

SDS Series



- Convection-cooled
- 3" x 5" Footprint
- Up to 90% Efficiency
- Open Frame, U-Channel & Covered Versions
- Low Temperature Option
- Single & Multi Outputs
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|--|
| Input Voltage | • 90-264 VAC (120-370 VDC) |
| Input Frequency | • 47-63 Hz |
| Input Current | • 120 W: 1.7 / 1.0 A max at 115 / 230 VAC 150 W: 2.0 / 0.8 A max at 115 / 230 VAC 180 W: 2.7 A max at 90 VAC |
| Inrush Current | • 120 W: 20 / 51 A max at 115 / 230 VAC 150 W: 54 / 63 A max at 115 / 230 VAC 180 W: 54 / 108 A max at 115 / 230 VAC |
| Power Factor | • >0.9 |
| Earth Leakage Current | • 120 W: 0.30 / 0.75 mA at 115 / 230 VAC 150 W: 0.40 / 0.75 mA at 115 / 230 VAC 180 W: 0.75 mA at 230 VAC |
| Input Protection | • Internal T3.15 A / 250 VAC fuse in line |
| No Load Input Power | • 180 W: <0.5 W |

Output

| | |
|--------------------------|--|
| Output Voltage | • See table |
| Output Voltage Trim | • $\pm 5\%$ output 1 only (3.3 V variant $\pm 10\%$) SDS180: not user adjustable |
| Initial Set Accuracy | • Single output models: $\pm 1\%$ Multi-output models: $\pm 5\%$ |
| Minimum Load | • No minimum load required for single output models. For multi-output models (see table) |
| Start Up Delay | • 2 s max |
| Start Up Rise Time | • 2 ms typical |
| Hold Up Time | • 16 ms minimum at full load and 110 VAC |
| Line Regulation | • 0.5% typical |
| Load Regulation | • 3.0% typical |
| Transient Response | • 4% max deviation, recovery to within 1% in 500 μ s for a 50% load change |
| Ripple & Noise | • 1% pk-pk typical, 20 MHz bandwidth |
| Overvoltage Protection | • 112-132% V1 only, recycle input to reset |
| Overload Protection | • All outputs: 110-150% with auto recovery (primary power limit) |
| Short Circuit Protection | • Trip & restart (hiccup mode), auto recovery |
| Temperature Coefficient | • $\pm 0.04\%/^{\circ}\text{C}$ |

General

| | |
|----------------------|--|
| Efficiency | • 120 W: 80% typical 150 W and 180 W: 88% typical |
| Isolation | • 3000 VAC Input to Output, 1500 VAC Input to Ground, 500 VDC Output to Ground |
| Isolation Resistance | • 50 M Ω |
| Switching Frequency | • 120 W: PFC 100 kHz typical, PWM 67 kHz typical. 150 W: PFC 34 kHz minimum, PWM 55 kHz typical. 180 W: PFC 67 kHz typical, PWM 67 kHz typical |
| Power Density | • 120 W: 4.87 W/In ³ , 150 W: 6.50 W/In ³ 180 W: 7.47 W/In ³ |
| Signals | • Power Fail Detect = TTL active low, combined AC and DC OK signal (-P versions SDS120 & 150 only) Warning time 16 ms |
| MTBF | • >130 kHrs to MIL-HDBK-217F at 25 $^{\circ}\text{C}$, GB |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | • 0 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$ (-20 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$, SDS180), derate linearly from 100% load at +50 $^{\circ}\text{C}$ to 50% load at +70 $^{\circ}\text{C}$, for low temperature option add suffix -L: -40 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$, SDS120 and SDS150, not available for SDS180 |
| Cooling | • Convection-cooled |
| Operating Humidity | • 5-95% RH, non-condensing |
| Storage Temperature | • -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ |

EMC & Safety

| | |
|----------------------|---|
| Emissions | • EN55022, level B conducted & radiated. |
| Harmonic Currents | • EN61000-3-2 class A |
| Voltage Flicker | • EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, level 2 contact, Perf Criteria A SDS150: level 3 air, Perf criteria A |
| Radiated Immunity | • EN61000-4-3, level 2, 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, level 2, Perf Criteria A |
| Magnetic Field | • EN61000-4-8, 1 A/m, Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% 10 ms, 60% 100 ms, >95% 5000 ms Perf Criteria A, B, B |
| Safety Approvals | • EN60950-1, UL60950-1, CSA60950-1 per cUL. |

