SM100H SERIES
100 WATT MEDICAL SWITCHING POWER SUPPLIES

UNIVERSAL INPUT

FEATURES

- Wide Range AC Input
- Open Frame, Compact Size : 4.5" x 2.5" x 1.12" PCB Format
- High Power Density
- Low Leakage Current : <100 µA for medical applications
- Industrial & Medical Standards, certified to EN60601-1
- EMC & Safety Standards certified to EN60950
- Class I and Class II Approved
- Level B Conducted Emissions
- Level A Radiated Emissions

DESCRIPTION

The SM100H Series power supplies can deliver up to 100 watts of continuous power depending whether 5 to 20 CFM cooling or convection air flow is used. Several model selections are available having 1 to 4 DC outputs and voltage choices. These supplies are ideally suited for use in small to medium digital systems (eg microprocessor based point of sale equipment, telecom etc). All models have short circuit protection and meet EMC and Safety standards such as EN60601-1, EN60950.

INPUT SPECIFICATIONS

Input Voltage	85 to 264 VAC (120-370 VDC)
Input Frequency	47 to 63 Hz
Input Current	0.9 A max at 230 VAC
Inrush Current	40 A max at 230 VAC
Earth Leakage Current	< 100 µA at 230 VAC
Input Fuse Protection	Internal 3.15 A fuse - Line & Neutral

ENVIRONMENTAL

Operating Temperature	0 °C to +80 °C. Refer to Power Derating table for detailed operating limitations.
Storage Temperature	–20 °C to +85 °C
Forced Air Cooling	5 to 20 CFM cooling or convection free air flow. See Power Derating table.
Operating Humidity	95% RH, non-condensing
Operating Altitude	3000 m (118,000 ft)
Shock	30 G peak, half sine, 6 axis
Vibration	2 G rms, 5 to 500 Hz, 3 axis

GENERAL SPECIFICATIONS

Efficiency	80 to 85% depending on model
Dielectric Isolation	4000 VAC: Input to Output 1500 VAC: Input to Ground 1500 VAC: Output to Ground
Switching Frequency	68 KHz typical
Power Density	6.84 Watts / Cu In.
Air Flow / Cooling	24 CFM fan recommended

OUTPUT SPECIFICATIONS

Total Output Power	100 W max. Refer to Power Derating chart for detailed operating limitations
Output Voltage / Current	Refer to Rating Chart for each Model
Output Adjustability	±5% on 3.3V and 5.0V versions. ±10% on other single output models and on output V1 of multi-output models.
Initial Set Accuracy	±1% on V1, ±5% on V2, V3, V4
Minimum Load	No minimum load required
Startup Delay / Rise Time	2 sec max delay / 50 ms rise time
Hold Up Time	15 / 95 mS at 115 / 230 VAC
Line Regulation	±0.5%
Load Regulation	±1% (V1, V2); ±5% (V3, V4)
Over / Undershoot	None at turn on or turn off
Ripple and Noise	1% pk-pk, 20MHz bandwidth
Overvoltage Protection	115–135% Vnom, recycle input to reset
Overload Protection	110–150% on primary power limit, automatic recovery
Short Circuit Protection	Trip and restart (Hiccup mode)
Temperature Coefficient	0.05% per °C typical
Transient Response	Output voltage returns in less than 14 to 44 mS following a 25% load change.

EMC and SAFETY

Emissions	EN60601-1-2, EN61204-3, FCC 20780, EN55022 & EN55011, level B conducted, CISPR EN55022 & EN55011, level A Radiated
Harmonic Currents	EN61000-3-2, class A
Voltage Flicker	EN61000-3-3
EFT/Burst	EN61000-4-4, level 3 Perf Criteria B
Surge	EN61000-4-5, level 3 Perf Criteria B
Conducted Immunity	EN61000-4-6
Dips & Interruptions	EN61000-4-11
Safety Approvals (certified to standards)	EN60601-1, UL60601-1: 2003 R6.03, CSA 22.2 No.601.1-m90, EN60950

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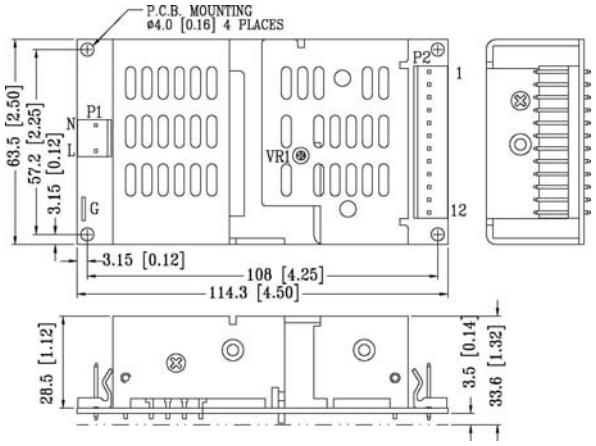
OUTPUT VOLTAGE / CURRENT RATINGS

