

# CLASS IX

## **UTB1 – UNIVERSAL TRANSFORMER BOARD - INSTRUCTIONS**

The CLASS IX model UTB1 transformer board has been designed to be used in conjunction with the CLASS IX PS2 solid state regulated high voltage power supply board.

The UTB1 is not limited to usage with the CLASS IX products and is an ideal means to accommodate multi-voltage power supplies for a wide range of electronics including test equipment, low power audio circuitry, hobby electronics, industrial electronics, and LED power supply systems to name but a few. Its flexible wiring options allow it to be supplied with 115VAC or 230VAC line voltage while providing up to 4 individual isolated secondary circuits. The UTB1 can be equipped with two 12VA transformers, or two 24VA transformers, or one 12VA transformer plus one 24VA transformer. This allows the user to select units to construct custom power transformer circuits that are otherwise unavailable from most, if not all, transformer manufacturers.

Transformer primary windings can be jumper coupled so that only one line and one neutral connection need to be interfaced to the printed circuit board. Alternately, primary windings can remain fully isolated or can share neutral connections in order that AC mains connections can be individually switched. Again, outboard wiring is kept to a minimum so that the user is not left with a tangle of wires which allows neat and comprehensive wiring practices to be employed in the construction of the user's projects.

It should be noted that once connected to AC mains supply lethal high voltages will be present on the UTB1 and handling precautions should be observed. Always install a suitable mains fuse between the mains voltage supply and the UTB1 primary connection(s).

### **NEVER TOUCH ANY COMPONENTS MOUNTED ON THE UTB1 OR THE UTB1 ITSELF WHEN MAINS VOLTAGE IS CONNECTED!**

**TABLE 1** shows a listing of known 12VA and 24VA transformers made by various North American manufacturers that can be inserted in the UTB1

**TABLE 2** shows the flexible primary windings (mains) wiring/jumper options

**TABLE 3** shows the flexible secondary windings/jumper options

**Figure 1** shows the UTB1 printed circuit board connection reference points that correspond with the connections in **TABLE 2** and **TABLE 3**

**SUGGESTION** – When you have selected your transformers copy **Figure 1** and use a colored marker to indicate your jumper options prior to installing transformers. This will allow you to lay out and double check your initial setups.

6 mounting holes on the UTB1 are used for mounting on a chassis or behind a panel. All mounts should be used to prevent damage to the UTB1 if the apparatus it is installed in is jarred or dropped. Use standard 6-32 hardware and 1/2" or longer standoffs for mounting the UTB1

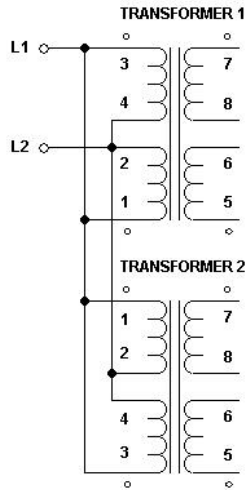
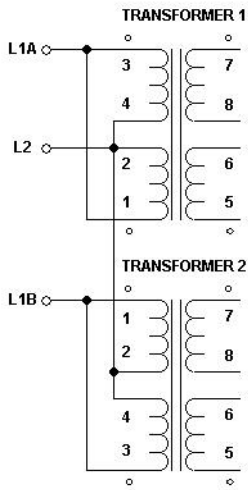
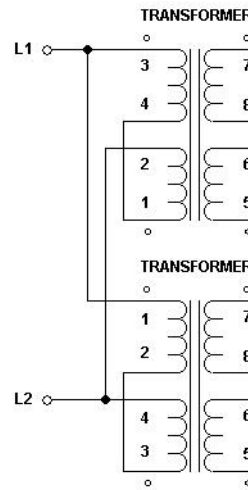
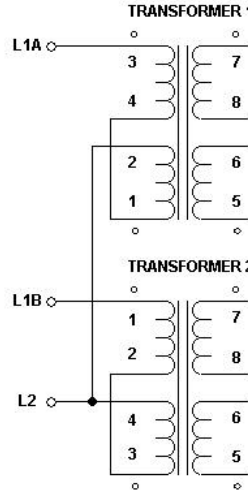
12VA	SPLIT each winding		PARALLEL		SERIES		HAMMOND	STANCOR	SIGNAL	THORDARSON	TRIAD
	2x5V	1.2A	5V	2.4A	10VCT	1.2A	229B10	LB1210	LP 10-1200	PFC204	FP10-1200
	2x6.3V	900ma	6.3V	1.8A	12.6VCT	900ma	229B12	LB1212	LP 12-900	PFC214	FP12-900
	2x8V	700ma	8V	1.4A	16VCT	700ma	229B16	LB1216	LP 16-700	PFC224	FP16-750
	2x10V	600ma	10V	1.2A	20VCT	600ma	229B20	LB1220	LP 20-600	PFC234	FP20-600
	2x12V	500ma	12V	1.0A	24VCT	500ma	229B24	LB1224	LP 24-500	PFC244	FP24-500
	2X15V	400ma	15V	800ma	30VCT	400ma	229B30		LP 30-400	PFC294	FP30-400
	2X17V	340ma	17V	680ma	34VCT	340ma	229B34	LB1234	LP 34-340	PFC254	FP34-340
	2X20V	300ma	20V	600ma	40VCT	300ma	229B40	LB1240	LP 40-300	PFC264	FP40-300
	2X28V	200ma	28V	400ma	56VCT	200ma	229B56	LB1256	LP 56-200	PFC274	FP56-200
	2X44V	130ma	44V	260ma	88VCT	130ma	229B88	LB1288	LP 88-130	PFC284	FP88-130
	2X60V	100ma	60V	200ma	120VCT	100ma	229B120	LB12120	LP 120-100	PFC324	FP120-100
*	2X115V	50ma	115V	100ma	230VCT	50ma	229B230	LB12230	LP 230-50	PFC334	FP230-50

