

# EXL Switching Power Supply

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## DL-300W-EXL\_V1.0

A decorative graphic at the bottom of the page consisting of teal and white wavy lines that sweep across the width of the page. Overlaid on these lines are white circuit board traces and small circular components, resembling a stylized electronic circuit.

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## Features

- Input voltage: 100-120Vac/200-240Vac ~ 50/60Hz
- Input voltage range selectable by switch
- Efficiency: 93% (Typ.) air cooling
- Constant voltage mode output
- Class I Metal housing structure, protection class: IP20
- Surge protection level: differential mode 2KV, common mode 4KV
- Complete protection functions: output over-current, short circuit protection
- No load power consumption <0.75W
- 3 years warranty



## Product introduction

DONE DL-300W-EXL is a series of enclosed switching power supply products with output power of 300W. DL-300W-EXL 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 aluminum housing case greatly improves the heat dissipation efficiency of the product and increases the reliability of the product application.

## Model list

| Model NO.       | Input voltage                    | Output power | Output voltage | Max. current | EFF. |
|-----------------|----------------------------------|--------------|----------------|--------------|------|
| DL-300W-V12-EXL | 100-120Vac/200-240Vac<br>50/60Hz | 300W         | 12Vdc          | 0-25A        | ≥91% |
| DL-300W-V15-EXL | 100-120Vac/200-240Vac<br>50/60Hz | 300W         | 15Vdc          | 0-20A        | ≥91% |
| DL-300W-V24-EXL | 100-120Vac/200-240Vac<br>50/60Hz | 300W         | 24Vdc          | 0-12.5A      | ≥92% |
| DL-300W-V36-EXL | 100-120Vac/200-240Vac<br>50/60Hz | 300W         | 36Vdc          | 0-8.34A      | ≥93% |
| DL-300W-V48-EXL | 100-120Vac/200-240Vac<br>50/60Hz | 300W         | 48Vdc          | 0-6.25A      | ≥93% |

### Note:

1. Test conditions of the above parameters: Ta=25℃, 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 Class A level.

## Input characteristics

| Parameter                               | MIN                                                                                       | TYP     | MAX                  | NOTE                                         |
|-----------------------------------------|-------------------------------------------------------------------------------------------|---------|----------------------|----------------------------------------------|
| Rated input voltage                     | 100-120Vac<br>250Vdc                                                                      | 230Vac  | 200-240Vac<br>370Vdc | 250-370Vdc (switch to 230VAC)                |
| Input voltage range                     | 90-132Vac                                                                                 | -       | 176-264Vac           | 90~132Vac/176~264Vac.(with switch selection) |
| Rated frequency                         | 47Hz                                                                                      | 50/60Hz | 63Hz                 | N/A                                          |
| Power factor                            | -                                                                                         | >0.5    | -                    | 100% load, 230Vac input                      |
| Input current                           | -                                                                                         | -       | 6A                   | 100% load, 230Vac input                      |
| Inrush current                          | -                                                                                         | -       | 44A                  | 230Vac, cold start (25℃)                     |
| 16A Circuit breaker The number of power | 230Vac input can be configured with 4 (Type B circuit breaker) 7 (Type C circuit breaker) |         |                      |                                              |

## Output characteristics

| Parameter                   | MIN   | TYP  | MAX   | NOTE                                    |
|-----------------------------|-------|------|-------|-----------------------------------------|
| Output current range        |       |      |       |                                         |
| DL-300W-V12-EXL             |       |      | 25A   |                                         |
| DL-300W-V15-EXL             | 0     | -    | 20A   | N/A                                     |
| DL-300W-V24-EXL             |       |      | 12.5A |                                         |
| DL-300W-V36-EXL             |       |      | 8.34A |                                         |
| DL-300W-V48-EXL             |       |      | 6.25A |                                         |
| Output voltage range        |       |      |       |                                         |
| DL-300W-V12-EXL             | 11.5V | 12V  | 13.2V |                                         |
| DL-300W-V15-EXL             | 14.3V | 15V  | 16.5V | N/A                                     |
| DL-300W-V24-EXL             | 22.8V | 24V  | 26.4V |                                         |
| DL-300W-V36-EXL             | 34.3V | 36V  | 39.6V |                                         |
| DL-300W-V48-EXL             | 45.8V | 48V  | 52.8V |                                         |
| Rated power<br>(100-240Vac) | -     | 300W | -     | Select the input voltage via the switch |
| EFF.@230Vac                 |       |      |       |                                         |
| DL-300W-V12-EXL             | 91%   | 92%  |       |                                         |
| DL-300W-V15-EXL             | 91%   | 92%  | -     | FULL LOAD@230Vac                        |
| DL-300W-V24-EXL             | 91%   | 92%  |       |                                         |
| DL-300W-V36-EXL             | 92%   | 93%  |       |                                         |
| DL-300W-V48-EXL             | 92%   | 93%  |       |                                         |