MODEL	TYPE	Out V1	Imin/Imax	Out V2	Imin/Imax	Out V3	Imin/Imax	Out V4	Imin/Imax
SM100H10-1	SINGLE	+3.3V	0.0A/16.0A	–	–	–	–	–	–
SM100H10	SINGLE	+5.0V	0.0A/20.0A	–	–	–	–	–	–
SM100H17	SINGLE	+7.0V	0.0A/14.3A	–	–	–	–	–	–
SM100H19	SINGLE	+9.0V	0.0A/11.1A	–	–	–	–	–	–
SM100H12	SINGLE	+12.0V	0.0A/7.5A	–	–	–	–	–	–
SM100HH13	SINGLE	+15.0V	0.0A/6.0A	–	–	–	–	–	–
SM100H13-1	SINGLE	+18.0V	0.0A/5.0A	–	–	–	–	–	–
SM100H14	SINGLE	+24.0V	0.0A/4.1A	–	–	–	–	–	–
SM100H16-1	SINGLE	+33.0V	0.0A/3.0A	–	–	–	–	–	–
SM100H18	SINGLE	+48.0V	0.0A/2.1A	–	–	–	–	–	–
SM100H23	DUAL	+5.0V	0.0A/12.0A	+12.0V	0.0A/3.0A	–	–	–	–
SM100H24	DUAL	+5.0V	0.0A/12.0A	+15.0V	0.0A/3.0A	–	–	–	–
SM100H31	TRIPLE	+5.0V	0.0A/10.0A	+12.0V	0.0A/3.0A	-12.0V	0.0A/0.8A	–	–
SM100H34	TRIPLE	+5.0V	0.0A/10.0A	+24.0V	0.0A/2.0A	-12.0V	0.0A/0.8A	–	–
SM100H32	TRIPLE	+5.0V	0.0A/10.0A	+15.0V	0.0A/3.0A	-15.0V	0.0A/0.8A	–	–
SM100H31-3	TRIPLE	+3.3V	0.0A/10.0A	+5.0V	0.0A/10.0A	+12.0V	0.0A/0.8A	–	–
SM100H31-4	TRIPLE	+5.0V	0.0A/10.0A	+3.3V	0.0A/10.0A	+12.0V	0.0A/0.8A	–	–
SM100H30	TRIPLE	+5.0V	0.0A/10.0A	+12.0V	0.0A/3.0A	-5.0V	0.0A/0.8A	–	–
SM100H35	TRIPLE	+5.0V	0.0A/10.0A	+15.0V	0.0A/3.0A	-5.0V	0.0A/0.8A	–	–
SM100H40-3	QUAD	+5.0V	0.0A/10.0A	+3.3V	0.0A/10.0A	+12.0V	0.0A/0.8A	-12.0V	0.0A/0.5A
SM100H42-3	QUAD	+3.3V	0.0A/10.0A	+5.0V	0.0A/10.0A	+12.0V	0.0A/0.8A	-12.0V	0.0A/0.5A
SM100H46	QUAD	+5.0V	0.0A/10.0A	+24.0V	0.0A/1.5A	+12.0V	0.0A/0.8A	-12.0V	0.0A/0.5A
SM100H47	QUAD	+5.0V	0.0A/10.0A	+24.0V	0.0A/1.5A	+15.0V	0.0A/0.8A	-15.0V	0.0A/0.5A
SM100H40	QUAD	+5.0V	0.0A/10.0A	+12.0V	0.1A/3.0A	-12.0V	0.0A/0.8A	-5.0V	0.0A/0.5A
SM100H48	QUAD	+5.0V	0.0A/10.0A	+15.0V	0.1A/3.0A	-15.0V	0.0A/0.8A	-5.0V	0.0A/0.5A

MECHANICAL SPECIFICATIONS (mm / inches)



WEIGHT: 240g (8.11 Oz.)

MATING CONNECTOR: MOLEX # 5195 or
MOLEX # 5239 series

CONNECTOR PIN ASSIGNMENTS

AC INPUTS	PIN No.
AC-L	P1-L
AC-N	P1-N
AC-G	P1-G

DC OUTPUTS	PIN No.
DC COM	P2-5, 6, 7, 8
VO1	P2-1, 2, 3, 4
VO2	P2-9, 10
VO3	P2-12 (Triple)
	P2-11 (Quad)
VO4	P2-12 (Quad)

POWER DERATING vs TEMPERATURE and COOLING

TYPE	SINGLE			DUAL			TRIPLE			QUAD		
COOLING	20 CFM	5 CFM	Convec	20 CFM	5 CFM	Convec	20 CFM	5 CFM	Convec	20 CFM	5 CFM	Convec
TEMP	Max W	Max W	Max W	Max W	Max W	Max W	Max W	Max W	Max W	Max W	Max W	Max W
0 – 50°C	100	60	45	100	80	45	75	55	30	100	80	45
60°C	100	50	35	90	75	35	65	50	25	100	75	30
70°C	90	40	15	95	70	15	55	45	20	100	65	25
80°C	80	30	–	80	65	–	45	35	15	90	55	20

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