

Embedded Switch Mode Power Supplies (SMPS)

FEATURES

- Universal 85 - 264V AC or 120-370 VDC
- 150% peak load output for 3 seconds
- Active PFC
- Slimline design: width 41mm
- Efficiency up to 94%
- DC OK function
- Operating temperature range - 40°C to +70°C
- DC ON output status indicator LED
- Output short circuit, over-current, over-voltage protection.
- EMI performance meets. CISPR32 / EN55032 CLASS B
- Safety according to IEC/EN/UL62368, UL61010, UL508

RS PRO Embedded Switch Mode Power Supplies

- 220-5407
- 220-5408
- 220-5409



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.

Embedded Switch Mode Power Supplies (SMPS)

Product Description

AC-DC DIN rail power supply suitable for a wide range of Industrial, Machinery and Instrumentation applications. Featuring a universal AC input this cost-effective, slimline design is available in a range of standard outputs. Complying with International and European EMC and safety standards IEC/EN/UL62368, UL61010, UL508

General Specifications

Model	AC-DC 240W power supply
Mounting Type	DIN Rail mount
MTBF	MIL-HDBK-217F@25°C > 300,000 h
Applications	Industrial control systems, instrumentation and machinery equipment

RS Stock#	Input Voltage	Output Voltage	Output Current	Adj'range (V)	Wattage	Transient Output Power*3S	Efficiency (Typ)
2205407	85 to 264V ac 120 to 370V dc	12V	16A	12-14V	192W	288W	92%
2205408	85 to 264V ac 120 to 370V dc	24V	10A	24-28V	240W	360W	94%
2205409	85 to 264V ac 120 to 370V dc	48V	5A	48-53V	240W	360W	94%

Input Specifications

Input Specification	
Voltage Range	85 to 264V ac, 120 to 370V dc
Frequency	47 to 63Hz
AC Current Rating	3A/115V ac, 1.5A/230V ac
Inrush Current	15A/ 115V ac, 30A / 230V ac
Leakage	<0.5mA
Power Factor	0.98 115Vac, 0.94 230Vac
Standby power consumption	4W

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Output Specifications

Output Specification			
RS Stock No	2205407	2205408	2205409
Output voltage	12V	24V	48V
Trim range	12-14V	24-28V	48-53V
Rated Current	16A	10A	5A
Ripple & Noise (max.) *	100mV	120mV	150mV
Rated Power	192W	240W	240W
Peak output power 3S	288W	360W	360W
Line Regulation typ.	±0.5%	±0.5%	±0.5%
Load Regulation typ.	±1%	±1%	±1%
Max Capacitive load μ F	160,000 μ F	40,000 μ F	10,000 μ F
Minimum Load	0%	0%	0%

Hold Up Time (Typ)	20ms				
DC OK Signal*	30VDC/1A Max				
Over Voltage Protection	12V output \leq 18V (Output voltage turn off, re-power on for recover)				
	24V output \leq 35V (Output voltage turn off, re-power on for recover)				
	48V output \leq 60V (Output voltage turn off, re-power on for recover)				
Over-current Protection	Normal temperature, high temperature	110% - 200% I _o , self-recovery			
	Low temperature	\geq 105% I _o , self-recovery			
Short Circuit Protection	Constant current, continuous, self-recovery				
Over-temperature Protection	230VAC, rated load	Min	Typ	Max	°C
		-	80	-	
Isolation	3KVAC				

Note: 1.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47 μ F electrolytic capacitor and 0.1 μ F ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information; 2.*DC OK Signal: When the output voltage is normal, the relay is connected. When the output voltage is abnormal ($<$ 90%V_o), the relay is disconnected.

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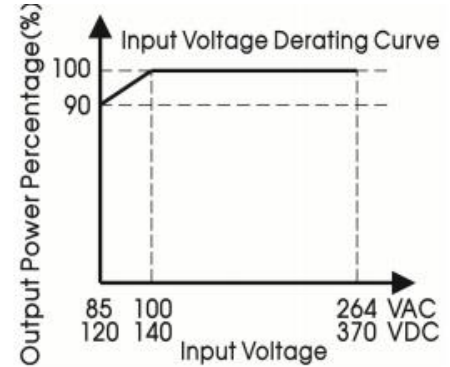
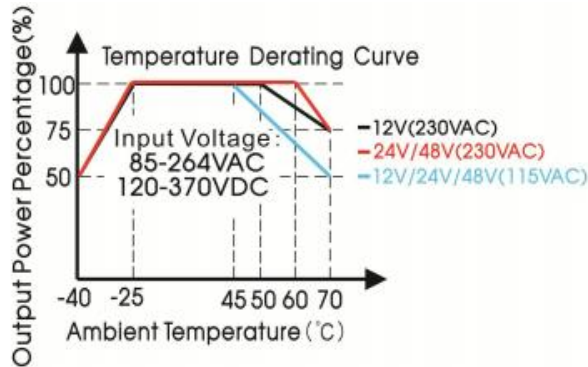


