600-1000W Single Output Power Supplies

https://product.tdk.com/en/power/sws-l
www.emea.lambda.tdk.com/sws600-1000l

Medical Industrial Test LED COMM

The SWS-L series of AC-DC power supplies comprises of two models with output voltages from 3.3V to 60V. Rated at 600W and 1000W, the SWS600L is certified to IEC62368-1 and IEC 61010-1 with the SWS1000L certified to IEC62368-1 and IEC60601-1-(medical). These products meet both class B radiated and conduction EMI standards and can operate with derating in up to 74°C ambient temperatures. Features include a 12V 0.1A auxiliary voltage, remote on/off, an output-low/fan-fail signal and have been tested to the MIL-STD-810-F shock and vibration standard. Up to five units can be connected in parallel for additional power. The 3.3V, 15V, 48V and 60V outputs can be remotely programmed over a wide range using an external voltage. In addition, the 24V and 48V outputs have the capability to support peak loads.

Features	Benefits
• - 20 to + 74°C Temperature Range	• Withstands Higher Ambient Temperatures
• Variable Speed Fan	• Lower Audible Noise
• Long E-Capacitor Life (Up to 10 years @ 40°C, 80% Load)	• Longer Field Life
• Output Voltage Programming	• Remote Adjustment
• Peak Power Capability (24V & 48V models)	• Supports Capacitive and Inductive Loads
• MIL-STD-810F Shock and Vibration	• Suitable for Harsh Environments

Model Selector

Model	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Maximum Power Continuous (W)	Load Reg (mV)	Line Reg (mV)	Efficiency (%) (115 / 230Vac)
SWS600L-3	3.3	2.64 - 3.96	120	396	30	20	70 /72
SWS1000L-3	3.3	2.64 - 3.96	200	660	30	20	74 / 76
SWS600L-5	5	4 - 6	120	600	30	20	75 / 77
SWS1000L-5	5	4 - 6	200	1000	30	20	79 / 81
SWS600L-12	12	9.6 - 14.4	53	636	72	48	79 / 82
SWS1000L-12	12	9.6 - 14.4	88	1056	72	48	82 / 84
SWS600L-15	15	12 - 19.5	43	645	90	60	79 / 82
SWS1000L-15	15	12 - 19.5	70	1050	90	60	82 / 84
SWS600L-24	24	19.2 - 28.8	27, 31 peak(1)	648	144	96	81 / 84
SWS1000L-24	24	19.2 - 28.8	44, 51 peak(1)	1056	144	96	84 / 86
SWS600L-36	36	28.8 - 43.2	18	648	216	144	82 / 84
SWS1000L-36	36	28.8 - 43.2	29	1044	216	144	84 / 86
SWS600L-48	48	38.4 - 56	13, 15 peak(1)	624	288	192	82 / 84
SWS1000L-48	48	38.4 - 56	22, 25 peak(1)	1056	288	192	84 / 86
SWS600L-60	60	48 - 66	10	600	360	240	82 / 84
SWS1000L-60	60	48 - 66	17	1020	360	240	84 / 86

Related Products

Type	Part Number	Description
Newer generation product series	CUS600M	600W open frame and enclosed power supplies
Newer generation product series	RWSB	50W to 1500W power supplies (1000-1500W medical)
Newer generation product series	CUS1500M	1500W power supplies (Industrial & medical)

Specifications

Model		SWS600L	SWS1000L
Input			
AC Input Voltage Range (Operating)	Vac	85 - 265	
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90-264Vac only)	
Input Frequency	Hz	47 - 63	
DC Input Voltage Range	Vdc	120 - 350 (Note: Safety certified for AC input only)	
Input Current (115 / 230Vac)	A	3.3V model: 5 / 2.5, 5 to 60V models: 7.1 / 3.66	3.3V model: 8 / 4, 5 to 60V models: 12 / 6
Inrush Current 115 / 230Vac (typ) (Cold Start)	A	20 / 40	
Leakage Current (264Vac, 63Hz)	mA	<0.75	<0.3
Power Factor (115 / 230Vac)	-	0.98 / 0.95	
Harmonic Compliance	-	Meets IEC61000-3-2 Class A	
Hold Up Time (typ) (115 / 230Vac)	ms	20	
Efficiency	-	See Model Selector Table	
Conducted & Radiated EMI	-	EN55011-B / EN55032-B, FCC Class B	
Immunity	-	See immunity table	
Insulation Class	-	Class I	
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, 60950-1, IEC/ES/CSA/EN 60601-1 (SWS1000L), IEC61010-1 (SWS600L), EN50178, CE Mark, CE Mark and UKCA Mark	

