

## LCM600

600 Watts

Bulk Front End

Total Power: 600 W  
# of Outputs: Single  
Output: 3.3 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
- ± 20% adjustment range
- Margin programming
- OR-ing FET
- Terminal block input option

## Compliance

- EMI Class B
- EN61000 Immunity

## Safety

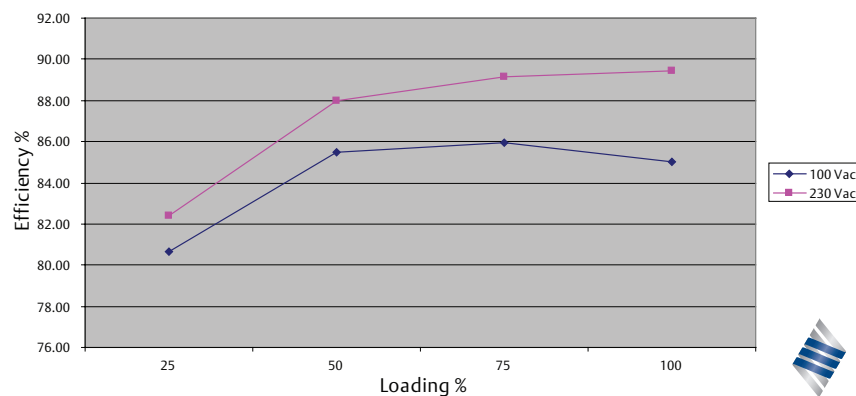
- UL 60950-1  
508/1598/1433  
60601-1
- CSA 60950-1
- VDE 60950-1  
60601
- China CCC
- CB Scheme Report/Cert

## Electrical Specifications

### Input

|                       |  |
|-----------------------|--|
| Input range:          | 85 - 264 Vac (Operating)<br>115/230 Vac (Nominal) Input through standard IEC connector |
| Frequency:            | 47 - 440 Hz, Nominal 50/60   |
| Input fusing:         | Internal 10 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:        | 8 A RMS max input current, at 100 Vac  |
| Hold up time:         | 20 ms minimum for Main O/P, at full rated load   |
| Efficiency:           | > 88% 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 2500 Vdc Basic<br>PRI-SEC 2500 Vdc Reinforced<br>SEC-Chassis 500 Vdc       |

LCM600Q Efficiency Without the 5 Vsb and 24 V ORing FETS



| Output                        |                                      |   |
|-------------------------------|--------------------------------------|---|
| Output rating:                | See table 1                          | 85 - 264 Vac  |
| Set point:                    | ± 0.5%                               | 85 - 264 Vac  |
| Total regulation range:       | Main output ± 2%<br>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<br>5 Vsb @ 0.0 A | No loss of regulation   |
| Output noise (PARD):          | 1% max p-p<br>50 mV max p-p          | Main output<br>5 Vsb output<br>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<br>Step load valid between 10% to 100% of output rating<br>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%<br>120% to 170%         | Main output<br>5 Vsb output   |
| Overvoltage protection (OVP): | 125% to 145%<br>110% to 125%         | 12 V output<br>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 °C   |
| Altitude:              | Operating - 15,000 feet<br>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 | Status      |
|---------------|--------|----------------------------------|---------------------|------------------|---------|--------|-------------------|------------|--------------------------------|-------------|
|               |        |                                  |                     |                  | Min     | Max    |                   |            |                                |             |
| LCM600C       | 3 V    | 3 V                              | ± 0.5%              | 2.0 - 4.0 V      | 0 A     | 150 A  | 50 mV             | 600 W      | 2%                             | Coming Soon |
| LCM600E       | 5 V    | 5 V                              | ± 0.5%              | 4.0 - 6.0 V      | 0 A     | 120 A  | 50 mV             | 600 W      | 2%                             | Coming Soon |
| LCM600L       | 12 V   | 12 V                             | ± 0.5%              | 9.6 - 14.4 V     | 0 A     | 52 A   | 120 mV            | 600 W      | 2%                             | Released    |
| LCM600N       | 15 V   | 15 V                             | ± 0.5%              | 12.0 - 19.5 V    | 0 A     | 44 A   | 150 mV            | 600 W      | 2%                             | Coming Soon |
| LCM600Q       | 24 V   | 24 V                             | ± 0.5%              | 19.2 - 28.8 V    | 0 A     | 27 A   | 240 mV            | 600 W      | 2%                             | Released    |
| LCM600U       | 36 V   | 36 V                             | ± 0.5%              | 28.8 - 43.2 V    | 0 A     | 16.7 A | 240 mV            | 600 W      | 2%                             | Released    |
| LCM600W       | 48 V   | 48 V                             | ± 0.5%              | 38.4 - 57.6 V    | 0 A     | 14 A   | 280 mV            | 600 W      | 2%                             | Released    |

\*Note: Add "-T" for terminal block instead of IEC input.

| 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



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

# Mechanical Drawing - IEC Input

Weight: 2.84 lbs (1.29 Kg)



# Mechanical Drawing - Terminal Block Input Weight: 2.84 lbs (1.29 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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