

EXC Switching Power Supply

DL-50W-EXC_V1.0

Guangdong Done Electronic Technology Co., Ltd

Features

- Rated input voltage: 100-240Vac ~ 50/60Hz
- Efficiency: 88%(Typ.) air cooling
- Constant voltage mode output
- Class I metal housing structure, protection class: IP20
- Surge protection level: differential mode 2KV, common mode 4KV
- 200% Peak Power Capability (Option B version)
- Complete protection functions: output over-voltage, output over-current, short circuit protection
- No load power consumption <0.3W
- 3 years warranty



Product introduction

DONE DL-50W-EXC is a series of enclosed switching power supply product with output power of 50W. DL-50W-EXC adopts an input voltage range of 90-264Vac, provides an output voltage line of 12, 15, 24, 36, 48Vdc. Designed with IP20 protection, it has complete protection functions, including OVP, OLP, and SCP protection functions. The metallic mesh case greatly improves the heat dissipation of the product and increases the reliability of the product for industrial applications. Serve as a reliable power supply solution for customers in the fields of industrial control, industrial automation and lighting. Version B of EXC provides 200%(max.) peak power capability at boot for inductive loads that requires higher power immediately during the start-up.

Model list

Model NO.	Input voltage	Output power	Output voltage	Max. current	Eff. (Typ.)
DL-50W-V12-EXC	100-240Vac	50W	12Vdc	0-4.16A	≥88%
DL-50W-V15-EXC	100-240Vac	50W	15Vdc	0-3.34A	≥88%
DL-50W-V24-EXC	100-240Vac	50W	24Vdc	0-2.08A	≥89%
DL-50W-V36-EXC	100-240Vac	50W	36Vdc	0-1.4A	≥89%
DL-50W-V48-EXC	100-240Vac	50W	48Vdc	0-1.05A	≥89%

Note:

1. Test conditions of the above parameters: Ta=25°C, 230Vac input, full load operation for 30 minutes;
2. Including setting error, linear adjustment rate and load adjustment rate;
3. Switching Power supply is used as a component with terminal equipment. EMC is affected by the whole set of devices. Terminal equipment manufacturers need to re-confirm the EMC for the whole set of devices.
4. Industrial control switching power supply according to IT/AV standards, EMC according to EN55032/CISPR32.

Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	100Vac 140Vdc	230Vac	240Vac 330Vdc	N/A
Input voltage range	90Vac	-	264Vac	N/A
Rated frequency	47Hz	50/60Hz	63Hz	N/A
Power factor	-	>0.5	-	100% load, 230Vac input
Input current	-	-	1.2A	100% load, 90Vac input
Inrush current	-	-	80A	230Vac, cold start (25°C)
16A Circuit breaker The number of power supplies of the same model can be configured	7pcs (Type B circuit breaker)11pcs (Type C circuit breaker) for 230Vac input			

Output characteristics

Parameter	Min	Typ.	Max	Note
Output current range				
DL-50W-V12-EXC		4.16A		
DL-50W-V15-EXC		3.34A		
DL-50W-V24-EXC	-	2.08A	-	N/A
DL-50W-V36-EXC		1.4A		
DL-50W-V48-EXC		1.05A		
Output voltage range				
DL-50W-V12-EXC	10.2V	12V	13.8V	
DL-50W-V15-EXC	13.5V	15V	18V	
DL-50W-V24-EXC	21.6V	24V	28.8V	N/A
DL-50W-V36-EXC	32.4V	36V	39.6V	
DL-50W-V48-EXC	43.2V	48V	52.8V	
Rated power(100-240Vac)	-	50W	-	N/A
Efficiency@230Vac				
DL-50W-V12-EXC	87%	88%		
DL-50W-V15-EXC	87%	88%		
DL-50W-V24-EXC	88%	89%	-	full load @230Vac
DL-50W-V36-EXC	88%	89%		
DL-50W-V48-EXC	89%	89%		

Output characteristic

Parameter	Min	Typ.	Max	Note
Output voltage ripple	240mV@UP-12/15/24VDC/360mV@UP-36/48VDC			Full load
Accuracy of output voltage	-1%	-	+1%	Full load
Line regulation	-1%	-	+1%	50-100% load@230Vac
Load regulation	-1%	-	+1%	50-100% load@230Vac
Starting time	-	-	500ms	Full load@230Vac
Rise time	-	-	30ms	Full load@230Vac
Hold time	16ms	-	-	Full load@230Vac

