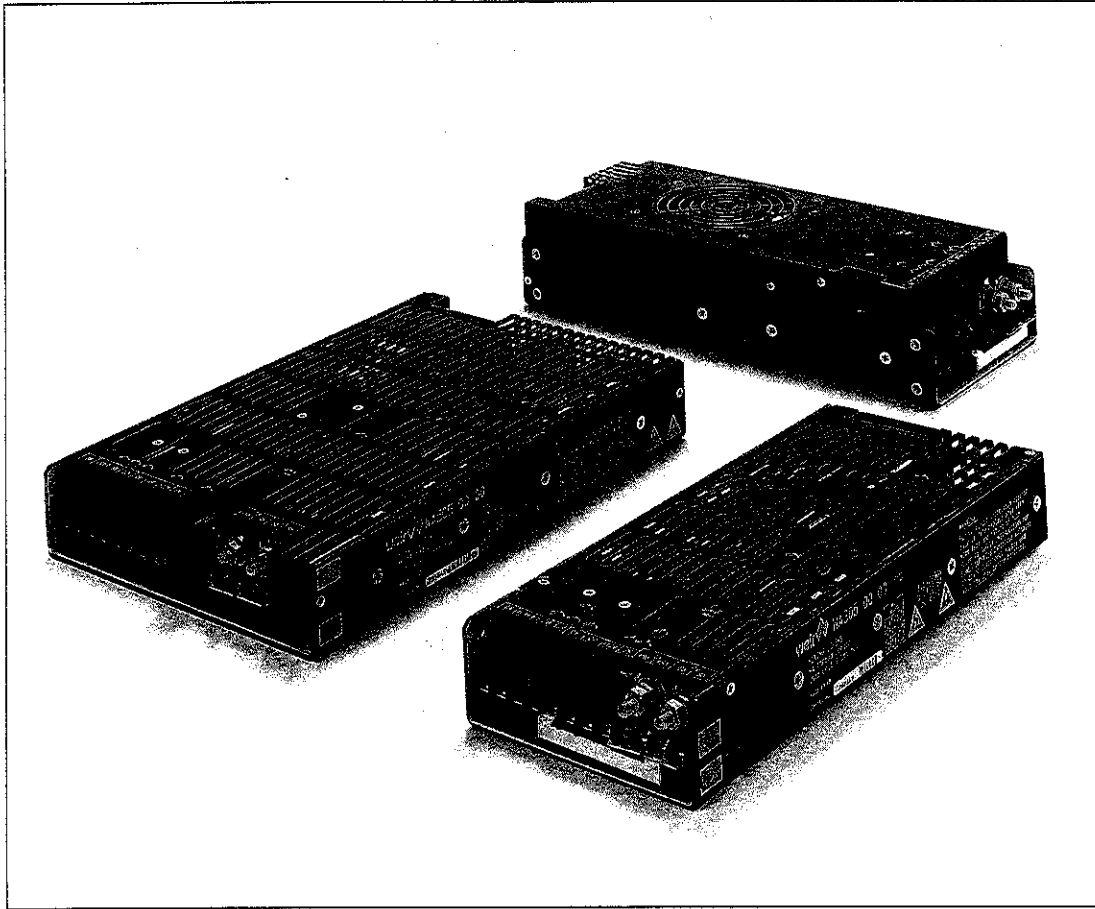


# Part I – AC-to-DC Power Supplies

## LAMBDA'S W SERIES



### The World's Smallest BABT-Approved 300-1000W Multiples

Lambda's ultra-compact W Series multiple output power supplies help you create high density computer-based telecommunications systems. They feature triple and pent outputs from 300-1000 watts. 300W models are available with 48VDC input. The W Series has worldwide safety agency approvals of BABT, IEC950, UL1950 and CSA950, and EMI compliance to FCC, VDE0871 Class B conducted and radiated. They offer several options which simplify and shorten the design process, including output power good signal, remote on/off, 85-132/176-264VAC input (autorange available as an option), current sharing on the main output, built in thermal protection, and more.

