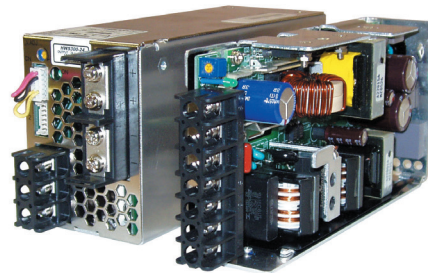


30-1500W Single Output Medical Power Supplies

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



Medical



The ultra reliable, conservatively rated HWS/ME series of 30W to 1500W AC-DC power supplies has a limited lifetime warranty⁽¹⁾, unique to the industry. Based on the HWS-A and HWS series, they accept a wide range 85 to 265Vac input with output voltages from 5V to 60V. The series is certified to IEC 60601-1 (basic insulation) for use in non-surgical medical equipment and analyser applications. The HWS/ME also has a peak power capability (select models) and meet conducted and radiated emission standards without additional filtering or shielding.

Features	Benefits
• Wide Operating Temperature Range	• Operation in Harsh Environments
• Limited Lifetime Warranty ⁽¹⁾	• Low Cost of Ownership
• Very Conservative Electrolytic Capacitor Ratings	• Long Service Life
• Peak Power Capability (Select Models)	• Supports Capacitive and Inductive Loads

Model Selector									
Model	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Maximum Power (W)	Load Reg (mV)	Line Reg (mV)	Ripple Noise (mV)	Overvoltage (V)	Efficiency (115/230Vac) (%)
HWS30A-5/ME	5	4.0 - 6.0	6	30	40	20	120	6.25 - 7.25	80 / 82
HWS50A-5/ME	5	4.0 - 6.0	10	50	40	20	120	6.25 - 7.25	82 / 84
HWS100A-5/ME	5	4.0 - 6.0	20	100	40	20	120	6.25 - 7.25	84 / 86
HWS150A-5/ME	5	4.0 - 6.0	30	150	40	20	120	6.25 - 7.25	85 / 87
HWS600-5/ME	5	4.0 - 6.0	120	600	30	20	120	6.25 - 7.25	80 / 83
HWS30A-12/ME	12	9.6 - 14.4	2.5	30	96	48	150	15.0 - 17.4	84 / 86
HWS50A-12/ME	12	9.6 - 14.4	4.3	51.6	96	48	150	15.0 - 17.4	83 / 85
HWS100A-12/ME	12	9.6 - 14.4	8.5	102	96	48	150	15.0 - 17.4	86 / 88
HWS150A-12/ME	12	9.6 - 14.4	13	156	96	48	150	15.0 - 17.4	85 / 88
HWS300-12/ME	12	9.6 - 14.4	27	324	72	48	150	15.0 - 17.4	80 / 83
HWS600-12/ME	12	9.6 - 14.4	53	636	72	48	150	15.0 - 17.4	80 / 83
HWS30A-15/ME	15	12.0 - 18.0	2	30	120	60	150	18.8 - 21.8	85 / 87
HWS50A-15/ME	15	12.0 - 18.0	3.5	52.5	120	60	150	18.8 - 21.8	83 / 86
HWS100A-15/ME	15	12.0 - 18.0	7	105	120	60	150	18.8 - 21.8	86 / 88
HWS150A-15/ME	15	12.0 - 18.0	10	150	120	60	150	18.8 - 21.8	86 / 89
HWS300-15/ME	15	12.0 - 18.0	22	330	90	60	150	18.8 - 21.8	80 / 83
HWS600-15/ME	15	12.0 - 18.0	43	645	90	60	150	18.8 - 21.8	81 / 84
HWS30A-24/ME	24	19.2 - 28.8	1.3	31.2	150	96	150	30.0 - 34.8	86 / 88
HWS50A-24/ME	24	19.2 - 28.8	2.2	52.8	150	96	150	30.0 - 34.8	84 / 87
HWS100A-24/ME	24	19.2 - 28.8	4.5	108	150	96	150	30.0 - 34.8	87 / 89
HWS150A-24/ME	24	19.2 - 28.8	6.5	156	150	96	150	30.0 - 34.8	88 / 90
HWS300-24/ME	24	19.2 - 28.8	14 (16.5 pk) ⁽²⁾	336 (396 pk) ⁽²⁾	144	96	150	30.0 - 34.8	82 / 85
HWS600-24/ME	24	19.2 - 28.8	27 (31 pk) ⁽²⁾	648 (744 pk) ⁽²⁾	144	96	150	30.0 - 34.8	82 / 85
HWS1000-24/ME	24	19.2 - 28.8 4.8 - 28.8 ⁽⁴⁾	46 (58.5 pk) ⁽²⁾	1104 1404 pk ⁽²⁾	150	96	150	30.0 - 34.8	85 / 87
HWS1500-24/ME	24	19.2 - 28.8 4.8 - 28.8 ⁽⁴⁾	65/70 ⁽³⁾ (105 pk) ⁽²⁾	1560/1680 ⁽³⁾ 2520 pk ⁽²⁾	144	96	200	30.0 - 34.8	84 / 88
HWS1000-36/ME	36	28.8 - 43.2 7.2 - 43.2 ⁽⁴⁾	30.7 (39 pk) ⁽²⁾	1104 1404 pk ⁽²⁾	150	144	200	45.0 - 49.7	85 / 88
HWS1500-36/ME	36	28.8 - 43.2 7.2 - 43.2 ⁽⁴⁾	42/46.5 ⁽³⁾ (70 pk) ⁽²⁾	1512/1674 ⁽³⁾ 2520 pk ⁽²⁾	150	144	200	45.0 - 49.7	84 / 88
HWS30A-48/ME	48	38.4 - 52.8	0.65	31.2	240	192	200	55.2 - 64.8	86 / 87

