

Features

- Universal 3x320-600VAC or 450-800VDC Input voltage
- Operating Temperature Range: -40°c~+85°C (60°C full load)
- Active PFC, PF up to 0.95
- High I/O isolation voltage up to 4000V AC
- High-Efficiency up to 95%
- Safety Standards to IEC/EN/UL 62368-1
- Output SCP, OCP, OVP, OTP
- Single output 24~48V DC



Image for Illustration Purpose Models may vary

Ideal Power's 36LITF240-26Bxx 240W DIN Rail Mount AC/DC Power Supply Converter Series are certified to UKCA, CE, RoHS & EN 62368-1/IEC 62368-1/UL 62368-1/EN 61010/UL 61010 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 and Current (Vo/lo) Nominal	Output Voltage Adjustable Range (V)	Efficiency at 230V AC (%) Typ	Capacitive Load (µF) Max
36LITF240-26B24	240	24V/10A	24-28	95	10000
36LITF240-26B48		48V/5A	48-56	95	10000

Input Specifications

	Conditions		Min	Тур	Max	Unit	
	Rated input (Certified	voltage)	380		480	VAC	
Input Voltage Range	AC input		320		600		
	DC input		450		800	VDC	
Input Voltage Frequency			47		63	Hz	
Input Current	400VAC/480VAC				0.6	Α	
Inrush Current	400VAC/480VAC	Cold start		7			
Power Factor	400VAC	Normal temperature, rated load	0.92	0.95			
	480VAC		0.92	0.94			
Input Under-voltage	Under-voltage protection start		200			VAC	
Protection	Under-voltage protection release				273		
Leakage Current	480VAC			<	:0.5mA		
Hot Plug				Un	available		

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Output Specifications

	Conditions	Mir	п Тур	Max	Unit
Output Voltage Accuracy	Full load range		±1.0		
Line Regulation	Rated load		±0.5		%
Load Regulation	400V AC		±0.5		
Ripple & Noise*	Room temperature, 400VAC, 20MHz bandwidth (peak-to-peak value)		50	100	mV
Temperature Coefficient			±0.03		%/°C
Minimum Load		0			%
Dynamic minimum Load		10			%
Standby power	Room temperature, 400VAC Input		5	7	
	Room temperature, 480VAC Input		6	8	vv
Hold-up Time	400VAC/480VAC	22			ms
Short Circuit Protection		Enter operation for	[·] hiccup mod r 3s (typ.), co	e after con ontinuous,	stant current self-recovery
Over-current Protection		≥130% I current	o, enter hico operation foi	up mode a r 3s (typ.), :	ifter constant self-recovery
Over veltage Protection	24V	<35VDC (C	output-off or o	lamping, s	elf-recover)
	48V	≤63V (Ou	tput-off or cla	amping, self	f-recover)
Over temperature Protection*	Over-temperature protection start			90	°C
Over-temperature Protection*	Over-temperature protection release	65			C

Note: 1. *The 'Tip and barrel method' is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information. 2.*Full input voltage at room temperature, <5%10 range, 250mv (Max.).

General	Specifications							
		Operating Conditions			Min.	Тур.	Max.	Unit
	Input - output			4000			VAC	
Isolation	Input - 🕀	Electric Strength Test for 1min., leakage current<5mA			2500			
Test*	Output - 🕀	Electric Strength Test for 1m	nin., leakage cu	irrent<10mA	500			
	Output – DC OK	Electric Strength Test for 1m	nin., leakage cu	irrent<1mA	500			-
	Input - output							
Insulation Resistance	Input - 🕀	500VDC			50			MΩ
rtcolotarioc	Output - 🕀	-			-			-
Operating 7	Femperature				-40		+85	°C
Storage Te	mperature				-40		+85	-
Operating I	Humidity	Non-condensing					95	%RH
		Operating temperature	-40"C to -30	"C	8.0			
Deven		derating	+60"C to +7	0'C	2.5			%/°C
Power Derating			+70"C to +8	5'C	4.67			-
		Input voltage derating	320VAC - 35	50VAC	0.667			%/VAC
Safety Star	ndard	Design rei	fers to UL/EN/I	EC/BS EN6236	8-1, UL/EN	61010-1, E	N61010-2-	201, UL508
MTBF					MIL-H	0BK-217F@	@25°C > 30	0,000 h

