

HIT

HIGH ISOLATION TRANSFORMER

ELGAR ELECTRONICS CORPORATION

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Document No. HIT

ELGAR LIFETIME WARRANTY

Elgar Electronics Corporation (hereinafter referred to as Elgar) warrants its products to be free from defects in material and workmanship. This lifetime warranty is effective from the date of shipment of the product to the original purchaser. Liability of Elgar under this warranty shall exist provided that:

- the Buyer exposes the product to normal use and service and provides normal maintenance on the product;
- Elgar is promptly notified of defects by the Buyer and that notification occurs within the warranty period;
- the Buyer receives a Return Material Authorization (RMA) number from Elgar's Repair Department prior to the return of the product to Elgar for repair, phone 800-73-ELGAR (800-733-5427), ext. 2295;
- the Buyer returns the defective product in the original, or equivalent, shipping container;
- if, upon examination of such product by Elgar it is disclosed that, in fact, a defect in materials and/or workmanship does exist, that the defect in the product was not caused by improper conditions, misuse, or negligence; and,
- that Elgar QA seal and nameplates have not been altered or removed and the equipment has not been repaired or modified by anyone other than Elgar authorized personnel.

This warranty is exclusive and in lieu of all other warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness of the product to a particular purpose. Elgar, its agents, or representatives shall in no circumstance be liable for any direct, indirect, special, penal, or consequential loss or damage of any nature resulting from the malfunction of the product. Remedies under this warranty are expressly limited to repair or replacement of the product.

CONDITIONS OF WARRANTY

- To return a defective product, contact an Elgar representative or the Elgar factory for an RMA number. Unauthorized returns will not be accepted and will be returned at the shipper's expense.
- For Elgar products found to be defective within thirty days of receipt by the original purchaser, Elgar will absorb all ground freight charges for the repair. Products found defective within the warranty period, but beyond the initial thirty-day period, should be returned prepaid to Elgar for repair. Elgar will repair the unit and return it by ground freight pre-paid.
- Normal warranty service is performed at Elgar during the weekday hours of 7:30 am to 4:30 pm Pacific time. Warranty repair work requested to be accomplished outside of normal working hours will be subject to Elgar non-warranty service rates.
- Warranty field service is available on an emergency basis. Travel expenses (travel time, per diem expense, and related air fare) are the responsibility of the Buyer. A Buyer purchase order is required by Elgar prior to scheduling.
- A returned product found, upon inspection by Elgar, to be in specification is subject to an inspection fee and applicable freight charges.
- Equipment purchased in the United States carries only a United States warranty for which repair must be accomplished at the Elgar factory.

ELGAR

Committed to Quality...Striving for Excellence



HIGH ISOLATION TRANSFORMERS

FEATURES

- EXCELLENT NOISE REJECTION
using multiple shields
- MAXIMUM FLEXIBILITY
separate shield & ground terminals
- HIGH EFFICIENCY
97% typical
- FIVE (5) YEAR WARRANTY

PRODUCT DESCRIPTION

Elgar High Isolation Transformers (HIT's) offer the finest quality and most economical solution for noise attenuation. This inexpensive, highly reliable device is guaranteed to eliminate power-related problems caused by voltage spikes (10 KHZ to 100 KHZ) and oscillatory transients (400 HZ to 5000 HZ). Together, these two types of noise account for 88.5% of all power line disturbances in computer installations. (1)

Elgar HIT's are the number one choice of original equipment manufacturers who demand the highest quality isolation transformers. Standard specifications on all models include:

Dual Windings for voltage step-up and step-down.

Physical separation of primary and secondary coils on interleaved laminations to decrease audible noise.

Conductive foil-wrapped primary and secondary coils. (Farady Shields)

In addition, all Elgar HIT's contain a barrier shield to physically separate the primary and secondary shields. Independent shield and ground terminal connections to solve various noise problems and box shields reduce EMI/RFI radiation.

Elgar HIT's are backed by an exclusive five year warranty and supported by a knowledgeable customer service staff.

1. George W. Allen and Donald Segall, IBM Systems Development Division, "Monitoring of Computer Installations for Power Line Disturbances", presented at the IEEE Power Engineering Society Meeting, New York, NY, January 27, 1974.