Model Selector

Model	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Maximum Power (W)	Load Reg (mV)	Line Reg (mV)	Ripple Noise (mV)	Overvoltage (V)	Efficiency (115/230Vac) (%)
HWS50A-48/ME	48	38.4 - 52.8	1.1	52.8	240	192	200	55.2 - 64.8	84 / 86
HWS100A-48/ME	48	38.4 - 52.8	2.1	100.8	240	192	200	55.2 - 64.8	88 / 90
HWS150A-48/ME	48	38.4 - 52.8	3.3	158.4	240	192	200	55.2 - 64.8	89 / 91
HWS300-48/ME	48	38.4 - 52.8	7	336	288	192	350	55.2 - 64.8	82 / 85
HWS600-48/ME	48	38.4 - 52.8	13	624	288	192	350	55.2 - 64.8	83 / 86
HWS1000-48/ME	48	38.4 - 52.8 9.6 - 43.2 ⁽⁴⁾	23 (29.2 pk ⁽²⁾)	1104 1404 pk ⁽²⁾	300	192	200	55.2 - 60.0	86 / 88
HWS1500-48/ME	48	38.4 - 52.8 9.6 - 43.2 ⁽⁴⁾	32	1536	288	192	200	55.2 - 64.8	86 / 90

HWS	150A	-	5	/	/ME
Series	Nominal power level and product size		Output voltage 5, 12, 15, 24, 36, 48		/ME HWS30A to 150A/ME models - cover is not fitted as standard HWS300 to 1500/ME models - cover is always fitted /MEA HWS50A-150A: Cover option (special order)

Preferred

Specifications

Model		HWS30A/ME HWS50A/ME		HWS100A/ME HWS150A/ME		HWS300/ME HWS600/ME		HWS1000/ME HWS1500/ME	
Input									
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	Vdc	120 - 370 (Note: Safety certified for AC input only)				120 - 330 (Note: Safety certified for AC input only)			
Input Current (100/200Vac) ⁽⁵⁾	A	0.65 / 0.4 0.7 / 0.35		1.3 / 0.65 1.9 / 0.95		4.1 / 2.1 8.1 / 3.9		24-48V: 13.5 / 7.0 24-48V: 19 / 10.0	
Inrush Current (100/200Vac)	A	14 / 28 (Typical at cold start)				20 / 40 (Typical at cold start)			
Leakage Current (60Hz)	mA	<0.5							
Power Factor (100/200Vac)	-	N/A 0.97 / 0.91		0.98 / 0.93		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. (HWS600, 1000 and 1500: Class A)							
Immunity	-	IEC60101-1-2 Edition 4. See reports on website							
Safety Certifications and Markings	-	ES60601-1, EN60601, CSA-C22.2 No 60601-1:14 (C-UL) (basic insulation), CE Mark and UKCA Mark (See clause 19.5DV.2 of UL60601 for equipment in proximity of patient)							

