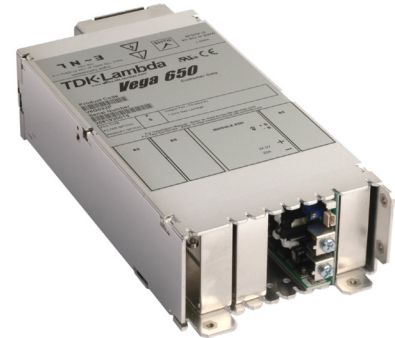


450W - 900W Modular power supply.



Features	Benefits
• Industry leading flexibility	Suits your application
• Screw, Fast-on or IEC connection	Simplifies design into system
• Worldwide safety approvals	Supports global use
• Up to 11 outputs	Eliminates need for additional supplies
• 3 year warranty	Low cost of ownership

Input	
Input Voltage / Frequency	90-264Vac / 47 - 63 Hz (440Hz with reduced PFC) 900W version is 150-264Vac only, 650W below 150Vac
Input Fuse	16A / 250Vac HBC Fast acting (not user accessible)
Inrush Current	<40A at 25°C and 264Vac (cold start)
Leakage Current	See 'How To Create A Product Description' for details

How To Create A Product Description

The extensive range of output modules and options make it possible to achieve almost any combination of Volts and Amps. You can create your own Vega configuration online at <https://config.emea.tdk-lambda.com/>. This method checks your configuration and offers the optimum solution. Alternatively, you can do this manually by using the guide below.

- Calculate total output power to select the appropriate converter, then select required Cooling, Connection, Leakage Current and Controls/ Signals from the following table:
- Select Output Modules and options from the output voltages tables.

Converter	V4 450W V6 650W V9 900W	V4 F S S F	
Cooling	F Forward air - standard Q Forward air - Quiet R_a Reverse air P_a Reverse air - Quiet fan C_b Customer air - no fan		
Input Connection	S Screw F Fast-on terminal I IEC320 with switch		
Primary Option	F ac fail, psu+fan inhibit, 5V/100mA standby FV ac fail, psu+fan inhibit, 5V/300mA standby xFW_c ac fail, psu+fan inhibit, 5-15V/1A standby E ac fail, psu+fan enable, 5V/100mA standby EV ac fail, psu+fan enable, 5V/300mA standby xEW_c ac fail, psu+fan enable, 5-15V/1A standby		
Leakage Current (max leakage current at 264Vac, 63Hz)	S Standard 1.5mA M 650µA L 290µA R 175µA T 60µA		

Example - if you require 5.2V / 18A with output inhibit :-
 a) Select B1H as closest match for voltage & current and prefix with voltage (eg **5.2B1H**)
 b) add suffix 'S' or 'F' for Screw or Fast-on output connection (eg 5.2B1HS)
 c) add suffix 'N' for output inhibit if required (eg 5.2B1HSN)
 d) Repeat for other outputs.

Ensure you do not select more than a total of 5 slots width of modules. This will create a complete product description eg V6FSSF 5L1SN 12/12H3/3S 24C5S which represents a four output 650W Vega with Forward air, Screw terminal input, 1.5mA leakage, ac Fail, Global inhibit & 5V/100mA standby supply with the following outputs:
 Output 1 = 5V/35A (with output inhibit, module good and current share option). Output 2 = 12V / 10A, Output 3 = 12V / 6A, Output 4 = 24V / 10A, all with screw terminal outputs.

- Contact TDK-Lambda to validate configuration and issue a part number.

a) Not available for Vega 900
 b) Thermocoupled sample recommended to ensure adequate cooling - consult sales
 c) xFX and xEW options increase leakage current by 90µA. Replace 'x' with required output voltage (5FW = 5V standby)

