

Embedded Switch Mode Power Supplies (SMPS)

FEATURES

- Universal 80 - 277Vac and 110 - 390Vdc
- Low standby power consumption, high efficiency, active PFC
- Operating temperature range - 40°C to +70°C
- Output short circuit, over-current, over-voltage over-temperature protection
- EMI performance meets. CISPR32 / EN55032 CLASS B
- Safety EN 62368-1 GB4943.1
- Compact size with a low 1U profile
- Operating Altitude upto 5000m
- Remote sense, ON/OFF function, DC OK function and 5V/1A standby power

RS PRO Embedded Switch Mode Power Supplies

RS Stock No:

2380578

2380579

2380580

2380581



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RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Product Description

AC-DC switching power supply with built-in active PFC function. Provides high efficiency and high reliability solutions for industrial, street lighting and instrumentation applications. These converters offer excellent EMC performance, meeting CISPR32/EN55032 Class B and IEC/EN61000-4. Safety approval to EN62368-1 and GB4943-1, meets IEC/UL62368, EN60335, EN61558, IEC/EN60601.

Model	AC-DC Enclosed 600W
Mounting Type	Chassis Mount
MTBF	MIL-HDBK-217F@25°C > 300,000 h
Applications	Industrial control systems, instrumentation and lighting

RS Stock#	Input Voltage	Output Voltage and Current*	Adj' range (V)	Output Power	Standby (Vo/Io)*	Max. Capacitive Load (µF)	Efficiency (Typ)
2380578	80 to 277V ac 110 to 390V dc	12V/50A	11.8 – 12.6V	600W	5V/1A	6000	92%
2380579	80 to 277V ac 110 to 390V dc	24V/25A	23 – 25.2V			4000	94%
2380580	80 to 277V ac 110 to 390V dc	36V/16.7A	35.3 – 37.8V			2400	94%
2380581	80 to 277V ac 110 to 390V dc	48V/12.6A	47 – 50.4V			1600	94%

Note: 1. *The total power of the product should not exceed (600W) and the output current cannot exceed the rated output current.

2. *Standby power: provide 5V/1A independent output, it is recommended to use with the main circuit.

Input Specifications

Item	Operating Conditions	Min	Typ	Max.	Unit
Input Voltage Range	AC Input	80	-	277	VAC
	DC Input	110	-	390	VDC
Input Voltage Frequency		47	-	63	Hz
Input Current	115VAC	-	-	7.5	A
	230VAC	-	-	3.5	

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Inrush Current	230VAC	Cold Start	-	40	-	
Power Factor	115VAC	At full Load	-	0.98	-	
	230VAC		-	0.95	-	
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min	Typ	Max.	Unit
Output Voltage Accuracy	Full Load Range	12V/24V/36V/48V	-	±1	-	
		5V Standby	-	±2	-	
Line Regulation	Rated Load	12V/24V/36V/48V	-	±0.3	-	%
		5V Standby	-	±0.5	-	
Load Regulation	0% - 100% load	12V/24V/36V/48V	-	±0.5	-	
		5V Standby		±2		
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V	-	150	-	mV
		24V	-	200	-	
		36V/48V	-	300	-	
Minimum Load			-	0	-	%
Stand-by Power Consumption	Room temperature, 230VAC, ON/OFF add +5V signal		-	0.5	-	W
Hold-up Time	230VAC		12	-	-	ms
Short Circuit Protection	Recovery time <5s after the short circuit disappear		Hiccup, continuous, self-recover			
Over-current Protection			105% - 150% I _o , hiccup, self-recovery			
Over-voltage Protection	12V		≤16VDC (Output voltage turn off, re-power on for recover)			
	24V		≤32VDC (Output voltage turn off, re-power on for recover)			
	36V		≤47VDC (Output voltage turn off, re-power on for recover)			
	48V		≤60VDC (Output voltage turn off, re-power on for recover)			
Over-temperature Protection*			Output voltage turn off, self-recovery after the temperature drops.			