Environmental Characteristics

	Operating Conditions	Standard
Sinusoidal Vibration	10 - 200Hz, 2g, three directions of X, Y, Z axis	GB2423,10, IEC60068-2-6

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Mechanical Specifications

Case material	Metal (AL5052, SPCC)
Dimension	52.00x 124.00x 127.00mm
Weight	755g (Тур,)
Cooling method	Free air convection

Electromagnetic Compatibility (EMC)

	CE	CISPR32 EN55032	CLASS B	
Emissions	RE	CISPR32 EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
	Voltage flicker	IEC/EN61000-3-3		
	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	Perf. Criteria A
	EFT (Input port)	IEC/EN61000-4-4	±2KV	
	EFT (output port)	IEC/EN61000-4-4	±2KV	
1	Surge	IEC/EN61000-4-5	Line to line ±2KV/line to PE ±4KV	Perf. Criteria A
Immunity	Surge (Input port)	IEC/EN61000-4-5	Vo+ to Vo- ±500V/VO+/VO- to PE±1KV	
	Surge (output port)	IEC/EN61000-4-5	DC OK to PE, ±IKV	
	CS	IEC/EN61000-4-6	20Vr.m.s	Perf. Criteria A
	PFMF	IEC/EN61000-4-8	30A/m	Perf. Criteria B
	Voltage dips, short interruptions, and voltage variations immunity	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, (5GHz) 30 periods (6GHz)	Perf. Criteria B

Functional Specifications

DC OK Signal	Full input voltage range,	DC OK power on	0.95Vo-Vo
	full load range	DC OK power off	<0.90Vo
Orlng•	Support direct parallel use, achieve 2+I parallel redundancy		
Current Sharing Accuracy"	When multiple units are of sub-modules shunt more	connected In parallel, the than 50% of the rated	±5
LED Signal	Main output 95 status Indication Normal output > %		Green on

Note: 'For all applications, please refer to 36LITF240-26Bxx Series Power Supply Application Notes. "When multiple units work with current sharing, the output voltage deviation of each power supply working alone shall not exceed 100mV,



Characteristic Curve





Installation Diagram



Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply),

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Dimensions and Recommended Layout



WARNING Risk of electrical shock, fire, personal injury, or death:

1. Do not use the power supply without proper grounding (Protective Earth). Use the terminal on the input block for earth connection and

not one of the screws on the housing.

- 2. Turn power off before working on the device, protect against inadvertent re-powering.
- 3. Make sure that the wiring is correct by following all local and national codes.
- 4. Do not modify or repair the unit.
- 5. Do not open the unit as high voltages are present inside.
- 6. Use caution to prevent any foreign objects from entering the housing.
- 7. Do not use in wet locations or in areas where moisture or condensation can be expected.
- 8. Do not touch during power-on, and immediately after power-off, hot surfaces may cause burns.
- 9. For ambient temperature ≤60°C, use ≥90°C copper wire only; for ambient temperature >60°C to 85°C, use ≥105°C copper wire only; use only wires with a minimum dielectric strength of 300V (input) and 60V (output).

Note: Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25'C, humidity<75%RH with nominal Input voltage and rated output load.

The room temperature derating of 3.5'C/1000m is needed for operating altitude greater than 2000m.

All Index testing methods in this datasheet are based on our company corporate standards.

To Improve the efficiency at high Input voltage, there will be audible noise generated, but it does not affect product performance and reliability.

We can provide product customization service, please contact our technicians directly for specific Information. Products are related to laws and regulations: see 'Features' and 'EMC'.

The out case needs to be connected to the earth C @) of system when the terminal equipment in operating.

The output voltage can be adjusted by the ADJ, clockwise to decrease.

Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by gualified units.