## Output characteristic

| Parameter              | MIN                                    | TYP  | MAX   | NOTE                |
|------------------------|----------------------------------------|------|-------|---------------------|
| Ripple voltage         | 150mV@UP-12/15/24VDC/250mV@UP-36/48VDC |      |       | FULL LOAD           |
| Voltage accuracy       | -1%                                    | -    | +1%   | FULL LOAD           |
| Linear adjustment rate | -1%                                    | -    | +1%   | 50-100% LOAD@230Vac |
| Load adjustment rate   | -1%                                    | -    | +1%   | 50-100% LOAD@230Vac |
| Start-up time          | -                                      | -    | 500ms | FULL LOAD@230Vac    |
| Rise time              | -                                      | 50ms | -     | FULL LOAD           |
| Holding time           | -                                      | 20ms | -     | FULL LOAD           |

## 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 1.08-1.2 times turn-off                               |
| Output over-current protection  | Output current >1.1<1.5 times turn-off                                                 |

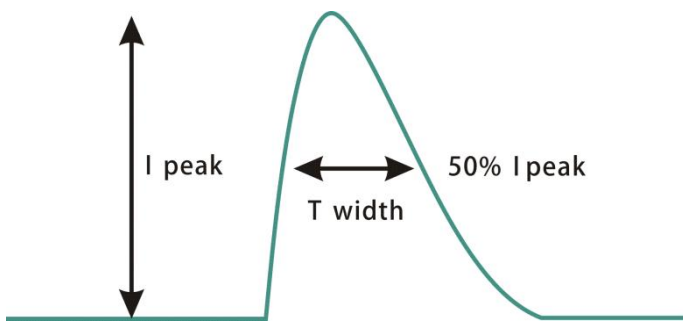
## Safety and EMC

| Safety categories    | Standard                                                                                                                  |
|----------------------|---------------------------------------------------------------------------------------------------------------------------|
| Safety               | Compliance to UL8750, TUV BS EN/EN62368-1, BS EN/EN61558-1/-2-16, GB 4943.1                                               |
| EMC                  | Compliance to BS EN/EN55032 (CISPR32) Class A, BS EN/EN55014, Class A( $\leq 80\%$ Load)                                  |
| Surge protection     | Differential mode L-N $\pm 2\text{KV}$ (2 ohm), common mode L, N-PE $\pm 4\text{KV}$ (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:100M $\Omega$ / 500VDC; I/P-O/P:100M $\Omega$ / 500VDC / 25°C / 70% RH                                             |
| Leakage current      | <0.75mA@230Vac                                                                                                            |

## Environmental

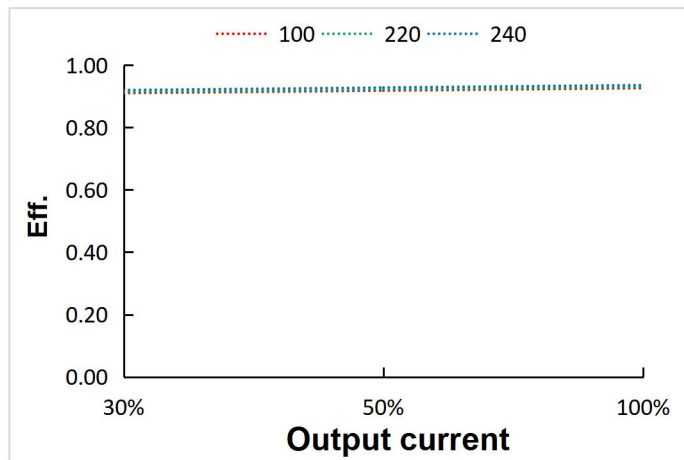
| Environmental categories      | Parameter                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------|
| Working temperature           | -40~+70°C (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                      | 30,000 hours @Ta $\leq 50^\circ\text{C}$ , 230Vac, 100% Load(20% derating for every 10°C rise) |