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

General Specifications

Item		Operating Conditions	Min	Typ	Max.	Unit
Isolation	Input-Earth	Electric Strength Test for 1min, leakage current <10mA	1500	-	-	VAC
	Input-output	Electric Strength Test for 1min, leakage current <10mA	4000	-	-	
	Output-Earth	Electric Strength Test for 1min, leakage current <5mA	1500	-	-	
Insulation Resistance	Input-Earth	Environment temperature: 25 ± 5°C	50	-	-	MΩ
	Input-output	Relative humidity: <95%RH, non-condensing	50	-	-	
	Output-Earth	Testing voltage: 500VDC	50	-	-	
Operating Temperature			-40	-	+70	°C
Storage Temperature			-40	-	+85	
Storage Humidity		Non-condensing	10	-	95	%RH
Power Derating	Operating temperature derating	+50°C to +70°C	2.5	-	-	%/°C
	85VAC-100VAC 50Hz	80VAC-85VAC	2.0	-	-	%VAC
	120VDC - 140VDC	85VAC-100VAC	1.33	-	-	
Safety Standard		GB4943.1 safety approved & EN62368-1 (Report) Design refer to IEC/EN/UL62368-1, EN61558-2-16, EN61558-1, EN60335-1, IEC/EN60601-1, GB4943.1				
Safety Class		CLASS I				
MTBF		MIL-HDBK-217F@25°C	> 300,000 h			

EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS B			
	RE	CISPR32/EN55032 CLASS B			
	Harmonic Current	IEC/EN61000-3-2 CLASS A and CLASS D			
	Voltage Flicker	IEC/EN61000-3-3			
Immunity	ESD	IEC/EN 61000-4-2 Contact ±8KV/Air ±15KV			Perf. Criteria A
	RS	IEC/EN 61000-4-3 10V/m			Perf. Criteria A

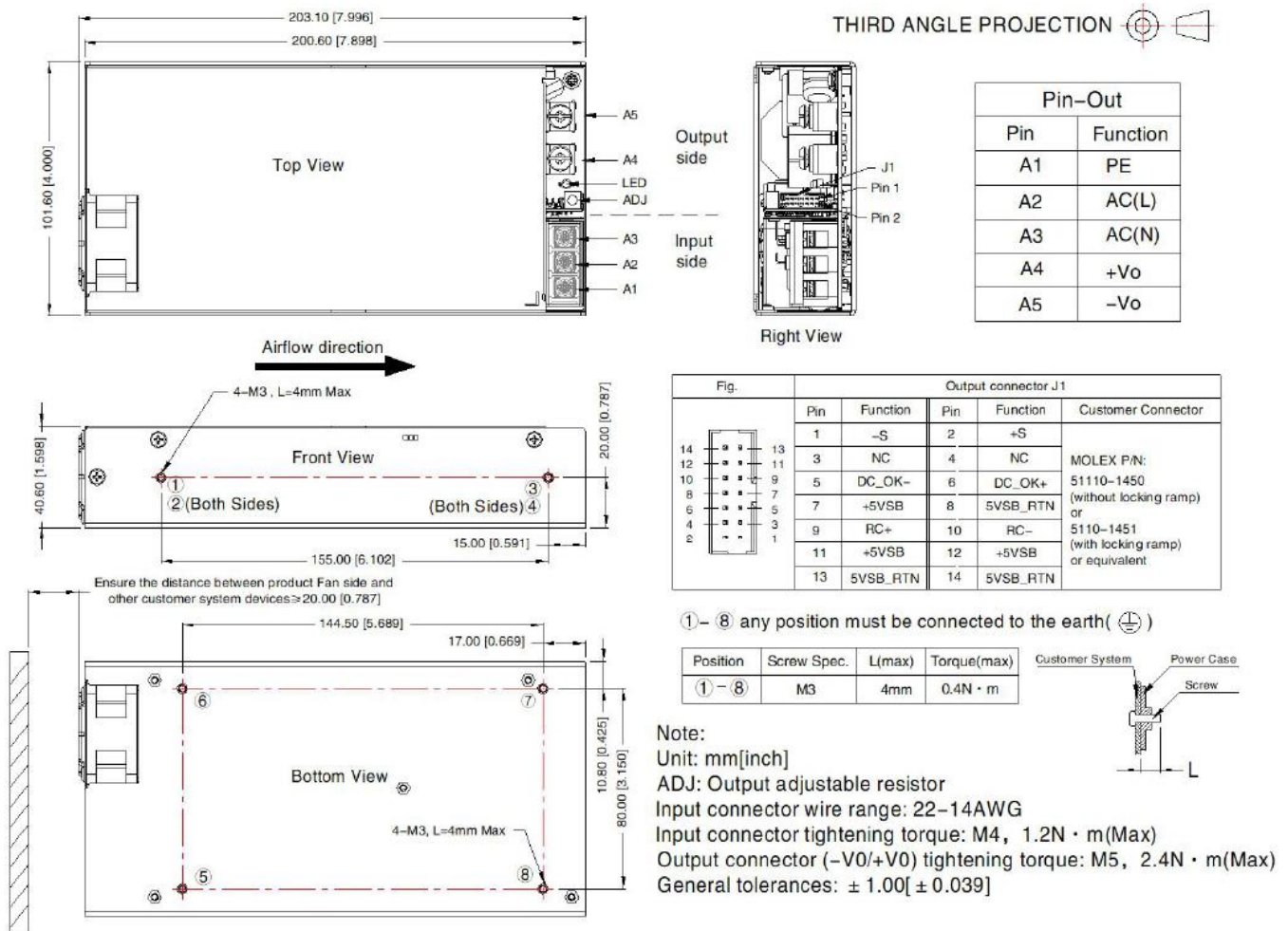
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EFT	IEC/EN 61000-4-4 ±4KV	Perf. Criteria A
Surge	IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV	Perf. Criteria A
CS	IEC/EN61000-4-6 10 Vrms	Perf. Criteria A
DIP (AC input)	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	101.6 x 203.1 x 40.6mm
Weight	1000g (Typ.)
Cooling Method	Built in Fan

