

400 Watts

SDL Series



- Single & Dual Outputs
- Up to 700 W Peak Power
- Fan Fail & Power Good Signals
- Variable Speed Fan
- Low Leakage Current Option
- Fits 1U Applications
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|--|
| Input Voltage | • 90-264 VAC |
| Input Frequency | • 47-63 Hz |
| Input Current | • 6 A at 90 VAC, 2.5 A at 230 VAC |
| Inrush Current | • Max 70 A at 230 VAC, 35 A at 115 VAC, cold start |
| Power Factor | • EN61000-3-2 class A, >0.9 |
| Earth Leakage Current | • <1.5 mA at 264 VAC, option '-L' 500 μ A at 240 VAC |
| Input Protection | • T8 A/250 V fuse |

Output

| | |
|--------------------------|---|
| Output Voltage | • See tables |
| Output Voltage Trim | • $\pm 5\%$ on V1 (V2 of dual output models will track by same % of adjustment) |
| Initial Set Accuracy | • $\pm 1\%$ |
| Minimum Load | • 1% on single output models, 10% on both output of dual output models in order to maintain ripple & noise and regulation specifications |
| Start Up Delay | • 1.5 s max at 115 VAC |
| Start Up Rise Time | • 50 ms typical |
| Hold Up Time | • 16 ms min at 75% of full load at 115 VAC |
| Line Regulation | • $\pm 0.5\%$ |
| Load Regulation | • $\pm 1\%$ for single outputs, $\pm 3\%$ V1, $\pm 7\%$ V2 for dual outputs (except PD0512 version: $\pm 5\%$ on V1 and $\pm 10\%$ on V2) |
| Over/Undershoot | • 5% max |
| Transient Response | • $\pm 5\%$ max deviation, recovery to within 1% in 500 μ s for a 50% load change |
| Ripple & Noise | • 1% pk-pk (see note 3) |
| Overvoltage Protection | • <130% on V1 recycle AC input to reset |
| Overload Protection | • 110-140% |
| Short Circuit Protection | • Trip & restart, auto recovery |
| Fan Supply | • <5V at 300mA with 1% load rising to 12-13 V at 300mA with full load. Not available on '-F' & '-E' versions with built-in fans |
| Remote On / Off | • Applying short circuit between inhibit pin and signal return turns output off. |

General

| | |
|---------------------|---|
| Efficiency | • Single output: 88% typical Dual Output: 85% typical at 230 V & full load |
| Isolation | • 3000 VAC Input to Output, 1500 VAC Input to Ground, 250 VDC Output to Ground |
| Switching Frequency | • PFC, 68 kHz PFC, PWM: 55 kHz for single output, & PD1224, 48 kHz for other parts. |
| Power Density | • 11.11 W/In ³ |
| Signals | • Fan Fail & Power Good |
| MTBF | • >100 kHrs to MIL-HDBK-217F, at 25 °C GB |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | • 0 °C to +70 °C, derate at 2.5%/°C from +50 °C to +70 °C |
| Storage Temperature | • -20 °C to +85 °C |
| Operating Humidity | • 5-90%, non-condensing |
| Cooling | • '-F' & '-E' versions have built-in variable speed fans, all other models require 15 CFM |
| Operating Altitude | • 3000 m |
| Vibration | • 5-50 Hz, acceleration 7.35 ms ² on 3 axes |

EMC & Safety

| | |
|----------------------|---|
| Emissions | • EN55022 Level B conducted & radiated |
| Harmonic Currents | • EN61000-3-2 class A EN61000-3-2 class C for loads $\geq 30\%$ |
| Voltage Flicker | • EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, level 3 Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, 3 V/m Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 2 Perf Criteria A |
| Surge | • EN61000-4-5, installation class 3 Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, 3V Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, B, B |
| Safety Approvals | • UL60950-1, CSA C22.2 No. 60950-1, EN60950-1 |

