

# DL2-60-U series

60W Constant Voltage class II DIN-Rail Power Supply



## ■ Features:

- Universal AC input / Full range: 85 – 264VAC and 120 – 370VDC
- High Dielectric Strength: IN/OUT up to 4000VAC
- Protections: Over current / Short circuit / Over Voltage
- Wide operating ambient temperature range: -40°C ÷ +70°C
- Over-voltage category OVC III (designed to meet EN61558-1)
- Low no load power consumption
- Isolation class II design
- Designed to install on TS35x7.5/TS35x15 Din Rail



## MODEL NUMBERING

DL2	-	60	-	X	-	U
SERIES		RATED OUTPUT POWER		RATED OUTPUT VOLTAGE		INPUT VOLTAGE RANGE
DIN RAIL, PLASTIC CASE, CLASS II POWER SUPPLY, CONSTANT VOLTAGE DESIGN	60 MEANS 60W (NOT FOR ALL VOLTAGE VERSIONS, PLEASE CHECK DETAILS IN BELOW SPECIFICATION — OUTPUT SECTION)			X = 05	5V	U means 85~264VAC / 120~370VDC
				X = 12	12V	
				X = 15	15V	
				X = 24	24V	
				X = 48	48V	

## ELECTRICAL SPECIFICATION

MODEL	DL2-60-05-U	DL2-60-12-U	DL2-60-15-U	DL2-60-24-U	DL2-60-48-U
OUTPUT					
RATED VOLTAGE	5V	12V	15V	24V	48V
RATED CURRENT	6.5A	4.5A	4.0A	2.5A	1.25A
ADJUSTABLE VOLTAGE RANGE (MIN.)	4.9V ÷ 5.5V	10.8V ÷ 13.8V	13.5V ÷ 18.0V	21.6V ÷ 29V	43.2V ÷ 55.2V
RATED POWER	32.5W	54W	60W	60W	60W
LINE REGULATION	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
LOAD REGULATION	± 1.5%	± 1.5%	± 1.5%	± 1.5%	± 1.5%
RIPPLE & NOISE (MAX.) [2]	100mV <sub>p,p</sub>	120mV <sub>p,p</sub>	120mV <sub>p,p</sub>	150mV <sub>p,p</sub>	240mV <sub>p,p</sub>
SETUP TIME, HOLD UP TIME (TYP.)	3000ms, 80ms / 230VAC at full load; 3000ms, 15ms / 115VAC at full load				
CAPACITIVE LOAD (MAX.)	20000μF	10000μF	8000μF	4000μF	680μF
INPUT					
VOLTAGE RANGE	85 ÷ 264VAC				
	120 ÷ 370VDC				
FREQUENCY RANGE	47 ÷ 63Hz				
EFFICIENCY (TYP.)	84%	88%	89%	90%	91%
AC CURRENT (MAX.)	0.8A / 230VAC; 1.2A / 115VAC				
INRUSH CURRENT (TYP.)	60A / 230VAC; 30A / 115VAC				
NO LOAD POWER CONSUMPTION (MAX.)	0.3W	0.3W	0.3W	0.3W	0.4W

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## PROTECTIONS

<b>OVER CURRENT</b>	Range: above 120% rated current				
	Type: hiccup mode, auto-recovery.				
<b>SHORT CIRCUIT</b>	Type: hiccup mode, auto-recovery.				
<b>OVER VOLTAGE</b>	≤ 7.5VDC	≤ 16VDC	≤ 20VDC	≤ 36VDC	≤ 60VDC
	Type: hiccup mode or output voltage clamp				

## WORKING ENVIRONMENT

<b>WORKING TEMPERATURE</b>	-40°C ÷ 70°C (Refer to Derating Curve)
<b>STORAGE TEMPERATURE AND HUMIDITY</b>	-40°C ÷ 85°C, 10 ÷ 95% RH non-condensing
<b>TEMPERATURE COEFFICIENT (TYP.)</b>	± 0.02% / °C
<b>OPERATING ALTITUDE (MAX.)</b>	2000m