Protection

Function	Function instructions
Output overload protection	Protection mode: hiccup mode, recovers automatically after fault condition is removed.
Output short circuit protection	Hiccup mode: recovers automatically after fault condition is removed
Output over-voltage protection	Output voltage > working voltage 1.08-1.5times turn-off
Output over-current protection	Output current > 1.1 < 1.5 times turn-off
Peak Power protection (optional B)	Supports maximum 160% peak power 5S for 100-180Vac input and 200% peak power 5S for 180-240Vac input

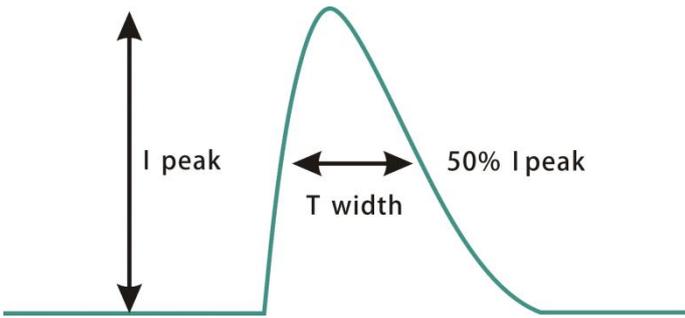
Safety and EMC

Safety categories	Standard
Safety	Compliance to UL62368-1, TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16,GB 4943.1
EMC	Compliance to BS EN/EN55032 (CISPR32) Class A, BS EN/EN55014, BS EN/EN61000-3-2 Class B(≤80% Load)
Surge protection	Differential mode L-N ±2KV (2 ohm) ,common mode L, N-PE±4 KV (12 ohm) ; Refer to IEC61000-4-5 2014
High-pot test	I/P-O/P:4KVac I/P-PE :2KVac O/P-PE : 1.25KVac
Insulation impedance	I/P-PE:100MΩ / 500VDC; I/P-O/P:100MΩ / 500VDC / 25°C/ 70% RH
Leakage current	<0.75mA@230Vac

Environmental

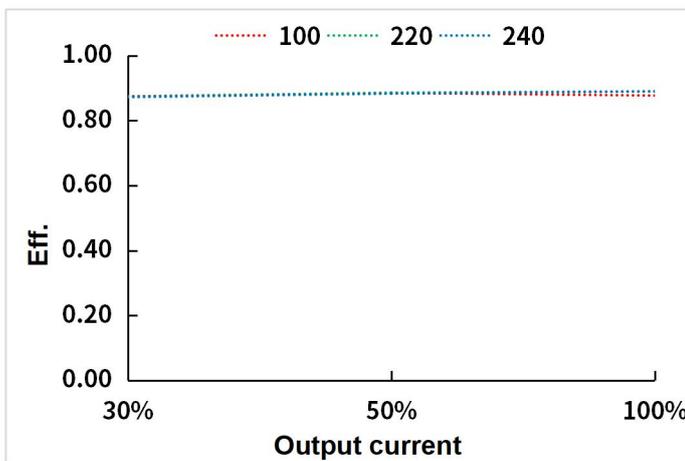
Environmental categories	Parameter
Working temperature	-40~70°C (refer to "temperature Curve ")
Working humidity	20 ~ 90% RH, non condensing
Storage temperature、 humidity	-30~+85°C, 10 ~ 90% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	50,000 hours @Ta≤55°C,230Vac, 100% Load(20% derating for every 10°C rise)

