

### 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)

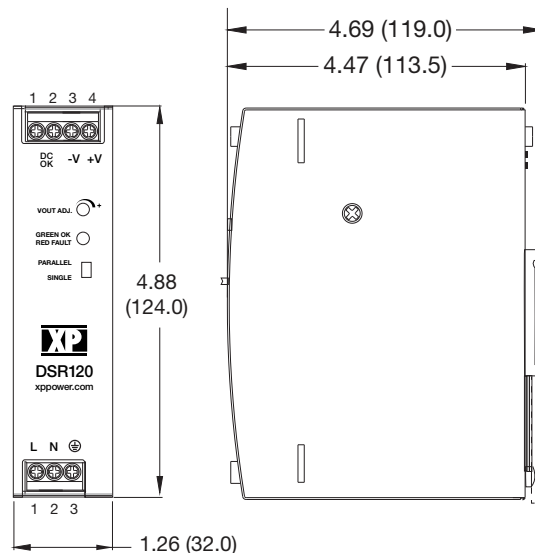
### Models & Ratings

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 Input to Ground 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			

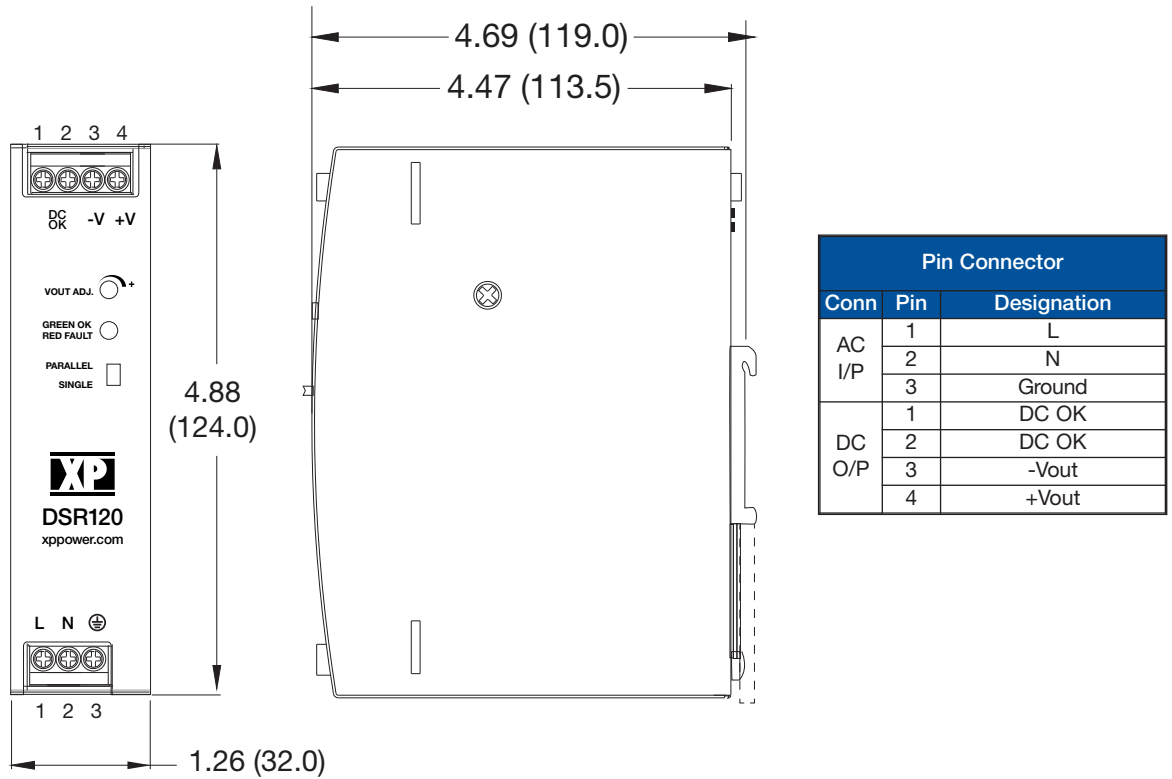