## SAFETY AND EMC REGULATIONS

<b>SAFETY STANDARDS</b>	Compliance to EN62368-1; Designed to meet EN61558-1
<b>WITHSTAND VOLTAGE</b>	IN/OUT: 4000VAC (< 5mA / 1min)
<b>EMC EMISSION</b>	Compliance to EN55032
<b>EMC IMMUNITY</b>	Compliance to: EN55035; EN61000-4-2, -3, -4, -5, -6, -11
<b>HARMONIC CURRENT</b>	Compliance to: EN61000-3-2 class A, EN61000-3-3

## OTHERS

<b>MTBF (MIN.)</b>	300 000h / 25°C per MIL-HDBK-217F
<b>DIMENSIONS</b>	92.66 x 52.00 x 58.00mm (L x W x H)
<b>CASE MATERIAL</b>	Black plastic heat-resistant (UL94V-0)
<b>NET WEIGHT</b>	0.175kg

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load, 25°C of ambient temperature and humidity <75% RH.

2. Ripple & noise is measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF i 47μF parallel capacitor.

3. Power supply is considered as component not intended to apply by end-user. Power supply meets safety and EMC standards however the final equipment with power supply must be re-qualified to comply with EMC Directives.

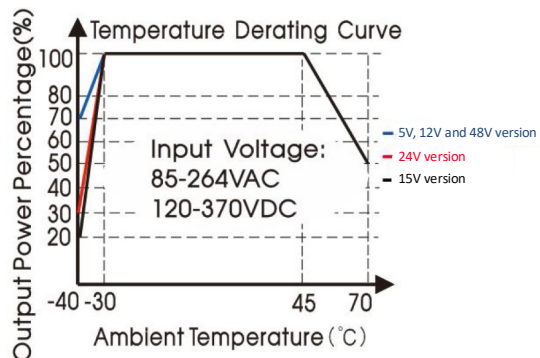
4. Specifications are subject to change without prior notice.

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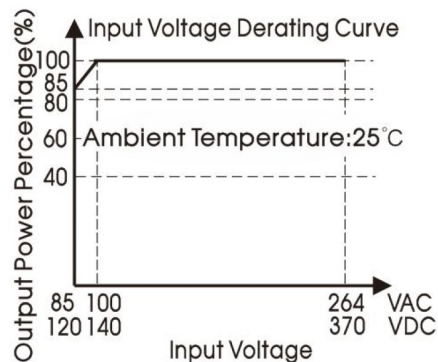
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## DERATING CURVE

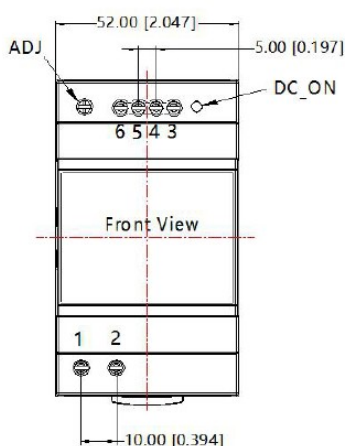
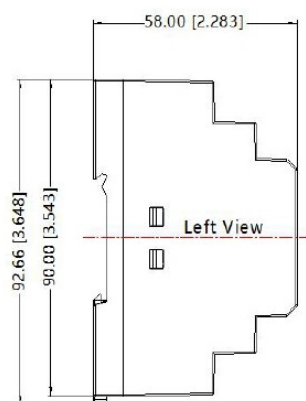


## STATIC CHARACTERISTIC



## MECHANICAL SPECIFICATION

THIRD ANGLE PROJECTION



Pin-Out	
Pin	DL2-60-U
1	AC(L)
2	AC(N)
3	+Vo
4	+Vo
5	-Vo
6	-Vo

Note:  
 Unit: mm[inch]  
 ADJ: adjustable resistance to change output voltage  
 Wire range: 24-12 AWG  
 Tightening torque: Max 0.4 N·m  
 Mounting rail: TS35  
 General tolerances:  $\pm 1.00[\pm 0.039]$

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