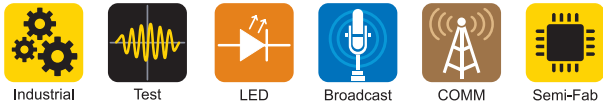


300-1500W Single Output Industrial Power Supplies

<https://product.tdk.com/en/power/hws>
www.emea.lambda.tdk.com/hws



The ultra reliable, conservatively rated HWS series of 300W to 1500W AC-DC power supplies has a limited lifetime warranty ⁽¹⁾, unique to the industry. The series accepts a widerange 85 to 265Vac input with output voltages from 3.3V to 48V. The products are certified to IEC 62368-1, UL 508 (select models) and are SEMI F47 compliant . They also meet conducted and radiated emission standards without additional filtering or shielding.

Features	Benefits
• Limited Lifetime Warranty ⁽¹⁾	• Low Cost of Ownership
• Very Conservative Electrolytic Capacitor Ratings	• Long Service Life
• Class B Conducted and Radiated EMI	• Easier System EMC Compliance
• UL 508 Certified on Select Models	• Suitable For Industrial Control Equipment

Model Selector									
Model	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Peak Current (A) ⁽²⁾	Load Reg (mV)	Line Reg (mV)	Ripple Noise (mV)	Overvoltage (V)	Efficiency (115/230Vac) (%)
HWS300-3	3.3	2.64 - 3.96	60	-	30	20	120	4.13 - 4.95	74 / 77
HWS600-3	3.3	2.64 - 3.96	120	-	30	20	120	4.13 - 4.95	75 / 78
HWS1000-3	3.3	2.64 - 3.96	200	-	40	20	120	4.13 - 4.95	71 / 73
HWS1500-3	3.3	2.64 - 3.96	300	-	60	36	150	4.12 - 4.95	72 / 75
HWS300-5	5	4.0 - 6.0	60	-	30	20	120	6.25 - 7.25	79 / 82
HWS600-5	5	4.0 - 6.0	120	-	30	20	120	6.25 - 7.25	80 / 83
HWS1000-5	5	4.0 - 6.0	200	-	40	20	120	6.25 - 7.0	76 / 78
HWS1500-5	5	4.0 - 6.0	300	-	60	36	150	6.25 - 7.0	77 / 81
HWS1000-6	6	4.8 - 7.2	167	-	60	36	150	7.5 - 8.4	79 / 81
HWS1500-6	6	4.8 - 7.2	250	300	60	36	150	7.5 - 8.4	79 / 82
HWS1000-7	7.5	6.0 - 9.0	134	160	60	36	150	9.38 - 10.5	80 / 82
HWS1500-7	7.5	6.0 - 9.0	200	240	60	40	150	9.37 - 10.5	81 / 83
HWS300-12	12	9.6 - 14.4	27	-	96	48	120	15.0 - 17.4	80 / 83
HWS600-12	12	9.6 - 14.4	53	-	96	48	120	15.0 - 17.4	80 / 83
HWS1000-12	12	9.6 - 14.4	88	100	100	48	150	15.0 - 17.4	83 / 85
HWS1500-12	12	9.6 - 14.4	125	-	72	48	150	15.0 - 17.4	82 / 85
HWS300-15	15	12.0 - 18.0	22	-	120	60	150	18.8 - 21.8	82 / 85
HWS600-15	15	12.0 - 18.0	43	-	120	60	150	18.8 - 21.8	82 / 85
HWS1000-15	15	12.0 - 18.0	70	80	120	60	150	18.8 - 21.8	83 / 85
HWS1500-15	15	12.0 - 18.0	100	-	90	60	150	18.7 - 21.8	83 / 87
HWS300-24	24	19.2 - 28.8	14	16.5	192	96	150	30.0 - 34.8	82 / 85
HWS600-24	24	19.2 - 28.8	27	31	192	96	150	30.0 - 34.8	82 / 85
HWS1000-24	24	19.2 - 28.8	44	50	150	96	150	30.0 - 34.8	85 / 87
HWS1500-24	24	19.2 - 28.8	65/70 ⁽³⁾	105	144	96	200	30.0 - 34.8	84 / 88
HWS1000-36	36	28.8 - 43.2	29.3	33.3	150	144	200	45.0 - 49.7	85 / 88
HWS1500-36	36	28.8 - 43.2	42/46.5 ⁽³⁾	70	150	144	200	45.0 - 49.7	84 / 88
HWS300-48	48	38.4 - 52.8	7	-	384	192	200	55.2 - 64.8	82 / 85
HWS600-48	48	38.4 - 52.8	13	-	384	192	200	55.2 - 64.8	82 / 85
HWS1000-48	48	38.4 - 52.8	22	25	300	192	200	55.2 - 64.8	86 / 88
HWS1500-48	48	38.4 - 52.8	32	-	288	192	200	55.2 - 64.8	86 / 90
HWS1000-60	60	48.0 - 66.0	17.6	20	360	240	400	69.0 - 75.0	85 / 88
HWS1500-60	60	48.0 - 66.0	25.6/28 ⁽³⁾	42	360	240	400	69.0 - 75.0	86 / 90