OUTPUT VOLTAGES (single output modules)					OUTPUT VOLTAGES (twin output modules)									
Module	Adjustment Range (Volts)		Current (Amps)	Slots	Module	V1 Adjustment Range (Volts)	Current	V2 Adjustment Range (Volts)	Current (Amps)	Slots				
B1L	1.8	- 3.8 _e	20	1	H1L/1L			1.8 - 3.8 _n	8	1				
C1	1.8	- 4.1 _e	35	1	H1L/1H			3.9 - 5.5 _d	8	1				
C1Y	1.8	- 4.1 _e	40	1	H1L/2	1.8 - 3.8 _n	12	5.6 - 9 _f	6	1				
D1L	1.8	- 3.8	50	1.5	H1L/3			9.1 - 16.2 _u	6	1				
E1	1.8	- 3.8 _e	60	2	H1L/4			16.3 - 25 _p	4.5	1				
F1 _a	1.8	- 3.8	80	2	H1H/1L			1.8 - 3.8 _n	8	1				
Z2	1.8	- 3.8 _e	95	3	H1H/1H			3.9 - 5.5 _d	8	1				
Z3	1.8	- 3.8 _e	114	4	H1H/2	3.9 - 5.5 _d	12	5.6 - 9 _f	6	1				
B1H	3.9	- 5.5 _d	20	1	H1H/3			9.1 - 16.2 _u	6	1				
L1	4.2	- 5.5 _d	35	1	H1H/4			16.3 - 25 _p	4.5	1				
D2	3.8	- 9 _k	45	1.5	H2/1L			1.8 - 3.8 _n	8	1				
D1H	3.9	- 5.5 _d	50	1.5	H2/1H			3.9 - 5.5 _d	8	1				
E2	3.8	- 8 _k	60	2	H2/2	5.6 - 9 _f	10	5.6 - 9 _f	6	1				
Z18	4.2	- 5.5	66	2	H2/3			9.1 - 16.2 _u	6	1				
F2 _a	3.8	- 8	75	2	H2/4			16.3 - 25 _p	4.5	1				
Z4	3.9	- 5.5 _d	95	3	H3/1L			1.8 - 3.8 _n	8	1				
Z6	3.9	- 5.5 _d	104	3.5	H3/1H			3.9 - 5.5 _d	8	1				
B2	5	- 9 _f	25	1	H3/2	9.1 - 16.2 _u	10	5.6 - 9 _f	6	1				
B3	9.1	- 16.2 _g	12	1	H3/3			9.1 - 16.2 _u	6	1				
C3	9.1	- 16.2 _g	18	1	H3/4			16.3 - 25 _p	4.5	1				
D3	8	- 16.5 _g	24	1.5	H5/1L			1.8 - 3.8 _n	8	1				
E3L	8	- 13.9 _i	40	2	H5/1H			3.9 - 5.5 _d	8	1				
Z7	8	- 16.5 _g	45	3	H5/2	16.2 - 28	5	5.6 - 9 _f	6	1				
EE2	7.6	- 16 _g	45	4	H5/3			9.1 - 16.2 _u	6	1				
D4	14	- 21.5 _i	18	1.5	H5/4			16.3 - 25 _p	4.5	1				
E4	14	- 19.9 _m	30	2	Wide Range Programmable Modules									
E3H	14	- 15	36	2	Module	Voltage Range	Current	Slots						
C4	16.3	- 21.5 _i	14	1	W2 _a	0.25 _w - 7.5	30	1	Select features from table below					
CC3	18.2	- 32.4 _j	18	2	W5	0.25 _x - 32	8.5	1						
E5L _v	20	- 24	27	2	Follow by	F or T Fixed or Tracking Overvoltage protection								
B5	21.6	- 31 _n	6	1		F or S Fast-on or Screw output terminals								
C5	21.6	- 31 _j	10	1		R or V Resistance (0-32kΩ) or Voltage (0-5V) programming								
D5	21	- 28	15	1.5		1 Inhibit, Fixed Current Limit								
E5H _v	24	- 28	25	2		1, 2, 3 2 Inhibit, Programmable Current Limit (0-5V)								
Z19 _{co}	24	- 28	36	3.5		or 4 3 Enable, Fixed Current Limit								
HH5/3	25.3	- 44.2 _b	5	1		4 Enable, Programmable Current Limit (0-5V)								
DD4	28	- 43 _s	18	3		Follow non wide range modules by F (Fast-on) or S (Screw) output terminals								
EE4 _c	28	- 38	22.5	4	Options - Single output Modules*			Options - Twin output Modules*						
HH5/4	32.5	- 53 _t	4.5	1	N	Output Inhibit, Module Good & Current Sharing			N Output Inhibit, Module Good & Remote Sense					
BB4	32.6	- 43 _q	10	2					R Remote Sense only					
EE5L _{co}	40	- 48	18	4					* see configuring guide					
C5B4	43	- 48	10	2										
EE5H _o	48	- 56	18	4										
CC5	48.1	- 62 _r	10	2										
DD5	42	- 56	15	3										

a) F1, F2 and W2 modules not for Vega 900
 b) 38V max for 900W
 c) Only available for Vega 900
 d) 5.1V max for 900W
 e) 3.4V max for 900W
 f) 8V max for 900W
 g) 15V max for 900W

h) 28V max for 900W
 i) 18V max for 900W
 j) 30V max for 900W
 k) 7.5V max for 900W
 l) 12.5V max for 900W
 m) 19V max for 900W
 n) 3.4V max for 900W

o) 'N' option not available
 p) 24V max for 900W
 q) 40V max for 900W
 r) 60V max for 900W
 s) 36V max for 900W
 t) 52V max for 900W
 u) 15.5V max for 900W

v) 'N' option not available if more than 1 module fitted
 w) 500mA min load below 1V
 x) 100mA minimum load below 2V

