UNIPOWER CORPORATION

SGH3000 MODULE

650 WATT 12V FRONT END

11.81 x 1.99 x 1.57” | 300 x 50.5 x 40mm

Fit Power Limited

DESCRIPTION

UNIPOWER’s **SGH3000** is a new generation of high density hot-swap Front-Ends for Networking and DataCom applications that utilize 12V Bus Architecture. With a power density of 17.5W/in^3 and efficiency of Up to 92%, these “GREEN” power solutions help system designers satisfy increasing demands for reduced energy consumption, smaller size and reduced costs.

These 650 Watt Power Modules feature both Analog and PMBus communication for status and control of each power module. Front panel LED indicator and Audible alarm communicates status or fault conditions for easy identification in any environment. N+N Redundant operation is achieved with active load sharing and ORing protection circuits.



FEATURES

- Up to 92% Efficiency
- 1U High: 1.57”
- 0°C to +50°C Operation
- Universal AC Input
- >0.95 Power Factor (minimum)
- Output Voltages: 12 VDC & 5VSB
- Power Density to 17.5W/Cu. Inch
- Hot Swappable
- Integral Active Output ORing Circuit
- Class B EMI Filter
- LED Indicators
- PMBus Serial Communications
- Variable Speed Cooling Fans

TWO-YEAR WARRANTY

INTERNATIONAL STANDARDS

UL/cUL 60950-1, TUV EN 60950-1
CB IEC 60950-1, WEEE, CE Mark (LVD)

12V FRONT END MODULE

POWER	12VOUT	5VSB	MODEL NO.
650W	54A	3A	SGH3000

* Total power May Not Exceed 650 Watts

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SPECIFICATIONS

Typical at Nominal Line, Full Load and 25°C Unless Otherwise Noted.

INPUT

Voltage Range	90-264 VAC
Power Factor	>0.95
Total Harmonic Distortion, Max	5%
Frequency	47-63Hz
Inrush Current Limiting, Max	35 / 70A Peak @ 115 / 230 VAC
EMI Filter, Conducted	FCC20780 pt 15J Curve B EN55022 Curve B
Fast Transients	EN61000-4-4
Surges	EN61000-4-5
Remote Sense Compensation	>250mV
Input Protection	Internal Fuse, 15A

OUTPUT

Current & Voltage	See Table
Output Power	650W
Ripple / Noise, max	12V = 120mV | 5V = 60mV
Line Regulation	Max ±1%
Load Regulation,	Max ±5%
Transient Load / Slew Rate	0.5/Aμs
Holdup Time	17msec @ 70% load
Overvoltage Protection (12V Only)	14.5V Max (Latch Off)
Current Limit	>130% (Latch Off)
Efficiency	87% Minimum at Full Load

SAFETY STANDARDS ..... UL60950-1, CSA22.2 No. 60950-1, EN60950-1

PMBus Version Compliance 1.1

STATUS INDICATORS

Normal(AC OK)	Green
Standby (Only +5VSB output)	(AC OK) Blinking Green
Power Fail	Red
Fan Fail	Blinking Red
Audible Buzzer	Fan / Power / AC Failure

ALARM SIGNALS (open drain, TTL compatible)

PSON	Remote ON Off (LOW=ON)
PSKILL	Actives PSU (Short)
PDBALERT	Run Fan at Max Spped (LOW)
PDB FAULT	System Fault Shutdown (HIGH)
PWOK	Power Good (HIGH)
PS Present	Indicates Power Module is present