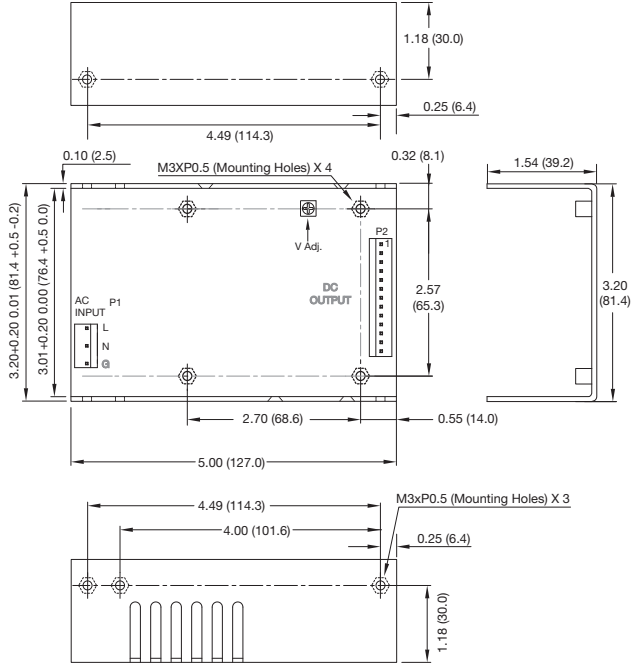
Models and Ratings

| Output Power | Output 1 | | | | Output 2 | | | | Output 3 | | | | Model Number ^(2,4,5) |
|--------------|----------|--------|---------|---------------------|----------|--------|-------|---------------------|----------|--------|-------|---------------------|---------------------------------|
| | Vnom | Imin | Imax | Tol. ⁽¹⁾ | Vnom | Imin | Imax | Tol. ⁽¹⁾ | Vnom | Imin | Imax | Tol. ⁽¹⁾ | |
| 72.0 W | 3.3 V | 0.00 A | 22.00 A | 5% | | | | | | | | | SDS120PS03B |
| 110.0 W | 5.0 V | 0.00 A | 22.00 A | 5% | | | | | | | | | SDS120PS05B |
| 115.0 W | 7.0 V | 0.00 A | 16.42 A | 5% | | | | | | | | | SDS120PS07B |
| 120.0 W | 9.0 V | 0.00 A | 13.33 A | 4% | | | | | | | | | SDS120PS09B |
| 120.0 W | 12.0 V | 0.00 A | 10.00 A | 3% | | | | | | | | | SDS120PS12B |
| 120.0 W | 15.0 V | 0.00 A | 8.00 A | 3% | | | | | | | | | SDS120PS15B |
| 120.0 W | 18.0 V | 0.00 A | 6.66 A | 3% | | | | | | | | | SDS120PS18B |
| 120.0 W | 24.0 V | 0.00 A | 5.00 A | 2% | | | | | | | | | SDS120PS24B |
| 120.0 W | 28.0 V | 0.00 A | 4.28 A | 2% | | | | | | | | | SDS120PS28B |
| 120.0 W | 36.0 V | 0.00 A | 3.33 A | 2% | | | | | | | | | SDS120PS36B |
| 120.0 W | 48.0 V | 0.00 A | 2.50 A | 2% | | | | | | | | | SDS120PS48B |
| 79.5 W | +3.3 V | 1.50 A | 15.00 A | 5% | +5.0 V | 0.40 A | 6.0 A | 5% | | | | | SDS120PD00B |
| 120.0 W | +3.3 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.20 A | 6.0 A | 5% | | | | | SDS120PD01B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.20 A | 6.0 A | 5% | | | | | SDS120PD02B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +15.0 V | 0.20 A | 6.0 A | 5% | | | | | SDS120PD03B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +24.0 V | 0.10 A | 3.5 A | 5% | | | | | SDS120PD04B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | -24.0 V | 0.20 A | 2.0 A | 5% | | | | | SDS120PD05B |
| 120.0 W | +28.0 V | 0.39 A | 3.92 A | 5% | +5.0 V | 0.20 A | 2.0 A | 5% | | | | | SDS120PD06B |
| 91.5 W | +3.3 V | 1.50 A | 15.00 A | 5% | +5.0 V | 0.60 A | 6.0 A | 5% | +12.0 V | 0.00 A | 1.0 A | 5% | SDS120PT00B |
| 91.5 W | +3.3 V | 1.50 A | 15.00 A | 5% | +5.0 V | 0.60 A | 6.0 A | 5% | -12.0 V | 0.00 A | 1.0 A | 5% | SDS120PT01B |
| 120.0 W | +3.3 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | +5.0 V | 0.00 A | 0.8 A | 5% | SDS120PT02B |
| 120.0 W | +3.3 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | -5.0 V | 0.00 A | 0.8 A | 5% | SDS120PT03B |
| 120.0 W | +3.3 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | -12.0 V | 0.00 A | 0.8 A | 5% | SDS120PT04B |
| 120.0 W | +3.3 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | +12.0 V | 0.00 A | 0.8 A | 5% | SDS120PT05B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | +5.0 V | 0.00 A | 0.8 A | 5% | SDS120PT06B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | -5.0 V | 0.00 A | 0.8 A | 5% | SDS120PT07B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | -12.0 V | 0.00 A | 0.8 A | 5% | SDS120PT08B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +12.0 V | 0.60 A | 6.0 A | 5% | +12.0 V | 0.00 A | 0.8 A | 5% | SDS120PT09B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +15.0 V | 0.60 A | 6.0 A | 5% | -15.0 V | 0.00 A | 0.8 A | 5% | SDS120PT10B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +15.0 V | 0.60 A | 6.0 A | 5% | +15.0 V | 0.00 A | 0.8 A | 5% | SDS120PT11B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +24.0 V | 0.35 A | 3.5 A | 5% | -24.0 V | 0.00 A | 0.8 A | 5% | SDS120PT12B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +24.0 V | 0.35 A | 3.5 A | 5% | +24.0 V | 0.00 A | 0.8 A | 5% | SDS120PT13B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +24.0 V | 0.35 A | 3.5 A | 5% | -12.0 V | 0.00 A | 0.8 A | 5% | SDS120PT14B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +24.0 V | 0.35 A | 3.5 A | 5% | +12.0 V | 0.00 A | 0.8 A | 5% | SDS120PT15B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +10.0 V | 0.60 A | 6.0 A | 5% | -10.0 V | 0.00 A | 1.0 A | 5% | SDS120PT16B |
| 120.0 W | +5.0 V | 1.50 A | 15.00 A | 5% | +10.0 V | 0.60 A | 6.0 A | 5% | +10.0 V | 0.00 A | 1.0 A | 5% | SDS120PT17B |