Isolation		
Input to Output	Reinforced	2 x MOPPs (3rd edition 60601) - units without xFW or xEW primary option fitted 4kVac, 5.7kVdc type tested to 4kVac (equivalent to 5.7kVdc), production tested to 4.3kVdc.
Input to Earth	Basic	1 x MOOP (3rd edition 60601) 2.3kVdc
Output to Output / Output to Earth		200Vdc

Output Specification		
Voltage / Current	See output voltages table	
Turn on time	1.5s max	at 90Vac (150Vac for 900W) and 100% rated output power
Rise time	<50ms	to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5% or 250mV	Load type dependent, no overshoot with resistive load
Efficiency	up to 75%	at 230Vac & 100% rated power, configuration dependent
Hold up	16ms min	at 90Vac (150Vac for 900W) and 100% rated power
Ripple and Noise	<1% or 50mV	pk-pk, using EIAJ test method & 20MHz bandwidth
Voltage Accuracy	<1%	of set voltage
Remote Sense	Yes	standard on single output modules, max 0.75V total line drop. Option for twin output modules
Minimum Load	No	on any output (except W2 and W5 modules which need 0.5A load to achieve full specification)
Temperature Coefficient	<0.02%	of rated voltage per °C
Load Regulation	<0.5% or 50mV	for 0-100% load change
Line Regulation	<0.1%	for 90-264Vac input change
Cross Regulation	<0.2%	for 100% load change on any output
Transient Response	<6% or 300mV	of set voltage for 50% load change (above 25% load)
Recovery	500µs	for recovery to 1% or 100mV of set voltage
Over Voltage Protection	Yes	Refer to application notes for details
Over Current Protection (singles)	105-125% 110-170%	of rated current, constant current characteristic For EE2, EE4, EE5L, EE5H, Z2, Z18 and Z19 modules
Short Circuit Protection	<150%	of rated current, when output voltage <1%
Over Temperature Protection	Yes	shuts down all outputs and fan. Cycle ac off/on to reset Shutdown temperature varies according to ambient, output power and input voltage. ac fail signal (if fitted) provides 5ms warning of thermal shutdown

Environment	
Temperature	0°C to 65°C operational, -40°C to 70°C storage.
Derating	50°C to 65°C derate total output power and each output current by 2.5% per °C
Low Temp Startup	-20°C
Humidity	5 - 95% RH non condensing
Shock	±3 x 30g shocks in each plane, total 18 shocks 30g shock = 11ms (+/-0.5msec), half sine Conforms to EN60068-2-27, EN60068-2-47, IEC68-2-27, IEC68-2-47, JIS C0041-1987. Conforms to MIL-STD-810E/F, Method 516.5, Pro I, IV, VI
Vibration	Single axis 10 - 500 Hz at 2g (sweep and endurance at resonance) in all 3 planes Conforms to EN60068-2-6, IEC68-2-6 Conforms to MIL-STD-810E, Method 514.4, Pro I, Cat 1, 9
Altitude	5000 metres operational/non operational (IEC inlet 3000m operational, 5000m non operational)
Pollution	Degree 2, Material group IIIb
IP Rating	IP 10

Emissions EN61000-6-3:2007, EN60601-1-2:2001

Radiated Electric Field	EN55011, EN55032	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B see application note for details. Additional filtering required for IEC inlet version. Only for 'S' type leakage variants.
Conducted Emissions	EN55011, EN55032	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B Only for 'S' type leakage variants. 'M' and 'L' types meet Class A
Conducted Harmonics	EN61000-3-2	Class A
Flicker	EN61000-3-3	Compliant - d_{max} only <6%