Models and Ratings

| Output Power | | Output 1 | | | | Output 2 | | | | Model Number |
|-------------------|-------------------|----------|------------|------------|---------------------|----------|------------|------------|---------------------|-----------------------------|
| Forced Air Cooled | Convection Cooled | Voltage | Current | | | Voltage | Current | | | |
| | | | Forced Air | Convection | Peak ⁽¹⁾ | | Forced Air | Convection | Peak ⁽¹⁾ | |
| 400 W | 220 W | 12 V | 33.33 A | 18.33 A | 58.33 A | | | | | SDL400PS12 |
| 400 W | 220 W | 15 V | 26.67 A | 14.67 A | 46.77 A | | | | | SDL400PS15 ⁽⁴⁾ |
| 400 W | 220 W | 18 V | 22.22 A | 12.22 A | 38.89 A | | | | | SDL400PS18 ⁽⁴⁾ |
| 400 W | 220 W | 24 V | 16.67 A | 9.17 A | 29.17 A | | | | | SDL400PS24 |
| 400 W | 220 W | 28 V | 14.29 A | 7.86 A | 25.00 A | | | | | SDL400PS28 ⁽⁴⁾ |
| 400 W | 220 W | 36 V | 11.11 A | 6.11 A | 19.44 A | | | | | SDL400PS36 |
| 400 W | 220 W | 48 V | 8.33 A | 4.58 A | 14.58 A | | | | | SDL400PS48 |
| 400 W | 220 W | 54 V | 7.41 A | 4.07 A | 12.96 A | | | | | SDL400PS54 ⁽⁴⁾ |
| 400 W | 220 W | 60 V | 6.67 A | 3.67 A | 11.61 A | | | | | SDL400PS60 ⁽⁴⁾ |
| 320 W | 180 W | +5 V | 30.00 A | 15.00 A | 36.00 A | +12 V | 20.83 A | 13.33 A | 20.00 A | SDL400PD0512 ⁽⁴⁾ |
| 320 W | 180 W | +5 V | 30.00 A | 15.00 A | 36.00 A | +24 V | 10.42 A | 6.67 A | 10.00 A | SDL400PD0524 ⁽⁴⁾ |
| 320 W | 180 W | +5 V | 30.00 A | 15.00 A | 36.00 A | +48 V | 5.21 A | 3.33 A | 5.00 A | SDL400PD0548 ⁽⁴⁾ |
| 400 W | 200 W | +12 V | 20.83 A | 12.50 A | 20.00 A | +24 V | 10.42 A | 8.33 A | 10.00 A | SDL400PD1224 |