Specifications					
Model		HWS30A/ME HWS50A/ME	HWS100A/ME HWS150A/ME	HWS300/ME HWS600/ME	HWS1000/ME HWS1500/ME
Output					
Switching Frequency	kHz	100	120	190	12-48V: 70
Line Regulation	mV	See Model Selector Table			
Load Regulation	mV	See Model Selector Table			
External Load Capacitance (Maximum)	uF	5V: 10,000	5V: 10,000	5V; 10,000, 12V, 15V; up to 5,000 24V; up to 5,000, 48V; 1,000	
		12V, 15V: 5,000	12V, 15V: 10,000		
		24V: 2,000, 48V: 500	24V: 5,000, 48V: 1,000		
Ripple & Noise	-	See Model Selector Table			
Temperature Coefficient	%/°C	0.02			
Minimum Load	-	No minimum load required			
Overcurrent Protection	%	>104 (>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	-	No	Yes		
Remote On/Off	-	No			Yes (Isolated from output)
Indicators	-	Green LED indicates DC is OK			
Parallel Operation	-	No			Single wire connection (up to 5 units)
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: 30 - 90, Non operating 10 - 95			Operating: 10 - 90, Non operating 10 - 95
Cooling	-	Convection			Internal fan
Altitude	m	4,000			3,000
Withstand Voltage (For 1 minute)	Vac	Input to ground 2,000 (HWS300-600 2,500), 1xMOOP			
		Input to output 3,000, 2xMOOP			
		Output to ground 500			
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500Vdc			
Vibration (Non-operating)	-	10 - 55Hz (1 min sweep), 19.6m/s ² constant, X, Y, Z axis, one hour each			
Shock (Non-operating)	-	<196.1m/s ²			
Other					
Weight (Typ)	g	240	470	1,000	3,200
		300	520	1,600	3,800
Size (WxHxD)	mm	26.5 x 82 x 95	28 x 82 x 160	61 x 82 x 165	126.5 x 82 x 240
		26.5 x 82 x 120	37 x 82 x 160	100 x 82 x 165	126.5 x 82 x 280
Size (WxHxD)	Inches	1.04 x 3.23 x 3.74	1.1 x 3.23 x 6.3	2.4 x 3.23 x 6.5	5 x 3.25 x 9.45
		1.04 x 3.23 x 4.72	1.46 x 3.23 x 6.3	3.94 x 3.23 x 6.5	5 x 3.25 x 11
Connectors	-	Screw terminals			
Case Material	-	Aluminum			
MTBF - Telcordia SR-332 issue 3*	Hours	8,169,868	2,963,512	2,145,809	1,087,031
		3,726,622	2,676,081	1,998,996	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

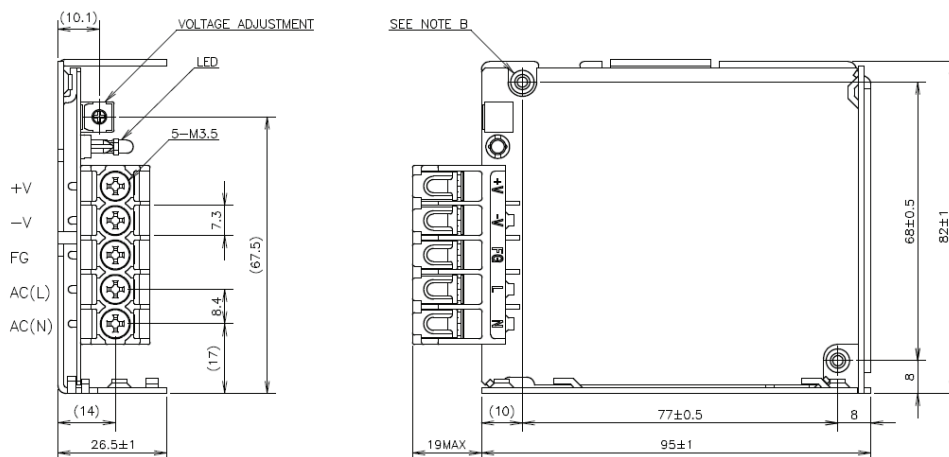
(4) Using voltage programming input - see installation manual for details

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

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

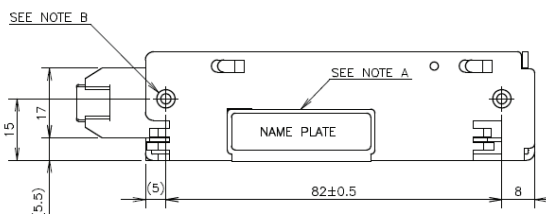
* 24V output model, 25°C ambient, full load, 230Vac input

