

Experts in Switching Power Supplies

PHLTD 鹏汉®

Switching Power Supply Selection Guide



Zhejiang Penghan New Energy Co., Ltd.

Mingwei Jiye Power Technology (Fuyang) Co., Ltd.

PHLTD 鹏汉®



Mingwei Jiye Power Technology (Fuyang) Co., Ltd. specialises in the development, manufacture and sale of switching power supplies, LED drivers and other new-energy products. Our range includes enclosed switching power supplies, LED drivers, DIN rail and security power supplies: S single-output, LRS slimline, MS miniature, DR DIN rail, MDR miniature DIN rail, LPV waterproof and plastic-housed waterproof, DTQ multi-output, SC battery charger, SP with PFC, SD DC-DC and AD UPS power supplies. These product families comprise more than 1000 models.

Our switching power supplies are used in industrial automation and control, military and research equipment, LED lighting, communications, electrical power equipment, instrumentation, medical devices, thermoelectric cooling and heating, air purifiers, electronic refrigerators, LCD displays, audiovisual products, security monitoring, LED strips, computer cases and digital products.

We aim to be a reliable partner to customers, suppliers, contractors and employees, building lasting relationships based on good faith and mutual trust. Our products are sold in the United States, Russia, Italy, Spain, Germany, Canada, the Dominican Republic, Georgia, Mexico, Ukraine, the Czech Republic, Chile, India, Dubai, France and Kuwait, among other markets. An extensive domestic sales network covers provinces and cities across China, providing professional technical support and after-sales service whenever needed.



Experts in Switching Power Supplies



▲ Selection and installation precautions

1. The metal enclosure is normally connected to frame ground (FG). Earth it securely for safety; never connect the enclosure to neutral.
2. After installation and before energising for a trial run, recheck every terminal connection. Verify input and output, AC and DC, single and multiple phases, positive and negative polarity, and all voltage and current ratings before switching on.
3. High-power supplies usually have two or more "+" output terminals. These belong to the same output pole and are connected in parallel internally for convenient wiring.
4. For effective heat dissipation, install where air circulates freely, or mount on the equipment enclosure to conduct heat away.
5. Supplies are tested with resistive loads before shipment. Specify capacitive or inductive load applications in the purchase contract.
6. For symmetrical dual-output loads, preferably use a supply with symmetrical outputs.
7. The FG terminal must be securely earthed. If a tingling sensation occurs when touching the enclosure or output, stop using the supply and have qualified personnel check the earthing and leakage current.
8. AC input relationship:

$$\text{Input current} = \frac{\text{Output power}}{\text{Input voltage} \times \text{power factor} \times \text{efficiency}}$$
9. Neutral sizing in a three-phase system: with power factors of 0.4-0.6, the distorted input currents of multiple supplies balanced across a three-phase four-wire system do not cancel in the neutral. A neutral conductor 1.5-2 times the phase-conductor size is generally recommended; preferably size it from measured current.
10. Leakage current: when several supplies share an earth point, their leakage currents add together. Check the protective earth conductor and earth resistance to prevent electric shock.

▲ Parameter explanations

1. Input voltage: AC-input supplies can generally also operate from DC. An AC range of 85-264VAC corresponds to 120-370VDC; 170-264VAC corresponds to 210-370VDC. Selectable AC input ranges may be 85-132VAC and 170-264VAC.
2. Inrush current is the maximum instantaneous input current during a cold start.
3. Multiple outputs:
 - (1) The listed current is the maximum for each output. Combined output power must remain within the series rating. V1 is normally independent of the other outputs. For other configurations, connect the appropriate V1 + / - terminal to the corresponding terminal of another output.
 - (2) For multi-output load-regulation tests, vary the output under test from 20%-100% of rated load and keep all other outputs at 60% of rated load.
4. Output power: raising output voltage requires a corresponding reduction in current to keep total power unchanged. When lowering voltage, do not exceed rated output current.
5. Output ripple and noise

As shown in Fig. 1, ripple and noise generally mean the total peak-to-peak output voltage, comprising four components:

- (1) Low-frequency ripple: twice the AC input frequency; absent with DC input.
- (2) High-frequency ripple: the same frequency as the internal PWM.
- (3) Switching noise: the same frequency as the switching pulses.
- (4) Random noise: unrelated to AC input voltage or switching frequency.

6. Measuring output ripple and noise

The method in Fig. 2 minimises radiated-noise pickup. Use an oscilloscope with 0-20MHz bandwidth. Touch the probe ground ring directly to output negative and the probe tip to output positive.

7. Operating temperature:

This is the ambient temperature around the operating supply. Inside an enclosure, it means the internal temperature, not the room or outdoor temperature. Above the rated temperature, reduce output power by 2% of rated power or provide cooling to bring the temperature below the rated limit.

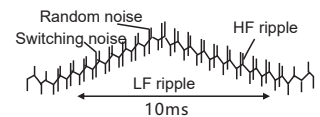


Fig. 1

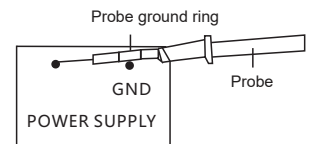
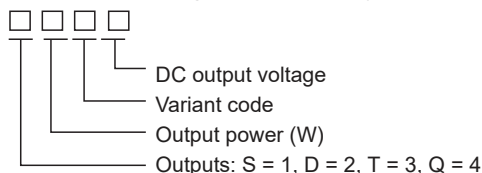


Fig. 2

▲ Model code Industrial switching power supply



▲ Features:

1. Compact, light, easy to install.
2. High dielectric strength and efficiency.
3. Output overcurrent, overvoltage and short-circuit protection.
4. 1-4 simultaneous outputs at different voltages.
5. AC input for worldwide use.
6. Excellent value for money.
7. Quality comparable to European and US products.

PRODUCT CATALOGUE

Product catalogue

PHLTD 鹏汉®



A	Single-output power supply	E	Single-output power supply	K	Four-output power supply
01	S-15/25	24	NDR-75	44	Q-60
02	S-35	25	NDR-120	45	Q-120
03	S-50/60/75	26	NDR-240		
04	S-100/120/150				
05	S-200	F	Single-output power supply	L	Rainproof switching power supply
06	S-250	27	EDR-75	46	LPV-15/30
07	S-350/400	28	EDR-120	47	LPV-50/60
08	S-500/600	29	EDR-150	48	LPV-100/120
09	S-800			49	LPV-150/200
10	S-1000/1500	G	DIN rail switching power supply	50	LPV-250/350
		30	MDR-10/20		
B	Single-output power supply	31	MDR-40/60		
11	LRS-35/50	32	MDR-100		
12	LRS-75	H	Waterproof switching power supply		
13	LRS-100/120	33	FY-350		
14	LRS-150	34	FY-400		
15	LRS-200				
16	LRS-350	I	Dual-output switching power supply		
C	Compact switching power supply	35	D-30		
		36	D-50		
17	MS-15/25/35	37	D-60		
18	MS-50/60/75	38	D-75		
19	MS-100/120	39	D-120		
D	DIN rail switching power supply	J	Single-output power supply		
20	DR-15	40	T-30		
21	DR-30/45/60	41	T-50		
22	DR-75	42	T-60		
23	DR-120	43	T-120		

S-15/25 series Switching power supply



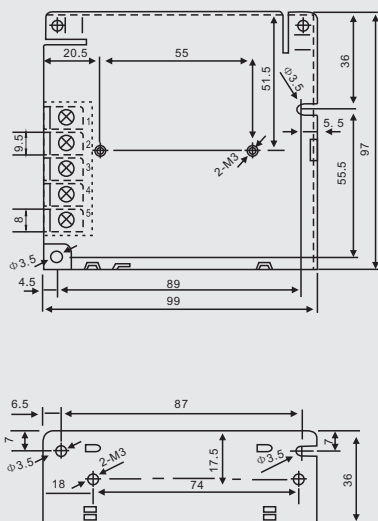
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	S-15				
DC voltage	5V	12V	24V	36V	48V
Rated current	3A	1.3A	0.7A	0.42A	0.31A
Rated power	15W	15.6W	16.8W	15.12W	14.88W

Model	S-25				
DC voltage	5V	12V	24V	36V	48V
Rated current	5A	2.1A	1A	0.7A	0.52A
Rated power	25W	25.2W	24W	25.2W	24.96W

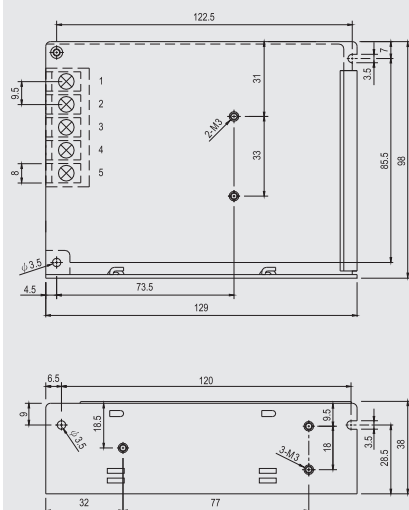
Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 50mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-132VAC/176-264VAC 47Hz-63Hz(254VDC-370VDC)				
	Efficiency (typ.) ②	> 78%	> 82%	> 84%	> 84%	> 84%
	Operating current	S-15: <0.3A 110VAC <0.15A 220VAC S-25: <0.5A 110VAC <0.25A 220VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10°C~-+50°C;20%~90RH				
	Storage temperature / humidity	-20°C~-+85°C;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	99*97* 35mm				
	Net / gross weight	284.5g/311.6g				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					



Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

S-35 series Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model		Specifications				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	7A	3A	1.5A	0.97A	0.73A
	Rated power	35W	36W	36W	34.92W	35.04W
	Ripple & noise ①	< 75mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85~264VAC 47Hz~63Hz(120VDC~370VDC)				
	Efficiency (typ.) ②	> 75%	> 82%	> 84%	> 84%	> 84%
	Operating current	<0.75A 110VAC <0.35A 220VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10℃~+50℃;20%~90RH				
	Storage temperature / humidity	-20℃~+85℃;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	129*98* 38mm				
	Net / gross weight	342.6g/372.8g				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

S-50, 60, 75 series Single-output power supply

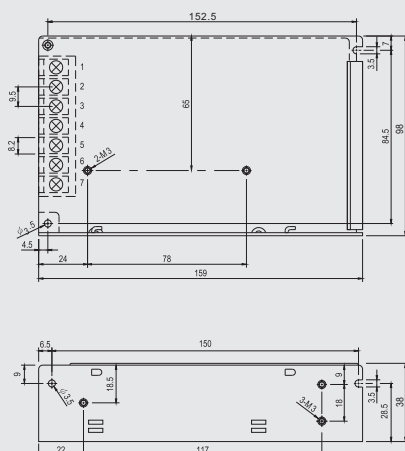


- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	S-50					Model	S-60					Model	S-75				
DC voltage	5V	12V	24V	36V	48V	DC voltage	5V	12V	24V	36V	48V	DC voltage	5V	12V	24V	36V	48V
Rated current	10A	4.1A	2.1A	1.4A	1A	Rated current	12A	5A	2.5A	1.7A	1.25A	Rated current	15A	6.25A	3.1A	2.1A	1.6A
Rated power	50W	49.2W	50.4W	50.4W	48W	Rated power	60W	60W	60W	61.2W	60W	Rated power	75W	75W	74.4W	75.6W	76.8W

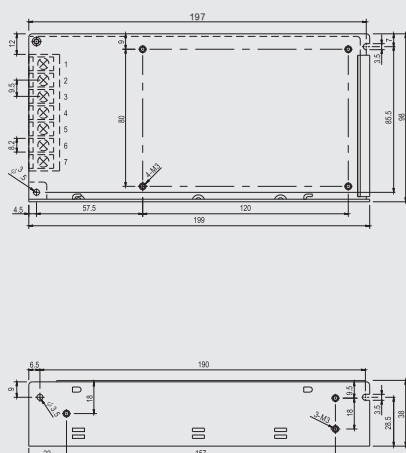
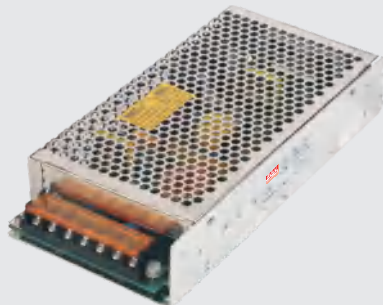
Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 75mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-132VAC/176-264VAC 47Hz-63Hz(254VDC-370VDC)				
	Efficiency (typ.) ②	> 78%	> 82%	> 84%	> 84%	> 84%
	Operating current	S-50: 1.3A 115VAC <0.65A 230VAC S-60: 1.6A 115VAC 0.8A 230VAC S-75: 1.6A 115VAC 0.8A 230VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10°C~-+50°C;20%~90RH				
	Storage temperature / humidity	-20°C~+85°C;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	159*98* 38mm				
	Net / gross weight	0.5kgs				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					



Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

S-100、120、150 Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

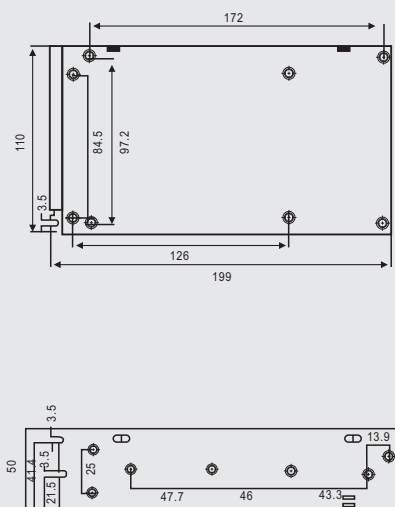
Model	S-100						S-120						S-150						
DC voltage	5V	12V	24V	36V	48V		DC voltage	5V	12V	24V	36V	48V		DC voltage	5V	12V	24V	36V	48V
Rated current	20A	8.5A	4.5A	2.8A	2.1A		Rated current	24A	10A	5A	3.33A	2.5A		Rated current	30A	12.5A	6.5A	4.16A	3.12A
Rated power	100W	102W	108W	100.8W	100.8W		Rated power	120W	120W	120W	120W	120W		Rated power	150W	150W	150W	150W	150W

Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 75mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-132VAC/176-264VAC 47Hz-63Hz(254VDC-370VDC)				
	Efficiency (typ.) ②	> 78%	> 82%	> 84%	> 84%	> 84%
	Operating current	S-100/120: <1.2A 220VAC S-150: <2.5A 110VAC <1.5A 220VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10°C~-+50°C;20%~90RH				
	Storage temperature / humidity	-20°C~-+85°C;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	199*98* 38mm				
	Net / gross weight	0.5kgs				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