Inrush current

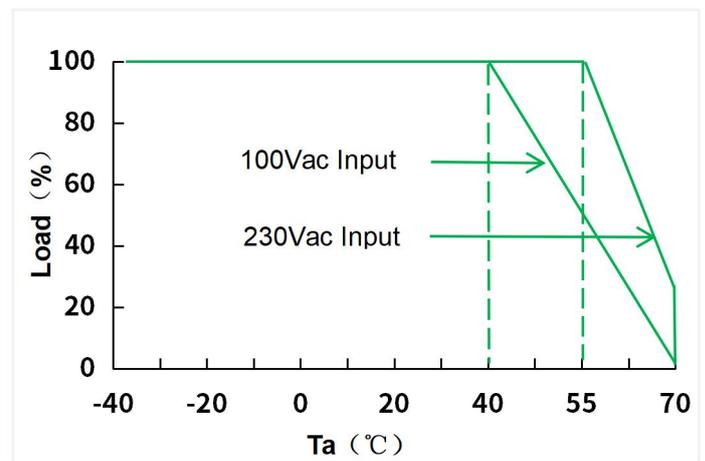


Input voltage	Peak current	T(@50% Peak current)
100Vac	27.33A	166us
230Vac	62.67A	187us
264Vac	66A	205us

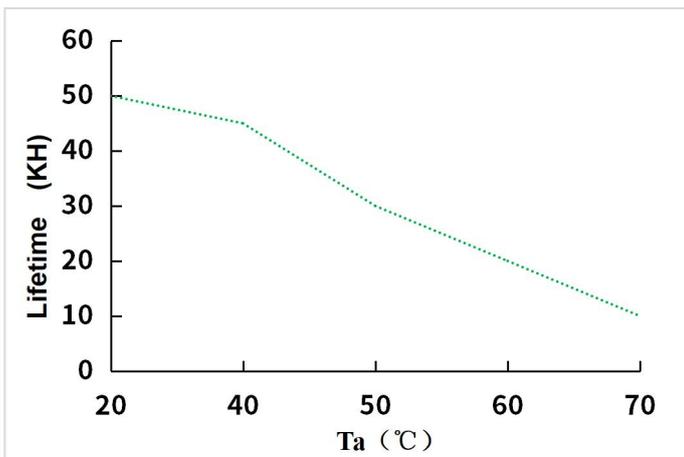
DL-50W-EXC Parametric curves



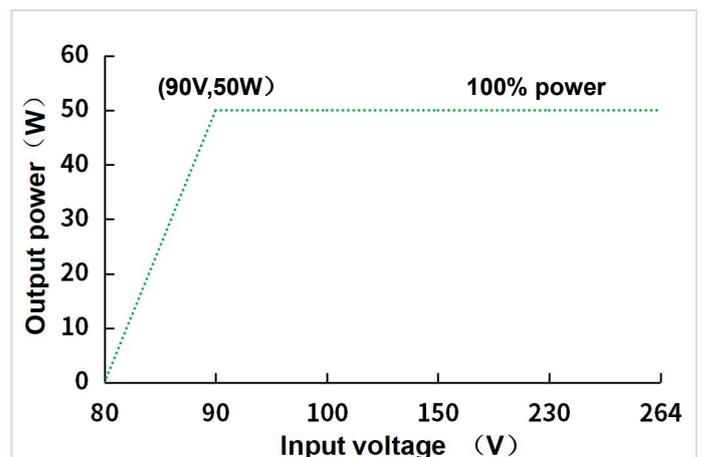
Eff. VS Output current



Load VS Ta



Lifetime VS Ta



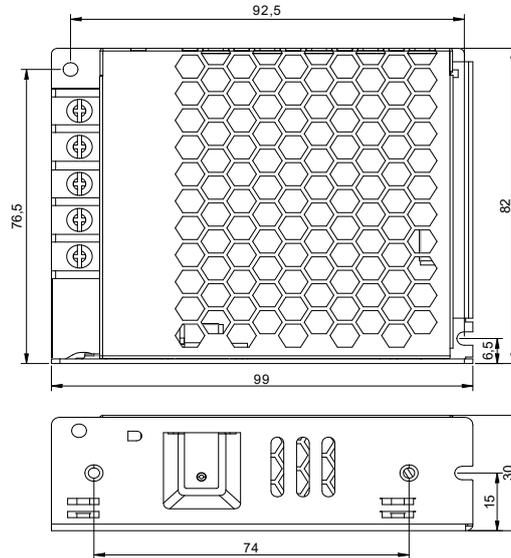
Output power VS Input voltage

Mechanical specification

Size (mm)

L99mm*W82mm*H30mm

0.185KG



Packaging

Packaging (mm)

L460mm*W320mm*H199mm

One Carton 5 layers and 15 pcs/ layer, total 75 pcs/carton