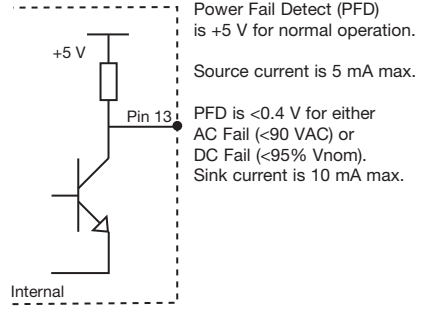
Notes

1. Tol. (total regulation) includes line regulation and load regulation.
2. For optional PCB only version, delete suffix 'B' from model number. Example SDS120PS03.
3. For non-standard voltages contact sales.
4. For optional low temperature -40 °C operation, add suffix '-L' to model number. Example: SDS120PS12B-L
5. For optional Power Fail Detect circuit, add suffix '-P' to model number, example: SDS120PS12B-P

Mechanical Details



| PIN CONNECTIONS | | | |
|-----------------|--------------------|--------------------|--------------------|
| Pin | Single | Dual | Triple |
| 1 | V1 | V2 | V2 |
| 2 | V1 | V2 | V2 |
| 3 | V1 | V1 | V1 |
| 4 | V1 | V1 | V1 |
| 5 | V1 | V1 | V1 |
| 6 | V1 | V1 | V1 |
| 7 | Return | Common | Common |
| 8 | Return | Common | Common |
| 9 | Return | Common | Common |
| 10 | Return | N/C | V3 |
| 11 | Return | Common | Common |
| 12 | Return | Common | Common |
| 13 | PFD ⁽¹⁾ | PFD ⁽¹⁾ | PFD ⁽¹⁾ |