24VA	SPLIT each winding		PARALLEL		SERIES		HAMMOND	STANCOR	SIGNAL	THORDARSON	TRIAD
	5V	2.4A	5V	4.8A	10VCT	2.4A	229C10		LP 10-2400	PFC206	FP10-2400
	6.3V	1.8A	6.3V	3.6A	12.6VCT	1.8A	229C12		LP 12-1900	PFC216	FP12-1900
*	8V	1.4A	8V	2.8A	16VCT	1.4A	229C16		LP 16-1500	PFC226	FP16-1500
	10V	1.2A	10V	2.4A	20VCT	1.2A	229C20		LP 20-1200	PFC236	FP20-1200
	12V	1.0A	12V	2.0A	24VCT	1.0A	229C24		LP 24-1000	PFC246	FP24-1000
	15V	800ma	15V	1.6A	30VCT	800ma	229C30		LP 30-800	PFC296	FP30-800
	17V	700ma	17V	1.4A	34VCT	700ma	229C34		LP 34-700	PFC256	FP34-700
	20V	600ma	20V	1.2A	40VCT	600ma	229C40		LP 40-600	PFC266	FP40-600
	28V	425ma	28V	850ma	56VCT	425ma	229C56		LP 56-425	PFC276	FP56-425

**TABLE 1 – UTB1 compatible transformers**

**Transformer types marked with an asterisk \* are preferred models for use with CLASS IX PS2 supply board and are used in conjunction with CLASS IX vacuum tube signal processing and preamplifier circuitry.**

