

- Industry leading Power Density
- 1 to 10 outputs
- Voltages from 0.25 – 62V
- Current up to 114 Amps
- Screw, Fast-on or IEC connection
- Worldwide approvals & CB report
- Low leakage current for Medical

The world's most configurable power supply

INPUT

Input Voltage	90 - 264Vac, & 130 - 330Vdc 900W version is ac input only. 150-264Vac for 900W
Input Frequency	47 - 63Hz (440Hz with reduced PFC - consult factory)
Input Harmonics	EN61000-3-2 compliant
Inrush Current	<40A at 25°C and 264Vac, (cold start)
Input Fuse	16A / 250Vac HBC Fast Acting (not user accessible)
Leakage Current	1.5mA max at 264Vac & 63Hz
Lower Leakage Options	500µA, 300µA, 100µA, 50µA, see configuring guide

OUTPUT

Voltage / Current	See module table	
Turn on Delay	1.5s max	1.5s max at 90Vac & 100% rated output power
Rise time	<10mS	to 90% of voltage, monotonic rise above 10%
Turn on overshoot	<5% or 250mV	Load type dependant, no overshoot with resistive load
Efficiency	75%	typical at 230Vac & 100% rated power, configuration dependent
Hold up	16ms min	at 90Vac & 100% rated output power
Ripple & Noise	<1% or 50mV	Pk-Pk, using EIAJ test method & 20MHz bandwidth
Voltage Accuracy	<1%	of set voltage
Remote Sense	Yes	Standard on single o/p modules, max 0.75V total line drop Option for twin o/p modules
Minimum Load	No	on any output
Temperature Coefficient	<0.02%	of rated voltage per °C
Load Regulation	<0.5% or 25mV	for 0-100% load change
Line Regulation	<0.1%	For 90 - 264Vac Input change
Cross Regulation	<0.2%	for 100% load change on any other 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	120 - 130% 140 - 150% 120 - 150%	of set voltage for o/p's >4.1V, (Tracking O/V) of set voltage for o/p's <4.1V, (Tracking O/V) of max rated o/p, (Fixed OV)
Over Current Protection	105 - 125%	of rated current, constant current characteristic
Short Circuit Protection	<150%	of rated current, when output voltage <1%
Over Temperature Protection	Yes	Cycle ac off / on to reset Note 1 shutdown temp varies according to ambient, o/p power & i/p V 2 ac fail signal (if fitted) provides 5ms warning of thermal shutdown

ISOLATION

INSULATION

Input to Output	Reinforced	4.3 kV (dc)
Input to Earth	Basic	2.3 kV (dc)
Output to Earth	Operational	200 V (dc)
Output to Output	Operational	200 V (dc)

RELIABILITY

Design Criteria	Performance to specification guaranteed for 3 years continuous operation at 40°C, 100Vac & 100% output power	
Electrolytic Capacitors	105°C	
Fan	Bearings	Ball bearing
	Life	60,000 hours at 40°C
	Service	Field replaceable
	Audible Noise	Standard fan = 55dB, Quiet fan = 50dB
MTBF	Typically 75,000 hours, (configuration dependant), to MIL 217F	
Warranty	3 Years	

EMISSIONS EN50081-1 (Domestic, Commercial & Light Industrial Supply)

Radiated Electric Field	EN55022	Class B (as per CISPR.22)
Conducted Emissions	EN55022	Class B (as per CISPR.22)
Conducted Harmonics	EN61000-3-2	Compliant
Flicker	EN61000-3-3	Compliant

IMMUNITY EN50082-2 (Heavy Industrial Supply)**Criteria***

Electrostatic Discharge	EN61000-4-2	Level 4	Air discharge 15kV Contact discharge 8kV	B
Electro Magnetic Field	EN61000-4-3	Level 3	(10V/m)	B
Fast / Burst Transient	EN61000-4-4	Level 4	(4kV, tested to 4.4kV)	B
Surge Immunity	EN61000-4-5	Level 3	Common mode to 3.4kV Differential mode to 2.4kV	B
Conducted RF Immunity	EN61000-4-6	Level 3	(10V)	B
Power Frequency Magnetic Field	EN61000-4-8	Level 3	(10A/m)	B
Voltage Dips, Variations, Interruptions	EN61000-4-11	Pass		B

* Criteria B is transient degradation or loss of performance or function, below specification

