	115-230§	.65	1500	A	Leads	1	3 3/8	3 5/32	3 3/8	2 1/2	2 3/4	9/64 x 7/64	7
N-74A	150	115	57.5-115§	1.3	1500	A	Leads	1	3 3/8	3 5/32	3 3/8	2 1/2	2 3/4	9/64 x 7/64	7
N-67A	150	115-230§	115	1.3	1500	A	Leads	2	3 3/8	3 5/32	3 3/8	2 1/2	3	9/64 x 7/64	7
N-55M N-55MG* N-255MG*	250	115 115 230	115	2.17	1500	M	6" Cord, Plug & Socket	-	4 3/8	3 15/64	5	3	3 15/64	9/64 x 7/64	11
N-66A	250	115-230§	115	2.17	1500	A	Leads	2	4 3/8	3 15/64	4 3/8	3	3 3/8	9/64 x 7/64	11
N-70MG*	375	115	115	3.26	1500	M	6" Cord, Plug & Socket	-	4 3/8	3 3/8	5 1/2	3	4 1/2	9/64 x 7/64	14.6
N-57M N-57MG* N-257MG*	500	115 115 230	115	4.35	1500	M	6" Cord, Plug & Socket	-	5 7/64	4 1/2	6 1/4	3 1/2	5 3/8	1/2 x 1/4	23.75
N-59M N-59MG* N-259MG*	1000	115 115 230	115	8.7	1500	M	6" Cord, Plug & Socket	-	5 7/64	4 1/2	8	3 1/2	6 3/8	1/2 x 1/4	34
N-52M	350	95-130 5V Steps	115	3.04	250	MM	Detachable 6" Cord Plug, Switch Socket & Meter	-	4 3/8	3 15/64	7 3/4	3	6 3/8	9/64 x 7/64	17
N-469A#	50	220-440§	115	.435	1500	A	Leads	1	3 7/64	2 13/32	2 1/2	2	1 15/64	9/64 x 7/64	2.3
N-470A#	150	220-440§	115	1.3	2000	A	Leads	1	3 3/8	3 5/32	3 3/8	2 1/2	2 1/2	9/64 x 7/64	5.5
N-471A#	300	220-440§	115	2.6	2000	A	Leads	1	4 3/8	3 15/64	4 3/8	3	3 3/8	9/64 x 7/64	10.25



DIMENSIONS



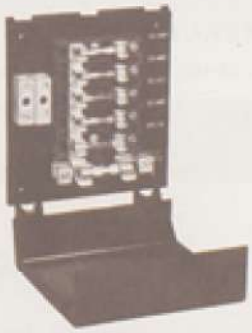
* TU-323 is 9⅝" in length.
TU-570 is 13¾" in length.

Converter/Battery Charger Specifications

Triad-Utrad Model Number	Current Rating (D.C. Amps)	A.C. Input		D.C. Output		Automatic Reset Thermal Cutout	Agency Listing	Weight (Pounds)
		Volts	Amps	Volts	Amps			
☛ TU-730-2	30	95-130 60 Hz	5.5	12.0 min. @ full load 14.1 max. @ no load	30	Yes	U.L.	19
☛ TU-830-2	30	95-130 60 Hz	5.5	12.0 min. @ full load 14.1 max. @ no load	30	Yes	C.S.A.	19
☛ TU-740-2	40	95-130 60 Hz	7.3	12.0 min. @ full load 14.1 max. @ no load	40	Yes	U.L.	23
☛ TU-840-2	40	95-130 60 Hz	7.3	12.0 min. @ full load 14.1 max. @ no load	40	Yes	C.S.A.	23
☛ TU-750-2	50	95-130 60 Hz	8.6	12.0 min. @ full load 14.1 max. @ no load	50	Yes	U.L.	25
☛ TU-775-2	75	95-130 60 Hz	14.5	12.0 min. @ full load 14.1 max. @ no load	75	Yes	U.L.	25
TU-700-2	40	200-240 50 Hz	3.5	12.0 min. @ full load 14.1 max. @ no load	40	Yes	None	23

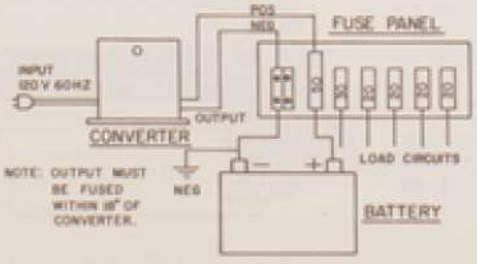
Fuse Panel Specifications

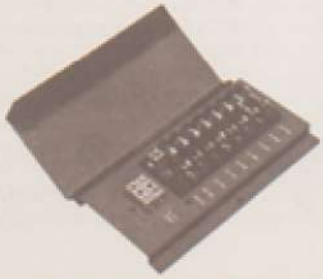
Triad P/N	Description	Width	Length
FB-532P	6 Circuit AGU 50 Battery Fuse, 1 SFE 30, 4 SFE 20, Plastic Case	4½"	5¼"
FB-315P	5 Circuit SFE 30 Battery Fuse, 4 AGC 15, Plastic Case	4½"	5¼"
FB-431P	6 Circuit AGU 40 Battery Fuse, 1 SFE 30, 4 AGC 15, Plastic Case	4½"	5¼"
FB-8532M	9 Circuit AGU 50 Battery Fuse, 1 SFE 30, 7 SFE 20, Metal Case	5¼"	8¾"
FB-8315M	8 Circuit SFE 30, Battery Fuse, 7 AGC 15, Metal Case	5¼"	8¾"
FB-8532CM	9 Circuit same as FB 8532M except has closed ends to meet CSA	5¼"	8¾"



FB-532P Fuse Panel

TYPICAL CONNECTION DIAGRAM





FB-8532M Fuse Panel

☛ New Item

STEPUP/STEPDOWN AUTOFORMERS / 50-60 Hz

Type No.	Output Watts (VA)	Primary Volts	Secondary Volts ±5%	Secondary RMS Amps	RMS Test Voltage	Case Type	Connections	Case Dimension H	W	D	Mounting Dimension MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
F-290X#	10	277	115	.09	1750	X	Leads	1⅜	2⅝	1⅜	2		⅜	.45
F-291X#	20	277	115	.17	1500	X	Leads	1 11/16	3⅛	1 11/16	2 13/16		⅜	.8
F-292X#	50	277	115	.43	1700	X	Leads	2¼	3 11/16	2⅛	3⅛		⅜	1.7
N-1X	50	230	115	.435	1500	X	Leads	2 5/32	3 11/16	2	3⅛		⅜	1.5
N-39X	50	0-100-115-127-135	115	.43	1500	X	Lugs	1 11/16	3¼	2	2 13/16		⅜	.8
N-3M	85	230	115	.74	1500	M	6' Cord & Plug & Socket	3 9/32	2 23/32	2⅝	2¼	1⅜	⅜×⅝	3
N-3MG*										3⅛		2⅛		
F-308X#	100	277	115	.87	2500	X	Leads	2 5/16	4	2 5/16	3 5/16		⅜	2.3
N-2X	100	230	115	.87	1500	X	Leads	2⅜	4	2 5/16	3⅜		⅜	2.1
N-40X	100	0-100-115 127-135	115	.87	1500	X	Lugs	1 11/16	3¼	2 5/16	2 13/16		⅜	1.2
N-150MG	150	115	230	.65	1500	M	6'-3 Wire Cord, Plug & Socket	3 9/32	2 23/32	3 5/16	2¼	2⅛	⅜×⅝	4.9
F-302U#	150	277	115	1.3	2500	U	Leads	2 13/16	3⅝	2⅝	2 13/16	2	⅜×⅝	2.9
N-4M	150	230	115	1.3	1500	M	6' Cord, Plug & Socket	3 9/32	2 23/32	3⅝	2¼	2⅝	⅜×⅝	4.7
N-4MG*										4⅛		2⅝		
N-34X	150	0-95-105-115-125-135	115	1.3	1500	X	Lugs	2 9/32	4	2⅛	3 5/16		⅜	2.2
N-33MG*	150	65/75/90/100/115/130/145	115	1.3	1500	MM	6' Cord, Plug, Switch, Socket & Meter	5 5/16	3 11/16	5½	3	4 5/16	⅜×⅝	6.4
N-6U	200	230	115	1.7	1500	U	Leads	3⅜	2 13/16	2 13/16	2½	2½	⅜×⅝	3.6
N-250MG	250	115	230	1.1	1500	M	6'-3 Wire Cord, Plug & Socket	3⅜	3¼	3 11/16	2½	2 7/16	⅜×⅝	6.6
N-5M	250	230	115	2.17	1500	M	6' Cord, Plug & Socket	3⅜	3 5/32	4⅛	2½	3	⅜×⅝	7
N-5MG*										4 13/16		3½		
N-37MG*	500	65/75/90/100/115/130/145	115	4.35	1500	MM	6' Cord, Plug, Switch, Socket & Meter	5 5/16	3 11/16	7	3	5 13/16	⅜×⅜	15.0
N-500MG	500	115	230	2.2	1500	M	6'-3 Wire Cord, Plug & Socket	4⅝	3⅝	4⅝	3	3⅝	⅜×⅜	11.2
N-7M	600	230	115	5.22	1500	M	6' Cord, Plug & Socket	4⅝	3 11/16	5	3	3⅝	⅜×⅜	12
N-7MG*														
N-1000MG	1000	115	230	4.35	1500	M	6'-3 Wire Cord, Plug & Socket	5⅜	4½	5½	3½	4⅛	½×¾	17.39
N-9M	1250	230	115	10.85	1500	M	6' Cord, Plug & Socket	5 5/16	4½	6¼	3½	5⅛	½×¾	24
N-9MG*														
N-11M	2000	230	115	17.4	1500	M	6' Cord, Plug & Socket	5⅜	4½	8¼	3½	6⅛	11/32×⅝	33.25
N-11MG*														

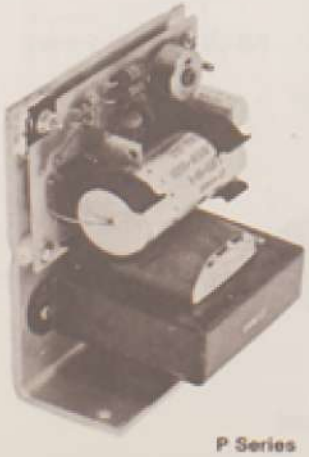
UNIVERSAL ISOLATION / AUTOFORMER / VOLTAGE CONTROL / 50-60 Hz

Have four 115-volt windings. Both primary and secondary may be connected for 115 or 230 volts.

Type No.	Output Watts (VA) Isolation	Autoformer	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension H	W	D	Mounting Dimension MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
N-64AC	500	1000	1500	AC	Leads	1 Conduit	5 5/16	4½	5½	3½	3⅛	½×¾	15
N-62U	1000	2000	1500	U	Leads		6½	5½	5	4¼	3¾	½×¾	29.5
N-60SC	2000	4000	2500	SC	Leads	Knockouts	4¾	8½	13½	7⅜	7⅜	⅝	56

*Has 3-wire plug, cord and socket. §Split winding. #60 cycle operation.

Reliable, low cost general purpose supplies



P Series

Features

- Open Frame Construction
- Glass Epoxy Printed Circuit Board
- High Performance IC Regulator
- Computer Grade Filter Capacitor
- All Silicon Semiconductors
- Small Size 2½" × 4" × 4½" (Weight: 2 lbs. net, 2¾ lbs. shipping)
- Foldback Current Limiting and Short Circuit Protection
- Adjustable Output

Specifications

Input: 115V ± 10% 60 Hz ± 5% **Regulation:** Line: ±0.5% Load: ±0.5%

Ripple: 5 MV RMS or 15 MV pk to pk max.

Temp Coefficient: .2%/°C

Grounding: Floating output either positive or negative max. may be grounded

Output Adjustment: ±5%

Type No.	Output Voltage	Output Current 40°C	65°C
P-543	5V	3.0A	1.5A
P-546	12V	1.5A	.8A
P-547	15V	1.5A	.8A
P-548	24V	1.0A	.5A

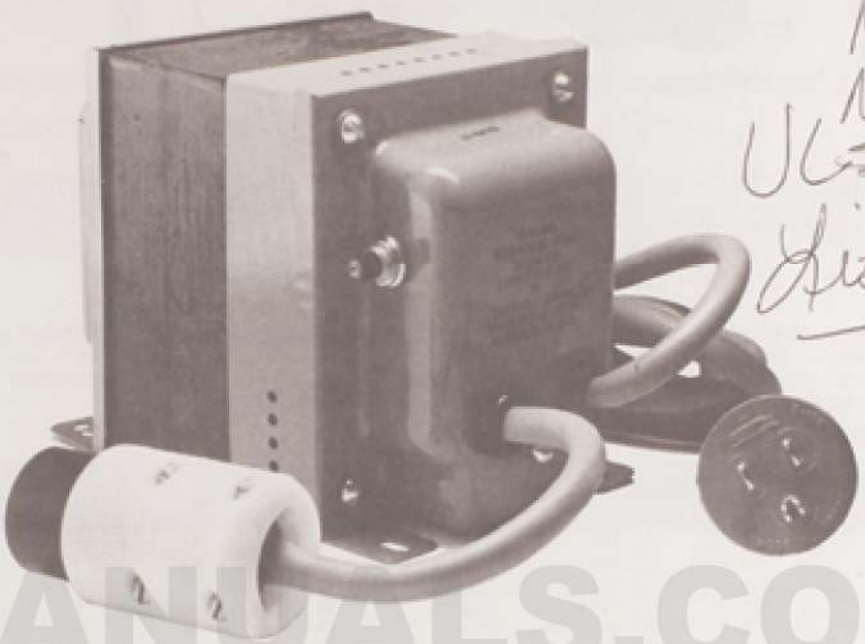
Hospital Type Isolation Transformer

Triad-Utrad's new hospital type isolation transformers are designed and constructed to meet the low leakage current requirements for today's medical equipment needs. The transformers are constructed with non-concentrically precision wound coils. The primary and secondary are precision wound on separate arbors, then assembled on the laminate core side by side and separated by insulation. This allows for no electrical connection, under normal or overload conditions, between the primary and secondary windings. Units come with a resettable circuit breaker, offering protection from overload and short circuit conditions. Leakage current from primary to secondary is rated at less than 50 micro-amps and is typically measured at less than 10 micro-amps. Line cord, plug and receptacle are U.L. listed hospital grade and U.L. verified to meet federal specifications W-C-596E.

UL file # 544

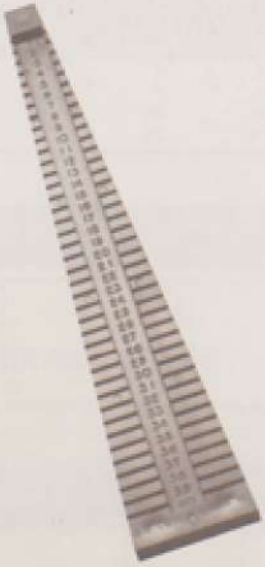
Magnetek #E102910 meets UL's 544 #

N90MD N92MD UL Listed



LOW LEAKAGE-ISOLATION

Type No.	Output Watts (VA)	Primary Volts	Secondary Volts	Secondary Amps	RMS Test Voltage	Case Type	Connections	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
N-90-MD	250	115	115	2.17	1500	M	6' Cord, Plug & Socket Circuit Breaker	4⅛	3⅛	6⅛	3	4 19/32	⅜ × ⅜	11.9
N-92-MD	500	115	115	4.35	1500	M	6' Cord, Plug & Socket Circuit Breaker	5 11/32	4½	7	3½	5⅛	21/32 × ⅜	17.6



No. MK-1

No. MK-2

No. MK-3

No. MK-4

No. MK-5

Lead Bending Gauges

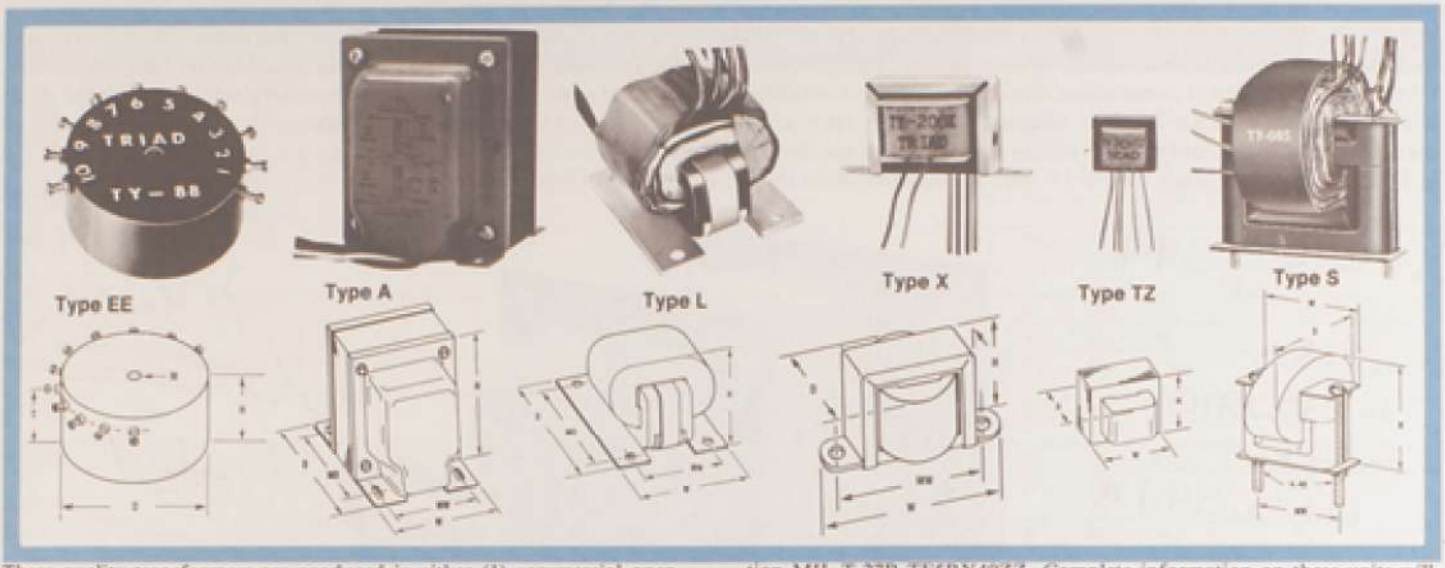
A set of five MK lead bending gauges will provide fast, accurate forming for most components used in printed board circuitry. All models have 40 numbered positions. Each position is numbered and leads are bent rapidly with gentle finger pressure. No other tools are required. Aggravation and physical damage to components associated with "free bending" by longnose pliers are completely eliminated.