Lambda's W Series has the lowest profile (1.77") and the smallest footprint of any 300-500W multiple on the market today. They're the ideal solution for communications and computer peripheral applications.

# W SERIES SPECIFICATIONS

## AC Input

line ..... 85-132VAC or 176-264VAC (jumper selectable), 45-440Hz. Input autorange available as an option.

## Efficiency

80% typical.

## DC Input

48VDC input available on WD300 only.

## EMI

Conducted EMI conforms to VDE 0871 Level B 10kHz-30MHz. FCC Part 15 Subpart J Class B. EN55022 and BS6527 Level B. VDE 0871 Level B 10kHz-1000MHz. Radiated EMI conforms to VDE 0871 Level B 10kHz-1000MHz.

## DC Output

Voltage range shown in table.

## Output Power

WA/WD300: 300 watts max. 200 watts max on convection cooled models. WA400: 400 watts max. WA500: 500 watts max. 300 watts max on convection cooled models.

## Regulated Voltage

regulation, line .....  $\pm 0.2\%$  on main and auxiliary outputs for  $\pm 15\%$  input change.  
 regulation, load .....  $\pm 1\%$  on main output; 2% for load changes from 20-100% on auxiliary outputs. Minimum load of 5A required on main output of WA/WD300, and WA400; 8A on WA500.  
 ripple and noise ..... 50mv pk-pk on main output; 1% pk-pk on auxiliary outputs. 10Hz-30MHz bandwidth.  
 temperature coefficient ....  $0.02\%/^{\circ}\text{C}$  on main output.  $0.05\%/^{\circ}\text{C}$  on auxiliary outputs.

## Hold-Up Time

Package Model	Input Voltage (VAC)	Hold-Up Time (mSec)
WA303, 305	95/190	18
	230	28
WA403, 405	95/190	13
	230	20
WA505	95/190	18
	230	28

## Overload Protection

Automatic electronic current limiting circuit limits the output current to a preset value, thereby providing protection for the load as well as the power supply.

## Overvoltage Protection

Overvoltage protection is provided on the main 5 volt output only.

## In-Rush Current Limiting

The turn-on in-rush current will not exceed 50 amps peak on WA303, 305, 403, 405. 20 amps peak on WD305. 40 amps peak on WA505.

## Isolation Ratings

Type tested 1 minute without breakdown, "Y" capacitors removed. Input to ground & input to output: 4KV RMS 50Hz. Output common to ground: 700VDC. Production tests on complete units, 1 minute without breakdown. Input to grounded outputs: 1.6KV RMS 50Hz. Outputs to ground: 700VDC. Input to output resistance:  $>100M\ \Omega$  at 500VDC.

## Cooling

The WA/WD300, 500 are convection cooled and are available with an optional fan. Integral fan on WA400.

## Operating Temperature

0 to  $+70^{\circ}\text{C}$  with linear derating from  $+50$  to  $+70^{\circ}\text{C}$ . Derate to 50% power at  $+70^{\circ}\text{C}$ .

## Remote Sensing

Available on main output for voltage drops of 0.5V max for WA/WD300 and 400. Remote sensing on the main output of the WA500 for voltage drops up to 0.25V max.

## Options

Input autorange, output power good, remote on/off, integral fan, and current share (main output only).  
 \*See option selector guide for option numbers.

## Physical Data

Package Model	Weight (lbs.)	Size (inches)
WA303 (with fan)	5.7	11.8 x 4.9 x 2.56
WA303 (without fan)	5.1	11.8 x 4.9 x 1.77
WA305 (with fan)	6.2	11.8 x 4.9 x 2.56
WA305 (without fan)	5.5	11.8 x 4.9 x 1.77
WA403 (with fan)	5.7	11.8 x 4.9 x 2.56
WA405 (with fan)	6.2	11.8 x 4.9 x 2.56
WA505 (with fan)	7.7	11.8 x 7.48 x 2.56
WA505 (without fan)	6.8	11.8 x 7.48 x 1.77
WD305 (with fan)	6.4	11.8 x 4.9 x 2.56
WD305 (without fan)	5.5	11.8 x 4.9 x 1.77

## Safety Agency Approvals

BS6301, BS7002, IEC950, UL950, EN60950, CSA234 Level 6, VDE0805.