Notes

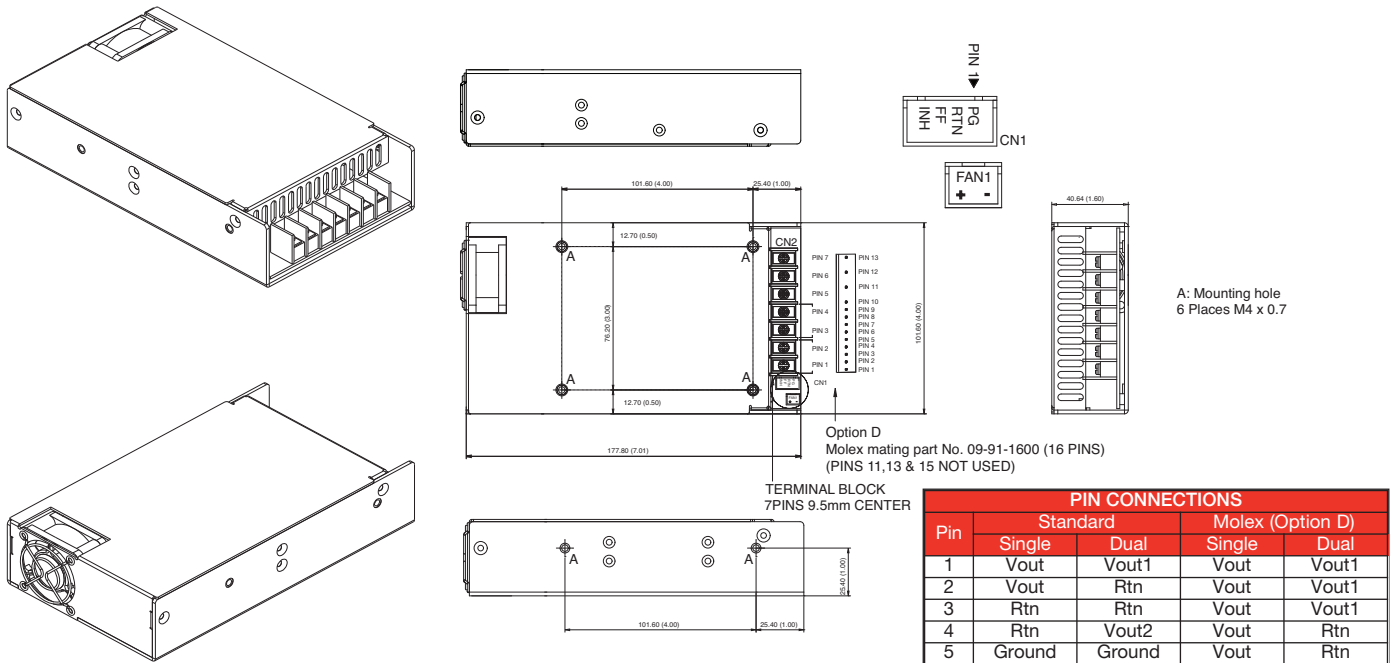
1. Peak load can be taken for 500 μs. Average power not to exceed nominal power.
2. Add suffix '-L' to model number for optional 500 μA leakage current⁽⁴⁾
3. Ripple & noise is measured using 0.1 μF ceramic capacitor in parallel with 22 μF electrolytic and 20 MHz bandwidth.
4. Available for OEM quantities, contact Sales.

Mechanical Options

- If no suffix is added to the model number the unit is a U-channel, convection-cooled ratings apply or external fan cooling required (15 CFM).
- Add suffix '-E' to the model number for an end fan cover (forced air cooled ratings apply).
- Add suffix '-F' to the model number for a top fan cover (forced air cooled ratings apply).
- Add suffix '-C' to the model number for a U-channel with vented cover. Convection cooled ratings apply or external fan cooling required (15 CFM).
- Add suffix '-D' to the model number for MOLEX connector for OEM quantities, contact Sales.

Mechanical Details

Enclosed with End Fan ('-E' Option)



Signal Connector mating part is JST XHP-4
Crimp terminals SXH-002T-P0.6

All dimensions are in inches (mm)
Weight: 800 g (1.76 lbs)
Tolerance: ±0.012 in (±0.3 mm)

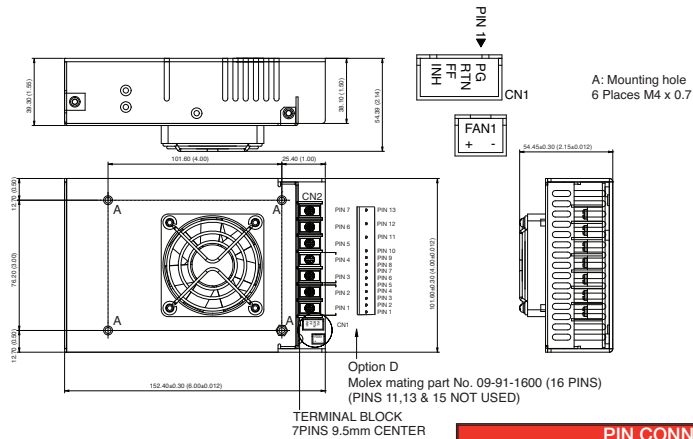
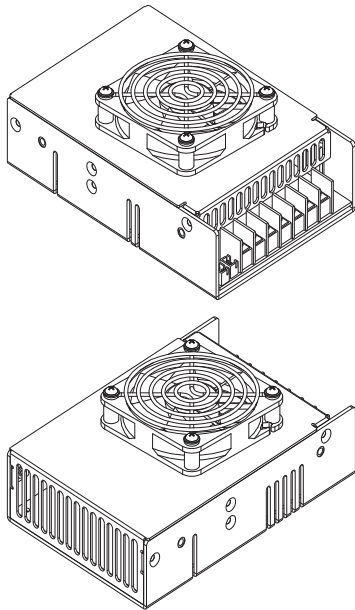
Max screw terminal torque: 15.7 lbs-in (1.8 Nm)
Max screw mount hole penetration : 0.16 (4.0)