S-200 series Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

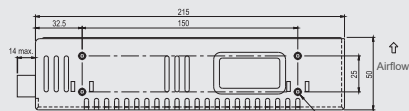
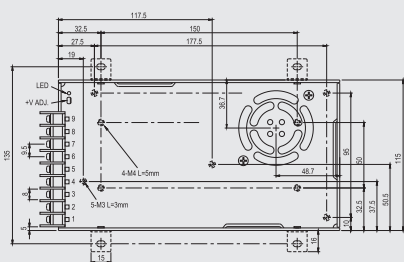
Technical specifications

Model		Specifications				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	40A	16.7A	8.5A	5.5A	4.2A
	Rated power	200W	200.4W	199.2W	199.8W	201.6W
	Ripple & noise ①	< 75mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)				
	Efficiency (typ.) ②	> 75%	> 82%	> 84%	> 84%	> 84%
	Operating current	<3.5A 115VAC < 2A 230VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10℃~+50℃;20%-90RH				
	Storage temperature / humidity	-20℃~+85℃;10%-95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	199*110* 50mm				
	Net / gross weight	0.9kgs				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

S-250 series Single-output power supply



Terminal assignments

Pin no.	Function	Pin no.	Function
1	AC/L	4~6	DC OUTPUT -V
2	AC/N	7~9	DC OUTPUT +V
3	FG		

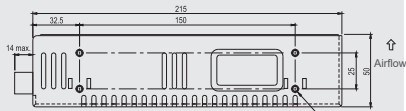
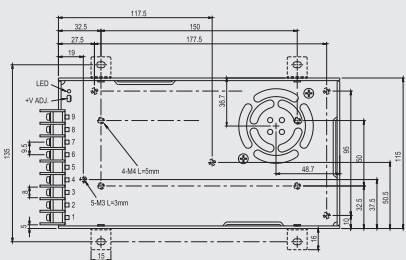
Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model		Specifications				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	45A	20A	10A	7A	5.2A
	Rated power	225W	249.6W	249.6W	252W	249.6W
	Ripple & noise ①	< 75mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85~264VAC 47Hz~63Hz(120VDC~370VDC)				
	Efficiency (typ.) ②	> 75%	> 82%	> 84%	> 84%	> 84%
	Operating current	<4A 115VAC < 2.5A 230VAC				
	Inrush current	115VAC 25A, 220VAC 50A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10℃~+50℃;20%~90RH				
	Storage temperature / humidity	-20℃~+85℃;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	215*115* 50mm				
	Net / gross weight	1.1kgs				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					



Pin no.	Function	Pin no.	Function
1	AC/L	4~6	DC OUTPUT -V
2	AC/N	7~9	DC OUTPUT +V
3	FG $\perp$		

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Model	S-350				
DC voltage	5V	12V	24V	36V	48V
Rated current	50A	29A	14.6A	10A	7.3A
Rated power	250W	350W	350W	350W	350.4W

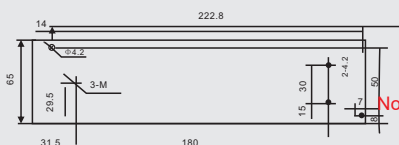
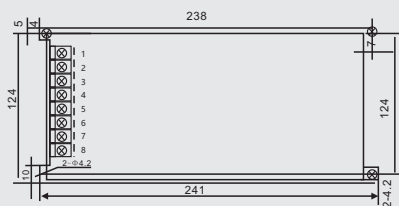
Model	S-400				
DC voltage	5V	12V	24V	36V	48V
Rated current	60A	33A	16.5A	11A	8.4A
Rated power	300W	399.6W	398.4W	399.6W	398.4W

Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 150mV	< 150mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 1.2%	< 1.2%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-132VAC/176-264VAC 47Hz-63Hz(254VDC-370VDC)				
	Efficiency (typ.) ②	> 74%	> 82%	> 84%	> 84%	> 84%
	Operating current	S-350: <5.2A 115VAC <2.8A 230VAC S-400: <6A 115VAC <3.7A 230VAC				
	Inrush current	110VAC 25A, 220VAC 50A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10°C~-+50°C;20%~90RH				
	Storage temperature / humidity	-20°C~+85°C;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MQ				
Other	Dimensions	215*115*50mm				
	Net / gross weight	1.1kgs				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					

5. Load regulation: test from 0%-100% rated load.

S-500/600

Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	S-500			
DC voltage	12V	24V	36V	48V
Rated current	40A	20A	13.8A	10.4A
Rated power	499.2W	499.2W	496.8W	499.2W

Model	S-600			
DC voltage	12V	24V	36V	48V
Rated current	50A	25A	16.6A	12.5A
Rated power	600W	600W	600W	600W

Output	Voltage	12V	24V	36V	48V
	Ripple & noise ①	< 150mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%			
	Voltage tolerance	± 1.0%			
	Line regulation	< ± 1%			
	Load regulation	< ± 1%	< ± 1%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	180~264VAC 47Hz~63Hz; 254VDC~370VDC			
	Efficiency (typ.) ②	> 82%	> 84%	> 84%	> 84%
	Operating current	< 5A 230VAC			
	Inrush current	220VAC 50A			
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC			
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.			
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.			
Environment	Operating temperature / humidity	-10°C~-+50°C;20%~90RH			
	Storage temperature / humidity	-20°C~+85°C;10%~95RH			
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min			
	Leakage current	Input-output 1.5KVAC <5mA			
	Leakage current	Input-output 220VAC <1mA			
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ			
Other	Dimensions	241*124*65mm			
	Net / gross weight	1.3kgs			
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.				

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

S-800 series Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

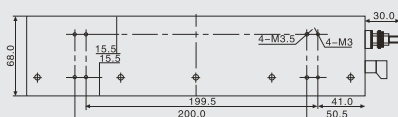
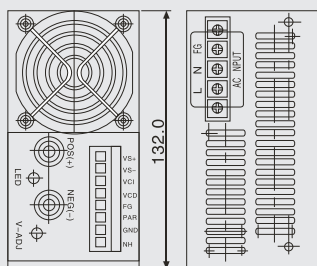
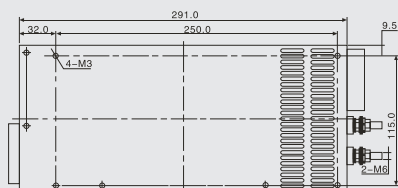
Technical specifications

Model		Specifications			
Output	DC voltage	12V	24V	36V	48V
	Rated current	66.6A	33.3A	22.2A	16.6A
	Rated power	799.2W	799.2W	799.2W	796.8W
	Ripple & noise ①	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%			
	Voltage tolerance	± 1.0%			
	Line regulation	< ± 0.5%			
	Load regulation	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	190~240VAC 47Hz~63Hz(120VDC~370VDC)			
	Efficiency (typ.) ②	> 82%	> 84%	> 84%	> 84%
	Operating current	< 7.8A 230VAC			
	Inrush current	220VAC 50A			
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC			
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.			
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.			
Environment	Operating temperature / humidity	-10°C~+50°C;20%~90RH			
	Storage temperature / humidity	-20°C~+85°C;10%~95RH			
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min			
	Leakage current	Input-output 1.5KVAC <5mA			
	Leakage current	Input-output 220VAC <1mA			
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ			
Other	Dimensions	207*132*68mm			
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.				

- Notes:
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.

S-1000/1500

Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

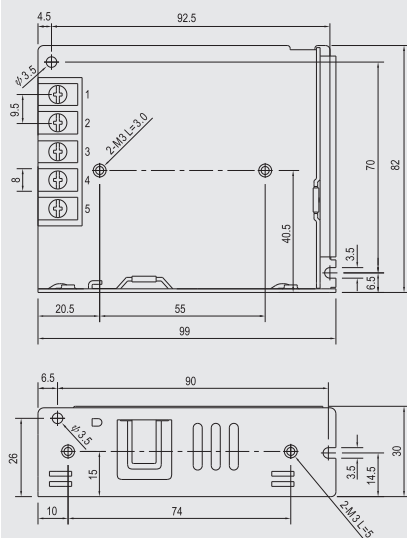
Technical specifications

Model		S-1000		S-1500	
Output	DC voltage	12V	24V	12V	24V
	Rated current	83.3A	41.6A	125A	62.5A
	Rated power	1000W	1000W	1500W	1500W
	Ripple & noise ①	120mVp-p	150mVp-p	120mVp-p	150mVp-p
	Voltage adjustment	± 10%			
	Voltage tolerance	± 1.0%			
	Line regulation	< ± 0.5%			
	Load regulation	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	190-240VAC 47Hz-63Hz			
	Efficiency (typ.) ②	> 85.5%	> 85.5%	> 85.5%	> 85.5%
	Operating current	< 7.8A 230VAC			
	Inrush current	220VAC 50A			
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC			
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.			
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.			
Environment	Operating temperature / humidity	-10℃~+50℃;20%-90RH			
	Storage temperature / humidity	-20℃~+85℃;10%-95RH			
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min			
	Leakage current	Input-output 1.5KVAC <5mA			
	Leakage current	Input-output 220VAC <1mA			
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ			
Other	Dimensions	291*132*68mm			
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.				

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LRS-35/50 series Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	LRS-35				
DC voltage	5V	12V	24V	36V	48V
Rated current	7A	3A	1.5A	1A	0.8A
Rated power	35W	36W	36W	36W	38.4W

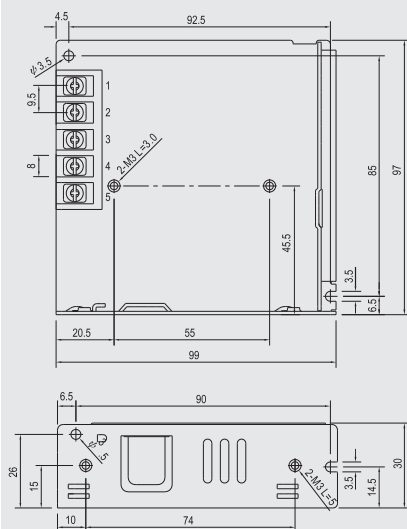
Model	LRS-50				
DC voltage	5V	12V	24V	36V	48V
Rated current	10A	4.2A	2.2A	1.45A	1.1A
Rated power	50W	50.4W	52.8W	52.2W	52.8W

Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	80mVp-p	120mVp-p	150mVp-p	200mVp-p	200mVp-p
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Load regulation	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Start-up / rise time	1000ms, 30ms/230VAC 2000ms, 30ms/115VAC(full load)				
	Hold-up time	30ms/230VAC 12ms/115VAC(full load)				
Input	Voltage range / frequency	85~ 264VAC/120 ~373VDC		47Hz~ 63Hz		
	Efficiency (typ.) ②	82%	86%	88%	88%	89%
	Operating current	LRS-35: 0.7A/115VAC 0.42A/230VAC LRS-50: 0.95A/115VAC 0.56A/230VAC				
	Inrush current	Cold start : 45A/230VAC				
	Leakage current	<0.75mA 240VAC				
Protection	Overload protection	≥110%-130% Hiccup mode; automatic recovery after the fault is removed.				
	Overvoltage protection	≥115%-145% Output shuts down; recovery after restarting.				
Environment	Operating temperature / humidity	-30℃~+70℃;20%~90RH				
	Storage temperature / humidity	-40℃~+85℃;10%~95RH				
Safety	Dielectric strength	Input-output :4KVAC Input-case :2KVAC Output-case :1.25KVAC ; 1 min				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MQ 25℃ 70%RH				
Other	Dimensions	99*82* 30mm(L*W*H)				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

- Notes:
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.

LRS-75

Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

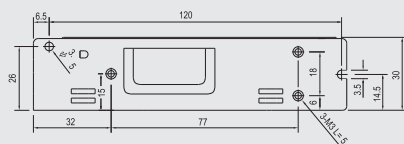
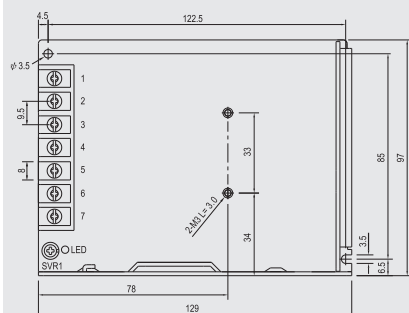
Technical specifications

Model		Specifications				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	14A	6A	3.2A	2.1A	1.6A
	Rated power	70W	72W	76.8W	75.6W	76.8W
	Ripple & noise ①	100mVp-p	120mVp-p	150mVp-p	200mVp-p	200mVp-p
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Load regulation	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Start-up / rise time	500ms, 30ms/230VAC 500ms, 30ms/115VAC(full load)				
	Hold-up time	60ms/230VAC 12ms/115VAC(full load)				
Input	Voltage range / frequency	85- 264VAC/120 -373VDC			47Hz- 63Hz	
	Efficiency (typ.) ②	86.5%	89%	90%	91.5%	91.5%
	Operating current	1.4A/115VAC 0.85A/230VAC				
	Inrush current	Cold start : 65A/230VAC				
	Leakage current	<0.75mA 240VAC				
Protection	Overload protection	≥110%-130% Hiccup mode; automatic recovery after the fault is removed.				
	Overvoltage protection	≥115%-145% Output shuts down; recovery after restarting.				
Environment	Operating temperature / humidity	-30℃~+70℃;20%~90RH				
	Storage temperature / humidity	-40℃~+85℃;10%~95RH				
Safety	Dielectric strength	Input-output :4KVAC Input-case :2KVAC Output-case :1.25KVAC ; 1 min				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ 25℃ 70%RH				
Other	Dimensions	99*97* 30mm(L*W*H)				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LRS-100/120 series Single-output power supply



Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LRS-100/120

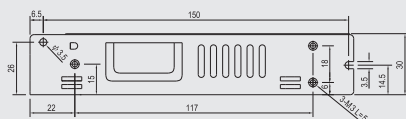
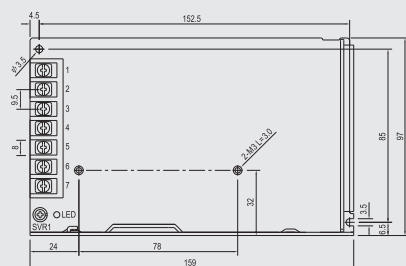
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

