

## LCM600

600 Watts

Bulk Front End

Total Power: 600 W  
# of Outputs: Single  
Output: 12 to 60 V  
Optional 5.0 V standby



## Special Features

- 600 W output power
- Low Cost
- 2.4" x 4.5" x 7.5"
- 7.41 W/cu-in
- 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 front end
- Conformal coat option
- $\pm 20\%$  adjustment range
- Margin programming
- OR-ing FET
- Terminal block input option

## Compliance

- EMI Class B
- EN61000 Immunity

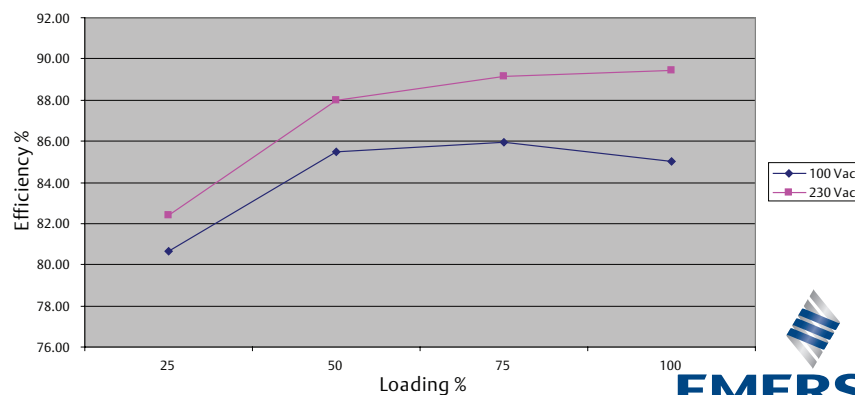
## Safety

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

## Electrical Specifications

Input	
Input range:	85 - 264 Vac (Operating) 115/230 Vac (Nominal) Input through standard IEC connector/ TERMINAL BLOCK
Frequency:	47 - 440 Hz, Nominal 50/60
Input fusing:	Internal 10 A fuses, both lines fused
Inrush current:	$\leq 25$ 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:	8 A RMS max input current, at 100 Vac
Hold up time:	20 ms minimum for Main O/P, at full rated load
Efficiency:	> 89% at full load
Leakage current:	< 0.3 mA at 264 Vac
ON/OFF power switch:	N/A
Power line transient:	MOV directly after the fuse
Isolation:	PRI-Chassis 2000 VAC Basic PRI-SEC 3000 VAC Reinforced SEC-Chassis 200 VDC

LCM600Q Efficiency Without the 5 Vsb



## Output

Output rating:	See table 1	85 - 264 Vac
Set point:	± 0.5%	85 - 264 Vac
Total regulation range:	Main output ± 2% 5 Vsb ± 1%	Combined line/load/transient when measured at output terminal
Rated load:	600 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
Fan Fault Protection:		For-N option only. Will shutdown output and DC_OK

## 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 °C “-N” Low Noise Option <35 dBA, 80% Load at 30 °C
Altitude:	Operating - 16,404.2 feet 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

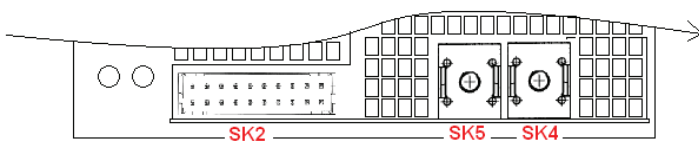
Model Number*	Output	Nominal Output Voltage Set Point	Set Point Tolerance	Adjustment Range	Current		Output Ripple P/P	Power Max.	Combined Line/ Load Regulation
					Min	Max			
LCM600L	12 V	12 V	± 0.5%	9.6 - 14.4 V	0 A	52 A	120 mV	600 W	2%
LCM600N	15 V	15 V	± 0.5%	12.0 - 19.5 V	0 A	44 A	150 mV	600 W	2%
LCM600Q	24 V	24 V	± 0.5%	19.2 - 28.8 V	0 A	27 A	240 mV	600 W	2%
LCM600U	36 V	36 V	± 0.5%	28.8 - 43.2 V	0 A	16.7 A	240 mV	600 W	2%
LCM600W	48 V	48 V	± 0.5%	38.4 - 57.6 V	0 A	14 A	280 mV	600 W	2%

\*Note: Add “-T” for terminal block instead of IEC input.  
Add “-4” For 5V, SB

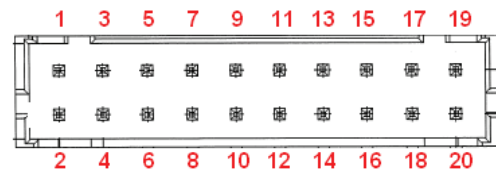
## Pin Assignment

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)

SK2 Mating Connector: JST Part Number PHDR-20VS;  
Contact Pins: JST Part Number SPHD-001T-P0.5

