

- Limited Lifetime Warranty
- Medical Approvals
- Universal Input (85 - 265VAC)
- High Efficiency
- Broad 30W to 1500W product range
- RoHS Compliant Design

HWS-/ME Series

Single Output
Medical Power Supplies

Key Market Segments & Applications



Medical

Industrial

Test

Broadcast

Comm

LED

Cots

HWS-/ME Features and Benefits

Features

- Limited Lifetime Warranty
- Medical Approvals
- Wide Range AC Input

Benefits

- Lower Cost of Ownership
- Reduces System Approval Times
- Supports Global Use

Specifications

MODELS		HWS30A HWS50A	HWS100A HWS150A	HWS300	HWS600	HWS1000	HWS1500
Input Voltage	(4)	85-265VAC (47-63Hz) or 120-370VDC			85-265VAC (47-63Hz) or 120-330VDC		85-265VAC (47-63Hz)
Input Current (Typ)	(1)	A	0.65 / 0.4 0.65 / 0.35	1.3 / 0.65 1.9 / 0.95	4.1 / 2.1	8.1 / 3.9	13.5/7.0 19/10
Inrush Current	(1)	A	14 / 28			20 / 40	
Power Factor / Flicker			Meets EN61000-3-2, EN61000-3-3				
Temperature Coefficient	-		<0.02%/°C				
Overcurrent Protection	-		>104%				
Overvoltage Protection	V		Yes (See table on page 2)				
Hold Up Time (Typ)	ms		20				
Leakage Current (60Hz)	(2)	mA	<0.5mA				
Remote Sense			No		Yes		
Indicator	-		Green LED = ON				
Remote On/Off	-		No		Yes (Isolated from output)		
Parallel operation	-		No		Single wire conn. (5 units max)		
DC Good	-		No		Yes		
Voltage Programming			No				Yes
Operating Temperature and Derating	-		HWS30A-150A: -10°C to +70°C, (derating applies above 50°C please refer to individual model specification for derating graph) HWS300-1500: -10°C to +70°C, (-10 to +50°C: 100%, derate linearly to 50% load from +50°C to +70°C)				
Storage Temperature	°C		-30°C to +85°C				
Humidity (non condensing)	-		Operating: 30 - 90%RH (10 -90% on HWS300-1500), Non operating 10 - 95%RH				
Cooling	-		Convection		Internal fan		
Withstand Voltage	(3)	-	Input to Ground 2kVAC, Input to Output 3kVAC, Output to Ground 500VAC for 1 min.				
Isolation Resistance	-		>100MΩ at 25°C & 70%RH, Output to Ground 500VDC, >10MΩ Output to remote on/off 100VDC				
Vibration (non operating)	-		10 - 55Hz (1 min sweep), 19.6m/s² constant, X, Y, Z axis, one hour each				
Shock (in packaging)	-		< 196.1m/s²				
Safety Agency Approvals	(2)	-	ES60601-1, EN60601-1, CSA-C22.2 No6011-M90 (C-UL) (basic insulation), CE Mark				
Line Dip	-		Complies with SEMI F47 (200VAC line only)				
Conducted & Radiated EMI	-		EN55011 / EN55022-B, FCC-B, VCCI-B (HWS600 & 1500 Class A)				
Immunity	-		IEC61000-4-2, -3, -4, -5, -6, -8, -11, IEC61000-6-2				
Weight (Typ)	g		220 280	450 500	1000	1600	3200 3800
Size (WxHxD)			26 x 82 x 95	33 x 82 x 160			
(with cover except 30 & 50W)	mm		26 x 82 x 120	42 x 82 x 160	61 x 82 x 165	100 x 82 x 165	126.5 x 82 x 240 280 x 82 x 126.5
Warranty			Limited Lifetime Warranty (See TDK-Lambda terms & conditions)				

Notes: (1) 100/200VAC input. (2) See clause 19.5DV.2 of UL60601 for equipment in proximity of patient. (3) HWS300-600 2.5kVAC Input to ground. (4) Consult Sales Office for use under DC Input conditions