The MK-1 gauge (.375 to 1.50 centers) is designed for ¼-watt resistors, although diodes, disc capacitors and other parts of similar size may be processed. The MK-2 gauge (.50 to 1.50 centers) is for ½-watt resistors and items of similar sizes. The MK-3 gauge (.75 to 2.50 centers) is designed for 1-watt resistors and similar components. The MK-4 (.875 to 2.50 centers) is used on 2-watt resistors and items of similar size, with special features to accommodate the DO outline "TOP HAT" diodes. The MK-5 (.260 to 1.42 mounting centers) accepts all ½-watt resistors and diodes—standard RC05 and DP-35 type components. These methods are currently being employed to determine the correct component lead spacing:

Power Transformers

TRIAD-UTRAD
A Division of Magnetek Inc.

For Transistor Power Supplies



These quality transformers are produced in either (1) commercial open-frame, double, varnish and vertical-shielded types, or (2) epoxy molded toroidal types exceeding the Grade 5, Class R requirements of Specification MIL-T-27B TF5RX40ZZ. Complete information on these units will be found in the Triad Engineering Bulletin on Transistor Power Supply Transformers.

EPOXY MOLDED TOROIDAL TYPE / dc to dc

Type No.	D.C. Source Volts	D.C. Volts out of Rectifier F.W. Bridge	D.C. Volts out of Rectifier F.W.C.T.	D.C. Milliamps. Maximum	Case Type	Dimensions-Inches T	D	H	M	Weight Lbs.
TY-78	12.6	250	125	100	EE	½	1¾	1 11/16	1 3/64	.35
TY-79	12.6	300	150	200	EE	¾	1¾	1	1 3/64	.35
TY-80	12.6	325	162.5	150	EE	¾	1¾	1	1 3/64	.35
TY-81	12.6	375	187.5	200	EE	¾	2	1	1 3/64	.50
TY-82	12.6	450	225	150	EE	¾	2	1	1 3/64	.50
TY-83	12.6	500	250	250	EE	1⅛	2⅜	1⅜	3/16	.85
TY-84	12.6	600	300	200	EE	1⅛	2⅜	1⅜	3/16	1.00
TY-85	12.6	600	300	350	EE	1⅛	2⅜	1⅜	1 3/64	2.00
TY-86	12.6	425	212.5	350	EE	1⅛	2⅜	1⅜	3/16	1.00
TY-88	28	250	125	80	EE	13/32	1 15/16	15/16	3/64	.25
TY-89	28	300	150	100	EE	½	1¾	1 11/16	1 3/64	.35
TY-90	28	325	162.5	200	EE	¾	1¾	1	1 3/64	.35
TY-91	28	375	187.5	200	EE	¾	2	1	1 3/64	.50
TY-92	28	450	225	200	EE	¾	2	1	1 3/64	.50
TY-93	28	500	250	250	EE	1⅛	2⅜	1⅜	3/16	.85
TY-94	28	600	300	200	EE	1⅛	2⅜	1⅜	3/16	1.00
TY-99	6	300	150	100	EE	¾	1¾	1	1 3/64	.35
TY-100	6	325	162.5	150	EE	¾	2	1	1 3/64	.50
TY-101	6	375	187.5	200	EE	1⅛	2⅜	1⅜	3/16	1.00

OPEN AND VERTICAL SHIELDED TYPES / dc to ac

Type No.	Primary D.C.	Secondary	Case Type	Dimensions—Inches H	W	D	Mounting Dimensions MW	MD	Weight Lbs.
TY-46S	28	110-115-125v 400cps 60 watts	L	1⅛	2¼	2	1⅛	1⅜	½
TY-46Z	12	110-115-125v 400cps 60 watts	L	1⅛	2¼	2	1⅛	1⅜	½
TY-75A	12	110-115-125v 60cps 115 watts	A	3⅛	3 3/32	3⅛	2½	2⅝	5
TY-76A	12	110-115-125v 60cps 60 watts	A	3 3/16	2 21/32	2⅝	2	1 11/16	3

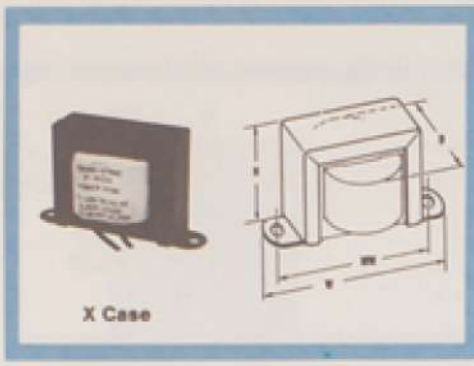
OPEN TYPE / 12 volt dc to dc

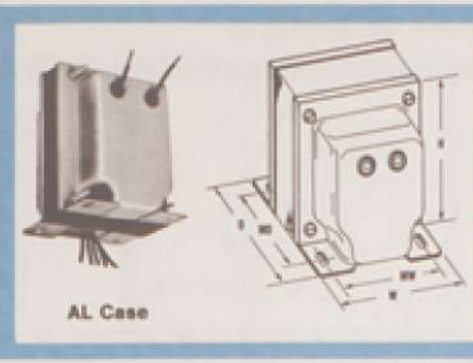
Type No.	D.C. volts out of Rectifier F.W. Bridge	F.W.C.T.	D.C. Milliamperes Maximum	Dimensions—Inches H	W	D	MW	Weight Lbs.
TY-68S	250	125	65	1¾	1¾	1 11/32	1½	.2
TY-69S	300	150	100	1¾	2⅜	1⅝	1½	.5
TY-70S	325	162.5	150	2	2⅜	2 1/16	1½	.6
TY-71S	375	187.5	200	2	2⅜	2 1/16	1½	.65
TY-74S	600	300	200	2	4⅛	3	3⅜	1.07
TY-77S†	670	335	180	2	4⅛	3	3⅜	1.07

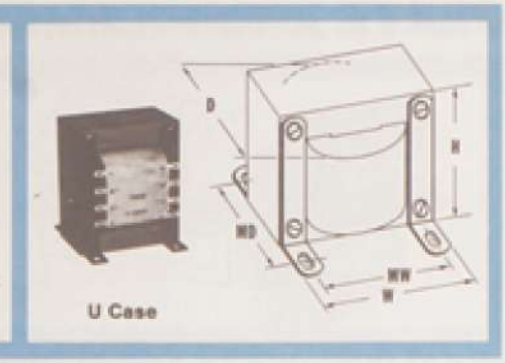
OPEN TYPE / dc to dc converter

Type No.	*Typical operation Input	Output	Case Type	Dimensions—Inches H	W	D	MW	Weight Lbs.
TY-200X	3 v.DC @ 20 ma.	1050 v.DC @ 25 μa.	X	1 3/16	1⅛	⅛	1⅛	.08
TY-201TZ	4 v.DC @ 15 ma.	500 v.DC @ 50μa.	TZ	3/16	⅛	3/16	—	.015
TY-202X	4 v.DC @ 45 ma.	550 v.DC @ 80 μa.	X	1 3/16	1⅛	⅛	1⅛	.08

*May vary with circuit components, load requirements, etc. †Has additional winding for bias in SSB transmitters. Replacement for Triad-Utrad Nos. 5965 and 6278.


X Case


AL Case


U Case

SMOOTHING FILTER REACTORS

Type No.	Current DC MA.	Inductance†† Henries	Resistance Ohms	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension H	W	D	Mounting Dimensions MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
C-85X	10	1.5	70	2500	X	Leads	-	1¼	2⅛	1⅛	1⅝		⅜	.4
C-2X	15	2	70	1500	X	Leads	-	1 3/16	2 1/16	1¼	1⅝		⅜	.21
C-30X	15	50	3500	1500	X	Leads	-	1⅜	2⅜	1½	2		⅜	.42
C-1X	20	15	1000	1000	X	Leads	-	1 3/16	2 1/16	1¼	1⅝		⅜	.21
C-84X	30	12	400	1500	X	Leads	-	1⅜	2⅜	1⅜	2		⅜	.5
C-3X	50	10	500	1500	X	Leads	-	1⅜	2 1/16	1½	2⅜		⅜	.6
C-4X	50	4	360	1500	X	Leads	-	1⅜	2⅜	1⅜	2		⅜	.35
C-6X	65	5	330	1500	X	Leads	-	1⅜	2 1/16	1½	2⅜		⅜	.6
C-5X	75	12	390	1000	X	Leads	-	1 5/16	3⅛	1⅜	2 3/16		⅜	1
C-8X	75	7	240	1500	X	Leads	-	1 5/16	3⅛	1⅜	2 3/16		⅜	1
C-7X	90	10	270	1000	X	Leads	-	1 5/16	3⅛	2	2 3/16		⅜	1.3
C-9X	90	4	100	1500	X	Leads	-	1 5/16	3⅛	1⅜	2 3/16		⅜	1
C-11X	110	6	160	1500	X	Leads	-	2 3/32	3 1/16	2	3⅛		⅜	1.5
C-10X	125	9	250	1000	X	Leads	-	2 3/32	3 1/16	2	3⅛		⅜	1.6
C-12A	160	6	165	1500	A	Leads	1	2 11/32	2 11/32	2⅛	1⅝	1⅜	⅜×⅝	2
C-12X	160	6	165	1500	X	Leads	-	2 3/32	3 1/16	2⅛	3⅛		⅜	1.75
C-13X	160	3	75	1500	X	Leads	-	2 3/32	3 1/16	2⅛	3⅛		⅜	1.75
C-14A	200	6	150	1500	A	Leads	1	3 5/16	2 11/32	2⅜	2	1 1/16	⅜×⅝	2.5
C-14X	200	6	150	1500	X	Leads	-	2 3/32	4	2¼	3 5/16		⅜	2.3
C-16A	200	10	150	2500	A	Leads	1	3½	2 11/32	3½	2¼	2⅜	⅜×⅝	4.5
C-21X	225	1.5	65	1500	X	Leads	-	1 5/16	3⅛	1⅝	2 3/16		⅜	1.1
C-24X	240	1	50	1500	X	Leads	-	1⅜	2 1/16	1½	2⅜		⅜	.75
C-15A	250	4	100	1500	A	Leads	1	3 5/16	2 11/32	2⅜	2	1 1/16	⅜×⅝	2.65
C-15X	250	4	100	1500	X	Leads	-	2 3/32	4	2¼	3 5/16		⅜	2.3
C-23X	260	1.2	45	1500	X	Leads	-	1 5/16	3⅛	2	2 3/16		⅜	1.35
C-27X	290	.7	30	1500	X	Leads	-	1⅜	2 1/16	1½	2⅜		⅜	.75
C-36X	300	.5	30	1500	X	Leads	-	1⅜	2⅜	1½	2		⅜	.5
C-17X	300	1.5	40	1500	X	Leads	-	2 3/32	3 1/16	2	3⅛		⅜	1.6
C-18A	300	8	110	2500	X	Leads	1	3⅜	3 3/32	3⅛	2½	2¾	⅜×⅝	6.3
C-19A	300	10	105	3000	A	Leads	1	4½	3 15/32	4⅛	2⅝	3	⅜×⅝	7.75
C-34X	350	.6	35	1500	X	Leads	-	1⅜	2 1/16	1½	2⅜		⅜	.6
C-28X	350	1	35	1500	X	Leads	-	1 5/16	3⅛	2	2 3/16		⅜	1.35
C-29X	375	1.5	50	1500	X	Leads	-	2 3/32	3 1/16	2	3⅛		⅜	1.6
C-20A	400	6	80	3000	A	Leads	1	4⅜	3 5/16	4½	3	3⅜	⅜×⅝	10.5
C-22A	500	10	65	3000	A	Leads	1	5 5/16	4½	5⅛	3½	4⅛	½×¾	16.5
C-45AL	500	10	65	5000	AL	Leads	2-Side	5 5/16	4 15/32	5⅛	3½	4⅛	½×¾	17.75
C-40X	600	.32	10	1500	X	Leads	-	1 5/16	3⅛	2	2 3/16		⅜	1.3
C-47U	1A/2A	.3/.075§	3/.75	1500	U	Leads	-	3½	2⅞	3 5/16	2¼	2 1/16	⅝×⅞	4.6
C-56U	2.0	.035	.79	1500	U	Lugs	-	2¼	2⅝	2	2 5/16	1⅝	⅝×⅞	2
C-48U	2.5A/5A	.08/.02§	.61/.155	1500	U	Leads	-	3 1/16	3 1/16	3 1/16	2½	3 1/16	⅝×⅞	6.75
C-57U	4.0A	.025	.55	1500	U	Lugs	-	3⅛	3⅜	2¼	2 3/16	2⅛	⅜×⅞	3.5
C-49U	5A/10A	.032/.008§	.19/.05	1500	U	Leads	-	4¼	3½	3⅜	2⅝	3 1/16	⅝×⅞	8
C-58U	8.0A	.01	.15	1500	U	Lugs	-	3⅛	3⅜	3⅛	3⅛	2½	⅝×⅞	5.5
C-59U	12.5A	.01	.10	1500	U	Lugs	-	3½	4⅛	3	3 1/16	2⅝	⅝×⅞	6.25
C-80U	20A/40A	.024/.006§	.1/.025	1500	U	Lugs	-	5 5/16	4 5/16	5½	2⅝	4½	⅝×⅞	21.25
C-60U	22.5A	.005	.06	1500	U	Lugs	-	3⅝	4½	4 5/16	3¾	3½	⅝×⅞	12.75

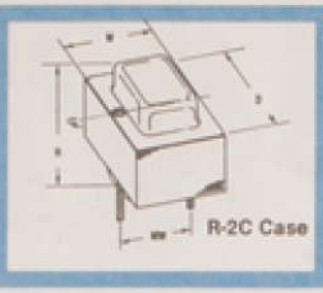
SWINGING FILTER REACTORS

Triad's highly dependable Swinging Filter Reactors provide a swinging input reactance which substantially improves the regulation of high voltage power supplies and prevents DC voltage from rising to the maximum peak AC rectifier input.

Type No.	Current DC MA.	Inductance†† Henries	Resistance Ohms	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension H	W	D	Mounting Dimension MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
C-31A	20/200	25/5	150	2500	A	Leads	1	3 1/32	2 11/32	3½	2¼	2⅜	⅜×⅝	4.6
C-33A	30/300	25/5	105	3000	A	Leads	1	4¼	3 15/32	4⅛	2⅝	3	⅜×⅝	7.6
C-35A	40/400	20/4	65	3000	A	Leads	1	4⅜	3 5/16	4½	3	3⅜	⅜×⅝	10.5

†† Inductance tolerance—20% + 50% § Split winding.

PLATE AND FILAMENT TYPES



MULTI-PURPOSE TV AND STEREO

Type No.		Secondary #1*	Secondary #2	RMS Test Volts	Case Type	Connections	Case Dimensions H	W	D	MW	WT
F-170SX		20 VCT @ .200 ADC	6.3V @ .200A	1500	SX	Leads	1⅝	2⅝	1⅝	2	.40
F-171SX		26 VCT @ .200 ADC	6.3V @ .200A	1500	SX	Leads	2⅜	2 13/16	1 11/32	2⅜	.50
F-172SX	All	24 VCT @ .400 ADC	6.3V @ .300A	1500	SX	Leads	1⅝	2 13/16	1 11/32	2⅜	.62
F-173SX	Primaries	30 VCT @ .400 ADC	6.3V @ .300A	1500	SX	Leads	1⅝	2 13/16	1 11/32	2⅜	.62
F-174SX	115 Volts	30 VCT @ .500 ADC	6.3V @ .500A	1500	SX	Leads	1 17/32	3¼	1 13/16	2 15/16	1.06
F-175SX	50/60Hz	44 VCT @ .400 ADC	6.3V @ .500A	1500	SX	Leads	1 17/32	3¼	2 9/32	2 15/16	1.25
F-176SX		40 VCT @ .800 ADC	6.3V @ .500A	1500	SX	Leads	2 9/32	3¾	2¼	3⅜	1.68
F-177SX		50 VCT @ .800 ADC	6.3V @ 1.000A	1500	SX	Leads	2 13/32	4	2 11/32	3 15/16	2.31
F-178SX		60 VCT @ .600 ADC	6.3V @ 1.000A	1500	SX	Leads	2 13/32	4	2 11/32	3 15/16	2.31
F-179SX		60 VCT @ 1.000 ADC	6.3V @ 1.000A	1500	SX	Leads	2 13/32	4	2 11/32	3 15/16	2.31

*Secondary #1 current rating with FWCT Rectifier.