| Pin | PIN CONNECTIONS | | | |
|-----|-----------------|---------|------------------|---------|
| | Standard | | Molex (Option D) | |
| | Single | Dual | Single | Dual |
| 1 | Vout | Vout1 | Vout | Vout1 |
| 2 | Vout | Rtn | Vout | Vout1 |
| 3 | Rtn | Rtn | Vout | Vout1 |
| 4 | Rtn | Vout2 | Vout | Rtn |
| 5 | Ground | Ground | Vout | Rtn |
| 6 | Neutral | Neutral | Rtn | Rtn |
| 7 | Live | Live | Rtn | Rtn |
| 8 | | | Rtn | Rtn |
| 9 | | | Rtn | Vout2 |
| 10 | | | Rtn | Vout2 |
| 11 | | | Ground | Ground |
| 12 | | | Neutral | Neutral |
| 13 | | | Live | Live |



Mechanical Details

Enclosed with Top Fan ('-F' Option)

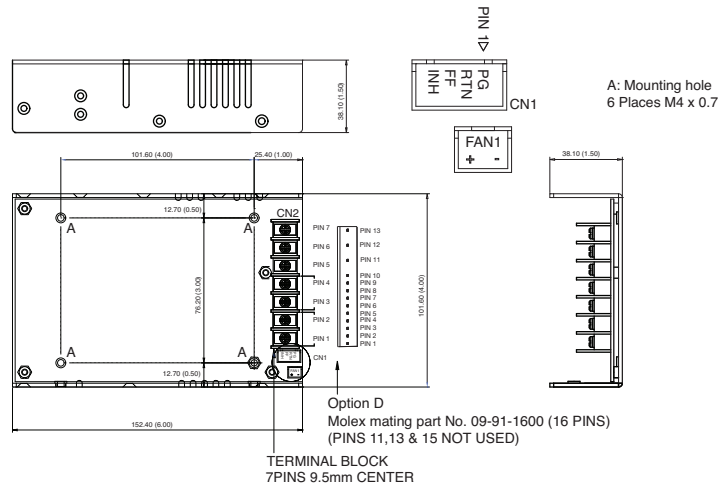
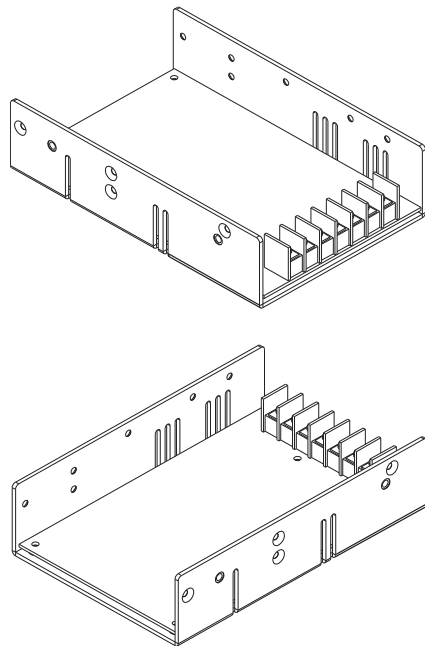