## Guarantee

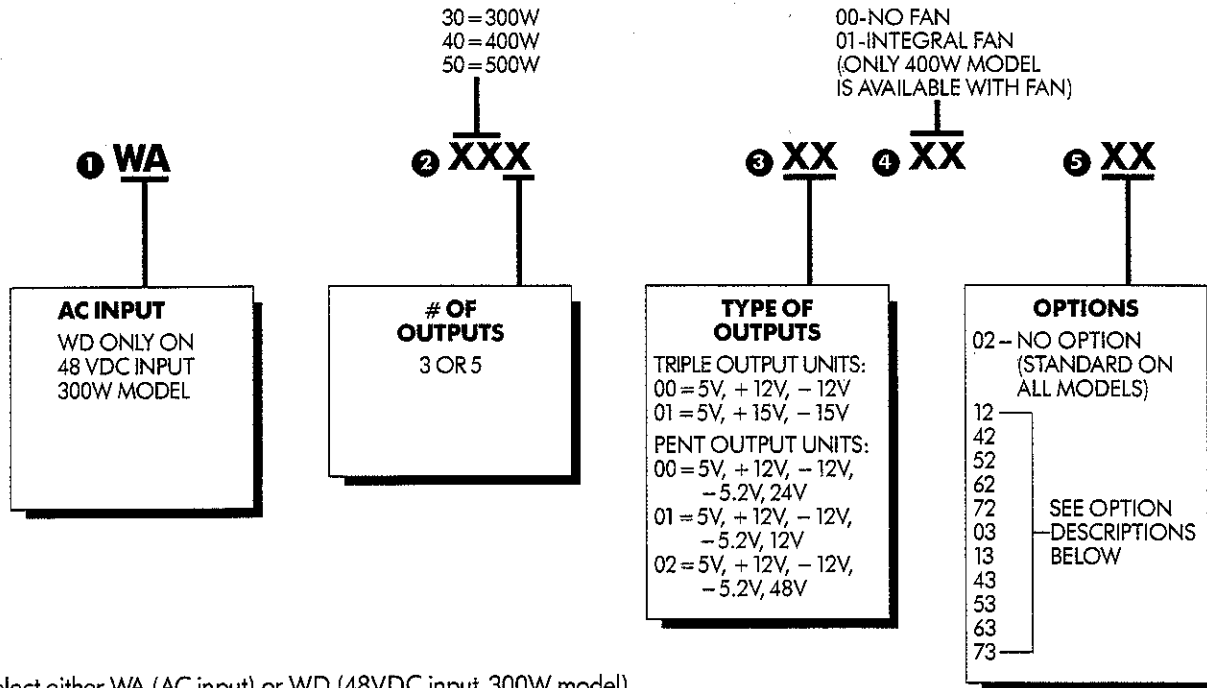
One year guarantee includes labor as well as parts. Guarantee applies to operation at full published specifications at end of 1 year.