FOR PREAMPLIFIERS, VTVM, ETC. / primary 115 volt, 50-60 Hz

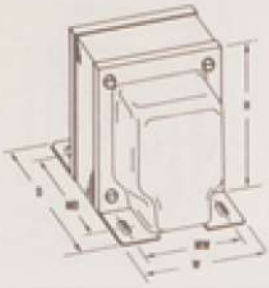
Type No.	Secondary AC Volts +5%	Secondary DC Ma. Cond. Input	Secondary DC Ma. Choke Input	Rectifier Filament Volts +5%	Rectifier Filament Amps	Other Filaments Volts +5%	Other Filaments Amps	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	W	D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
R-68A‡	400-0-400	30	38	5	2	6.3* 6.3*	1.2 1.2	2000	A	1	3 3/32	2 9/32	3¼	2	2 15/16	¼×⅜	3
R-2C‡	135	15	19	-	-	6.3	.9	1500	C	Leads	1⅝	1⅝	1 13/16	-	1⅛	—	1
R-23B‡	125-0-125	22	28	-	-	6.3 15.5-12.6	.8 .6	1500	B	1	1⅝	2⅜	2 5/16	2 5/16	1⅝	—	1.75
R-3A‡	250-0-250	20	25.5	-	-	6.3 CT	2	1500	A	1	2 13/32	2 11/32	2½	1⅝	1⅝	¼×⅜	1.75
R-53Z	250-0-250	25	32	-	-	6.3	1.0	1500	Z	Leads	2 5/16	2⅜	2	2⅜	-	5/16	1.0
R-55Z#	125-0-125	25	32	-	-	6.3	1	1500	Z	Leads	2 5/16	2⅜	1⅝	2⅜	-	5/16	1.0
R-29A‡	115-0-115	40	51	-	-	6.3 CT	1.5	1500	A	1	2 13/32	2 11/32	2⅜	1⅝	1⅝	¼×⅜	1.75
R-30X‡	135	50	64	-	-	6.3	1.5	1500	X	Leads	2 9/32	3⅜	2⅜	3⅜	-	5/16	1.5
R-54X‡#	115	15	19	-	-	6.3	.6	1500	X	Leads	1⅝	2 13/16	1⅝	2⅜	-	5/16	1
R-54Z	115	15	19	-	-	6.3	.6	1500	Z	Leads	1 15/16	2 5/16	1⅝	2	-	5/16	1
R-56A‡	130	20	25	-	-	0-15-22.5-30	.6	1500	A	2	2 13/32	2 11/32	2⅜	1⅝	2	¼×⅜	2

COMBINED PLATE AND FILAMENT / primary 115 volt, 60 Hz

Type No.	Secondary AC Volts +5%	Secondary DC Ma. Cond. Input	Secondary DC Ma. Choke Input	Rectifier Filament Volts +5%	Rectifier Filament Amps	Other Filaments Volts +5%	Other Filaments Amps	RMS Tests Volts	Case Type	Lead Holes Used	Case Dimension H	W	D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
R-104A‡	250-0-250	40	51	-	-	6.3 CT	2	1500	A	1	2 13/32	2 11/32	2¼	1⅝	1⅛	¼×⅜	1.55
R-104B‡	250-0-250	40	51	-	-	6.3 CT	2	1500	B	1	1⅛	2⅝	2 5/16	2 5/16	1⅝	—	1.55
R-105A‡	300-0-300	65	82	-	-	6.3 CT	2.7	1500	A	1	3 5/16	2 11/32	2½	2	1 5/16	¼×⅜	2
R-105B‡	300-0-300	65	82	-	-	6.3 CT	2.7	1500	B	1	1⅝	3	2½	2½	2	—	2
R-106A‡	240-0-240	50	63.5	5	2	6.3 CT	2	1500	A	1	3 5/16	2 11/32	2⅜	2	1 5/16	¼×⅜	2.1
R-106B‡	240-0-240	50	63.5	5	2	6.3 CT	2	1500	B	1	1½	3	2½	2½	2	—	2.1
R-108A‡	250-0-250	75	95	5	2	6.3 CT	2.5	1500	A	1	3 5/16	2 11/32	2⅜	2	1 11/16	¼×⅜	2.4
R-108B‡	250-0-250	75	95	5	2	6.3 CT	2.5	1500	B	1	1⅝	3	2½	2½	2	—	2.4
R-109A‡	300-0-300	75	95	5	2	6.3 CT	3	1500	A	1	3½	2 11/32	2⅜	2¼	1⅝	¼×⅜	2.9
R-110A‡	262.5-0-262.5	90	115	5	2	6.3 CT	5	1500	A	1	3½	2 11/32	3⅛	2¼	2	¼×⅜	3.25
R-110B‡	262.5-0-262.5	90	115	5	2	6.3 CT	5	1500	B	1	1⅝	3⅜	2 15/16	2 15/16	2¼	—	3.25
R-111A‡	350-0-350	90	115	5	3	6.3 CT	3.5	1500	A	1	3½	2 11/32	3⅛	2¼	2	¼×⅜	3.25
R-111B‡	350-0-350	90	115	5	3	6.3 CT	3.5	1500	B	1	1⅝	3⅜	2 15/16	2 15/16	2¼	—	3.25
R-112A‡	275-0-275	110	140	5	2	6.3 CT	5	1500	A	1	3½	2 11/32	3⅛	2¼	2⅛	¼×⅜	3.7
R-112B‡	275-0-275	110	140	5	2	6.3 CT	5	1500	B	1	2	3⅜	2 15/16	2 15/16	2¼	—	3.7
R-114A‡	350-0-350	125	160	5	3	6.3 CT	4.5	1500	A	1	3⅞	3 5/32	3¼	2½	2⅛	¼×⅜	4.7
R-115A‡	340-0-340	70	89	5	2	6.3 CT	2.5	1500	A	2	3 5/16	2 11/32	3	2	1 15/16	¼×⅜	3.5
R-116A‡	350-0-350	160	200	5	3	6.3 CT	5	1500	A	1	3⅞	3 5/32	3¾	2½	2⅝	¼×⅜	5.65
R-118B‡	375-0-375	175	220	5	3	6.3 CT	8	1500	B	1	2¾	4⅛	3 1/16	3 1/16	2¾	—	7.45
R-120A‡	350-0-350	200	255	5	3	6.3 CT	8	1500	A	1	4⅛	3 5/32	4⅛	2¾	3	¼×⅜	8.25
R-121A‡	400-0-400	200	255	5	3	6.3 CT	6	1500	A	1	4⅛	3 5/32	4⅛	2¾	3¼	¼×⅜	8.25

PLATE AND FILAMENT TYPES

A Case



B Case

COMBINED PLATE AND FILAMENT / primary 115 volt / 50-60 Hz

Type No.	Secondary AC Volts ±5%	Secondary DC Ma. Cond. Input	Secondary DC Ma. Choke Input	Rectifier Filament Volts ±5%	Rectifier Filament Amps	Other Filaments Volts ±5%	Other Filaments Amps	RMS Test Volts	Case Type	Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting* Dimension MW	Mounting* Dimension MD	Max Unit Wt. Lbs.
R-4A	250-0-250‡	40	51	-	-	6.3 CT	2	1500	A	1	2 1/32	2 1/32	2 3/8	1 3/4	1 3/8	1.75
R-5A	300-0-300‡	65	82	-	-	6.3 CT	2.7	1500	A	1	3 3/16	2 1/32	2 3/8	2	1 11/16	2.75
R-6A	240-0-240‡	50	63.5	5	2	6.3 CT	2	1500	A	1	3 3/16	2 1/32	2 3/8	2	1 11/16	2.75
R-7A#	300-0-300‡	50	63.5	5	2	6.3 CT	2	1500	A	1	3 3/16	2 1/32	2 3/8	2	1 11/16	2.75
R-22A#	190-160-0-160-190‡	70	89	-	-	6.3	.6	1500	A	1	3 3/16	2 1/32	2 3/8	2	1 11/16	2.75
				—	—	6.3 CT	3									
R-8A	250-0-250‡	75	95	5	2	6.3 CT	2.5	1500	A	1	3 3/16	2 1/32	3 1/8	2	2 3/16	3
R-9A	300-0-300‡	75	95	5	2	6.3 CT	3	1500	A	1	3 3/8	2 1/32	3 1/8	2 3/8	2 1/8	3.5
R-10A	262.5-0-262.5‡	90	115	5	2	6.3 CT	5	1500	A	1	3 1/2	2 1/32	3 3/8	2 1/4	2 1/2	4.5
R-11A	350-0-350‡	90	115	5	3	6.3 CT	3.5	1500	A	1	3 1/2	2 1/32	3 3/8	2 1/4	2 3/8	4.25
R-11B	350-0-350‡	90	115	5	3	6.3 CT	3.5	1500	B	1	2 1/2	3 3/8	2 13/16	2 13/16	2 3/8	4.25
R-12A	275-0-275‡	110	140	5	2	6.3 CT	5	1500	A	1	3 3/8	3 1/32	3 3/8	2 3/8	2 1/4	4.5
R-14A	350-0-350‡	125	160	5	3	6.3 CT	4.5	1500	A	1	3 3/8	3 1/32	3 3/8	2 3/8	2 1/4	6
R-14B	350-0-350‡	125	160	5	3	6.3 CT	4.5	1500	B	1	2 3/4	3 3/8	3 3/8	3 3/8	2 1/2	6
R-72A#	400-0-400‡	140	178	5	3	6.3 CT	4	1500	A	2	4 1/4	3 15/32	3 3/8	2 3/4	2 1/2	5.75
R-16A	350-0-350‡	160	200	5	3	6.3 CT	5	1500	A	1	3 3/8	3 1/32	4 3/8	2 1/2	3 1/4	7
R-21A	400-0-400‡	200	255	5	3	6.3 CT	6	1500	A	2	4 1/4	3 15/32	4 3/8	2 3/4	3 1/4	9.25
R-21B	400-0-400‡	200	255	5	3	6.3 CT	6	1500	B	1	3 3/8	4 3/8	3 11/16	3 11/16	2 1/2	9.25
R-71A#	450-0-450‡ (2000V Test)	250	317	5 (2000V Test)	4	6.3	4	1500	A	2	4 3/8	3 13/16	4 3/8	3	3 3/8	12
						6.3 CT	2									
R-24A#	400-0-400‡	300	380	5	6	6.3 CT	6	1500	A	1	4 3/8	3 13/16	4 3/8	3	3 3/8	14
R-24B#	400-0-400‡	300	380	5	6	6.3 CT	6	1500	B	1	3 3/8	4 1/2	3 3/8	3 3/8	3	14
R-25A	400-0-400‡	500	635	5	6	6.3 CT	7	2000	A	2	5 3/16	4 1/2	5 3/8	3 1/2	4 3/8	19
						6.3	3									

*Mtg. Hole Size for "A" case types, 3/8×3/16 except R-25A; 1/2×1/4.

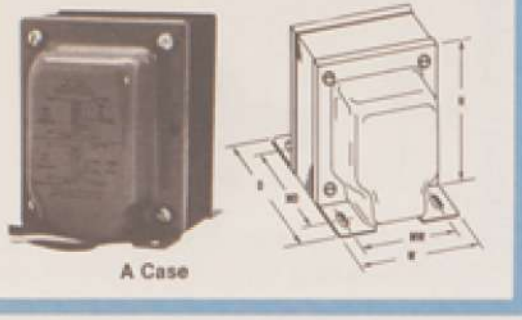
SOLID STATE RECTIFIER POWER / primary 117 volts, 50-60 Hz

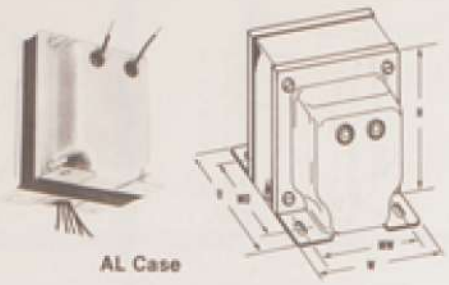
Type No.	Secondary No. 1 Volts	Secondary No. 1 DC ma.	Secondary No. 2 Volts	Secondary No. 2 Amps	Secondary No. 3 Volts	Secondary No. 3 Amps	RMS Test Volts	Case Type	Connections	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit W Lbs.
R-200A	200-0-200	400	6.3	3	6.3	3	1500	A	Leads	4 1/8	3 3/8	4 1/8	2 3/8	3 1/16	3/8×3/16	7.1
R-201A	150-0-150	600	6.3	2.5	6.3	2.5	1500	A	Leads	4 1/8	3 3/8	4 1/8	2 3/8	3 1/16	3/8×3/16	7.1
R-202A	100-0-100	800	6.3	2	6.3	2	1500	A	Leads	4 1/8	3 3/8	4	2 3/8	2 13/16	3/8×3/16	6.9
R-203A	50-0-50	1600	6.3	1.5	6.3	1.5	1500	A	Leads	4 1/8	3 3/8	3 3/8	2 3/8	2 13/16	3/8×3/16	6.0
R-82B	35-0-35	3000	-	-	-	-	1500	B	Leads	2 13/16	3 3/8	4 1/2	3 3/8	3	—	8.3
R-206A	40-0-40	1200	-	-	-	-	1500	A	Leads	3 1/2	2 13/16	3 3/8	2 3/8	2 1/2	3/8×3/16	4.4
R-204A	40-0-40	2000	6.3	1.5	6.3	1.5	1500	A	Leads	4 1/8	3 3/8	3 3/8	2 3/8	2 13/16	3/8×3/16	6.5
R-209B	30-0-30	3000	-	-	-	-	1500	B	Leads	4 1/2	3 3/8	4 1/8	3 3/8	3	—	10
R-205A	30-0-30	2500	6.3	1.5	6.3	1.5	1500	A	Leads	4 1/8	3 3/8	3 3/8	2 3/8	2 13/16	3/8×3/16	6.0
R-206B	27-0-27	1250	-	-	-	-	1500	B	Leads	2 1/4	3 3/8	3 1/2	3 3/8	2 1/2	—	4.8

*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

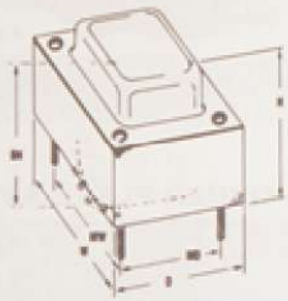
CT for Center Tap. ‡Static shield. #60 cycle operation.

PLATE AND FILAMENT TYPES


A Case


AL Case


C Case



CATHODE RAY TUBE / primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts ±5%	DC Ma. Cond. Input	DC Ma. Choke Input	Rectifier Filament Volts ±5%	Rectifier Filament Amps	Other Filaments Volts ±5%	Other Filaments Amps	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Max. Unit Wt. Lbs.
R-41C	440-0-440 1250	125 5	158	5 2.5* 2.5*	3 1.75 1.75	6.3	.6	(2.5 V & 6.3V)—3500 Others—1500	C	Lugs	3¼	4⅝	3½	3⅛	2¾	7.5
R-45C	400-0-400 800	30 5	38	5* 5*	2 2	6.3 6.3 CT 6.3	.6 3 1	Pri. & 6.3 CT 1500 Others—3000	C	Lugs	2⅝	3⅝	3¼	3⅛	2½	4.5
R-43C	1600	3	-			0-2.5-5-6.3 0-2.5-5-6.3	1 3	Pri.—1500 Others—4200	C	Lugs	2⅝	3¼	2⅝	2½	2	3.5
R-83A●#	400-0-400 650	70 3	-	125♦	.3	6.3 CT 6.3	3.5 .6	6.3V.6A—3000 Others—1500	A	2-Sides	3 15/32	2 15/32	3⅜	2¼	2⅝	5
R-84K●●	-	-	-	-		6.3	.6	3500	K	2-Sides	2⅝	2¼	2⅝	2⅜	1½	1.5

●Direct Replacement For Power Transformer in Model 0-12 Heathkit Scope. ●●CRT Filament Transformer for Heathkit Model OP-1 Scope. #60 Cycle operation. ‡Static shield.

*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3 V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

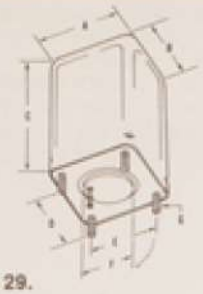
♦2 ohms 2W resistor in series with filament when IV2 is used.

REGULATED POWER SUPPLY / primary 115 volt, 50-60 Hz

Type No.	Secondary†† AC Volts ±5%	DC Ma. Cond. Input	DC Ma. Choke Input	Rectifier Filament Volts ±5%	Rectifier Filament Amps	Other Filaments Volts ±5%	Other Filaments Amps	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Max. Unit Wt. Lbs.
R-78A‡	440-0-440	59	75	6.3 6.3	.6 .3	6.3 6.3	.9 3	2000	A	1	3 1/16	3 5/32	3⅜	2⅝	2¼	4.5
R-26A‡	440-360-0-360-440	157	200	5	3	6.3 CT 6.3 6.3	8 3 1	2000	A	1	4⅜	3 1/16	4⅜	3	3 5/16	12

PLATE POWER / primary 115 volt, 50-60 Hz

Type No.	Primary AC Volts	Secondary AC Volts†† ±5%	Secondary DC MA—Choke Input CCS	Secondary DC MA—Choke Input ICAS	Rectifier Filament Volts ±5%	Rectifier Filament Amps	RMS Test Voltage	Case Type	Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Max. Unit Wt. Lbs.
P-1A‡	115	220-110-0-110-220	160	192	5	3	1500	A	1	3 13/32	2 21/32	3¼	2¼	2⅝	4
P-3A‡	115	300-150-0-150-300	300	360	5	4	1500	A	1	3⅜	3 5/32	3⅜	2½	2⅝	6.25
P-5A‡#	115	550-0-550	250	300	5	4	2500	A	1	4⅛	3 1/16	3⅜	3	2⅝	8
P-7A‡#	115	617.5-0-617.5	250	300	5	4	2500	A	1	4⅛	3 1/16	4⅛	3	3⅜	9
P-11A‡#	115	727.5-0-727.5	250	300	-	-	2500	A	1	4⅛	3 1/16	3⅜	3	2⅝	8.5
P-14A‡†	115	890-712.5-0-712.5-890	250	300	-	-	3000	A	2	5 5/16	4½	4⅛	3½	3⅜	13.5
P-215AL‡	115-230	1170-0-1170	250	300	-	-	3500	AL	1 + 2□	5 5/16	4½	4⅛	3½	3⅜	13.5
P-217AL‡	115-230	1440-0-1440	250	300	-	-	4000	AL	1 + 2□	5 5/16	4½	4⅛	3½	3⅜	14.75
PR-21AL‡#	115-230	1650-0-1650	500	600	-	-	4500	AL	1 + 2□	6½	5½	6¼	4¼	4¼	29

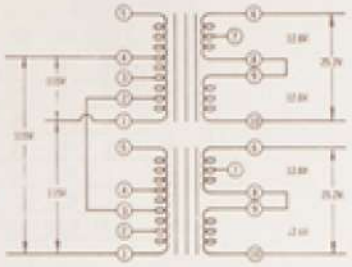


HS & HSM Case
See case chart, page 29.

Schematic for Scott Connection

using two HS-442's
Primary 115V. 400 C.P.S. 3 Phase
to
2 Phase 25.2V. or 2 Phase 12.6V.

