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175 Watts CLC Series



- High Efficiency Resonant Topology
- Medical Safety Approvals (-M Versions)
- 12 V Fan Output
- Remote Sense
- 5V Standby Option
- Remote On/Off & Power Good Signal Options
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|---|
| Input Voltage | • 85-264 VAC (120-370 VDC), derate output power 10% <90 VAC |
| Input Frequency | • 47-63 Hz |
| Input Current | • 3.0 A typical at 115 VAC, full load 1.5 A typical at 230 VAC, full load |
| Inrush Current | • 40 A max at 230 VAC, cold start at 25 °C |
| Power Factor | • EN61000-3-2, class A |
| Earth Leakage Current | • 475 µA 264 VAC at 60 Hz, 230 µA maximum at 264 VAC at 60 Hz (-M) |
| Input Protection | • Internal T5 A 250 V fuse in line Internal T5 A 250 V fuse in line and neutral (-M) |

Output

| | |
|--|--|
| Output Voltage | • 12-48 V (see tables) |
| Output Voltage Trim | • ±5% |
| Initial Set Accuracy | • ±1% V1, ±5% V2, ±3% V3 |
| Minimum Load | • 0.1 A required on V1 to maintain regulation of V2 |
| Start Up Delay | • 1.5 s typical, see longform datasheet for more details |
| Start Up Rise Time | • 5 ms typical |
| Hold Up Time | • 16 ms min at 115 VAC |
| Drift | • ±0.2% after 20 min warm up |
| Line Regulation | • ±0.5% max |
| Load Regulation | • ±1% V1, ±5% V2 & V3 max |
| Over/Undershoot | • 5% typical |
| Transient Response | • 4% max. deviation, recovery to within 1% in 500 µs for a 50-75-50% load change |
| Ripple & Noise | • 1% pk-pk V1, others 2%, 20 MHz bandwidth |
| Overvoltage Protection | • 115-140% Vnom, recycle input to reset |
| Overload Protection | • 110-150% V1 only |
| Short Circuit Protection | • Continuous trip and restart (hiccup mode) |
| Temperature Coefficient | • 0.05%/°C |
| Remote Sense | • Compensates for 0.5 V total voltage drop |
| Remote On/Off (Inhibit/Enable) (Option -A) | • Uncommitted isolated optocoupler diode, powered diode inhibits V1 & V2 |

General

| | |
|---------------------|---|
| Efficiency | • 87% typical |
| Isolation | • 3000 VAC Input to Output 4000 VAC Input to Output (-M) 2 x MOPP 1500 VAC Input to Ground 1 x MOPP 500 VAC Output to Ground |
| Switching Frequency | • 70 kHz typical |
| Signals (Option -A) | • Power OK - open collector, Remote On/Off, 5 V Standby |
| MTBF | • 390 kHrs per MIL-HDBK-217F at 25 °C, GB |
| Power Density | • 9.0 W/in ³ |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | • 0 °C to +70 °C derate linearly from +50 °C at 2.5%/°C to 50% load at +70 °C |
| Cooling | • Forced-cooled >10 CFM |
| Operating Humidity | • 95% RH, non-condensing |
| Storage Temperature | • -40 °C to +85 °C |
| Operating Altitude | • 3000 m |
| Shock | • 30 g pk, half sine, 6 axes |
| Vibration | • 2 g rms, 5 Hz to 500 Hz, 3 axes |

EMC & Safety

| | |
|-------------------------------|--|
| Low Voltage PSU EMC Emissions | • EN61204-3, high severity level • EN55011/22 level B conducted • EN55011/22 level A radiated |
| Harmonic Currents | • EN61000-3-2, class A |
| Voltage Flicker | • EN61000-3-3 |
| Radiated Immunity | • EN61000-4-3, level 3 Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 3 Perf Criteria A |
| Surge | • EN61000-4-5, installation class 3 Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, level 3 Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, B, B • EN60601-1, 30% 500ms, 60% 100ms, 100% 10ms, 100% 5000ms (-M) Perf Criteria A, A (with 50% load), A, B |
| Safety Approvals | • EN60601-1, ANSI/AAMI ES60601-1, CSA22.2 No.60601-1 per cUL, Including Risk Management, EN60950-1, UL60950-1 |