Dimensions and recommended layout

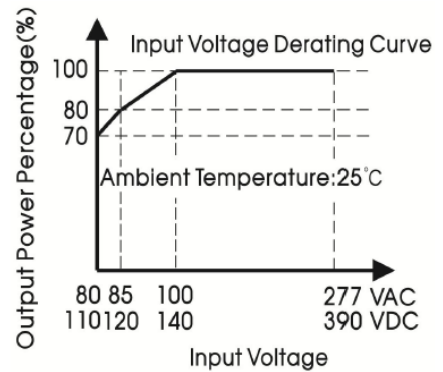
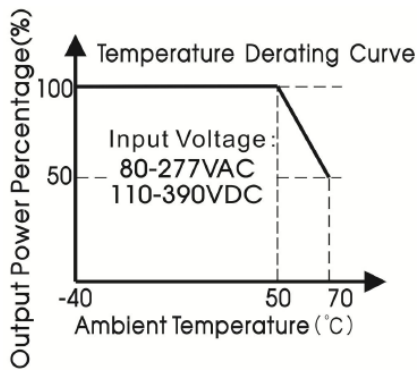


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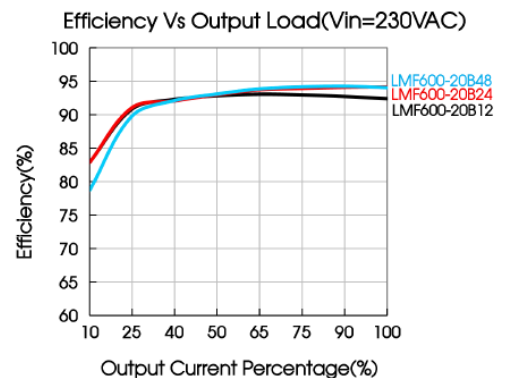
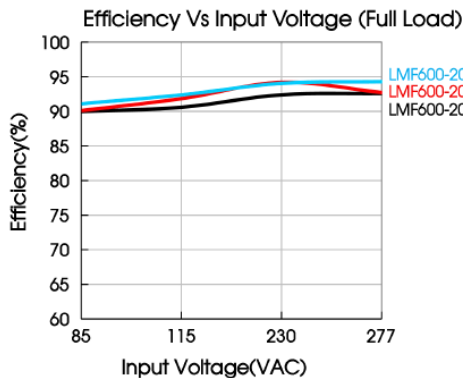
Approvals