## Inrush current

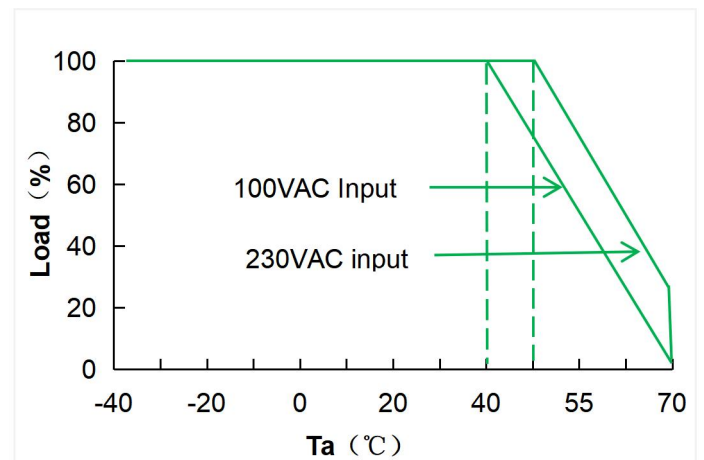


| Input voltage | Peak current | T(@50% Peak current) |
|---------------|--------------|----------------------|
| 100Vac        | 25A          | 720us                |
| 230Vac        | 44A          | 600us                |
| 264Vac        | 60A          | 430us                |