Secondaries on each Transformer
can be used in Series,
Parallel or Separately



FILAMENT / 50-60 Hz

Type No.	Mil Type No.	Primary Volts	Filaments Volts	Filaments Amps	RMS Test Voltage	F. Dim. Inches	Mil Case Type	Max. Unit Wt. Lbs.
HSM-223	TF4RX01YY	115	6.3	6	1500	1⅛	AJ-2	.75
HSM-229	TF4RX01JB	0-105-115-125	6.3 CT	8	2500	1 1/16	JB	5
HSM-230	TF4RX01FA	0-105-115-125	24 CT	.8	1500	⅞	FA	2
HSM-240	TF4RX01GA	0-115-230	12.6 CT* 12.6*	1.5 1.5	2500	1⅜	GA	3.25
HSM-236	TF4RX01JB	0-105-115-125	12.6 CT* 12.6*	2 2	2500	1⅜	JB	6.5
HSM-228	TF4RX01JA	0-105-115-125	6.3 CT* 6.3*	6 6	Pri. 1500 Sec. 2500	1⅜	JA	6.3
HSM-231	TF4RX01JB	0-105-115-125	6.3 CT 5 CT	5 3	2500	1⅜	JB	4.9

ISOLATION / 50-60 Hz

Type No.	Mil Type No.	Primary Volts	Secondary Volts	Secondary Current	Secondary VA	RMS Test Voltage	F. Dim. Inches	Mil Case Type	Max. Unit Wt. Lbs.
HSM-271	TF4RX01KA	115/230	0-105-115-125	1A.	125	1500	¾	KA	9.25

LOW VOLTAGE / 50-60 Hz / for solid state applications

Type No.	Mil Type No.	Primary Volts	Secondary AC Volts*	Secondary RMS Amps	RMS Test Volts	DC Volts CT FW	DC Volts FW Bridge	Mil Case Type	Max. Unit Wt. Lbs.
HSM-250	TF4SX02AJ	115	8.25—40.5	.07— .22 DC	1500	6.6-24	6-53	AJ	13 oz.
HSM-251	TF4SX02FA	115	8.25—40.5	.4 —1.2 DC	1500	6.6-24	6-53	FA	2
HSM-252	TF4SX02HA	115	8.25—40.5	1.0 —3.0 DC	1500	6.6-24	6-53	HA	4.5

	AH	AJ	EA	EB	FA	GA	HA	JA	JB	KA
A	1 1/16	1 1/8	1 11/16	1 11/16	2 1/16	2 1/8	2 5/8	3 1/16	3 1/16	3 5/8
B	1 1/16	1 1/8	1 11/16	1 11/16	2 1/16	2 1/8	3 1/16	3 5/16	3 5/16	3 15/16
C	1 3/4	2 3/8	2 3/4	2 1/16	3 3/8	3 15/16	4 1/4	4 3/4	3 3/8	5 1/4
D	1 1/4	1 5/16	1 3/8	1 3/8	1 11/16	2 1/8	2 13/16	2 3/8	2 3/8	3
E		1 5/16	1 1/4	1 1/4	1 5/16	1 3/8	1 15/16	2 1/8	2 1/8	2 1/16
G	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	1/2
I	6-32	6-32	6-32	6-32	6-32	6-32	8-32	8-32	8-32	10-32

AJ-2 Case

	AJ-2
A	1 1/8
B	1 1/8
Bw	
C	2 3/8
D	*1 3/8
F	3/8
G	6-32

COMBINED PLATE AND FILAMENT / primary 115 volt / 380-1500 Hz

Type No.	Mil Type Number	Secondary Plate Supply A.C. Volts	D.C. Ma. Cond. In	D.C. Ma. Choke In	Filaments Volts	Amps	RMS Test Voltage	F. Dim Inches	Mil Case Type	Max. Unit Wt. Lbs.
HS-401	TF4RX03EB	250-0-250‡	40	51	6.3 CT*	1	1500	1/8	EB	1.2
					6.3*	1				

ISOLATION / primary 115 volt / 380-1500 Hz

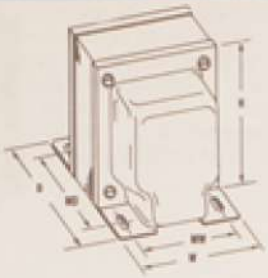
Type No.	Mil Type No.	Secondary Volts	Current	VA	RMS Test Voltage	F. Dim Inches	Mil Case Type	Max. Unit Wt. Lbs.
HS-470‡	TF4RX01EA	115	.35A	40	1500	3/4	EA	1.5
HS-472‡	TF4RX01GA	115	1.39A	160	1500	3/4	GA	3.1
HS-475‡	TF1RX01KA	115	4.4A	500	1500	3/4	KA	8.75

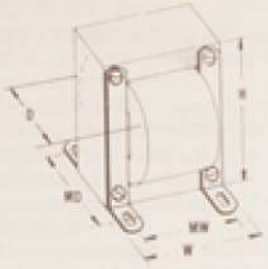
FILAMENT / 380-1500 Hz

Type No.	Mil Type No.	Volts Primary	Filaments Volts	Amps	RMS Test Voltage	F. Dim Inches	Mil Case Type	Max. Unit Wt. Lbs.
HS-436	TF4RX01AH	115	6.3 CT	1	1500	11/32	AH	.3
HS-425	TF4RX01YY	0-105-115-125	6.3 CT	2	1500	3/8	AJ-2	.65
HS-427	TF4RX01EA	0-105-115-125	6.3 CT	5	Pri. 500 Sec. 2500	3/8	EA	1.12
HS-438	TF4RX01EA	0-105-115-125	24 CT	1.5	1500	3/8	EA	1.2
HS-441	TF4RX01HA	0-105-115-125	5 CT*	10	2000	Special	HA	4
			5*	10	7500			
			2.5 CT	10				
HS-443	TF4RX01YY	0-105-115-125	12.6 CT*	.8	1500	3/8	AJ-2	.75
			12.6*	.8				
HS-442 For Scott connection	TF4RX01EA	0-57.5-99.7-115-120	12.6 CT*	2	1500	3/8	EA	1.25
			12.6*	2				
F-439U		115	26	3.85	2000	(Dim.) 3 3/4H 2 1/2W 2 1/2D	Spl (Non-Mil)	2.25
HS-444 For Scott connection	TF4SX01FA	0-57.5-99.7-115-120	26 CT*	2	2000	.9	FA	1.9
			26 CT*	2				
HS-440	TF1RX01EA	0-105-115-125	32	1.50	1500	3/8	EA	1.25

*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A. †Tapped for 5-Volt rectifier use. **CT** for Center Tap. ‡Static shield.

A Case





U Case

REPLACEMENT PUSH-PULL OUTPUT / push-pull tubes to voice coil / 3-4 ohms

Type No.	Output Watts	Primary D.C. Ma Total	Primary D.C. Ma Each Side	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
S-39X	3-4	60	30	12,000 CT	3-4	750	.46	54.6:1	1500	X	1⅝	2⅜	1⅜	2		⅜	.45
S-64X	4-6	80	40	6000 CT	3-4	550	.35	42.5:1	1500	X	1⅝	2⅜	1½	2		⅜	.5
S-15X	7-10	70	35	10,000 CT	3-4	785	.32	53.7:1	1000	X	1⅝	2 13/16	1½	2⅜		⅜	.6
S-19Z	10-14	100	50	10,000 CT	3-4	755	.33	53.7:1	1000	Z	2 5/16	2⅜	2	2⅜		⅜	1.3
S-68Z	15-18	180	90	3400 CT (3000 CT/3800 CT)	3-4	135	.29	29.1:1	1500	Z	2 15/32	3⅛	2	2 13/16		⅜	1.6
S-69Z	15-18	120	60	5000 CT	3-4	230	.31	35.4:1	1500	Z	2 15/32	3⅛	2	2 13/16		⅜	1.6

UNIVERSAL OUTPUT / single or push-pull tubes to voice coil

Type No.	Output Watts	Application	Primary D.C. Ma P.P. Total	Primary D.C. Ma Single Total	Matching Impedance Primary	Matching Impedance Secondary	Total D.C. Resistance Primary	Total D.C. Resistance Secondary	Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Max. Unit Wt. Lbs.
S-62X	2	Single or P.P. Plates	60	30	2000 to 10,000	.64 to 26.3	440	.79	25:1	1500	X	1 5/16	2 1/16	1⅜	1¾	.21
S-51X	5	Single or P.P. Plates	70	35	4000 to 14,000	.04 to 89.6	420	.98	25:1	1000	X	1⅝	2⅜	1⅝	2	.45
S-63X	6	Single or P.P. Plates	100	50	1500 to 7000	.5 to 28.6	240	.745	18.7:1	1500	X	1⅝	2⅜	1⅝	2	.45
S-54X	8	Single		70	1500 to 5000	.535 to 15.6	182	.835	17.9:1	1500	X	1⅝	2 13/16	1½	2⅜	.6
S-53X	8	Single or P.P. Plates	80	40	4000 to 14,000	.04 to 89.6	340	.83	24.9:1	1000	X	1⅝	2 13/16	1½	2⅜	.6
S-55X	10	P.P. Plates	100		4000 to 14,000	.04 to 89.6	427	1.04	24.9:1	1000	X	1 15/16	3 5/16	1⅞	2 13/16	1
S-55Z	10	P.P. Plates	100		4000 to 14,000	.04 to 89.6	427	1.04	24.9:1	1000	Z	2 5/16	2⅜	1⅞	2⅜	1
S-56Z	12	Single		85	1500 to 6000	.35 to 24	125	.7	15.8:1	1500	Z	2 15/32	3⅛	2	2 13/16	1.6
S-57Z	15	P.P. Plates	110		4000 to 14,000	.04 to 89.6	456	1.76	25:1	1000	Z	2 15/32	3⅛	2	2 13/16	1.6
S-61Z	20	P.P. Plates	125		4000 to 12,000	1.5 to 20.2	200	.7	19.85:1	1500	Z	2 15/32	3⅛	2⅛	2 13/16	1.8

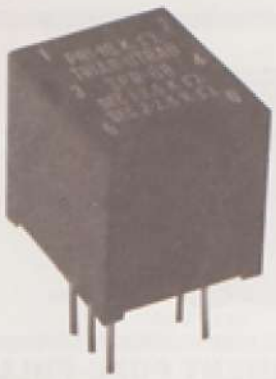
OUTPUT / line to voice coil

Type No.	Output Watts	Application	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Max. Unit Wt. Lbs.
S-23X	3	Lo Imp. Line to Speaker Autoformer	50	3.2-4	3.8	.29	-	3.75:1	100-8000	1000	X	Leads	1 5/16	2 1/16	1¼	1¾		.21
S-26X	4	Line to Speaker Autoformer	500/50	3.2-4	28.8	.3	-	11.2:1	100-8000	1000	X	Leads	1 5/16	2 1/16	1¼	1¾		.21
S-66X	3	Line to Speaker Autoformer	500	16/8/4	42	1.25	-	5.6:1	100-10,000	1000	X	Leads	1⅝	2⅜	1⅝	2		.45
S-65X	5	Line to Speaker	500	8/4	33.6	.7	-	7.95:1	300-7000	500	X	Leads	1⅝	2⅜	1⅝	2		.45
S-83Z	25	Line to Voice Coil	500	15/8/6/4	24	1.0	-	5.75:1	50-15,000	1500	Z	Lugs	2⅜	2⅜	1¾	2⅜		1.0
S-76Z	10	Variable Line to Speaker Matching Transformer	250/125 62.5/31	16/8/4	30	.67	-	3.92:1	40-15,000	1500	Z	Lugs	2 15/32	3⅛	2⅛	2 13/16		1.8
S-77U	30	High Level Line to Line or Speaker Matching Transformer	500 CT/ 125 §	32/16/8/4/2	36	2.05	-	3.96:1	40-15,000	1500	U	Leads & Lugs	3 5/16	2 13/16	4 5/16	2¾	3⅜	5

CT for Center Tap. § Split winding.

TRIAD-UTRAD
A Division of Magnetic Inc.

BLUE CHIP TRANSFORMERS



Streamlined construction methods have made it possible to produce the **BLUE CHIP,** a low cost equivalent of the Triad **RED SPEC** transformer.

Reliability and performance have not been sacrificed, however. **BLUE CHIP** transformers have passed reliability testing side by side with **RED SPECS.** Each **BLUE CHIP** transformer has the same first rate performance as its respective Red Spec equivalent. Features include: Pin for pin compatability with the Red Spec . . . Gold plated nickel alloy leads . . . Constructed to meet MIL-T-27(D) . . . Mounting feet for ready inspection of all solder joints . . . Hermetically sealed epoxy molded case . . . 1000 volt insulation test voltage . . . Exceptional operation from 300 to 150K Hz . . . Base dimensions of .505 x .575 . . . Overall height .575 . . . Weight .25 oz . . . Dry hydrogen-annealed trialloy, deep drawn .020 inch case (SPR-310) available for providing as much as 20 to 45 dB magnetic shielding.

Type No.	Application	Matching Impedance Primary	Matching Impedance Secondary	Max. ma DC Unbalanced In Primary	D.C. Resistance Pri.	D.C. Resistance Sec.	Frequency Response	Power Level @ ± 1.5 dB	Power Level @ ± 3 dB	Overall Turns Ratio	Fig. No.
SPR-4	Input	200,000 CT	1,000 CT	0 ma DC	1800	38	300-60K	10 mW	12.5 mW	14.1:1	3
SPR-5	Input	50,000 CT	1,000 CT	0 ma DC	900	53	300-125K	25 mW	30 mW	7.06:1	3
SPR-13	Interstage	25,000 CT/20,000 CT	1,000 CT/800 CT	.6 ma DC	690	100	350-125K	50 mW	60 mW	5:1	3
SPR-20	Driver	10,000 CT	1,200 CT	1 ma DC	510	54	300-150K	50 mW	60 mW	2.89:1	3
SPR-21	Driver	10,000 CT	2,000 CT	1 ma DC	480	100	300-150K	50 mW	60 mW	2.24:1	3
SPR-22	Driver	10,000	2,000 CT/500§	1 ma DC	500	49/57	300-150K	50 mW	60 mW	4.48:1:1	4
SPR-29	Driver	10,000 CT	500 CT	1 ma DC	510	20	300-150K	50 mW	60 mW	4.48:1	3
SPR-32	Output	500	50	4 ma DC	37	2	300-150K	50 mW	60 mW	3.49:1	1
SPR-33	Output	1,000	50	3 ma DC	63	2	300-150K	50 mW	60 mW	4.5:1	1
SPR-50	Output	500 CT	600	4 ma DC	26	36	300-150K	50 mW	60 mW	1.1:1	2
SPR-52	Output	1,500 CT	600	2.6 ma DC	76	36	300-150K	50 mW	60 mW	1.58:1	2
SPR-66	Output-Isolation	10,000 CT	10 000 CT	1 ma DC	330	450	300-125K	50 mW	60 mW	1:1	3
SPR-67	Output-Isolation	600 CT	600 CT	4 ma DC	29	36	300-150K	50 mW	60 mW	1:1	3
SPR-68	Output-Isolation	10,000	10,000 CT/2,500§	1 ma DC	340	210/250	300-125K	50 mW	60 mW	2:1:1	4
SPR-69	Output-Isolation	600	600 CT/150§	4 ma DC	28	17/19	300-150K	50 mW	60 mW	2:1:1	4
SPR-70	Output-Isolation	600	600	4 ma DC	28	36	300-150K	50 mW	60 mW	1:1	1
SPR-310	Shield	—	—	—	—	—	—	—	—	—	—

CT for Center Tap §Split Secondary.

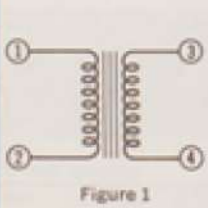


Figure 1

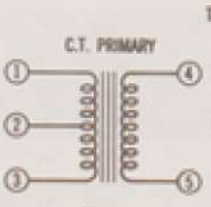


Figure 2

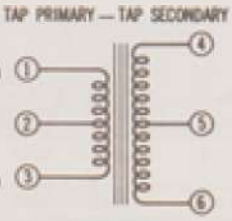


Figure 3

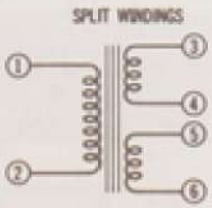
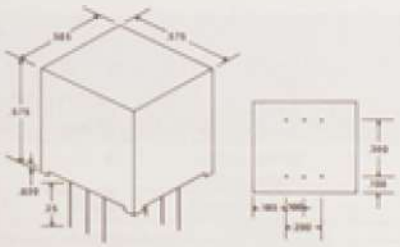


Figure 4



All Red Spec transformers are designed and constructed to conform to the rigid requirements of Specification MIL-T-27D. Features are: solid epoxy molded case . . . legible, permanent circuit data on every unit . . . base mounting pad for ready inspection of all solder joints . . . high-strength .020-diameter nickel alloy leads . . . all leads are gold plated . . . no stripping or tinning required . . . operating voltage: 150 volts DC . . . insulation test voltage 1000 V RMS . . . exceptional operation from 100 to 100,000 cycles . . . base dimensions of only .310 by .410 inch . . . total height of just .465 inch . . . weight: 1/16 ounce . . . lowest possible fatigue factor . . . dry hydrogen-annealed,Trialloy, deep-drawn .020-inch case (SP-310) available for providing as much as 20 to 45 db magnetic shielding.