Signal Connector mating part is JST XHP-4
 Crimp terminals SXH-002T-P0.6
 All dimensions are in inches (mm)
 Weight: 770 g (1.70 lbs)
 Tolerance: ±0.012 in (±0.3 mm)

Max screw terminal torque: 15.7 lbs-in (1.8 Nm)
 Max screw mount hole penetration : 0.16 (4.0)

| Pin | PIN CONNECTIONS | | | |
|-----|-----------------|---------|------------------|---------|
| | Standard | | Molex (Option D) | |
| | Single | Dual | Single | Dual |
| 1 | Vout | Vout1 | Vout | Vout1 |
| 2 | Vout | Rtn | Vout | Vout1 |
| 3 | Rtn | Rtn | Vout | Vout1 |
| 4 | Rtn | Vout2 | Vout | Rtn |
| 5 | Ground | Ground | Vout | Rtn |
| 6 | Neutral | Neutral | Rtn | Rtn |
| 7 | Live | Live | Rtn | Rtn |
| 8 | | | Rtn | Rtn |
| 9 | | | Rtn | Vout2 |
| 10 | | | Rtn | Vout2 |
| 11 | | | Ground | Ground |
| 12 | | | Neutral | Neutral |
| 13 | | | Live | Live |

U-Channel



Signal Connector mating part is JST XHP-4
 Fan Connector mating part is JST XHP-2, Crimp terminals SXH-002T-P0.6

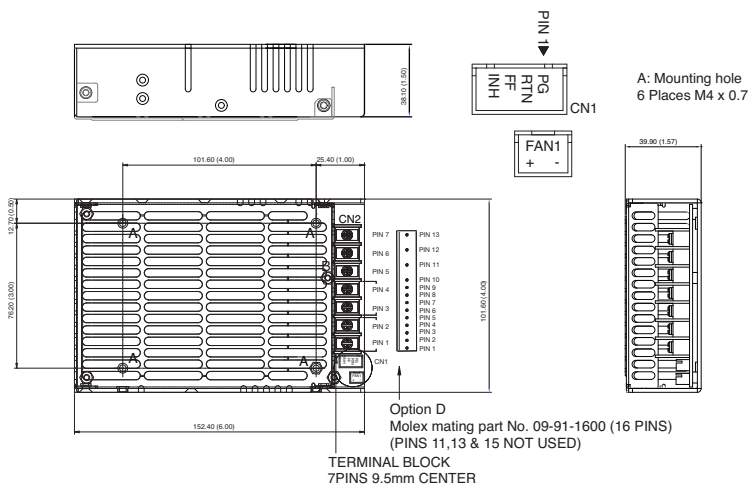
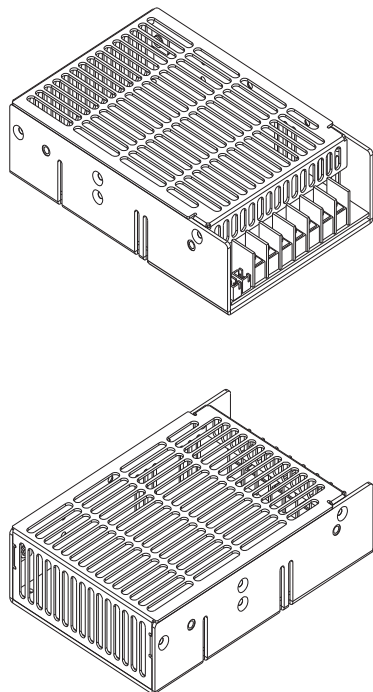
All dimensions are in inches (mm)
 Weight: 680 g (1.50 lbs)
 Tolerance: ±0.012 in (±0.3 mm)