Immunity

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

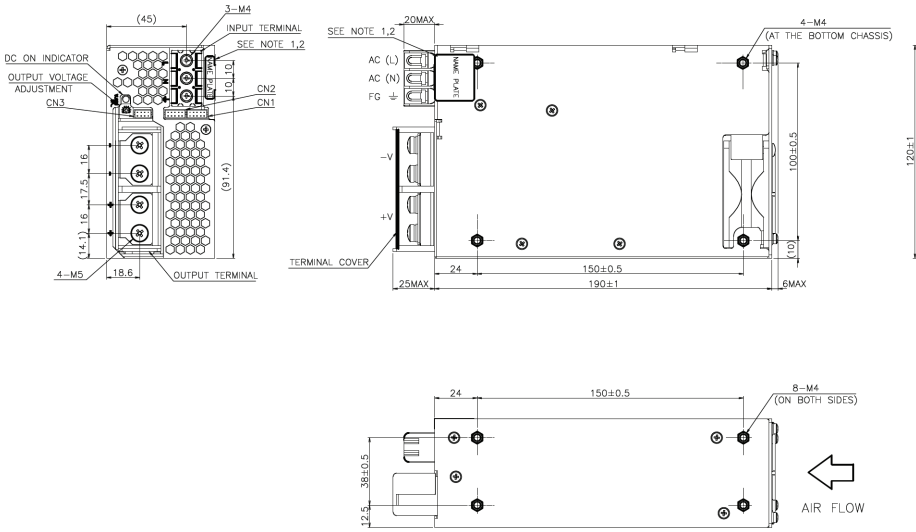
Specifications

Model		SWS600L	SWS1000L
Output			
Output Voltage Adjustment	-	See model selector	
Output Voltage Programming	%	1-6V program voltage to adjust output 20-120% (typical) of nominal See instruction manual for details & models with this feature.	
Switching Frequency	kHz	330	200, 60V model 240
Line Regulation	-	See model selector	
Load Regulation	-	See model selector	
External Load Capacitance	uF	-	
Ripple & Noise	mV	3.3, 5V: 120, 12, 15, 24V: 150, 36, 48, 60V: 200	
Temperature Coefficient	%/°C	0.02	
Minimum Load	-	No minimum load required	
Overcurrent Protection	%	>105%, Constant current style	
Overvoltage Protection	%	125 -145	
Overtemperature Protection	-	Yes, cycle AC or Remote On/Off to reset	
Remote Sense	-	Yes	
Remote On/Off		Optocoupler isolated. Closed contact = OFF, Open = ON	
Output Good (ALM)	-	Senses if power supply output is bad or a fan failure has occurred	
Auxiliary Output	-	12V 0.1A	
Indicators	-	LED indicates DC is OK	
Parallel Operation	-	Up to 5 units, see instruction manual	
Environmental			
Operating Temperature (-40°C start-up)	°C	-20 to 74, derating linearly to 50% load above 50	
Storage Temperature	°C	-40 to +85	
Humidity (non condensing)	%RH	20 - 90 operating, 10 - 95 non operating	
Pollution Degree	-	PD2	
Cooling	-	Variable speed internal fan	
Altitude	m	3,000	
Withstand Voltage (For 1 minute)	Vac	Input to Ground 2,000, Input to Output 3,000 Output to Ground 500	Input to Ground 2,000, Input to Output 4,000 (2xMOPP), Output to Ground 500
Output to Ground 500		Input to Ground 2,000, Input to Output 4,000 (2xMOPP), Output to Ground 500	
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500Vdc	
Vibration (Non operating)	-	MIL-STD-810F 514.5 Cat. 4,10	
Shock	-	MIL-STD-810F 516.5 Procedure I, VI	
Other			
Weight (Typ)	g	1600	2300
Size (LxWxH)	mm	190 x 120 x 61	240 x 150 x 61
Size (LxWxH)	Inches	7.48 x 4.72 x 2.4	9.45 x 5.91 x 2.4
Connectors	-	Screw terminals	
Case Material	--	Metal	
MTBF - Telcordia SR-332 issue 3*	Hours	1,444,923	1,348,293
Warranty	Years	3	

Notes:
See website for detailed specifications, test methods and installation manual
1) Peak current and power possible at 170-265Vac input, 10s max, 35% duty cycle
*24V output model, 25°C ambient, full load, 230Vac input

Mechanical Specification

SWS600L Outline Drawing



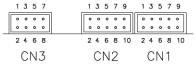
SIGNAL CONNECTOR INFORMATION

PIN CONFIGURATION AND FUNCTIONS OF CN1,CN2

PIN No.	FUNCTION
1	+Vm : +OUTPUT VOLTAGE MONITOR
2	+S : +SENSING
3	-Vm : -OUTPUT VOLTAGE MONITOR
4	-S : -SENSING
5	N.C. : NO CONNECTION
6	PC : CURRENT BALANCE
7	PV : ADJUSTMENT OF OUTPUT VOLTAGE
8	COM : GROUND FOR PC AND PV SIGNAL
9	CNT2 : REMOTE ON/OFF 2
10	TOG : GROUND FOR CNT2