Models and Ratings

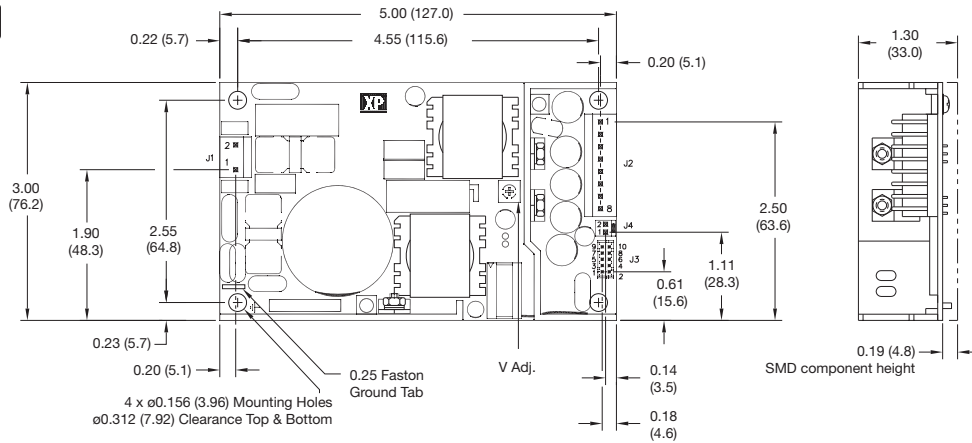
CLC175 XP

| Output Power ⁽¹⁾ | Output Voltage V1 | Output Current V1 | Fan Output V2 | Standby Supply V3 (optional) | Model Number ^(2,3) |
|-----------------------------|-------------------|-------------------|---------------|------------------------------|-------------------------------|
| 175 W | 12.0 VDC | 13.90 A | 12.0 V/0.5 A | 5.0 V/0.5 A | CLC175US12 |
| 175 W | 24.0 VDC | 6.90 A | 12.0 V/0.5 A | 5.0 V/0.5 A | CLC175US24 |
| 175 W | 28.0 VDC | 6.25 A | 12.0 V/0.5 A | 5.0 V/0.5 A | CLC175US28 |
| 175 W | 48.0 VDC | 3.50 A | 12.0 V/0.5 A | 5.0 V/0.5 A | CLC175US48 |

Notes

- 10 CFM airflow.
- For medical version add, suffix '-M' to model number.
- For 5 V standby (V3), Power OK & Inhibit, add suffix '-A' to model number.
- For cover with Top Fan assembly add '-TF' to model number e.g. CLC175US12-TF, CLC175US12-ATF, CLC175US12-MTF or CLC175US12-MATF.

