RLH Industries, Inc.

### DATA SHEET

The leader in rugged fiber optic technology.

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C E MRÓHS

# RSPC Series DIN Rail AC/DC 48V Power Supplies

### RUGGED INDUSTRIAL POWER SUPPLY

The RSPC 48V series is a family of high performance industrial DIN-rail power supplies for harsh environments. These compact modules are the best choice for reliable industrial systems and machines. For system applications all models provide a Power-Good signal.

The RSPC 48V series power supplies complies with the latest safety and EMC standards for industrial environments and include ATEX EN 60079 certification for applications in hazardous locations.

When used in combination with the optional battery charge controllers and battery packs, RSPC power supplies make a compact and reliable UPS system.



#### Environment

Rugged metal case for harsh industrial environments Wide operating temperature -25°C  $\sim$  +70°C (-13°F  $\sim$  +158°F )

#### Power

Selectable input voltage range 100-120VAC / 220-240VAC 240W and 480W 48VDC output power systems Output voltage adjustable

#### Benefits

Overload and over-temperature protection Power boost up to 120% Power-Good signal Shock and vibration proof

#### Compliances

REACH ROHS International safety approval package



RSPC Series DIN Rail AC/DC Power Supplies

#### **Dimensional Information**





Model	Width (W)	Height	Depth (D)	Weight
240 Watt	2.36"	4.33"	4.33"	750g
480 Watt	5.61"	4.33"	4.53"	1950g

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### Setting Input Voltage Switch

#### 115/230VAC Input Voltage Switch

Set the input power switch before attaching wires.

Setting	Voltage Range	
115VAC	85-132VAC	115W
230VAC	187-264VAC	230V/



### Connection Terminals

#### **AC Input Terminals**

The AC input terminals are identified by the products label. View the chart below for a sample wiring.





#### **DC Output Terminals**

The DC output terminals are identified by the products label. View the chart below for the sample wiring.





### Connection and Ambient Conditions

Operating Temperature Range (with natural air convection cooling)	-25°C up to +70°C (-13°F to +158°F)				
Output Power Derating	Above +60°C up to +70°C ambient temperature $\rightarrow$ 2.5%/°K Below 100VAC input voltage $\rightarrow$ 3.3%/V Above Vout nominal $\rightarrow$ 2.5%/V (>48V)				
Boost Power	120% (max) of rated output power for unlimited time				
Boost Power Operating Temp. Range (with natural air convection cooling)	-25°C up to +50°C (-13°F to +122°F)				
<b>Output Power Derating in Boost Power</b> (below +50°C operating ambient temperature and Vout nominal only)	Below 100VAC input voltage $\rightarrow$ no Boost Power Between 187VAC and 220VAC input voltage $\rightarrow$ 0,6%/V Above Vout nominal $\rightarrow$ no Boost Power				
Storage Temperature Range	-40°C to +85°C max (-40°F to +185°F max)				
Wire Recommendation	Input AWG: 17 - 10				
	Output AWG: 16 - 10				
Connections	Screw type terminals. Recommended tightening torque 0.5Nm to 0.6Nm				
Signal Connector	2-pin Terminal for Phoenix Contact MC 1,5/2-ST3,5 (AWG: 28 - 14)				
Protective Earth	The non-fused protective earth connection must be connected to the input connector terminal (protection class 1)				
Case Material	Aluminum (chassis) and stainless steel (cover); IP20				
Mounting Position	Vertical on DIN rail, optimal cooling performance must be observed. Leave a free space of minimum 50mm (2in.) above and below the power supply.				

# General Specifications

Temperature Ranges	Operating	-25°C to +70°C (-13°F to +158°F ) max			
	Output current derating above 60°C ambient	2.5% / °C			
	Storage (non operating)	-40°C to +85°C (-40°F to +185°F ) max			
Cooling	Convection cooling, no internal fan				
Humidity non condensing	95% rel. H max				
Temperature Coefficient	0.02% /K				
Efficiency	85-93%				
Reliability, Calculated MTBF	RSPC-240-48 models >1.7 Mio h				
at +25°C - IEC-61709	RSPC-480-48 models >1.4 Mio h				

## Input Specifications

Input Voltage	Nominal ranges (selected by voltage switch	h) 100-120 / 220-240VAC		
	Effective ranges	85-132 / 187-264VAC		
	Output power derating at input <100VA	AC 3.3 %/V		
Input Voltage Frequency	47-63Hz			
Harmonic Limits	EN61000-3-2			
Holdup Time	10 ms min.			
Inrush Current	40A			
Recommenced circuit breaker,	RSPC-240-48 models 10.0 - 16.0	AC		
Character C or fuse, slow blow type	RSPC-480-48 models 16.0 - 25.0	AC		
Rated Current	See Ordering Information section for each models rated current.			

# **Output Specifications**

Output Voltage Adj. Range	48-56VDC	Output power derating ab	above 48VDC: 2.5%/V		
Boost Output Current	120% continuous at <+50°C ambient temperature				
	- Power derating above 50°C ambient temp.		2%/°C		
	- Power derating at input <115VAC		1.3%/V		
	- Power derating at input <220VAC		0.6%/V (at upper input voltage range)		
Regulation	Input variation		1% max		
	Load variation (0-100%)		1% max		
Ripple and Noise (20MHz bandwidth)	100mVp-p typ. (200mVp-p max.)				
Overload Protection	120-140% of lout nom. constant current				
Short Circuit Current	90% of lout nom. (typ.	), foldback			
<b>Output Overvoltage Protection</b>	45V				
Over-temperature Protection	Switch off at over-temperature, automatic restart				
Power Back Immunity	63V (65V for 1 sec.)				
Power OK Signal	Trigger threshold	42.0 - 45.0V			
	Output Signal	Open collector 5mA max.			

### Safety and Compliance Information

Safety Standards	EN 50178, EN 60204-1, EN 61558-2-6, EN 61558-2-16, EN 60079-15 II3G EX nA IIC T4		
Environmental Compliance	Reach		
	ROHS		
Electromagnetic Compatibility	Emissions	EN 61000-6-3, EN 61204-3	
(EMC)	Immunity	EN 61000-6-2, EN 61204-3	
Class of Protection	Safety Class 1 (IEC 536)		
Degree of protection	IP 20 (IEC/EN 60529)		
Enclosure Material	Aluminum (chassis) / stainless steel (cover)		

### Ordering Information

Rated Output Power Max.	Part Number	Rated Output	Output Voltage Adjustment Range **	Recommended Circuit Breaker (Characteristic C)	Rated Inp @ V 100VAC	ut Current IN = 240VAC	AC-Input Voltage Range
240 Watt	RSPC-240-48	48VDC / 5.0A	48 - 56VDC	10-16A	5.4A	2.4A	* Rated 100 – 220 / 220-240VAC 50 – 60Hz
480 Watt	RSPC-480-48	48VDC / 10A	48 - 56VDC	16-25A	9.1A	4.1A	* Operational 85 – 132 / 187- 264VAC 47 – 63Hz

\* The Input voltage tolerance is  $\pm 10\%$  of rated voltage.

\*\* The Output is adjustable by potentiometer with an insulated screwdriver.

If the output voltage is higher than nominal, the maximum output current should be reduced.



Please contact your RLH sales representative for pricing and delivery information.

Specifications subject to change without notice.