SPECIFICATIONS

Common-mode Noise Attenuation:
-146 dB minimum

Transverse-mode Noise Attenuation:
-40 dB minimum at 100 KHZ

Operating Voltage: Up to 110% of nominal on all models

Overload Capacity: 125% of rated load current for ten minutes

Load Regulation: 3% no load to full load resistive

Dynamic Regulation: Less than 5% undervoltage for a 50% load step with response time of less than two cycles

Harmonic Distortion: Elgar HIT's will add less than 1% harmonic distortion to the input sinusoidal waveform

Energy Efficiency: 94% minimum; greater than 97% at rated load

Electromagnetic Noise: Less than 0.1 gauss at a 12 inch distance

Dielectric Strength: All models meet Withstand Voltage Test per UL 506 (4000 VAC)

Operating Temperature: From 0° C to 55° C designed for class B (80° C) temperature rise, using class H (180° C) "UL Recognized" insulation system

DC Isolation: 10,000 megohms minimum; primary-to-secondary, and either primary or secondary to ground

ELGAR CORPORATION

Elgar Corporation, founded in 1965, has earned international recognition as a producer of reliable, high-quality products that solve difficult AC power problems.

Elgar develops and manufactures precision, high-speed Regulating Line Conditioners, a wide variety of fixed and programmable AC Power Sources, Uninterruptible Power Systems and High Isolation Transformers. Elgar also provides complete support service and technical assistance to customers around the world.

SINGLE PHASE HITS

RECEPTACLE/LINE CORD STYLE

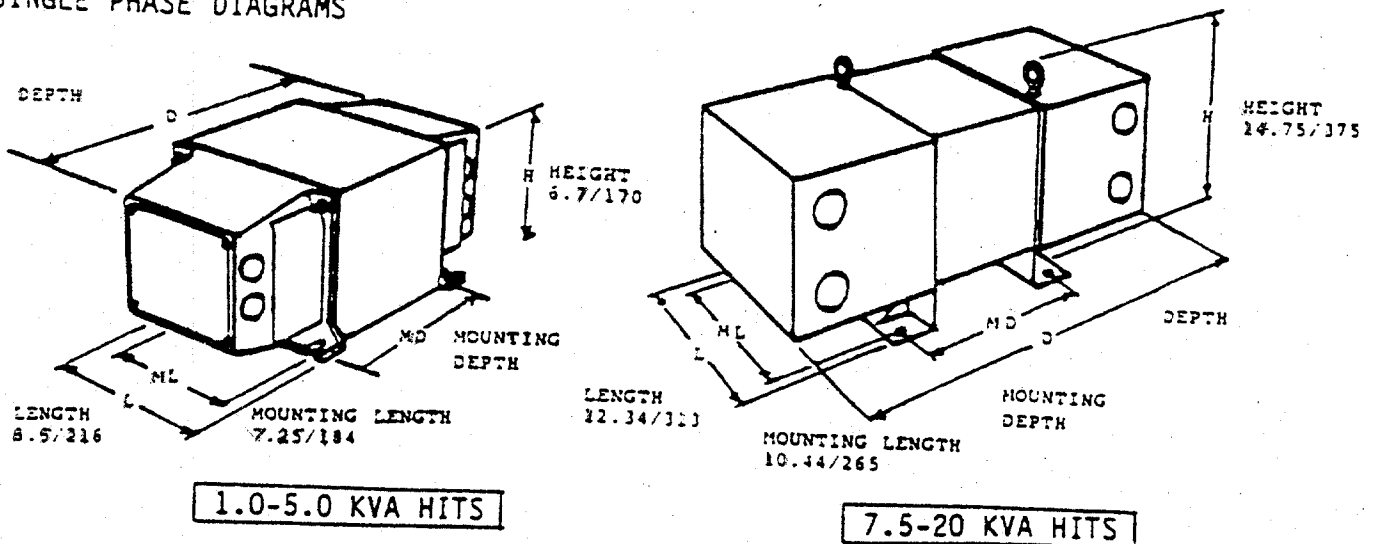
MODEL NO.	RATING (KVA)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VAC)	HZ	PHYSICAL DIMENSIONS			PLUG/ RECEPTACLE
					DEPTH (in/mm)	MOUNTING DEPTH	WEIGHT (lb/kg)	
HIT-1.0R	1.0	120	120	60	10.25/260	3.5/89	37/16.8	5-15P/5-15R
HIT-2.4R	2.4	120	120	60	12.25/311	5.5/140	59/26.8	L5-30P/5-20R
HIT-2.4RM	2.4	120	120	60	12.25/311	5.5/140	59/26.8	L5-30P/L5-30R

NOTES: "R" Indicates Duplex Receptacle and line cord.
 "RM" Indicates Mono Receptacle and line cord.