Outline Drawing HWS30A

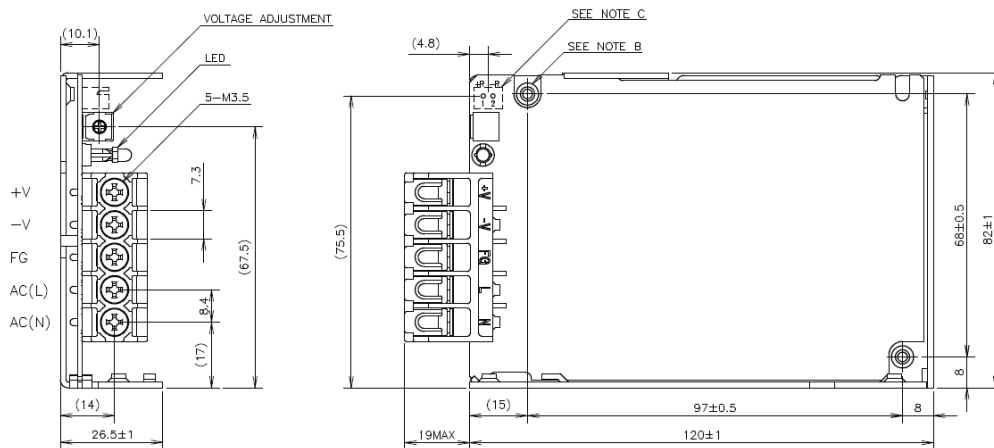


NOTES

- A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B : M3 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (4) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.



Outline Drawing HWS50A

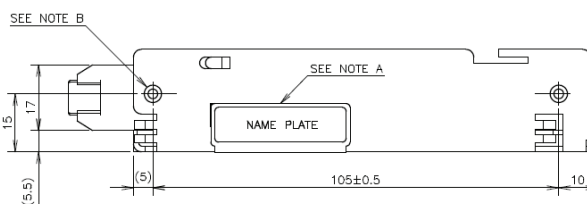


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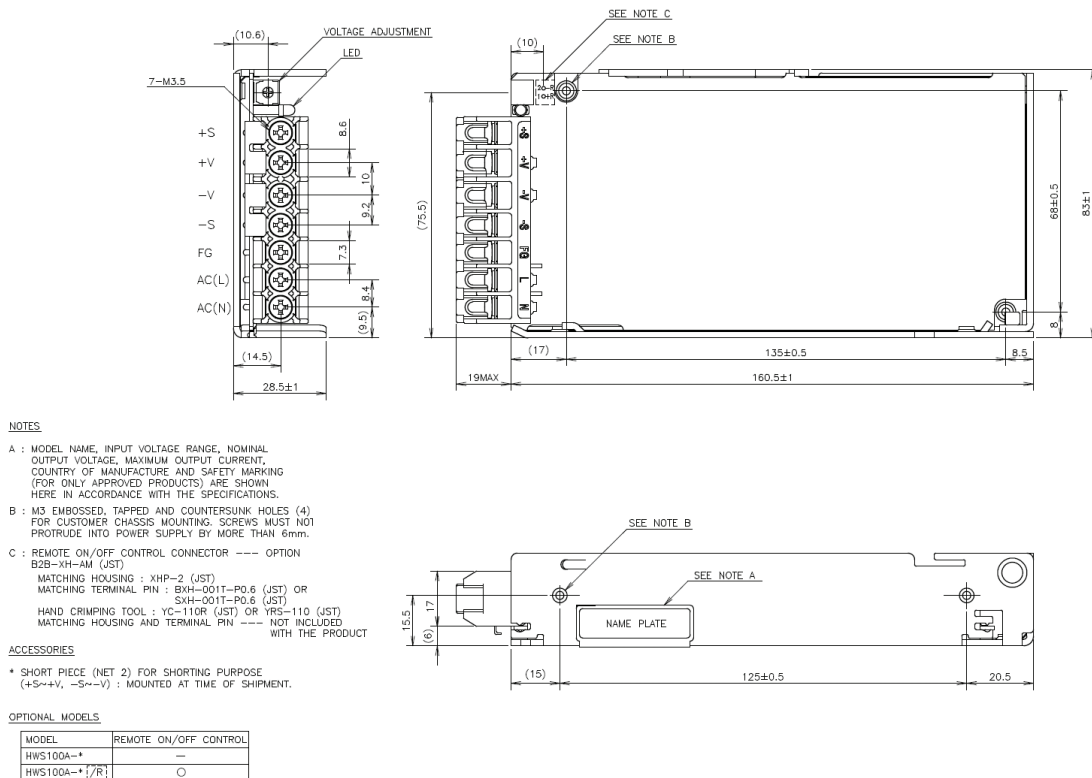
- A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B : M3 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (4) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.
- C : REMOTE ON/OFF CONTROL CONNECTOR --- OPTION B2B-XH-AM (JST)
 MATCHING HOUSING : XHP-2 (JST)
 MATCHING TERMINAL PIN : BXH-001T-P0.6 (JST) OR SXH-001T-P0.6 (JST)
 HAND CRIMPING TOOL : YC-110R (JST) OR YRS-110 (JST)
 MATCHING HOUSING AND TERMINAL PIN --- NOT INCLUDED WITH THE PRODUCT