	Model	Specifications				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	20A	8.5A	4.5A	2.8A	2.3A
	Rated power	100W	102W	108W	100.8W	110.4W
	Ripple & noise ①	100mVp-p	120mVp-p	150mVp-p	200mVp-p	200mVp-p
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Load regulation	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Start-up / rise time	500ms, 30ms/230VAC 500ms, 30ms/115VAC(full load)				
	Hold-up time	60ms/230VAC 12ms/115VAC(full load)				
Input	Voltage range / frequency	85~ 264VAC/120 ~373VDC			47Hz~ 63Hz	
	Efficiency (typ.) ②	86.5%	89%	90%	91.5%	91.5%
	Operating current	1.4A/115VAC 0.85A/230VAC				
	Inrush current	Cold start : 65A/230VAC				
	Leakage current	<0.75mA 240VAC				
Protection	Overload protection	≥110%-130% Hiccup mode; automatic recovery after the fault is removed.				
	Overvoltage protection	≥115%-145% Output shuts down; recovery after restarting.				
Environment	Operating temperature / humidity	-30℃~-+70℃;20%~90RH				
	Storage temperature / humidity	-40℃~-+85℃;10%~95RH				
Safety	Dielectric strength	Input-output :4KVAC Input-case :2KVAC Output-case :1.25KVAC ; 1 min				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ 25℃ 70%RH				
Other	Dimensions	129*97* 30mm(L*W*H)				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

LRS-150

Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

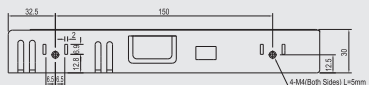
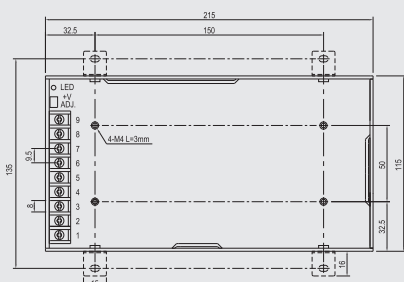
Technical specifications

Model		Specifications				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	30A	12.5A	6.5A	4.3A	3.3A
	Rated power	150W	150W	156W	154.8W	158.4W
	Ripple & noise ①	100mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Load regulation	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Start-up / rise time	500ms, 30ms/230VAC 500ms, 30ms/115VAC(full load)				
	Hold-up time	40ms/230VAC 35ms/115VAC(full load)				
Input	Voltage range / frequency	85- 132VAC/170 -264VAC selected by switch /240-370VDC 47Hz~ 63Hz				
	Efficiency (typ.) ②	85%	87.5%	89%	89%	90%
	Operating current	3A/115VAC 1.7A/230VAC				
	Inrush current	Cold start : 60A/230VAC				
	Leakage current	<1mA 240VAC				
Protection	Overload protection	≥110%-130% Hiccup mode; automatic recovery after the fault is removed.				
	Overvoltage protection	≥115%-145% Output shuts down; recovery after restarting.				
	Overtemperature protection	≥90°C Output shuts down; recovery after restarting.				
Environment	Operating temperature / humidity	-30°C~+70°C;20%~90RH				
	Storage temperature / humidity	-40°C~+85°C;10%~95RH				
Safety	Dielectric strength	Input-output :4KVAC Input-case :2KVAC Output-case :1.25KVAC ; 1 min				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MQ 25°C 70%RH				
Other	Dimensions	159*97* 30mm(L*W*H)				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LRS-200 series Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

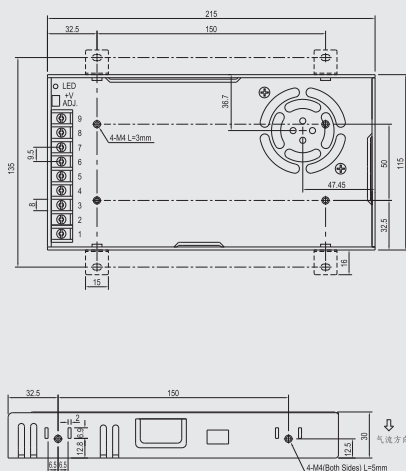
Specifications	Model	LRS-200				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	40A	17A	8.8A	5.9A	4.4A
	Rated power	200W	204W	211.2W	212.4W	211.2W
	Ripple & noise ①	80mVp-p	120mVp-p	150mVp-p	200mVp-p	200mVp-p
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%
	Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Load regulation	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Start-up / rise time	1000ms, 30ms/230VAC 2000ms, 30ms/115VAC(full load)				
	Hold-up time	30ms/230VAC 12ms/115VAC(full load)				
Input	Voltage range / frequency	90~132VAC/180 ~264VAC			47Hz~ 63Hz	
	Efficiency (typ.) ②	83.5%	85%	88%	88.5%	89%
	Operating current	4A/115VAC 2.2A/230VAC				
	Inrush current	Cold start : 45A/230VAC				
	Leakage current	<0.75mA 240VAC				
Protection	Overload protection	≥110%-130% Hiccup mode; automatic recovery after the fault is removed.				
	Overvoltage protection	≥115%-145% Output shuts down; recovery after restarting.				
Environment	Operating temperature / humidity	-30°C~+70°C;20%~90RH				
	Storage temperature / humidity	-40°C~+85°C;10%~95RH				
Safety	Dielectric strength	Input-output :4KVAC Input-case :2KVAC Output-case :1.25KVAC ; 1 min				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ 25°C 70%RH				
Other	Dimensions	215*115* 30mm(L*W*H)				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					

Notes:

1. Unless stated otherwise, specifications are measured at 230VAC input, rated load and 25°C ambient.
2. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
3. Tolerance includes setting error, line regulation and load regulation.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.
6. Start-up time is measured from cold; rapid repeated switching may increase it.
7. On 5V models below 50% load, burst mode reduces switching losses; ripple may exceed the specified value.
8. Above 2000m (6500ft) altitude, reduce allowable ambient temperature by 5°C/1000m.

LRS-350

Single-output power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

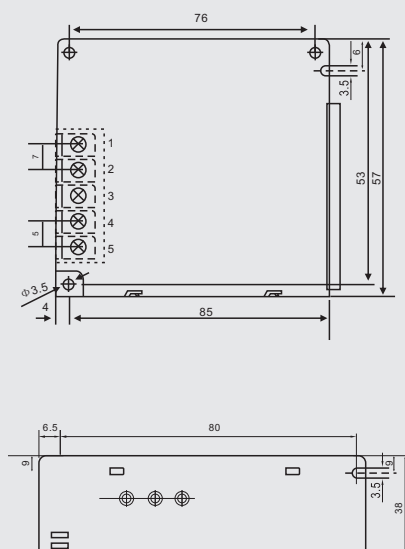
Technical specifications

Specifications	Model	LRS-350				
Output	DC voltage	5V	12V	24V	36V	48V
	Rated current	60A	29A	14.6A	9.7A	7.3A
	Rated power	300W	348W	350.4W	349.2W	350.4W
	Ripple & noise ①	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p
	Voltage adjustment	± 10%				
	Voltage tolerance	± 4.0%	± 1.5%	± 1.0%	± 1.0%	± 1.0%
	Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	Load regulation	± 2.5%	± 1.0%	± 0.5%	± 0.5%	± 0.5%
	Start-up / rise time	1500ms, 50ms/230VAC 2000ms, 50ms/115VAC(full load)				
	Hold-up time	16ms/230VAC 12ms/115VAC(full load)				
Input	Voltage range / frequency	90~132VAC/180 -264VAC(selected by switch)240~370VDC /47Hz~ 63Hz				
	Efficiency (typ.) ②	83.5%	85%	88%	88.5%	89%
	Operating current	6.8A/115VAC 34A/230VAC				
	Inrush current	Cold start : 45A/230VAC				
	Leakage current	<0.75mA 240VAC				
Protection	Overload protection	≥110%-130% Hiccup mode; automatic recovery after the fault is removed.				
	Overvoltage protection	≥115%-145% Output shuts down; recovery after restarting.				
Environment	Operating temperature / humidity	-30℃~+70℃;20%~90RH				
	Storage temperature / humidity	-40℃~+85℃;10%~95RH				
Safety	Dielectric strength	Input-output :4KVAC Input-case :2KVAC Output-case :1.25KVAC ; 1 min				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ 25℃ 70%RH				
Other	Dimensions	215*115* 30mm(L*W*H)				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

MS-15/25/35 series Compact switching power supply



Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

MS-15/25/35

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	MS-15					Model	MS-25					Model	MS-35				
DC voltage	5V	12V	24V	36V	48V	DC voltage	5V	12V	24V	36V	48V	DC voltage	5V	12V	24V	36V	48V
Rated current	3A	1.25A	0.62A	0.42A	0.31A	Rated current	5A	2.1A	1A	0.7A	0.52A	Rated current	7A	2.9A	1.5A	1A	0.73A
Rated power	15W	15.6W	16.8W	15.12W	14.88W	Rated power	25W	25.2W	24W	25.2W	24.96W	Rated power	35W	34.8W	36W	36W	35W

Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 50mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%

Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)				
	Efficiency (typ.) ②	> 78%	> 82%	> 84%	> 84%	> 84%
	Operating current	MS-15: <0.3A 110VAC <0.15A 220VAC MS-25: <0.5A 110VAC <0.25A 220VAC MS-35: <0.8A 110VAC <0.35A 220VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				

Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				

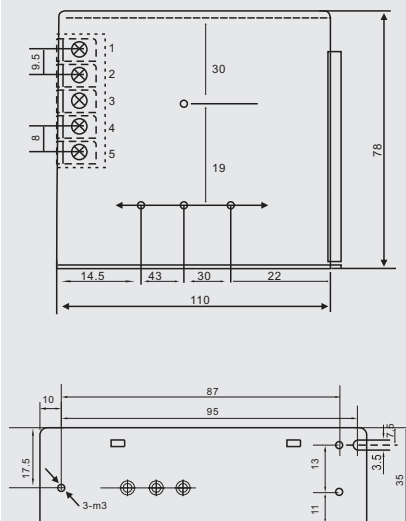
Environment	Operating temperature / humidity	-10℃~+50℃;20%-90RH				
	Storage temperature / humidity	-20℃~+85℃;10%-95RH				

Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				

Other	Dimensions	85*58*38mm				
-------	------------	------------	--	--	--	--

Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.				
-------	--	--	--	--	--

MS-50/60/75 series Compact switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

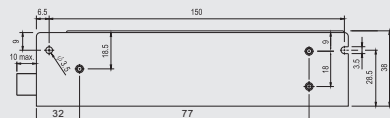
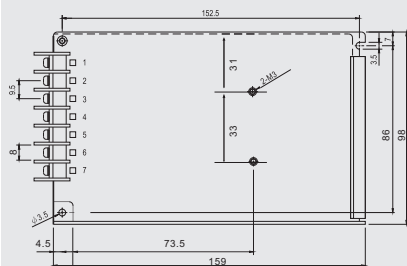
Model	MS-50					Model	MS-60					Model	MS-75				
DC voltage	5V	12V	24V	36V	48V	DC voltage	5V	12V	24V	36V	48V	DC voltage	5V	12V	24V	36V	48V
Rated current	10A	4.2A	2.1A	1.38A	1A	Rated current	12A	5A	2.5A	1.67A	1.25A	Rated current	15A	6.25A	3.1A	2.1A	1.6A
Rated power	50W	50.4W	50.4W	44.7W	48W	Rated power	60W	60W	60W	60W	60W	Rated power	75W	75W	75W	74.4W	76.8W

Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 50mV	< 120mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)				
	Efficiency (typ.) ②	> 78%	> 82%	> 84%	> 84%	> 84%
	Operating current	MS-50: 1.3A 115VAC 0.65A 230VAC MS-60: 0.5A 230VAC MS-75: 0.5A 230VAC				
	Inrush current	110VAC 18A, 220VAC 36A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10℃~+50℃;20%~90RH				
	Storage temperature / humidity	-20℃~+85℃;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	111*78*35mm				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

MS-100/120 series
Compact switching
power supply



MS-100/120

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

■ Technical specifications

Model	MS-100				
DC voltage	5V	12V	24V	36V	48V
Rated current	20A	8.3A	4.1A	2.7A	2A
Rated power	100W	100W	100W	100W	100W

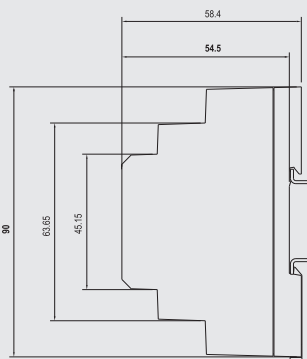
Model	MS-120				
DC voltage	5V	12V	24V	36V	48V
Rated current	24A	10A	5A	3.3A	2.5A
Rated power	120W	120W	120W	120W	120W

Output	Voltage	5V	12V	24V	36V	48V
	Ripple & noise ①	< 150mV	< 150mV	< 150mV	< 240mV	< 240mV
	Voltage adjustment	± 10%				
	Voltage tolerance	± 2.0%	± 1.0%			
	Line regulation	< ± 0.5%				
	Load regulation	< ± 1.5%	< ± 1.2%	< 1.2%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-132VAC/176-264VAC 47Hz-63Hz(254VDC-370VDC)				
	Efficiency (typ.) ②	> 74%	> 82%	> 84%	> 84%	> 84%
	Operating current	MS-100: 2.4A 115VAC 1.2A 230VAC MS-120: 3.5A 230VAC				
	Inrush current	110VAC 25A, 220VAC 50A				
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC				
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.				
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.				
Environment	Operating temperature / humidity	-10°C~+50°C;20%~90RH				
	Storage temperature / humidity	-20°C~+85°C;10%~95RH				
Safety	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min				
	Leakage current	Input-output 1.5KVAC <5mA				
	Leakage current	Input-output 220VAC <1mA				
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ				
Other	Dimensions	159*98*38mm				
	Net / gross weight	0.43kgs				
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

DR-15 series DIN rail switching power supply



Mounting rail: TS35/7.5 or TS35/15

Terminal assignments

Pin no.	Function
1	DC output +Vo
2	DC output -Vo
3	AC input -Vin
4	AC input +Vin

Notes:

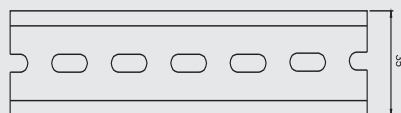
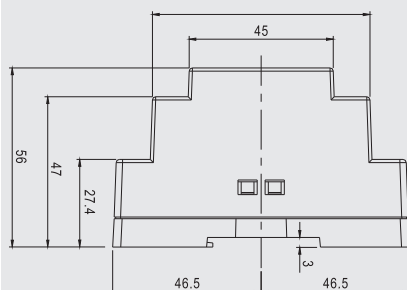
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Performance \ Model	DR-15-5	DR-15-12	DR-15-15	DR-15-24
DC voltage	5V	12V	15V	24V
Rated current	3A	1.25A	1A	0.63A
Current range	0~3A	0~1.25A	0~1A	0~0.63A
Rated power	15W	15W	15W	15.2W
Ripple & noise (Note 2)	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Voltage adjustment	4.75~5.5V	10.8~13.2V	13.5~16.5V	21.6~26.4V
Voltage tolerance (Note 3)	± 2.0%	± 1.0%	± 1.0%	± 1.0%
Line regulation	± 1.0%	± 1.0%	± 1.0%	± 1.0%
Load regulation	± 1.0%	± 1.0%	± 1.0%	± 1.0%
Start-up / rise time	1000ms, 50ms/230VAC 1000ms, 50ms/150VAC(full load)			
Hold-up time	70ms/230VAC 16ms/115VAC(full load)			
Voltage range	85-264VAC or 120~370VDC			
Frequency range	47~63Hz			
Efficiency	77%	84%	83.5%	85%
Input current	0.88A/115VAC 0.48A/230VAC			
Inrush current	Cold start : 35A/115VAC 65A/230VAC			
Overload (Note 5)	105%~160% of rated output power Constant-current limiting; automatic recovery after abnormal load conditions are removed.			
Overvoltage	5.75~6.75V	13.8~16.2V	17.25~20.25V	27.6~32.4V
	Output voltage shuts down; diode clamping.			
Operating humidity	20~90%RH, non-condensing			
Temperature coefficient	± 0.03%/°C (0~50°C)			
Vibration resistance	10~500Hz, 2G; 10 min/cycle; 60 min each on X, Y, Z axes; mounted. IEC60068-2-6			
Dielectric strength	I/P-O/P: 3KVAC			
Insulation resistance	I/P-O/P: 100M Ohms/ 500VDC/ 25°C/70% RH			
Dimensions	25*93*56mm (W*H*D)			

DR-30/45/60 series DIN rail switching power supply



Mounting rail: TS35/7.5 or TS35/15

Terminal assignments

Pin no.	Function
1	DC output +V ₀
2	DC output -V ₀
3	AC input -V _{in}
4	AC input +V _{in}

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

DR-30/45/60

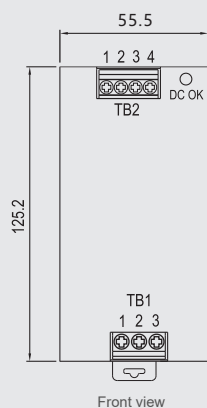
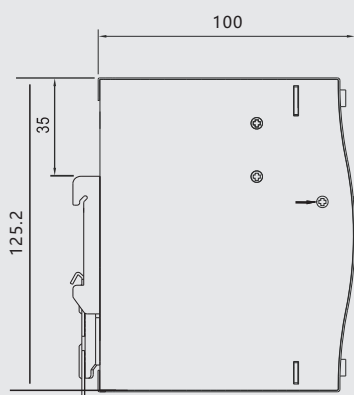
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	DR-30				Model	DR-45				Model	DR-60			
DC voltage	5V	12V	15V	24V	DC voltage	5V	12V	15V	24V	DC voltage	5V	12V	15V	24V
Rated current	5A	2.5A	2A	1.25A	Rated current	6A	3.75A	3A	1.8A	Rated current	6.5A	5A	4A	2.5A
Rated power	25W	30W	30W	36W	Rated power	30W	45W	43W	48W	Rated power	32.5W	60W	60W	60W
Load regulation	± 1%	± 1%	± 1%	± 1%	Load regulation	± 1%	± 1%	± 1%	± 1%	Load regulation	± 1%	± 1%	± 1%	± 1%
Operating current	<0.8A	110VAC	<0.4A	220VAC	Operating current	<1A	110VAC	<0.5A	220VAC	Operating current	<1.2A	110VAC	<0.8A	220VAC

Voltage	5V	12V	15V	24V
Ripple & noise (max.), Note 2	80mVp-p	120mVp-p	120mVp-p	150mVp-p
Voltage adjustment	4.75~5.5V	10.8~13.2V	13.5~16.5V	21.6~26.4V
Voltage tolerance, Note 3	± 2.0%	± 1.0%	± 1.0%	± 1.0%
Line regulation	± 1.0%	± 1.0%	± 1.0%	± 1.0%
Load regulation	± 1.0%	± 1.0%	± 1.0%	± 1.0%
Start-up / rise time	1000ms, 50ms/230VAC 1000ms, 50ms/150VAC (full load)			
Hold-up time	70ms/230VAC 16ms/115VAC (full load)			
Voltage range	85-264VAC or 120~370VDC			
Frequency range	47~63Hz			
Efficiency	77%	84%	83.5%	85%
Input current	0.88A/115VAC 0.48A/230VAC			
Inrush current	Cold start : 35A/115VAC 65A/230VAC			
Overload (Note 5)	105%~160% of rated output power Constant-current limiting; automatic recovery after abnormal load conditions are removed.			
Overvoltage	5.75~6.75V	13.8~16.2V	17.25~20.25V	27.6~32.4V
	Output voltage shuts down; diode clamping.			
Operating humidity	20~90%RH, non-condensing			
Temperature coefficient	± 0.03%/°C (0~50°C)			
Vibration resistance	10~500Hz, 2G; 10 min/cycle; 60 min each on X, Y, Z axes; mounted.			
Dielectric strength	I/P-O/P: 3KVAC			
Insulation resistance	I/P-O/P: 100M Ohms/ 500VDC/ 25°C/70% RH			
Dimensions	78*93*56mm (W*H*D)			

DR-75 series DIN rail switching power supply



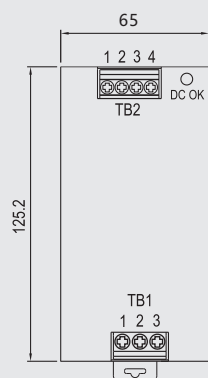
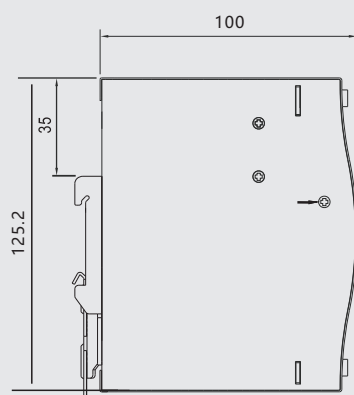
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Performance \ Model	DR-75-12	DR-75-24	DR-75-48
DC voltage	12V	24V	48V
Rated current	6.3A	3.2A	1.6A
Output current range	0~6.3A	0~3.2A	0~1.6A
Rated power	75.6W	76.8W	76.8W
Ripple & noise (Note 2)	100mVp-p	150mVp-p	240mVp-p
Voltage adjustment	10.8~13.2V	21.6~26.4V	43.2~52.8V
Voltage tolerance (Note 3)	± 1.0%	± 1.0%	± 1.0%
Line regulation (Note 4)	± 0.5%	± 0.5%	± 0.5%
Load regulation (Note 5)	± 1.0%	± 1.0%	± 1.0%
Start-up / rise time	1000ms, 50ms/230VAC 1000ms, 50ms/150VAC(full load)		
Hold-up time	70ms/230VAC 16ms/115VAC(full load)		
Input voltage range	85-264VAC or 120~370VDC		
Frequency range	47~63Hz		
Efficiency	76%	80%	81%
Input current	0.88A/115VAC 0.48A/230VAC		
Inrush current	Cold start : 35A/115VAC 65A/230VAC		
Overload (Note 5)	105%~160% of rated output power Constant-current limiting; automatic recovery after abnormal load conditions are removed.		
Overvoltage protection	13.8~16.2V	27.6~32.4V	58~62V
	Output voltage shuts down; diode clamping.		
Operating humidity	20~90%RH, non-condensing		
Storage temperature / humidity	± 0.03%/°C (0~50°C)		
Temperature coefficient	10~500Hz, 2G; 10 min/cycle; 60 min each on X, Y, Z axes; mounted.		
Vibration resistance	UL60950-1 and TUV EN60950-1 approved; designed to EN50178.		
Dielectric strength	I/P-O/P: 3KVAC		
Insulation resistance	I/P-O/P: 100M Ohms/ 500VDC/ 25°C/70% RH		
Dimensions	55.5*125.2*100mm (W*H*D)		

- Notes:
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.

DR-120 series DIN rail switching power supply



Front view

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

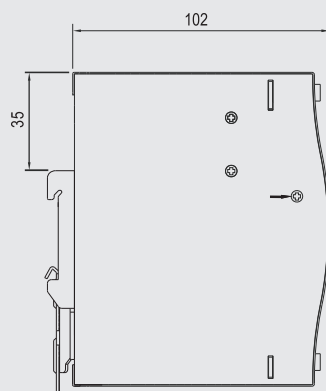
Technical specifications

Performance \ Model	DR-120-12	DR-120-24	DR-120-48
DC voltage	12V	24V	48V
Rated current	10A	5A	2.5A
Output current range	0~10A	0~5A	0~2.5A
Rated power	120W	120W	120W
Ripple & noise (Note 3)	80mVp-p	80mVp-p	100mVp-p
Voltage adjustment	10.8~13.2V	21.6~26.4V	43.2~52.8V
Voltage tolerance	± 1.0%	± 1.0%	± 1.0%
Line regulation (Note 4)	± 0.5%	± 0.5%	± 0.5%
Load regulation (Note 5)	± 1.0%	± 1.0%	± 1.0%
Start-up / rise time	1000ms, 50ms/230VAC 1000ms, 50ms/150VAC(full load)		
Hold-up time	70ms/230VAC 16ms/115VAC(full load)		
Input voltage range	88-264VAC or 248~370VDC		
Frequency range	47~63Hz		
Efficiency	80%	84%	85%
Input current	3.3A/115 2A/230V		
Inrush current	Cold start : 35A/115VAC 65A/230VAC		
Overload (Note 5)	105%~160% of rated output power Constant-current limiting; automatic recovery after abnormal load conditions are removed.		
Overvoltage protection	13.8~16.2V	27.6~32.4V	58~62V
	Output voltage shuts down; diode clamping.		
Operating humidity	20~90%RH, non-condensing		
Temperature coefficient	± 0.03%/°C (0~50°C)		
Vibration resistance	10~500Hz, 2G; 10 min/cycle; 60 min each on X, Y, Z axes; mounted.		
Dielectric strength	I/P-O/P: 3KVAC		
Insulation resistance	I/P-O/P: 100M Ohms/ 500VDC/ 25°C/70% RH		
Dimensions	65*125.2*100mm (W*H*D)		
Packing	0.8Kg; 140pcs/15Kg/0.92CUFT		

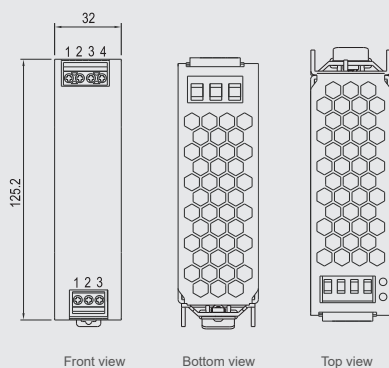
Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

NDR-75 series DIN rail switching power supply



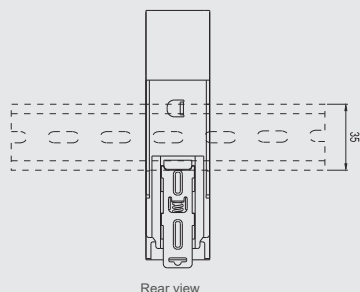
Side view



Front view

Bottom view

Top view



Rear view

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

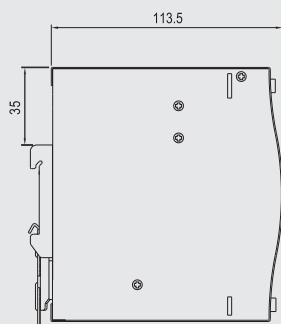
NDR-75

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

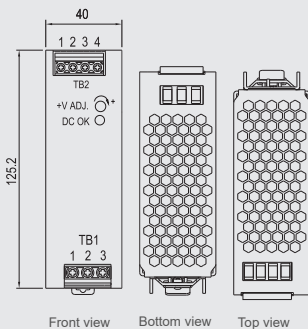
Technical specifications

Model		NDR-75		
Output	DC voltage	12V	24V	48V
	Rated current	6.3A	3.2A	1.6A
	Rated power	75W	75W	75W
	Ripple & noise ①	80mVp-p	120mVp-p	150mVp-p
	Voltage adjustment	± 10%		
	Voltage tolerance	± 2.0%	± 1.0%	
	Line regulation	< ± 0.5%		
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)		
	Efficiency (typ.) ②	> 85%	> 87%	> 88%
	Operating current	1.45A/115VAC 0.9A/230VAC		
	Inrush current	115VAC 25A, 220VAC 50A		
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC		
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.		
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.		
Environment	Operating temperature / humidity	-10℃~+50℃;20%~90RH		
	Storage temperature / humidity	-20℃~+85℃;10%~95RH		
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min		
	Leakage current	Input-output 1.5KVAC <5mA		
	Leakage current	Input-output 220VAC <1mA		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	32*125*102mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

NDR-120 series DIN rail switching power supply



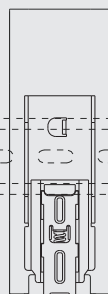
Side view



Front view

Bottom view

Top view



Rear view

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

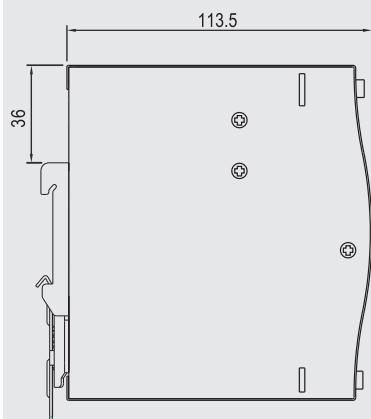
Technical specifications

Model		NDR-120		
Output	DC voltage	12V	24V	48V
	Rated current	10A	5A	2.5A
	Rated power	120W	120W	120W
	Ripple & noise ①	100mVp-p	120mVp-p	150mVp-p
	Voltage adjustment	± 10%		
	Voltage tolerance	± 2.0%	± 1.0%	± 1.0%
	Line regulation	< ± 0.5%		
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)		
	Efficiency (typ.) ②	> 85%	> 87%	> 88%
	Operating current	2.25A/115VAC 1.3A/ 230VAC		
	Inrush current	115VAC 20A, 220VAC 35A		
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC		
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.		
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.		
Environment	Operating temperature / humidity	-10°C~+50°C;20%-90RH		
	Storage temperature / humidity	-20°C~+85°C;10%-95RH		
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min		
	Leakage current	Input-output 1.5KVAC <5mA		
	Leakage current	Input-output 220VAC <1mA		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	40*113.5*125mm		
Notes		① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.		