HWS	300	-	3	/	-										
Series	Nominal power level and product size	Output voltage 3 (3.3V), 5, 6, 7 (7.5) 12, 15, 24, 36, 48, 60			<table><tr><td>blank</td><td>No options</td></tr><tr><td>/A</td><td>Not applicable. The HWS300-1500 models have a cover fitted as standard</td></tr><tr><td>/PV</td><td>1 to 6V output program voltage for HWS300, 600. Standard on HWS1000 & 1500</td></tr><tr><td>/HD</td><td>See HWS/HD datasheet for details. -40°C start-up & pcb coating</td></tr><tr><td>/ME</td><td>See HWS/ME datasheet for details. IEC60601-1 medical certification</td></tr></table>	blank	No options	/A	Not applicable. The HWS300-1500 models have a cover fitted as standard	/PV	1 to 6V output program voltage for HWS300, 600. Standard on HWS1000 & 1500	/HD	See HWS/HD datasheet for details. -40°C start-up & pcb coating	/ME	See HWS/ME datasheet for details. IEC60601-1 medical certification
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/PV	1 to 6V output program voltage for HWS300, 600. Standard on HWS1000 & 1500														
/HD	See HWS/HD datasheet for details. -40°C start-up & pcb coating														
/ME	See HWS/ME datasheet for details. IEC60601-1 medical certification														

Specifications						
Model		HWS300		HWS600	HWS1000	HWS1500
Input						
AC Input Voltage Range (Operating)	Vac	85 - 265				
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90-264Vac)				
Input Frequency	Hz	47 - 63 (Note: Safety certified for 50/60Hz only)				
DC Input Voltage Range ⁽⁴⁾	Vdc	120 - 330 (Note: Safety certified for AC input only)				
Input Current (100/200Vac) ⁽⁵⁾	A	5V: 3.8/1.9; 12-48V: 4.2/2.1	5V: 7.5/3.6; 12-48V: 8.1/3.9	3.3V: 9.6/5.0; 5-60V: 13.5/7.0	3.3V: 15.0/8.0 5-60V: 19.5/10.0	
Inrush Current (100/200Vac)	A	20 / 40 (Typical at cold start)				
Leakage Current (240Vac, 60Hz)	mA	<0.75	<0.75	<1.2	<1.5	
Power Factor (100/200Vac)	-	0.99 / 0.95	0.99 / 0.95	0.98 / 0.95	0.98 / 0.94	
Harmonic Compliance	-	Meets IEC61000-3-2 Class A				
Hold Up Time (typ)	ms	20				
Efficiency	-	See model selector table				
Conducted & Radiated EMI	-	EN55011 / EN55032-B, FCC-B, VCCI-B. (HWS1500: Class A)				
Immunity	-	See immunity table				
Safety Certifications and Markings	-	IEC/EN/UL/CSA62368-1, 60950-1, EN50178-1, (UL508 on HWS300 and HWS600 5V, 12V, 24V & 48V models only), CE Mark and UKCA Mark				