Notes

1. Optional Power Fail Detect signal on '-P' versions only. Standard models pin 13 is N/C.
2. I/P connector P1 mates with Molex housing 09-50-3051 & Molex 2878 series crimp terminal.
3. O/P P2 mates with Molex housing 09-50-3131 & Molex 2878 series crimp terminal.
4. For optional cover kit order part number SDS120 COVER, to receive unit with cover fitted add suffix '-C' to model number, e.g. SDS120PS12B-C (overall height is 1.73 (44.0)).
5. For mating connector kit order part number SDS120/SDS150 CON KIT.
6. For cable harness order part number SDS120S LOOM for single output models & SDS120M LOOM for multi-output models.
7. Maximum mounting screw penetration: 0.14 (3.5)
8. All dimensions are in inches (mm).
9. Weight: 0.77-0.99 lbs (350-450 g) approx.
10. For PCB-only version, overall dimensions are max 5.00 x 3.00 x 1.44 (127.0 x 76.2 x 36.6).

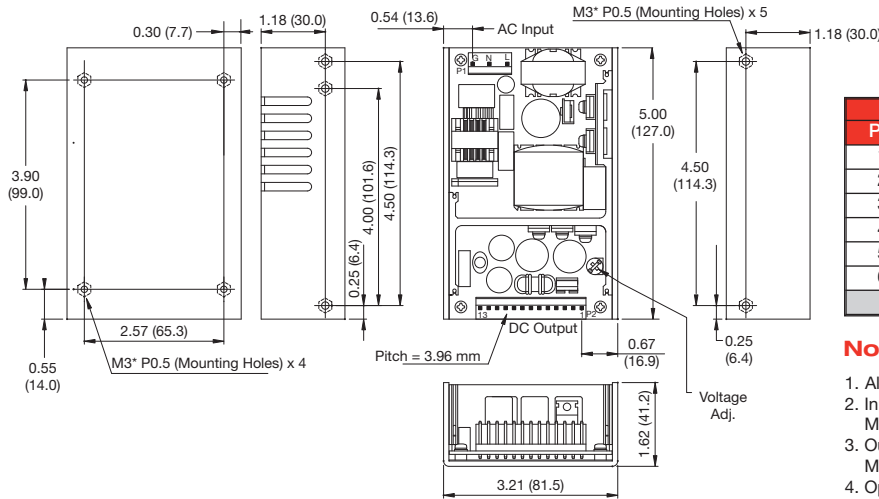
| Output Power | Output Voltage | Output Current | | Total Regulation ⁽¹⁾ | Model Number ^(2,4,5,6) |
|--------------|----------------|----------------|---------|---------------------------------|-----------------------------------|
| | | Minimum | Maximum | | |
| 144 W | 9 V | 0 A | 16.00 A | 5% | SDS150PS09B |
| 150 W | 12 V | 0 A | 12.50 A | 5% | SDS150PS12B |
| 150 W | 15 V | 0 A | 10.00 A | 5% | SDS150PS15B |
| 150 W | 18 V | 0 A | 8.33 A | 4% | SDS150PS18B |
| 150 W | 24 V | 0 A | 6.25 A | 3% | SDS150PS24B |
| 150 W | 30 V | 0 A | 5.00 A | 2% | SDS150PS30B |
| 150 W | 36 V | 0 A | 4.17 A | 2% | SDS150PS36B |
| 150 W | 48 V | 0 A | 3.13 A | 2% | SDS150PS48B |

Notes

1. Total regulation includes line regulation and load regulation.
2. For optional 2 pin Molex input, add suffix '-D' to model number. Example SDS150PS12B-D.
3. For non-standard voltages contact sales.
4. For optional low temperature -40 °C operation, add suffix '-L' to model number. Example: SDS150PS12B-L.
5. For optional PCB only version, delete suffix 'B' from model number. Example SDS150PS48.
6. For optional Power Fail Detect signal (PFD), add suffix '-P' to model number. Example: SDS150PS48B-P.

