

email beanhauler

cathoderay2018@outlook.com

instructables

<https://www.instructables.com/THE-NEW-ZERO-CROSSING-WEB-BASED-TRIAC-CONTROLLER/>

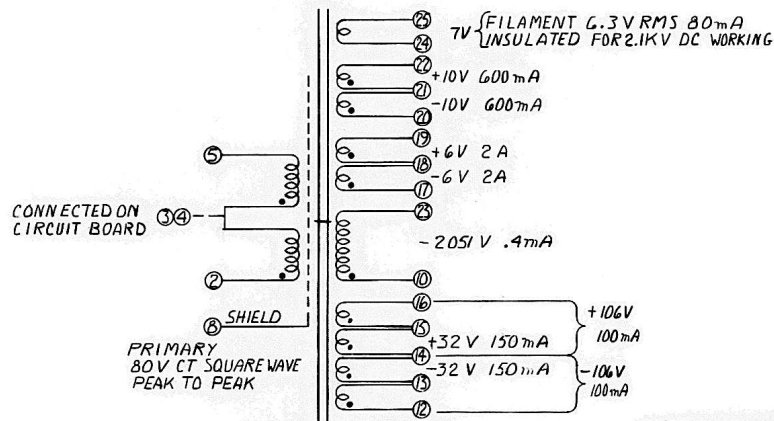



ALL VOLTAGES ARE PEAK NO LOAD  
20 KHZ SQUARE WAVE UOS  
CURRENT RATINGS ARE AMPS DC TYP UOS

TYPE	WINDING	TERM NO.
SEC 24-25	SEC 17-18, 18-19	SEC 20-21, 21-22
	3T BIFILAR* *24	5T BIFILAR* *24
	SEC	10-23
	1025.5T	*39
	SEC	12-13, 15-16
	37T BIFILAR*	*31
	SEC	13-14, 14-15
	16T BIFILAR*	*23
	SHIELD	B
	PRI	2-4, 3-5
3.5T *24	20T BIFILAR *	*25

\* SERIES CONNECTED

INSIDE



- ⚠ LOCATION AND ORIENTATION ON THIS SURFACE NOT CRITICAL. PERMANENTLY AND LEGIBLY MARKED.
- 8 TRANSFORMER MUST COMPLY<sup>2</sup> WITH CSA 556B, IEC 348, UL 1244
- Inductronics**  
SAFETY CERTIFICATION DEPARTMENT  
INDUCTRONICS CORPORATION  
10000 W. 10TH AVE., SUITE 100  
DENVER, CO 80231  
TEL: 303-751-1100  
FAX: 303-751-1101  
WWW.INDUCTRONICS.COM
- | DATE NUMBER | REV. |
|-------------|------|
| 120-1348-00 |      |
- ⚠ SOLDERABILITY REQUIRED IN THIS AREA PER MIL-STD-202F. METHOD 208
6. WINDINGS INSULATED FOR 600 VDC UOS.
5. PRIMARY INDUCTANCE: 4.4 mH MINIMUM, TERMINALS 2 TO 5 WITH 3 AND 4 CONNECTED, 10 mA, 1 kHz SINE WAVE, WHEN MEASURED WITH ESI 252 OR APPROVED EQUIVALENT
4. TRANSFORMER PRIMED WITH 252-0215-00 AND VACUUM IMPREGNATED WITH SILICONE RESIN 252-0213-00
- 3 BEND TERMINALS 2 THRU 2
2. POLARITY PER SCHEMATIC
1. DIMENSIONS REFERENCE UOS
- NOTES:
- 
- 90°  
±10°

NOTES:

