TDK·Lambda HWS/ME Series

Single Output Medical Power Supplies

Features

- Limited Lifetime Warranty
- Medical Certifications[2]
- Universal Input (85 - 265VAC)
- High Efficiency
- Broad 30W to 1500W product range

Key Market Segments & Applications

Medical

RoHS

Specifications

Model		HWS30A HWS50A	HWS100A HWS150A	HWS300	HWS600	HWS1000 HWS1500
Input Voltage range (47-63Hz)	-	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)	mA	<0.5mA				
Remote Sense	-	No	Yes			
Indicator	-	Green LED = ON				
Remote On/Off	-	No		Yes (Isolated from output)		
Parallel operation	-	No		Single wire connection (5 units max)		
DC Good	-	No		Yes		
Voltage Programming		No				Yes
Operating Temperature and Derating	°C	HWS30A-150A: -10°C to +70°C, (See website for derating above 50°C) HWS300-1500: -10°C to +70°C, (-10 - +50°C: 100%, derate linearly to 50% load from +50 to +70°C)				
Storage Temperature	°C	-30 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, Output to Remote On/Off 100VAC for 1 min.				
Isolation Resistance	-	>100M at 25°C & 70%RH, Output to Ground 500VDC, >10M 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 Certifications (2)	-	ES60601-1, EN60601, CSA-C22.2 No601.1-M90 (C-UL) (basic insulation), CE Mark				
Line Dip	-	Complies with SEMI F47 (200VAC line only)				
Conducted & Radiated EMI	-	EN55011 / EN55032-B, FCC-B, VCCI-B (HWS600, 1000 & 1500 Class A)				
Immunity	-	IEC61000-4-2, -3, -4, -5, -6, -8, -11, IEC61000-6-2, IEC60601-1-2 Ed.4***				
Weight (Typ)	g	200 260	420 470	1000	1600	3200 3800
Size (WxHxD)	in	1.04x3.23x3.74 1.04x3.23x4.72	1.1x3.23x6.3 1.46x3.23x6.3	2.4x3.23x6.5	3.94x3.23x6.5	4.98x3.23x9.45 4.98x3.23x11.02
MTBF - Telcordia SR-332 issue 3**	hours	8,169,868 3,726,622	2,963,512 2,676,081	2,145,809	1,998,996	1,087,031 1,152,309
Warranty	yrs	Limited lifetime warranty (See website for terms & conditions)				

(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

* Safety certified for AC input only
** 24V output model, 25°C ambient, full load, 230VAC input
*** HWS30A-150A/ME only (See immunity data on website)

Output Ratings

Model	Voltage	Adjust Range	Max Current (A)	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	80/82
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	84/86
HWS150A-5/ME	5V	4.0 - 6.0	30	150	40	20	120	6.25-7.25	85/87
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	84/86
HWS50A-12/ME	12V	9.6 - 14.4	4.3	51.6	96	48	150	15-17.4	83/85
HWS100A-12/ME	12V	9.6 - 14.4	8.5	102	96	48	150	15-17.4	86/88
HWS150A-12/ME	12V	9.6 - 14.4	13	156	96	48	150	15-17.4	85/88
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	85/87
HWS50A-15/ME	15V	12.0 - 18.0	3.5	52.5	120	60	150	18.8-21.8	83/86
HWS100A-15/ME	15V	12.0 - 18.0	7	105	120	60	150	18.8-21.8	86/88
HWS150A-15/ME	15V	12.0 - 18.0	10	150	120	60	150	18.8-21.8	86/89
HWS300-15/ME	15V	12.0 - 18.0	22	330	90	60	150	18.8-21.8	80/83
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	150	96	150	30-34.8	86/88
HWS50A-24/ME	24V	19.2 - 28.8	2.2	52.8	150	96	150	30-34.8	84/87
HWS100A-24/ME	24V	19.2 - 28.8	4.5	108	150	96	150	30-34.8	87/89
HWS150A-24/ME	24V	19.2 - 28.8	6.5	156	150	96	150	30-34.8	88/90
HWS300-24/ME	24V	19.2 - 28.8	14 (16.5 pk)(4)	336, (396 pk(4))	144	96	150	30-34.8	82/85
HWS600-24/ME	24V	19.2 - 28.8	27 (31 pk)(4)	648, (744 pk(4))	144	96	150	30-34.8	82/85
HWS1000-24/ME	24V	19.2 - 28.8 4.8 - 28.8 (5)	46 (58.5 pk)(4)	1104, (1404 pk(4))	150	96	150	30-34.8	85/87
HWS1500-24/ME	24V	19.2 - 28.8 4.8 - 28.8 (5)	65/70(1) (105 pk)(4)	1560/1680(1), (2520 pk(4))	144	96	200	30-34.8	84/88
HWS1000-36/ME	36V	28.8 - 43.2 7.2 - 43.2(5)	30.7 (39 pk)(4)	1104, (1404 pk(4))	150	144	200	45-49.7	85/88
HWS1500-36/ME	36V	28.8 - 43.2 7.2 - 43.2(5)	42/46.5(1) (70 pk)(4)	1512/1674(1), (2520 pk(4))	150	144	200	45-49.7	84/88
HWS30A-48/ME	48V	38.4 - 52.8	0.65	31.2	240	192	200	55.2-64.8	86/87
HWS50A-48/ME	48V	38.4 - 52.8	1.1	52.8	240	192	200	55.2-64.8	84/86
HWS100A-48/ME	48V	38.4 - 52.8	2.1	100.8	240	192	200	55.2-64.8	88/90
HWS150A-48/ME	48V	38.4 - 52.8	3.3	158.4	240	192	200	55.2-64.8	89/91
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 9.6 - 52.8(5)	23 (29.2 pk)(4)	1104, (1404 pk(4))	300	192	200	55.2-60.8	86/88
HWS1500-48/ME	48V	38.4 - 52.8 9.6 - 52.8(5)	32	1536	288	192	200	55.2-64.8	86/90

(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) Peak load at 200VAC input for 10s maximum on time, 35% duty cycle
(5) Using voltage programming input - see installation manual for details

Options

Suffix	Description
/ME	No Cover (HWS30A-150A/ME Only) HWS300-1500/ME the cover is always fitted
/MEA	With Cover (HWS30A-150A/ME only)

Other Medical Products

NV Series	175 to 700W single & multiple output
Vega Series	450 to 900W single & multiple output
Alpha Series	1000W single and multiple output

For Additional Information, please visit
us.tdk-lambda.com/lp/products/hwsa-series.htm