

## 450 to 900W Multiple Output Modular Power Supply

### Features

- ◆ Input Connection Options
- ◆ 1-10 Wide Range Outputs With Adjustment
- ◆ Forward/Reverse/Low Noise/System Air Cooling
- ◆ Output Voltages From 1.8V - 62V
- ◆ Monitoring Signals
- ◆ Medical Approval Option
- ◆ MIL-STD-810 Shock and Vibration
- ◆ Quick Turn Delivery
- ◆ PFC compliant to EN61000-3-2
- ◆ Safety Agency Approvals EN, cULus, BSI, CE



### Key Market Segments & Applications



Specifications				
Model		VEGA 450	VEGA 650	VEGA 900
Input Voltage Range (47-440Hz with reduced PFC)	-	90 - 264VAC 47-63Hz <sup>(1)</sup>	90-264VAC 47-63Hz <sup>(1)</sup>	150-264VAC 47-63Hz
Input Current (Typ. at 90VAC) A		7.7A	11A	9.2A at 150VAC
Efficiency (Typ.)	%	75% at 230VAC and full load, configuration dependent		
Nominal Output Voltages	VDC	1.5 - 62 (See configuration guide)		
Output Voltage Adjustment	-	Wide range, via potentiometer or remote adjust pin, module dependent		
Minimum Load	A	0A		
Max Output Power	W	450	650	900
Max Ripple & Noise (pk-pk)	-	<1% (or 50mV which ever is greater) using EIAJ test method & 20MHz bandwidth		
Regulation (load, line, cross)	%	Less than 0.5%		
Hold Up Time	ms	16ms min at 90VAC (150VAC for 900W)		
Over Voltage Protection	%	120 - 150% (See website for more details)		
Overload/Short Circuit	%	105-125%, constant current characteristic, 150% max short circuit current.		
Remote ON/OFF Control	-	A TTL compatible signal will turn ON/OFF all output modules (optional)		
Remote Sense	V	Compensates for total of 0.75V total line drop (optional on dual output modules)		
Isolation (3)	-	Input-Output (Reinforced) 4.3kVDC <sup>(3)</sup> ; Input-Ground 2.3kVDC; Output-Ground 200VDC		
Conducted EMI	-	EN55022 Class B, (as per CISPR .22)		
Radiated EMI	-	EN55022 Class B, (as per CISPR .22)		
Operating Temperature	°C	0°C to 50°C, derate ea. output @ 2.5%/°C from 50°C to 65°C. Consult factory for 70°C operation. -20°C startup requires a 30 min. warm-up period.		
Cooling	-	Forced Air Cooled		
Dynamic Load Response	-	<6% or 300mV of set voltage for 50% load change (above 25% load), recovery to within 1% of nominal within 500 ms		
Regulatory Agency Compliance (601-1 not available on 48V input)	-	UL, CSA, EN, IEC60950-1, EN61010-1, UL, EN, IEC60601-1, CE Mark for LVD		
Vibration	-	MIL-STD-810E, Method 514.4, Pro I, Cat 1, 9 2G, 10-200Hz sweep for 1hr to search for resonant. 6G random, 6-Axis to IEC68-2-64		
Shock	-	MIL-STD-810F, Method 516.5, Pro I, IV, VI; 20G per IEC68-2-27		
Switching Frequency	kHz	200		
Weight (Typ.)	lbs	3.0 lbs. + 0.25 lbs. / used slot; maximum # of slots =5		
Size (L×W×H)	in(mm)	10.6" x 5" x 2.5" (268.4mm x 127mm x 63.5mm)		
Warranty	yrs	Three Years		

Consult datasheet and application notes for detailed specifications and test methods.

(1) Will operate with 130-330VDC (3) 4kVAC Type tested (non-production test) Refer to CB Report

## Configuring Guide

Choose your options for boxes A through E. Select output voltage, single or dual output module code from the tables below, and options (if required) A maximum of 5 module slots may be used. List actual output voltages required to have them pre-set by the factory.

V  A  B  C  D  E Choose the following power supply options.

**Primary Options**  
(Leave empty if not required)

F AC Fail, Global/fan Inhibit, 5V/100mA standby  
 FV AC Fail, Global/fan Inhibit, 5V/300mA standby  
 xFW<sup>5,7</sup> AC Fail, Global/fan Inhibit, 5-15V/1A standby  
 E AC Fail, Global/fan Enable, 5V/100mA standby  
 EV AC Fail, Global/fan Enable, 5V/300mA standby  
 xEW<sup>5,7</sup> AC Fail, Global/fan Enable, 5-15V/1A standby  
 (5) Specify value of x from 5-15V.  
 (Increase leakage current by 90µA.)

**Input Filter Choice\***

	120VAC, 60Hz	240VAC, 60Hz	264VAC, 63Hz (9)
S	564µA	1270µA	1.5mA
L	109µA	246µA	290µA

**Input Connection**

S Screw terminals  
 I Switched IEC 320 Connector (6)

**Cooling**

F Standard forward air fan  
 Q Quiet fan, forward air  
 R Standard reverse air fan  
 P Quiet fan, reverse air (6)

**Output Power**

4	450W
6	650W
9	900W

\*Max Leakage calculated at 264VAC, 63Hz. Note: Contact Lambda Technical Support for non-standard leakage options emissions compliance.

\*\*Thermocoupled evaluation unit recommended. Consult sales office.

(6) Not available on 900W Model

(8) Only available on 900W Model (9) Type testing result

## Single Output Module Selection †

### Output Options

(Leave empty if not required)  
 Inhibit, module good,  
 and current share

N

**Output Connection**  
 Screw terminals

S

Vout    Module    Conn.    Opt.