TERMINAL STYLE

MODEL NO.	RATING (KVA)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VAC)	HZ	PHYSICAL DIMENSIONS		
					DEPTH (in/mm)	MOUNTING DEPTH	WEIGHT (lb/kg)
HIT-1.0-13	1.0	120/240	120/240	50/60	10.25/260	3.5/89	36/16.3
HIT-2.5-13	2.5	120/240	120/240	50/60	12.25/311	5.5/140	58/26.3
HIT-5.0-13	5.0	120/240	120/240	50/60	15.0/381	8.25/210	93/42.2
HIT-5.0-38	5.0	120/480	120/240	50/60	15.0/381	8.25/210	93/42.2
HIT-7.5-13	7.5	120/240	120/240	50/60	24.25/616	8.0/203	170/77
HIT-10.0-13	10.0	120/240	120/240	50/60	26.25/667	10.0/254	238/108
HIT-10.0-27	10.0	208/416	120/240	50/60	26.25/667	10.0/254	238/108
HIT-10.0-38	10.0	240/480	120/240	50/60	26.25/667	10.0/254	238/108
HIT-15.0-27	15.0	208/416	120/240	50/60	28.25/718	12.0/305	300/136
HIT-15.0-38	15.0	240/480	120/240	50/60	28.25/718	12.0/305	300/136
HIT-20.0-27	20.0	208/416	120/240	50/60	30.75/781	14.5/369	369/167
HIT-20.0-38A	20.0	240/480	120/240	50/60	30.75/781	14.5/369	369/167
HIT-20.0-38B	20.0	240/480	240/480	50/60	30.75/781	14.5/369	369/167

SINGLE PHASE DIAGRAMS



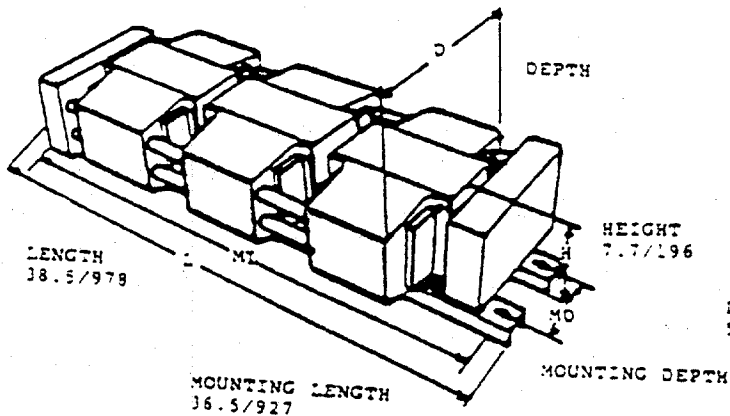
*Refer to selection guide for specific model dimensions.