SAFETY APPROVALS

	Date	Amendments
EN 60950-1	2001	
UL 60950-1	2003	
CSA 22.2 No 60950-1	2003	
IEC 60950-1*	2001	
EN 60601-1		
UL 2601-1	1997 Ed2	A2:1999
IEC 60601-1*	1988	A1:1991, A2:1995
EN 61010-1	1993	
UL 3101-1	1993 Ed1	
IEC 61010-1*	1990	A1:1992, A2:1995
CE Mark	LV Directive 73/23/EEC (EN60950-1:2001)	

* CB certificate and Report available on request

ENVIRONMENT

Temperature	0 to 50°C operational, -40°C to 85°C storage (max 12 months)
Derating	50 to 65°C derate each output by 2.5% per °C
Low Temperature Start	-20°C
Humidity	5 - 95% RH non condensing
Shock	+ / - 3 x 20G shocks in each plane, total 18 shocks 20G shock = 11ms (+/-0.5ms), half sine Conforms to EN60068-2-7, IEC68-2-27, IEC68-2-47, JIS C0041-1987.
Vibration	Sweep Test = 10 cycles, 10 - 500 - 10Hz at 2G, plus Resonance search Endurance = 2 hours at resonance in each plane Conforms to EN60068-2-6, IEC68-2-6
Altitude	3,000 metres operational, (15,000 metres non operational)
Pollution	Degree 2, Material group 3
IP Rating	IP10

Single output Modules				Twin output Modules					
Module	Volts	Amps	Slots	Module	V1 Volts	Amps	V2 Volts	Amps	Slots
B1L	1.8 - 3.8	20	1	H1L/1L			1.8 - 3.8	8	1
C1	1.8 - 4.1	35	1	H1L/1H			3.9 - 5.5	8	1
C1Y	1.8 - 4.1	40	1	H1L/2	1.8 - 3.8	12	5.6 - 9.0	6	1
D1L	1.8 - 3.8	50	1.5	H1L/3			9.1 - 16.2	6	1
E1	1.8 - 3.8	60	2	H1L/4			16.3 - 25	4.5	1
F1	1.8 - 3.8	80	2	H1H/1L			1.8 - 3.8	8	1
Z2	1.8 - 3.8	95	3	H1H/1H			3.9 - 5.5	8	1
Z3	1.8 - 3.8	114	4	H1H/2	3.9 - 5.5	12	5.6 - 9.0	6	1
B1H	3.9 - 5.5	20	1	H1H/3			9.1 - 16.2	6	1
L1	4.2 - 5.5	35	1	H1H/4			16.3 - 25	4.5	1
D2	3.8 - 9.0	45	1.5	H2/1L			1.8 - 3.8	8	1
D1H	3.9 - 5.5	50	1.5	H2/1H			3.9 - 5.5	8	1
E2	3.8 - 8.0	60	2	H2/2	5.6 - 9	10	5.6 - 9.0	6	1
Z18	4.2 - 5.5	66	2	H2/3			9.1 - 16.2	6	1
F2	3.8 - 8.0	75	2	H2/4			16.3 - 25	4.5	1
Z4	3.9 - 5.5	95	3	H3/1L			1.8 - 3.8	8	1
Z6	3.9 - 5.5	104	3.5	H3/1H			3.9 - 5.5	8	1
B2	5.0 - 9.0	25	1	H3/2	9.1 - 16.2	10	5.6 - 9.0	6	1
B3	9.1 - 16.2	12	1	H3/3			9.1 - 16.2	6	1
C3	9.1 - 16.2	18	1	H3/4			16.3 - 25	4.5	1
D3	8.0 - 16.5	24	1.5	H5/1L			1.8 - 3.8	8	1
E3L	8.0 - 13.9	40	2	H5/1H			3.9 - 5.5	8	1
Z7	8.0 - 16.5	45	3	H5/2	16.2 - 31	5	5.6 - 9.0	6	1
EE2	7.6 - 16	45	4	H5/3			9.1 - 16.2	6	1
D4	14 - 21.5	18	1.5	H5/4			16.3 - 25	4.5	1
E4	14 - 19.9	30	2	Wide Range Programmable Modules					
E3H	14 - 15	36	2	Module	Voltage	Amps	Slots	Select features from table below	
C4	16.2 - 21.5	14	1	W2	0.25 - 7.5	30	1		
CC3	18.2 - 32.4	18	2	W5	0.4 - 32	8.5	1		
E5L	20 - 24	27	2						
B5	21.6 - 31	6	1						
C5	21.6 - 31	10	1	W2F or T Fixed or Tracking Overvoltage protection					
D5	21 - 28	15	1.5	W2FF or S Fast-on or Screw terminal					
E5H	24 - 28	25	2	W2FFR_ or V_ Resistance or Voltage Programming					
Z19	24 - 28	36	3.5						
HH5/3	25.3 - 47.2	5	1	R1 Program o/p V (0-32K), Inhibit, Fixed current limit					
DD4	28 - 43	18	3	R2 Program o/p V (0-32K), Inhibit, Program current limit (0-5V)					
EE4	28 - 39.5	22.5	4	R3 Program o/p V (0-32K), Enable, Fixed current limit					
HH5/4	32.5 - 56	4.5	1	R4 Program o/p V (0-32K), Enable, Program current limit (0-5V)					
BB4	32.6 - 43	10	2						
EE5L	40 - 48	18	4	V1 Program o/p V (0-5V), Inhibit, Fixed current limit					
C5B4	43 - 49	10	2	V2 Program o/p V (0-5V), Inhibit, Program current limit (0-5V)					
EE5H	48 - 56	18	4	V3 Program o/p V (0-5V), Enable, Fixed current limit					
CC5	49.1 - 62	10	2	V4 Program o/p V (0-5V), Enable, Program current limit (0-5V)					
DD5	42 - 56	15	3						
Options - Single Output Modules*				Options - Twin Output Modules*					
Eg 24D5F or S Fast-on or Screw terminal				Eg 12/12H3/3F or S Fast-on or Screw terminal					
24D5FN Output Inhibit, Module Good, Current sharing				12/12H3/3FN Output Inhibit, Module Good, Remote Sense					
				12/12H3/3FR Remote sense only					
* see configuring guide									