Safety Standard	Meet IEC/EN/UL62368, EN60335, EN61558, IEC/EN60601, GB4943
Safety Certification	EN62368-1/GB4943-1
Safety Class	Class I (PE and must be connected)

Product Characteristic Curve



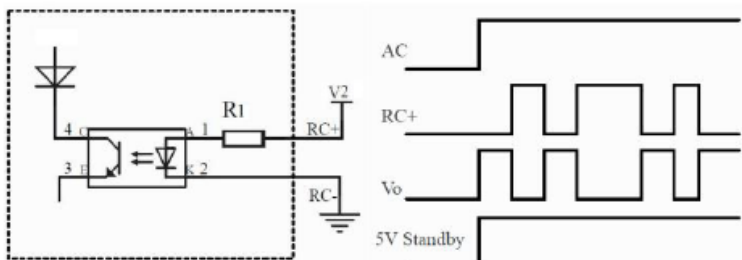
Note: 1. With an AC input voltage between 80-100VAC and a DC input between 110-140VDC the output power must be derated as per the temperature derating curves;
 2. This product is suitable for applications using forced air cooling; for applications in closed environment please consult Mornsun FAE.



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Typical Application

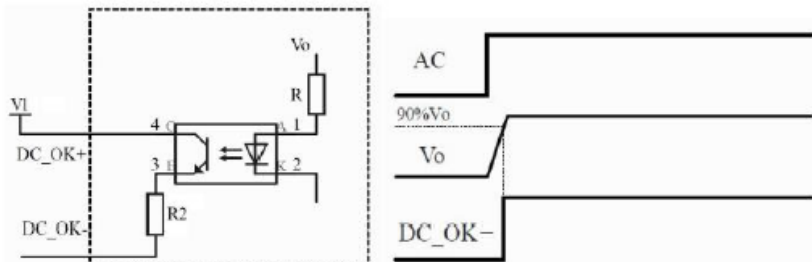
1. Remote ON/OFF



R1 (Product Inside)	2K Ω , $\frac{1}{12}$ W
V2 (User side)	5V-15V

Note: 1. When the product is working normally, apply voltage (5-15V) to RC+ and RC- to trigger the remote ON/OFF function, and the output voltage will be off. Withdraw the voltage, the output voltage will be re-established:
 2. 5V standby power supply is not controlled by remote ON/OFF function.

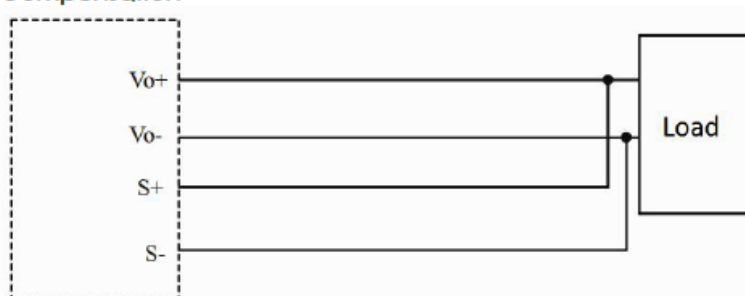
2. DC_OK



R2 (Product Inside)	1K Ω , $\frac{1}{12}$ W
V1 (User side)	5V-15V

Note: 1. When the output voltage of the product reaches 90% of the rated value, DC_OK+ will be connected to DC_OK- :
 2. It is recommended that users apply a certain voltage between DC_OK+ and DC_OK- to detect the signal.

3. Remote Sense Compensation



Note: 1. The left side represents the internal schematic diagram of the product, the right side represents the customer system:
 2. Twisted pair wires are needed for S+/S-.

**Note:**

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity < 75% RH with nominal input voltage and rated output load.
2. The room temperature derating of $5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m.
3. All index testing methods in this datasheet are based on our company corporate standards.
4. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
5. We can provide product customization service, please contact our technicians directly for specific information.
6. Products are related to laws and regulations: see "Features" and "EMC".
7. The out case needs to be connected to PE of system when the terminal equipment in operating.
8. The output voltage can be adjusted by the ADJ, clockwise to increase.
9. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing."/"/ ATTENTION: Double pôle/fusible sur le neutre. Débrancher l'alimentation avant l'entretien.
10. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.
11. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment.