

## Features

- Voltage Input Range 90~264V AC or 127~370V DC
- Operating Temperature Range: -30°C~+70°C
- With built-in Battery charging circuit
- High-Efficiency up to 88%
- Safety Standards to UL/EN/BS EN 62368-1
- Output SCP, OCP, OVP



UKCA CE cULus RoHS

Ideal Power's 56YDC180-xy 180W DIN Rail Mount AC/DC Power Supply Converter Series are certified to UKCA, CE, cULus, RoHS & UL 62368-1/BS EN 62368-1/EN 62368-1 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Audio & Video Industries and customised solutions are available upon request.

### Models

Model Number*	Output Power (W)	Output Voltage (V DC)	Rated Current (A)	Voltage Adj Range (V)	Current Range (A)	Efficiency at 230V AC (%) Typ
56YDC180-138	179.4	13.8	9 / 4 (charger)	12~15	0~3	88
56YDC180-276		27.6	4.5 / 2 (charger)	24~29	0~6.5	90

### Input Specifications

Conditions		Min	Typ	Max	Unit
Input Voltage Range	[DC input operation possible by connecting AC/L (+), AC/N (-)]				
	AC input	90	--	264	VAC
	DC input	127	--	370	VDC
Frequency Range		47	--	63	Hz
AC Current	115V AC at full load	--	2.5	--	A
	230V AC at full load	--	1.5	--	
Inrush Current	115V AC at full load	--	35	--	A
	230V AC at full load	--	70	--	

## Output Specifications

	Conditions	Min	Typ	Max	Unit
Ripple & Noise	56YDC180-138	--	--	150	mVp-p
	56YDC180-276	--	--	240	
Voltage Tolerance		--	±1.0	--	%
Line Regulation	56YDC180-138	--	±1.0	--	
	56YDC180-276	--	±0.5	--	
Load Regulation	56YDC180-138	--	±0.5	--	
	56YDC180-276	--	±0.5	--	
Set up, Rise Time	2000ms, 30ms/230 & 115V AC at full load				
Hold up Time	20ms/230 & 115 V AC at full load				

## Protection

Overload Protection	>105%-150% rated output power: Protection type: Hiccup mode, recovers automatically when fault condition is removed	
Over Voltage Protection	56YDC180-138	CH1:15.8~19.5V
	56YDC180-276	CH1:30.5~37.7V
Over Temperature	Shut down o/p voltage, repower on to recover	
Battery Cut Off	10±0.5V	
	20±1V	

## Environmental Characteristics

Item	Operating Conditions
Operating Temperature	-20°C to 70°C (Refer to "Derating Curve")
Operating Humidity	20 ~ 90% RH non-condensing
Storage Humidity	-20°C ~ 85% RH non-condensing
Storage Humidity	10 ~ 95% RH non-condensing
Temp Coefficient	± 0.03%/°C (0~50°C) on CH1 output
Vibration	10~500Hz, 5G 10min/1cycle, 60min each along x, y, z axes.
Operating Altitude	5000 meters / OVC II
Over Voltage Category	II;According to Dekra BS EN/EN62368-1; altitude up to 5000 meters
MTBF	1536.3K hrs min, Telcordia SR-332 (Bellcore)

## Safety & EMC

Safety Standards	UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004, AS/NZS 62368.1 approved
Withstand Voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/ 500VDC/25 °C/70% RH
EMC Emissions	Compliance to BS EN/EN55032 (CISPR32) Class B,
EMC Immunity	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11,BS EN/EN55035