Mechanical Details

U Channel

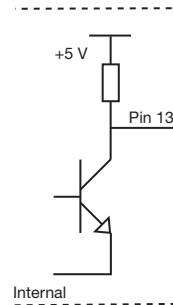
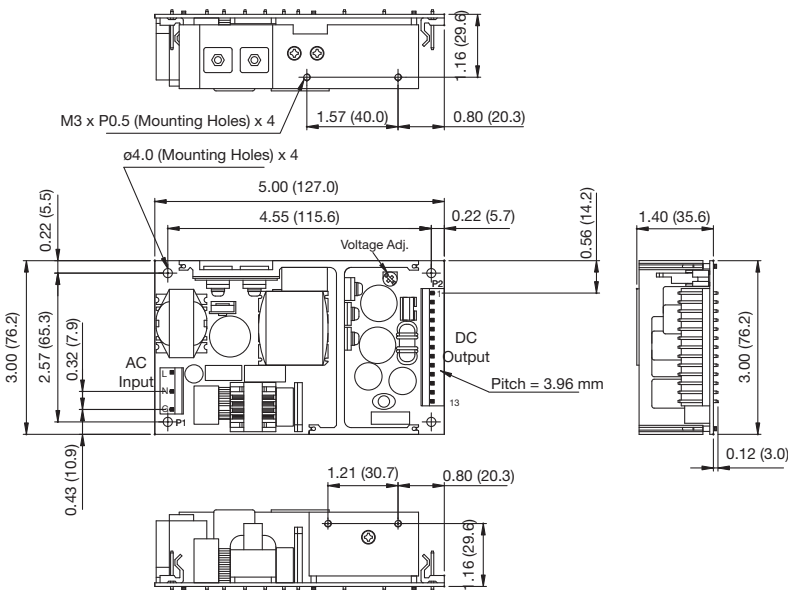


| P2 - PIN CONNECTIONS | | | |
|----------------------|----------|-----|--------------------|
| Pin | Function | Pin | Function |
| 1 | V1 | 7 | Return |
| 2 | V1 | 8 | Return |
| 3 | V1 | 9 | Return |
| 4 | V1 | 10 | Return |
| 5 | V1 | 11 | Return |
| 6 | V1 | 12 | Return |
| | | 13 | PFD ⁽⁴⁾ |

Notes

1. All dimensions in inches (mm), tolerance ±0.02 (±0.5).
2. Input connector P1 mates with Molex housing 09-50-3051 and Molex 2478 series crimp terminal.
3. Output connector P2 mates with Molex housing 09-50-3131 and Molex 2478 series crimp terminal.
4. Optional power fail detect signal on '-P' versions only. Standard models pin 13 is not connected.
5. For mating connector kit order part number SDS120/SDS150 CON KIT.
6. For cable harness order part number SDS150 LOOM.
7. Maximum mounting screw penetration: 0.14 (3.5)
8. For optional cover kit order part number SDS150 COVER
9. Weight: U Channel - 1.27 lbs (580 g) approx.
Open Frame - 0.86 lbs (390 g) approx.

Open Frame



Power Fail Detect (PFD) is +5 V for normal operation.

Source current is 5 mA max.

PFD is <0.4 V for either AC Fail (<90 VAC) or DC Fail (<95% Vnom).

Sink current is 10 mA max.