General Specifications

Item		Operating Conditions			Min	Typ	Max.	Unit
Isolation	Input-Output	Electric strength test for 1min., leakage current <15mA			3000	-	-	VAC
	Input-Earth				2000	-	-	
	Output-Earth				500	-	-	
Insulation Resistance	Input-Earth	At 500VDC			50	-	-	MΩ
	Input-Output				50	-	-	
	Output-Earth				50	-	-	
Operating Temperature					-40	-	+70	°C
Storage Temperature					-40	-	+85	
Storage Humidity		Non-condensing			-	-	95	%RH
Operating Humidity					-	-	95	
Power Derating	Operating temperature derating	-40 to -25°C			3.34	-	-	% / °C
		+45 to +70°C	115VAC		2.0			
		+50 to +70°C	12V	230VAC	1.25	-	-	
		+60 to +70°C	24V	230VAC	2.5	-	-	
		+60 to +70°C	48V	230VAC	2.5			
	Input voltage derating	85VAC-100VAC			0.67	-	-	%/VAC
Safety Standard					Meet IEC/EN/UL62368/UL61010			
Safety Certification					EN62368/UL61010			
Safety Class					CLASS I (PE and must be connected)			
MTBF		MIL-HDBK-217F@25°C			> 300,000 h			

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Derating



Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

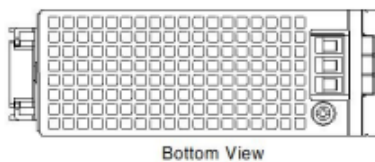
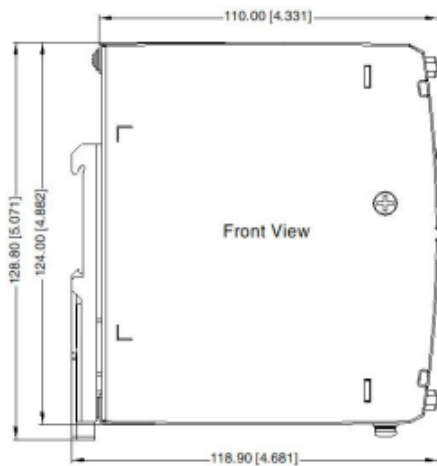
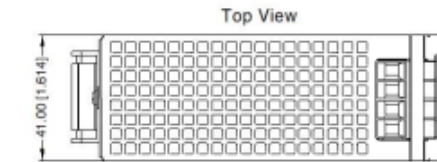
EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic Current	IEC/EN61000-3-2 CLASS D	
Immunity	ESD	IEC/EN 61000-4-2 Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	Perf. Criteria A
	RS	IEC/EN 61000-4-3 10V/m	Perf. Criteria A
	EFT	IEC/EN 61000-4-4 $\pm 2\text{KV}$	Perf. Criteria A
	Surge	IEC/EN 61000-4-5 line to line $\pm 2\text{KV}$ /line to ground $\pm 4\text{KV}$	Perf. Criteria A
	CS	IEC/EN61000-4-6 10 Vr.m.s	Perf. Criteria A
	DIP (AC input)	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B

Mechanical Specifications

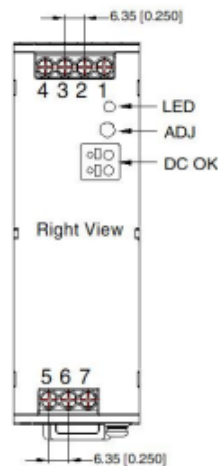
Case Material	Metal (AL1100, SPCC) and Plastic (PC940)
Dimensions	124.00 x 41.00 x 110.00mm
Weight	650 (Typ.)
Cooling Method	Free air convection

Dimensions and recommended layout



THIRD ANGLE PROJECTION

Pin-Out	
Pin	Mark
1	-Vo
2	-Vo
3	+Vo
4	+Vo
5	AC(N)
6	AC(L)
7	



Note:

Unit: mm[inch]

ADJ: Output adjustable resistor

Wire range: 26-10 AWG

Tightening torque: Max 0.4 N·m

Mounting rail: TS35, rail needs to connect safety ground

General tolerances: $\pm 1.00[\pm 0.039]$



Approvals

Safety Standards	Meet IEC/EN/UL62368/UL61010
Safety Certification	EN62368/UL61010 (Pending)
Safety Class	Class I (PE and must be connected)

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. Products are related to laws and regulations: see "Features" and "EMC".
6. The out case needs to be connected to the earth of system when the terminal equipment in operating.
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.