Immunity				
Test	Standard	Test Level	Criteria	Notes See IEC61000 immunity test report on website
ESD	EN61000-4-2	Air ± 8kV and contact ± 4kV	A/B	HWS300, HWS600; B
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m	A	-
		1.4 - 2.0GHz: 3V/m		-
		2.0 - 2.7GHz: 1V/m		-
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	A/B	HWS300, HWS600; B
Surge	EN61000-4-5	Normal ± 2kV Common ± 4kV	A/B	HWS300, HWS600; B
Conducted Susceptibility	EN61000-4-6	10Vrms	A	-
Magnetic Fields	EN61000-4-8	30A/m	A	-
Voltage Dips	EN61000-4-11	30% 10ms	A	-
		60% 100ms	B	-
		100% 5000ms	B	-
SEMI F47 Line Dip	SEMI F47	-	-	At input voltages > 200Vac

Specifications					
Model		HWS300	HWS600	HWS1000	HWS1500
Output					
Switching Frequency	kHz	190	190	46	3-5V: 45, 6-7V: 55, 12-60: 70
Line Regulation	-	See Model Selector Table			
Load Regulation	-	See Model Selector Table			
External Load Capacitance (Maximum)	uF	3.3V, 5V; 10,000, 12V, 15V; up to 5,000, 24V; up to 5,000, 48V; 1,000			
Ripple & Noise	-	See Model Selector Table			
Temperature Coefficient	%/°C	0.02			
Minimum Load	-	No minimum load required			
Overcurrent Protection	%	>105 (>101 of peak current for peak current capable models)			
Overvoltage Protection	-	See model selector table. Latching (unit shutdown), cycle AC input to reset			
Remote Sense	-	Yes			
Remote On/Off	-	Yes (Isolated from output)			
Indicators	-	Green LED indicates DC is OK			
Parallel Operation	-	Single wire connection (up to 5 units). See instruction manual			
Environmental					
Operating Temperature	°C	-10 to +70, derate linearly to 50% load from 50 to 70 ⁽⁶⁾			
Storage Temperature	°C	-30 to +85			
Humidity (non condensing)	%RH	Operating: 10 - 90, Non operating 10 - 95			
Cooling	-	Internal fan			
Altitude	m	2,000	2,000	3,000	2,000
Withstand Voltage (For 1 minute)	Vac	Input to ground 2,500, Input to output 3,000, Output to ground 500 for 1 minute		Input to ground 2,000, Input to output 3,000, Output to ground 500 for 1 minute	
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500Vdc			
Vibration (Non-operating)	-	10-55Hz (Sweep for 1min.), 19.6m/s ² Constant X,Y,Z 1 hour each			
Shock (Non-operating)	-	Less than 196m/s ²			
Other					
Weight (Typ)	g	1,000	1,600	3,200	4,000 (<12V 3,800)
Size (WxHxD)	mm	61 x 82 x 165	100 x 82 x 165	126.5 x 82 x 240	126.5 x 82 x 280
Size (WxHxD)	Inches	2.4 x 3.23 x 6.5	3.94 x 3.23 x 6.5	5 x 3.25 x 9.45	5 x 3.25 x 11
Connectors	-	Screw terminals			
Case Material	-	Aluminum			
MTBF - Telcordia SR-332 issue 3*	Hours	2,145,809	1,998,996	1,087,031	1,152,309
Warranty	Years	Limited lifetime ⁽¹⁾ or 5 years			

Notes:

See website for detailed specifications, test methods and installation manual

(1) The Americas and EMEA regions: limited lifetime warranty. Other regions: 5 years. See applicable regional terms of sale.