# OEM Ratings Table – Triple and Pent Outputs

Vo	MAX CURRENT (AMPS)* AT AMBIENT TEMPERATURE OF			MAX POWER (WATTS) AT AMBIENT TEMPERATURE OF			Vout ADJ. RANGE	COMPLETE ELEC. SPEC. PG.	UNIT PRICE PER DELIVERED QUANTITY			MODEL
	50°C	60°C	70°C	50°C	60°C	70°C			1	10	100	
5	40.0 (30.0)	30.0 (22.5)	20.0 (15.0)	300 (200)	225 (150)	150 (100)	4.7-5.5VDC ±2% Fixed	61	\$395	\$375	\$321	WA303 00 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
5	40.0 (30.0)	30.0 (22.5)	20.0 (15.0)	300 (200)	225 (150)	150 (100)	4.7-5.5VDC ±2% Fixed	61	395	375	321	WA303 01 00 02
15	8.0	6.0	4.0				±2% Fixed					
-15	3.3	2.5	1.7				±2% Fixed					
5	40.0	30.0	20.0	400	300	200	4.7-5.5VDC ±2% Fixed	61	510	485	414	WA403 00 01 02
12	10.0	7.5	5.0				±2% Fixed					
-12	6.6	5.0	3.3				±2% Fixed					
5	40.0	30.0	20.0	400	300	200	4.7-5.5VDC ±2% Fixed	61	510	485	414	WA403 01 01 02
15	8.0	6.0	4.0				±2% Fixed					
-15	5.3	4.0	2.7				±2% Fixed					
5	50.0 (40.0)	37.5 (30.0)	25.0 (20.0)	300 (200)	225 (150)	150 (100)	4.7-5.5VDC ±2% Fixed	61	490	466	398	WA305 00 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
-24	4.0	3.0	2.0				±2% Fixed					
5	50.0 (40.0)	37.5 (30.0)	25.0 (20.0)	300 (200)	225 (150)	150 (100)	4.7-5.5VDC ±2% Fixed	61	490	466	398	WA305 01 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
12	8.0	6.0	4.0				±2% Fixed					
5	50.0 (40.0)	37.5 (30.0)	25.0 (20.0)	300 (200)	225 (150)	150 (100)	4.7-5.5VDC ±2% Fixed	61	490	466	398	WA305 02 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
48	2.0	1.5	1.0				±2% Fixed					
5	50.0 (40.0)	37.5 (30.0)	25.0 (20.0)	300 (200)	225 (150)	150 (100)	4.7-5.5VDC ±2% Fixed	61	550	523	447	WD305 00 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
24	4.0	3.0	2.0				±2% Fixed					
5	50.0	37.5	25.0	400	300	200	4.7-5.5VDC ±2% Fixed	61	595	565	483	WA405 00 01 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
24	4.0	3.0	2.0				±2% Fixed					
5	50.0	37.5	25.0	400	300	200	4.7-5.5VDC ±2% Fixed	61	595	565	483	WA405 01 01 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
12	8.0	6.0	4.0				±2% Fixed					
5	50.0	37.5	25.0	400	300	200	4.7-5.5VDC ±2% Fixed	61	595	565	483	WA405 02 01 02
12	10.0	7.5	5.0				±2% Fixed					
-12	4.0	3.0	2.0				±2% Fixed					
-5.2	4.0	3.0	2.0				±2% Fixed					
48	2.0	1.5	1.0				±2% Fixed					
5	80.0 (50.0)	60.0 (37.5)	40.0 (25.0)	500 (300)	375 (225)	250 (150)	4.7-5.5VDC ±2% Fixed	61	720	684	585	WA505 00 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	10.0	7.5	5.0				±2% Fixed					
-5.2	15.0 (10.0)	11.3 (7.5)	7.5 (5.0)				±2% Fixed					
24	4.0	3.0	2.0				±2% Fixed					
5	80.0 (50.0)	60.0 (37.5)	40.0 (25.0)	500 (300)	375 (225)	250 (150)	4.7-5.5VDC ±2% Fixed	61	720	684	585	WA505 01 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	10.0	7.5	5.0				±2% Fixed					
-5.2	15.0 (10.0)	11.3 (7.5)	7.5 (5.0)				±2% Fixed					
12	8.0	6.0	4.0				±2% Fixed					
5	80.0 (50.0)	60.0 (37.5)	40.0 (25.0)	500 (300)	375 (225)	250 (150)	4.7-5.5VDC ±2% Fixed	61	720	684	585	WA505 02 00 02
12	10.0	7.5	5.0				±2% Fixed					
-12	10.0	7.5	5.0				±2% Fixed					
-5.2	15.0 (10.0)	11.3 (7.5)	7.5 (5.0)				±2% Fixed					
48	2.0	1.5	1.0				±2% Fixed					
5	125.0	100.0	75.0	1000	750	500	5.0-5.5VDC ±2% Fixed	61	1365	1296	1170	WA1005 17 01 22
12	15.0	11.25	7.5				±2% Fixed					
12	15.0	11.25	7.5				±2% Fixed					
12	15.0	11.25	7.5				±2% Fixed					
5	15.0	11.25	7.5				±2% Fixed					

