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## EU DECLARATION OF CONFORMITY

Alpha 1500/CA1500 Series

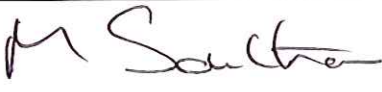
We, TDK-Lambda UK Limited, of Kingsley Avenue, Ilfracombe, Devon, EX34 8ES declare under our sole responsibility that the TDK-Lambda Alpha 1500/CA1500 series of power supplies, as detailed on the attached products covered sheets, complies with the provisions of the following European Directives and is eligible to bear the CE mark:

Low Voltage Directive 2014/35/EU (20 April 2016)

RoHS 2 Directive 2011/65/EU (8 June 2011)

Assurance of conformance of the described product with the provisions of the stated EC Directive is given through compliance to the following standards:

Electrical Safety (LVD) EN60950-1:2006 + A2:2013

Name of Authorized Signatory	Martin Southam
Signature of Authorized Signatory	
Position of Authorized Signatory	Marketing Director, TDK-Lambda EMEA
Date	20 April 2016
Date Series First CE Marked	26 April 2001
Place where signed	Ilfracombe, Devon, England

# PRODUCTS COVERED SHEETS FOR THE ALPHA 1500/CA1500 SERIES

Alpha 1500 and Alpha 1500W are identical to CA1500.

(may be prefixed by NS - # / or - where # may be up to any four letters and may be followed by - \$; where \$ may be any number between 000 to 999, indicating non-safety related model differences.)

Alpha 1500, Alpha 1500W or CA1500 may be followed by: TL, RL, LL or ML

Where TL = Tiny leakage input filter  
 RL = Reduced leakage input filter  
 LL = Low leakage input filter  
 ML = Medium leakage input filter  
 (Standard leakage filter - no letters)

may be followed by up to eight of any of the following:

@ followed by AA, A, AL, BB, B, C, CL, CM, CH, D, FF, F, GG, G, J, K, L, M, N, Q, R, S, T, U, UU, W, or Z.

optionally followed by \_MF, MFE, \_X, \_XL, MFL, MFU, MFV or \_MFV, MFPP, \_PA, \_IN, \_PP, \_RP, RPA, RPB, RPC, RPD, \_D, \_MG or \_CD

or @/@ (where / may be replaced with \_) followed by: E, EB, EQ, EL, EH, H, P or PL:

or B/S

Where @ and @/@ = applicable voltage range and the following one or two letters are the module type.

\_MF, MFE = Mains fail option (may also be called X).  
 MFU = Mains fail option with uncommitted output connections.  
 MFV = Mains fail option with VME bus  
 MFPP = Mains fail, module parallel and PSU/fan inhibit  
 MFL, \_XL = Mains fail latch  
 \_PA, \_PP, \_IN, \_RP, RPA, RPB, RPC, \_D, RPD, \_CD and \_MG = Secondary module options.  
 B/S = Blanking slot which occupies one 23mm slot.

Only up to eight 23mm slots may be filled up per unit, noting that all modules occupy one 23mm slot except for AA, A, AL, F, FF, G, GG, J, K, R, S and T modules which occupy two 23mm slots.

Valid voltage ranges for @ and @/@ for each module are as follows:

Module	Voltage Range	Module	Voltage Range
AA	@ = 4.5 – 6.2V	K	@ = 18 – 29V
A	@ = 4.5 – 5.5V	L	@ = 1.8 – 3.2V
BB	@ = 4.5 – 6.5V	M	@ = 5 – 16V
B	@ = 4.5 – 5.5V	N	@ = 18 – 32V
C	@ = 5 – 16V	P	@/@ = 18 – 29V / 5 – 16V
D	@ = 18 – 29V	Q	@ = 2.7 – 3.9V
E	@/@ = 5 – 16V / 5 – 16V	R	@ = 2.7 – 3.9V
EB	@/@ = 4.5 – 5.5V / 4.5 – 5.5V	S	@ = 2.5 – 5.7V
EQ	@/@ = 4.5 – 5.5V / 2.7 – 3.9V	T	@ = 1.8 – 3.2V
F	@ = 9 – 15.5V	U	@ = 10 – 21V
G	@ = 17.5 – 29V	W	@ = 4.5 – 5.5V
H	@/@ = 18 – 32V / 18 – 32V	Z	@ = 4.5 – 5.5V
J	@ = 30 – 48V		