Type No.	Mil Type Number	Power Level In MW	Application	Matching Impedance Primary	Matching Impedance Secondary	Max MA DC Unbalanced In Primary	DC Resistance Primary	DC Resistance Secondary	Overall Turns Ratio	Fig. No.
SP-4	TF5S21ZZ	10	Input	200,000 CT	1,000 CT	0	5300	100	14.1:1	3
SP-5	TF5S21ZZ	25	Input	50,000 CT	1,000 CT	0	3800	75	7.1:1	3
SP-7	TF5S21ZZ	10	Input	200,000	1,000	0	5300	100	14.1:1	1
SP-11	TF5S21ZZ	40	Interstage	25,000/20,000	1,000/800	.5	1700	115	5:1	1
SP-13	TF5S21ZZ	40	Interstage	25,000 CT/20,000 CT	1,000 CT/800 CT	.5	1700	115	5:1	3
SP-15	TF5S21ZZ	50	Interstage	10,000 CT	1,500 CT	1	1050	300	2.57:1	3
SP-20	TF5S21ZZ	50	Driver	10,000 CT	1,200 CT	1	1050	200	2.88:1	3
SP-21	TF5S21ZZ	50	Driver	10,000 CT	2,000 CT	1	1050	330	2.24:1	3
SP-22	TF5S21ZZ	50	Driver	10,000	2,000 CT/500§	1	1050	146/168§	4.48:1:1	4
SP-29	TF5S21ZZ	50	Driver	10,000 CT	500 CT	1	1050	80	4.47:1	3
SP-32	TF5S21ZZ	50	Output	500	50	3	60	8	3.16:1	1
SP-33	TF5S21ZZ	50	Output	1,000	50	3	145	8	4.4:1	1
SP-34	TF5S21ZZ	50	Output	600	3.2	3	70	.76	13.6:1	1
SP-35	TF5S21ZZ	50	Output	1,200	3.2	2	131	.76	19.3:1	1
SP-36	TF5S21ZZ	50	Output	10,000	3.2	1	1160	.81	55.8:1	1
SP-42	TF5S21ZZ	50	Output	150 CT	12	10	18	2.7	3.54:1	2
SP-47	TF5S21ZZ	50	Output	1,500 CT	12	3	179	2.9	11.2:1	2
SP-48	TF5S21ZZ	50	Output	7,500 CT	12	1	796	2.9	25:1	2
SP-49	TF5S21ZZ	50	Output	300	600	7	41	98	1:1.42	2
SP-50	TF5S21ZZ	50	Output	500 CT	600	3	67	98	1:1.1	2
SP-51	TF5S21ZZ	50	Output	900 CT	600	4	104	96	1.22:1	2
SP-52	TF5S21ZZ	50	Output	1,500 CT	600	3	168	92	1.58:1	2
SP-65	TF5S21ZZ	50	Output	8,000 CT	3.2	1	790	.76	50:1	2
SP-66	TF5S21ZZ	50	Output-Isolation	10,000 CT	10,000 CT	1	1000	1300	1:1	3
SP-67	TF5S21ZZ	50	Output-Isolation	600 CT	600 CT	3	72	92	1:1	3
SP-68	TF5S21ZZ	50	Output-Isolation	10,000	10,000 CT/2500§	1	1000	565/650§	2:1:1	4
SP-69	TF5S21ZZ	50	Output-Isolation	600	600 CT/150§	3	72	40/45§	2:1:1	4
SP-70	TF5S21ZZ	50	Output-Isolation	600	600	3	72	92	1:1	1
SP-106	TF5S20ZZ	—	Audio Choke	6HY	—	2	1700	—	—	5
SP-107	TF5S20ZZ	—	Audio Choke	1.25HY	—	2	180	—	—	5
SP-108	TF5S20ZZ	—	Audio Choke	3.5HY	—	2	1100	—	—	5
SP-117	TF5S20ZZ	—	Audio Choke	.9HY	—	2	110	—	—	5
SP-118	TF5S20ZZ	—	Audio Choke	.3HY	—	4	42	—	—	5
SP-128	TF5S20ZZ	—	Audio Choke	.1HY	—	5	15	—	—	5
SP-310	—	—	Shield	—	—	—	—	—	—	—

CT for Center Tap. §Split Secondary.

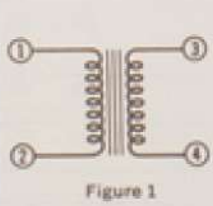


Figure 1

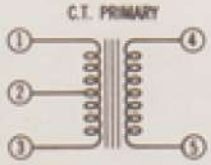


Figure 2

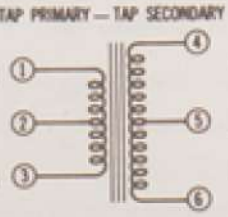


Figure 3

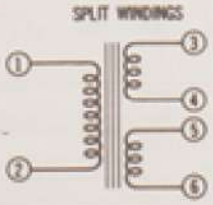


Figure 4

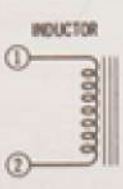
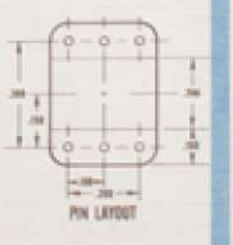


Figure 5



PIN LAYOUT

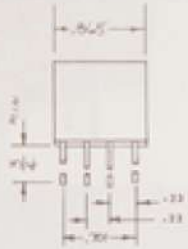
MINIATURE AUDIO

Highly dependable Triad Trijets are available as open frame units, or epoxy-molded for space saving and extreme reliability. Six of the most popular units in the T-series are encapsulated with plug-in terminals for printed circuit board use. All units have rigid tinned copper leads .750 long. A mu-metal case, No. T-300, may be slipped on any of these units to provide as much as 20 to 45 db magnetic shielding.

X Case

XT Case

SP Case



Type No.	Power Output	Application	Matching Impedance Primary	Matching Impedance Secondary	DC Resistance Pri-mary	DC Resistance Sec-ondary	Overall Turns Ratio	Frequency Response ±3DB	RMS Test Volts	Case Type	Connec-tions	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mtg. Hole Size	Max. Unit Wt. Lbs.
T1X‡	1MW.	Line or Mike to Grid	600/250/50	50,000	80	3200	1:9.16	60-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-1SP										SP	Tinned Copper Leads						
T-2X‡	1MW.	Line or Mike to Grid-Hi Gain	600/250/50	250,000	44	3600	1:20.6	100-15,000	500	X	Leads	⅜	1 1/32	¾	1	.100	.045
T-3X	1MW.	Line or Mike to Single or P.P. Grids	600/250/50	60,000 CT	100	3600	1:10	60-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-5X‡	1MW.	Mike or Voice Coil to Grid	30/12/4	50,000	7	3500	1:39.7	50-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-12X	10MW.	Interstage-Plate to Single or P.P. Grids	15,000	60,000 CT	1350	2700	1:2	60-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-13X	10MW.	Interstage-Plate to Single or P.P. Grids	15,000 3 MA. D.C.	95,000 CT	1330	3300	1:2.5	350-7,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-20X	10MW.	Output-Plate to Line	15,000	600/250/50	1330	58	5:1	60-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-22X	10MW.	Output-Plate to Line	15,000 3 MA. D.C.	600/250/50	1330	58.8	5:1	350-7,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-23X	10MW.	Output-Single or P.P. Plates to Line	20,000 CT	600/250/50	2000	70	5.76:1	60-15,000	500	X	Leads	⅜	1 1/32	¾	1	.100	.045
T-23SP										SP	Tinned Copper Leads						
T-24X	10MW.	Plate or Transistor to Transistor	10,000 CT 2 MA. D.C.	2000 CT	1000	200	2.24:1	50-20,000	500	X	Leads	⅜	1 1/32	¾	1	.100	.045
T-25X	10MW.	Plate to Line or Transistor	12,000 CT 2 MA. D.C.	600 CT/150§	1350	70	4.47:1	50-16,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-26X	20MW.	Transistor to Line or Transistor	50,000 CT .5 MA. D.C.	600 CT/150§	2500	70	9.1:1	100-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-31X‡	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	50-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-31SP										SP	Tinned Copper Leads						
T-32X	20MW.	Transistor to Transistor or Line	1500 CT 2 MA. D.C.	600 CT/150§	150	60	1.58:1	50-20,000	500	X	Leads	⅜	1 9/32	11/16	1 1/16	.125	.04
T-33X‡	10MW.	Isolation-High Impedance	5000 CT	5000 CT	1500	2200	1:1	60-15,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-41X	1MW.	Transistor Driver-Single to Push-Pull	1000 10 MA. D.C.	200 CT	428	128	2.25:1	20-15,000	500	X	Leads	⅜	1 9/32	11/16	1 1/16	.125	.04
T-34X	20MW.	Transistor or Line to Transistor or Line	500 CT 2 MA. D.C.	500 CT/125§	45	55	1:1.03	50-20,000	500	X	Leads	⅜	1 9/32	11/16	1 1/16	.125	.04
T-34SP										SP	Tinned Copper Leads						
T-35X	10MW.	Transistor or Line to Transistor	600 CT 1 MA. D.C.	2000 CT/500§	68	200	1:1.7	50-20,000	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-35SP										SP	Tinned Copper Leads						
T-101X	-	Audio Choke	50 HY @ .75 MA. D.C.	-	4000	-	-	-	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-102X	-	Coupling Reactor	6 HY. or @ 3 MA. D.C.	4 HY @ 6 MA. D.C.	295	-	-	-	500	X	Leads	⅜	1 1/32	¾	1	.096	.045
T-300	Magnetic shield for T-SP series. Dimensions, 0.91 × 0.91 × 0.754																

§ Split winding **CT** for Center Tap ‡ Static shield

MINIATURE AUDIO TRANSISTOR TRANSFORMERS

Developed primarily for transistor circuitry, Triad miniatures can be applied with equal effectiveness in tube circuitry. Skillful design of these units permits the reversing of primary and secondary windings with virtually no loss in coupling characteristics. Power wattage given in the table is for lowest operating frequency; this wattage can be increased by as much as five times at the center of the frequency response curve. Frequency response will be equal to, or better than ± 3 db. 300-10,000.

Type No.	Power Output Watts	Application	Matching Impedance Primary	Matching Impedance Secondary	DC Resistance Primary	DC Resistance Secondary	Overall Turns Ratio	RMS Test Volts	Case Type	Connections	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mtg. Hole Size	Max. Unit Wt. Lbs.
TY-19XT	.150	Output Single or P.P. to V.C.	10000 CT	16/8/4	1174	2.6	24.6:1	500	XT	Leads	1 1/32	1 3/4	3/4	1 7/32	—	.65
TY-22XT	.150	Interstage Sgl. or P.P. to Sgl. or P.P.	5000CT	7500 CT	650	790	1:1.22	500	XT	Leads	1 1/32	1 3/4	3/4	1 7/32	—	.65
TY-24X	.2	Driver Single to Sgl. or P.P.	50000 .5MA D.C.	3,000 CT	3720	250	4.08:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-25X	.2	Driver Single to Sgl. or P.P.	100000 .5MA D.C.	200 CT	9900	19.5	22.4:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-26X	.2	Driver Single to Sgl. or P.P.	100000 .5MA D.C.	3000 CT	9880	318	5.78:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-27XT	.01	Output Single or P.P. to Line	500 CT 2MA D.C.	500 CT	37.5	51.5	1:1	500	XT	Leads	3/4	3/4	3/4	3/4	—	.025
TY-28XT	.01	Output Single or P.P. to Line	500 CT 2MA D.C.	200 CT	38.2	25	1.58:1	500	XT	Leads	3/4	3/4	3/4	3/4	—	.025
TY-32X	.2	Interstage Sgl. or P.P. to P.P.	200 CT 2MA D.C.	2000 CT	29	233	3.18:1	1000	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-33X	.2	Output Single or P.P. to V.C.	400 CT 5MA D.C.	16/8/4	30	3	5:1	1000	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-34X	.2	Interstage Sgl. or P.P. to Sgl. or P.P.	400 CT 5MA D.C.	2000 CT	41	128	2.25:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-35X TY-35XT	.1	Interstage Sgl. or P.P. to Sgl. or P.P.	500 CT 2MA D.C.	150 CT	57	32	1.82:1	500	X XT	Leads	3/8	1 5/32	1 3/4	1 1/4 1 3/4	.125	.04
TY-36X	.2	Interstage Sgl. to Sgl. or P.P.	2000 2MA D.C.	1500 CT	165	140	1.15:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-37X TY-37XT	.2	Interstage Sgl. or P.P. to Sgl. or P.P.	2000 CT 4MA D.C.	8000 CT	200	550	1:2	500	X XT	Leads	1 3/4	1 3/8	1	1 3/8 1 3/4	.120	.08
TY-38X	.2	Interstage Sgl. or P.P. to Sgl. or P.P.	3000 CT 4MA D.C.	1000 CT	263	105	1.74:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-39X	.2	Output P.P. to V.C.	4000 CT 4MA D.C.	16/8/4	333	1.8	15.7:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-40X	.1	Interstage Sgl. to Sgl. or P.P.	5000 1MA D.C.	200 CT	440	27	5:1	500	X	Leads	3/8	1 5/32	1 3/4	1 3/4	.125	.04
TY-41X	.1	Interstage Sgl. to Sgl.	16000 1MA D.C.	4000	1373	330	2:1	500	X	Leads	3/8	1 5/32	1 3/4	1 3/4	.125	.04
TY-42X	.1	Output Sgl. to V.C.	20000 .5MA D.C.	8/4	1440	1.07	50:1	500	X	Leads	3/8	1 5/32	1 3/4	1 3/4	.125	.04
TY-43X	.1	Interstage Sgl. to Sgl. or P.P.	20000 .5MA D.C.	800 CT	1435	82	5:1	500	X	Leads	3/8	1 5/32	1 3/4	1 3/4	.125	.04
TY-44X	.2	Output Sgl. to V.C.	1000 10MA D.C.	16/8/4	181	3.8	7.9:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-45X TY-45XT	.2	Output Sgl. or P.P. to V.C.	500 CT 5MA D.C.	16/8/4	56	3.8	5.2:1	500	X XT	Leads	1 3/4	1 3/8	1	1 3/8 1 3/4	.120	.08
TY-46X	.25	Interstage Sgl. to P.P. or Sgl.	100 100MA D.C.	1000 CT	5.5	60	1:3.15	1500	X	Leads	1 5/8	2 3/8	1 5/8	2	3/4	4
TY-47X	.2	Output Sgl. or P.P. to V.C.	2000 CT 10MA D.C.	16/8/4	260	3.95	11.2:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-49X	.3	Interstage Sgl. or P.P. to Sgl. or P.P.	500 CT 12MA D.C.	5000 CT	40	245	1:3.15	500	X	Leads	1 5/8	2 3/8	1 5/8	2	3/4	4
TY-51X TY-51XT	.05	Driver Sgl. or P.P. to Sgl. or P.P.	2000 CT 10MA D.C.	200 CT	748	120	3.16:1	500	X XT	Leads	3/8	1 5/32	1 3/4	1 3/4 1 3/4	.125	.04
TY-52X	1	Driver Sgl. or P.P. to Sgl. or P.P.	20000CT 1MA D.C.	2000 CT	2140	327	3.17:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-54X	.1	Interstage Sgl. to Sgl. or P.P.	15000 1.5MA D.C.	200 CT	2130	55	8.65:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-55X	.2	Interstage Sgl. or P.P. to Sgl. or P.P.	2000 CT 2MA D.C.	500 CT	140	65	2:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-56X	.05	Interstage Sgl. to Sgl. or P.P.	10000 1MA D.C.	2000 CT	1034	334	2.24:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-57X	.2	Output Sgl. or P.P. to V.C.	250 CT 10MA D.C.	16/8/4	34.6	3.7	3.94:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-58X	.2	Output Sgl. or P.P. to V.C.	125 CT 15MA D.C.	8/4	16	2.2	3.97:1	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-59X	.2	Interstage Sgl. or P.P. to Sgl. or P.P.	5000 CT 1MA D.C.	50,000 CT	378	6410	1:3.16	500	X	Leads	1 3/4	1 3/8	1	1 3/8	.120	.08
TY-60X	.1	Input High Imp. to Transistor	200000 0 D.C.	1000	8400	195	14.2:1	500	X	Leads	3/8	1 5/32	1 3/4	1 3/4	.125	.04
TY-62X	.1	Output Sgl. to Voice Coil	10000 2MA D.C.	4	709	1.5	50:1	500	X	Leads	3/8	1 5/32	1 3/4	1 3/4	.125	.04
TY-150X	.3	Interstage Sgl. or P.P. to Sgl. or P.P.	500 CT	500 CT	40	55	1:1	500	X	Leads	1 3/4	1 3/8	3/4	1 3/8	.125	.12
TY-151XT	.15	Interstage Sgl. or P.P. to Sgl. or P.P.	5000 CT	10000 CT	635	825	1:1.41	500	XT	Leads	1 1/32	1 3/4	3/4	1 7/32		.05
TY-17XT		Filter Choke	11 mhy @ 1ADC		.75			1000	XT	Leads	1 5/8	2 3/4	1 1/4	1 3/8	3/4	.21

OUTPUT / low level

Type No.	Output Watts	Application	Matching Impedance Primary	Matching Impedance Secondary	DC Resistance Primary	DC Resistance Secondary	Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
A-53X	2	Single or P.P. Plates to Line	18,000 CT	600/250/50	1160	38	20	5.5:1	70-7000	1000	X	Leads	1⅜	2 1⅝	1⅛	2⅜		⅛	.6
S-58X	1	Line to Line	600 CT/150 §	600 CT/150§	46	47.2	-	1:1	100-10,000	500	X	Leads	1 3/16	2 1/16	1¼	1⅜		⅛	.21
S-81X	1	Line to Line	600	600	46	47.2	-	1:1	100-10,000	500	X	Leads	1 3/16	2 1/16	1¼	1⅜		⅛	.20
S-84X	10	Line to Line	500/333/200/125/50	500/333/200/125/50	21.7	23.8	-	1:1	50-20,000	1000	X	Lugs	2	3¼	1⅝	2 5/16		⅛	1

BULK-PACKED LINE— MATCHING TRANSFORMERS

These line matching transformers available in bulk only are the most reliable, easy-to-install and economical choice for use in efficient public address systems. Leads are color-coded for instant identification, and stripped and tinned for use with twist-on solderless connectors.