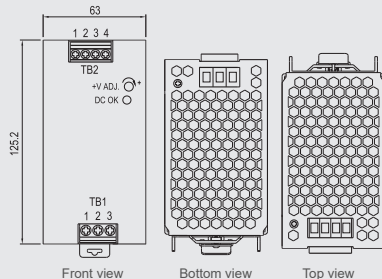
Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

NDR-240 series DIN rail switching power supply



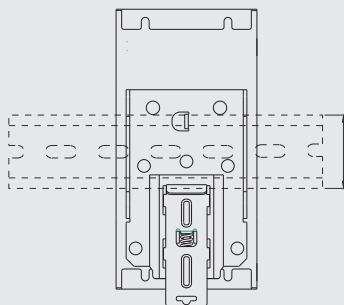
Side view



Front view

Bottom view

Top view



Rear view

Notes:

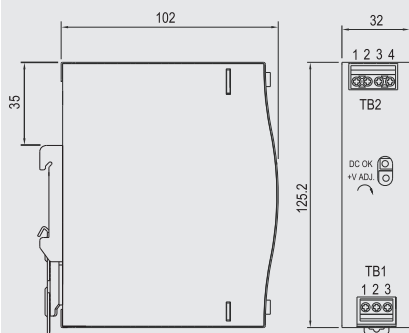
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

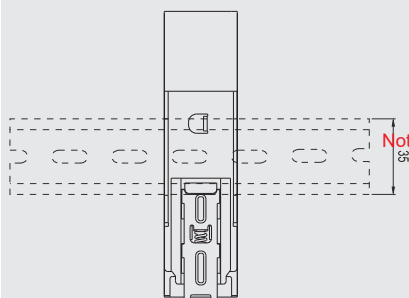
Model		NDR-240	
Output	DC voltage	24V	48V
	Rated current	10A	5A
	Rated power	240W	240W
	Ripple & noise ①	150mVp-p	150mVp-p
	Voltage adjustment	± 10%	± 10%
	Voltage tolerance	± 1.0%	± 1.0%
	Line regulation	± 1.5%	± 0.5%
	Load regulation	± 1.0%	± 1.0%
Input	Voltage range / frequency	92-264VAC (127VDC-370VDC)/47Hz-63Hz	
	Efficiency (typ.) ②	85.5%	90%
	Operating current	2.5A 115VAC, 1.3A 230VAC	
	AC current (typ.)	20A 115VAC, 1.3A 230VAC	
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC	
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.	
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.	
Environment	Operating temperature / humidity	-10℃~+50℃;20%~90RH	
	Storage temperature / humidity	-20℃~+85℃;10%~95RH	
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min	
	Leakage current	Input-output 1.5KVAC <5mA	
	Leakage current	Input-output 220VAC <1mA	
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ	
Other	Dimensions	63*113.5*125mm	
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.		

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

EDR-75 series DIN rail switching power supply



Side view



Rear view

Notes:

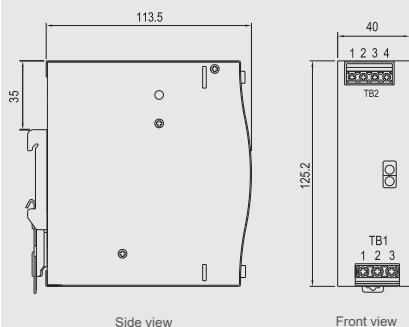
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model		EDR-75		
Output	DC voltage	12V	24V	48V
	Rated current	6.3A	3.2A	1.6A
	Rated power	75W	75W	75W
	Ripple & noise ①	80mVp-p	120mVp-p	150mVp-p
	Voltage adjustment	± 10%		
	Voltage tolerance	± 2.0%	± 1.0%	
	Line regulation	< ± 0.5%		
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)		
	Efficiency (typ.) ②	> 85%	> 87%	> 88%
	Operating current	< 1.45A/115VAC < 0.91A/230VAC		
	Inrush current	115VAC 25A, 220VAC 50A		
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC		
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.		
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.		
Environment	Operating temperature / humidity	-10℃~+50℃;20%~90RH		
	Storage temperature / humidity	-20℃~+85℃;10%~95RH		
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min		
	Leakage current	Input-output 1.5KVAC <5mA		
	Leakage current	Input-output 220VAC <1mA		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	32*125*102mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

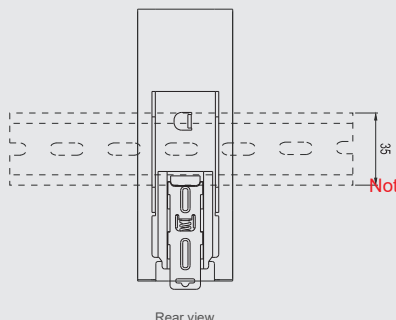
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

EDR-120 series DIN rail switching power supply



Side view

Front view



Rear view

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

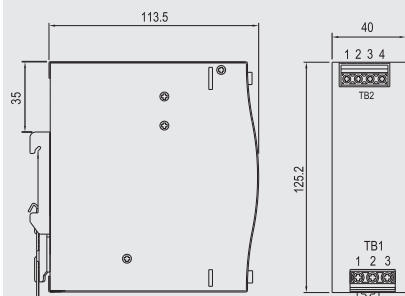
Technical specifications

Model		EDR-120		
Output	DC voltage	12V	24V	48V
	Rated current	10A	5A	2.5A
	Rated power	120W	120W	120W
	Ripple & noise ①	100mVp-p	120mVp-p	150mVp-p
	Voltage adjustment	± 10%		
	Voltage tolerance	± 2.0%	± 1.0%	
	Line regulation	< ± 0.5%		
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)		
	Efficiency (typ.) ②	> 85%	> 87%	> 88%
	Operating current	2.25A 115VAC, 1.3A 230VAC		
	Inrush current	20A 115VAC, 35A 230VAC		
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC		
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.		
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.		
Environment	Operating temperature / humidity	-10℃~+50℃; 20%~90RH		
	Storage temperature / humidity	-20℃~+85℃; 10%~95RH		
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min		
	Leakage current	Input-output 1.5KVAC <5mA		
	Leakage current	Input-output 220VAC <1mA		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	40*113.5*125mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

Notes:

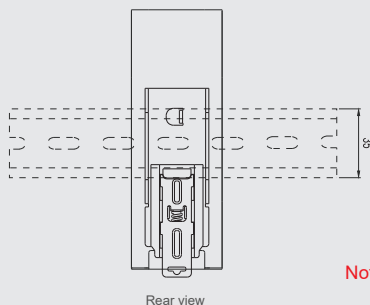
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

EDR-150 series DIN rail switching power supply



Side view

Front view



Rear view

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

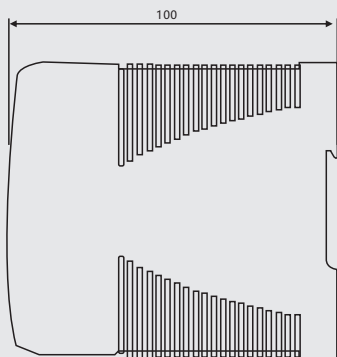
Technical specifications

Model		EDR-150	
Output	DC voltage	24V	48V
	Rated current	6.25A	3.2A
	Rated power	150W	150W
	Ripple & noise ①	150mVp-p	150mVp-p
	Voltage tolerance	± 1.0%	± 1.0%
	Line regulation	± 1.0%	± 1.0%
	Load regulation	± 1.0%	± 1.0%
	Voltage adjustment	± 10%	± 10%
Input	Voltage range / frequency	90-264VAC (127VDC-370VDC)/47Hz-63Hz	
	Efficiency (typ.) ②	85.5%	90%
	AC current (typ.)	2.6A 115VAC 1.7A /230VAC	
	Start-up / rise / hold-up time	1500ms、60ms/230VAC,3000ms、60ms/ 115VAC	
	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.	
Protection	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.	
	Operating temperature / humidity	-10°C~-+50°C;20%~90RH	
Environment	Storage temperature / humidity	-20°C~-+85°C;10%~95RH	
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min	
	Leakage current	Input-output 1.5KVAC <5mA	
	Leakage current	Input-output 220VAC <1mA	
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ	
Other	Dimensions	40*113.5*125mm	
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.		

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

MDR-10/20 series DIN rail switching power supply



Notes:

- Universal full-range AC input
- Protection: short circuit / overload / overcurrent
- Natural convection cooling
- Mounts on TS-35/7.5 or TS-35/15 DIN rail
- LED power indicator
- Built-in active DC OK relay contact
- No-load power consumption: <0.75W
- 100% full-load burn-in tested

Technical specifications

Model	MDR-10			
DC voltage	5V	12V	15V	24V
Rated current	2A	0.84A	0.67A	0.42A
Rated power	10W	10W	10W	10W
Voltage tolerance	± 5%	± 3%	± 3%	± 2%
Operating current	0.33A/110VAC 0.21A/230VAC			

Model	MDR-20			
DC voltage	5V	12V	15V	24V
Rated current	3A	1.67A	1.34A	1A
Rated power	15W	20W	20W	24W
Voltage tolerance	± 2%	± 1%	± 1%	± 1%
Operating current	0.55A/110VAC 0.35A/230VAC			

Output	Voltage	5V	12V	15V	24V
	Ripple & noise ①	< 80mV	< 120mV	< 120mV	< 150mV
	Voltage adjustment	± 10%			
	Line regulation	± 1%			
	Load regulation	± 5%	± 3%	± 3%	± 2%

Input	Start-up / rise / hold-up time	1000ms、30ms、25ms : 110VAC 500ms、30ms、120ms : 220VAC			
	Voltage range / frequency	85-264VAC 47HZ-63Hz(120VDC-370VDC)			
	Efficiency (typ.) ②	> 77%	> 81%	> 81%	> 84%
	Inrush current	110VAC 35A 220VAC 70A			

Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.			
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.			

Environment	Operating temperature / humidity	-20℃~-+70℃;20%-90RH			
	Storage temperature / humidity	-40℃~+85℃;10%-95RH			

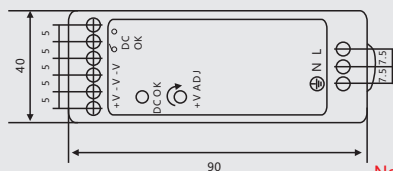
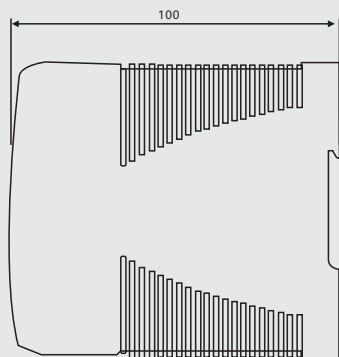
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min			
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MQ			

Other	Dimensions	22.5*90*100mm			
-------	------------	---------------	--	--	--

Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.				
-------	---	--	--	--	--

1. Unless stated otherwise, specifications are measured at 230VAC input, rated load and 25°C ambient.
2. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
3. Tolerance includes setting error, line regulation and load regulation.
4. The supply is a system component; EMC compliance must be verified in the final equipment.
5. Start-up time is measured from cold; rapid repeated switching may increase it.

MDR-40/60 series DIN rail switching power supply



Notes:

- Universal full-range AC input
- Protection: short circuit / overload / overcurrent
- Natural convection cooling
- Mounts on TS-35/7.5 or TS-35/15 DIN rail
- LED power indicator
- Built-in active DC OK relay contact
- No-load power consumption: <0.75W
- 100% full-load burn-in tested

Technical specifications

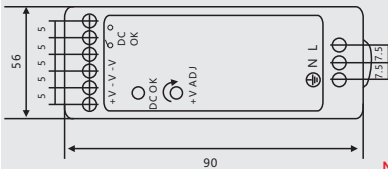
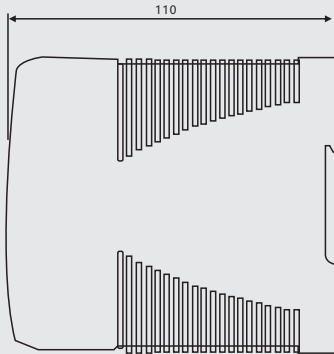
Model	MDR-40			
DC voltage	5V	12V	15V	24V
Rated current	8A	3.3A	2.67A	1.67A
Rated power	40W	40W	40W	40W
Voltage tolerance	± 2%	± 1%	± 1%	± 1%
Operating current	1.1A/110VAC 0.7A/230VAC			

Model	MDR-60			
DC voltage	5V	12V	15V	24V
Rated current	12A	5A	4A	2.5A
Rated power	60W	60W	60W	60W
Voltage tolerance	± 2%	± 1%	± 1%	± 1%
Operating current	1.8A/110VAC 1A/230VAC			

Output	Voltage	5V	12V	15V	24V
	Ripple & noise ①	< 80mV	< 120mV	< 120mV	< 150mV
	Voltage adjustment	± 10%			
	Line regulation	± 1%			
	Load regulation	± 2%	± 1%	± 1%	± 1%
Input	Start-up / rise / hold-up time	1000ms、30ms、25ms : 110VAC 500ms、30ms、120ms : 220VAC			
	Voltage range / frequency	85-264VAC 47HZ-63Hz(120VDC-370VDC)			
	Efficiency (typ.) ②	> 77%	> 81%	> 81%	> 84%
	Inrush current	110VAC 35A 220VAC 70A			
Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.			
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.			
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min			
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MQ			
Other	Dimensions	40*90*100mm			
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.				