Mechanical Details



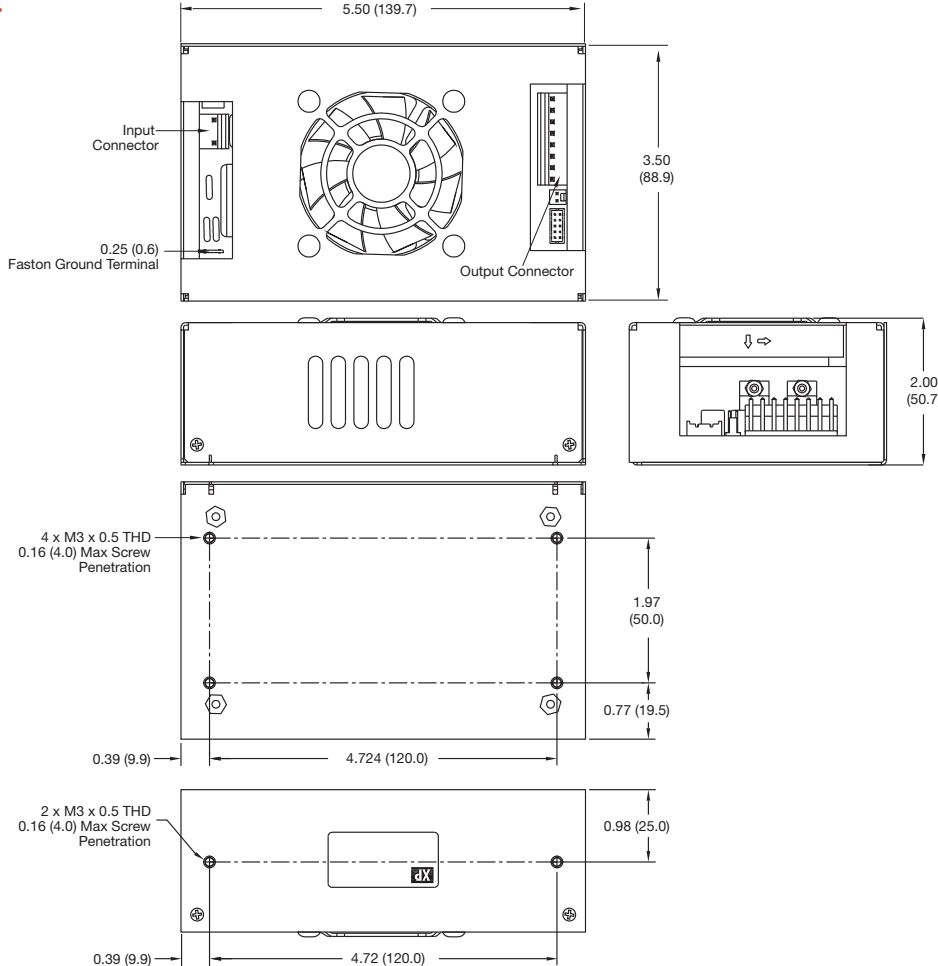
| Input Connector J1 | |
|--------------------|---------|
| Pin 1 | Line |
| Pin 2 | Neutral |
| 0.25" Faston | Earth |

J1 mates with Molex housing 09-50-1031 and Molex series 5194 crimp terminals.

| Output Connector J2 | |
|---------------------|-----|
| Pin 1 | +V1 |
| Pin 2 | +V1 |
| Pin 3 | +V1 |
| Pin 4 | +V1 |
| Pin 5 | RTN |
| Pin 6 | RTN |
| Pin 7 | RTN |
| Pin 8 | RTN |

J2 mates with Molex housing 09-50-1081 and Molex series 5194 crimp terminals.

Fan Cover



| Signal Connector J3 | |
|---------------------|-------------|
| Pin 1 | +5V Standby |
| Pin 2 | Logic GND |
| Pin 3 | Logic GND |
| Pin 4 | Power OK |
| Pin 5 | Inhibit HI |
| Pin 6 | Inhibit LO |
| Pin 7 | +Sense |
| Pin 8 | -Sense |
| Pin 9 | +Vout |
| Pin 10 | -Vout |

J3 mates with JST housing PHDR-10VS and JST SPHD-001T-P0.5 crimp terminals.

| Fan Connector J4 | |
|------------------|------------|
| Pin 1 | Fan +(12V) |
| Pin 2 | Fan - |

J4 mates with Molex housing 22-01-1024 and Molex series 5103 crimp terminals.

Notes

- All dimensions in inches (mm).
Tolerance .xx = ±0.02 (0.50);
.xxx = ±0.01 (0.25)
- Weight: 0.7 lbs (317 g) approx.
- For thermal derating, please refer to longform datasheet.