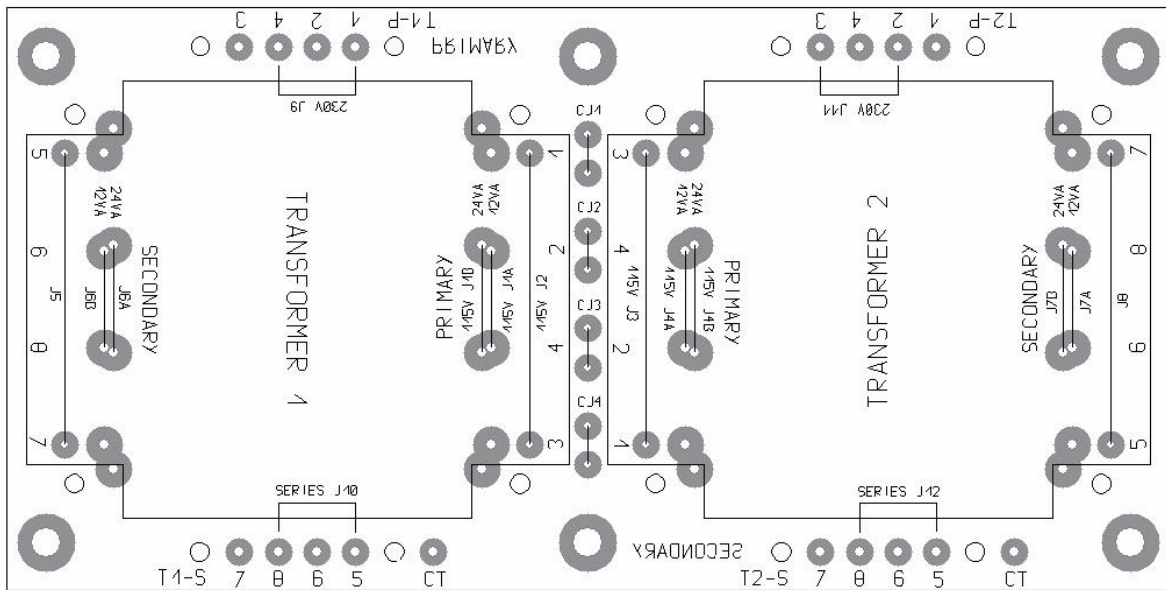
## UTB1 PRIMARY WINDING CONNECTION AND SETUP OPTIONS

<b>CONFIGURATION DRAWING</b> <b>ALL CONFIGURATIONS L1, L1A, L1B ARE HOT L2 IS NEUTRAL</b>	 <b>115VAC COUPLED PARALLEL PRIMARY</b>	 <b>115VAC NEUTRAL COUPLED PARALLEL PRIMARY</b>	 <b>230VAC COUPLED PARALLEL PRIMARY</b>	 <b>230VAC NEUTRAL COUPLED PARALLEL PRIMARY</b>
<b>INSTALL COUPLING JUMPERS</b>	<b>CJ1 &amp; CJ2 &amp; CJ3 &amp; CJ4</b>	<b>CJ2 &amp; CJ4</b>	<b>CJ2 &amp; CJ4</b>	<b>CJ2</b>
<b>INSTALL VOLTAGE SELECT JUMPERS</b>	T1 – 12VA – J1B & J2 T2 – 12VA – J4B & J3 T1 – 24VA – J1A & J2 T1 – 24VA – J4A & J3	T1 – 12VA – J1B & J2 T2 – 12VA – J4B & J3 T1 – 24VA – J1A & J2 T1 – 24VA – J4A & J3	<b>J9 &amp; J11</b>	<b>J9 &amp; J11</b>
<b>AC LINE FEED L2 = NEUTRAL</b>	<b>T1-P 3 &amp; 2</b>	T1-P 3 & 2 T2-P 1 & 2	<b>T1-P 3 &amp; 2</b>	T1-P 3 & 2 T2-P 1 & 4

**TABLE 2 – PRIMARY WINDING CONNECTIONS FOR 115VAC OR 230VAC MAINS**

UTB1 SECONDARY WINDING CONNECTIONS & SETUP OPTIONS			
TRANSFORMER	SERIES	PARALLEL	SPLIT
1 – 12VA	J10 – OUTPUT T1S – 6 & 7 & CT	J5 & J6A – OUTPUT T1S – 5 & 6	WDG A – T1S 7 & 8 WDG B – T1S 5 & 6
1 – 24VA	J10 – OUTPUT T1S – 6 & 7 & CT	J5 & J6B – OUTPUT T1S – 5 & 6	WDG A – T1S 7 & 8 WDG B – T1S 5 & 6
2 – 12VA	J12 – OUTPUT T2S – 6 & 7 & CT	J8 & J7B – OUTPUT T2S – 5 & 6	WDG A – T2S 7 & 8 WDG B – T2S 5 & 6
2 – 24VA	J12 – OUTPUT T2S – 6 & 7 & CT	J8 & J7A – OUTPUT T2S – 5 & 6	WDG A – T2S 7 & 8 WDG B – T2S 5 & 6

**TABLE 3 – SECONDARY WINDING CONNECTIONS**



**figure 1 – UTB1 printed circuit board**

Ken Stapleton  
 167 Lake St  
 St Catharines, ON  
 L2R 5Y6

email – [classix@sympatico.ca](mailto:classix@sympatico.ca)