

# LCM1500

1500 Watts

Bulk Front End

Total Power: 1500 W  
# of Outputs: Single  
Output: 12 to 48V  
Optional 5.0 V standby



## Special Features

- 1500 W output power
- Low Cost
- 2.5" x 5.2" x 10.0"
- 12 Watts Per Cubic Inch
- Industrial/Medical safety
- -40 °C to 70 °C with derating
- Optional 5 V @ 2 A Housekeeping
- High Efficiency: 89% typical
- Variable speed "Smart Fans"
- DSP controlled
- Conformal coat option
- ± 10% adjustment range
- Margin programming
- OR-ing FET

## Compliance

- EMI Class A
- EN61000 Immunity
- RoHS 2
- PMBUS

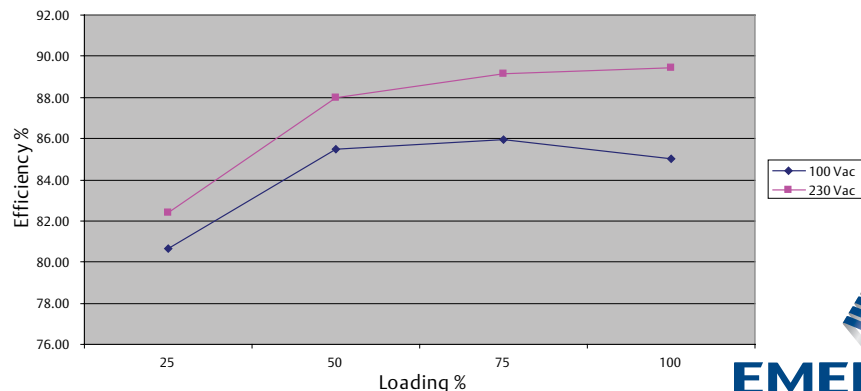
## Safety

- UL 60950-1  
508/1598/1433  
60601-1 Ed 3
- CSA 60950-1
- VDE 60950-1  
60601  
CCC
- China CCC
- CB Scheme Report/Cert

## Electrical Specifications

Input	
Input range:	90 - 264 Vac (Operating) 115/230 Vac (Nominal) TERMINAL BLOCK
Frequency:	47 - 440 Hz, Nominal 50/60
Input fusing:	Internal 20 A fuses, both lines fused
Inrush current:	≤ 25 A peak, either hot or cold start
Power factor:	0.99 typical, meets EN61000-3-2
Harmonics:	Meets IEC 1000-3-2 requirements
Input current:	18 A RMS max input current, at 100 Vac
Hold up time:	20 ms minimum for Main O/P, at full rated load
Efficiency:	> 91% typical at full Load / 230VAC nominal
Leakage current:	< 0.3 mA at 264 Vac
ON/OFF power switch:	N/A
Power line transient:	MOV directly after the fuse
Isolation(Production):	PRI-Chassis 2500 Vdc Basic PRI-SEC 2500 Vdc Reinforced SEC-Chassis 500 Vdc

LCM1500Q Efficiency Without the 5 Vsb



Output		
Output rating:	See table 1	90 - 264 Vac
Set point:	± 0.5%	90 - 264 Vac
Total regulation range:	Main output ± 2% 5 Vsb ± 1%	Combined line/load/transient when measured at output terminal
Rated load:	1500 W maximum	Derate linear to 50% from 50 °C to 70 °C
Minimum load:	Main output @ 0.0 A 5 Vsb @ 0.0 A	No loss of regulation
Output noise (PARD):	1% max p-p 50 mV max p-p	Main output 5 Vsb output Measured with a 0.1 µF Ceramic and 10 µF Tantalum Capacitor on any output, 20 MHz
Output voltage overshoot:		No overshoot/undershoot outside the regulation band during on or off cycle
Transient response:	< 300 µSec	50% load step @ 1 A/µs Step load valid between 10% to 100% of output rating Recovery time to within 1% of set point at onset of transient
Max units in parallel:		Up to 10
Short circuit protection:	Protected, no damage to occur	Bounce mode
Remote sense:		Compensation up to 500 mV
Output isolation:		Standard per safety requirements
Forced load sharing:	To within 10% of all shared outputs	Analog sharing control
Overload protection (OCP):	105% to 125% 120% to 170%	Main output 5 Vsb output
Overvoltage protection (OVP):	125% to 145% 110% to 125%	12 V output 5 Vsb output
Overtemp protection:	10 - 15 °C above safe operating area	Both PFC and output converter monitored