(2) 200-265Vac input, 10s maximum on time with 35% duty cycle

(3) Rating at 100 / 200Vac input

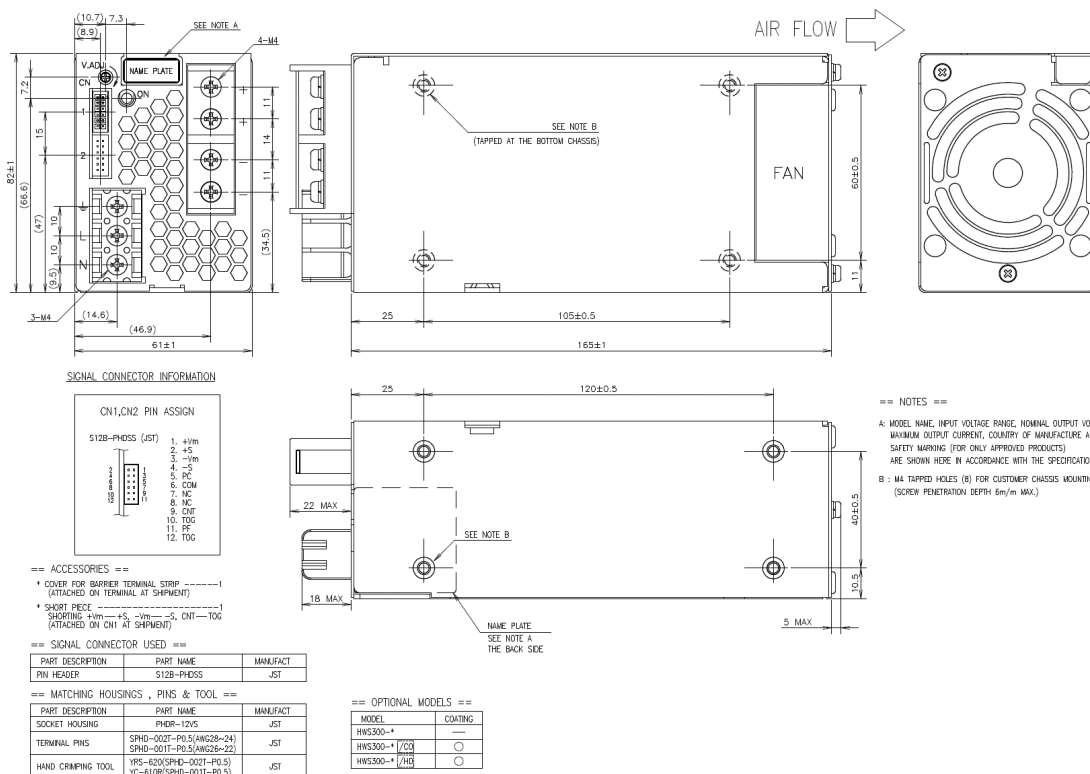
(4) Safety certified for AC input only

(5) See website for input current on 3.3V models

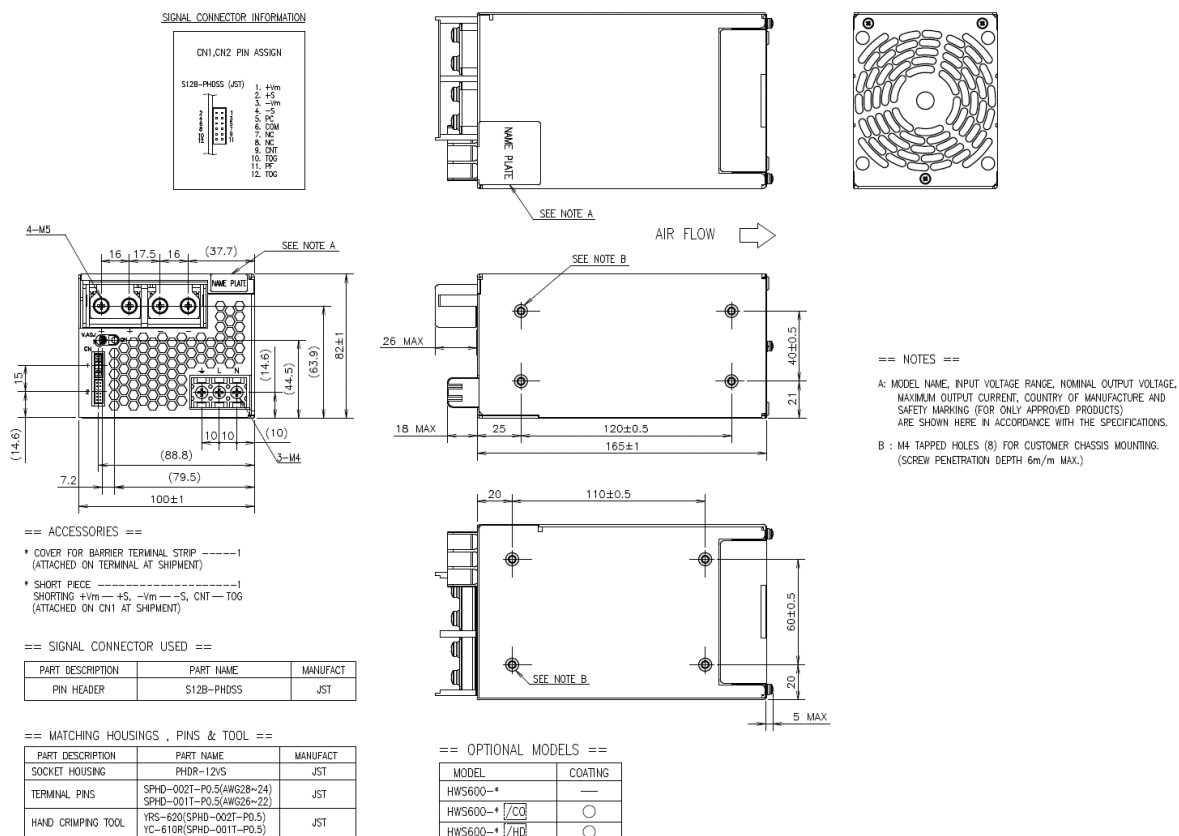
(6) Input and output voltage dependent. [See installation manuals for derating curves](#)

