SM150H SERIES
150 WATT MEDICAL SWITCHING POWER SUPPLIES

UNIVERSAL INPUT

FEATURES

- Wide Range AC Input, meets IEC 61000-3-2 Harmonic Correction
- Open Frame, Compact Size : 5" x 3" x 1.38" 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 SM150H Series power supplies can deliver up to 150 watts of continuous power depending whether 5 to 30 CFM air flow cooling 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	90 to 264 VAC with PFC, 0.99 typ at full load. Meets IEC 61000-3-2.
Input Frequency	47 to 63 Hz
Input Current	1.8 / 0.88 A typical at 115 / 230 VAC
Inrush Current	11.3 A rms max at 230 VAC
Earth Leakage Current	450–630 µA at 230 VAC touch current
Input Fuse Protection	Internal 3.15 A fuse - Line & Neutral

ENVIRONMENTAL

Operating Temperature	0 °C to +90 °C. Refer to Power Derating table for detailed operating limitations.
Storage Temperature	–20 °C to +85 °C
Forced Air Cooling	5 to 30 CFM cooling required. 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	76 to 80% 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	6.52 to 7.24 Watts / Cu In.
Air Flow / Cooling	30 CFM fan recommended

OUTPUT SPECIFICATIONS

Total Output Power	150 W max. Refer to Power Derating chart for detailed operating limitations
Output Voltage / Current	Refer to Rating Chart for each Model
Output Adjustability	Available on outputs V1 & V2
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	90 mS typical at 115 / 230 VAC
Line Regulation	1% typical
Load Regulation	Single: ±3% (V1) Dual: ±3%(V1), ±1% (V2) Triple: ±3% (V1,V2,V3), ±8% (V1=3.3v) Quad: ±3% (V1,V2),V3,V4)
Over / Undershoot	None at turn on or turn off
Ripple and Noise	1% pk-pk typ, 20MHz bandwidth
Overvoltage Protection	115–135% Vnom, recycle input to reset (V1 & V2 outputs only)
Overload Protection	125–150% on primary power limit, automatic recovery
Short Circuit Protection	Trip and restart (Hiccup mode)
Over Temp. Protection	Included
Temperature Coefficient	0.04% per °C typical
Transient Response	Output voltage returns in less than 15 to 25 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

FORTRON/SOURCE

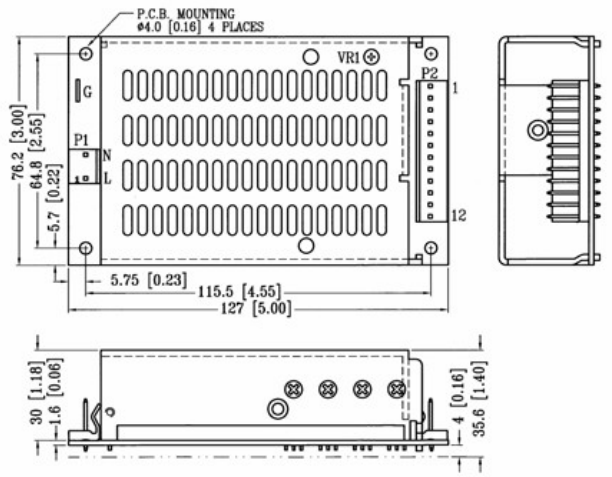
23181 Antonio Parkway, Rancho Santa Margarita CA 92688 U.S.A. ♦ Telephone 949-766-9240 ♦ Fax: (949) 766-9241
E-mail: salesusa@fspgroup.com ♦ Website: www.fspgroup.com

Rev B 1/2008

OUTPUT VOLTAGE / CURRENT RATINGS

MODEL	TYPE	Out V1	Ityp / Imax	Out V2	Ityp / Imax	Out V3	Ityp / Imax	Out V4	Ityp / Imax
SM150H10	SINGLE	+5V	27 / 30	–	–	–	–	–	–
SM150H12	SINGLE	+12V	12.5	–	–	–	–	–	–
SM150H13	SINGLE	+15V	10	–	–	–	–	–	–
SM150H14	SINGLE	+24V	6.3	–	–	–	–	–	–
SM150H23	DUAL	+5V	15	+12V	6	–	–	–	–
SM150H25	DUAL	+5V	15	+24V	3	–	–	–	–
SM150H26	DUAL	+12V	6.25	+12V	6.25	–	–	–	–
SM150H28	DUAL	+15V	5	+15V	5	–	–	–	–
SM150H31-3	TRIPLE	+3.3V	18 / 20	+5V	13.5 / 15	+12V	0.8	–	–
SM150H31	TRIPLE	+5V	15	+12V	5.5	+12V	0.8	–	–
SM150H32	TRIPLE	+5V	15	+15V	4.5	+15V	0.5	–	–
SM150H48	QUAD	+5V	15	+15V	4	-15V	0.8	-5V	0.5

MECHANICAL SPECIFICATIONS (mm / inches)



WEIGHT: 385g (13.4 Oz.)

MATING CONNECTOR: MOLEX # 5195 or MOLEX # 5239 series

CONNECTOR and PIN ASSIGNMENTS

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

DC OUTPUTS	CONNECTOR– PIN No.
DC COM	P2- 7, 8, 9, 10, 11, 12 (Single) P2- 5, 6, 7, 8 (Dual, Triple, Quad)
VO1	P2- 1, 2, 3, 4, 5, 6 (Single) P2- 1, 2, 3, 4 (Dual, Triple, Quad)
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	30 CFM	20 CFM	5 CFM	23 CFM	20 CFM	5 CFM	30 CFM	20 CFM	5 CFM	26 CFM	20 CFM	5 CFM
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 – 30°C	135.0	127.5	82.5	150	150	105	135	120	90	150	120	105
40°C	135.0	120.0	75.0	150	150	90	135	105	75	150	105	90
50°C	135.0	112.5	60.0	150	120	75	135	105	75	150	90	75
60°C	120.0	105.0	52.5	120	105	60	120	90	60	135	75	60
70°C	105.0	90.0	45.0	105	90	45	105	90	60	120	60	45
80°C	90.0	82.5	37.5	90	75	30	90	75	45	105	45	30
90°C	–	75.0	–	–	–	–	75	60	30	–	–	–

FORTRON/SOURCE
23181 Antonio Parkway, Rancho Santa Margarita CA 92688 U.S.A. ♦ Telephone 949-766-9240 ♦ Fax: (949) 766-9241
E-mail: salesusa@fspgroup.com ♦ Website: www.fspgroup.com