

### 120 Watts

- Ultra Slim Design - 32 mm
- 150% Peak Load for 3 seconds
- Ambient Operation from -25 °C to +70 °C
- Full Load at 60 °C (24V/48V)
- High Efficiency - Up to 92%
- Volt-Free Contact for DC OK
- Selectable Parallel Operation
- 85 to 264 VAC Operation
- 3 Year Warranty



#### Dimensions:

**DSR120:**  
1.26 x 4.88 x 4.69" (32.0 x 124.0 x 119.0 mm)

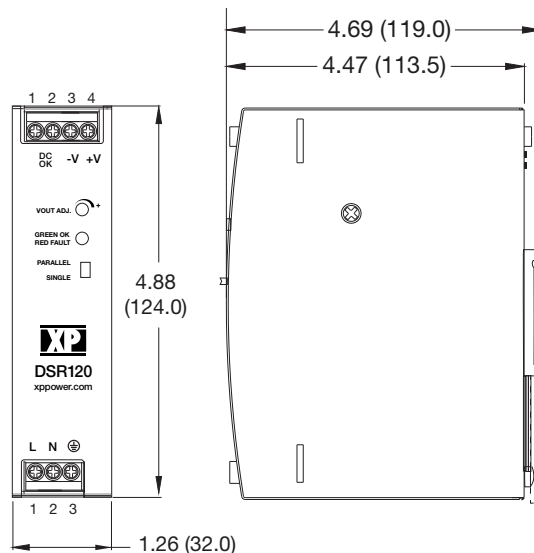
### Models & Ratings

| Output Voltage | Output Power | Output Voltage Trim <sup>(3)</sup> | Output Current | Peak Current <sup>(2)</sup> | Typical Efficiency <sup>(1)</sup> | Model Number |
|----------------|--------------|------------------------------------|----------------|-----------------------------|-----------------------------------|--------------|
| 12 V           | 120 W        | 12.0-14.0 V                        | 10.0 A         | 15.0 A                      | 89.5%                             | DSR120PS12   |
| 24 V           | 120 W        | 24.0-28.0 V                        | 5.0 A          | 7.5 A                       | 91.0%                             | DSR120PS24   |
| 48 V           | 120 W        | 48.0-56.0 V                        | 2.5 A          | 3.75 A                      | 92.0%                             | DSR120PS48   |

#### Notes

1. Typical efficiency at 230 VAC and full load.
2. Peak current is for a maximum of 3 s, see Application Notes. Average power is not to exceed nominal output power.
3. Output current should be limited so that nominal output power is not exceeded.

### Mechanical Details



| Pin Connector |     |             |
|---------------|-----|-------------|
| Conn          | Pin | Designation |
| AC I/P        | 1   | L           |
|               | 2   | N           |
|               | 3   | Ground      |
| DC O/P        | 1   | DC OK       |
|               | 2   | DC OK       |
|               | 3   | -Vout       |
|               | 4   | +Vout       |

#### Notes

1. All dimensions in inches (mm)
2. Weight: 1.17 lbs (530g)
3. Tolerance: ±0.02 in (±0.5 mm)

### Input

| Characteristic            | Minimum                              | Typical | Maximum | Units | Notes & Conditions                          |
|---------------------------|--------------------------------------|---------|---------|-------|---------------------------------------------|
| Input Voltage - Operating | 85                                   |         | 264     | VAC   |                                             |
| Input Frequency           | 47                                   | 50/60   | 63      | Hz    |                                             |
| Power Factor              |                                      | 0.95    |         |       | At 230 VAC. Conforms to EN61000-3-2 Class A |
| Input Current - Full Load |                                      | 1.2/0.6 |         | A     | 115/230 VAC                                 |
| Inrush Current            |                                      |         | 35/65   | A     | At 115/230 VAC. Cold start, 25 °C           |
| Earth Leakage Current     |                                      |         | 1.0     | mA    | At 264 VAC, 60 Hz                           |
| Input Protection          | T5.0 A / 250 V internal in-line fuse |         |         |       |                                             |