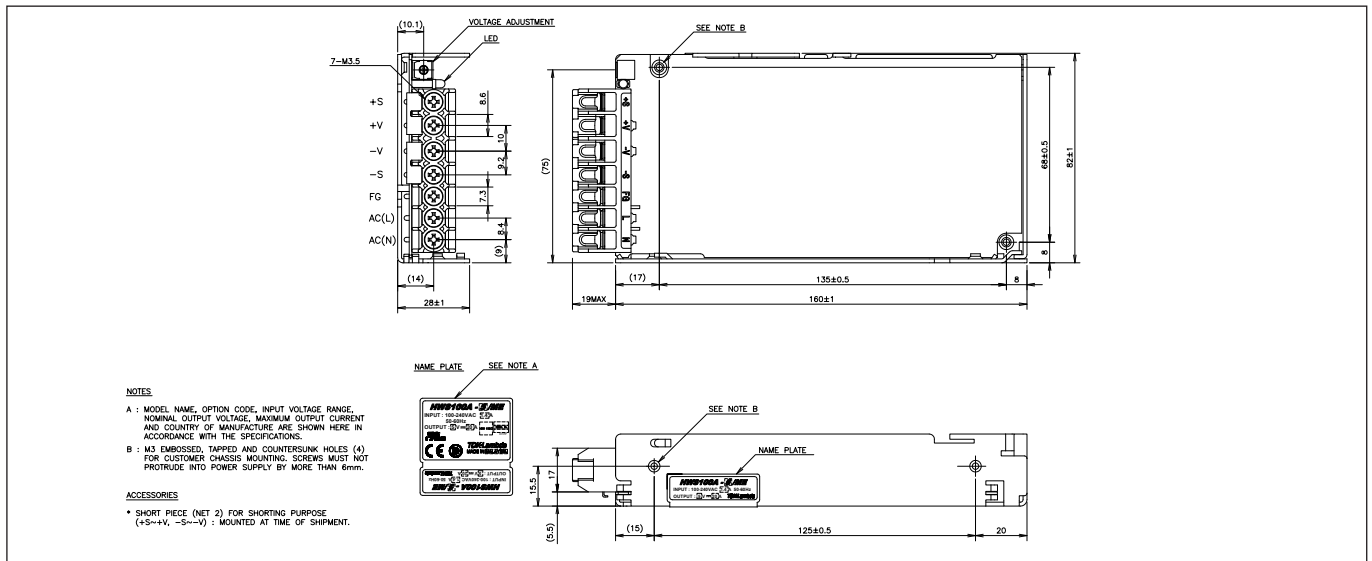
Model Selector									
Model	Voltage	Adjust Range	Max Curr(A) ⁴	Max Power(W)	Load Reg(mV)	Line Reg(mV)	Ripple Noise(mV)	Overvoltage (V)	Efficiency (typ)% ¹
HWS30A-5/ME	5V	4.0 - 6.0	6	30	40	20	120	6.25-7.25	77/80
HWS50A-5/ME	5V	4.0 - 6.0	10	50	40	20	120	6.25-7.25	82/84
HWS100A-5/ME	5V	4.0 - 6.0	20	100	40	20	120	6.25-7.25	83/86
HWS150A-5/ME	5V	4.0 - 6.0	30	150	40	20	120	6.25-7.25	83/86
HWS600-5/ME	5V	4.0 - 6.0	120	600	30	20	120	6.25-7.25	80/83
HWS30A-12/ME	12V	9.6 - 14.4	2.5	30	96	48	150	15-17.4	81/83
HWS50A-12/ME	12V	9.6 - 14.4	4.3	51.6	96	48	150	15-17.4	81/83
HWS100A-12/ME	12V	9.6 - 14.4	8.5	102	96	48	150	15-17.4	83/86
HWS150A-12/ME	12V	9.6 - 14.4	13	156	96	48	150	15-17.4	83/86
HWS300-12/ME	12V	9.6 - 14.4	27	324	72	48	150	15-17.4	80/83
HWS600-12/ME	12V	9.6 - 14.4	53	636	72	48	150	15-17.4	80/83
HWS30A-15/ME	15V	12.0 - 18.0	2	30	120	60	150	18.8-21.8	81/83
HWS50A-15/ME	15V	12.0 - 18.0	3.5	52.5	120	60	150	18.8-21.8	81/83
HWS100A-15/ME	15V	12.0 - 18.0	7	105	120	60	150	18.8-21.8	83/86
HWS150A-15/ME	15V	12.0 - 18.0	10	150	120	60	150	18.8-21.8	83/86
HWS300-15/ME	15V	12.0 - 18.0	22	330	90	60	150	18.8-21.8	82/85
HWS600-15/ME	15V	12.0 - 18.0	43	645	90	60	150	18.8-21.8	81/84
HWS30A-24/ME	24V	19.2 - 28.8	1.3	31.2	192	96	200	30-34.8	83/86