1. Unless stated otherwise, specifications are measured at 230VAC input, rated load and 25°C ambient.
2. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
3. Tolerance includes setting error, line regulation and load regulation.
4. The supply is a system component; EMC compliance must be verified in the final equipment.
5. Start-up time is measured from cold; rapid repeated switching may increase it.

MDR-100 series DIN rail switching power supply



Notes:

- Universal full-range AC input
- Protection: short circuit / overload / overcurrent
- Natural convection cooling
- Mounts on TS-35/7.5 or TS-35/15 DIN rail
- LED power indicator
- Built-in active DC OK relay contact
- No-load power consumption: <0.75W
- 100% full-load burn-in tested

Technical specifications

Model		MDR-100		
Output	DC voltage	12V	24V	48V
	Rated current	8.3A	4.1A	2A
	Rated power	100W	100W	100W
	Ripple & noise ①	120mVp-p	150mVp-p	200mVp-p
	Voltage adjustment	± 10%		
	Voltage tolerance	± 2.0%	± 1.0%	
	Line regulation	< ± 0.5%		
	Load regulation	< ± 1.5%	< ± 0.5%	< ± 0.5%
Input	Voltage range / frequency	85-264VAC 47Hz-63Hz(120VDC-370VDC)		
	Efficiency (typ.) ②	> 83%	> 86%	> 87%
	Operating current	< 1.3A 115VAC <0.8A 230VAC		
	Inrush current	115VAC 30A, 220VAC 60A		
	Start-up / rise / hold-up time	200ms、50ms、20ms : 220VAC		
Protection	Overload protection	≥105%-150% Constant current; when VO reaches undervoltage, output shuts down. Reset: power cycle.		
	Short-circuit protection	Output shuts down when +Vo reaches the undervoltage threshold.		
Environment	Operating temperature / humidity	-10°C~+50°C;20%~90RH		
	Storage temperature / humidity	-20°C~+85°C;10%~95RH		
	Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case :0.5KVAC ; 1 min		
	Leakage current	Input-output 1.5KVAC <5mA		
	Leakage current	Input-output 220VAC <1mA		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	56*110*90mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25°C ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5°C/1000m.			

1. Unless stated otherwise, specifications are measured at 230VAC input, rated load and 25°C ambient.
2. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
3. Tolerance includes setting error, line regulation and load regulation.
4. The supply is a system component; EMC compliance must be verified in the final equipment.
5. Start-up time is measured from cold; rapid repeated switching may increase it.

FY-350 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	FY-350-5	FY-350-7.5	FY-350-12	FY-350-13.5	FY-350-15	FY-350-24	FY-350-27	FY-350-48
DC voltage	5V	7.5V	12V	13.5V	15V	24V	27V	48V
Output voltage tolerance	± 2.0%	± 2.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%
Rated output current	50A	40A	29A	25.8A	23.2A	14.6A	13A	7.3A
Output current range	0-50A	0-40A	0-29A	0-25.8A	0-23.2A	0-14.6A	0-13A	0-7.3A
Ripple & noise ①	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	240mVp-p
Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
Load regulation	± 1%	± 1%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
DC output power	250W	300W	348W	348.3W	348W	350.4W	351W	350.4W
Efficiency (typ.) ②	73%	76%	74%	79%	78%	81%	82%	83%
DC voltage adjustment	4.5-5.6V	6-9V	10-13.2V	12-15V	13.5-18V	20-26.4V	26-32V	41-56V
Input voltage range	90-132VAC/100-264VAC selected by switch 47-63Hz 254-370VDC							
Input current	6.5A/115V 4A/230V							
Inrush current	25A/115V 50A/230V							
Leakage current	< 3.5mA240VAC							
Overload protection	105%-135% Output shuts down; automatic recovery.							
Overvoltage protection	5.75-6.75V	9.4-10.9V	9.4-10.9V	13.8-16.2V	15.5-18.2V	18-21V	33.7-34.4V	57.6-67V
Temperature coefficient	± 0.03%/°C(0-50°C)							
Start-up / rise / hold-up time	200ms, 50ms, 20ms							
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis							
Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case : 0.5KVAC							
Insulation resistance	Output-output , Input-case , Output-case : 500VDC/100MQ							
Operating temperature / humidity	-10°C~+50°C;20%-90RH							
Storage temperature / humidity	-20°C~+85°C;10%-95RH							
Overall dimensions	236*135*65mm Case 912							
Weight	1.15kgs							

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

FY-400 series Rainproof switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

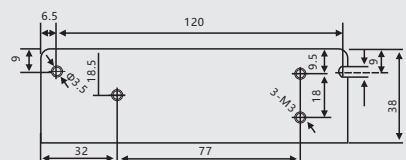
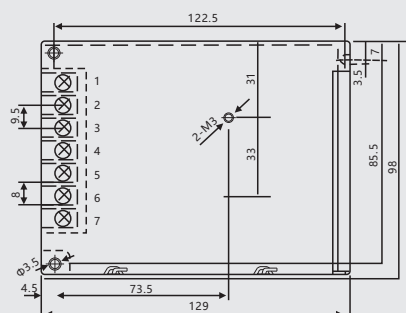
Technical specifications

Model Performance	FY-400-9	FY-400-12	FY-400-13.5	FY-400-24	FY-400-48			
DC voltage	9V	12V	13.5V	24V	48V			
Output voltage tolerance	± 1.0%	± 1.0%	± 1.0%	± 1.0%	± 1.0%			
Rated output current	43A	33A	29A	17A	8.3A			
Output current range	0-43A	0-33A	0-29A	0-17A	0-8.3A			
Ripple & noise ①	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p			
Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%			
Load regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%			
DC output power	387W	396W	400W	400W	400W			
Efficiency (typ.) ②	78%	83%	85%	85%	86%			
DC voltage adjustment	± 10%	± 10%	± 10%	± 10%	± 10%			
Input voltage range	90-264VAC							
Input current	5.6A/115V 2.8A/230V							
Inrush current	40A/230V (Cold start)							
Leakage current	< 3.5mA240VAC							
Overload protection	105%-135% Output shuts down; automatic recovery.							
Overvoltage protection	5.75-6.75V	9.4-10.9V	9.4-10.9V	13.8-16.2V	15.5-18.2V	18-21V	33.7-34.4V	57.6-67V
Temperature coefficient	± 0.03%/°C(0-50°C)							
Start-up / rise / hold-up time	150ms、50ms、20ms							
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis							
Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case : 0.5KVAC							
Insulation resistance	Output-output , Input-case , Output-case : 500VDC/100MQ							
Operating temperature / humidity	-10°C~+50°C;20%~90RH							
Storage temperature / humidity	-20°C~+85°C;10%~95RH							
Overall dimensions	236*135*65mm Case 912							
Weight	1.15kgs							

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.
6. Each output may reach its maximum current, but total load must not exceed maximum output power.

D-30 series Switching power supply



Notes:

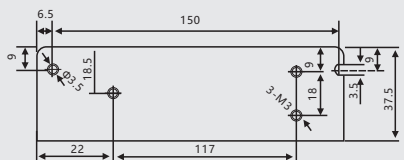
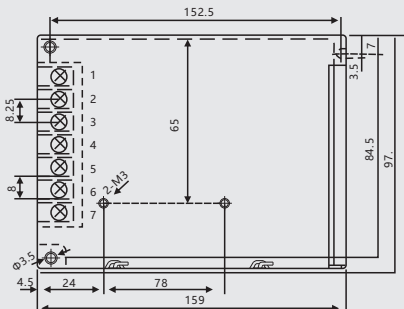
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	D-30A		D-30B		D-30C	
	CH1	CH2	CH1	CH2	CH1	CH2
DC output voltage	5V	12V	5V	24V	12V	24V
Output voltage tolerance	±2.0%	+3.~7%	±2%	+3.~5%	±2%	+3.~5%
Rated output current	4A	1A	2.2A	1A	1A	0.5A
Output current range	1~4A	0.1~1A	1~2.2A	0.1~1.1A	1~1A	0~0.5A
Ripple & noise ①	50mVP-P	100mVp-p	50mVp-p	100mVp-p	50mVp-p	100mVp-p
Line regulation	±0.5%	±1%	±0.5%	±1%	±0.5%	±1%
Load regulation	±0.5%	±4%	±0.5%	±4%	±0.5%	±4%
DC output power	32W		35W		36W	
Efficiency (typ.) ②	72%		82%		82%	
DC voltage adjustment	CH: +10~5%	CH: +10~5%	CH: +10~5%	CH: +10~5%	CH: +10~5%	CH: +10~5%
Input voltage range	85~132VAC/170 ~ 264VAC selected by switch 47 ~ 63Hz 240 ~ 370VDC					
Input current	0.8A/115V 0.45A/230V					
Inrush current	Cold start 18A/115VAC; 36A/230VAC					
Leakage current	<0.5mA240VAC					
Overload protection	105% ~ 150% Output shuts down; automatic recovery.					
Overvoltage protection	115%~135%					
Temperature coefficient	±0.03%/°C(0~50°C)					
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load					
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis					
Dielectric strength	Input-output : 1.5kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min					
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ					
Operating temperature / humidity	-10°C ~ +60°C 20%~90%RH					
Storage temperature / humidity	-20°C ~ +60°C					
Overall dimensions	129*98*38mm					
Weight	0.4kg					

D-50 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

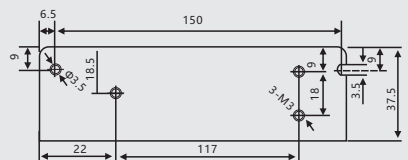
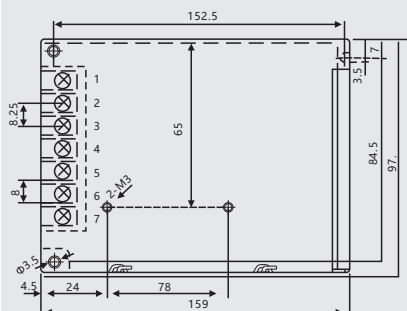
■ Technical specifications

Model Performance	D-50A		D-50B		D-50C	
	CH1	CH2	CH1	CH2	CH1	CH2
DC output voltage	5V	12V	5V	24V	12V	24V
Output voltage tolerance	± 2.0%	+5. -8%	± 2%	+8%	± 2%	+5. -8%
Rated output current	6A	2A	6A	1A	2A	1A
Output current range	1-6A	0.3-2A	1-6A	0.2-1A	0.5-2A	0.1-1A
Ripple & noise ①	50mVp-p	100mVp-p	50mVp-p	100mVp-p	50mVp-p	100mVp-p
Line regulation	± 0.5%	± 1%	± 0.5%	± 1%	± 0.5%	± 1%
Load regulation	± 0.5%	± 5%	± 0.5%	± 8%	± 0.5%	± 4%
DC output power	54W		54W		48W	
Efficiency (typ.) ②	73%		73%		82%	
DC voltage adjustment	CH:+10-5%	CH:+10-5%	CH:+10-5%	CH:+10-5%	CH:+10-5%	CH:+10-5%
Input voltage range	85~132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz					
Input current	1.8A/115V 0.65A/230V					
Inrush current	Cold start 18A/115VAC; 36A/230VAC					
Leakage current	< 0.5mA240VAC					
Overload protection	105% ~ 150% Output shuts down; automatic recovery.					
Overvoltage protection	115%~135%					
Temperature coefficient	± 0.03%/°C(0~50°C)					
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load					
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis					
Dielectric strength	Input-output : 1.5kV Input-case : 1.5kV Output-case : 0.5kVAC					
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ					
Operating temperature / humidity	-10°C ~ +60°C 20%~90%RH					
Storage temperature / humidity	-20°C~60°C					
Overall dimensions	159*98*38mm					
Weight	0.5kg					

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

D-60 series

Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

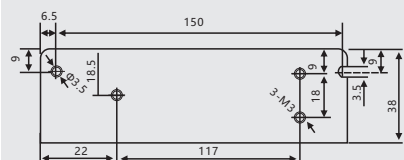
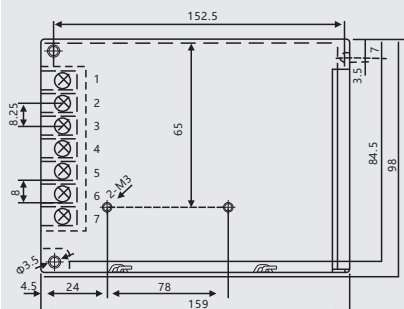
■ Technical specifications

Performance	Model	D-60A		D-60B		D-60C	
		CH1	CH2	CH1	CH2	CH1	CH2
DC output voltage		5V	12V	5V	24V	12V	24V
Output voltage tolerance		± 2.0%	± 6%	± 2%	± 8%	± 2%	+5~8%
Rated output current		6A	3A	4A	1.8A	3A	1A
Output current range		1~6A	0.2~3A	1~4A	0.2~1.8A	1~3A	0.2~1A
Ripple & noise ①		75mVP-P	150mVp-p	75mVp-p	150mVp-p	50mVp-p	100mVp-p
Line regulation		± 0.5%	± 1%	± 0.5%	± 0.5%	± 0.5%	± 1%
Load regulation		± 0.5%	± 4%	± 0.5%	± 4%	± 0.5%	± 4%
DC output power		66W		63W		60W	
Efficiency (typ.) ②		73%		76%		82%	
DC voltage adjustment		CH:+10~5%	CH:+10~5%	CH:+10~5%	CH:+10~5%	CH:+10~5%	CH:+10~5%
Input voltage range	85~132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz						
Input current	2A/115V 1A/230V						
Inrush current	Cold start 30A/115VAC; 60A/230VAC						
Leakage current	< 1mA240VAC						
Overload protection	105% ~ 150% Output shuts down; automatic recovery.						
Overvoltage protection	115%~135%						
Temperature coefficient	± 0.03%/°C(0~50°C)						
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load						
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis						
Dielectric strength	Input-output : 1.5kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min						
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ						
Operating temperature / humidity	-10°C ~ +60°C 20%~90%RH						
Storage temperature / humidity	-20°C ~ +60°C 10%~90%RH						
Overall dimensions	159*98*38mm						
Weight	0.55kgs						

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

D-75 series Switching power supply



Notes:

