3. ABSOLUTE MAXIMUM RATINGS

Stresses in excess of the absolute maximum ratings may cause performance degradation, adversely affect long-term reliability, and cause permanent damage to the power supply.

PARAMETER		CONDITIONS / DESCRIPTION	MIN	MAX	UNITS
$V_{i\ maxc}$	Maximum Input	Continuous		300 400	VAC VDC

4. INPUT

General Condition: T_A = 0…45 °C unless otherwise specified.

PARAMETER		DESCRIPTION / CONDITION	MIN	NOM	MAX	UNIT
$V_{i\ AC\ nom}$	Rated AC Input Voltage	Rated AC Input Voltage	100	230	277	VAC
$V_{i\ AC\ operating}$	AC Input Voltage Range	Operating AC Input Voltage ($V_{i\ AC\ min}$ to $V_{i\ AC\ max}$)	90		300	VAC
$V_{i\ AC\ HL}$	High line AC Input Voltage	AC Input Voltage Range with full output power	180		300	VAC
$V_{i\ AC\ Red}$	Derated AC Input Voltage	AC Input Voltage Range with reduced output power.	90		180	VAC
$I_{i\ max}$	Max Input Current	$V_{i\ AC}$ > 200 VAC or $V_{i\ DC}$ > 200 VDC			23	A_{rms}
$I_{i\ p}$	Inrush Current Limitation	$V_{i\ AC\ min}$ to $V_{i\ AC\ max}$ or $V_{i\ AC\ min}$ to $V_{i\ AC\ max}$, T_{NTC} = 25°C			50	A_p
F_i	Input Frequency		47	50/60	63	Hz
PF	Power Factor	$V_{i\ AC\ nom}$, 50Hz, I_1 > 0.3 $I_{1\ nom}$	0.96			W/VA
$V_{i\ AC\ on}$	Turn-on AC Input Voltage[2]	Ramping up	80		87	VAC
$V_{i\ AC\ off}$	Turn-off AC Input Voltage	Ramping down	73		85	VAC
η	Efficiency	V_i = 277 VAC, 0.1·$I_{1\ nom}$, I_{SB} = 0A, $V_{x\ nom}$, T_A = 25°C		94.6		%
		V_i = 277 VAC, 0.2·$I_{1\ nom}$, I_{SB} = 0A, $V_{x\ nom}$, T_A = 25°C		96.6		
		V_i = 277 VAC, 0.5·$I_{1\ nom}$, I_{SB} = 0A, $V_{x\ nom}$, T_A = 25°C		97.4		
		V_i = 277 VAC, $I_{1\ nom}$, I_{SB} = 0A, $V_{x\ nom}$, T_A = 25°C		96.5		
T_{hold}	Hold-up Time	After last AC zero crossing, V_1 > 41V, $V_{i\ AC\ nom\ or\ Vi\ DC\ nom}$, $P_{1\ nom}$	15			ms

4.1. INPUT FUSE

Fast-acting 30 A input fuses (6.3 × 32 mm) in series with both the L- and N-line inside the power supply protect against severe defects. The fuses are not accessible from the outside and are therefore not serviceable parts.

4.2. INRUSH CURRENT

The AC-DC power supply exhibits an X capacitance of 5.8 µF, resulting in a low and short peak current, when the supply is connected to the mains. The internal bulk capacitors will be charged through NTC resistors which will limit the inrush current.

NOTE:

Do not repeat plug-in / out operations below 30 sec interval time, or else the internal in-rush current limiting device (NTC) may not sufficiently cool down and excessive inrush current may result.

[2] The Front-End is provided with a minimum hysteresis of 3 V during turn-on and turn-off within the ranges

4.3. INPUT UNDER-VOLTAGE

If the input voltage (either AC or DC) stays below the input under-voltage lockout threshold $V_{i\ AC\ on}$ or $V_{i\ DC\ on}$, the supply will be inhibited. Once the input voltage returns within the normal operating range, the supply will return to normal operation again.

4.4. POWER FACTOR CORRECTION

Power factor correction (PFC) is achieved by controlling the input current waveform synchronously with the input voltage. A fully digital controller is implemented giving outstanding PFC results over a wide input voltage and load range. The input current will follow the shape of the input voltage. If, for instance, the input voltage has a trapezoidal waveform, then the current will also show a trapezoidal waveform.

4.5. EFFICIENCY

The high efficiency is achieved by using state-of-the-art silicon power devices in conjunction with soft-transition topologies minimizing switching losses and a full digital control scheme. Synchronous rectifiers on the output reduce the losses in the high current output path. The rpm of the fan is digitally controlled to keep all components at an optimal operating temperature regardless of the ambient temperature and load conditions. *Figure 2* shows the measured efficiency with AC input voltage applied, with standby output at zero load.

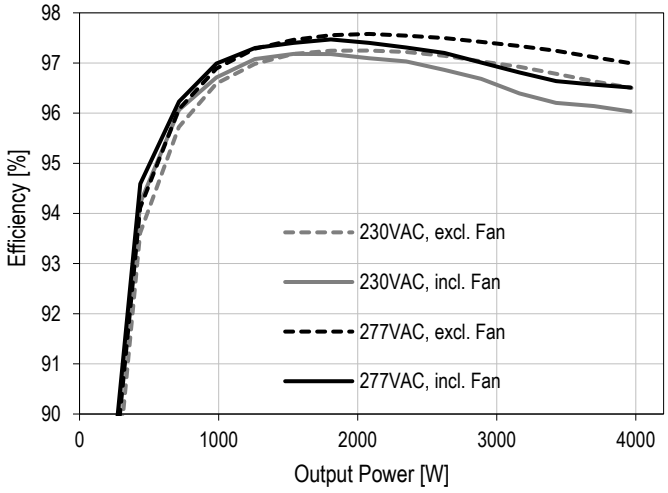

Figure 2. Typical Efficiency vs. Load Current