## RATINGS & LIMITATIONS:

Max power & per converter 858W  
 Max. Ampere Turns per converter 138

Max. Ampere Turns (total) 260  
 Max number of secondary windings per converter 10  
 Max Input Current 16A  
 Input frequency range 47 - 63Hz  
 Maximum operating altitude 3000m

Module	Note	Output Voltage (11*)	Current	Slots	Turns	Max Current Limit	Setting for Hazardous Energy
A	1	4.5-5.5V	60A	2	1	79.2A	>3V
AA	1	4.5-6.2V	60A	2	1	79.2A	>3V
B	2	4.5-5.5V	25A	1	1	33A	-
BB	2	4.5-6.5V	25A	1	1	33A	-
C	6	5-16V	16A	1	2	21.2A	>11.3V
D	6	18-29V	8A	1	4	10.6A	>.22.6V
E		5-16V	8A	1	2	10.6A	-
		5-16V	8A	1	2	10.6A	-
EB		4.5-5.5V	9A	1	1	11.9A	-
		4.5-5.5V	9A	1	1	11.9A	-
EQ		4.5-5.5V	9A	1	1	11.9A	-
		2.7-3.9V	9A	1	1	11.9A	-
F	6	9-15.5V	33A	2	2	43.6A	>5.5V
G	6	17.5-29V	25A	2	4	33A	>7.2V
H	5	18-32V	5A	1	4	6.6A	-
		18-32V	5A	1	4	6.6A	-
J	4,6,7	30-48V	10A	2	4 (16)	13A	>18.4V
K	6	18-29V	15A	2	4	19.8A	>12V
L	2,6	1.8-3.2V	25A	1	1	33A	-
M	6	5-16V	8A	1	2	10.6A	-
N	5,6	18-32V	5A	1	4	6.6A	-
		18-29V	5A	1	4	6.6A	-
P		5-16V	8A	1	2	10.6A	-
Q	2,6	2.7-3.9V	25A	1	1	33A	-
R	1,6	2.7-3.9V	60A	2	1	79.2A	>3V
S	3,6	2.5-5.7V	85A	2	1	110.5A	>2.2V
T	1,6	1.8-3.2V	60A	2	1	79.2A	>3V
U	6	10-21V	16A	1	3	21.2A	>11.3V
W		4.5-5.5V	15A	1	1	19.8A	-
Z	2	4.5-5.5V	25A	1	1	33A	-

All modules can be used at their full rated current in all slot positions unless otherwise stated below:

Note:

- For A, AA, AL, R and T modules in slots 7 & 8, max output current is 51A .
- For B, BB, Q, L and Z modules in slot 8, max output current is 20A .
- For S modules in slots 1 & 2, max output current is 73A, in slots 2 and 3 max output current is 68A, in slots 3 & 4 max output current is 66A, in slots 4 & 5 max output current is 85A, in slots 5 & 6 max output current is 80A, in slots 6 & 7 max output current is 66A and in slots 7 & 8 max output current is 65A.
- For J modules the output current derates linearly by 0.25A per volt above 40V.
- For H and N modules with output > 29V, max output current is 1A.
- When using remote sense, the max output voltage will be reduced by 0.5V for L, S, T, Q and R modules, and by 1.0V for C, CH, CL, CM, D, F, FF,G, GG,J, M, K, N, U, UU, V Modules.
- Ampere turns for J module is calculated as  $AT=(output\ current + 15A) \times 4$ .
- For C and CH modules, the maximum output current is 12A for output voltages >12V.
- Adjusting output voltage beyond the stated range may cause overvoltage protection (OVP) to operate, whereby all outputs will turn off. To reset OVP, turn back output voltage adjustment and remove the mains supply for 30 seconds

Secondary Options:

Option	Description
_MG	Provides a module good signal with indicates output voltage is within limits.
_PA	Forces paralleled modules to share load current. Additionally it also provides the module good signal.
_PP	Provides either of the following functions: a) Reduces module current limit and caters for paralleled modules with busbar linking. For use with modules providing a max output of up to 16V only; or b) Identical to _PA except that the module is paralleled at the output of the module with busbar linking.
_IN	Provides an external signal which may be used to inhibit the output of the module.
Option	Description
_RP	Provides remote programming of the module output voltage.
RPA	Provides voltage programming of the module output voltage only.
RPB	Provides voltage programming of the module output voltage and has an output VA limiting circuit.
RPC	Provides an output VA limiting circuit
RPD	Provides voltage programming of the module output voltage and has an output VA limiting circuit.
_D	Delay option. Provides for a delay in the turn on time of the output.