HWS50A-24/ME	24V	19.2 - 28.8	2.2	52.8	192	96	150	30-34.8	82/84
HWS100A-24/ME	24V	19.2 - 28.8	4.5	108	192	96	150	30-34.8	84/87
HWS150A-24/ME	24V	19.2 - 28.8	6.5	156	192	96	150	30-34.8	85/88
HWS300-24/ME	24V	19.2 - 28.8	14 (16.5 pk)	336	144	96	150	30-34.8	82/85
HWS600-24/ME	24V	19.2 - 28.8	27 (31 pk)	648	144	96	150	30-34.8	82/85
HWS1000-24/ME	24V	19.2 - 28.8	46 (58.5 pk)	1104	150	96	150	30-34.8	85/87
HWS1500-24/ME	24V	4.8 - 28.8 ⁽⁷⁾	65/70 ⁽¹⁾ (105pk ⁽⁵⁾)	1560/1680 ⁽¹⁾ (2520 pk ⁽⁵⁾)	144	96	200	30-34.8	84/88
HWS1000-36/ME	36V	28.8 - 43.2	30.7 (39 pk)	1104	150	144	200	45-49.7	85/88
HWS1500-36/ME	36V	7.2 - 43.2 ⁽⁶⁾	42/46.5 ⁽¹⁾ (70 pk) ⁽⁵⁾	1512/1674 ⁽¹⁾ (2520 pk ⁽⁵⁾)	150	144	200	34-49.7	84/88
HWS30A-48/ME	48V	38.4 - 52.8	0.65	31.2	384	192	200	55.2-64.8	82/83
HWS50A-48/ME	48V	38.4 - 52.8	1.1	52.8	384	192	200	55.2-64.8	83/85
HWS100A-48/ME	48V	38.4 - 52.8	2.1	100.8	384	192	200	55.2-64.8	84/87
HWS150A-48/ME	48V	38.4 - 52.8	3.3	158.4	384	192	200	55.2-64.8	85/88
HWS300-48/ME	48V	38.4 - 52.8	7	336	288	192	350	55.2-64.8	82/85
HWS600-48/ME	48V	38.4 - 52.8	13	624	288	192	350	55.2-64.8	83/86
HWS1000-48/ME	48V	38.4 - 52.8	23	1104	300	192	200	55.2-60	86/88
HWS1500-48/ME	48V	9.6 - 52.8 ⁽⁶⁾	32	1536	288	192	200	55.2-64.8	86/90