PIN CONFIGURATION AND FUNCTIONS OF CN3

PIN No.	FUNCTION
1	COM : GROUND FOR PC AND PV SIGNAL
2	COM : GROUND FOR PC AND PV SIGNAL
3	AUX : AUXILIARY OUTPUT (12V 0.1A)
4	CNT1 : REMOTE ON/OFF 1
5	G2 : GROUND FOR AUX AND CNT1
6	G2 : GROUND FOR AUX AND CNT1
7	ALM : ALARM
8	G1 : ALARM GROUND



SIGNAL CONNECTOR USED

PART DESCRIPTION	PART NAME	MANUFACT
PIN HEADER	S10B-PHDSS (CN1,CN2) S8B-PHDSS (CN3)	JST

MATCHING HOUSINGS, PIN & TOOL

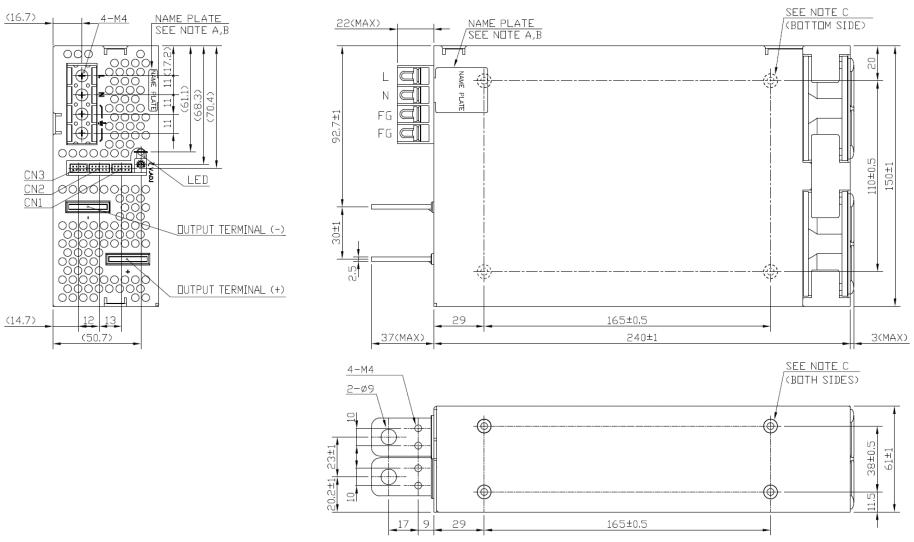
PART DESCRIPTION	PART NAME	MANUFACT
SOCKET HOUSING	PHDR-10VS (CN1,CN2) PHDR-8VS (CN3)	JST
TERMINAL PINS	SPHD-002T-P05(AWG28~24) SPHD-001T-P05(AWG26~22)	JST
HAND CRIMPING TOOL	YRS-620(SPHD-002T-P0.5) YC-610R(SPHD-001T-P0.5)	JST

NOTE:

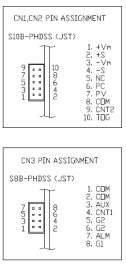
1: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, NOMINAL OUTPUT CURRENT, PEAK OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN ON THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATIONS.
2: COUNTRY OF MANUFACTURE IS SHOWN ON THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATIONS.
3: M4 TAPPED HOLES (12) FOR CUSTOMER CHASSIS MOUTING (SCREW PENETRATION DEPTH 6m/m MAX.).
4: RECOMMENDED SCREW TORQUE:
OUTPUT TERMINAL(M5 SCREW) = 2.5N·m
INPUT TERMINAL(M4 SCREW) = 1.27N·m

Mechanical Specification

SWS1000L Outline Drawing



SIGNAL CONNECTOR INFORMATION



== ACCESSORIES ==

* SHORT PIECE ----------1
SHORTING +Vm-+S, -Vm--S
(ATTACHED ON CN1 AT SHIPMENT)

== SIGNAL CONNECTOR USED ==

PART DESCRIPTION	PART NAME	MANUFACT
PIN HEADER (CN1 & CN2)	S10B-PHDSS	JST
PIN HEADER (CN3)	S8B-PHDSS	JST

== MATCHING HOUSINGS , PINS & TOOL ==

PART DESCRIPTION	PART NAME	MANUFACT
SOCKET HOUSING (CN1 & CN2)	PHDR-10VS	JST
SOCKET HOUSING (CN3)	PHDR-8VS	JST
TERMINAL PINS	SPHD-002T-P0.5(AWG28-24) SPHD-001T-P0.5(AWG26-22)	JST
HAND CRIMPING TOOL	YRS-620(SPHD-002T-P0.5) YC-610R(SPHD-001T-P0.5)	JST

== NOTES ==

A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, NOMINAL OUTPUT CURRENT, PEAK OUTPUT CURRENT AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN ON THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATIONS.
B : COUNTRY OF MANUFACTURE IS SHOWN HERE.
C : M4 TAPPED HOLES (12) FOR CUSTOMER CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 6m/m MAX.)

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