\*Ratings in parenthesis are for convection cooled units without fans.

# W SERIES PART NUMBERING SYSTEM



- 1 Select either WA (AC input) or WD (48VDC input, 300W model).
- 2 Select the power level and the number of outputs required. You can choose either 3 or 5 outputs in the 300W (30) and 400W (40) packages. The 500W (50) package is a 5 output model only.
- 3 Select the type of output, either triple or pent.
  - Triple output models are:
    - 00 = 5V, + 12V, - 12V
    - 01 = 5V, + 15V, - 15V
  - Pent output models are:
    - 00 = 5V, + 12V, - 12V, - 5.2V, 24V
    - 01 = 5V, + 12V, - 12V, - 5.2V, 12V
    - 02 = 5V, + 12V, - 12V, - 5.2V, 48V
- 4 Select whether you need a power supply without a fan (00) or with an integral fan (01). Only the 400W models come with an integral fan.
- 5 Select the type of options. All models are designed with a thermal strip as standard and will be 02 on your model. Only one option can be added to a power supply.

Example: W Series 500W AC input base model; pent output with 5V, + 12V, - 12V, - 5.2V, 24V: with integral fan; input autorange, thermal trip, remote inhibit and DC Power Good  
**would read WA505 00 01 13.**

OPTION	DESCRIPTION	PRICE		
		1	10	100
12	Current Share Output #1 only Power Fail Inverter, Inhibit	\$49	\$47	\$40
42	VME Type Power Fail, Inhibit	49	47	40
52	SELV Option for Units with Output #5 less than 24VDC, Power Fail, Inhibit	49	47	40
62	SELV Option for Units with Output #5 greater than 24VDC, Power Fail, Inhibit	49	47	40
72	Power Good, Power Fail, Inhibit	49	47	40
03	Auto Ranging	34	32	28
13	Same as Option #12 with Auto Ranging Added	83	79	67
43	Same as Option #42 with Auto Ranging Added	83	79	67
53	Same as Option #52 with Auto Ranging Added	83	79	67
63	Same as Option #62 with Auto Ranging Added	83	75	67
73	Same as Option #72 with Auto Ranging Added	83	79	67
02	Thermal Trip (Standard on all models)		No Charge	
Fan	Integral Fan on WA/WD300 or WA500	60	57	49

\*Only (one) option can be added to a power supply.