Type No.	Output Watts	Secondary Impedance	Case Type	Dimensions—Inches H	W	D	MW	Wt. Lbs.
				FOR 70.7-VOLT CONSTANT VOLTAGE LINE				
S-7010	10/5/2.5	8 ohms	X	1⅜	2⅜	1⅜	2⅜	.50
S-7005	5/2.5/1.25	8 ohms	X	1⅜	2⅜	1⅜	2	.37
S-7002	2/1/0.5	8 ohms	X	1⅜	2⅜	1⅜	2	.37
S-7001	1/0.63/0.32	8 ohms	X	1 3/16	2 1/16	1⅛	1¾	.25
				FOR 25-VOLT CONSTANT VOLTAGE LINE				
S-2510	10/5/2.5	8 ohms	X	1⅜	2⅜	1⅜	2⅜	.50
S-2505	5/2.5/1.25	8 ohms	X	1⅜	2⅜	1⅜	2	.37
S-2502	2/1/0.5	8 ohms	X	1⅜	2⅜	1⅜	2	.37
S-2501	1/0.63/0.32	8 ohms	X	1 3/16	2 1/16	1⅛	1¾	.25

OUTPUT / 70.7 volt line in voice coil

Type No.	Output Watts	Type	Secondary Impedance	D. C. Resistance Primary	D. C. Resistance Secondary	Freq. Resp. ±3 DB	RMS Test Voltage	Case Type	Case Dimension H	Case Dimension W	Case Dimension D	MW	MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
S-73X	5/2.5/1.25/.625/.31	Isolation	16/8/4	838	1.17	40-15,000	1500	X	1⅜	2⅜	1⅜	2		⅛	.45
S-70Z	5/2.5/1.25/.625/.31	Autoformer	8/4	580	.65	40-15,000	1000	Z	1 1/16	2	1⅜	1 3/32		⅛	.45
S-47Z	8/4/2/1/.5	Isolation	16/8/4	515	.93	30-20,000	1500	Z	1 1/16	2⅜	1⅜	2		⅛	.67
S-85X	5/4/3/2/1	Isolation	16/8	320	1.5	50-20,000	1000	X	1⅜	2⅜	1⅜	2		⅛	.4
S-78Z	10/5/2.5/1.25	Isolation	16/8/4	157	.84	40-20,000	1000	Z	1 1/16	2⅜	1⅛	2		⅛	.6
S-86Z	16/8/4/2/1/.5	Isolation	16/8/4	570	1.15	40-15,000	1000	Z	2⅛	3⅛	2¼	2 5/16		⅛	1.5
S-25Z	10/5/2.5/1.25	Autoformer	8/4	120	.475	30-20,000	1000	Z	2 1/16	2⅛	1¾	2⅜		⅛	1
S-71Z	10/5/2.5/1.25	Autoformer	16/8/4	148	.835	40-20,000	1000	Z	1 1/16	2⅜	1½	2		⅛	.6
SR-45Z	10/5/2.5/1.25	Autoformer	16/8/4	267	.866	20-20,000	1000	Z	2 1/32	3⅛	2⅛	2 5/16		⅛	1.8
S-79Z	20/10/5/2.5	Isolation	16/8/4	69	.7	40-20,000	1000	Z	2 1/16	2⅛	1¾	2⅜		⅛	1
S-72Z	20/10/5/2.5	Autoformer	16/8/4	56.5	.5	40-20,000	1000	Z	2 1/16	2⅛	1¾	2⅜		⅛	1
S-46A	20/10/5/2.5	Autoformer	16/8/4	88.7	.82	30-15,000	1000	A	3 1/16	2 1/32	3⅜	2	2 1/16	⅜×⅜	4
S-43Z	30/20/10/5	Isolation	16/8/4	40	1.0	40-20,000	1500	Z	2 1/16	2⅛	1¾	2⅜		⅛	1.6
S-44Z	50/40/25/15	Isolation	16/8/4	25	1.5	40-20,000	1500	Z	2 1/16	2⅛	2	2⅜		⅛	1.5

OUTPUT / 25 volt line to voice coil

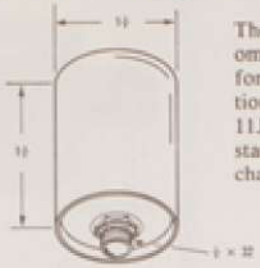
Type No.	Output Watts	Type	Secondary Impedance	D.C. Resistance Primary	D.C. Resistance Secondary	Freq. Resp. ±3 DB	RMS Test Voltage	Case Type	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
S-131X	2/1/.5	Isolation	8/4	63	.67	50-20,000	1500	X	1⅜	2⅜	1⅜	2		⅛	.45
S-132X	5/2.5/1.25/.625	Isolation	16/8/4	37.6	.76	30-20,000	1500	X	1⅜	2 1/16	1⅜	2⅜		⅛	.8
S-133Z	10/5/2.5/1.25	Isolation	16/8/4	12.5	.66	20-20,000	1500	Z	2 1/32	3⅛	2	2 1/16		⅛	1.6

MATCHING / 25 or 70.7 volt line

Type No.	Output Watts	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Freq. Resp. ±3 DB	RMS Test Voltage	Case Type	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Mtg. Hole Size	Max. Unit Wt. Lbs.
S-129Z	30	20.8 CT (25V. to 70V.) 166 CT (70V. to 25V.)	166 CT 20.8 CT	1.9	16.9	20-15,000	1500	Z	3 1/32	3⅛	2¼	3⅛		⅛	2.3

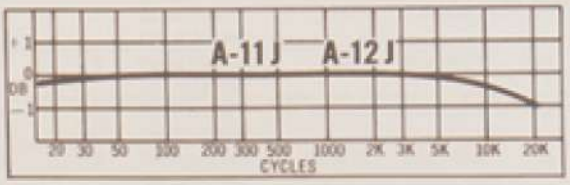
CT for Center Tap.

J SERIES / low level high fidelity



The flexibility of Triad J Series transformers permits amplifiers to exceed broadcast standards. Although economy in construction places them in a lower price class, these units approach and closely approximate the performance characteristics of more costly hermetically sealed units. Features: single-hole mounting, allowing rotation for maximum hum reduction . . . alloy shielding gives 40 to 60 db hum reduction (60 to 80 db in Types A-11J, A-12J, A-13J) . . . wide frequency ranges . . . flexible leads for ease of mounting . . . input units electrostatically magnetically shielded . . . light weight . . . smooth, baked enamel cases, 1¾" diameter, 1¾" above chassis . . . legible circuit diagrams permanently affixed to every case.

Type No.	Power Output	Application	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Overall Turns Ratio	Freq. Resp. ± 3DB	RMS Test Voltage	Case Type	Connections	Case Dim H	Case Dim D	Mtg. Hole Diameter	Max. Unit Wt. Lbs.
A-9J‡	1MW	Line or Mike to Grid	600/250/50	85,000	32.7	3450	1:12	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-10J‡	1MW	Balanced Line or Mike to Single Grid	600 CT/150§§§	60,000	33.7	4040	1:10.5	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-11J‡	10MW	Line or Mike to Grid	600/250/50	60,000	50	5000	1:10	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-12J‡	10MW	Balanced Line or Mike to Grid	600 CT/150§§§	60,000	50	4920	1:10	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-13J‡	1MW	Line to Line or Transistor	600/300/200 CT/ 110/50§§§	600 CT/ 150§§§	62	70	1:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-14J	10MW	Balanced Line or Mike to Single Grid	600 CT/150	20,000	55	1465	1:5.77	30-15,000	500	J	Leads	1¾	1¾	⅜	.27
A-15J	10MW	Balanced Line or Mike	600/250/50	20,000	53	1400	1:5.77	30-15,000	500	J	Leads	1¾	1¾	⅜	.25
A-52J	100MW	Line or Transistor to Line or Transistor	500 CT/125§§§ 20 MA D.C.	2000 CT/ 500§§§	50	200	1:2	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-56J	100MW	Line or Transistor to Voice Coil	500 CT/125§§§ 15 MA D.C.	16/4§§§	50	1.5	5.6:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-79J	200MW	Transistor to P-P Transistors or Line	1000 10 MA D.C.	200 CT/50§§§	302	138	2.2:1	20-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-58J	100MW	P-P Plates or Transistors to Line or Transistors	10,000 CT/ 2500§§§	2000 CT/ 500§§§	1000	200	2.24:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-40J	10MW	Plate to 1 or 2 Grids	15,000	115,000 CT	1540	4020	1:2.76	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-41J	32MW	Tube to 1 or 2 Grids	15,000 8 MA D.C.	80,000 CT	1392	8109	1:2.3	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-55J	100MW	Plate to Line	15,000	600/250/75	1020	46	5:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-61J	50MW	Line to 2 simultaneously loaded lines or transistors	600/150§§§	600/150§§§ 600/150§§§	47	40 40	1.4:1:1	60-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-65J	100MW	Single or Push-Pull Plates to Balanced Line	15,000 CT	600 CT/150§§§	1630	73	5:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-66J	100MW	Plate to Line	15,000 4 MA D.C.	600/250/ 50	1740	81.2	5:1	40-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-68J	100MW	Sgl. or P-P Plates to Balanced Line	15,000 CT 4 MA D.C.	600 CT/150§§§	1723	81	5:1	40-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-69J	100MW	P-P Plates or Bridging to Line	25,000 CT/ 6250§§§ 2.5 MA D.C.	500 CT/ 125§§§	2500	50	7.1:1	50-20,000	500	J	Leads	1¾	1¾	⅜	.35
A-78J	100MW	1 or 2 Transistor to Balanced Line	2,000 CT	600 CT/150§§§	112	48.5	1.82:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-57J‡	50MW	Line or Transistor to Line	600/250/ 50	600/250/ 50	40	44	1:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35
A-67J‡	50MW	Balanced Line to Balanced Line	600 CT/150§§§	600 CT/150§§§	43.8	44.1	1:1	30-15,000	500	J	Leads	1¾	1¾	⅜	.35



PERFORMANCE CURVES
A-11J
A-12J
A-13J
A-66J
A-68J

AF Case

	AF
A	1 13/64
B	1 13/64
Bw	1 1/64
C	1 1/32
D	17/32
F	5/8
G	4-40
Unit Wt.	2½ oz.

PL-20, PL-21

PL-30 through PL-34

PL-10, PL-11 Trigger Coil

JAF SERIES

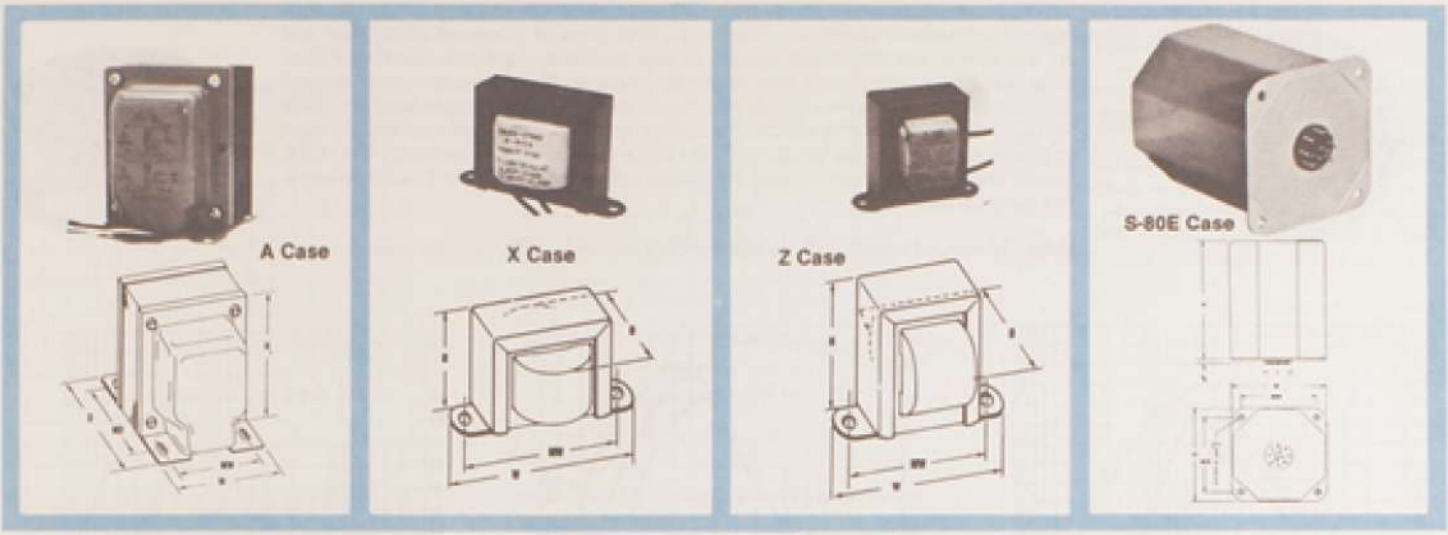
Type No.	Mil. Type Number	Power Output	Application	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim Inch	Case	Max. Unit Wt. Lbs.
JAF-1‡	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	50,000	100	3180	1:9.16	60-15,000	500	45 DB	5/16	AF	.1
JAF-5‡	TF1QX10YY	1MW.	Mike to Voice Coil to Grid	30/12/4	50,000	6	3500	1:39.7	50-15,000	500	45 DB	5/16	AF	.1
JAF-12	TF1QX10YY	10MW.	Plate to Sgl. or P.P. Grids	15,000	60,000 CT	1350	2700	1:2	60-15,000	500	45 DB	5/16	AF	.1
JAF-13	TF1QX15YY	10MW.	Plate to Sgl. or P.P. Grids	15,000 3 MA. D.C.	95,000 CT	1330	3330	1:2.5	350-7,000	500	45 DB	5/16	AF	.1
JAF-31‡	TF1QX16YY	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	60-15,000	500	45 DB	5/16	AF	.1
JAF-32	TF1QX13YY	20MW.	Transistor to Transistor or Line	1500 CT 2 MA. D.C.	600 CT/150§	150	60	1.58:1	50-20,000	500	45 DB	5/16	AF	.1
JAF-33‡	TF1QX21YY	10MW.	Line to Line Hi Imp. Isolation	5,000 CT	5000 CT	1500	2200	1:1	60-15,000	500	45 DB	5/16	AF	.1
JAF-34	TF1QX17YY	20MW.	Transistor or Line to Transistor or Line	500 CT 2 MA. D.C.	500 CT/125§	45	50	1:1.03	50-20,000	500	45 DB	5/16	AF	.1
JAF-101	TF1QX20YY		Coupling Reactor	50 Henries@ .75 MA. D.C.		4000				500	45 DB	5/16	AF	.1

TRIGGER-PHOTOFLASH transformers

Type No.	Application	Turns Ratio	Primary Inductance	Leakage Inductance	D.C. Resistance Primary	D.C. Resistance Secondary	Output Volts or Volt—μ Sec Rating	Dimensions Dia.	Dimensions Length	Ht.	Weight Oz.
PL-10	PHOTOFLASH	1:30	2μH	1μH	.2	115	6-8KV	½	¾		½
PL-11	PHOTOFLASH	1:30	15μH	1.5μH	.156	113	10-12KV	½	¾		½
PL-20	SCR TRIGGER	1:1	200μH	2μH	1.1	1.1	2000 VμSec	⅜	¾		1
PL-21	SCR TRIGGER	1:1:1	200μH	2μH	1.1	1.1 1.1	2000 VμSec	⅜	¾		1
PL-30	SCR TRIGGER	1:1:1	7.5mHy	90μH	1.85	1.85 1.85	130 VμSec	.562	.562	.343	½
PL-31	SCR TRIGGER	1:1	7.5mHy	90μH	1.9	1.9	130 VμSec	.562	.562	.343	½
PL-32	SCR TRIGGER	2:1	7.5mHy	100μH	1.8	.95	130 VμSec	.562	.562	.343	½
PL-33	SCR TRIGGER	2:1:1	7.5mHy	100μH	1.9	.95 .95	130 VμSc	.562	.562	.343	½
PL-34	SCR TRIGGER	5:1	7.5mHy	115μH	1.8	.42	130 VμSec	.562	.562	.343	½

CT for Center Tap. §Balanced two windings. ‡Static shield. §§§ Split winding.

■ Williamson type circuit may be used. Taps on primary for proper screen operation. ■■ See case chart, page 29.



These medium-priced audio components are manufactured to Triad's strict quality control standards to provide highly reliable performance in minimum over-all space. Designed for quick and easy mounting, they have exceptional construction features which make them ideal for replacement purposes in public address, amateur radio, and all other audio systems. Like all standard Triad units, these are instantly obtainable from your stocking Triad distributor.

Triad's research, quality control, and production capabilities have combined to turn out complete transformer coverage for today's complex tube and circuitry developments. As industry leader in the replacement field, Triad offers: minimum over-all size . . . greatest life expectancy . . . easy mounting . . . exact location placement in chassis . . . widest range of types and power ratings . . . economical price.

HIGH FIDELITY OUTPUT / tube to line or voice coil

Type No.	Output Watts	Application	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Max. Unit Wt. Lbs.
S-142A	15	P.P. 6V6's, EL84's, etc. to Speaker	8000 CT□	16/8/4	450	.76	50	22.2:1	20-20,000	1500	A	2	3 9/16	2 13/32	3 3/8	2	2 5/16	3.75
S-35A	20	P.P. 6L6's, etc. to Speaker	5000 CT	16/8/4	320	.8	80	17.6:1	20-20,000	1500	A	1	3 9/16	2 13/32	3 3/8	2	2 5/16	4.3
S-146A	25	P.P. 5881, 6L6's, etc. to Speaker	6600 CT□	16/8/4	250	.715	80	20:1	10-50,000	Pri. 2000 Sec. 1500	A	2	3 1/2	2 13/32	4 1/4	2 1/4	3 1/8	5.75
S-42A	50	P.P. Par. 6L6's Class A to Speaker	4500 CT	16/8/4	147	.56	140	16.9:1	30-15,000	1500	A	1	4 1/4	3 15/32	4 3/8	2 3/8	3 1/2	8.25
SR-45Z	10	70 Volt Line Autoformer	4000/2000/1000/500	16/8/4	255	.77	-	15.7:1	20-20,000	1000	Z	Leads	2 13/32	3 3/8	2 1/8	2 13/16		1.75
S-46A	20	70 Volt Line Autoformer	2000/1000 500/250	16/8/4	88	.82	-	11:1	30-15,000	1000	A	1	3 9/16	2 13/32	3 3/8	2	2 5/8	4

OUTPUT / tube to voice coil & line

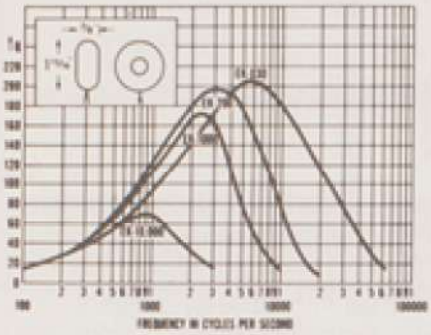
Type No.	Output Watts	Application	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension H	Case Dimension W	Case Dimension D	Mounting Dimension MW	Mounting Dimension MD	Max. Unit Wt. Lbs.
S-28X	5	Single Plate to Line or Speaker	7500	500/16/8/4	595	35.8	40	4.05:1	50-12,000	1000	X	Leads & Lugs	1 13/16	3 5/16	1 5/8	2 13/16		1
S-29X	5	Single Plate to Line or Speaker	5000	500/16/8/4	660	56	45	3.16:1	50-12,000	1000	X	Leads & Lugs	1 13/16	3 5/16	1 5/8	2 13/16		1
S-22A	15	P.P. Plates to Line or Speaker	5000 CT	500/16/8/4	424	48.3	50	3.16:1	25-15,000	1500	A	1	2 13/32	2 13/32	2 5/8	1 5/8	1 7/8	2.5
S-24A	15	P.P. Plates to Line or Speaker	8000 CT	500/16/8/4	675	39.5	40	3.98:1	20-15,000	1500	A	1	2 13/32	2 13/32	2 29/64	1 5/8	1 7/8	2.5
S-80E	20	P.P. Plates to Line or Speaker	8000 CT	500/200/70/16/8/5/3/1.5	199	21.33 .504	200	22.2:1 5.5:1	40-10,000	1500	Spl.	—	3 5/8	3	3	2 5/8	2 5/8	3.5
S-60A	35	P.P. Plates to Line or Speaker	6600 CT	500/250/16/8/4	118.5	9.6	150	3.65:1	30-20,000	2000	A	2	3 1/8	3 5/32	3 3/8	2 1/2	2 3/4	4

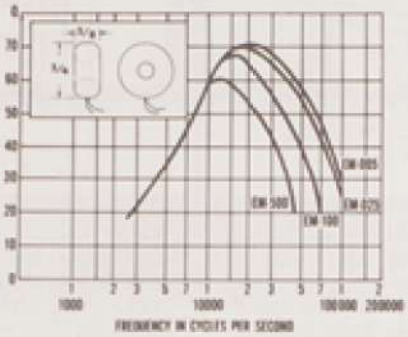
Toroidal Inductors

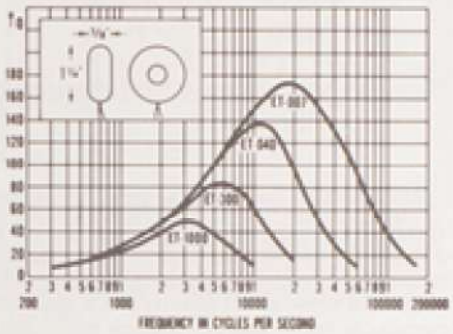
TRIAD-UTRAD
A Division of Magnetic Inc.