The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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36LITF240-26Bxx Series Power Supply Application Notes

1. Mechanical Specification



	Structure Instruction			
1	Input terminal (CN1)			
2	Output terminal (CN2)			
3	Green status display LED lights			
4	Output voltage adjustment knob			
5	Signal connection terminal (CN3)			

1.1 Input Terminal (CN1)

4 Position 6.35 mm Barrier Terminal Blocks is used as Input terminal.



Pin	Features
LI	Live
12	Live
L3	Live
	Protective Earth

1.2 Output Terminal (CN2)

4 Position 6.35 mm Barrier Terminal Blocks is used as Output terminal.



Pin	Features
Vo+	Positive output
Vo-	Negative output

Line size: 24-10AWG Torque: 0,5Nm

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1.3 Signal Connection Terminal (CN3)



Pin	Mark	Features
1,2	DC OK	Monitor the power supply
3	Current-share	Current sharing

1.4 Green Status Display LEDS and Output Voltage Adjustment Knob



Green Light	State*				
On	Normal work				
Off	Power Off (No AC input)				
Note: *The LED lights indicate different working states of the power supply					
Model	Rated Output Voltage	Output Voltage Adjustable Range			
LITF240-26B24	24VDC	24-28VDC			
LITF240-26B48	48VDC	48-56VDC			

2. Function Manual

2.1 Input Requirements

The AC input voltage and DC input voltage must be within the defined amount of electricity (reference data sheet), otherwise the power supply may not work properly or even malfunction. A 600V/4A fuse has been connected in series between the L1/L2 /L3 line inside the power supply. For better protection of the module, it is recommended that customers use a circuit breaker of no more than 4A. (Just for strengthen the protective purpose, not essential requirements)

2.2 Output Requirements

At any output voltage value, if it is necessary to operate normally, the highest pull current and power must not exceed the rated specified value, and the output current must not exceed the maximum output current value.



2.3 Starting Time



ltem	Working conditions	Min.	Typ.	Max.	Unit
Start-up delay time	400VAC, full load	I	I	1.5	s

2.4 Output Over-Voltage Protection (OVP)

The main circuit output will be off when the output voltage reaches the over-voltage protection value. When it occurs, the output enters the hiccup mode with 10s. After the abnormal removed, the output returns to normal.





2.5 Output Over-Current (OCP)

When the output current exceeds 130% of the rated output current, the output will be off for 10s. And then entering the constant current mode for 3s, output voltage recovery, maintaining 150% of the rated output current, After the abnormal removed, self-recover,



2.6 Short Circuit Protection (SCP)

When the output current is shorted, the output will operate in constant current mode for 3s, and then output is off for 10s, and the output enter constant current mode for 3s again. After the abnormal removed, self-recover,





2.7 Over Temperature Protection (OTP)

When the ambient temperature of the power supply exceeds the rated temperature for a period of time, the power supply will turn off the output and enter the hiccup state. After the ambient temperature drops to the set value, the power supply will resume normal operation.

2.8 Output Power Derating

When the input voltage is greater than 350VAC (or 495VDC), only need to derate according to the temperature derating curve;

When the input voltage is lower than 350VAC (or 495VDC), the output power will be derated according to the following input voltage derating curve requirements after the temperature derating.



2.9 DC OK Signal

The DC OK signal is used to monitor whether the power supply is working normally. This signal is on the DC OK pin of the terminal CN3. When the output is greater than 95% of the rated voltage of the output,





2.11 Work In Parallel

2.11.1 Redundancy

Power module outputs can be connected in parallel for redundancy, increasing system reliability. The maximum power of the redundant system needs to be de-rated to ensure that the redundant system can still meet the rated load requirements when a power supply module fails. Currently, the common practice is to build a redundant system by the N+1 method, that is, N+1 power supplies are connected in parallel. Support the maximum load current N*Iomax, where Iomax is the rated output current of each power supply, for example, the rated output current of each power supply is 20A, and 2+1 are connected in parallel, thus constructing a 2*20A=40A redundant system.