# Part I – AC-to-DC Power Supplies

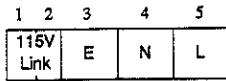
## W SERIES MECHANICAL DRAWINGS

WA303  
WA305

### Connectors

All terminal blocks Veritron 'Beau' range 6-32 UNC screws

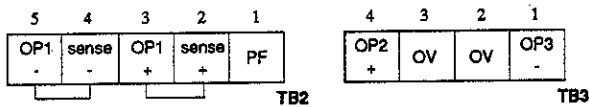
AC Input TB1 both models



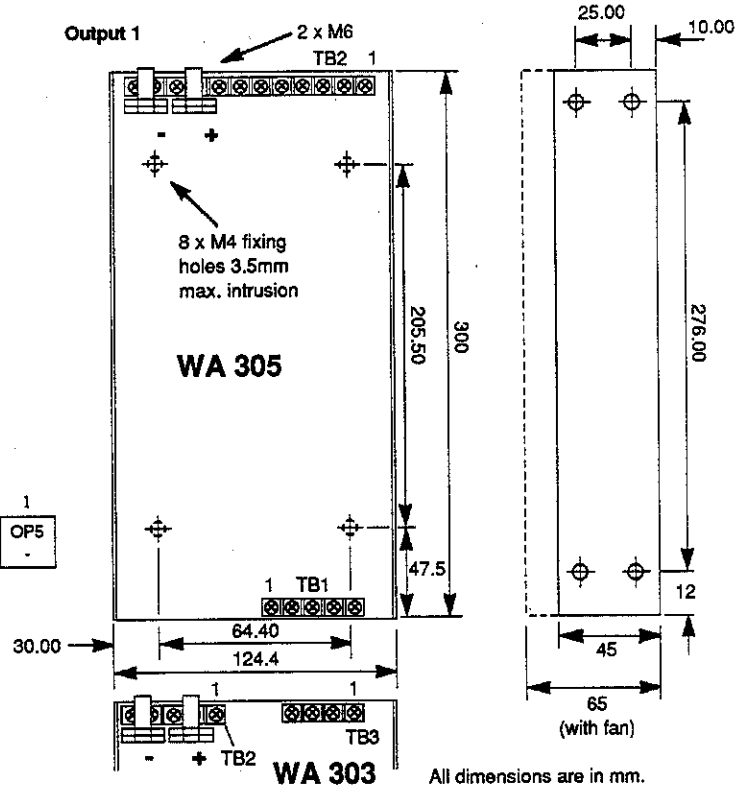
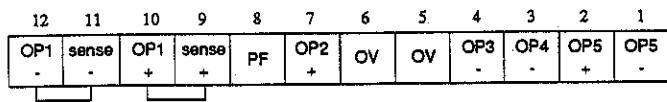
Output 1 2 x M6 studs both models

-ve sense connected to auxiliary OV via external shorting bar

Outputs TB2 & TB3 WA303



Outputs TB2 WA305



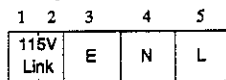
All dimensions are in mm.  
(divide by 25.4 for inches)

WA403  
WA405

### Connectors

All terminal blocks Veritron 'Beau' range 6-32 UNC screws

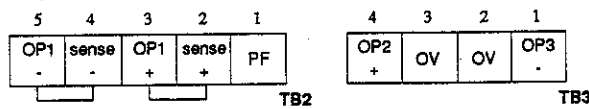
AC Input TB1 both models



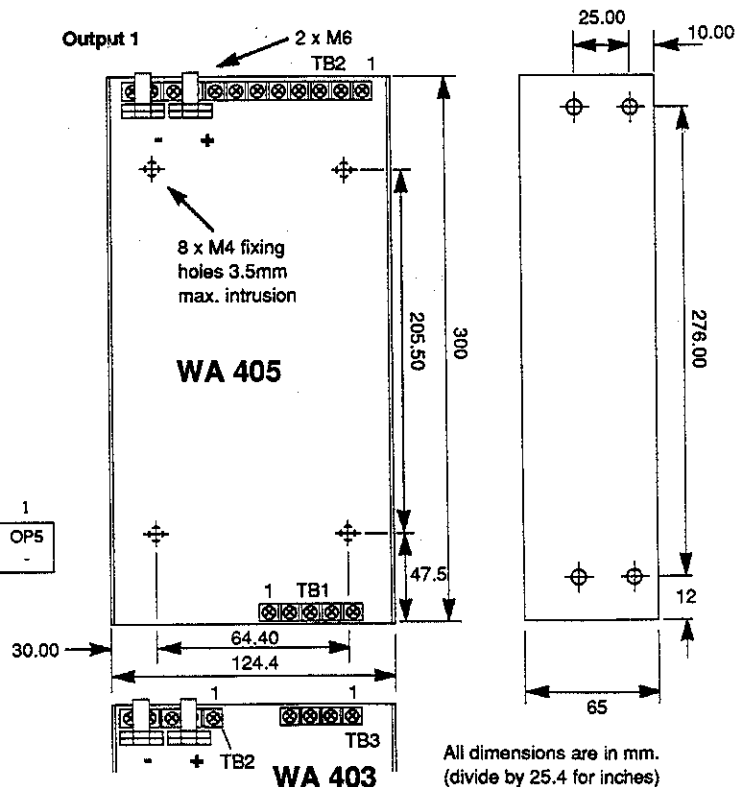
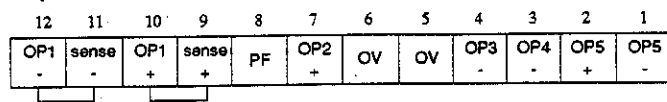
Output 1 2 x M6 studs both models