OPTIONAL MODELS

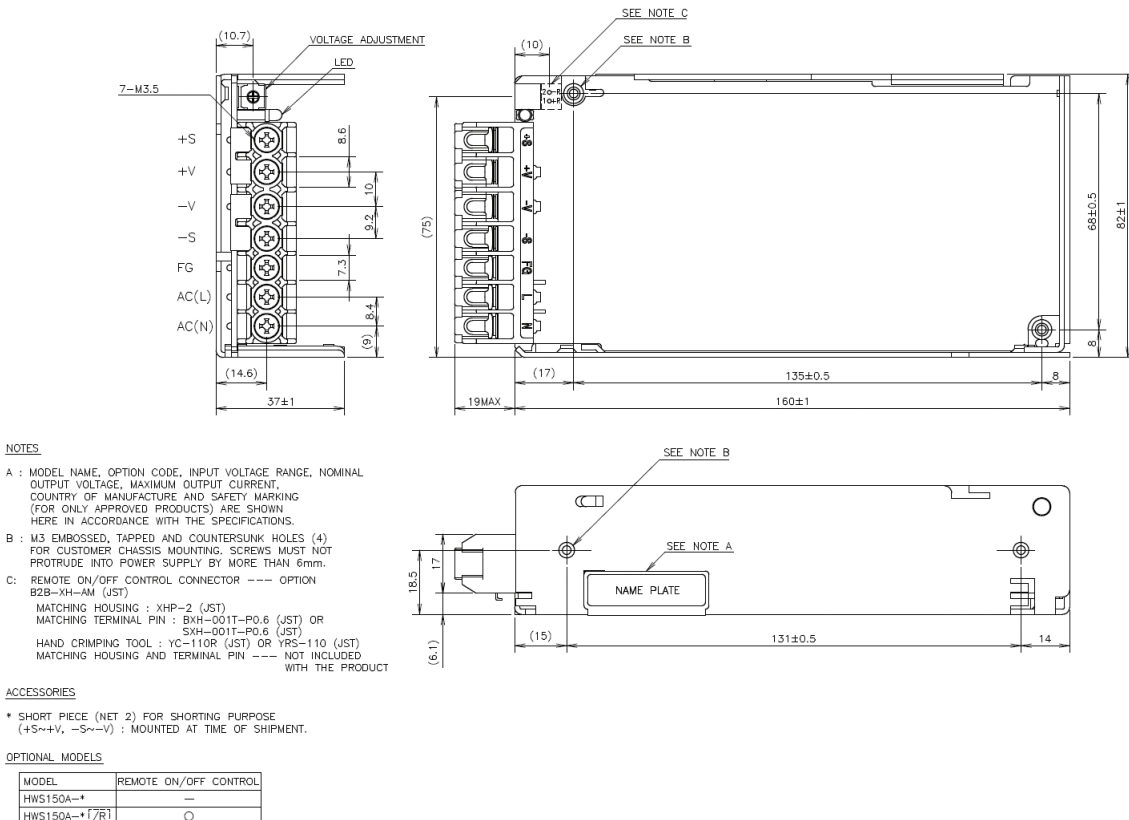
MODEL	REMOTE ON/OFF CONTROL
HWS50A-*	—
HWS50A-*(R)	○