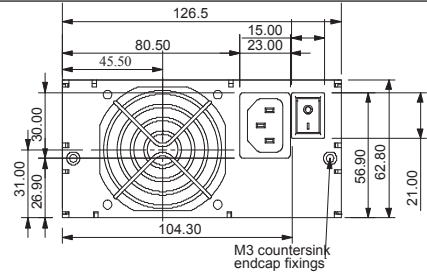
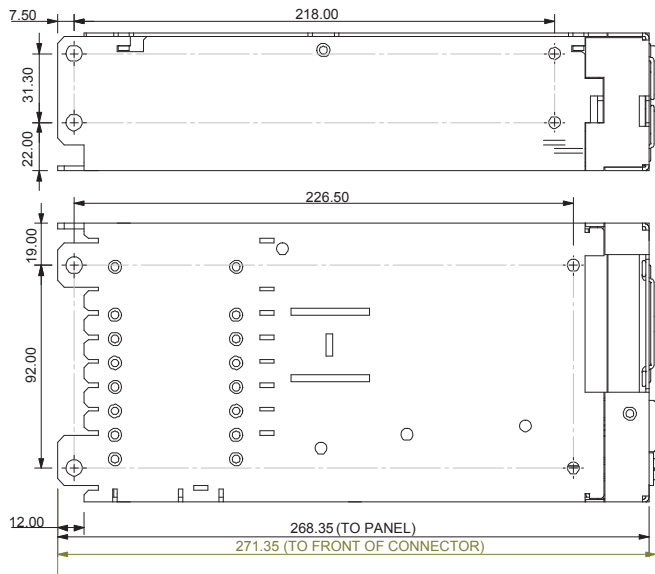
Immunity EN61000-6-2:2005, EN60601-1-2:2001

				Criteria
Electrostatic Discharge	EN61000-4-2	Level 4	Air discharge 15kV, Contact discharge 8kV	A
Electromagnetic Field	EN61000-4-3	Level 3	12V/m	A
Fast / Burst Transient	EN61000-4-4	Level 4	ac input tested to 4.4kV dc output tested to 2.2kV Tested at 5kHz and 100kHz	A
Surge Immunity	EN61000-4-5	Level 3	Common mode - 2.2kV Differential - 1.1kV	A
Conducted RF Immunity	EN61000-4-6	Level 3	12V	A
Power Frequency Magnetic Field	EN61000-4-8	Level 4	30A/m	A
Voltage Dips, Variations, Interruptions	EN61000-4-11	Class 3		A

B for 5s interruptions

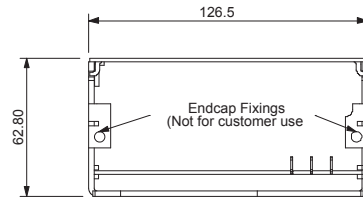
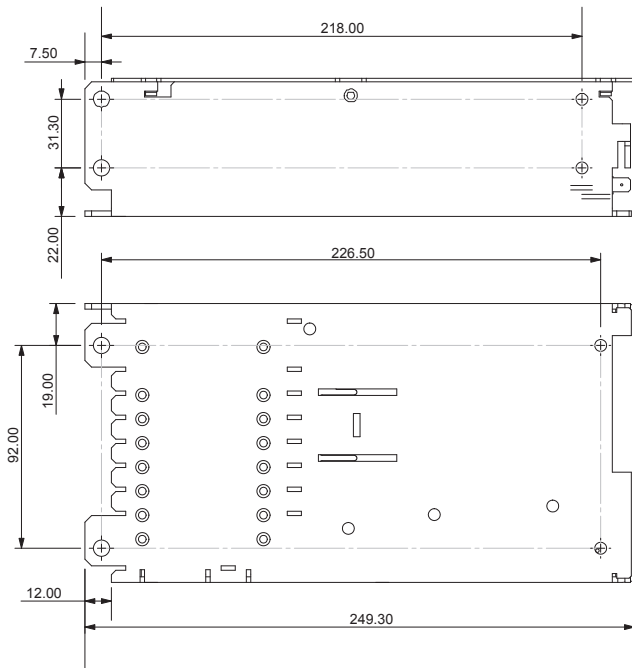
Approvals / Accreditations

IEC/EN 62368-1, UL62368-1 / CSA 22.2 No 62368-1	File E135494
IEC/EN 60950-1, UL60950-1 / CSA 22.2 No 60950-1	File E135494
IEC/EN 60601-1, UL/CSA 60601-1, ANSI/AAMI ES60601-1 CAN/CSA-C22.2 No 60601-1-08	File E349607 (only for L, R and T leakage variants)
IEC/EN 61010-1	File E331788
CE Mark (EN62368-1)	Low Voltage Directive (LVD), electromagnetic compatibility (EMC) and Restriction of Hazardous Substances (RoHS)
UKCA (EN62368-1)	Electrical Equipment (Safety) Regulations, electromagnetic compatibility (EMC) and Restriction of Hazardous Substances (RoHS)
CB certificate and Report available on request	<i>Please check with technical sales for status of approvals</i>
Designed and manufactured under the control of ISO9001 and ISO13485 (including risk management).	