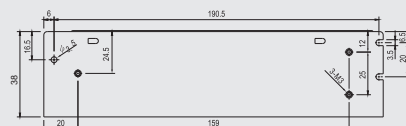
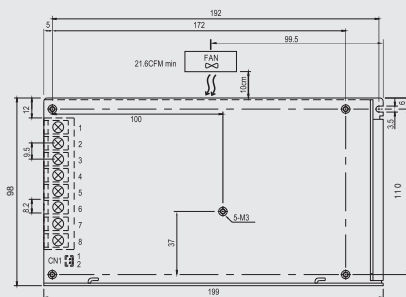
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	D-75A		D-75B		D-75C	
	CH1	CH2	CH1	CH2	CH1	CH2
DC output voltage	5V	12V	5V	24V	12V	24V
Output voltage tolerance	± 2%	± 6%	± 2%	± 6%	± 2%	± 6%
Rated output current	7A	3A	5A	2A	2A	2A
Output current range	0.3-7A	0.2-3A	0.5-5A	0.1-2A	0.5-2A	0.1-2A
Ripple & noise ①	75mVP-P	150mVp-p	75mVp-p	150mVp-p	75mVp-p	100mVp-p
Line regulation	± 0.5%	± 1%	± 0.5%	± 0.5%	± 0.5%	± 1%
Load regulation	± 0.5%	± 4%	± 0.5%	± 4%	± 0.5%	± 4%
DC output power	71W		73W		72W	
Efficiency (typ.) ②	82%		80%		83%	
DC voltage adjustment	CH: +10-5%	CH: +10-5%	CH: +10-5%	CH: +10-5%	CH: +10-5%	CH: +10-5%
Input voltage range	85-132VAC/170-264VAC selected by switch 254 ~ 370VDC 47 ~ 63Hz					
Input current	1.3A/115V 0.65A/230V					
Inrush current	Cold start 18A/115VAC; 36A/230VAC					
Leakage current	< 0.5mA/240VAC					
Overload protection	105% ~ 150% Output shuts down; automatic recovery.					
Overvoltage protection	115% ~ 135%					
Temperature coefficient	± 0.03%/°C(0-50°C)					
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load					
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis					
Dielectric strength	Input-output : 1.5KVAC Input-case : 1.5KVAC Output-case : 0.5kVAC ; 1 min					
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ					
Operating temperature / humidity	-10°C ~ +60°C 20%-90%RH					
Storage temperature / humidity	-20°C ~ +85°C 10%-90%RH					
Overall dimensions	159*98*38mm					
Weight	0.52kgs					

D-120 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

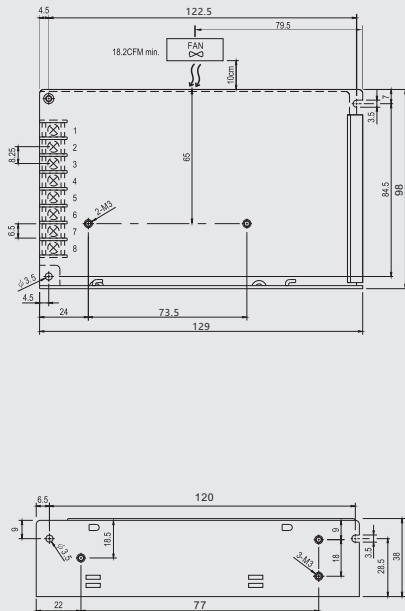
Technical specifications

Model	D-120A		D-120B		D-120C	
	CH1	CH2	CH1	CH2	CH1	CH2
DC output voltage	5V	12V	5V	24V	12V	24V
Output voltage tolerance	± 2%	± 6%	± 2%	± 7%	± 2%	± 6%
Rated output current	12A	5A	10A	3A	3A	3A
Output current range	1-12A	0.5-5A	2-10A	0.4-3A	2-3A	0.4-3A
Ripple & noise ①	50mVp-p	100mVp-p	50mVp-p	100mVp-p	50mVp-p	100mVp-p
Line regulation	± 0.5%	± 1%	± 0.5%	± 1%	± 0.5%	± 1%
Load regulation	± 0.5%	± 4%	± 0.5%	± 4%	± 0.5%	± 4%
DC output power	120W		122W		120W	
Efficiency (typ.) ②	78%		80%		83%	
DC voltage adjustment	CH: +10-5%	CH: +10-5%	CH: +10-5%	CH: +10-5%	CH: +10-5%	CH: +10-5%
Input voltage range	85-132VAC/170-264VAC selected by switch 240-370VDC 47-63Hz					
Input current	2.5A/115V 1.25A/230V					
Inrush current	Cold start 30A/115VAC; 60A/230VAC					
Leakage current	< 1mA/240VAC					
Overload protection	105% ~ 150% Output shuts down; automatic recovery.					
Overvoltage protection	115% ~ 135%					
Temperature coefficient	± 0.03%/°C(0-50°C)					
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load					
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis					
Dielectric strength	Input-output : 3KVAC Input-case : 1.5KVAC Output-case : 0.5kVAC ; 1 min					
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ					
Operating temperature / humidity	-10°C ~ +60°C 20%-90%RH					
Storage temperature / humidity	-20°C ~ +85°C 10%-90%RH					
Overall dimensions	199*98*38mm					
Weight	0.85kgs					

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

T-30 series Switching power supply



Notes:

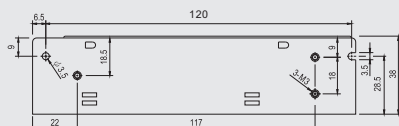
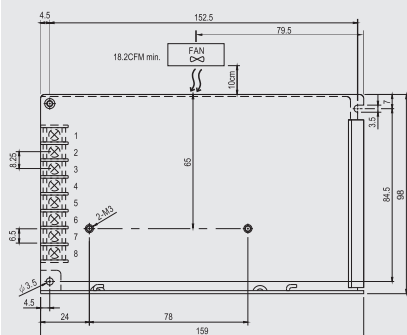
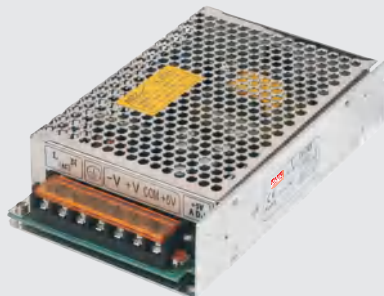
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model Performance	T-30A			T-30B			T-30C		
	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3
DC output voltage	5V	12V	-5V	5V	12V	-12V	5V	15V	-15V
Output voltage tolerance	±2%	+2..-6%	+2..-10%	+6%	±2%	±5%	±2%	±5%	±5%
Rated output current	3A	1A	0.5A	3A	1A	0.5A	3A	0.5A	0.5A
Output current range	0.5-3A	0.1-1A	0.1-0.5A	0.2-4A	0.3-6A	0.2-2.2A	0.6-3A	0.2-0.5A	0.2-0.5A
Ripple & noise ①	50MVP-P	100mVp-p	50MVP-P	150MVP-P	75mVp-p	150mVp-p	100MVP-P	100mVp-p	100mVp-p
Line regulation	±0.5%	±1%	±1%	±1%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Load regulation	±0.5%	±5%	±5%	±4%	±0.5%	±4%	±1%	±0.5%	±0.5%
DC output power	30W			33W			30W		
Efficiency (typ.) ②	72%			72%			83%		
DC voltage adjustment	CH: +10-5%			CH: +10-5%			CH: +10-5%		
Input voltage range	85-132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz								
Input current	0.8A/115V 0.45A/230V								
Inrush current	Cold start 18A/115VAC; 36A/230VAC								
Leakage current	< 0.5mA240VAC								
Overload protection	105% ~ 150% Output shuts down; automatic recovery.								
Overvoltage protection	CH1: 5.75-6.75V								
Temperature coefficient	± 0.03%/°C(0-50°C)								
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load								
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis								
Dielectric strength	Input-output : 3kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min								
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ								
Operating temperature / humidity	-10°C ~ +60°C 20%-90%RH								
Storage temperature / humidity	-20°C ~ +60°C								
Overall dimensions	129*98*38mm								
Weight	0.4kg								

T-50 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

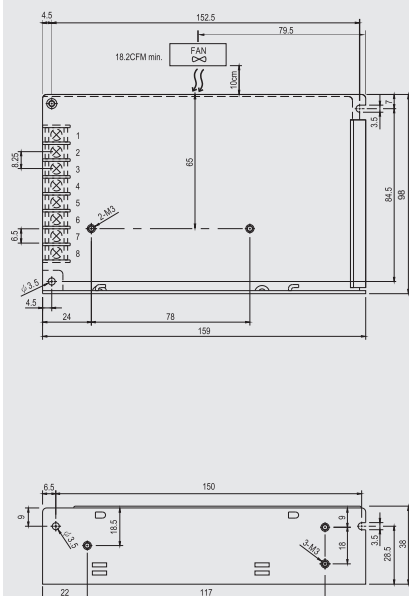
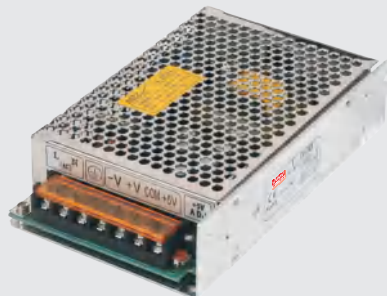
Model Performance	T-50A			T-50B			T-50C			T-50D		
	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3
DC output voltage	5V	12V	-5V	5V	12V	-12V	5V	15V	-15V	5V	12V	24V
Output voltage tolerance	±2%	±5%	±5%	±2%	±5%	±5%	±2%	±5%	±5%	±2%	±6%	±6%
Rated output current	7A	1A	1A	5A	1A	1A	4A	1A	1A	4A	1A	1A
Output current range	2-7A	0.2-1A	0.2-1A	1-5A	0.2-1A	0.2-1A	1-4A	0.2-1A	0.2-1A	1-4A	0.2-1A	0.2-1A
Ripple & noise ①	100mV	100mV	50mV	150mV	75mV	150mV	100mV	100mV	100mV	100mV	75mV	75mV
Line regulation	±0.5%	±1%	±1%	±1%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Load regulation	±0.5%	±5%	±5%	±4%	±0.5%	±4%	±1%	±0.5%	±0.5%	±1%	±0.5%	±0.5%
DC output power	50W			49W			50W			51W		
Efficiency (typ.) ②	66%			69%			71%			72%		
DC voltage adjustment	CH1: +10-5%			CH1: +10-5%			CH1: +10-5%			CH1: +10-5%		
Input voltage range	85~132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz											
Input current	1.6A/115V 0.8A/230V											
Inrush current	Cold start 20A/115VAC; 40A/230VAC											
Leakage current	< 0.5mA240VAC											
Overload protection	105% ~ 135% Output shuts down; automatic recovery.											
Overvoltage protection	CH1: 5.75~6.75V											
Temperature coefficient	± 0.03%/°C(0-50°C)											
Start-up / rise / hold-up time	200ms, 50ms, 16ms											
Vibration resistance	10~500Hz; 2G; 10min/cycle, 60 min per axis											
Dielectric strength	Input-output : 1.5kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min											
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ											
Operating temperature / humidity	-10°C ~ +60°C 20%-90%RH											
Storage temperature / humidity	-20°C ~ +85°C 10%-95%RH											
Overall dimensions	159*98*38mm											
Weight	0.54kg											

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

T-60 series

Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

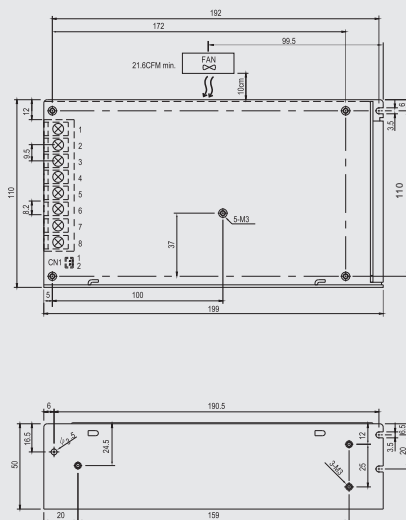
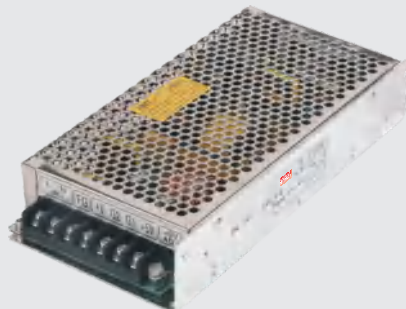
■ Technical specifications

Performance	Model	T-60A			T-60B			T-60C			T-60D		
	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3	
DC output voltage	5V	12V	-5V	5V	12V	-12V	5V	15V	-15V	5V	12V	24V	
Output voltage tolerance	±2%	±5%	±5%	±2%	±5%	±5%	±2%	±5%	±5%	±2%	±6%	±6%	
Rated output current	7A	2A	1A	6A	2A	1A	5A	2A	0.5A	5A	1A	1A	
Output current range	1-7A	0.2-2A	0.2-1A	1-6A	0.2-2A	0.2-1A	1-5A	0.2-2A	0-0.5A	0.6-5A	0.2-1A	0.2-1A	
Ripple & noise ①	100mV	100mV	50mV	150mV	75mV	150mV	100mV	100mV	100mV	100mV	75mV	75mV	
Line regulation	±0.5%	±1%	±1%	±1%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
Load regulation	±0.5%	±5%	±5%	±4%	±0.5%	±4%	±1%	±0.5%	±0.5%	±1%	±0.5%	±0.5%	
DC output power	64W			65W			67.5W			61W			
Efficiency (typ.) ②	66%			69%			71%			72%			
DC voltage adjustment	CH1:±10-5%			CH1:±10-5%			CH1:±10-5%			CH1:±10-5%			
Input voltage range	85~132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz												
Input current	1.6A/115V 0.8A/230V												
Inrush current	Cold start 20A/115VAC; 40A/230VAC												
Leakage current	< 0.5mA240VAC												
Overload protection	105% ~ 135% Output shuts down; automatic recovery.												
Overvoltage protection	CH1:5.75~6.75V												
Temperature coefficient	± 0.03%/°C(0-50°C)												
Start-up / rise / hold-up time	200ms, 50ms, 16ms												
Vibration resistance	10~500Hz; 2G; 10min/cycle, 60 min per axis												
Dielectric strength	Input-output : 1.5kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min												
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ												
Operating temperature / humidity	-10°C ~ +60°C 20%~90%RH												
Storage temperature / humidity	-20°C ~ +85°C 10%~95%RH												
Overall dimensions	159*98*38mm												
Weight	0.54kg												

- Notes:**
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.

