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Manufacturer of UDYLITE Power Supplies

McTrigger Microprocessor Control Board Set Up Procedures
(OR-34240-0B)

OUTPUT VOLTAGE SETUP

To set the voltage limit, operate the rectifier in voltage control with the *voltage control pot fully counterclockwise, the current control pot fully clockwise, and the current density pot (if applicable) fully counterclockwise.* With no load (open circuit) turn the voltage control pot fully clockwise. The output voltage will be near the rated output of the rectifier. Adjust P2 on the control board to get rated voltage. We recommend using a digital voltmeter to verify the analog voltmeter accuracy during this set up.

OUTPUT CURRENT SETUP

To set the current limit, operate the rectifier in current control with the *voltage control pot fully clockwise, the current control pot fully counterclockwise, and the current density pot (if applicable) fully counterclockwise.* With the unit fully loaded (full current) turn the current control pot fully clockwise. Adjust P3 to get the rated output current. We recommend using a digital millivolt meter to verify the analog ammeter. The input voltage to the ammeter will be 50mvdc at full rated output.

AC PEAK LIMIT SETUP

The Peak Limit Section monitors the AC line current of the equipment by means of current transformers connected to J2/P2. These current transformers are scaled to supply between 1/10 and 1/3 amps at rated line current. This current is rectified, summed, and compared to a reference level set on DIP switch S1.If the summed current falls below the reference level, a reset is performed. If the microprocessor is reset more than 18 – 20 times in sequence, a peak limit trip is generated, and the DC output is removed. The normal current trip points for the standard C.T. as a function of S1 setting is shown in the following table:

S1 4 3 2 1	Binary Number	Small CT's (4 TAPS)			Large CT's (2 TAPS)
		Tap 1 to 2 Up to 30A	Tap 1 to 3 30 – 100A	Tap 1 to 4 100 –300A	300 – 1000A
0 0 0 1	1	5.0	15.0	50.0	150
0 0 1 0	2	9.6	28.4	95.0	285
0 0 1 1	3	14.4	43.6	145.0	435
0 1 0 0	4	19.0	57.0	190.0	570
0 1 0 1	5	23.6	70.4	236.0	704
0 1 1 0	6	28.0	84.0	280.0	840
0 1 1 1	7	32.4	97.6	324.0	976
1 0 0 0	8	37.0	111.0	370.0	1110
1 0 0 1	9	41.0	123.0	410.0	1230
1 0 1 0	10	45.6	136.4	456.0	1364
1 0 1 1	11	49.6	148.4	496.0	1484
1 1 0 0	12	54.0	162.0	540.0	1620
1 1 0 1	13	58.0	174.0	580.0	1740
1 1 1 0	14	62.0	186.0	620.0	1860
1 1 1 1	15	65.6	196.4	656.0	1964

0 = OPEN
1 = CLOSED

The trip action of the Peak Limit is accomplished by the microprocessor de-energizing the permit/lockout relay, which is mounted external to the board. This relay is energized by two driver stages, and is monitored by LED D6. The tripped condition may only be removed by interrupting power to the board.

A seven-segment display continuously shows the operating status of the Mctrigger. A list of possible display characters and their meanings are in the following table:

CHARACTER	MEANING
A	$\varnothing$ A Synchronization signal missing.
b	$\varnothing$ B Synchronization signal missing.
L	Lockout – terminal J4/P4, terminal 14 shorted to common.
F	Line Frequency out of range
P	Peak Limit Trip Activated – power must be removed to reset.
0	Zero – circuit operating, amplifier calling for lower output – pluses shut off.
Numerals 1 - 9	Relative indication of degree of phase advance Roughly 20 degrees for each unit.
d	Random flashing pattern, no output. Probable wrong relationship between $\varnothing$A & $\varnothing$B sync signals. Possibly due to no ground on Y of AC source, or lack of cabinet ground. Random flashing is normal when output is set for zero.
H	High – phase angle full advanced, but control Amplifier not satisfied. 1) Rectifier output does not correspond to command signal. 2) A. With only 1 – 5 Red LED's on (upper right corner) indicates a board problem. B. With all 6 Red LED's on indicates a problem external to board such as SCR's, Diodes, DV/DT Boards, Sync Transformer, Wiring, Etc. If new rectifier installation, where maximum rated output voltage cannot be achieved, switch two AC incoming power leads at disconnect switch.