F1, F2 and W2 modules not on Vega 900

Vega Configuring Guide

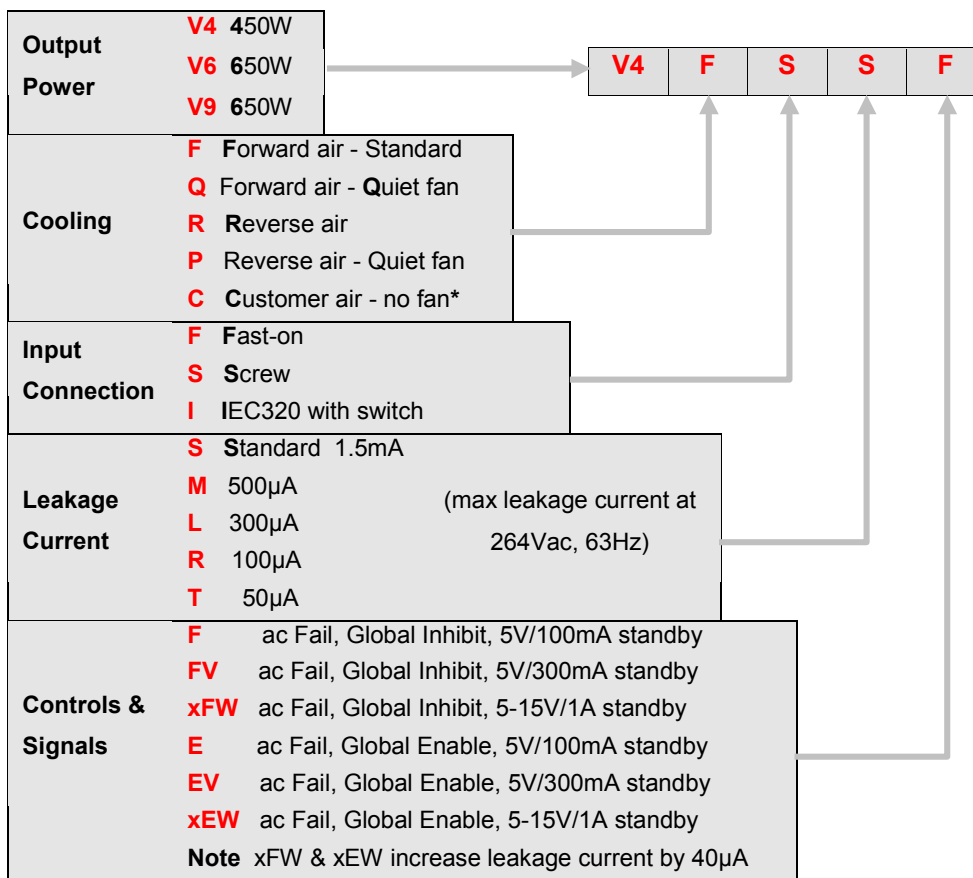
The extensive range of output modules and options make it possible to achieve almost any combination of volts and amps. The 'on line' configurator is the best way to achieve the optimum configuration, however you can also create your own Vega configuration from this datasheet by using the guide below.