## Environmental Specifications

Operating temperature:	-40 °C to +70 °C, linear derating to 50% from 50 °C to 70 °C
Storage temperature:	-40 °C to +85 °C
Humidity:	20 to 90%, non-condensing. Operating. Conformal coat option available
Fan noise:	< 45 dBA, 80% load at 30
Altitude:	Operating - 16,405 feet (3000m) Storage - 30,000 feet
Shock:	MIL-STD-810F 516.5, Procedure I, VI. Storage
Vibration:	MIL-STD-810F 514.5, Cat. 4, 10. Storage

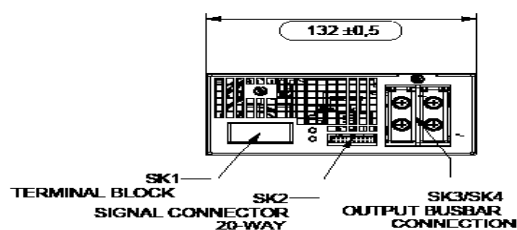
## Ordering Information

Model Number*	Output	Nominal Output Voltage Set Point	Set Point Tolerance	Adjustment Range	Current		Output Ripple P/P (0-50 deg C)	Max Continuous Power	Combined Line/Load Regulation	Availability
					Min	Max				
LCM1500L	12V	12V	+/-0.5%	10.8-13.2V	0A	133A	120mV	1500	2%	APR 2013
LCM1500N	15V	15V	+/-0.5%	13.5-16.5V	0A	100A	150mV	1500	2%	AUG 2013
LCM1500Q	24V	24V	+/-0.5%	21.6-26.4V	0A	67A	240mV	1500	2%	NOW
LCM1500R	28V	28V	+/-0.5%	25.2-30.8V	0A	53.6A	280mV	1500	2%	JUNE 2013
LCM1500U	36V	36V	+/-0.5%	32.4-39.6V	0A	43A	360mV	1500	2%	MAR 2013
LCM1500W	48V	48V	+/-0.5%	43.2-52.8V	0A	33A	480mV	1500	2%	DEC 2012

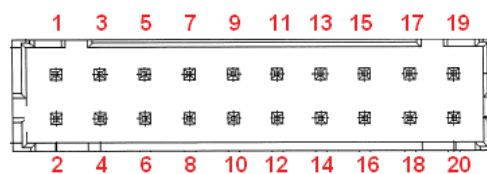
## Pin Assignment

Signals	Name Description	Pin Number(s)
+Vout	Power rail	SK4
GND	Power GND	SK5
Signals	Name Description	SK2 Pin Number
A2	EEPROM Address	1
-VPROG	Return connection of external supply for Margin Programming	2
A1	EEPROM Address	3
-Vsense	Remote Sense Return	4
ISHARE	Load share voltage	5
A0	EEPROM Address	6
SDA1	Serial Data Signal (I2C)	7
+VPROG	Positive connection of external supply for Margin Programming	8
SCL1	Serial Clock Signal (I2C)	9
+Vsense	Remote Sense Positive	10
5VSB	5V standby	11
GND	5V standby Return	12
5VSB	5V standby	13
G_DCOK_C	Global DCOK Collector	14
GPIOA6	EEPROM Write Protect	15
G_DCOK_E	Global DCOK Emitter (GND)	16
GND	Return Ground for output signal and I2C communication	17
G_ACOK_C	Global ACOK Collector	18
INH_EN	Turn Off Main Output	19
G_ACOK_E	Global ACOK Emitter (GND)	20

Note: Mating connector for SK2 is LANDWIN CI0120P1HD0-LF



PSU Front View (24V & 48V UNITS)



Signal Output Signal Connectors (SK2)

### LED Indicators

2 provided are clearly visible up to a 45 degree offset from vertical with office environment ambient lighting. The status is reflected in the indicator color.

**The DC\_OK** LED is bicolor. It shall light green if the DC output is within specification, and amber if the output falls out of specification.

**The AC\_OK** LED is Green if the AC is within specification and off when out of specification. Note: With 5 V standby, Amber also indicates that PSU is in standby mode/output off.