The power module supports 2+1 parallel redundant operation.

The Oring circuit is used inside the power module, and when any one of the power modules in parallel fails, it will not affect the work of other power modules.

2,11,2 Current Share

The current sharing bus (Current-share) between multiple machines is short-circuited with each other. The output voltage difference of each single module is less than or equal to 100mV, and a better comprehensive effect of line terminal output voltage and current sharing can be obtained. The wiring method of the current sharing function is shown in the following figure:





Note: 1, When used in parallel, the number of parallel modules cannot exceed 3,

2. When the power modules work in parallel, there is an active current sharing circuit inside to ensure that the current between each module remains balanced.

The active current sharing circuit adopts the automatic master-slave current sharing method. Each power supply module has a current sharing bus signal (Current-share). When working in parallel, the current sharing buses of all power modules must be connected together. The current sharing bus signal is located at pin 3 of CN3.

The output voltage of each power module will affect the current sharing accuracy. The output voltage of the power module is rated voltage ± 100 mV. In practical applications, if the output voltage value needs to be adjusted, the recommended voltage range is: target voltage value ± 100 mV.

After the output load of each power module is greater than 50% of the rated load, the current sharing accuracy is required to be \pm 5%. The calculation formula of current sharing is:

Power supply 1's average accuracy =
$$\frac{Io_1 - (Io_1 + Io_2)/2}{(Io_1 + Io_2)/2} *100\%$$

Power supply 2's average accuracy= $\frac{Io_2 - (Io_1 + Io_2)/2}{(Io_1 + Io_2)/2} *100\%$

Io1: The output current value of the power supply 1 in the parallel power module; Io2: The output current value of the power supply 2 in the parallel power module.

2.12 Available In 3-Phase 2-Wire Systems

This power supply can also be used for permanent operation of two-wire in a three-phase system. When operating the two-wire in a three-phase system, the output power must be derated according to the following curve, and the input operating voltage can only operate at 320VAC-600VAC. Exceeding this derating limit for a long time will cause the power supply to overheat and shut down.



Note: Basic performance such as electromagnetic compatibility performance, hold-up time, loss and output ripple are different from three-phase operation. This working method is not covered in the certification, and operation two wires in a three-phase system does not meet the safety certification.

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2.13 Back Voltage Load

Loads such as decelerating motors, inductors can feed voltage back into the power supply. This property is also known as feedback voltage resistance or resistance to opposing electromagnetic forces.

The power supply is resistant to voltage back into the supply by the load and will not fail regardless of whether the power supply is on or off. The function diagram as below:



Maximum allowable feedback voltage			
Model Maximum feedback voltage			
LITF240-26B24	35VDC		
LITF240-26B48	63VDC		

3. Installation Requirements

3.1 Safety Introduction

WARNING: RISK OF ELECTRIC SHOCK DURING HIGH VOLTAGE WORKING WITH THIS EQUIPMENT

After the power module is disconnected from the input AC or DC power, leave it for at least one minute before starting to operate it.

When installing the input cable to the power module, first connect the ground terminal, and then connect the LI , L2 and L3 cables.

When removing the input wire, first remove the L1 wire, L2 wire and L3 wire, and then remove the ground wire.

When disassembling and assembling, make sure that no objects fall into the inside of the power module.

Be careful of high temperature burns

After the power module works in a high temperature environment, wait for its shell to cool before operating it.

This product needs to be installed by professionals and needs to be used with other equipment.

3.2 Safety Requirements

When installing, pay attention to the primary side and the protective ground. The creepage distance and electrical clearance of the primary side and the secondary side meet the safety requirements, refer to EN/UL6I 010.

3.3 Installation Method

Installation direction: When installing, the port of the output end should be upward, and the port of the input end should be downward. (See below)

Note: Pay attention to the temperature rise of the device in different installation modes. Derate the device according to the actual situation.



AC - DC

36LITF240-26Bxx AC-DC PSU Series Up to 240 Watts



Rotate the installation position (180° Z-Axis)

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Rotate the installation position (270° X-Axis)

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