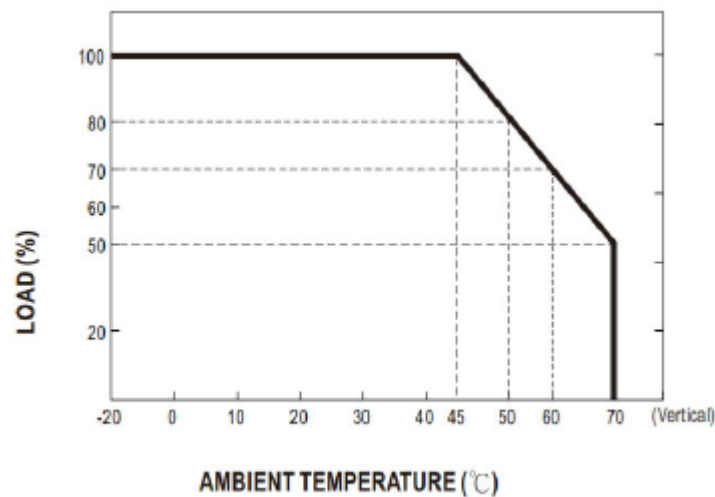
## Mechanical Specifications

Dimension	63 x 125 x 113.5mm (L x W x H)
Weight	1.1kg (Typ.)

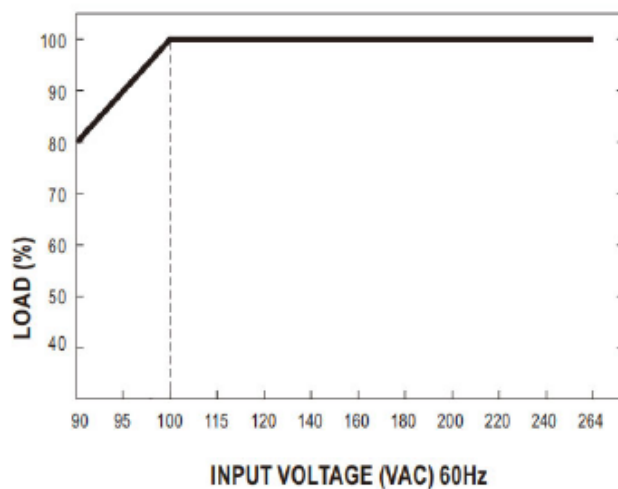
### Note:

1. All parameters NOT specially mentioned at 400V AC input rated load and 25°C of ambient temperature.
2. Ripple & Noise are measured at 20MHZ of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
3. Tolerance: includes set up tolerance, line regulation and load regulation.
4. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set-up time.
5. Please refer to suggested Application 2. (2) - (3) in page 4.
6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."
7. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m(6500ft).

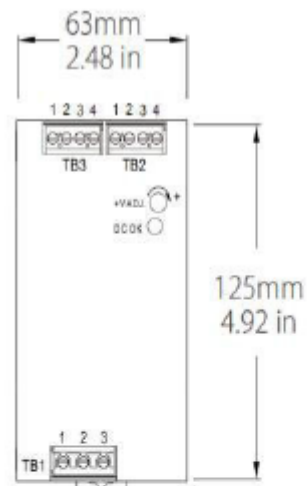
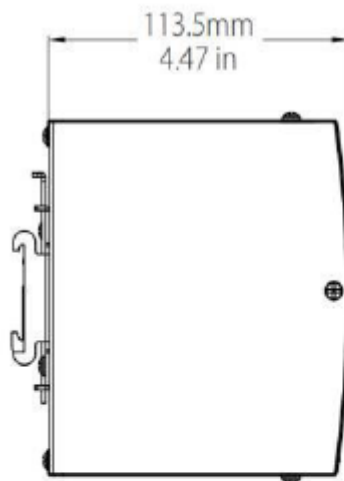
## Derating Curve



## Output Derating VS Input Voltage



## Dimensions and Recommended Layout



Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⚡
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB3)