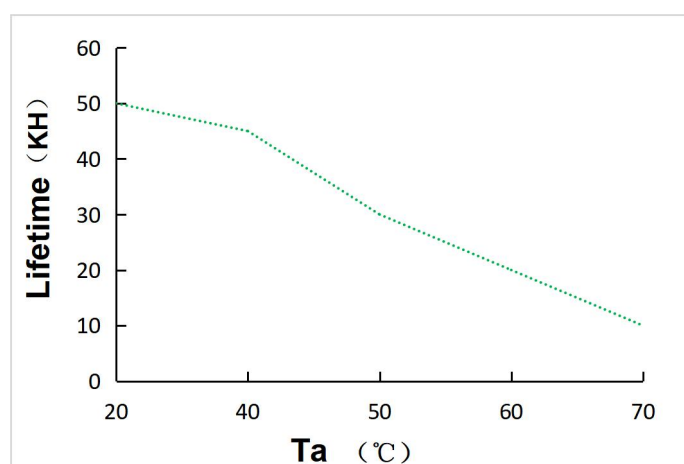
## DL-300W-EXL Parametric curves



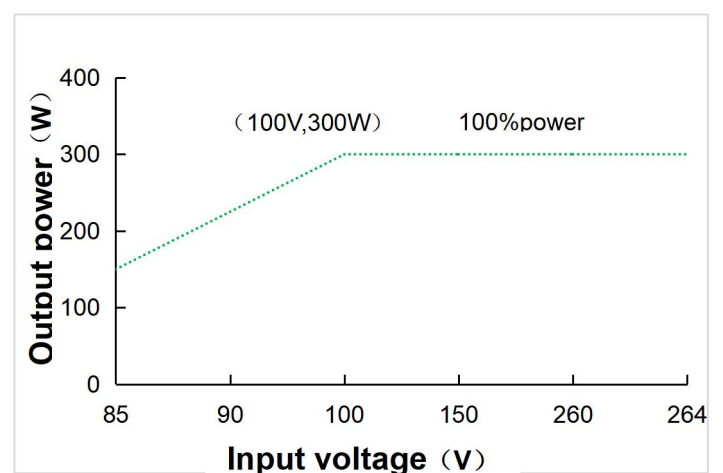
Eff. VS Output current



Output power VS Tcase



Lifetime VS  $T_a$

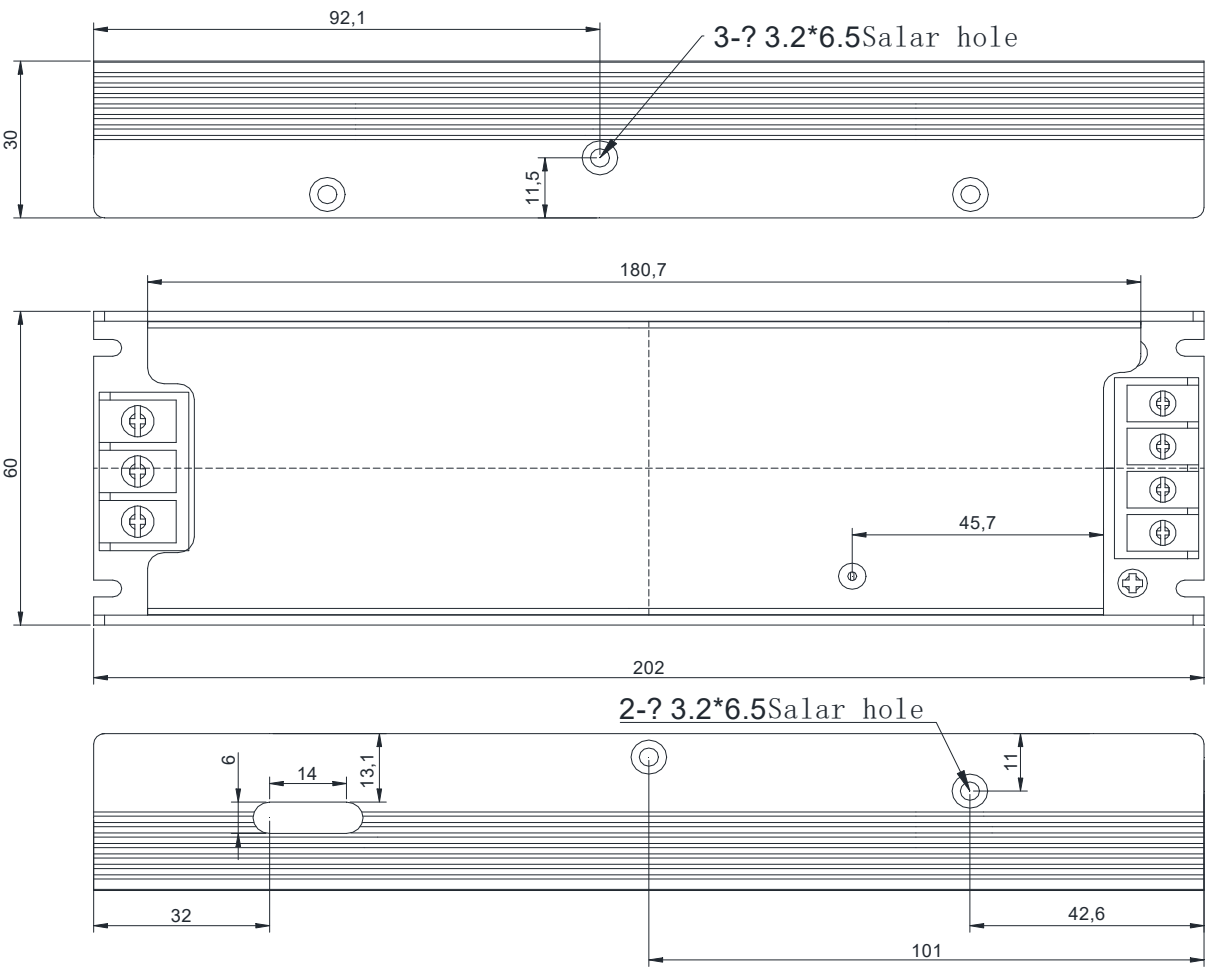


Output power VS Input voltage

Mechanical specification

|           |                    |         |
|-----------|--------------------|---------|
| Size (mm) | L202mm*W60mm*H30mm | 0.550KG |
|-----------|--------------------|---------|

DL-300W-EXL



## Packaging

Packaging (mm) L475\*W350\*H205

One Carton 4layers and 5pcs/layer, 20pcs/carton in total.