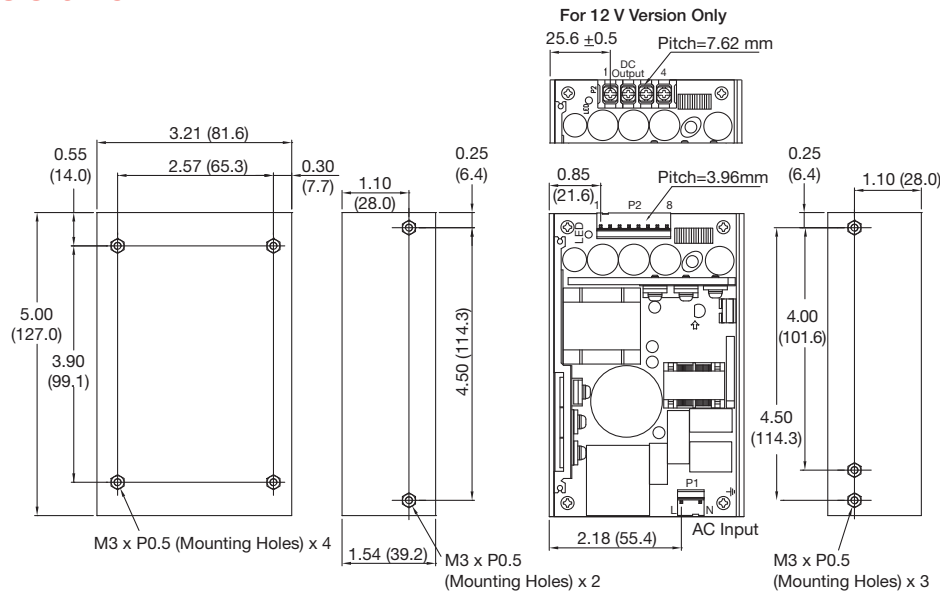
| Output Power | Output Voltage | Output Current | | Total Regulation ⁽²⁾ | Model Number ⁽³⁾ |
|----------------------|----------------|----------------|---------|---------------------------------|-----------------------------|
| | | Minimum | Maximum | | |
| 170 W ⁽¹⁾ | 12 V | 0 A | 14.16 A | 5% | SDS180PS12B |
| 180 W | 24 V | 0 A | 7.50 A | 3% | SDS180PS24B |
| 180 W | 48 V | 0 A | 3.75 A | 2% | SDS180PS48B |

Notes

1. Output power is 170 W at highline input and 160 W at low line input, (90-132 VAC).
2. Total regulation includes line regulation and load regulation.
3. For optional L-bracket version, delete suffix 'B' from model number. Example SDS180PS48.
4. For non-standard voltages contact sales.

Mechanical Details

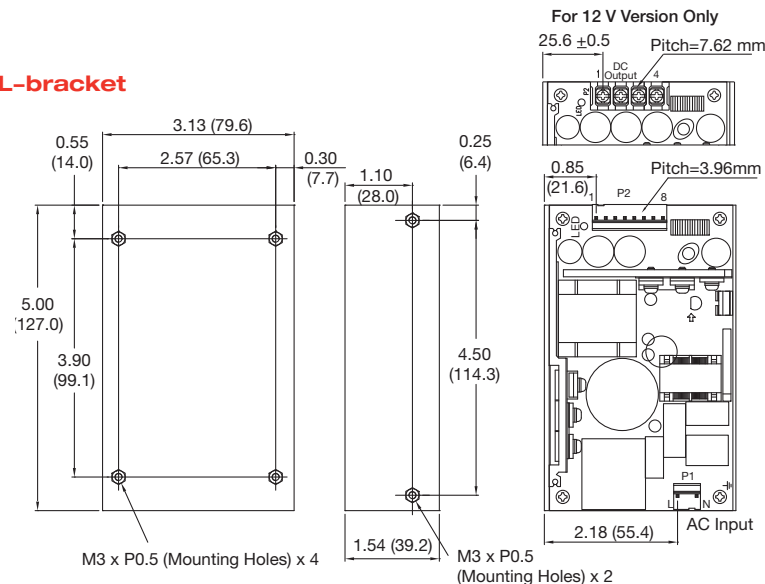
U Channel



| P2 - PIN CONNECTIONS 24/48 V versions | | | |
|--|----------|-----|----------|
| Pin | Function | Pin | Function |
| 1 | Return | 5 | V1 |
| 2 | Return | 6 | V1 |
| 3 | Return | 7 | V1 |
| 4 | Return | 8 | V1 |

| PIN CONNECTIONS 12 V version | | | |
|---------------------------------|----------|-----|----------|
| Pin | Function | Pin | Function |
| 1 | Return | 3 | V1 |
| 2 | Return | 4 | V1 |

L-bracket



Notes

1. All dimensions in inches (mm), tolerance ±0.02 (±0.5).
2. Input connector P1 mates with Molex housing 09-50-3031 and Molex 2478 series crimp terminal.
3. Output connector P2 mates with Molex housing 09-50-3061 (or 09-50-3081) and Molex 2478 series crimp terminal for 24/48 V Versions. For 12 V Version, output terminal is screw terminal.
4. For mating connector kit order part number: SDS180 CON KIT.
5. For cable harness order part number SDS180 LOOM.
6. Maximum mounting screw penetration: 0.14 (3.5)
7. Weight: U Channel - 1.14 lbs (520 g)
L-bracket - 1.06 lbs (480 g)