### Output

| Characteristic            | Minimum | Typical | Maximum     | Units    | Notes & Conditions                                                            |
|---------------------------|---------|---------|-------------|----------|-------------------------------------------------------------------------------|
| Output Voltage - V1       | 12      |         | 48          | VDC      | See Models and Ratings table                                                  |
| Initial Set Accuracy      |         |         | ±1          | %        | At 100% load                                                                  |
| Output Voltage Adjustment |         |         |             | %        | See Models and Ratings table                                                  |
| Minimum Load              | 0       |         |             | A        | No minimum load required                                                      |
| Start Up Delay            |         |         | 500         | ms       | At 100 VAC                                                                    |
| Hold Up Time              | 20      |         |             | ms       | At full load                                                                  |
| Line Regulation           |         |         | ±0.5        | %        |                                                                               |
| Load Regulation           |         |         | ±1          | %        |                                                                               |
| Transient Response - V1   |         |         | 5           | %        | Recovery within 1% in less than 200 µs for a 50% step load change at 0.2 A/µs |
| Ripple & Noise            |         |         | 100/120/240 | mV pk-pk | 12 V/24 V/48 V models. Measured at 20 MHz bandwidth                           |
| Overvoltage Protection    | 15      |         | 20          | V        | 12 V model at 115/230 VAC input                                               |
|                           | 29      |         | 35          | V        | 24 V model at 115/230 VAC input                                               |
|                           | 58      |         | 66          | V        | 48 V model at 115/230 VAC input                                               |
| Overload Protection       | 110     |         | 150         | %        | Trip & restart. See application note.                                         |
| Short Circuit Protection  |         |         |             |          | Trip & restart (hiccup mode), for 5 cycles then latch. Auto recovery          |
| Thermal Protection        |         | 105 ±5  |             | °C       | Measured internally, recycle AC to reset                                      |
| Temperature Coefficient   |         |         | 0.03        | %/°C     |                                                                               |

### General

| Characteristic                                                    | Minimum                                                                                 | Typical    | Maximum | Units  | Notes & Conditions                            |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------|---------|--------|-----------------------------------------------|
| Efficiency                                                        |                                                                                         | 91         |         | %      | See Models & Ratings table                    |
| Isolation: Input to Output<br>Input to Ground<br>Output to Ground | 3000                                                                                    |            |         | VAC    |                                               |
|                                                                   | 2500                                                                                    |            |         | VAC    |                                               |
|                                                                   | 500                                                                                     |            |         | VAC    |                                               |
| Switching Frequency                                               |                                                                                         | 65         |         | kHz    | PFC, fixed                                    |
|                                                                   | 60                                                                                      |            | 440     | kHz    | Main converter, variable at 115/230 VAC input |
| DC OK Signal                                                      | Volt free contacts rated at 60 VDC/0.3 A, 30 VDC/1.0 A or 30 VAC/0.3 A (resistive load) |            |         |        |                                               |
| Output LED                                                        | Green LED to indicate output on.                                                        |            |         |        |                                               |
| Mean Time Between Failure                                         | 300                                                                                     |            |         | kHrs   | MIL-HDBK-217F, +25 °C GB                      |
| Weight                                                            |                                                                                         | 1.17 (530) |         | lb (g) |                                               |

### Environmental

| Characteristic        | Minimum | Typical | Maximum | Units | Notes & Conditions                                              |
|-----------------------|---------|---------|---------|-------|-----------------------------------------------------------------|
| Operating Temperature | -25     |         | +70     | °C    | See derating curve in Application Notes                         |
| Storage Temperature   | -40     |         | +85     | °C    |                                                                 |
| Cooling               |         |         |         |       | Natural convection                                              |
| Operating Humidity    | 20      |         | 95      | %RH   | Non-condensing                                                  |
| Operating Altitude    |         |         | 5000    | m     |                                                                 |
| Shock                 |         | 4       |         | g     | IEC68-2-27, 22 ms half sine, 3 times in each of 6 axes          |
| Vibration             |         | 2       |         | g     | IEC68-2-6, 10-500 Hz, 10 mins/sweep. 60 mins for each of 3 axes |

### EMC: Emissions

| Phenomenon           | Standard    | Test Level | Criteria | Notes & Conditions |
|----------------------|-------------|------------|----------|--------------------|
| Conducted            | EN55032     | Class B    |          |                    |
| Radiated             | EN55032     | Class B    |          |                    |
| Harmonic Current     | EN61000-3-2 | Class A    |          |                    |
| Voltage Fluctuations | EN61000-3-3 |            |          |                    |