THREE PHASE HITS

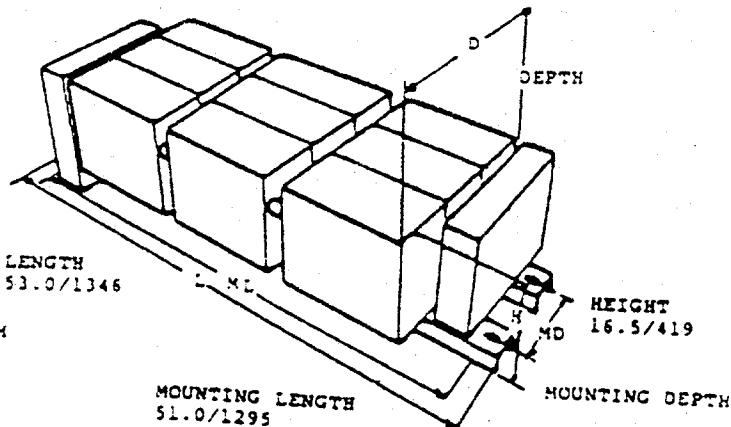
TERMINAL STYLE 60HZ

MODEL NO.	RATING (KVA)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VAC)	HZ	PHYSICAL DIMENSIONS		
					DEPTH (in/mm)	MOUNTING DEPTH	WEIGHT (lb/kg)
HIT-3.0T-2Y	3.0	208Y/120	208Y/120	60	10.25/260	3.5/89	135/61.2
HIT-3.0T-3D	3.0	240D	208Y/120	60	10.25/260	3.5/89	135/61.2
HIT-7.5T-2Y	7.5	208Y/120	208Y/120	60	12.25/311	5.5/140	200/90.7
HIT-7.5T-3D	7.5	240D	208Y/120	60	12.25/311	5.5/140	200/90.7
HIT-15.0T-2Y	15.0	208Y/120	208Y/120	60	15.0/381	8.25/210	305/139
HIT-15.0T-2D	15.0	208D	208Y/120	60	15.0/381	8.25/210	305/139
HIT-15.0T-3D	15.0	240D	208Y/120	60	15.0/381	8.25/210	305/139
HIT-15.0T-8D	15.0	480D	208Y/120	60	15.0/381	8.25/210	305/139
HIT-22.5T-2Y	22.5	208Y/120	208Y/120	60	24.25/616	8.0/203	570/258
HIT-22.5T-2D	22.5	208D	208Y/120	60	24.25/616	8.0/203	570/258
HIT-22.5T-3D	22.5	240D	208Y/120	60	24.25/616	8.0/203	570/258
HIT-22.5T-8D	22.5	480D	208Y/120	60	24.25/616	8.0/203	570/258
HIT-30.0T-2D	30.0	208D	208Y/120	60	26.25/667	10.0/254	800/363
HIT-30.0T-3D	30.0	240D	208Y/120	60	26.25/667	10.0/254	800/363
HIT-30.0T-8D	30.0	480D	208Y/120	60	26.25/667	10.0/254	800/363
HIT-45.0T-2D	45.0	208D	208Y/120	60	28.25/718	12.0/305	990/449
HIT-45.0T-3D	45.0	240D	208Y/120	60	28.25/718	12.0/305	990/449
HIT-45.0T-8D	45.0	480D	208Y/120	60	28.25/718	12.0/305	990/449
HIT-60.0T-2D	60.0	208D	208Y/120	60	30.75/781	14.5/369	1200/544
HIT-60.0T-3D	60.0	240D	208Y/120	60	30.75/781	14.5/369	1200/544
HIT-60.0T-8D	60.0	480D	208Y/120	60	30.75/781	14.5/369	1200/544

THREE PHASE DIAGRAMS



3-15 KVA HITS



22.5-60 KVA HITS

TERMINAL STYLE 50 HZ

MODEL NO.	RATING (KVA)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VAC)	HZ	DEPTH	MOUNTING DEPTH	WEIGHT (LB/KG)
HIT-3.0T-7Y	3.0	416Y/240	416Y/240	50	10.25/260	3.5/89	135/61.2
HIT-7.5T-7Y	7.5	416Y/240	416Y/240	50	12.25/311	3.5/89	200/90.7
HIT-15.0T-7Y	15.0	416Y/240	416Y/240	50	15.0/381	5.5/140	305/139
HIT-22.5T-7Y	22.5	416Y/240	416Y/240	50	24.25/616	8.25/210	570/258
HIT-30.0T-7Y	30.0	416Y/240	416Y/240	50	26.25/667	8.0/203	800/363
HIT-30.0T-7D	30.0	416D	416Y/240	50	26.25/667	10.0/254	800/363
HIT-45.0T-7Y	45.0	416Y/240	416Y/240	50	28.25/718	10.0/254	990/449
HIT-45.0T-7D	45.0	416D	416Y/240	50	28.25/718	12.0/305	990/449
HIT-60.0T-7Y	60.0	416Y/240	416Y/240	50	30.75/781	14.5/369	1200/544
HIT-60.0T-7D	60.0	416D	416Y/240	50	30.75/781	14.5/369	1200/544

**INSTALLATION INSTRUCTIONS FOR ELGAR SINGLE-PHASE
HIGH ISOLATION TRANSFORMER (HIT)**

GENERAL

Elgar HITs feature dual primary and secondary windings which may be connected either in series or parallel to accommodate the input/output voltage ratings listed for the particular model desired. Refer to Chart 1 and the appropriate Figure number to determine wiring connections for the voltages desired. The HITs are designed to operate on either 50 Hz or 60 Hz power lines.