### Control Signals

**AC\_OK** Open collector 0.5 V maximum at 10 mA. Both emitter and collector access provided.

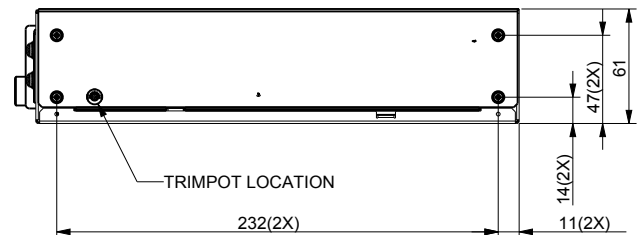
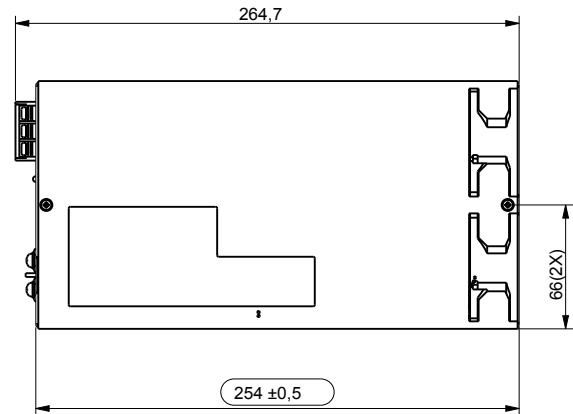
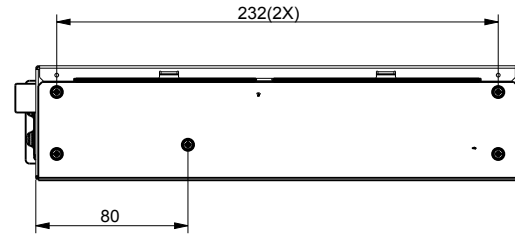
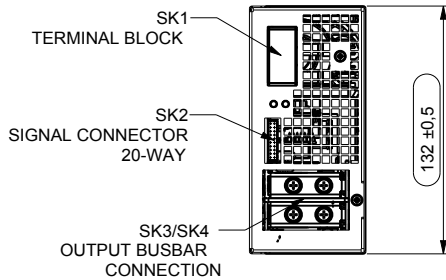
**DC\_OK** Open collector 0.5 V maximum at 10 mA. Both emitter and collector access provided.

**PS\_INHIBIT/ENABLE Signal** 0.0 - 0.5 V contact closure, output OFF

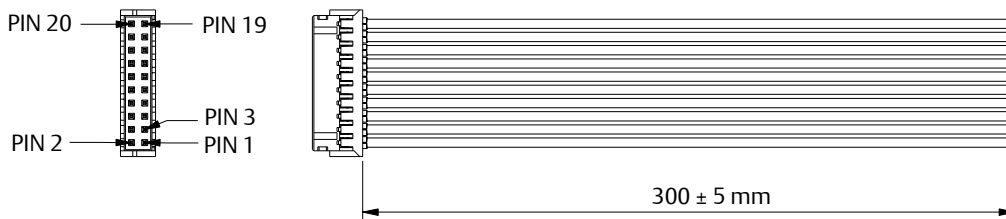
Ordering Information		A	B	C	###
LCMXXXXY	-	-	-	-	-
Case Size		Input Termination	Acoustic Noise	Option Codes	Hardware Code
1-Phase input where XXXX=					
1500 = 2.4" x 5.0" x 10.0"			Blank = Standard	Blank = No Options	Factory Assigned for Modified standards
, 1500W					
Voltage Code Y =		T = Terminal Block		1 = Conformal Coat	
Code				4 = 5V Standby	
L	12			5 = Opt 1 + 4	
N	15				
Q	24				
U	36				
W	48				

## Mechanical Drawing - IEC Input

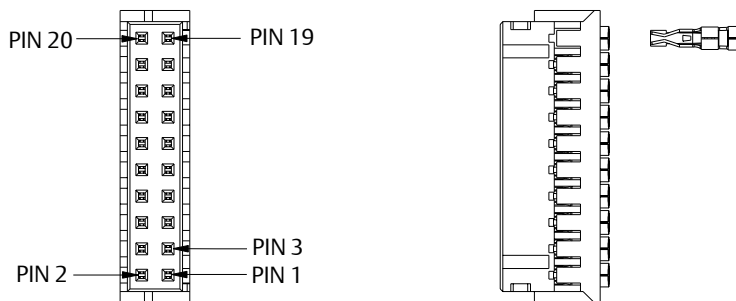
Weight: 4.20 lbs (1.91 Kg)



## Accessories



Order kit part number 73-788-001 for control connector interface with .3m wires attached



Order kit part number 73-788-002 for control connector interface with unloaded housing and 20 pins

## Miscellaneous Specifications

### Burn-In

100% Burn-in at 45 °C, at 80 - 90 % load. Duration of burn-in determined by Quality Assurance Procedures

### MTBF

The power supply has a minimum MTBF of 300K hours using the Bell core 332, issue 6 specification @ 25 °C and 40 °C, ambient, at full load. With the power supply installed in a system in a 25 °C ambient environment and operating at full load, capacitor life shall be 10 years, minimum for ALL electrolytic capacitors contained within this power supply. The power supply shall demonstrate a MTBF level of > 500,000 hours.

### Quality Assurance

Full QAV testing shall be conducted in accordance with Emerson Network Power Standards with reports available upon request.

### Warranty

Emerson Network Power shall warrant the power supply to be free of defects in materials and workmanship for a minimum period of **three years** from the date of shipment, when operated within specifications. The warranty shall be fully transferable to the end owner of the equipment powered by the supply.

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