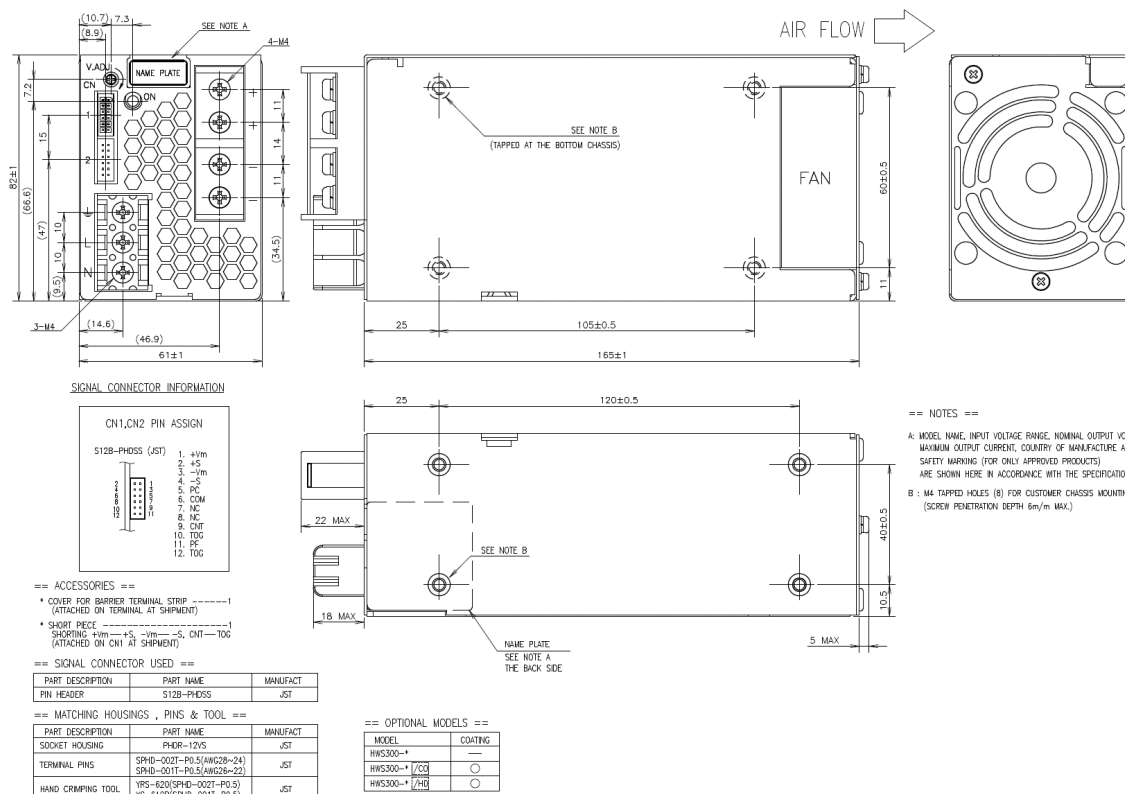
Outline Drawing HWS100A



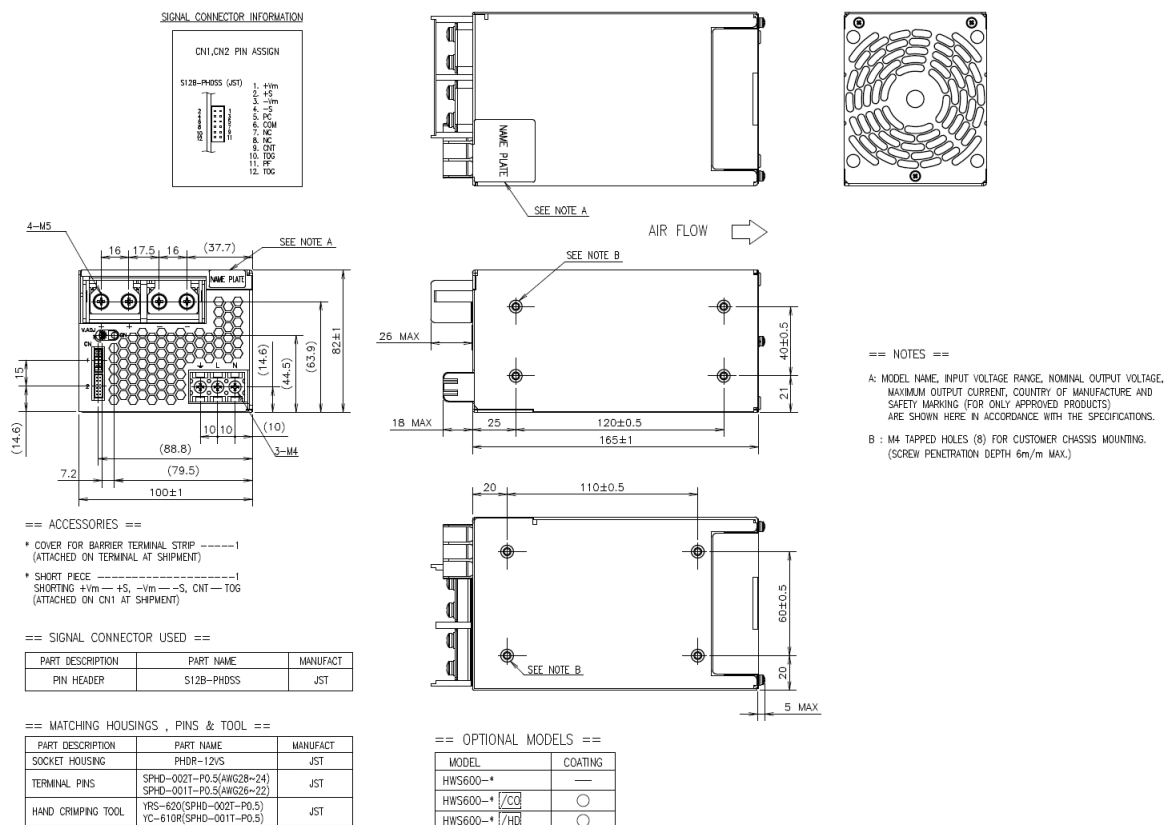
Outline Drawing HWS150A