Web Configurator

1. Visit www.lambda-gb.com, select 'Vega Configurator' and follow the on line instructions
2. Enter your required Volts / Amps, type of output connection and any additional functions (if required)
3. Enter preferred type of cooling, type of input connection, lower leakage current (if required) and/or controls & signal functions, (if required)
4. Configurator will select the most suitable modules and options and give a unique part number

Configuring from Datasheet

1. Calculate total output power to determine Vega 450W or 650W and select converter, then select required Cooling, Connection, Leakage current and Controls/Signals from the following table

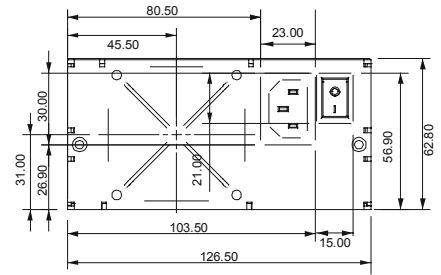
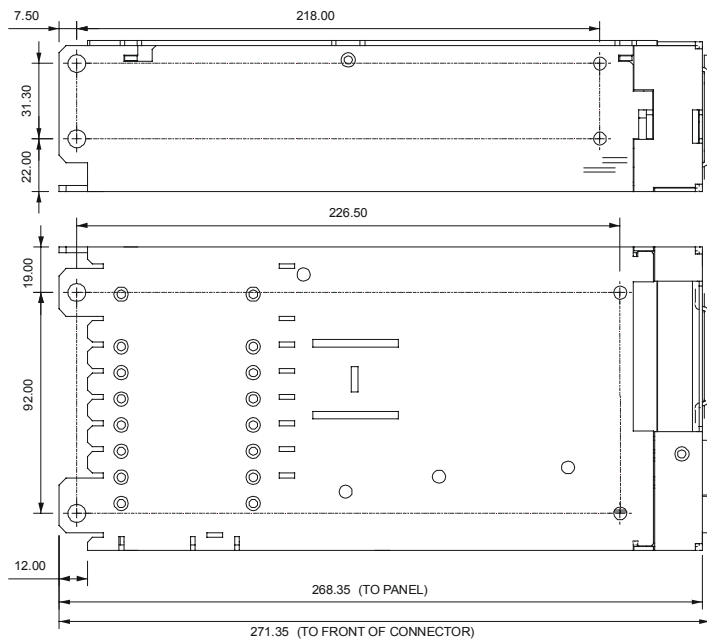


*Thermocoupled sample recommended to ensure adequate cooling - consult sales

2. Select Output Modules and Options from the Module Table
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 connection eg **5.2B1HS**
 - c) add suffix N for output inhibit eg **5.2B1HSN**
 - d) repeat for other outputs

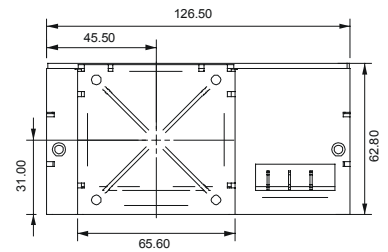
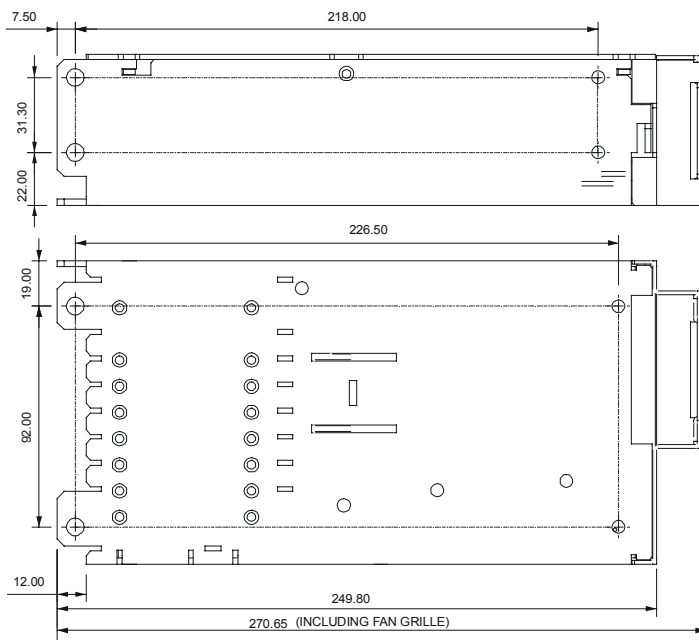
This will create a complete product description eg **V4FFSF 5B1HSN 12/12H3/3S 24B5S** which represents a four output 450W Vega with Forward air, Screw i/p terminals, 1.5mA Leakage, ac Fail, Global Inhibit & 5V/100mA aux supply
 Output 1 = 5V / 20A with screw terminals, o/p inhibit, Module Good & current share option
 Output 2 = 12V / 10A with screw terminals
 Output 3 = 12V / 6A with screw terminals
 Output 4 = 24V / 6A with screw terminals

