

Features:

- Compact 1U Profile
- Output voltage and power optimal for Industrial, Wireless Base Stations, and RF Amplifiers
- Constant Current Characteristic
- N+1 Redundancy
- High Power Density (21W/in³)
- 3.3VSB, Active Load Sharing, I²C and PMBus digital communication
- Remote On/Off and Remote Sense functions



FEATURES	BENEFITS
High Power Density 21W/in ³	More system space for application circuits and hardware
Load Sharing & Fault Tolerant	Excellent reliability in N+1 operation
Automatic Fan Speed Control	Reduces audible noise and increases reliability
System Scalability up to 8kW	Allows flexibility with minimum investment
Universal Input & International Certifications	Reduces logistical costs

KEY MARKET SEGMENTS & APPLICATIONS
<ul style="list-style-type: none"> ■ Amplifier ■ Industrial ■ Wireless

SPECIFICATIONS	2,000 Watt +24V Front End Power Supply
Input Voltage Range	180-264 VAC, 47-63 Hz, derate to 1200W for 85~180 VAC Input
Input Current Maximum	12.6A @ 180VAC / 14.3A @ 100VAC, Full Load (max)
Inrush Current	50A max. cold start (per ETS 300 132-1 and Bellcore specifications)
Input Protection	Dual Fuse / 20 Amp / 250 VAC
Power Factor	0.99 (Typical)
Efficiency	Up to 90.5% (see efficiency curve)
Output Power	2000W at 28Vout, 1743W @ 21Vout
Output Voltage Range	21 to 29 VDC with remote programming
Output Current	83A @ 24Vout / 230VAC Operation
Standby Bias Voltage	3.3VSB@1A (optional 5Vsb)
Voltage Regulation	±2% of Vnom for any combination of line, load and temperature
Output Ripple & Noise	1% (pk-pk) @ 20MHz with 0.1µF ceramic and 10µF Tantalum caps at the output
Transient Response	5% max deviation Recovery time 300µs @ 50% load step and di/dt < 1A/µs
Hold-Up Time	15ms at full load measured down to 20V with 230Vac
Remote On/Off	ON if >3V or open; OFF if <1V (max. sink 1mA) Open collector type
Current Limit Protection	Adjustable via I ² C interface or PMBus, Constant current characteristic & power limited to 2000W (230VAC)
Short Circuit Protection	Self protected with auto recovery
Over Voltage Protection	Trip level >+31Vdc ± 1V, Reset condition by recycling the AC input or applying Remote ON/OFF
Operating Temperature	-10°C to +70°C. power derating above 50°C at 2.5%/°C
Over Temperature Protection	Non-Latching, thermal shutdown point is set for 125°C and recovery point is 110°C
EMI	FCC-B & EN55022-B with specified filter or at rack level, GR-1089-CORE
LED Indicators	LED Indicators to indicate AC OK, DC OK and other Fault Conditions
Analog Status & Control	Voltage Programming (V Prog), Load sharing (I Share), Remote On/Off, Current Monitor (I Monitor), AC OK, DC OK, Temperature Warning, Fault, PS Present, Module Enable,
Digital Status & Control	I ² C and PMBus, see detailed specification for details
Shock & Vibration	NEBS GR-63-CORE Level 3
Dimensions	14.25 x 4.00 x 1.65" / 316.23 x 101.6 x 41.91mm
Safety Approvals	IEC/UL/CSA/EN60950-1, CE Mark (LVD)
Options	5VSB Output, Bezel