(4) Peak load for 10s maximum on time, 35% duty cycle (5) 200-265AC Input

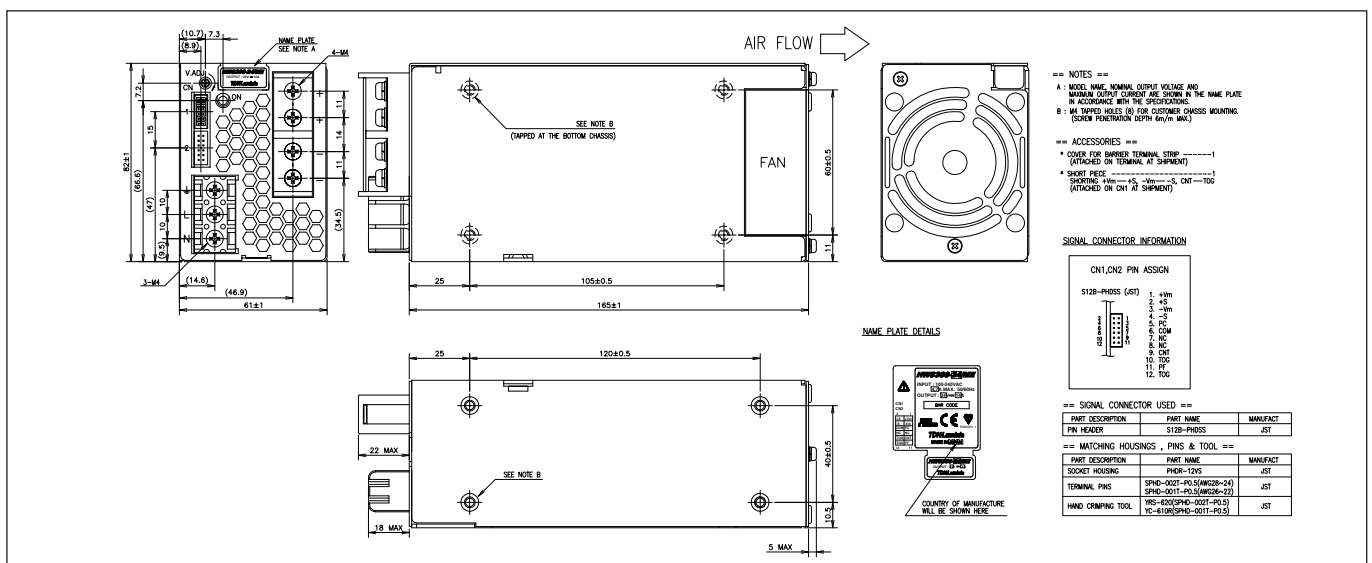
(6) Using voltage programming input - see installation manual for details