Pin No.	Assignment
1,2	AC OK
3,4	Bat. Low

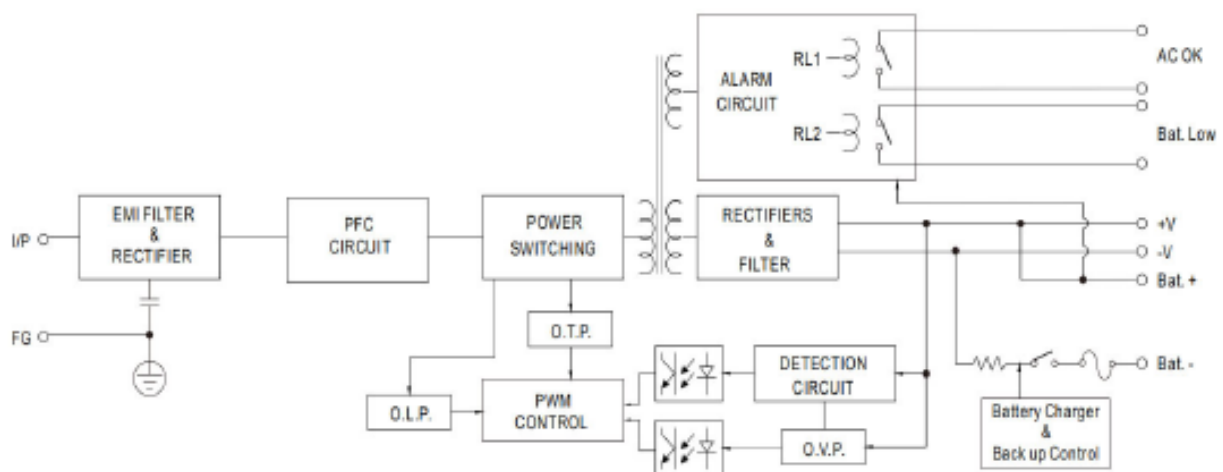
Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1	+V
2	-V
3	Bat+
4	Bat-



1.-V and Bat- can not be shorted.

## Block Diagram



## Suggested Application

### 1.Backup connection for AC interruption

(1) Please refer to the Fig1.1 for suggested connection.

The power supply charges the battery and provides energy to the load at the same time when the AC main is OK.

The battery starts to supply power to the load when the AC mains fails.

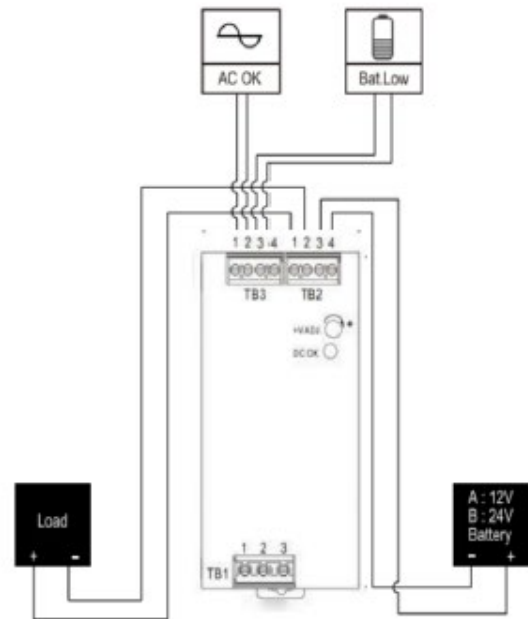
### 2.Alarm signal for AC OK and Battery Low

(1) Alarm signal is sent out through "AC OK" & "Battery Low " pins. (relay contact type)

(2) An external voltage source is required for this function.

The maximum applied voltage is 30V and the maximum sink current is 1A.

(3) Table2.1 explains the alarm function built in the power supply



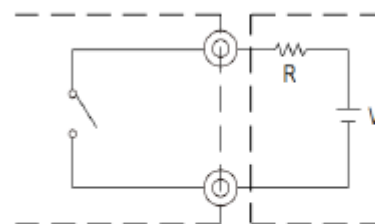
Function	Description	Output of Alarm
AC OK	when the power supply turns ON	Closed
	when the power supply turns OFF	Open
Battery Low	when the voltage of battery is under A:11V, B:22V	Closed
	when the voltage of battery is above A:11V, B:22V	Open

Table 2.1 Explanation of Alarm Signal

(4) RL1 (AC OK) signal will go into hiccup mode when the overload protection is activating.

### AC OK (Battery Low)

TB3 Pin1(Pin3)



TB3 Pin2(Pin4)

External voltage source (V) and resistor (R)  
(The max. Sink is 1A and 30V)

Fig 2.2 Internal circuit of AC OK (Battery Low)