* 24V output model, 25°C ambient, full load, 230Vac input

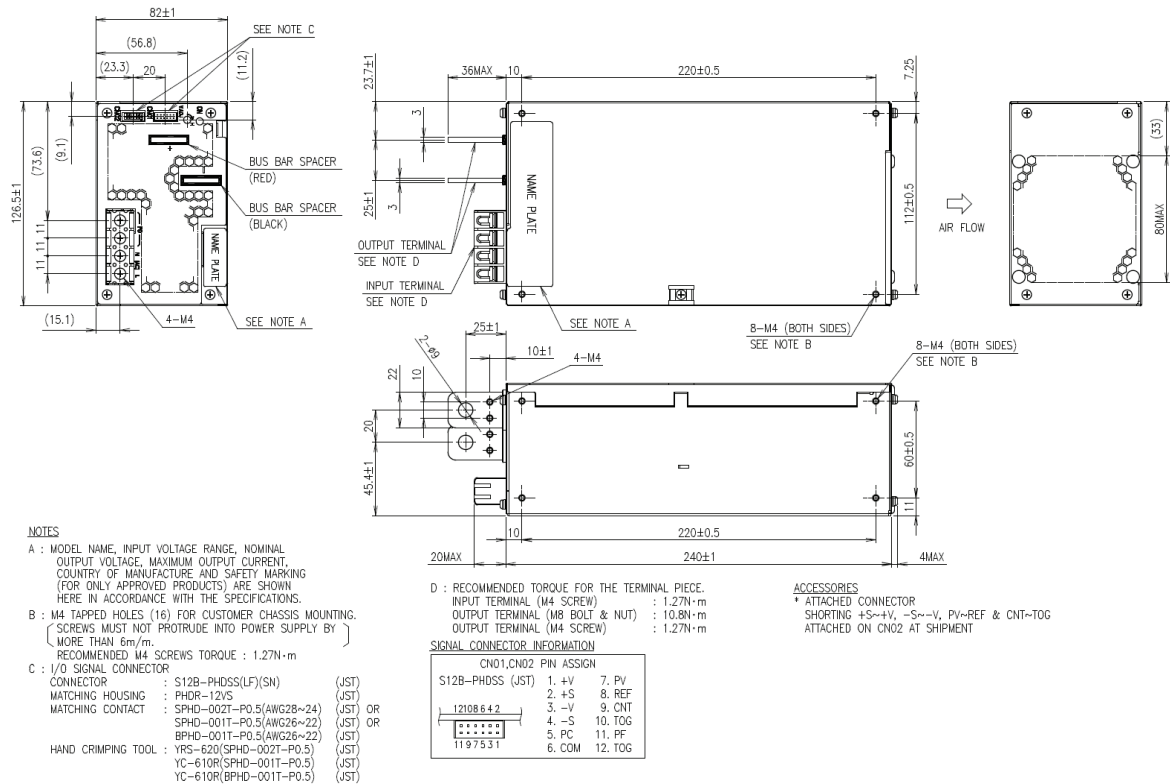
Outline Drawing HWS300



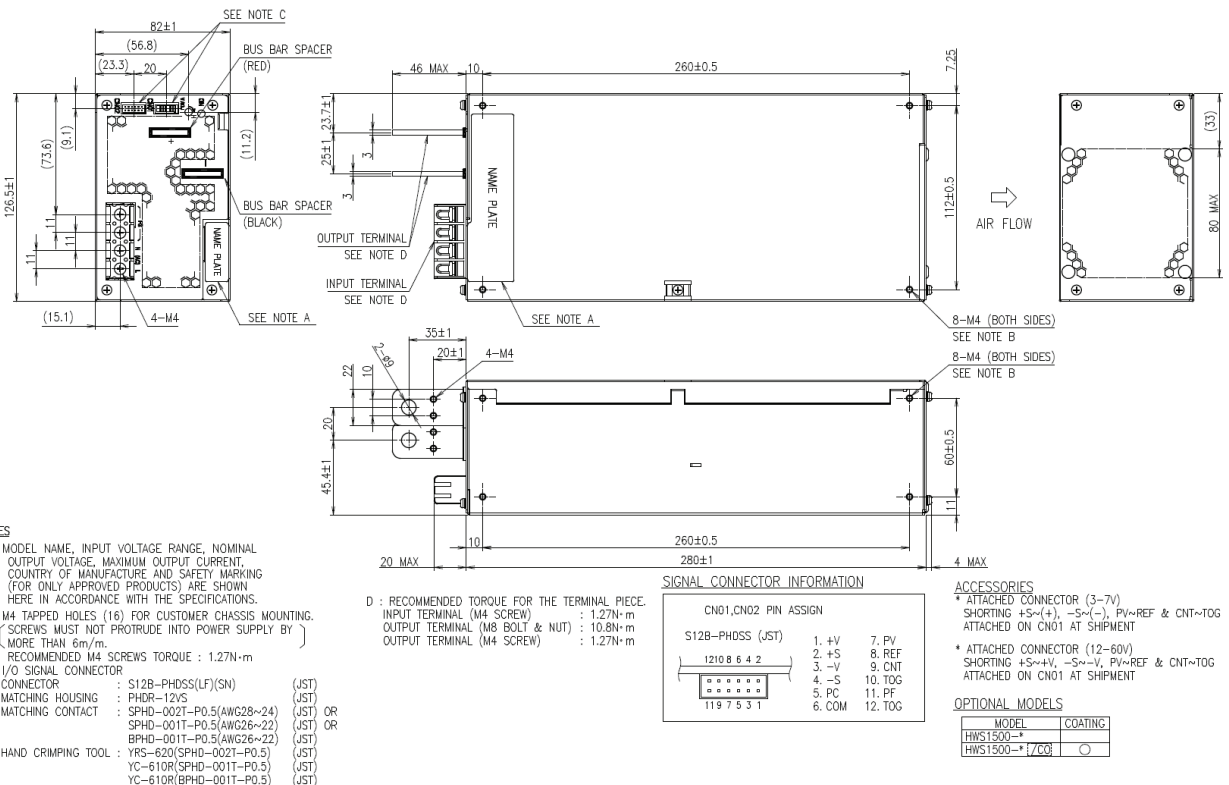
Outline Drawing HWS600



Outline Drawing HWS1000



Outline Drawing HWS1500



**TDK-Lambda France SAS**

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

**Italy Sales Office**

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

**Netherlands**

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

**TDK-Lambda Germany GmbH**

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

**Austria Sales Office**

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

**Switzerland Sales Office**

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

**Nordic Sales Office**

Tel: +45 8853 8086
 tlq.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
 tia.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
 tls.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