CHART 1

DESIRED INPUT/OUTPUT VOLTAGE

MODEL #	120V/120V SEE NOTE 1	240V/120V SEE NOTE 2	240V/240V SEE NOTE 3	120V/240V	480V/120V	480V/240V
HIT 1.0	FIGURE 1	FIGURE 2	FIGURE 3	FIGURE 4	N/A	N/A
HIT 2.5	FIGURE 1	FIGURE 2	FIGURE 3	FIGURE 4	N/A	N/A
HIT 5.0	FIGURE 1	FIGURE 2	FIGURE 3	FIGURE 4	N/A	N/A
HIT 7.5	FIGURE 1	FIGURE 2	FIGURE 3	FIGURE 4	N/A	N/A
HIT 10.0	N/A	FIGURE 1	FIGURE 4	N/A	FIGURE 2	FIGURE 3
HIT 15.0	N/A	FIGURE 1	FIGURE 4	N/A	FIGURE 2	FIGURE 3
HIT 20.0	N/A	FIGURE 1	FIGURE 4	N/A	FIGURE 2	FIGURE 3

NOTE 1: Same connections for 100V/200V

NOTE 2: Same connections for 230V/115V and 220V/110V

NOTE 3: Same connections for 200V/100V, 208V/208V, 220V/220V, and 230V/230V

WIRE ENTRY

Units rated 1.0 to 7.5 kVA are provided with three conduit knockouts (for 3/4 inch conduit) on the input and output ends of the transformer. Units rated 10.0 kVA and above have two multiple knockouts to accommodate 1 1/2 or 2 inch conduit, located on each side of the input and output end of the transformer. Access to the input and output terminal block area is provided by means of cover plates on units rated to 7.5 kVA and by removal of the top/end covers on the larger units.