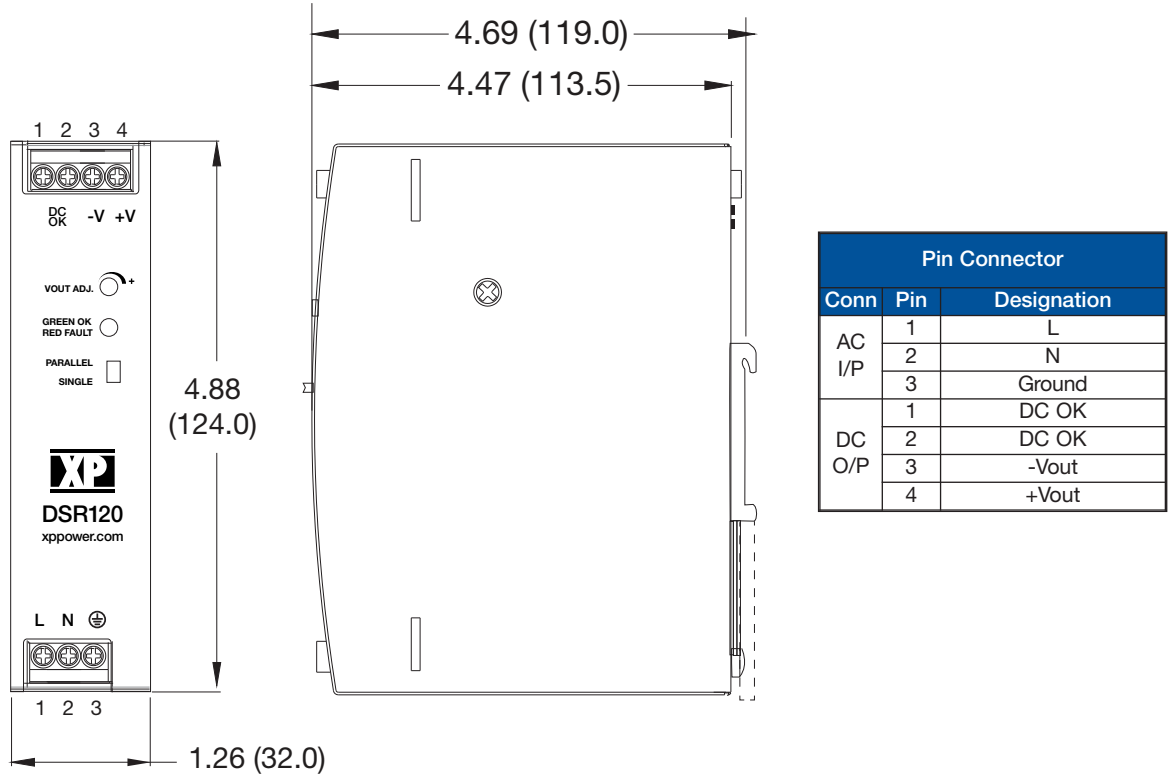
### EMC: Immunity

| Phenomenon             | Standard    | Test Level           | Criteria | Notes & Conditions |
|------------------------|-------------|----------------------|----------|--------------------|
| ESD Immunity           | EN61000-4-2 | 6 kV                 | A        | Contact            |
|                        |             | 8 kV                 |          | Air Discharge      |
| Radiated Immunity      | EN61000-4-3 | 10 V/m               | A        |                    |
| EFT/Burst              | EN61000-4-4 | 3                    | A        |                    |
| Surges                 | EN61000-4-5 | Installation class 3 | A        |                    |
| Conducted              | EN61000-4-6 | 10 V                 | A        |                    |
| Magnetic Fields        | EN61000-4-8 | 4                    | A        |                    |
| Dips and Interruptions | EN55024     | Dip: 30%, 10 ms      | A        |                    |
|                        |             | Dip: 60%, 100 ms     | A/B      | High Line/Low Line |
|                        |             | Dip: 100%, 5000 ms   | B        |                    |

### Safety Approvals

| Safety Agency | Safety Standard | Notes & Conditions                                  |
|---------------|-----------------|-----------------------------------------------------|
| UL            | UL508/UL60950   | Industrial Control Equipment/Information Technology |
| TUV           | EN60950-1       | Information Technology                              |
| CB            | IEC60950-1      | Information Technology                              |