3. **Contact Lambda to validate configuration and issue a part number**

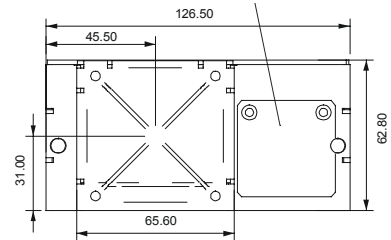


IEC Connector Case

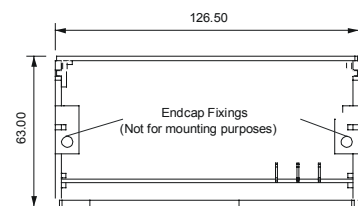
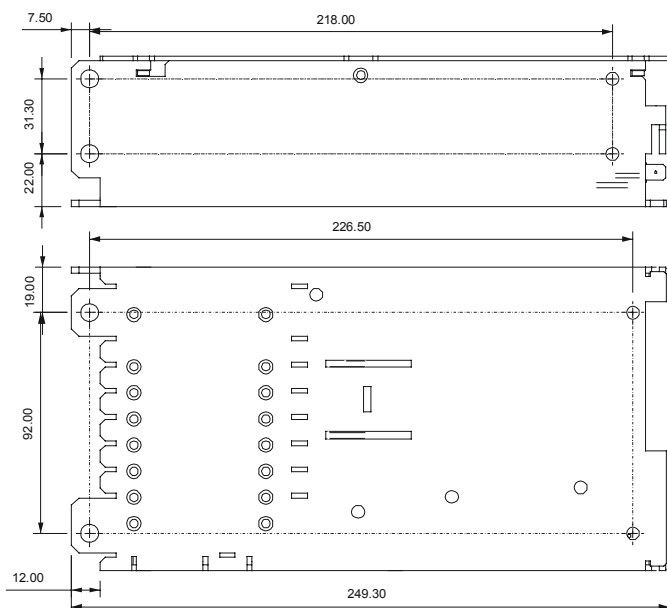
All versions have
 8 x M4 Customer fixings
 Max thread penetration 4.5mm



Access to screw terminals by removing terminal cover



Screw & Fast-on Terminal Case



Customer Air Case (no fan)