rev 100506

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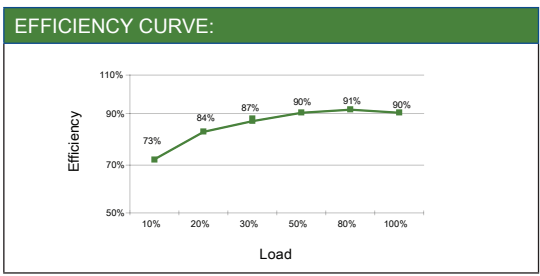
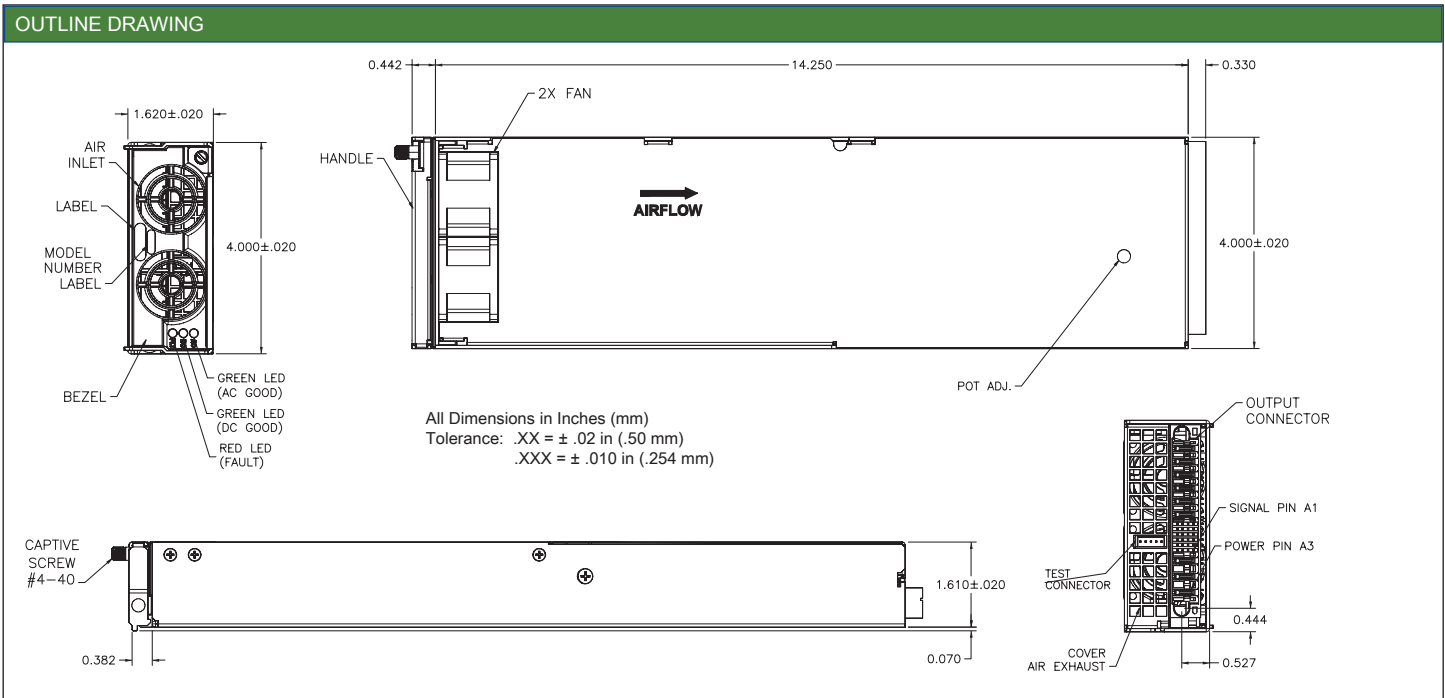
3000 Skyline Dr.
Mesquite, TX 75149
Phone: (972) 284-2000

Lineage Power

2841 Dow Avenue
Tustin, CA 92780 USA
Phone: (714) 544-6665

Lineage Power (China)

1353 Chenqiao Road, Shanghai Sengpu Industrial Park
Shanghai, 201401 China
Phone: 021 6710 8910



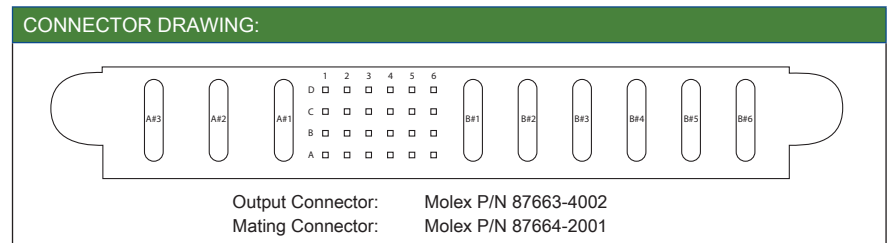
TEST CONDITION	LED INDICATOR			MONITORING SIGNAL*			
	AC OK	DC OK	FAULT	FAULT	DC OK	AC OK	TEMP OK
1 NORMAL OPERATION	Green	Green	OFF	High	High	High	High
2 LOW/ or NO AC Input	OFF	OFF	Red	Low	Low	Low	High
3 OVP	Green	OFF	Red	Low	Low	High	High
4 OVER CURRENT	Green	OFF	Red	Low	Low	High	High
5 THERMO ALARM	Green	Green	OFF	High	High	High	Low
6 Fault Over Temperature	Green	OFF	Red	Low	Low	High	Low
7 Remote ON/OFF	Green	OFF	Red	Low	Low	High	High

PART NUMBER DEFINITION GUIDE:

CAR 20 24 F P X XX -1A

- Series: 20=2000W
- Output Current: 24=24V
- Output Voltage: 24=24V
- Type: F=Front End
- Polarity: P=Positive
- Options: B=Bezel Option, Blank=None
- Rev.: Blank=Non-compliant, YO=5 of 6 Compliant, ZO=6 of 6 Compliant, RoHS

Examples:
 CAR2024FPBZ0-1A
 2000W/24V Front End, Bezel, 6 of 6 RoHS
 CAR2024FPZ0-1A
 2000W/24V Front End, 6 of 6 RoHS



Pin	Functions	Pin	Functions	Pin	Blades
A1	VSB [3.3V]	C1	I Share	A#3	Ground
A2	PS Present	C2	N/C	A#2	Neutral
A3	Signal Return	C3	Temp OK	A#1	Line
A4	Write Protect	C4	I ² C Address (A0)	B#1	+V
A5	Remote Sense (+)	C5	I ² C Address (A1)	B#2	+V
A6	Remote Sense (-)	C6	I ² C Address (A2)	B#3	+V
B1	Fault	D1	V Prog	B#4	Return
B2	I Monitor	D2	OVP Test Point	B#5	Return
B3	Module Enable	D3	Remote ON/OFF	B#6	Return
B4	VSB [3.3V] Return	D4	DC OK		
B5	SDA	D5	AC OK		
B6	SCL	D6	Interrupt		

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