T-120 series

Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

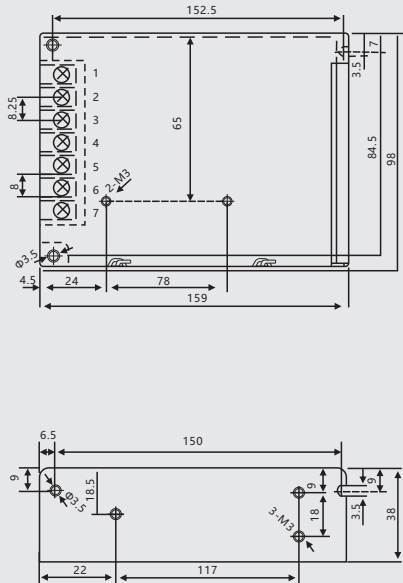
■ Technical specifications

[illegible]

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

Q-60 series Switching power supply



Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

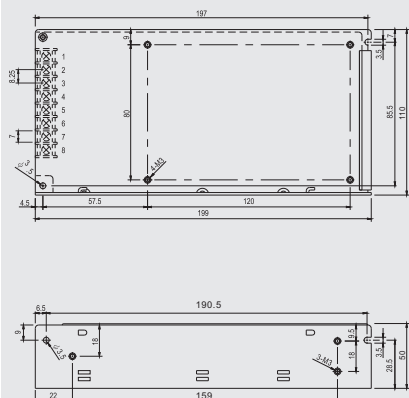
- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model Performance	Q-60B				Q-60C				Q-60D			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
DC output voltage	5V	12V	-5V	-15V	5V	12V	-12V	-15V	5V	12V	15V	-15V
Output voltage tolerance	±2%	±6%	±6%	±6%	±2%	±10,-5%	±10,-5%	±10,-5%	±2%	±6%	±6%	±6%
Rated output current	5.5A	2A	0.5A	0.5A	5.5A	1.5A	0.5A	0.5A	4A	1A	1A	0.5A
Output current range	0.5-8A	0.15-3A	0-1A	0-1A	0.5-8A	0.15-2A	0-1A	0-1A	0.5-7A	0-2A	0-2A	0-1A
Ripple & noise ①	75mV	120mV	100mV	120mV	75mV	120mV	100mV	120mV	75mV	120mV	150mV	120mV
Line regulation	±0.5%	±1%	±0.5%	±0.5%	±0.5%	±2%	±0.5%	±0.5%	±0.5%	±1%	±2%	±0.5%
Load regulation	±0.5%	±4%	±1%	±1%	±0.5%	±4%	±1%	±1%	±0.5%	±4%	±4%	±1%
DC output power	60W				60W				60W			
Efficiency (typ.) ②	70%				70%				70%			
DC voltage adjustment	CH1:±10-5%				CH1:±10-5%				CH1:±10-5%			
Input voltage range	85-132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz											
Input current	1.3A/115V 0.8A/230V											
Inrush current	Cold start 18A/115VAC; 36A/230VAC											
Leakage current	<0.5mA240VAC											
Overload protection	105% ~ 150% Output shuts down; automatic recovery.											
Overvoltage protection	CH1:5.75-6.75V											
Temperature coefficient	±0.03%/℃(0-50℃)											
Start-up / rise / hold-up time	200ms, 50ms, 30ms/230VAC full load											
Vibration resistance	10-500Hz; 2G; 10min/cycle, 60 min per axis											
Dielectric strength	Input-output : 3kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min											
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ											
Operating temperature / humidity	-10℃ ~ +60℃, 20%-90%RH											
Storage temperature / humidity	-20℃ ~ +85℃ , 10%-95%RH											
Overall dimensions	159*98*38mm											
Weight	0.83kg											

Q-120 series

Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

■ Technical specifications

Model Performance	Q-120B				Q-120C				Q-120D			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
DC output voltage	5V	12V	-5V	-15V	5V	12V	-12V	-15V	5V	12V	15V	-15V
Output voltage tolerance	±2%	±6%	±6%	±6%	±2%	±10,-5%	±10,-5%	±10,-5%	±2%	±6%	±6%	±6%
Rated output current	11A	5A	1A	1A	10A	4A	1A	1A	8A	2A	2A	1A
Output current range	2~11A	0.5~5A	0.2~1A	0.2~1A	2~10A	0.5~4A	0.2~1A	0.2~1A	2~8A	0.2~2A	0.2~2A	0.2~1A
Ripple & noise ①	80mV	120mV	80mV	120mV	80mV	150mV	80mV	150mV	80mV	120mV	80mV	120mV
Line regulation	±0.5%	±1%	±1%	±1%	±0.5%	±1%	±1%	±1%	±0.5%	±1%	±1%	±1%
Load regulation	±0.5%	±5%	±5%	±5%	±0.5%	±6%	±5%	±6%	±0.5%	±5%	±5%	±5%
DC output power	132W				130W				124W			
Efficiency (typ.) ②	77%				76%				80%			
DC voltage adjustment	CH1:±10~5%				CH1:±10~5%				CH1:±10~5%			
Input voltage range	88~132VAC/170 ~ 264VAC selected by switch 240 ~ 370VDC 47 ~ 63Hz											
Input current	2.5A/115V 14.25A/230V											
Inrush current	Cold start 35A/115VAC; 36A/230VAC											
Leakage current	<0.5mA240VAC											
Overload protection	105% ~ 135% Output shuts down; automatic recovery.											
Overvoltage protection	CH1:5.75~6.75V											
Temperature coefficient	±0.03%/°C(0~50°C)											
Start-up / rise / hold-up time	200ms, 50ms, 16ms/230VAC full load											
Vibration resistance	10~500Hz; 2G; 10min/cycle, 60 min per axis											
Dielectric strength	Input-output : 3kV Input-case : 1.5kV Output-case : 0.5kVAC ; 1 min											
Insulation resistance	Input-output Input-case Output-case : 500VDC/100MΩ											
Operating temperature / humidity	-10°C ~ +60°C,20%~90%RH											
Storage temperature / humidity	-20°C ~ +85°C,10%~95%RH											
Overall dimensions	199*110*50mm											
Weight	0.88kg											

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LPV-15/30 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	LPV-15		
DC voltage	12V	15V	24V
Rated current	1.25A	1A	0.63A
Rated power	15W	15W	15W
Voltage tolerance	± 3%	± 3%	± 2%
Operating current	0.1A/230VAC		

Model	LPV-30		
DC voltage	12V	15V	24V
Rated current	2.5A	2A	1.3A
Rated power	30W	30W	30W
Voltage tolerance	± 1%	± 1%	± 1%
Operating current	0.42A/230VAC		

Output	Voltage	12V	15V	24V
	Ripple & noise ①	120mV	120mV	150mV
	Line regulation	± 1%		
	Load regulation	± 3%	± 3%	± 2%
Input	Start-up / rise / hold-up time	1000ms、30ms、25ms : 110VAC 500ms、30ms、120ms : 220VAC		
	Voltage range / frequency	170~260VAC 47HZ~63Hz(240VDC~370VDC)		
	Efficiency (typ.) ②	> 81%	> 81%	> 84%
	Inrush current	230VAC 30A		
Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.		
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.		
Environment	Operating temperature / humidity	-10℃~+60℃;20%~90RH		
	Storage temperature / humidity	-40℃~+85℃;10%~95RH		
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	182*30*20mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LPV-50/60 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	LPV-50		
DC voltage	12V	15V	24V
Rated current	4.2A	3.4A	2.1A
Rated power	50W	50W	50W
Voltage tolerance	± 3%	± 3%	± 2%
Operating current	0.65A/230VAC		

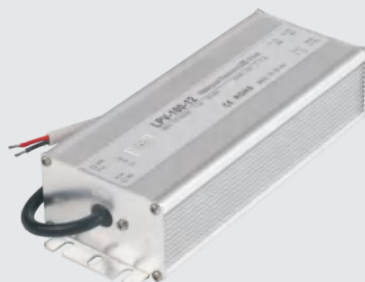
Model	LPV-60		
DC voltage	12V	15V	24V
Rated current	5A	4A	2.5A
Rated power	60W	60W	60W
Voltage tolerance	± 1%	± 1%	± 1%
Operating current	0.9A/230VAC		

Output	Voltage	12V	15V	24V
	Ripple & noise ①	100mV	100mV	150mV
	Line regulation	± 1%		
	Load regulation	± 3%	± 3%	± 2%
Input	Start-up / rise / hold-up time	1000ms、30ms、25ms : 110VAC 500ms、30ms、120ms : 220VAC		
	Voltage range / frequency	170-260VAC 47HZ-63Hz(240VDC-370VDC)		
	Efficiency (typ.) ②	> 78%	> 78%	> 81%
	Inrush current	230VAC 36A		
Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.		
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.		
Environment	Operating temperature / humidity	-10℃~+60℃;10-90%RH		
	Storage temperature / humidity	-----		
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	190*49*34mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

Notes:

1. Test conditions: 230V input, rated load, 25°C and 70% RH.
2. Tolerance includes setting error, line regulation and load regulation.
3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
4. Line regulation: test from minimum to maximum input voltage at rated load.
5. Load regulation: test from 0%-100% rated load.

LPV-100/120 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	LPV-100		
DC voltage	12V	15V	24V
Rated current	8.5A	6.7A	4.5A
Rated power	100W	100W	100W
Voltage tolerance	± 5%	± 5%	± 5%
Operating current	1.2A/230VAC		

Model	LPV-120		
DC voltage	12V	15V	24V
Rated current	10A	8A	5A
Rated power	120W	120W	120W
Voltage tolerance	± 5%	± 5%	± 5%
Operating current	1.2A/230VAC		

Output	Voltage	12V	15V	24V
	Ripple & noise ①	100mV	100mV	150mV
	Line regulation	± 1%		
	Load regulation	± 5%	± 5%	± 5%
Input	Start-up / rise / hold-up time	200ms、100ms、30ms		
	Voltage range / frequency	170~260VAC 47HZ~63HZ(240VDC~370VDC)		
	Efficiency (typ.) ②	> 81%	> 81%	> 84%
	Inrush current	230VAC 70A		
Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.		
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.		
Environment	Operating temperature / humidity	-10℃~+60℃;20~90%RH		
	Storage temperature / humidity	-----		
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	188*69*43mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

- Notes:
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.

LPV-150/200 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	LPV-150		
DC voltage	12V	15V	24V
Rated current	12.5A	10A	6.3A
Rated power	150W	150W	150W
Voltage tolerance	± 5%	± 5%	± 5%
Operating current	1.6A/230VAC		

Model	LPV-200		
DC voltage	12V	15V	24V
Rated current	16.5A	13A	8.3A
Rated power	200W	200W	200W
Voltage tolerance	± 5%	± 5%	± 5%
Operating current	2.5A/230VAC		

Output	Voltage	12V	15V	24V
	Ripple & noise ①	120mV	120mV	150mV
	Line regulation	± 1%		
	Load regulation	± 5%	± 5%	± 5%
Input	Start-up / rise / hold-up time	200ms、100ms、30ms		
	Voltage range / frequency	170-260VAC 47HZ-63Hz(240VDC-370VDC)		
	Efficiency (typ.) ②	> 81%	> 81%	> 84%
	Inrush current	230VAC 40A		
Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.		
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.		
Environment	Operating temperature / humidity	-10℃~+60℃;20-90%RH		
	Storage temperature / humidity	-----		
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	245*70*48mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

- Notes:
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.

LPV-250/350 series Switching power supply



- AC input for worldwide use
- High efficiency, low operating temperature
- Soft start reduces AC input inrush
- Consistent quality, safe and reliable
- 105°C output capacitors
- Short-circuit and overload protection
- Compact and lightweight
- 100% full-load burn-in tested
- Built-in EMI filter, very low ripple

Technical specifications

Model	LPV-250		
DC voltage	12V	15V	24V
Rated current	25A	16A	10A
Rated power	250W	240W	250W
Voltage tolerance	± 5%	± 5%	± 5%
Operating current	2.5A/230VAC		

Model	LPV-350		
DC voltage	12V	15V	24V
Rated current	25A	20A	12A
Rated power	300W	350W	350W
Voltage tolerance	± 5%	± 5%	± 5%
Operating current	2.5A/230VAC		

Output	Voltage	12V	15V	24V
	Ripple & noise ①	150mV	150mV	180mV
	Line regulation	± 1%		
	Load regulation	± 5%	± 5%	± 5%
Input	Start-up / rise / hold-up time	200ms、100ms、30ms		
	Voltage range / frequency	170~260VAC 47HZ~63HZ(240VDC~370VDC)		
	Efficiency (typ.) ②	> 80%	> 84%	> 84%
	Inrush current	230VAC 50A		
Protection	Overload protection	≥105%-150% Hiccup mode; automatic recovery after the fault is removed.		
	Overvoltage protection	At output voltage >135%, output shuts down; automatic recovery when the fault clears.		
Environment	Operating temperature / humidity	-10℃~-+60℃;20~90%RH		
	Storage temperature / humidity	-----		
Safety	Dielectric strength	Input-output : 3KVAC ; 1 min		
	Insulation resistance	Input-output , Input-case , Output-case : 500VDC/100MΩ		
Other	Dimensions	235*127*58mm		
Notes	① Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors. ② Efficiency: measured at 230VAC input, rated load and 25℃ ambient. Tolerance includes setting error, line regulation and load regulation. Line regulation: test from minimum to maximum input voltage at rated load. Load regulation: test from 0%-100% rated load. Start-up time is measured from cold; rapid repeated switching may increase it. Above 2000m altitude, reduce allowable ambient temperature by 5℃/1000m.			

- Notes:
1. Test conditions: 230V input, rated load, 25°C and 70% RH.
 2. Tolerance includes setting error, line regulation and load regulation.
 3. Ripple and noise: measure over 20MHz bandwidth using a 12" twisted pair terminated with parallel 0.1uF and 47uF capacitors.
 4. Line regulation: test from minimum to maximum input voltage at rated load.
 5. Load regulation: test from 0%-100% rated load.



Hefei Penghan Electric Co., Ltd.

Address: No. 2001 Zishi Road, Hefei Economic and Technological Development Zone, China

Zhejiang Penghan New Energy Co., Ltd.

Address: No. 9, Lane 163, Fenghu Road, Jiayi Village, Liushi Town, Wenzhou, Zhejiang, China

 **Official website**

International: WWW.PH.LTD Chinese: WWW.PHLTD.CN

Email: payne.wang@ph.ltd



Telephone



Domestic website

Distributor business card



WeChat



International website