Example

12C3SN: 12V @ 18A single output module, screw terminal outputs, inhibit option

† Remote sense is standard on single output modules, optional on duals.

## Dual Output Module Selection

V1    V2    Module    Conn.    Opt.

/            

**Output Connection**  
 Screw terminals

S

**Output Options**  
 Inhibit, module good,  
 and remote sense

Remote sense

N  
 R  
 (Leave empty if not required)

Example

3.3/12H1L/3SR: 3.3V @ 12A and 12V @ 6A output, screw output terminals and remote sense option.

## Full Description Example:

V4FSSFV 5L1S 3.3E1SN 15/15H3/3SR

450W power supply with standard forward air fan, screw terminal input connections, 1.5mA leakage input filter, AC fail with Global/fan inhibit & 5V @ 300mA aux. supply option with the following outputs:

5V @ 35A Screw terminal connections with remote sense standard

3.3V @ 60A Screw terminal connection with output inhibit, module good, and current share options, remote sense standard

15V @ 10A Screw terminal connection with remote sense option (1st half of dual)

15V @ 6A Screw terminal connection with remote sense option (2nd half of dual)

Note the module descriptions are to be used as listed in the module tables.

## Model Selector

Module	V Range	Amp	Slots	Module	V Range	Amp	Slots
<b>Single Output</b>							
C1	1.8-4.1V	35A	1	CC3	18.2-32.4V	18A	2
D1L	1.8-3.8V	50A	1.5	E5L	20-24V	27A	2
E1	1.8-3.8V	60A	2	C5	21.6-31V	10A	1
F1 <sup>(6)</sup>	1.8-3.8V	80A	2	D5	21-28V	15A	1.5
Z2	1.8-3.8V	95A	3	E5H	24-28V	25A	2
Z3	1.8-3.8V	114A	4	Z19 <sup>(8)</sup>	24-28V	36A	3.5
B1H	3.9-5.5V	20A	1	HH5/3	25.3-44.2V	5A	1
L1	4.2-5.5V	35A	1	DD4	28-43V	18A	3
D2	3.8-9V	45A	1.5	EE4 <sup>(8)</sup>	28-38	22.5	4
D1H	3.9-5.5V	50A	1.5	HH5/4	32.5-53V	4.5A	1
E2	3.8-8V	60A	2	EE5L <sup>(8)</sup>	40-48	18	4
Z18	4.2-5.5V	66A	2	C5B4	43-48V	10A	2
F2 <sup>(6)</sup>	3.8-8V	75A	2	EE5H <sup>(8)</sup>	48-56	18	4
Z4	3.9-5.5V	95A	3	CC5	48.1-62V	10A	2
Z6	3.9-5.5V	104A	3.5	DD5	42-56V	15A	3
B2	5-9V	25A	1				
C3	9.1-16.2V	18A	1				
D3	8-16.5V	24A	1.5				
E3L	8-13.9V	40A	2				
Z7	8-16.5V	45A	3				
EE2	7.6-16V	45A	4				
D4	14-21.5V	18A	1.5				
E4	14-19.9V	30A	2				
E3H	14-15V	36A	2				
C4	16.2-21.5V	14A	1				

## Model Selector

Module	V1 Min - V1 Max	V1 Amp	V2 Min - V2 Max	V2 Amp	Slots
<b>Dual Output</b>					
H1L/1L	1.8V - 3.8V	12A	1.8V - 3.8V	8A	1
H1L/1H	1.8V - 3.8V	12A	3.9V - 5.5V	8A	1
H1L/2	1.8V - 3.8V	12A	5.6V - 9V	6A	1
H1L/3	1.8V - 3.8V	12A	9.1V - 16.2V	6A	1
H1L/4	1.8V - 3.8V	12A	16.3V - 25V	4.5A	1
H1H/1L	3.9V - 5.5V	12A	1.8V - 3.8V	8A	1
H1H/1H	3.9V - 5.5V	12A	3.9V - 5.5V	8A	1
H1H/2	3.9V - 5.5V	12A	5.6V - 9V	6A	1
H1H/3	3.9V - 5.5V	12A	9.1V - 16.2V	6A	1
H1H/4	3.9V - 5.5V	12A	16.3V - 25V	4.5A	1
H2/1L	5.6V - 9V	10A	1.8V - 3.8V	8A	1
H2/1H	5.6V - 9V	10A	3.9V - 5.5V	8A	1
H2/2	5.6V - 9V	10A	5.6V - 9V	6A	1
H2/3	5.6V - 9V	10A	9.1V - 16.2V	6A	1
H2/4	5.6V - 9V	10A	16.3V - 25V	4.5A	1
H3/1L	9.1V - 16.2V	10A	1.8V - 3.8V	8A	1
H3/1H	9.1V - 16.2V	10A	3.9V - 5.5V	8A	1
H3/2	9.1V - 16.2V	10A	5.6V - 9V	6A	1
H3/3	9.1V - 16.2V	10A	9.1V - 16.2V	6A	1
H3/4	9.1V - 16.2V	10A	16.3V - 25V	4.5A	1
H5/1L	16.2V - 28V	5A	1.8V - 3.8V	8A	1
H5/1H	16.2V - 28V	5A	3.9V - 5.5V	8A	1
H5/2	16.2V - 28V	5A	5.6V - 9V	6A	1
H5/3	16.2V - 28V	5A	9.1V - 16.2V	6A	1
H5/4	16.2V - 28V	5A	16.3V - 25V	4.5A	1

For Additional Information, please visit  
[us.tdk-lambda.com/lp/products/vega-series.htm](http://us.tdk-lambda.com/lp/products/vega-series.htm)