Max screw terminal torque: 15.7 lbs-in (1.8 Nm)
 Max screw mount hole penetration : 0.16 (4.0)

| Pin | PIN CONNECTIONS | | | |
|-----|-----------------|---------|------------------|---------|
| | Standard | | Molex (Option D) | |
| | Single | Dual | Single | Dual |
| 1 | Vout | Vout1 | Vout | Vout1 |
| 2 | Vout | Rtn | Vout | Vout1 |
| 3 | Rtn | Rtn | Vout | Vout1 |
| 4 | Rtn | Vout2 | Vout | Rtn |
| 5 | Ground | Ground | Vout | Rtn |
| 6 | Neutral | Neutral | Rtn | Rtn |
| 7 | Live | Live | Rtn | Rtn |
| 8 | | | Rtn | Rtn |
| 9 | | | Rtn | Vout2 |
| 10 | | | Rtn | Vout2 |
| 11 | | | Ground | Ground |
| 12 | | | Neutral | Neutral |
| 13 | | | Live | Live |

Mechanical Details

U-Channel with cover ('-C' Option)



| Pin | PIN CONNECTIONS | | | |
|-----|-----------------|---------|------------------|---------|
| | Standard | | Molex (Option D) | |
| | Single | Dual | Single | Dual |
| 1 | Vout | Vout1 | Vout | Vout1 |
| 2 | Vout | Rtn | Vout | Vout1 |
| 3 | Rtn | Rtn | Vout | Vout1 |
| 4 | Rtn | Vout2 | Vout | Rtn |
| 5 | Ground | Ground | Vout | Rtn |
| 6 | Neutral | Neutral | Rtn | Rtn |
| 7 | Live | Live | Rtn | Rtn |
| 8 | | | Rtn | Rtn |
| 9 | | | Rtn | Vout2 |
| 10 | | | Rtn | Vout2 |
| 11 | | | Ground | Ground |
| 12 | | | Neutral | Neutral |
| 13 | | | Live | Live |

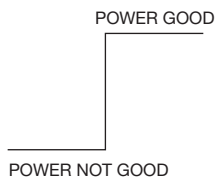
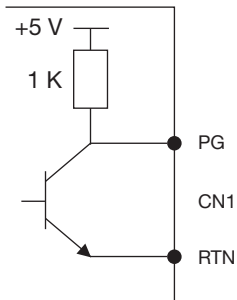
Signal Connector mating part is JST XHP-4
Fan Connector mating part is JST XHP-2, Crimp terminals SXH-002T-P0.6

All dimensions are in inches (mm)
Weight: 720 g (1.59 lbs)
Tolerance: ±0.012 in (±0.3 mm)

Max screw terminal torque: 15.7 lbs-in (1.8 Nm)
Max screw mount hole penetration : 0.16 (4.0)

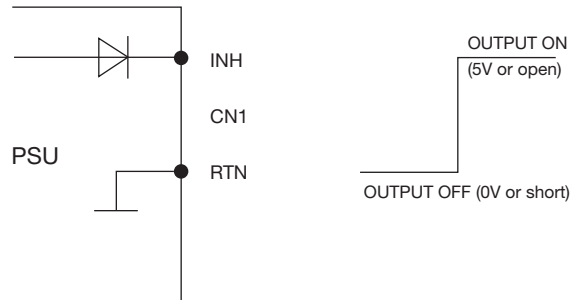
Application Notes

Power Good



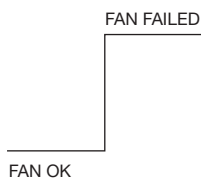
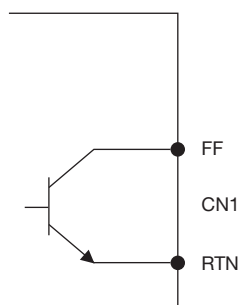
Sink current = 6 mA
Source current = 1 mA

Remote On / Off



Note:
1. Applying <0.3 V or short between the pins turns the output OFF.
2. Applying >4.5 V or open circuit between the pins turns output ON.

Fan Fail



Open collector signal, maximum rating 28 VDC/5 mA