8	162-0511-00	AR	INSUL SLEEVING ELEC (RED)	DWG	11/10/87	4/11/88	TOLERANCE
7	162-0521-00	AR	INSUL SLEEVING ELEC (GRN)	CHGR	12/1/87	12/1/87	UNLESS OTHERWISE SPECIFIED
6	276-0482-00	AR	CORE EM (E) FERRITE	CHGR	12/1/87	12/1/87	DATE
5	175-5089-00	AR	WIRE, ELECTRICAL (30AWG TEF. CORONA RES BROWN)	PROD	1/31/88	1/31/88	DATE USED ON
4	650-0331-00	1	BOBBIN ASSEMBLY	SEE LIST OF MATERIALS			
3	343-0983-00	2	CLAMP, TRANSFORMER CORE	NOTED			
2	392-0228-00	1	BOARD, TERMINAL	TITLE TRANSFORMER, POWER			
1	131-0827-00	17	TERMINAL, PIN (0.025 SQUARE)	(STU STPDN HIGH VOLTAGE)			
ITEM	PART NUMBER	QTY	DESCRIPTION	CODE (EXTN ID)	REV	PART NUMBER	REV
			LIST OF MATERIALS	800099	B	120-1348-00	

## 5 ELECTRICAL CHARACTERISTICS.

### 5.1 INPUT.

POWER: 27 VOLT AMPERES TYPICAL, 35 VOLT AMPERES MAXIMUM.  
VOLTAGE: 80 VOLT PEAK TO PEAK, CENTER TAPPED SQUARE WAVE.  
FREQUENCY: 20 KHZ.  
FREQUENCY RANGE: 19 TO 23 KHZ.  
RESISTANCE: 0.4  $\Omega$  MAXIMUM, PIN 2 TO 5 WITH 3 AND 4 CONNECTED.

PRIMARY DRIVE IS ADJUSTED TO OBTAIN -8.6 V. INPUT VOLTAGE HELD CONSTANT TO PROVIDE REGULATION.

### 5.2 PRIMARY INDUCTANCE.

4.4 MILLIHENRIES MINIMUM, TERMINALS 2 TO 5 WITH 3 AND 4 CONNECTED, 10 MILLIAMPERES, AND 1 KHZ SINE WAVE, WHEN MEASURED WITH ESI 252 OR APPROVED EQUIVALENT.

### 5.3 LEAKAGE INDUCTANCE.

4 TO 9 MILLIHENRIES WHEN MEASURED ACROSS THE -2050 VOLT WINDING (8-23) WITH +100 VOLT WINDING (12-16) SHORTED, 1 MILLIAMPERE, AND 1 KHZ SINE WAVE, WHEN MEASURED WITH ESI 252 OR APPROVED EQUIVALENT.

### 5.4 DISTRIBUTED CAPACITANCE.

MEASUREMENT IS MADE BY MEASURING THE PRIMARY INDUCTANCE AND THE UNLOADED SELF RESONANCE FREQUENCY, THEN CALCULATING WITH THE FOLLOWING FORMULA:

$$C_D = \left( \frac{1}{2\pi F_R} \right)^2 \quad C_D = 4 \text{ TO } 8 \text{ nF}$$

$L_p$

$F_R$  = SELF RESONANCE FREQUENCY IN HERTZ.

$C_D$  = DISTRIBUTED CAPACITANCE IN FARADS.

$L_p$  = PRIMARY INDUCTANCE IN HENRIES.

### 5.5 SELF RESONANCE FREQUENCY.

15 TO 38 KHZ.

NOTE: MAY BE THE SAME AS INPUT FREQUENCY.

## 5.6 OUTPUT.

SEE SCHEMATIC.

### 5.6.1 WINDING SUMMARY.

SUPPLY (VOLTS DC)	TERMINATION	DC OUTPUT (VOLTS)	FULL LOAD CURRENT (AMPS) MAX	DC RESISTANCE (OHMS) <u>±20% AT 20°C</u>
PRIMARYS	2-4 AND 3-5	-----	-----	0.4 MAX WITH 3 AND 4 CONNECTED
-2050/-8 kV	8-23	2050* V ±2%	0.4 mA	50 TO 800
+100	12-14 AND 14-16	100 ±2%	0.1 A	0.1 TO 3
+30	13-14 AND 14-15	30 ±2%	0.15 A	0.01 TO 1.2
+8.6	20-21	8.6 ±1%	0.8 A	0.01 TO 0.06
-8.6	21-22	8.6 ADJUSTED	0.8 A	0.01 TO 0.06
6.3 V rms	24-25	6.3 V rms ±4%	100.0 mA (AC rms)	0.01 TO 0.1
5	17-18 AND 18-19	5 ±2%	2.0 A	0.01 TO 0.05

\*4X MULTIPLIED IN CIRCUIT TO OBTAIN -8 kV.