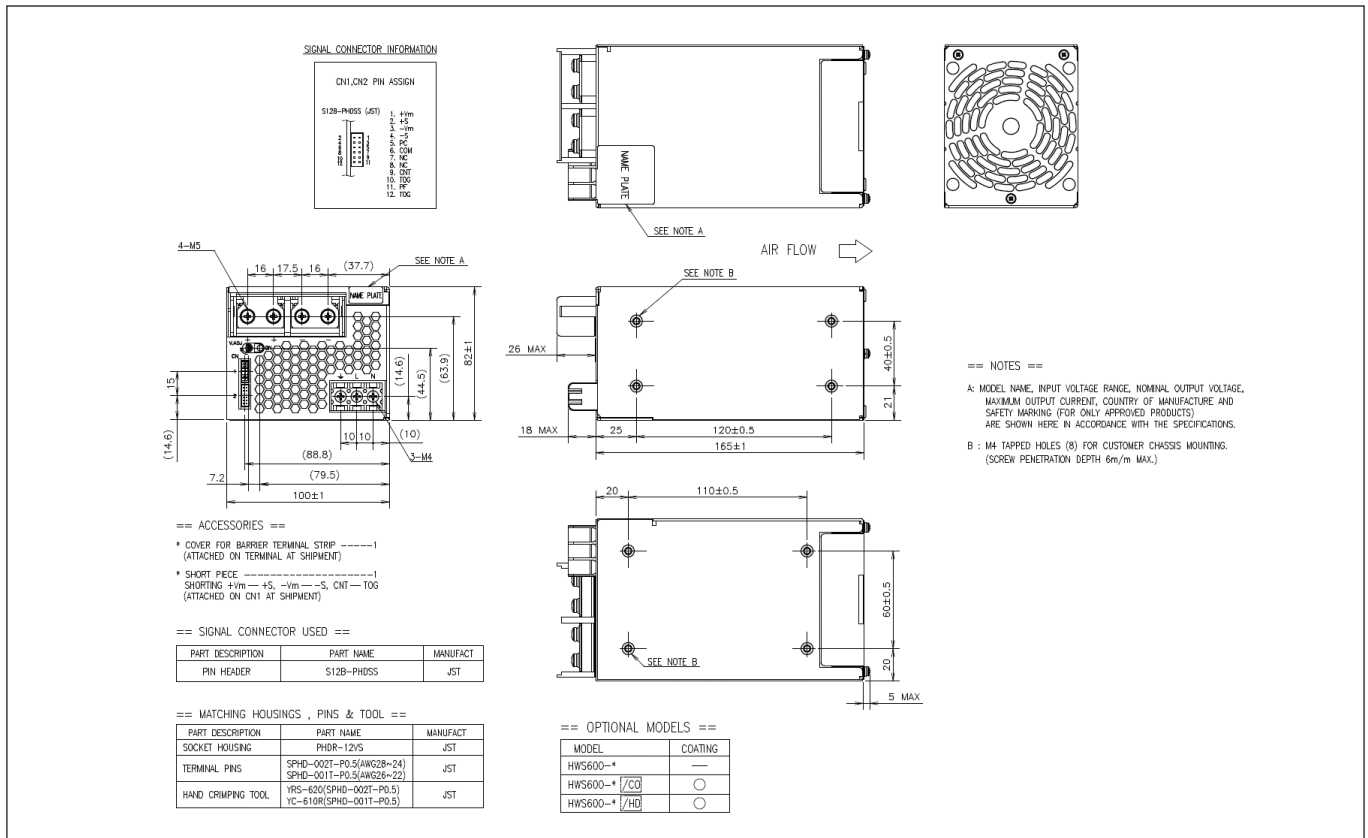
Outline Drawing HWS300



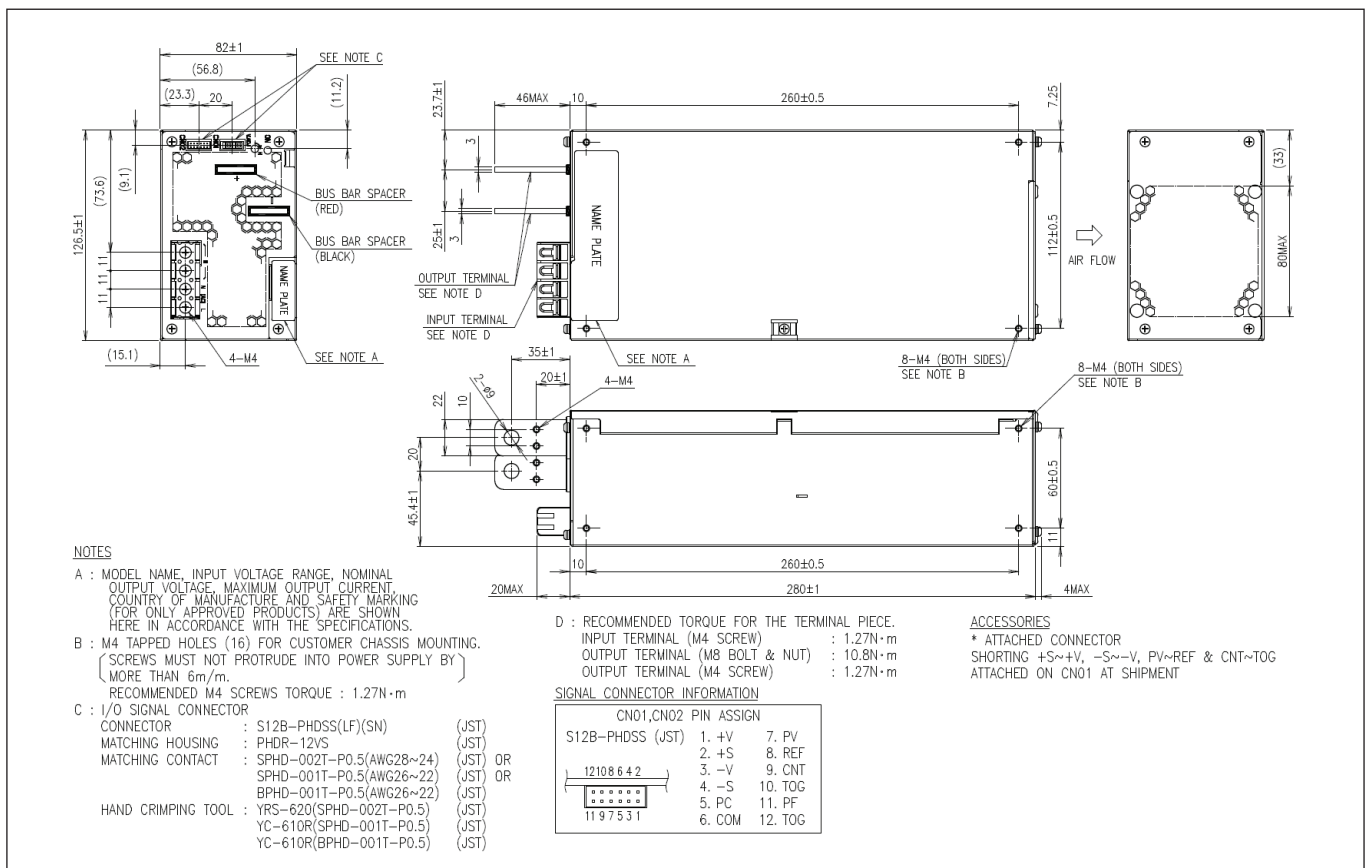
Outline Drawing HWS600



Outline Drawing HWS1000/ME



Outline Drawing HWS1500/ME



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