### EMC: Immunity

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



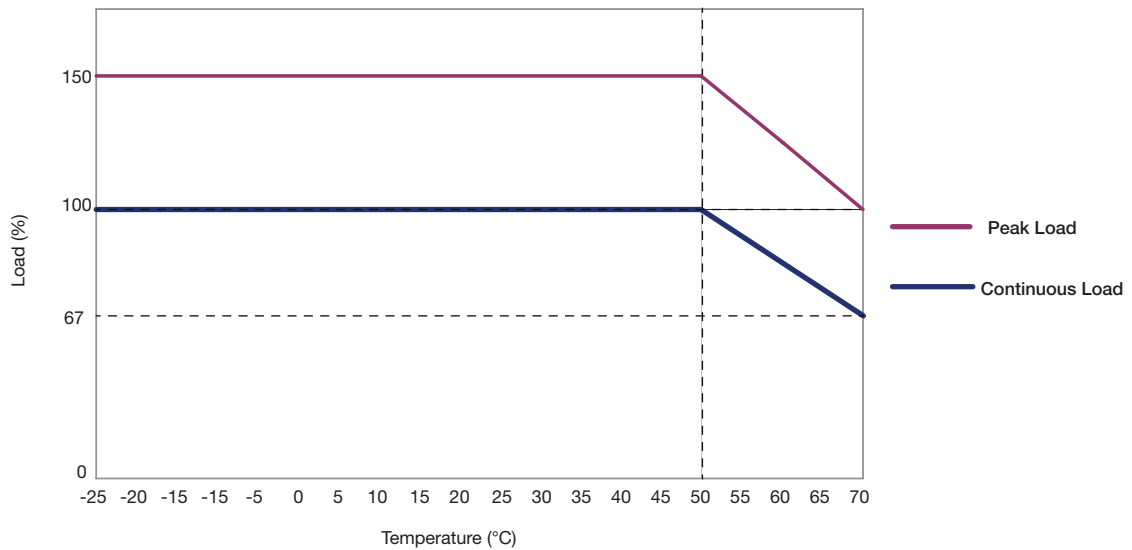
### Notes

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

### Application Notes

#### Derating Curves

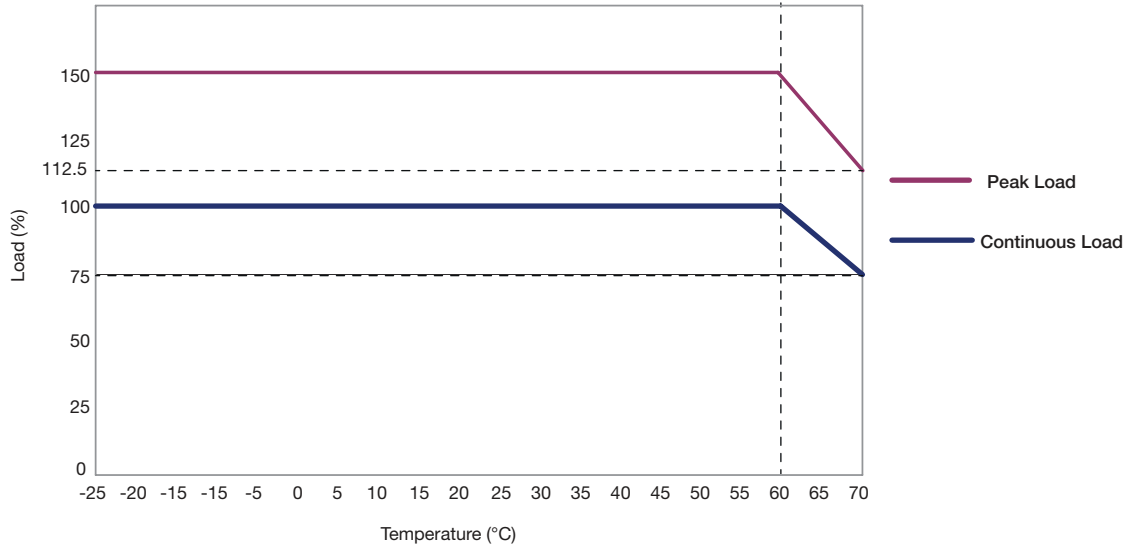
##### DSR120PS12



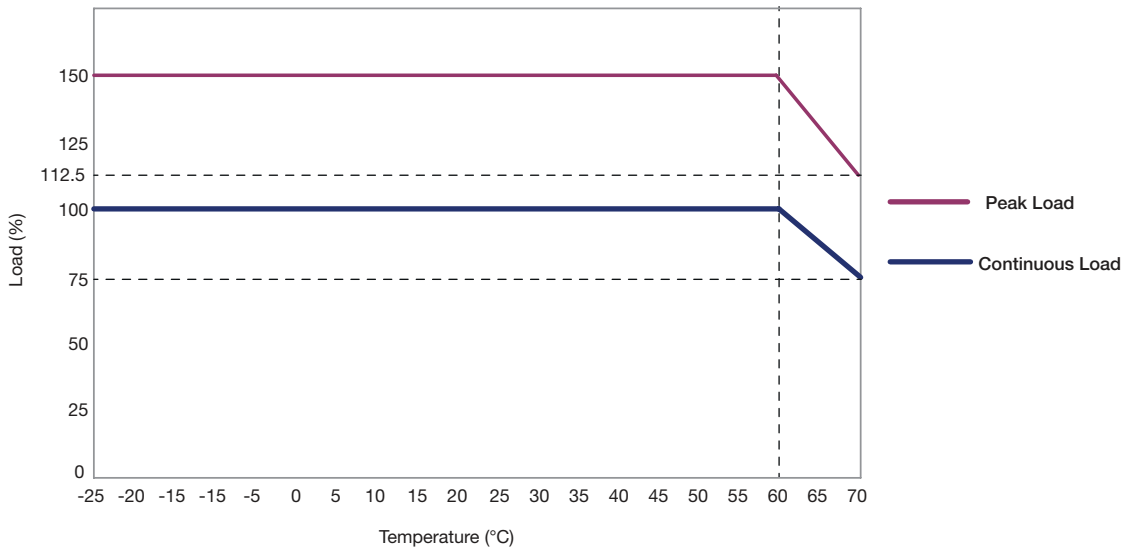