### 5.6.2 OUTPUT NOTES.

ALL DIODES ARE SILICON. OUTPUT VOLTAGES ARE MEASURED AT MAXIMUM CURRENT.

### 5.7 TURNS RATIO BALANCE.

ALL CENTER TAPPED WINDINGS SHALL BE BALANCED ±ZERO TURNS.

### 5.8 POLARITY.

SEE SCHEMATIC.

### 5.9 TEMPERATURE RISE.

45°C MAXIMUM.

### 5.10 DIELECTRIC WITHSTAND VOLTAGE.

APPLY 1500 TO 1600 V AC rms, 50 OR 60 Hz, FOR 1 TO 1.1 MINUTE FROM PRIMARY TO SECONDARIES, SAFETY SHIELD, AND CORE. APPLY 5.4 kV, LEADS 24 AND 25 CONNECTED TOGETHER, TO PRIMARIES AND CORE. NO FLASHOVER OR BREAKDOWN SHALL OCCUR DURING THE TEST. CORONA EFFECTS AND SIMILAR PHENOMENA ARE DISREGARDED. PART SHALL BE TESTED PER ABOVE MINIMUM REQUIREMENT OR PER "SAFETY" STANDARDS (SEE PARAGRAPH 3.1), WHICHEVER IS A HIGHER VOLTAGE. 100% OF ALL PARTS PROVIDED BY THE VENDOR SHALL BE TESTED FOR THIS PARAMETER.

5.11 WORKING VOLTAGE (ELEVATED WINDINGS).

THE 6.3 V rms HEATER WINDING (24-25) IS ELEVATED TO 2.1 kV DC WORKING.

6 MECHANICAL CHARACTERISTICS.

6.1 DIMENSIONS AND TERMINATIONS.

SEE OUTLINE DRAWING.

6.2 MOUNTING.

THE MOUNTING METHOD SHALL EMPLOY THE TERMINATIONS AND SHALL BE SUFFICIENT TO WITHSTAND SHOCK AND VIBRATION WHEN ATTACHED TO A 0.062 INCH EPOXY GLASS CIRCUIT BOARD. SEE "MOUNTING DETAIL".

WHEN INSTALLING TRANSFORMER INTO THE CIRCUIT BOARD PER THE "MOUNTING DETAIL" DRAWING, THE TERMINATIONS USED SHALL NOT REQUIRE STRAIGHTENING OR BENDING.

6.3 TERMINALS.

ALL TERMINALS SHALL BE INTEGRAL WITH THE BOBBIN AND SUITABLE FOR PRINTED CIRCUIT BOARD MOUNTING AND CONNECTION. LEADS OF COIL SHALL BE MECHANICALLY SECURED TO THEIR RESPECTIVE TERMINAL AND SHALL MEET SOLDERABILITY REQUIREMENTS OF LATEST REVISION OF MIL-STD-202.

6.4 LEAD IDENTIFICATION (SEE "OUTLINE DRAWING").

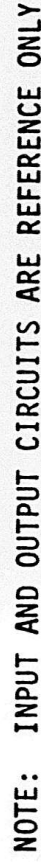
<u>LEAD</u>	<u>SLEEVING/INSULATION COLOR</u>	<u>AWG SIZE</u>
23	BROWN	#24
24	BROWN	#24
25	BROWN	#24

