



AUTORANGING INPUT

FEATURES

- ◆ Low safety ground leakage current
- ◆ Power Fail Detect (PFD) signal
- ◆ Remote inhibit input disables DC output
- ◆ Meets EN55011, FCC Class B, EN60601-1-2, EN61000
- ◆ Compact size 4" x 7" PCB x 1.5" height
- ◆ Optional cover-and-fan assembly
- ◆ 100% burn-in at full rated load
- ◆ Wide range input 90 to 264VAC
- ◆ Overcurrent, Short-circuit and Overvoltage protections
- ◆ Power Factor 0.98 typical
- ◆ Compliant with RoHS requirements

DESCRIPTION

This series of switching power supplies are specially designed for non-patient contact medical applications. They are capable of delivering 200 to 300 watts of continuous DC output power. Construction is open PCB construction with a U-bracket for mechanical support and heat sinking. They operate at 90 to 264VAC input voltage without the need for voltage selection. All auxiliary outputs are equipped with magnetic amplifiers or linear regulators for keeping regulation. A cover-and-fan assembly can be added during manufacturing.

INPUT SPECIFICATIONS

Input Voltage	90 to 264 VAC (auto select).
Input Frequency	47 to 63 Hz
Input Current	4.7A rms @ 115VAC 2.3A rms @ 230 VAC
Inrush Current (at 25°C cold start)	30 amps @ 115VAC 60 amps @ 230VAC
Leakage Current (Touch current)	100µA max @ 115VAC 60Hz 220µA max @ 230VAC 50Hz
Remote Inhibit	TTL 'high' external input to inhibit outputs for standard models.

ENVIRONMENTAL

Operating Temperature	0 °C to +70 °C.
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5% to 95% RH, non-condensing
Cooling	Continuous output 100% rated power with 35 CFM forced air cooling. Otherwise, 50% rated power with convection air flow.

SM300P SERIES 200-300 WATT MEDICAL SWITCHING POWER SUPPLIES

GENERAL SPECIFICATIONS

Construction	PCB open frame, cover-and-fan option
Connectors / Terminals	PCB header pins
Switching Frequency	70KHz ±10KHz
Efficiency	70% minimum all models
Dielectric Isolation	4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF (per MIL-HDBK-217F)	300,000 hours minimum at full load at 25 °C ambient

OUTPUT SPECIFICATIONS

Total Output Power	Refer to Rating Chart for each model
Derating Output Power	Derate from 100% @ +50 °C linearly to 50% @ +70 °C
Output Voltage / Current, Adjustability, Peak Current	Refer to Rating Chart for each model
Minimum Load	No minimum load required
Hold Up Time	12 mSec min @ 110 VAC
Line Regulation	±0.2% max at full load
Over / Undershoot	None at turn on or turn off
Ripple and Noise	2% peak to peak max
Overvoltage Protection	Only on Output #1. Setting at 115-140% of Vnom output voltage.
Overcurrent / Short Circuit Protection	Continuous protection with automatic recovery.
Temperature Coefficient	±0.04% / °C max for all outputs
Transient Response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 µS after a 25% step load change.
PFD Signal	TTL 'high' for normal or 'low' upon loss of input power. Valid < 1mS before +5V output drops 5% below nominal value. Valid 100 mS delayed after +5V is within regulation.

EMC and SAFETY (1)

EMC Performance Standard	EN60601-1-2: 2001
	EN61000-3-2, -3-3, -4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11
EN55011, FCC-15, VCCI	Class-B Conducted, Radiated
Safety Standards (certified to)	UL508, EN60601-1 (TUV), UL60601-1, CSA C22.2 No. 601.1

(1) Products are rated for industrial environments and are not to be used nor are warranted in aerospace or life-support medical applications.