### Mechanical Details



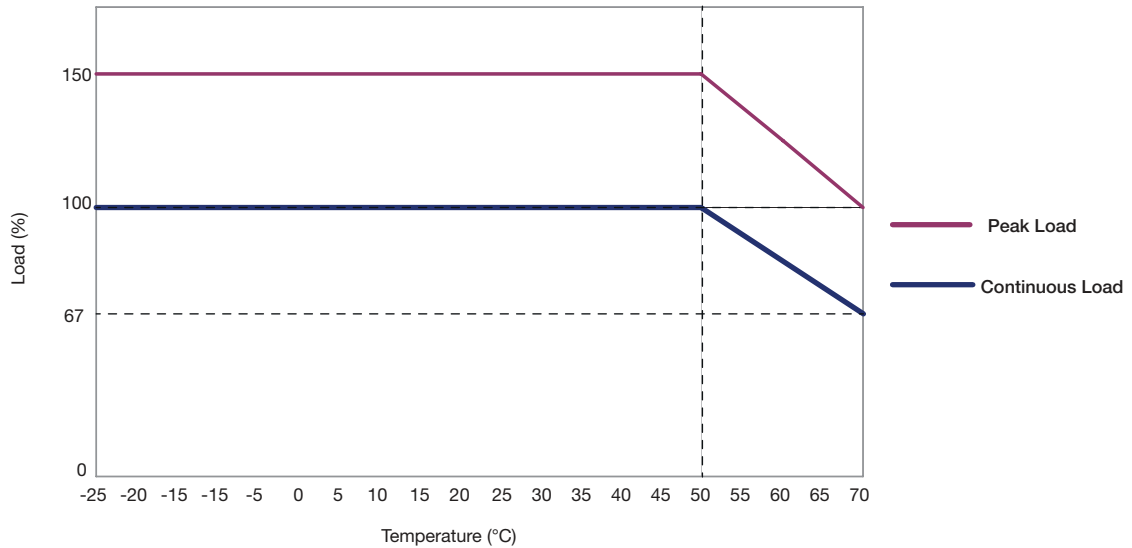
### Notes

- All dimensions in inches (mm)
- Weight: 1.17 lbs (530 g)
- Tolerance:  $\pm 0.02$  in ( $\pm 0.5$  mm)