The Mctrigger Control board has (1) Green LED and (6) Red LED's.
Green on indicates input power OK. All Red on indicates Gate Pulses OK.

All LED's must be on for board to work properly. Red LED's may be off or flicker when output is low or at 0.
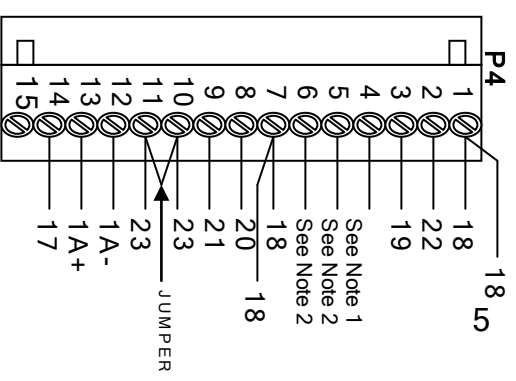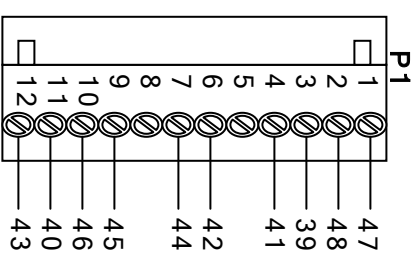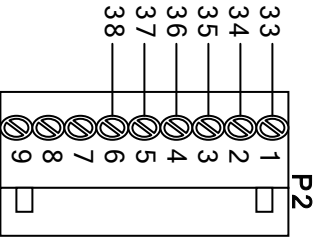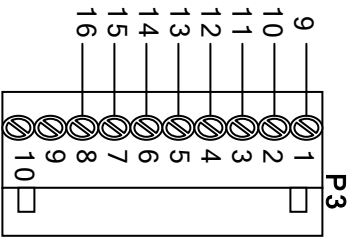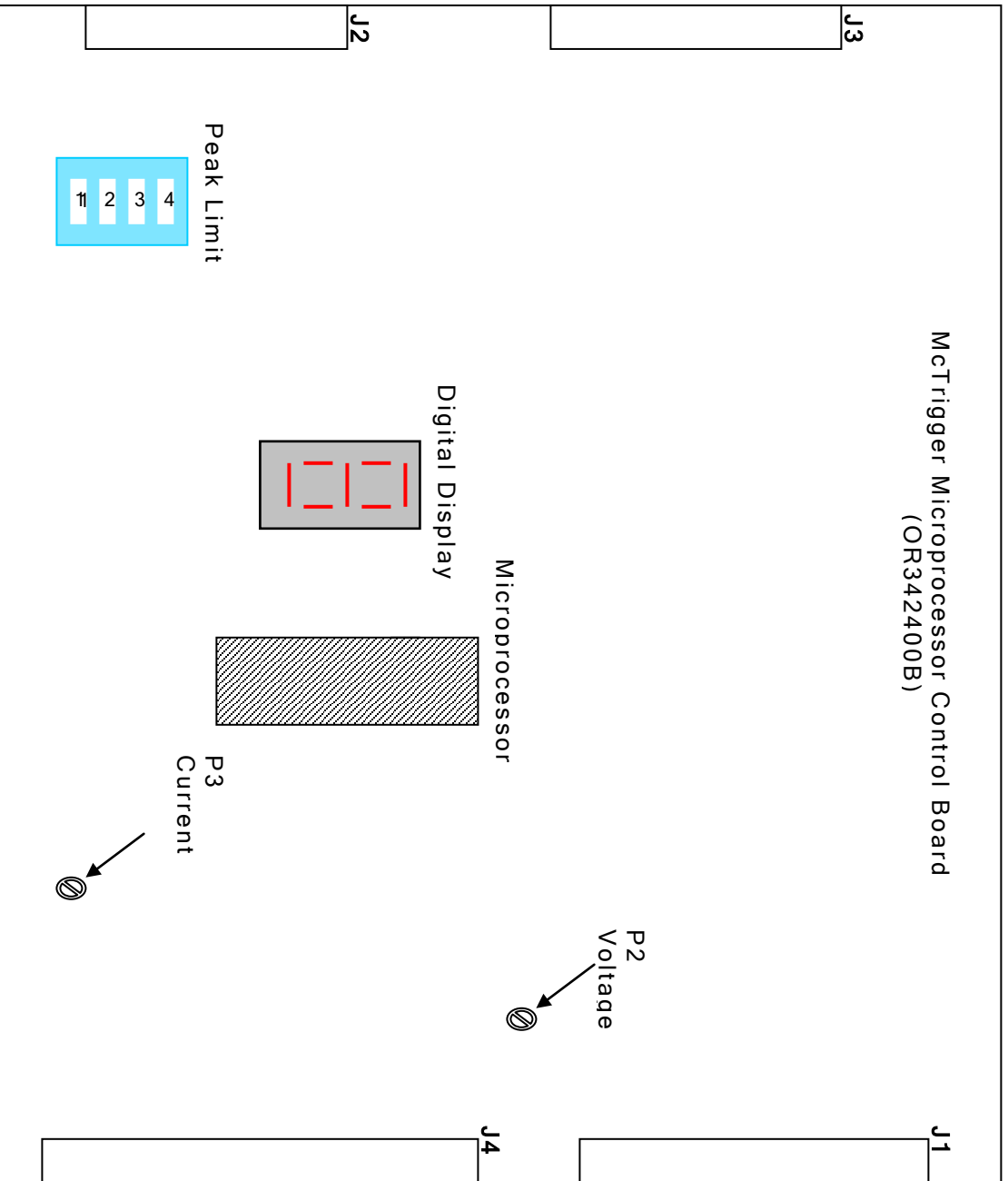
POWER REQUIREMENTS