-ve sense connected to auxiliary OV via external shorting bar

Outputs TB2 & TB3 WA403



Outputs TB2 WA405



All dimensions are in mm.  
(divide by 25.4 for inches)

# W SERIES MECHANICAL DRAWINGS

WA505

## Connectors

All terminal blocks Vernitron 'Beau' range 6-32 UNC screws

### AC Input TB1

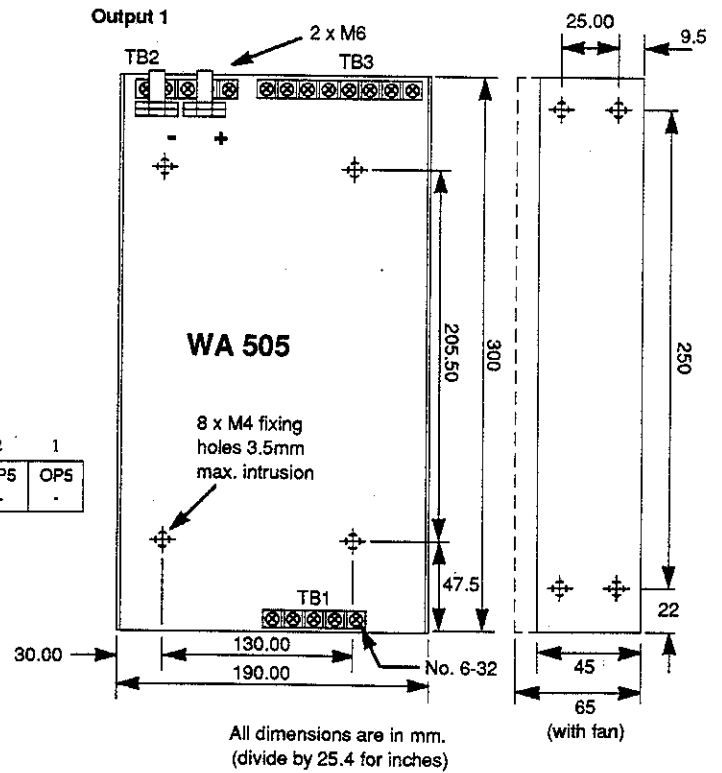
1	2	3	4	5
115V Link	E	N	L	

### Outputs TB2 (split connector 8/5 way)

13	12	11	10	9	8	7	6	5	4	3	2	1
OP1	sense	OP1	sense	N/C	PF	OP2	OV	OV	OP3	OP4	OP5	OP5
-	-	+	+			+			-	-	+	-

### Output1 2 x M6 studs

-ve sense connected to auxiliary OV via external shorting bar



WD305

## Connectors

All terminal blocks Vernitron 'Beau' range 6-32 UNC screws

### DC Input TB1

1	2	3	4	5
+48V out	-48V out	E	IN +	IN -

### Outputs TB2

12	11	10	9	8	7	6	5	4	3	2	1
OP1	sense	OP1	sense	LBA	OP2	OV	OV	OP3	OP4	OP5	OP5
-	-	+	+		+			-	-	+	-

### Output 1 2 x M6 studs

-ve sense connected to auxiliary OV via external shorting bar