Triad Toroidal Inductors have the highest Q and highest measure of stability with voltage and temperature variations. These units have cores of powdered nickel alloy and are wound with low distributed capacitance and resistance—each coil providing a minimum inductance tolerance of plus or minus 2 percent. Triad toroids may be ordered with standard leads in strong plastic coating, or epoxy molded, encapsulated per Specification MIL-T-27B; TF5RX20ZZ. To specify molded toroids with goldplated fixed terminals, an "A" should be added to the full type number; for example, EM-001A. Should special applications require even closer tolerances, call your Triad representative for assistance.

Note: For molded toroids with gold plated fixed terminals, add A to type number.







EK Series

For maximum "Q" and power.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EK-030	30 mh	1.4	150
EK-030A	30 mh	1.4	150
EK-040A	40 mh	1.9	130
EK-080A	80 mh	3.1	92
EK-100	100 mh	4.4	82
EK-200	200 mh	7.5	58
EK-200A	200 mh	7.5	58
EK-250	250 mh	9.0	52
EK-250A	250 mh	9.0	52
EK-700	700 mh	27.0	31
EK-1000	1000 mh	45.0	26
EK-1000A	1000 mh	45.0	26
EK-3000	3000 mh	116	15
EK-20000	20000 mh	800	5.8

EM Series

For extremely miniaturized circuits such as missile applications, where size and weight must be kept to a minimum.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EM-001	1 mh	1.25	150
EM-001A	1 mh	1.25	150
EM-002	2 mh	1.70	108
EM-004	4 mh	2.60	76
EM-005	5 mh	3.10	68
EM-007A	7 mh	4.5	57
EM-010	10 mh	6.5	48
EM-010A	10 mh	6.5	48
EM-025	25 mh	16.5	30
EM-030A	30 mh	18	27.6
EM-050	50 mh	30	22
EM-100A	100 mh	66	15
EM-250A	250 mh	155	9.6
EM-1000	1000 mh	650	4.8
EM-1000A	1000 mh	650	4.8

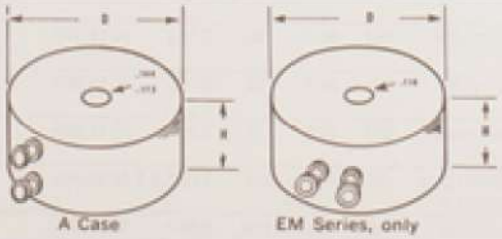
ET Series

Optimum combination of size, power and "Q."

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
ET-001	1 mh	.30	680
ET-001A	1 mh	.30	680
ET-002	2 mh	.50	480
ET-002A	2 mh	.50	480
ET-003	3 mh	.68	396
ET-005A	5 mh	1.10	306
ET-007	7 mh	1.50	260
ET-010A	10 mh	2.0	217
ET-015	15 mh	2.85	177
ET-015A	15 mh	2.85	177
ET-020A	20 mh	4.0	153
ET-030A	30 mh	6.5	125
ET-040	40 mh	9.2	108
ET-040A	40 mh	9.2	108
ET-050	50 mh	10.3	97
ET-100	100 mh	24	68
ET-100A	100 mh	24	68
ET-150	150 mh	35	56
ET-200	200 mh	44.5	48
ET-250	250 mh	64	43
ET-250A	250 mh	64	43
ET-300	300 mh	70	40

OPEN TYPE SIZES AND WEIGHTS

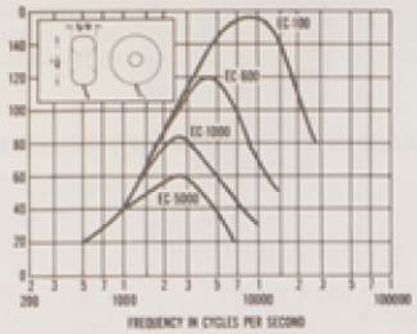
	EA Series	EC-ET Series	EK Series	EM Series
DIA.	1⅛	1 7/16	2⅛	11/16
HT.	½	⅝	15/16	⅜
I.D.	⅜	⅜	7/16	⅛
WT. (oz.)	.6	1.6	5	.2

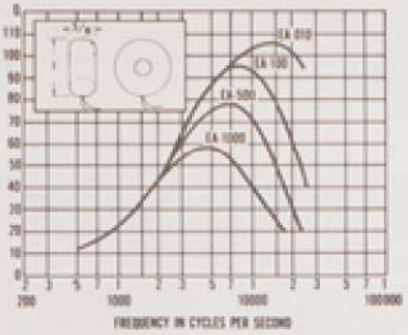


A Case EM Series, only

MOLDED TYPE SIZES AND WEIGHTS

	EA Series	EC-ET Series	EK Series	EM Series
DIA.	1 1/16	1 1/16	2	¾
HT.	½	21/32	1	⅜
I.D.	3/16	3/16	3/16	1/16
WT. (oz.)	.8	2	6	.3





TRIAD SUB-MINIATURE TOROIDAL INDUCTORS

Triad sub-miniature inductors are toroidally wound on permalloy powdered cores. Encapsulated in high temperature epoxy resin. Weldable or solderable leads of gold plated nickel allow. Highly resistant to severe acceleration, shock or vibration. Manufactured to meet the requirements of MIL-T-27B, Grade 5 Class S (MIL type TF5SX20ZZ). Average weight, .1 oz.

Case size of all units is ¼ inch diameter by ¾ inch high.

EC Series

Optimum combination of size, power and "Q."

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EC-001	1 mh	.40	520
EC-001A	1 mh	.40	520
EC-003	3 mh	.70	300
EC-004	4 mh	.82	260
EC-005	5 mh	.92	233
EC-005A	5 mh	.92	233
EC-010	10 mh	1.30	165
EC-010A	10 mh	1.30	165
EC-020A	20 mh	1.85	116
EC-030	30 mh	2.85	95
EC-030A	30 mh	2.85	95
EC-050	50 mh	5.50	74
EC-050A	50 mh	5.50	74
EC-070	70 mh	8.30	62
EC-070A	70 mh	8.30	62
EC-100	100 mh	13.00	52
EC-100A	100 mh	13.00	52
EC-260	200 mh	23.00	37
EC-200A	200 mh	23.00	37
EC-250	250 mh	33.00	33
EC-250A	250 mh	33.00	33
EC-300	300 mh	35.00	30
EC-300A	300 mh	35.00	30
EC-400	400 mh	42.00	26
EC-400A	400 mh	42.00	26
EC-500	500 mh	72.00	23
EC-1000	1000 mh	134	16.5
EC-1000A	1000 mh	134	16.5
EC-2000A	2000 mh	220	11.6
EC-3000	3000 mh	370	9.5
EC-3000A	3000 mh	370	9.5
EC-5000	5000 mh	780	7.4
EC-10000A	10000 mh	1100	5.2

EA Series

Smaller size for compact circuitry such as airborne applications.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EA-001	1 mh	.40	270
EA-001A	1 mh	.40	270
EA-002	2 mh	.58	192
EA-002A	2 mh	.58	192
EA-010	10 mh	2.10	86
EA-010A	10 mh	2.10	86
EA-015	15 mh	3.10	70
EA-020A	20 mh	4.25	60
EA-025	25 mh	4.80	54
EA-025A	25 mh	4.80	54
EA-030	30 mh	6.70	50
EA-040	40 mh	9.50	43
EA-040A	40 mh	9.50	43
EA-050A	50 mh	11.0	38
EA-100	100 mh	23.0	27
EA-150	150 mh	37.0	22
EA-200	200 mh	42.0	19
EA-250	250 mh	60.0	17
EA-250A	250 mh	60.0	17
EA-300	300 mh	70.0	16
EA-500	500 mh	115	12
EA-500A	500 mh	115	12
EA-600	600 mh	150	11
EA-1000	1000 mh	260	8.6
EA-1000A	1000 mh	260	8.6

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% Ind. drop
EX-005A	5 mh	11	47
EX-015A	15.0 mh	23.0	27
EX-040A	40.0 mh	54.0	15
EX-060A	60.0 mh	82.0	15
EX-200A	200 mh	139	6
EX-300A	300 mh	206	5

* Will give less than 5% inductance drop but should not be exceeded under operating conditions.

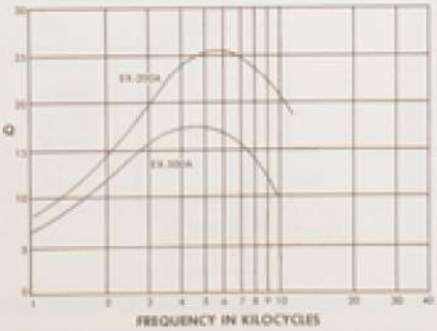
Inductance tolerance of EX-002A through EX-300A is ±2%.

"Q" vs. frequency curves on Sub-miniature Inductors

$$Q = \frac{\omega L}{R_{eff}}$$

$\omega = 2\pi f$ where f is freq. in cps
L = inductance in henries
R_{eff} = effective resistance

These curves show "Q" versus frequency for eight typical Triad type EX toroidal inductors. At low frequencies the effective resistance consists principally of the DC resistance of the coil; therefore, "Q" increases linearly with frequency. As the frequency is raised, core losses (hysteresis, eddy current and residual) increase the effective resistance. Distributed capacity in the winding effectively increases the reactive inpedance until resonance, then reduces it. As a result, the "Q" curve levels off and then drops.




GP Case

LOW LEVEL AUDIO INPUT

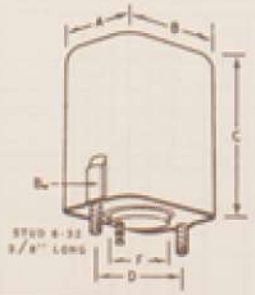
Type No.	Mil. Type Number	Power Output	Application	Matching Impedance Primary	Matching Impedance Secondary	DC Resistance Primary	DC Resistance Secondary	Overall Turns Ratio	Frequency Response ±3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
HS-1‡	TF1QX10YY	10MW.	Universal-Line or Mike to Grid	600§/250§/150/62.5	77,000	70	3640	1:11.3	20-20,000	500	90 DB P-5	⅞	GP-4	.75
HS-4‡	TF1QX10YY	10MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600§/250§/150/62.5	117,600 CT	70	4160	1:14	20-20,000	500	70 DB P-3	⅞	GP-4	.65
HS-5	TF1QX10YY	1MW.	Dynamic Mike to Grid	30	127,500	4.1	4860	1:65.2	40-12,000	500	90 DB P-5	⅞	GP-4	.7

LOW LEVEL AUDIO INTERSTAGE

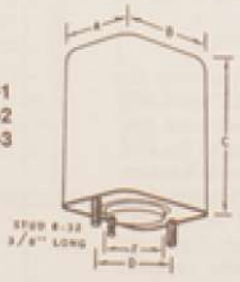
Type No.	Mil. Type Number	Power Output	Application	Matching Impedance Primary	Matching Impedance Secondary	DC Resistance Primary	DC Resistance Secondary	Overall Turns Ratio	Frequency Response ±3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim Inch	Case	Max. Unit Wt. Lbs.
HS-27	TF1QX15YY	130MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grid	20,000 CT§/5000	60,000 CT§/15,000	1700	6420	1:1.72	20-20,000	1000	45 DB P-1	⅞	GP-4	.72
HS-29	TF1QX10YY	20MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT§/5000	80,000 CT§/20,000	2000	4,000	1:2	20-20,000	500	90 DB P-5	⅞	GP-4	.7
HSM-31	TF4RX19FA	3W.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT§/5000	20,000 CT§/5000 CT	2060	950	1:1	20-20,000	1500	-	1⅝	FA■■	2
HS-32	TF1QX15YY	200MW.	Sgl. Plate to Sgl. or P.P. Grids	15,000 (6MA. D.C.)	60,000 CT§/15,000	5000	10,000	1:2	20-15,000	1000	45 DB P-1	⅞	GP-5	1.13

LOW LEVEL AUDIO OUTPUT / mixing, matching & bridging

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance Primary	Matching Impedance Secondary	D.C. Resistance Primary	D.C. Resistance Secondary	Overall Turns Ratio	Frequency Response ±3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
HS-50	TF1QX16YY	400MW.	Sgl. Plate to Line	15,000	600§/250§/150/62.5	1020	52.6	5:1	20-20,000	500	70 DB P-3	⅞	GP-4	.75
HS-60	TF1QX16YY	20MW.	Sgl. Plate to Line	15,000	600§/250§/150/62.5	900	45	5:1	20-20,000	500	45 DB P-1	25/32	GP-2	.4
HS-52	TF1QX13YY	400MW.	P.P. Plates to Line	20,000 CT§/5000	600§/250§/150/62.5	815	30	5.6:1	20-20,000	1000	45 DB P-1	⅞	GP-4	.85
HS-56V‡	TF1SX16YY	100MW.	Line to Line	600§/250§/150/62.5	600§/250§/150/62.5	60	60	1:1	10-30,000	500	70 DB P-3	⅞	GP-4	.75
HS-66‡	TF1QX16YY	100MW.	Line to Line	600§/250§/150/62.5	600§/250§/150/62.5	60	60	1:1	10-30,000	500	45 DB P-1	⅞	GP-3	.6



GP-1
GP-2
GP-3



GP-4
GP-5

	GP-2	GP-3	GP-4	GP-5
A	1 1/16	1¼	1 5/16	1⅜
B	1¼	1 5/16	1⅜	2
Bw	1 11/32	1 21/32	—	—
C	2¼	2⅜	2½	2⅝
D	1 1/16	1 13/32	1⅜	1½
F	5/8	15/16	15/16	15/16

SHIELDING

P-1—One nickel alloy high permeability shield—45db. reduction in pickup.

P-3—Two nickel alloy shields interleaved with one heavy copper shading ring—70db. reduction in pickup.

P-5—Three nickel alloy shields interleaved with two heavy copper shading rings—90db. reduction in pickup.

■ ■ See Chart Page 33

All cases used for housing Triad low-frequency components are drawn from Mumetal and dry hydrogen-annealed after fabrication to provide the greatest possible low-density permeability. When Mumetal cases are used with heavy copper interleaving, maximum attenuation as high as 100 db. is achieved; additional reduction in pickup through use of humbucking coils can add 45 db. in the most effective plane. Stray field shield designations are:

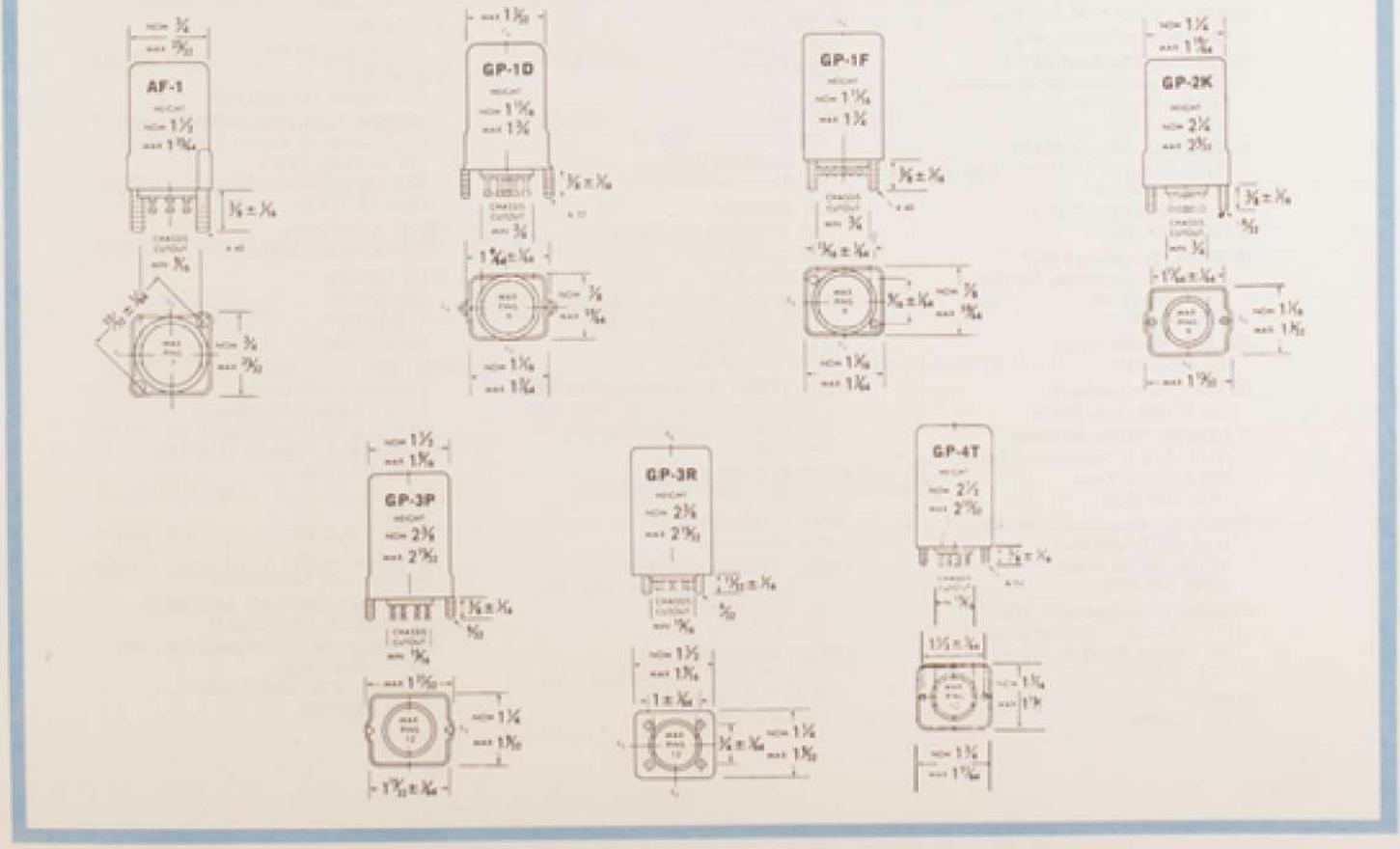
P—1 one Mumetal case gives 45 db;
P—1H P—1 shielding with humbucking coils gives 90 db;
P—3 two Mumetal cases with copper interleaving gives 70 db;
P—3H P—3 shielding with humbucking coils gives 115 db;
P—5 three Mumetal shields with interleaving gives 95 db;
P—5H P—5 shielding with humbucking coils provides 135 db in most effective plane.