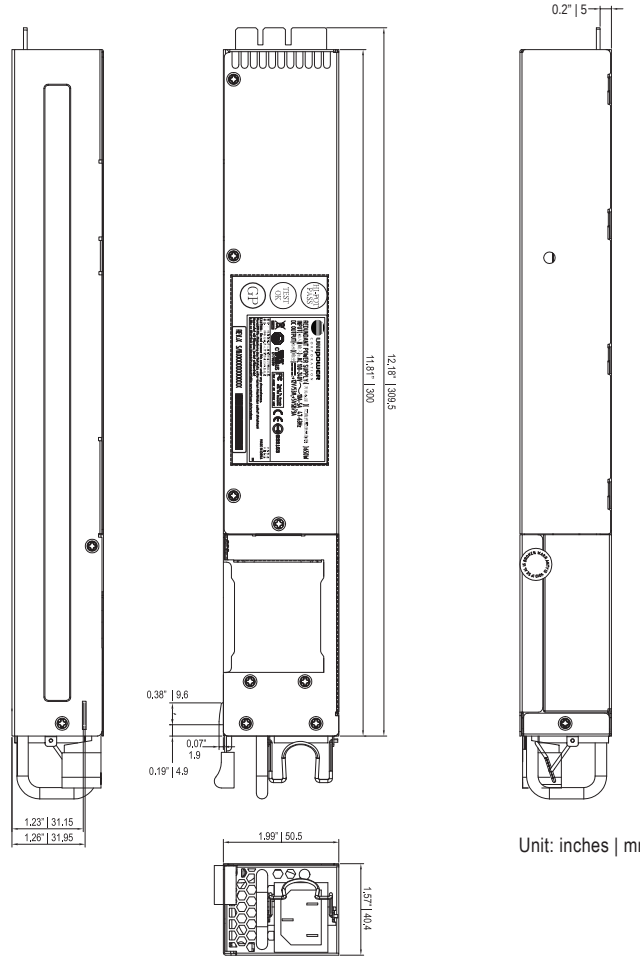
ENVIRONMENTAL

Operating Temp. Range	0°C to +50°C (Full Load)
Output Current Derating	3%/°C, 50°C to 60°C
Storage Temp. Range	-40°C to + 70°C
Humidity	0% to 95%, Non-Condensing
ESD	Bellcore GR-1089-Core and EN61000-4-2
MTBF, 25°C (MIL217F)	100,000 Hours
Cooling	Integral Ball Bearing Fans

PHYSICAL SPECIFICATIONS

Case Material	Steel
Case Dimensions, Inches (mm)	11.81"(L) x 1.99"(W) x 1.57"(H) (300 x 50.5 x 40mm)
Weight	2.4 lbs. (1.1 kg.)

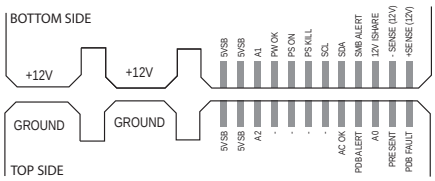
OUTLINE DRAWING



Unit: inches | mm

DC CONNECTOR DETAILS

Edge Connector mates with Molex 45984-4161

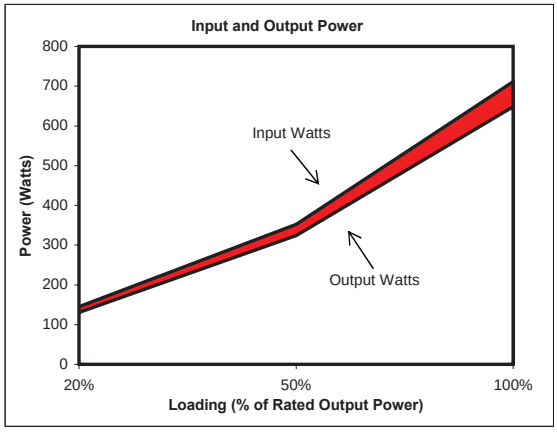


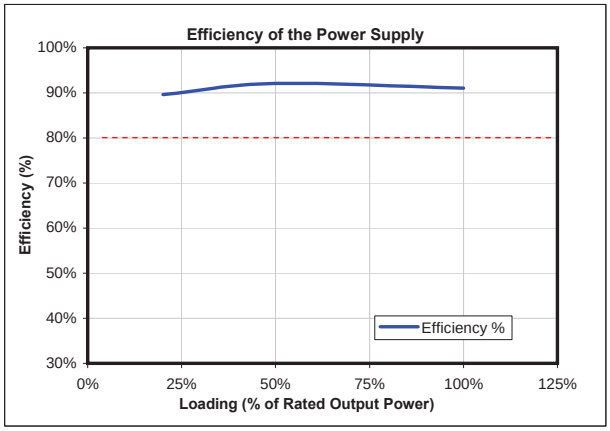
Pin Name	Function
+12V	+12V power output
GND	Grounding
5VSB	+5V standby power
A0	I2C Address
A1	I2C Address
A2	I2C Address
PW_OK	Power Good Output. Signal is pulled HIGH to indicate all outputs ok.
PSON	Module PSON. Remote control power On/Off (Pulled LOW = POWER ON)
PS_KILL	Activate PSU by hot-plug activity
SCL	I2C CLOCK
SDA	I2C DATA
PDB-ALERT	To receive ALERT signal from system or PSU backplane, If signal is pulled LOW, the power internal fan shall be forced to run at maximum speed to improve thermal performance
SMB-ALERT	If PSU FAIL,FAN FAIL,OCP occurs, signal will be pulled from High to Low , PSU normal =High(TTL LEVEL)
12LS	12V Load Share
Present	This pin is grounded with a 47R resistor. To indicate a power has been plugged in.
12VRS+	+12V Remote sense
12VRS-	+12V negative feedback
PDB-FAULT	To receive a FAULT signal. Power shall be shutdown if this pin is pulled HIGH.
AC-OK	The pin will be pulled HIGH if 5VSB is ready