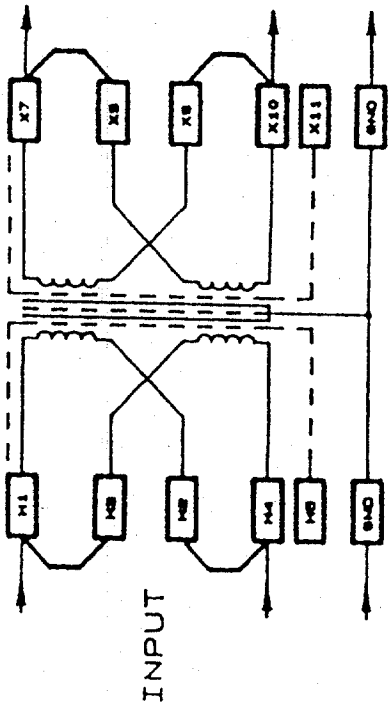


FIGURE 1

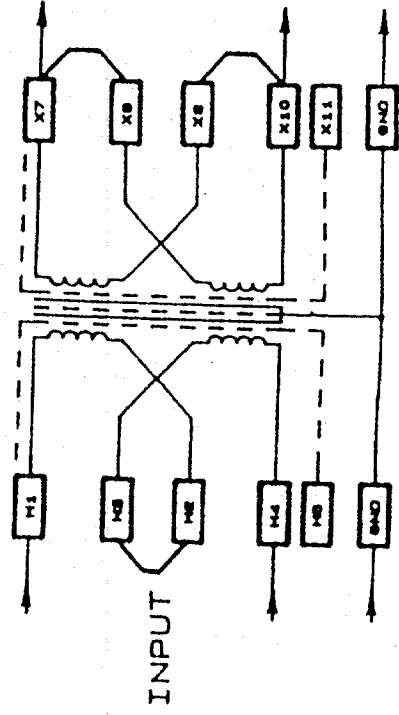


FIGURE 2

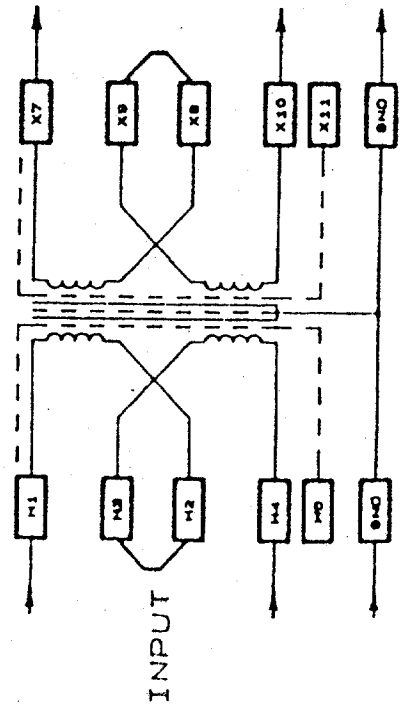


FIGURE 3

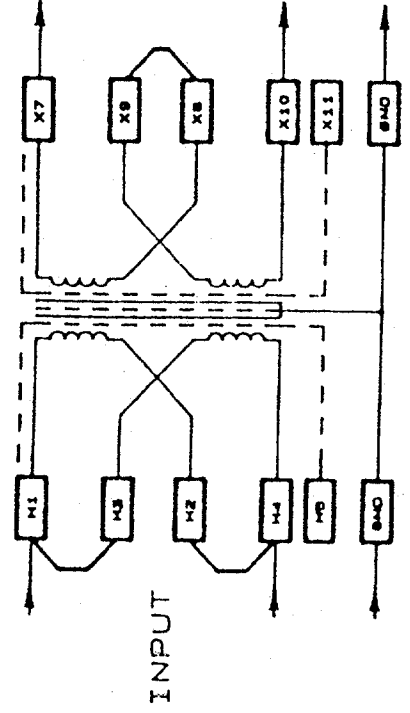


FIGURE 4

SHIELD CONNECTIONS

Figure 5 shows how the transformer shields are normally connected to provide the most effective means for eliminating common mode noise.

The equipment frame ground connection should be made through the transformer frame and should not bypass the transformer.

Where the power line ground is noisy, it may be more effective to use a separate earth ground attached to the frame of the transformer. In this case, the input power line ground should be connected to shield H5 (disconnect the jumper between H5 and H4) and the primary ground terminal should be connected to a good earth ground such as a water pipe near its earth ground point.

If the equipment to be isolated has an electrical common that is not connected to the equipment frame, improved noise immunity may be obtained by allowing separation of circuit common from the equipment frame. To implement this, remove the jumpers from H4 to H5 and X10 to X11. The input power line ground should be connected to H5. The primary ground terminal should be connected to a good earth ground. Circuit common should be connected to X11 and the equipment frame should be connected to the secondary ground terminal. In this configuration, circuit common is not connected to earth ground and as such, this configuration should not be used where circuit common might present a shock hazard to personnel.

THREE PHASE CONFIGURATIONS

The terminal blocks (TB) for input and output connections are housed in "J" boxes located on opposite ends of the transformer. Access to the terminal block area is provided by access plates on each "J" box. Units rated 3.0 to 22.5 kVA have six multiple knockouts in each "J" box to accommodate 3/4 or 1 inch conduit. Units rated 30 to 60 kVA has six multiple knockouts in each "J" box to accommodate 1 1/2 or 2 inch conduit.

Figure 6 shows a WYE primary-WYE secondary type three phase HIT. With this type unit the neutral (N) and the shield (SH) should be jumpered together (primary and secondary) to obtain the most effective means for eliminating common mode noise. The ground terminal (GN) should be tied to earth ground to establish a single point ground for the equipment to be isolated.

Figure 7 shows a DELTA primary-WYE secondary type three phase HIT. Several added benefits are derived from this type connection such as reducing harmonic voltage distortion and improved load balance presented to the source. The secondary loads should be balanced as close as practical to effectively minimize current flow in the neutral line. In this configuration, if one phase of the DELTA source is grounded, the primary shield (SH) should be connected to that point; if not, the primary shield should be connected to the ground terminal (GN) which should subsequently be connected to earth ground. This secondary shield (SH) should be connected to neutral (N).

WARRANTY

All .001 and .0005 pF rated models are guaranteed to solve power line noise related equipment problems, or the HIT may be returned to Elgar Corporation within 30 days of receipt of the unit for a full refund of the purchase price. The customer is responsible only for shipping costs. All HIT models carry a one year guarantee against defects in workmanship or material.