<p>AUSTRALIA KD FISHER & Co PTY LTD 18 Benjamin Street, St Mary's, Adelaide, Australia Tel: +61 88 2773288 Fax: +61 88 2764024</p> <p>AUSTRIA LAMBDA ELECTRONIC GmbH Aredstraße 22, A-2544 Leobersdorf, Austria Tel: +43 2 256 65584 Fax: +43 2 256 64512</p> <p>BELGIUM MULDER-HARDENBERG N.V. Hoge Weg 129, Stabroek 2940, Belgium Tel: +32 3 6601320 Fax: +32 3 6649901</p> <p>CANADA LAMBDA ELECTRONICS (CANADA) INC 4 Lake Road, Dollard des Ormeaux, Quebec, H9B 3H9, Canada Tel: +1 514 421 5106 Fax: +1 514 421 8060</p> <p>CZECH REPUBLIC AMTEK s.r.o. Videnska 125, 619 00 Brno, Czech Republic. Tel: +420 5 4712 5555 Fax: +420 5 4712 5556</p> <p>DENMARK ACTE A/S Skelmarksvej 4, DK-2605, Brøndby, Denmark Tel: +45 46 900 400 Fax: +45 46 900 500</p> <p>FINLAND LAMBDA SCANDINAVIA Tulkinkuja 3, FIN02600, Espoo, Finland Tel: +358 9 341 70705 Fax: +35 89341 70706</p> <p>FRANCE INVENSYS POWER SYSTEMS s.a.s. ZAC des Delaches, BP1077, Gometz le Chatel, 91940, Les Ulis, France. Tel: +33 (0) 1 60127400 Fax: +33 (0) 1 60127401</p> <p>GERMANY POWERWARE GmbH Karl-Bold-Straße 40, D77855 Achern, Germany Tel: +49 7 841 666 0 Fax: +49 7 841 500 0</p> <p>HOLLAND KLAASING ELECTRONICS BV Beneluxweg 37, 4904 SJ Oosterhout, Holland Tel: +31 16 248 1600 Fax: +31 16 245 6500</p> <p> MULDER-HARDENBURG BV Westerhoutpark 1A, 2012 JL Haarlem, Netherlands Tel: +31 23 531 9184 Fax: +31 23 532 5932</p> <p>HUNGARY ENER-GOM Koranyi Sandor U. 3/B, Budapest, Hungary, H-1089 Tel: +36 1 459 8010 Fax: +36 1 459 8019</p> <p>ISRAEL NEMIC LAMBDA LTD Kibbutz Givat, Hashlosha, 48800, Israel Tel: +972 3 902 4333 Fax: +972 3 902 4777</p> <p>ITALY INVENSYS POWER SYSTEMS Spa Via Pelizza Da Volpedo, 53 20092, Cinisello Balsamo (MI) Italy Tel: +39 2 6604 0540 Fax: +39 2 6604 0650</p>	<p>JAPAN DENSEI LAMBDA KK, 1-11-15 Higashigotanda, Shinagawa-Ku, Tokyo 141, Japan Tel: +81 3 3447 4411 Fax: +81 3 3447 7784</p> <p>KOREA DENSEI LAMBDA KK, 6F Sungok Bldg, 4-1 Soonae-Dong, Boondang-Gu Sungnam-Shi, Kyonggi-Do, Korea Tel: +82 2 556 1171 (2) Fax: +82 2 555 2706</p> <p>POLAND AMTEK PL AL. Jerozolimskie 202, 02-486, Warszawa, Poland Tel: +48 22 87 40229, 34 Fax: +48 22 86 38743</p> <p>PORTUGAL COMDIST Lda Rua do Entrepósito Ind 3, Sala E, Edifício Turia – Quinta Grande, 2720 Alfragide, Portugal Tel: +48 22 87 40229, 34 Fax: +48 22 86 38743</p> <p>RUSSIA ZAO YE INTERNATIONAL Ul, Torzhovskaya 5, Office 426, 197342 St Petersburg Tel: +7 812 324 4053 Fax: +7 812 327 4304</p> <p>SINGAPORE NEMIC LAMBDA (S) PTE LTD 1008 TOA Payoh North #07-06, Singapore 1231 Tel: +65 251 7211 Fax: +65 250 9171</p> <p>SPAIN FACTRON sa Dado de Travino 2, 28033 Madrid, Spain Tel: +34 91 766 1577 Fax: +34 91 766 2092</p> <p> KOLBI ELECTRONICA SA C/Pintores Zubiaurre 8, s/n Apdo 6.14, 48012 Bilbao, Spain Tel: +34 94 443 9900 Fax: +34 94 443 9952</p> <p> DISTRON Avenida Blasco Ibanez, 149-1-6a, 46022 Valencia, Spain Tel: +34 96 356 8720 Fax: +34 96 355 4065</p> <p>SWEDEN LAMBDA SCANDINAVIA PO Box 506, Sagvagen 2, SE 184 25, Akersberga, Sweden Tel: +46 8 598 94090 Fax: +46 8 598 66096</p> <p>SWITZERLAND CL ELECTRONICS GmbH Murzlenstr.80, CH-8166, Niederweningen, Switzerland Tel: +41 (0) 1 8571212 Fax: +41 (0) 1 8561892</p> <p>UKRAINE KHALUS ELECTRONICS 35 Uritskogo St Office 224, Kiev 03035, Ukraine Tel: +48 22 87 40229, 34 Fax: +48 22 86 38743</p> <p>USA LAMBDA ELECTRONICS INC 3055 Del Sol Boulevard, San Diego, CA92154, USA Tel: +1 619 575 4400 Fax: +1 619 575 7185</p>
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Lambda Worldwide



Coutant Lambda Ltd
Kingsley Avenue
Ilfracombe
Devon EX34 8ES
United Kingdom

Head Office tel +44 (0)1271 856600
UK Sales tel +44 (0)1271 856666
Export Sales tel +44 (0)1271 856699
Facsimile +44 (0)1271 864894
Web Site <http://www.lambda-gb.com>

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