Note:

The RPA option can only be used on modules with output voltages rated up to 32V.

The RP, RPB, RPC and RPD options can only be used on modules with output voltages rated up to 16V. They are not for use with a module voltage range of 18-29V or twin output modules.

Custom Models:

Model: CA1500 7C\_MF, 24K\_D, 16U\_D, 18/18H\_D, 9/9E\_D, 28/20H\_D, 28/28H\_D (NS-LAM-145)

Input voltage range: 150-264Vac

Outputs: 7V 16A, 24V 15A, 16V 16A, 18V 5A, 18V 5A, 9V 8A, 9V 8A, 28V 5A, 20V 5A, 28V 5A, 28V 5A, (1500W, 260AT total)

Ambient: 50degC max

Orientations: All except psu vertical with airflow downwards and psu upside down.

Model: CA1500 8.5C, 36J\_D, 12C\_D, 24D\_D, 18.5D\_D, 18.5N\_D, 30/18H\_D (NS-LAM-136)

Input voltage range: 150-264Vac

Outputs: 9.5V 10A, 37V 8.5A, 13V 16A, 25V 9A, 19.5V 6.5A, 19.5V 3.7A, 31V 4A, 19V 2A (1203W, 235AT total)

Ambient: 50degC max

Orientations: All except psu vertical with airflow downwards and psu upside down.

Model: CA1500 12FF\_MF, 12FF, 12FF, 12FF (NS - AMD - 004)

Input voltage range: 207-264Vac

Outputs: 13V 34.5A max, 13V 34.5A max, 13V 34.5A max, 13V 26.5A max

Max Output Power: 1690W, 260AT

Ambient: 50degC max

Orientations: Horizontal Only

Model: CA1500 5BRP, 5SRP, 12FRP, 12FRP

Input voltage range: 150-264Vac

Outputs: 5.5V 25A max, 5.7V 85A max, 13V 33A max, 13V 33A max

Max Output Power: 1480W, 242AT

Ambient: 50degC max

Orientations: All except psu vertical with airflow downwards and psu upside down.

Model: CA1500 5A\_MF, 3.3R, 2.5T, 24D, 12/12E (NS-LAM-212)

Input voltage range: 90-264Vac

Outputs: 5V 35A max, 3.3V 48A max, 2.5V 56A max, 24V 11A max, 12/12V 8/0.2A max

Max Output Power: 836W

Ambient: 50degC max

Orientations: All except psu vertical with airflow downwards and psu upside down.

Model: CA1500 5.1A\_MF, 3.4R, 2.5T, 24.5D, 12.2/12.2E

Input voltage range: 90-264Vac

Outputs: 5.1V 35A max, 3.4V 48A max, 2.5V 56A max, 24.5V 11A max, 12.2/12.2V 8/0.2A max  
Max Output Power: 852W  
Ambient: 50degC max  
Orientations: All except psu vertical with airflow downwards and psu upside down.

Model: CA1500 24G\_MF 24G\_IN 24D\_IN 24D\_IN 24D\_IN 24D\_IN  
Input voltage range: 90 - 264Vac  
Outputs: 24V, 10A max, 24V, 20A max, 24V, 10A max, 24V, 10A max, 24V, 8A max, 24V, 8A max  
Max Output Power: As per the Units Limitations table on page 1 of this handbook  
Ambient: 50degC max.  
Orientations: All except psu vertical with airflow downwards and psu upside down.

Model: CA1500 24G\_MF 24G\_IN 24D\_IN 24D\_IN 28D\_IN 28D\_IN  
Input voltage range: 90 - 264Vac  
Outputs: 24V, 10A max, 24V, 20A max, 24V, 10A max, 24V, 10A max, 28V, 8A max, 28V, 8A max  
Max Output Power: As per the Units Limitations table on page 1 of this handbook  
Ambient: 50degC max.  
Orientations: All except psu vertical with airflow downwards and psu upside down.