### Application Notes

#### Derating Curves

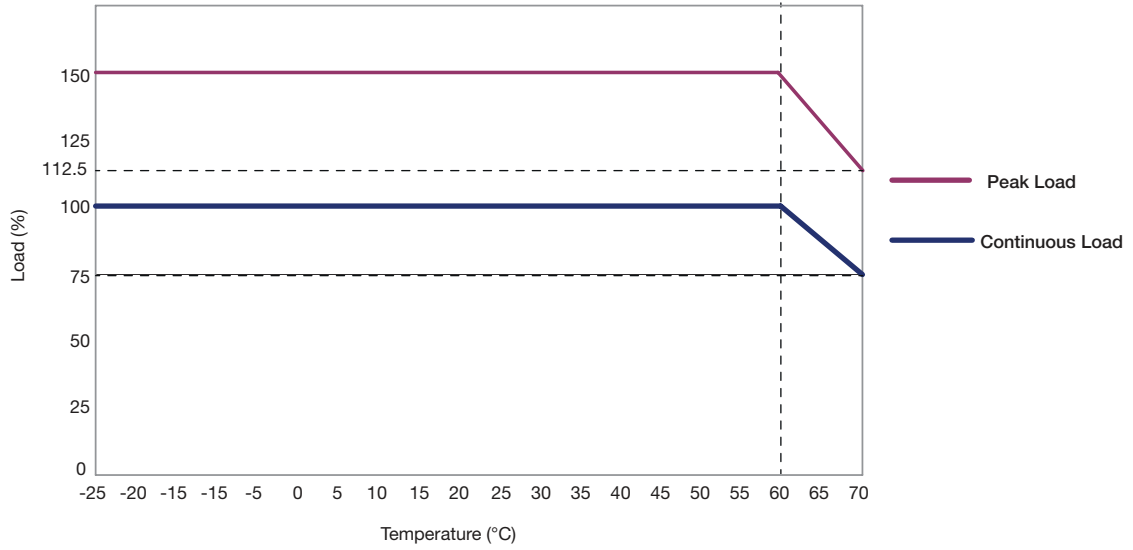
##### DSR120PS12



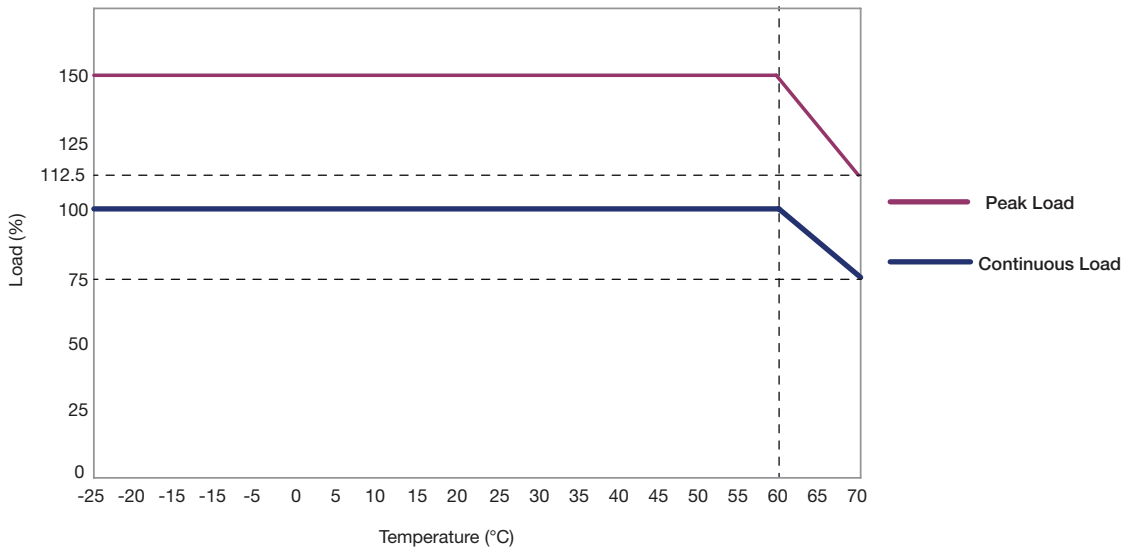
### Application Notes

#### Derating Curves

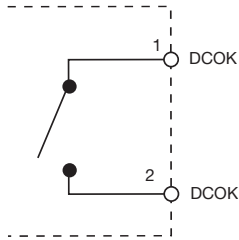
##### DSR120PS24



##### DSR120PS48



### DC OK



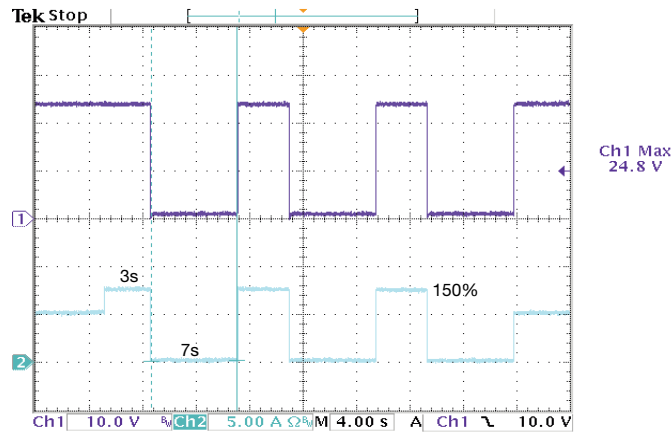
Open = Output fail, if voltage drops below 80% of nominal  
 Closed = Output good

Contact Rating: 0.3 A at 60 VDC, 1.0 A at 30 VDC, 0.5 A at 30 VAC.  
 500 VDC isolation to output.

### Peak Load and Overload

A peak load can be used for a certain period after which the output goes into overload mode. Overload operation is trip and restart. The peak load duration depends on the value of the load, e.g. a peak load of 150% can be taken for approximately 3s. After this time the output will turn off for approximately 7s before turning back on.

If the load has reduced to 100% or less than normal operation is resumed. If the load remains at 150% then the output is maintained for a further 3s before turning off for 7s. See example plot below.



If the peak load is less than 150%, the duration of the peak can be longer than 3s before the output turns off, for example, a peak load of 130% could typically be taken for up to 13s and a peak load of 140% could typically be taken for up to 5s. The off duration is always approximately 7s.

Average power is not to exceed nominal output power.