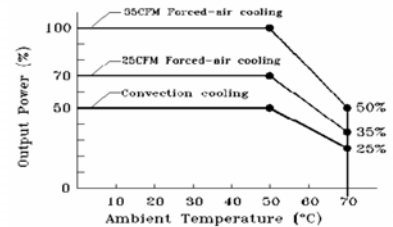


OUTPUT VOLTAGE / CURRENT RATINGS

MODEL	Output #1				Output #2				Output #3				Output #4				Max Output Power
	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	
SM300P10-3	3.3V	3.0A	60A	3%	-	-	-	-	-	-	-	-	-	-	-	-	200W
SM300P10	5.1V	3.0A	60A	2%	-	-	-	-	-	-	-	-	-	-	-	-	300W
SM300P12	12V	1.2A	25A	2%	-	-	-	-	-	-	-	-	-	-	-	-	300W
SM300P13	15V	1.0A	20A	2%	-	-	-	-	-	-	-	-	-	-	-	-	300W
SM300P14	24V	0.6A	12.5A	2%	-	-	-	-	-	-	-	-	-	-	-	-	300W
SM300P16	30V	0.5A	10A	2%	-	-	-	-	-	-	-	-	-	-	-	-	300W
SM300P18	48V	0.5A	6.3A	2%	-	-	-	-	-	-	-	-	-	-	-	-	300W
SM300P40-3	3.3V	3.0A	35A	3%	5.1V	2.0A	22A	2%	12V	0A	4A	4%	12V	0A	4.0A	4%	250W
SM300P40	5.1V	2.0A	35A	2%	12V	1.0A	10A	2%	12V	0A	4A	4%	5.1V	0A	4.0A	4%	300W
SM300P41	5.1V	2.0A	35A	2%	15V	0.8A	8A	2%	15V	0A	4A	4%	24V	0A	2.5A	4%	300W
SM300P42	5.1V	2.0A	35A	2%	12V	1.0A	10A	2%	12V	0A	4A	4%	12V	0A	4.0A	4%	300W
SM300P45	5.1V	2.0A	35A	2%	12V	1.0A	10A	2%	12V	0A	4A	4%	24V	0A	2.5A	4%	300W
SM300P46	5.1V	2.0A	35A	2%	12V	1.0A	10A	2%	12V	0A	4A	4%	15V	0A	4.0A	4%	300W
SM300P47	5.1V	2.0A	35A	2%	24V	0.5A	5A	2%	12V	0A	4A	4%	12V	0A	4.0A	4%	300W
SM300P48	5.1V	2.0A	35A	2%	24V	0.5A	5A	2%	5.1V	0A	4A	4%	15V	0A	4.0A	4%	300W
SM300P49	5.1V	2.0A	35A	2%	12V	1.0A	10A	2%	5.1V	0A	4A	4%	24V	0A	2.5A	4%	300W
SM300P410	24V	0.5A	6.3A	2%	12V	1.0A	10A	2%	5.1V	0A	4A	4%	12V	0A	4.0A	4%	300W
SM300P411	24V	0.5A	6.3A	2%	12V	1.0A	10A	2%	5.1V	0A	4A	4%	24V	0A	2.5A	4%	300W
SM300P412	24V	0.5A	6.3A	2%	12V	1.0A	10A	2%	12V	0A	4A	4%	12V	0A	4.0A	4%	300W
SM300P413	24V	0.5A	6.3A	2%	24V	0.5A	5A	2%	5.1V	0A	4A	4%	15V	0A	4.0A	4%	300W
SM300P414	24V	0.5A	6.3A	2%	24V	0.5A	5A	2%	12V	0A	4A	4%	12V	0A	4.0A	4%	300W