6.5 SHIELDING.

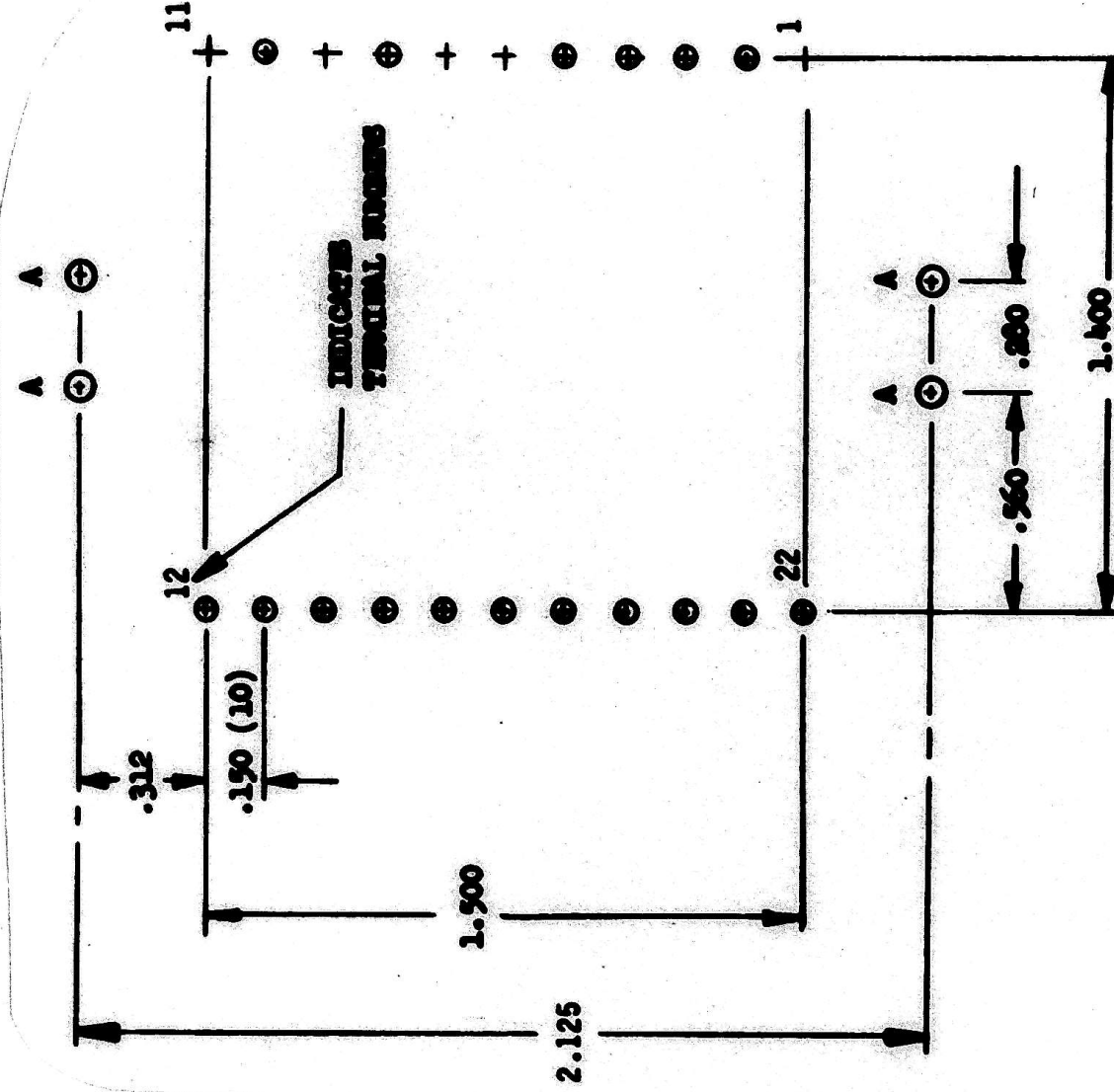
6.5.1 SAFETY SHIELD.

A SAFETY SHIELD IS REQUIRED THAT COMPLIES WITH ALL "SAFETY" REQUIREMENTS SPECIFIED IN PARAGRAPH 3.1.





**COMPONENT MOUNTING SIDE OF CIRCUIT BOARD.**



**RECOMMENDED  
HOLE DIAMETERS :**

A NUMBERED  
ALL OTHERS

**CIRCUIT BOARD HOLES ARE LOCATED IN REFERENCE  
TO EACH OTHER  $\pm .005$  INCHES.**