EFFICIENCY TEST RESULTS

I_{RMS} A	PF	I_{THD} (%)	Load (%)	Fraction of Load	Input Watts	External Fan (W)**	DC Terminal Voltage (V)/ DC Load Current (A) 12V	5Vsb		Output Watts	Efficiency %
0.41	0.8212	33.35	*10%	**Low**	77	15.97	11.98/5.32	5.08/0.29		65	**84.48%**
0.70	0.8955	15.78	20%	**Light**	145	15.85	11.97/10.63	5.07/0.59		130	**89.64%**
1.57	0.9763	8.19	50%	**Typical**	352	15.85	11.95/26.51	5.04/1.47		324	**92.08%**
3.13	0.9887	8.10	100%	**Full**	712	15.73	11.95/52.97	5/2.94		648	**91.04%**

* 10% load results are for informative purposes only and not included in certification requirements.
** Fan power is not included in the efficiency calculations





INDICATORS

LED INDICATORS

Power Supply Status	Color
Normal(AC OK)	Green
Standby (AC OK)	Blinking Green
Power Fail	Red
Fan Fail	Blinking Red
AC Loss	Red

PMBus SPECIFICATIONS

Command Code	Command Name	SMBus Transaction Type	Number of Data Bytes
19h	CAPABILITY	Read Byte	1
88h	READ_VIN(Note1)	READ WORD	2
89h	READ_IIN	READ WORD	2
8Bh	READ_VOUT	READ WORD	2
8Ch	READ_IOUT	READ WORD	2
8Dh	READ_TEMPERATURE_1	READ WORD	2
90h	READ_FAN_SPEED_1	READ WORD	2
91h	READ_FAN_SPEED_2	READ WORD	2
96h	READ_POUT	READ WORD	2
97h	READ_PIN	READ WORD	2
98h	PMBUS_REVISION	READ BYTE	1
99h	MFR_ID	READ BLOCK	6
9Ah	MFR_MODEL	READ BLOCK	9
9Bh	MFR_REVSION	READ BLOCK	2
9Eh	MFR_SERIAL	READ BLOCK	12
A0h	MFR_VIN_MIN	READ_WORD	2
A1h	MFR_VIN_MAX	READ_WORD	2
A7h	MFR_POUT_MAX	READ_WORD	2
B0h	USER_DATA_00	READ BYTE	1

Note1: If AC Input= 90V ~ 180V PMBus sent the value of 115V
If AC Input= 181V ~ 264V PMBus sent the value of 230V

Bit Number	Status Bit Name	Meaning
7	Reserved	Default=0
6	Reserved	Default=0
5	Reserved	Default=0
4	Reserved	Default=0
3	Reserved	Default=0
2	Module Status	Inserted=0, Not inserted=1
1	PS_ON Status	PS_OFF=0, PS_ON=1
0	AC Status	AC OK=0, AC Fail=1

Table 20 - Device address locations

PDB address A2/A1/A0	0/0/0	0/0/1	0/1/0	0/1/1	1/0/0	1/0/1	1/1/0	1/1/1
PSU IPMI FRU Device	A0h	A2h	A4h	A6h	A8h	AAh	ACh	AEh
PSU PMBUS Device	B0h	B2h	B4h	B6h	B8h	BAh	BCh	BEh