### Application Notes

#### Derating Curves

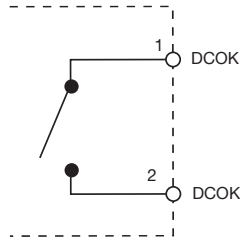
##### DSR120PS24



##### DSR120PS48



### DC OK



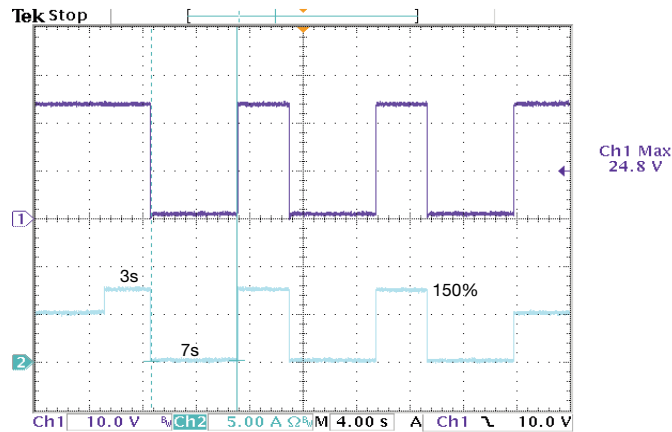
Open = Output fail, if voltage drops below 80% of nominal  
 Closed = Output good

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.