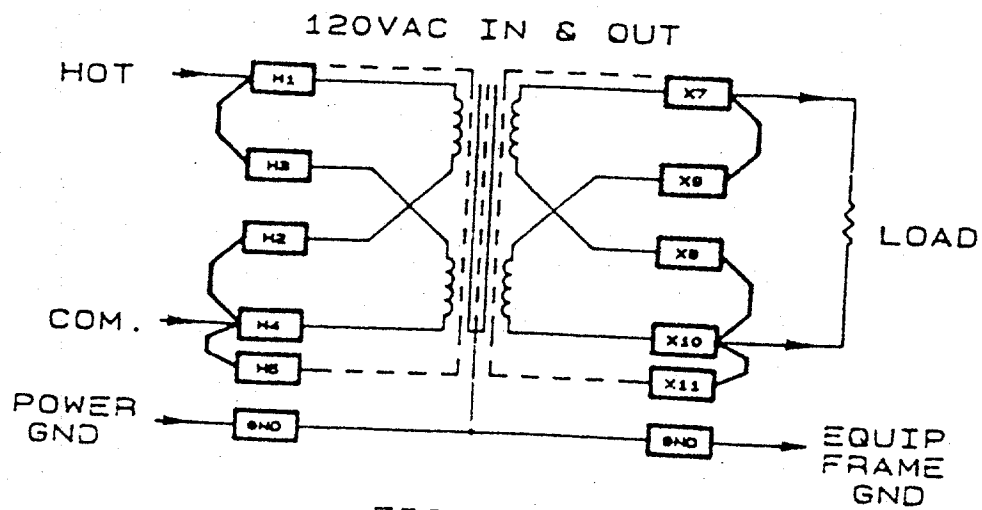


FIGURE 5

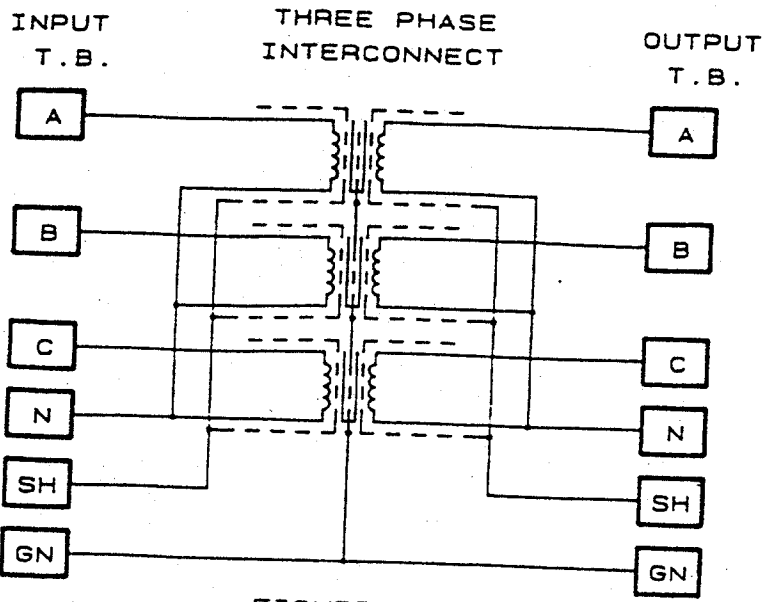


FIGURE 6
WYE-WYE

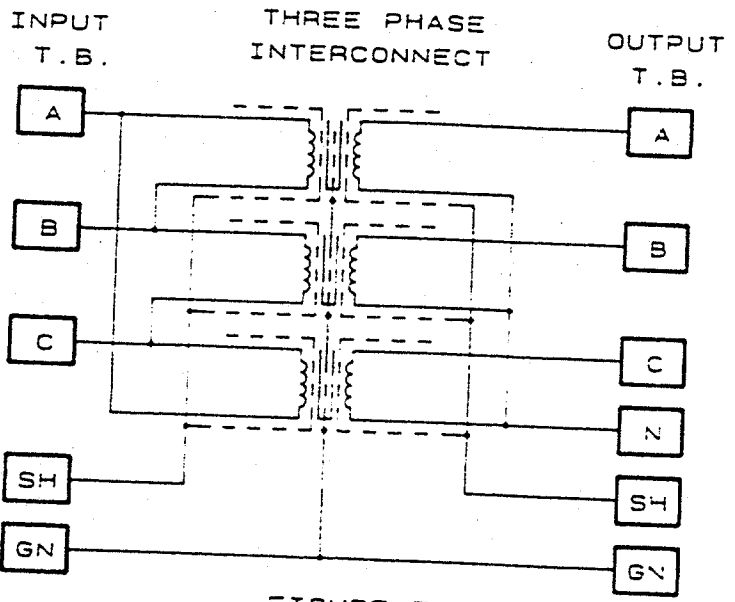


FIGURE 7
DELTA-WYE