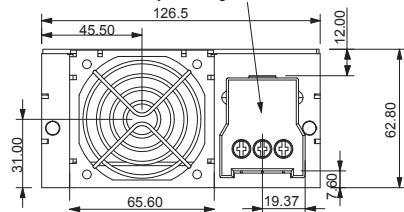
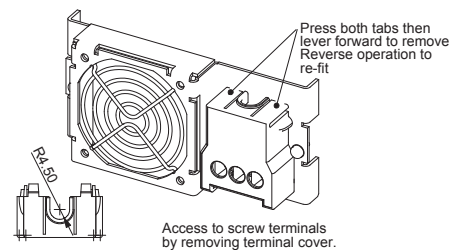
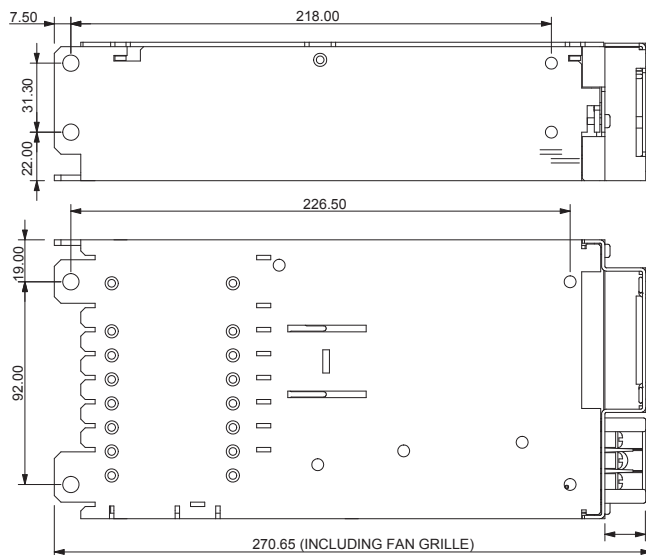


IEC-320 Connector Case

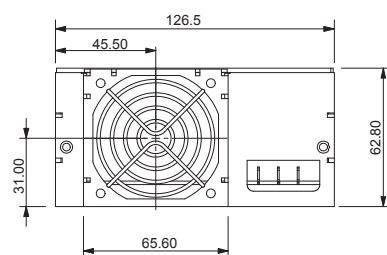
All versions have:-
 8 x M4 Customer fixings
 Max thread penetration:- 4.5mm



Customer Air Case (no fan)



Screw & Fast-on Terminal Case





TDK-Lambda France SAS

Tel: +33 1 60 12 71 65
 tif.fr-powersolutions@tdk.com
 www.emea.lambda.tdk.com/fr



Italy Sales Office

Tel: +39 02 61 29 38 63
 tif.it-powersolutions@tdk.com
 www.emea.lambda.tdk.com/it



Netherlands

tif.nl-powersolutions@tdk.com
 www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH

Tel: +49 7841 666 0
 tig.powersolutions@tdk.com
 www.emea.lambda.tdk.com/de



Austria Sales Office

Tel: +43 2256 655 84
 tig.at-powersolutions@tdk.com
 www.emea.lambda.tdk.com/at



Switzerland Sales Office

Tel: +41 44 850 53 53
 tig.ch-powersolutions@tdk.com
 www.emea.lambda.tdk.com/ch



Nordic Sales Office

Tel: +45 8853 8086
 tig.dk-powersolutions@tdk.com
 www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66
 tlu.powersolutions@tdk.com
 www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.

Tel: +9 723 902 4333
 tli.powersolutions@tdk.com
 www.emea.lambda.tdk.com/il-en



TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324
 tla.powersolutions@tdk.com
 www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599
 sales.br@tdk-electronics.tdk.com
 www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation

Tel: +81-3-6778-1113
 www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777
 tlc.powersolutions@tdk.com
 www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211
 tfs.marketing@tdk.com
 www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660
 mathew.philip@tdk.com
 www.sg.lambda.tdk.com

For Additional Information, please visit
<https://product.tdk.com/en/power/>