50 Volts AC, center tap, 50/60 HZ. 25VA at terminals 3, 4, and 5.

INPUT REQUIREMENTS

TYPE	RANGE	DESIGNATION	CONNECTOR	TERM
Controls	0 - 5 Vdc	V ref	J4/P4	8
		I ref	J4/P4	9
		Current Density	J4/P4	2
		Vf+	J4/P4	4 or 6
		Vf-	J4/P4	7
		If	J4/P4	10
		Lockout	J4/P4	14
	0 - 50 mVdc	50+	J4/P4	13
		50-	J4/P4	12
Sync.	30 Vac	$\varnothing_A$	J3/P3	8
		$\varnothing_B$	J3/P3	7
	GND	Neutral	J3/P3	6
Peak Limit CT's		0 - 1/3 Amp	J2/P2	1-6

OUTPUT REQUIREMENTS

TYPE	RANGE	DESIGNATION	CONNECTOR	TERM
+5 Volt Ref.	+5 Vdc	+5V	J4/P4	3
Relay Drive	35 Vdc	+K	J3/P3	2
		-K	J3/P3	1
Current Feedback	0 ± 5 Vdc	Ifb	J4/P4	11
Pulse Output	35 Vdc Pulse	J1	J1/P1	1 - 12

McTrigger Microprocessor Control Board
(OR342400B)

P3
9 10 11 12 13 14 15 16
1 2 3 4 5 6 7 8 9 10

P2
33 34 35 36 37 38
1 2 3 4 5 6 7 8 9

J2

J3

Peak Limit
1 2 3 4

Digital Display

Microprocessor

P3
Current

P2
Voltage

J4

J1

P4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
18 22 19 See Note 1 See Note 2 See Note 2 18 20 21 23 23 1A- 1A+ 17
18
5
JUMPER
18

P1
1 2 3 4 5 6 7 8 9 10 11 12
47 48 39 41 44 42 45 46 40 43

Notes:
1. If output is 6VDC then wire #24 goes to P4-4.
2. If output is 9,12,15,18 or 24 VDC then wire #24 goes to P4-5 and Resistor (R3) goes from P4-4 to P4-6.