INTERSTAGE TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In OHMS	DC Resistance Primary In Ohms	DC Resistance Secondary In Ohms	Turns Ratio	Frequency Response In C.P.S. ± 1DB	Max. Level DBM	Stray Fields Shield	Case	Weight
G-31‡	350 h.	10,000§ or 2500§§	100,000§ or 25,000§§	1400	10,000	1-3.16	5-5000	-15	P1-H	GP-2K	5¼ oz.
G-40‡	230 h.	10,000§ or 2500§§	483,000§ or 120,700§§	1100	17,000	1-7	7.5-1500	-10	P1-H	GP-3P	7⅝ oz.
G-48	18 h.	1000§ or 250§§	250§ or 62½§§	165	40	2-1	10-30,000	-10	P1	GP-1D	2¾ oz.
G-336	160 h.	10,000§ or 2500§§	22,500**	2600	4200	1-1.5	12-20,000	-10	P1-H	AF-1	1.5 oz.
G-435	285 h.	10,000§ or 2500§§	90,000**	2700	9500	1-3	6.5-5000	-15	P1-H	GP-1F	3.2 oz.

INPUT TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60 CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In Ohms	DC Resistance Primary In Ohms	DC Resistance Secondary In Ohms	Turns Ratio	Frequency Response in C.P.S. ± 1DB	Max. Level DBM	Stray Fields Shield	Case and Mounting	Weight
G-4‡	.9h.	60§-44-30§-25 15§§-7½§§-5§-1.25§§	157,000§ or 39,250§§	9	10,400	1-51	11-5000	0	P5-H	GP-4T	11½ oz.
G-5‡	55 h.	1000§-666-466-400§ 250§§-135§-100§§-34§§	137,000§ or 34,250§§	235	15,500	1-11.75	3-4000	-10	P1-H	GP-3P	7⅝ oz.
G-17‡	4 h.	200§-50§§	442,000**	17	26,000	1-47	8.5-2500	-10	P3-H	GP-3R	8 oz.
G-101‡	8.3 h.	500§-333-233-200§ 125§§-67½§-50§§-17§§	145,000**	120	10,000	1-17	11-3700	-10	P1-H	GP-1D	3.2 oz.



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P.O. Box 44180
Fulton Industrial Station
(404) 948-6023

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(312) 256-3566

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(1)(2)(3) Triad-Utrad
305 N. Briant Street
(219) 356-6500

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8617 Royal Meadow Drive
(317) 888-8396

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KANSAS, Overland Park 66212
(1)(2) Electri-Rep
7050 W. 107th St., Suite 210
(913) 649-2168

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105 Flanders Road
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(1)(2) Rathsburg Associates, Inc.
17600 Northland Park Ct., Suite 100
(313) 559-9700

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4974 Lincoln Drive
(612) 933-2594

(2) Bicon Sales
12353 Drake
P.O. Box 33262
(612) 936-2322

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MISSOURI, St. Louis 63146
(1)(2) Electri-Rep
2258 Schuetz Road, Suite 108
(314) 993-4421

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(1)(2) Apex Associates, Inc.
1133 Mt. Read Blvd.
(716) 254-6050

NEW YORK, West Hempstead 11552
(1)(2) Schmitt Industrial Marketing
600 Hempstead Turnpike, Suite 17
(516) 486-3510

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(1)(2) Frank E. Kahsar Sales, Inc.
781 Neeb Road
(513) 922-3133

OHIO, Hudson 44236
(1)(2) Frank E. Kahsar Sales, Inc.
47 W. Case Drive
(216) 650-1089

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2035 S.W. 58th Street
(503) 297-8744

PENNSYLVANIA, Eastern Half
(1)(2) Bresson Associates, Inc.
107 Forrest Ave.
Narberth, Pennsylvania 19072
(215) 664-6460

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See Georgia

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10710 Sand Hill Road
(214) 349-1650

TEXAS, Houston 77088
(1)(2) JY Schoonmaker Company, Inc.
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(713) 738-2427

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(206) 285-1300

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CANADA
Paratronics Marketing
(Triad Stocking Distributor)
P.O. Box 86, Station A
Scarborough, Ontario M1K 5B9
(416) 281-1276

EXPORT
Europe
(1)(2) Litton Precision Products Int'l
Gubelstrasse 28
8050 Zurich, Switzerland

SOUTH & CENTRAL AMERICA
AUSTRALIA, TRINIDAD
(1) Minthorne International Co., Inc.
55 N. Main Street
Freeport, New York 11520
(516) 546-4700

SPECIFICATION SHEET
FOR YOUR CUSTOM DESIGNED OR MODIFIED STANDARD TRANSFORMERS

Date _____

_____
COMPANY NAME

_____
ENGINEERING CONTACT

_____
ADDRESS

_____
CITY STATE ZIP

TRANSFORMER/CHOKE DESIGN INFORMATION:

Unit Types:
- ☐ Power
- ☐ Filament
- ☐ Autoformer
- ☐ Plate
- ☐ Isolation
- ☐ Choke (filter)
- ☐ Other _____

Application: _____

ELECTRICAL SPECIFICATIONS:

Primary Input Voltage: _____ Frequency: _____

Windings	Volts	Amps	Watts	RMS Test Voltage	Termination	Center Taps
#1 Sec.						
#2 Sec.						
#3 Sec.						

Shielding: ☐ Electrostatic ☐ Magnetic ☐ Other

Dimensions: ____ Height ____ Width ____ Length

Agency Approvals Required: ☐ UL ☐ CSA ☐ VDE ☐ Other _____

Mounting or Case Type (as shown in Triad-Utrad Catalog)

☐ X Case ☐ P Case ☐ XP Case ☐ Z Case ☐ U Case

☐ Flat Pack ☐ Split Pack ☐ New Quik Pack ☐ New Control Transformer

Quantity Needed: _____ Delivery Required: _____

Target Price: _____ Additional Information Attached

Schematic Diagram:

Cut Here

Fold

Return Address

Your Name _____

Company Name _____

Street _____

City _____

State _____ Zip _____

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 193 HUNTINGTON, IN

POSTAGE WILL BE PAID BY ADDRESSEE

TRIAD-UTRAD
A Division of Magnetek Inc.

1124 E. Franklin Street
P.O. Box 1147
Huntington, IN 46750

Fold

Triad-Utrad Designed Magnetic Components

Today's Innovations for Tomorrow's Products

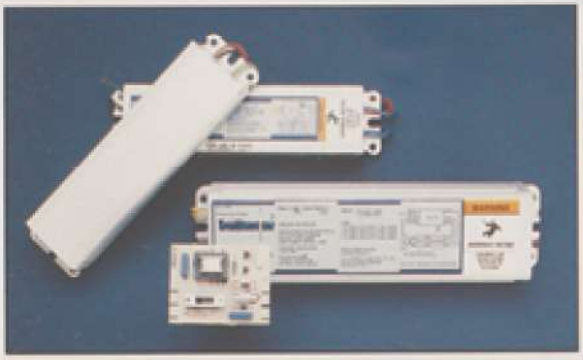
For more than 25 years, original equipment manufacturers and design engineers have relied upon Triad-Utrad for innovative solutions to their special design problems.

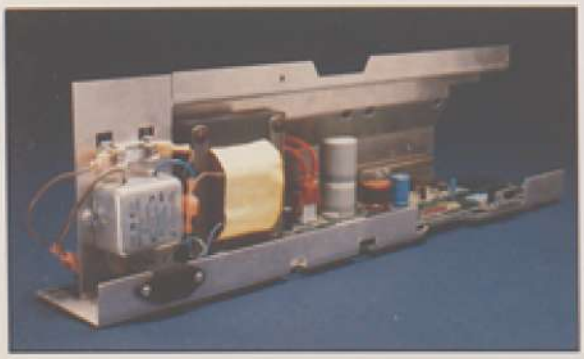
Custom Transformers

Triad-Utrad designs and manufactures thousands of different custom transformers, from small switcher to large ferro-resonant models.

These components are built to your specifications and application needs. Triad's production capabilities extend from power transformers of 1 watt to 2000 watts, from 45 to more than 20,000 Hz, and from printed circuit board-mounted, open frame or hermetically sealed units. Triad's winding department is capable of single, multiple and bobbin winding. Depending on the components required, we can offer a firm quotation in a few days and deliver prototype quantities in a few weeks.

Triad has been selected by many of the industry's largest manufacturers as the prime source for standard and custom power transformers. Our prices are competitive, our quality is unsurpassed and our service is the best in the industry.





Converter/Chargers

Triad-Utrad converter/chargers for land and marine applications perform the dual function of converting 120 VAC to 12 VDC while restoring batteries to full charge status at the same time. The heart of all Triad converter/chargers is a constant voltage, current limiting ferro-resonant transformer which is designed for protection against overload and a shorted output. Output voltage will not deviate more than .2 volt even when input voltage varies between 90 and 130 volts.

AC Fluorescent Electronic Ballasts

Triad-Utrad has long been a leader in fluorescent lighting ballast technology. Our **Ballastar**® high frequency electronic ballasts offer the advantages of greatly increased energy savings, fast payback and greatly reduced maintenance. **Ballastar** models are available to replace most standard transformer ballasts.

DC Fluorescent Electronic Ballasts

Triad-Utrad DC-input high frequency electronic ballasts are in use around the world, operating fluorescent lights in buses, railcars, boats, aircraft and recreational vehicles. To ensure trouble-free operation, every Triad ballast undergoes stringent reliability testing. All models are short-circuit, open-circuit, over-voltage and transient-protected; some models are also thermal and reverse polarity protected. These ballasts are light (less than 3 lbs.), compact and easy to install.

Triad manufactures DC ballasts for all types of lamps, from rapid-start, instant-start and pre-heat lamps to multiple tube applications; for tube currents from 120 to 400 mA and input voltages from 12 to 72 VDC.

Value-Added Services

From simple assemblies such as lead terminations to fully-assembled, ready-to-install power supplies, Triad-Utrad provides a number of services. Among these are automated and non-automated assembly, PCB stuffing and complete outsourcing and procurement services.

TRIAD-UTRAD
A Division of MagneTek, Inc.

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Triad-Utrad, a division of MagneTek, Inc., has provided industry with technology and research that have helped man explore the ocean depths...that have helped man reach the moon and beyond. This same commitment to technological innovation assures industry of the very highest quality transformers, inductors and power supplies to meet any commercial or military requirements.

But Triad's commitment does not end with quality. The huge, multimillion-dollar factory inventory assures fast delivery of most any transformer you need—from Triad's new Quick Pack™ with quick connect termination to all kinds of power transformers, audio and pulse transformers, toroidal inductors, DC power supplies, low frequency components, filter reactors and more.

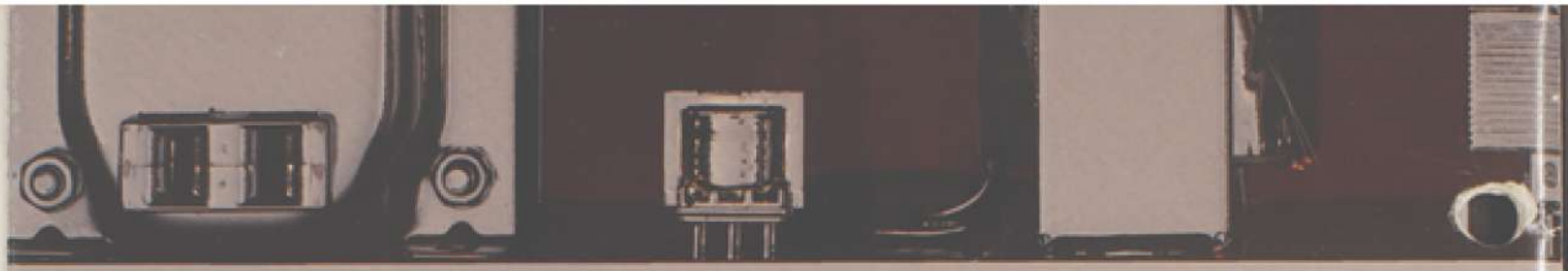
Inventory control is computer-assisted to help assure immediate and accurate stock checks and to keep updated delivery dates at the touch of a finger.

Custom requirements receive fast engineering and production to meet your specification or application requirements.

Whatever your need, Triad assures you the very best in quality...in product versatility ...in competitive pricing...and in fast delivery.

(Top) Plants 1 & 2—100,000 sq. ft. Plant 1 houses transformer/battery charger production. Plant 2 houses AC ballasts, DC ballasts and power supply production.

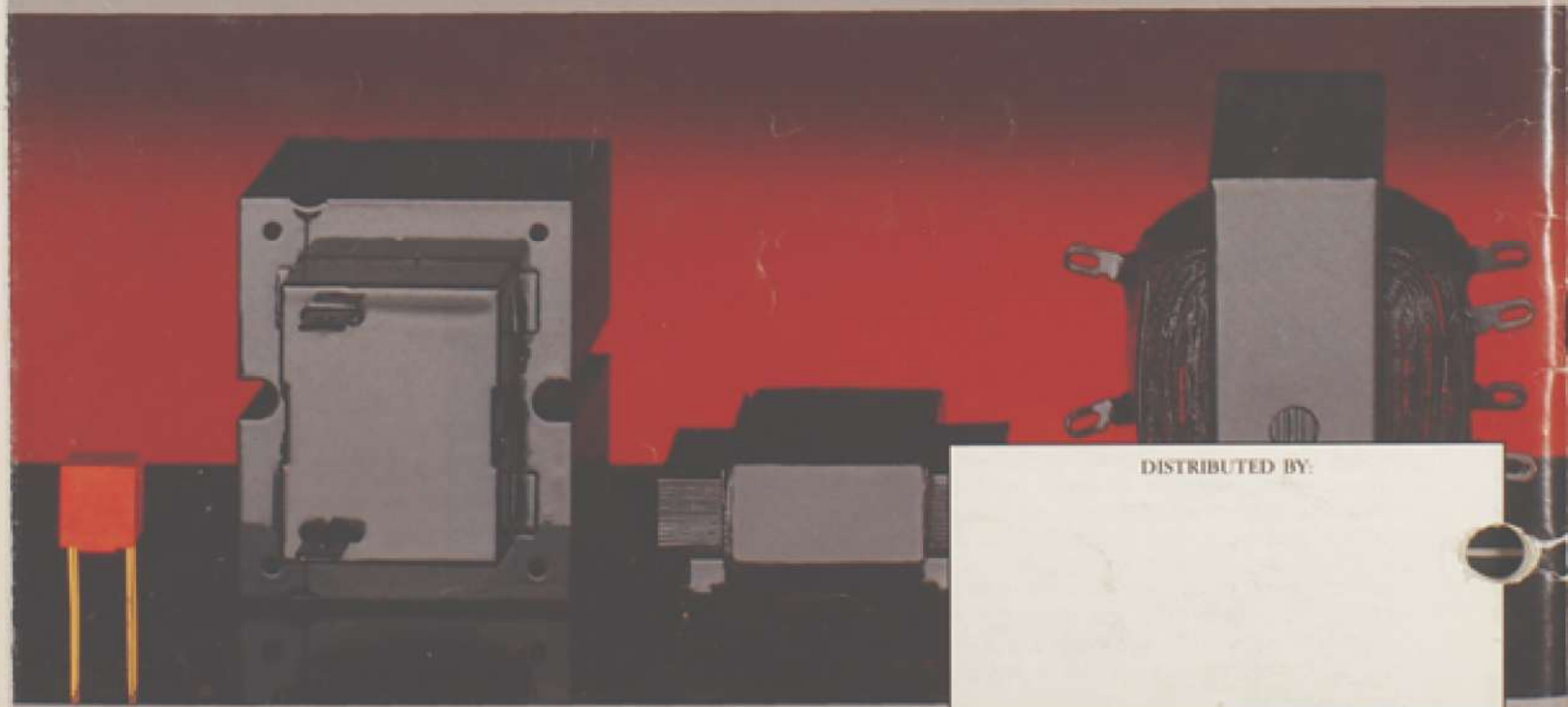
(Bottom) Plant 3 houses Standard Products raw material storage, finished product warehousing and office facilities—55,000 sq. ft.



Triad gets wound up in your ideas

TRIAD-UTRAD
A Division of Magnetek Inc.

305 North Briant Street
P.O. Box A
Huntington, IN 46750
219-356-7100
TWX 810-333-1532



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