Options	
Suffix	Description
Blank	No cover (except HWS300-1500 cover fitted) as standard
/A	Cover fitted (egHWSA100-24/MEA)

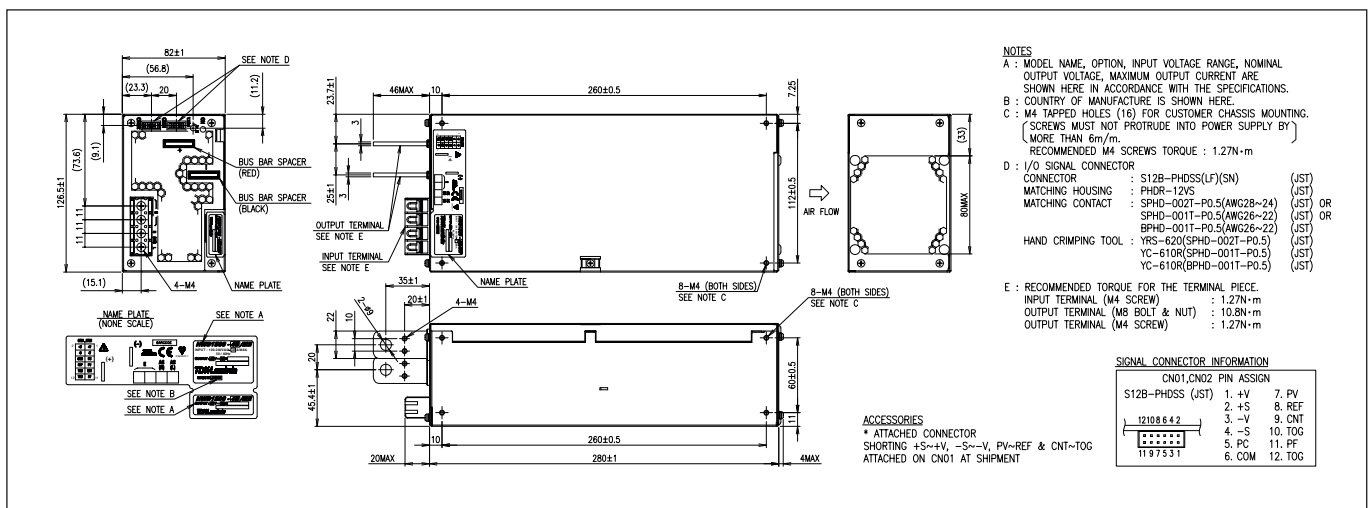
Outline Drawing HWS100A/MEA Series



Outline Drawing HWS300 Series



Outline Drawing HWS1500 Series





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Local Distribution

www.emea.tdk-lambda.com

HWS150A/ME

SPECIFICATIONS

A259-01-01/ME

MODEL			HWS150A -5/ME	HWS150A -12/ME	HWS150A -15/ME	HWS150A -24/ME	HWS150A -48/ME
ITEMS							
1	Nominal Output Voltage	V	5	12	15	24	48
2	Maximum Output Current	A	30	13	10	6.5	3.3
3	Maximum Output Power	W	150.0	156.0	150.0	156.0	158.4
4	Efficiency (Typ.) (*1)	100VAC	85	85	86	88	89
		200VAC	87	88	89	90	91
5	Input Voltage Range (*2)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC				
6	Input Current (Typ.) (*1)	A	1.9/0.95				
7	Inrush Current (Typ.) (*1)(*3)	-	14A at 100VAC, 28A at 200VAC, Ta=25°C, Cold Start				
8	PFHC	-	Designed to meet IEC61000-3-2				
9	Voltage Fluctuations / Flicker Emissions	-	Designed to meet IEC61000-3-3				
10	Power Factor (Typ.) (*1)	-	0.98/0.93				
11	Output Voltage Range	V	4.0 - 6.0	9.6 - 14.4	12.0 - 18.0	19.2 - 28.8	38.4 - 52.8
12	Maximum Ripple & Noise (*4)	0≤Ta≤70°C	mV	120	150	150	200
		-10≤Ta<0°C	mV	160	180	180	240
13	Maximum Line Regulation (*5)	mV	20	48	60	96	192
14	Maximum Load Regulation (*6)	mV	40	96	120	150	240
15	Temperature Coefficient	-	Less than 0.02% / °C				
16	Over Current Protection (*7)	A	31.5 ≤	13.6 ≤	10.5 ≤	6.82 ≤	3.46 ≤
17	Over Voltage Protection (*8)	V	6.25 - 7.25	15.0 - 17.4	18.8 - 21.8	30.0 - 34.8	55.2 - 64.8
18	Hold-up Time (Typ.) (*1)	-	20ms				
19	Leakage Current (*9)	-	Less than 0.5mA. 0.2mA (Typ) at 100VAC / 0.4mA (Typ) at 230VAC				
20	Remote Sensing	-	Possible				
21	Parallel Operation	-	-				
22	Series Operation	-	Possible				
23	Operating Temperature (*10)	-	-10 to +70°C (-10 to +50°C:100%, +60°C:60%, +70°C:20%)				
24	Operating Humidity	-	30 to 90%RH (No Condensing)				
25	Storage Temperature	-	-30 to +85°C				
26	Storage Humidity	-	10 to 95%RH (No Condensing)				
27	Cooling	-	Convection Cooling				
28	Withstand Voltage	-	Input - FG : 2kVAC (20mA), Input - Output : 3kVAC (20mA) Output - FG : 500VAC (20mA) for 1min				
29	Isolation Resistance	-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC				
30	Vibration	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.				
31	Shock	-	Less than 196.1m/s ²				
32	Safety (*11)	-	Approved by ES60601-1, EN60601-1, CSA-C22.2 No.60601-1				
33	Line DIP	-	Designed to meet SEMI-F47 (200VAC Line only)				
34	Conducted Emission (*12)	-	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B				
35	Radiated Emission (*12)	-	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B				
36	Immunity (*12)	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11				
37	Weight (Typ)	-	470g				
38	Size (W x H x D)	mm	37 x 82 x 160 (Refer to Outline Drawing)				

*Read instruction manual carefully, before using the power supply unit.

=NOTES=

- *1. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum output power.
- *2. For cases where conformance to various safety specs (ES, CSA, EN) are required, to be described as 100 - 240VAC(50 - 60Hz).
- *3. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *4. Measure with JEITA RC-9131B probe, Bandwidth of scope :100MHz.
- *5. 85 - 265VAC, constant load.
- *6. No load-Full load, constant input voltage.
- *7. Constant current limit and Hiccup with automatic recovery. Avoid to operate at over load or short circuit condition.
- *8. OVP circuit will shut down output, manual reset (Re power on).
- *9. Measured by the each measuring method of ES, CSA and EN (at 60Hz).
- *10. Output Derating
 - Derating at standard mounting. Refer to OUTPUT DERATING CURVE (A259-01-02_).
 - Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.
- *11. As for ES60601-1, EN60601-1 and CSA-C22.2 No.60601-1, 3rd Edition and MOOP level.
- *12. The power supply is considered a component which will be installed into a final equipment.
The final equipment should be re-evaluated that it meets EMC directives.