## 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.

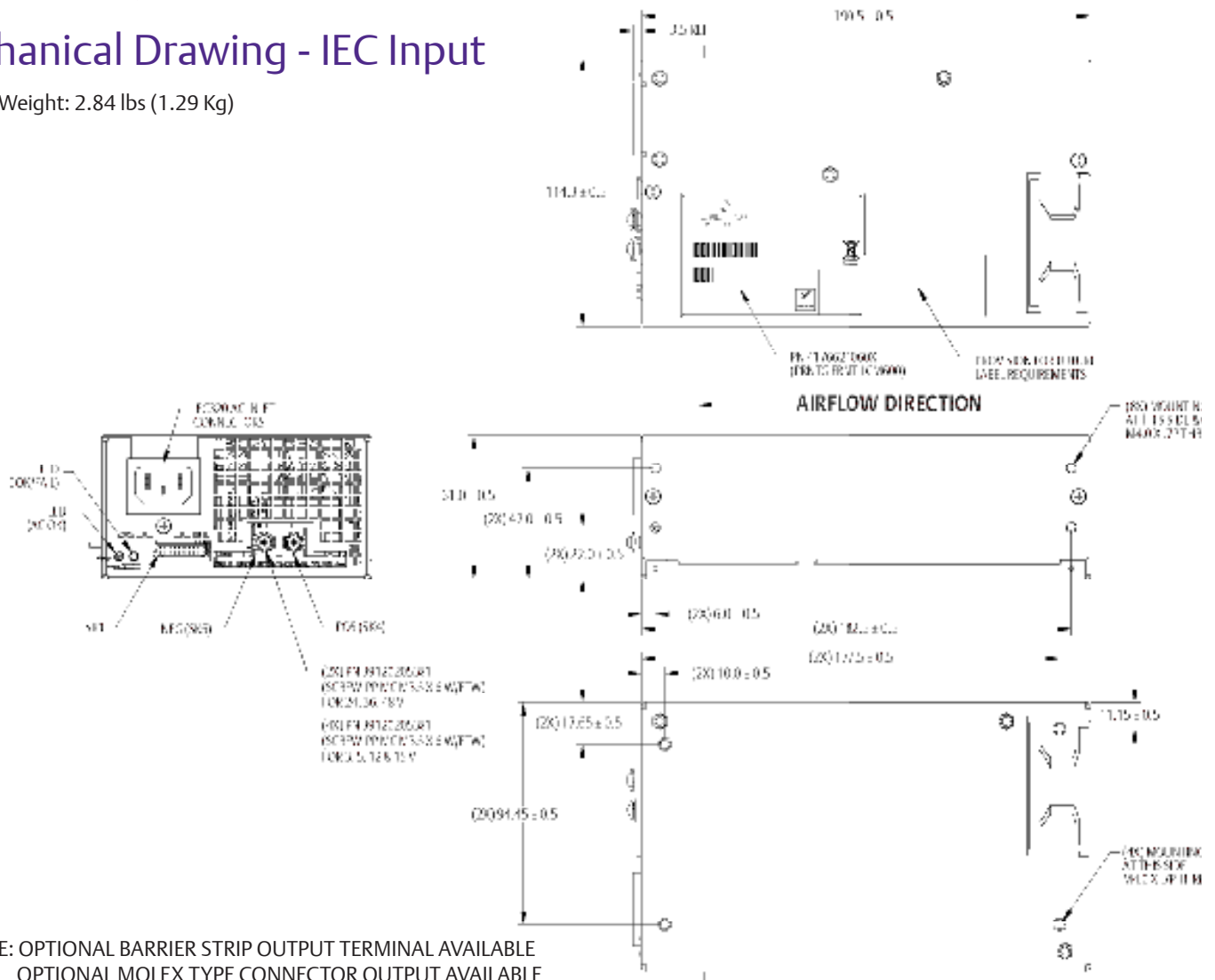
DC\_OK will de-assert when output is loss due to OCP, OVP, OTP, or Fan Fault (for -N option).

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

Ordering Information					
LCMXXX		A	B	C	###
Case Size		Input Termination	Acoustic Noise	Option Codes	Hardware Code
1-Phase input where XXX=					
600 = 2.4" x 4.5" x 7.5" , 600W		Blank = IEC connector	Blank = Standard	Blank = No Options	Factory Assigned for Modiefied standards
Voltage Code Y =		T = Terminal Block	N = Low Noise Fan	1 = Conformal Coat	
				4 = 5V Standby	
Code				5 = Opt 1 + 4	
L	12				
N	15				
Q	24				
U	36				
W	48				

## Mechanical Drawing - IEC Input

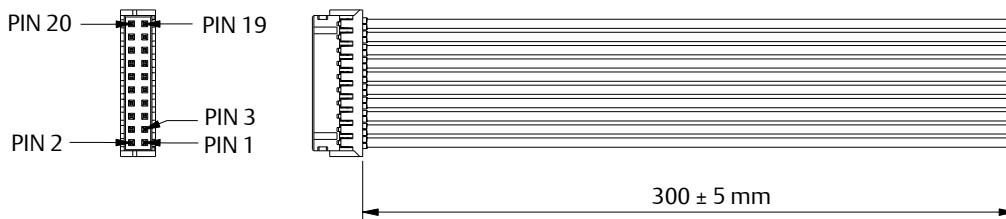
Weight: 2.84 lbs (1.29 Kg)



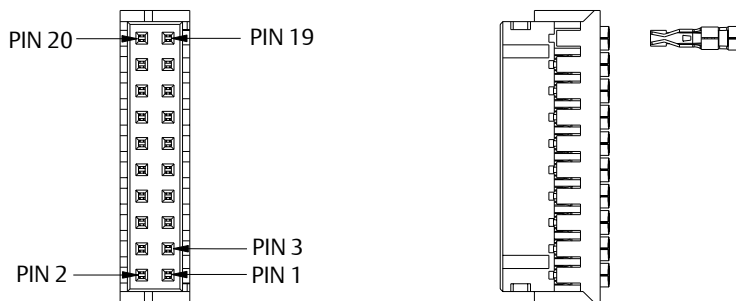
NOTE: OPTIONAL BARRIER STRIP OUTPUT TERMINAL AVAILABLE  
OPTIONAL MOLEX TYPE CONNECTOR OUTPUT AVAILABLE



## 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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