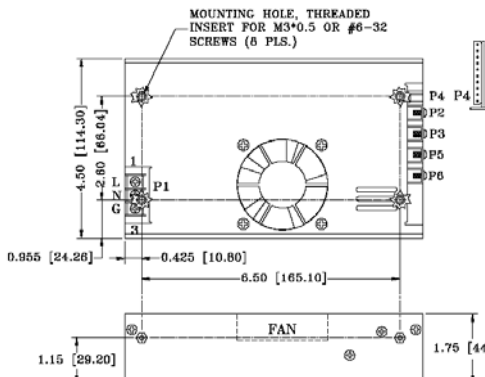
NOTES

- Add suffix "B" for U-bracket format or "C" for enclosed format with option fan control, e.g. SM300-45C.
- All outputs are floating. It can be connected externally for positive or negative output.
- Output #1 & #2 can be adjusted within $\pm 5\%$ of their nominal voltage.
- Output #3 & #4 can be adjusted within $\pm 15\%$ of their nominal voltage.
- 300 watts for "C" version with cover-and-fan assembly. 150 watts for "B" version without moving air (maximum current of output #1 & #2 derated to 50%), or 300 watts with 35 CFM forced air provided by user.
- SM3000-10-3 is rated 200 watts with 35 CFM forced air cooling or 100 watts convection cooled. SM3000-40-3 is rated 250 watts with 35 CFM forced air cooling (maximum current of output #1 & #2 derated to 50%) or 125 watts convection cooled.
- Single output models may be operated at no-load. At no-load, output voltage tolerance increases to 10%.



DERATING CURVE

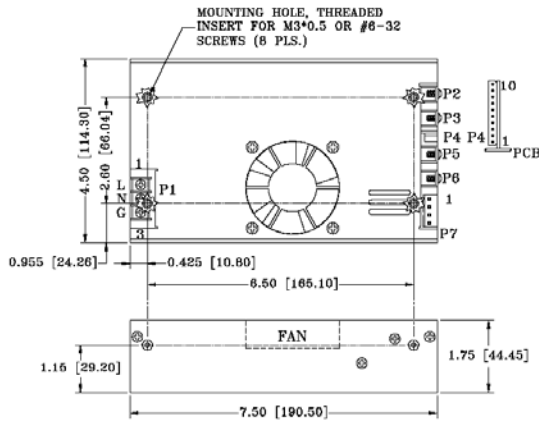
MECHANICAL SPECIFICATIONS (mm / inches)



Single Output Models

NOTES:

- Dimensions shown in inch [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 is Dinkle DT-35-B01W-03 screws are M3, Nickel plated.
- Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
- Connectors P2, P3, P5 and P6: M3*0.5 screw connections
- Weight: 1.20 kgs. (2.64 lbs.) approx.
- DC fan on P4 is rated at 12V/0.1A.



Multiple Output Models

NOTES:

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1 is Dinkle DT-35-B01W-03 screws are M3, Nickel plated.
4. Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
5. Connectors P2, P3, P5 and P6: M3*0.5 screw connections
6. Output connector P7 mates with Molex housing 09-50-3041 and Molex 2878 series crimp terminal.
7. Weight: 1.24 kgs. (2.73 lbs.) approx.
8. DC fan on P4 is rated at 12V/0.1A.

PIN ASSIGNMENTS

All Models: P1 is AC INPUT: (1) L-Line, (2) N-Neutral, (3) G-Ground.

Single Output Models

MODEL	CONN.:		P 4			
	P 2	P 3	1	2	3	4
SM300-10 SM300-12 SM300-14 SM300-18	+VO1	+VO1	SIGNAL GROUND (-VO1)	+S (VO1)	-S (VO1)	PFD

MODEL	P 4						P 5	P 6	P 7			
	5	6	7	8	9	10			1	2	3	4
SM300-10 SM300-12 SM300-14 SM300-18	INHIBIT	N.C.	N.C.	N.C.	0V (FAN)	FAN	-VO1	-VO1	VOID	VOID	VOID	VOID

Multiple Output Models

MODEL	CONN.:		P 4			
	P 2	P 3	1	2	3	4
SM300-40 SM300-41 SM300-45 SM300-47 SM300-49 SM300-411 SM300-413	+VO1	-VO1	SIGNAL GROUND (-VO1)	+S (VO1)	-S (VO1)	PFD

MODEL	P 4						P 5	P 6	P 7			
	5	6	7	8	9	10			1	2	3	4
SM300-40 SM300-41 SM300-45 SM300-47 SM300-49 SM300-411 SM300-413	INHIBIT	N.C.	+S (VO2)	-S (VO)	0V (FAN)	FAN	+VO2	-VO2	+VO3	-VO3	+VO4	-VO4