



**Features**

- 1 bay / 10 bay desktop charger (others on request)
- Constant Current and voltage regulation (CCCV)
- Charges Lithium- and Nickel-based batteries
- 20W maximum charging power
- 16.8V maximum charging voltage
- 2.2A maximum charging current
- Battery temperature monitoring
- Resistor based battery identification
- Battery identification/monitoring using single-wire battery fuel gauge and monitor ICs (HDQ or 1-wire)

**Applications**

- Customized charging station for battery packs or mobile devices used in industry, medical and consumer areas

**Specification**

Input		
	MIC01	MIC10
Voltage range	90 - 264VAC	
Frequency range	47 - 63Hz	
Input power	tbd	tbd
Standby power	tbd	tbd
Input fuse	tbd	tbd

Output (per bay)		
	MICxxA	MICxxB
Voltage	0 - 8.4V	0 - 16.8V
Current	<2.2A	<1.2A
Power	20W max.	
Voltage tolerance	±1% max.	
Current tolerance	±5% max.	
Leakage current	< 1mA	
Ripple & Noise <sup>(1)</sup>	< 120mV <sub>pk-pk</sub>	
Protection	Short circuit Over temperature shutdown Reverse polarity	

Environmental	
Cooling	convection cooled
Temperature	Operating: -20°C to 40°C Non-operating -40°C to 85°C
Altitude	Operating: 1060hPa to 795hPa -382m to 2000m Non-operating: 1060hPa to 572hPa -382m to 4570m
Humidity	5 to 95% r.H., non-condensing

General		
Input connector	MIC01 IEC60320 C8 (2-pin)	MIC10 IEC60320 C14 (3-pin)
Efficiency <sup>(2)</sup>	typical 80% at 100% load	
Green procurement	RoHS2002/95/EC WEEE 2002/96/EC	
MTBF	> 250000h at 25°C and full load per MIL-HDBK 217F	
Indicator	Battery status LED (green/red) Power LED (green)	

**Notes**

- Datasheet subject to change without notice.
1. Measured with a 0.1µF ceramic and a 47µF tantalum capacitor across the output terminals. The oscilloscope bandwidth is set at 20MHz a co-axial cable will be used to measure it. The test condition is maximum load.
  2. Power losses of input and output cables are not considered here.
  3. The rms method is used for leakage current measurements.
  4. xx=number of bays

**Charge phases and Indicators**

Charge phase	Description	Battery Status LED Indicator	
		Green	Red
Pre-charge	Until the battery voltage is lower than a specified threshold (deeply discharged) it is charged with a low current.	FLASHES	
Fast charge	When charging nickel based batteries, the charger delivers a constant current (CC) to the battery. When charging LiIon batteries the CC phase is followed by a constant voltage phase (CV). Once the battery voltage is close to the regulated charge voltage the charging current decreases.	FLASHES	
Top-off charge	Top-off charge completes the charging process. Selectable only for NiMH/NiCd batteries for achieving maximum capacity.	FLASHES	
Standby / Battery full		ON	
Failure			ON

Charge phases, battery dependent threshold values and LED patterns can be modified to fit a variety of specifications. Please contact RRC.

**Charge termination methods**

NiCd	-ΔV	At the end of the charging process the battery voltage decreases slightly. Fast charging is terminated if the voltage drop is higher than a specified threshold
NiMH	d <sup>2</sup> V/dt <sup>2</sup> dT/dt	This fast charge termination method detects the inflexion point of the charge voltage curve. Charging process is terminated if the rate at which the battery temperature increases during constant-current charging is higher than a specified threshold. Temperature gradient threshold is adjustable
LiIon LiPolymer	I <sub>Cutoff</sub>	If the charging current goes lower than a set threshold the battery charging process is terminated.
All chemistries	Timer TCO	Terminate the charge process based on a safety timer Charge process stops if the temperature is out of a specified safety window.

**Safety & EMC**

Insulation class		II		
Earth leakage current <sup>(3)</sup>		NA		
Enclosure / Touch leakage current <sup>(3)</sup>		<100μA		
Safety standards		ITE version IEC60950-1	Household version IEC60335-2-29	Medical version IEC60601-1
Electromagnetic Emissions	Europe USA International	EN55022, level B FCC15 class B CISPR 22, level B		
Electromagnetic Immunity	ESD immunity Radiated immunity EFT / Burst Surge Conducted Immunity Magnetic Fields	EN/IEC61000-4-2, 4/8kV, performance criteria B EN/IEC61000-4-3, 3V/m, performance criteria A EN/IEC61000-4-4, 1kV, performance criteria B EN/IEC61000-4-5, 1kV, performance criteria B EN/IEC61000-4-6, 10V, performance criteria A EN/IEC61000-4-8, 1A/m, performance criteria A		
Regulatory approvals	Europe USA Japan International	CE cULus per UL60950 PSE CB		

**Mechanical Details**

Dimensions (LxWxH)	tbd
Weight	tbd

Germany / Headquarters	France	USA	Hong Kong / China
RRC power solutions GmbH Technologiepark 1 D-66424 Homburg / Saar	RRC power solutions SAS 4, Rue de Charenton 2/3/4, Quai Blanqui F-94140 Alfortville	RRC power solutions Inc. 19713 Yorba Linda Blvd. #207 Yorba Linda, CA 92886-3532	RRC power solutions Ltd. 9/F Park Tower 15 Austin Road Kowloon, Hong Kong
Tel.: +49 0 6841 9809-0 Fax: +49 0 6841 9809-280 E-Mail: sales@rrc-ps.de	Tel.: +33 0 1 3005 6100 Fax: +33 0 1 3005 6101 E-Mail: france@rrc-ps.com	Tel.: +1 714 777 3604 Fax: +1 714 777 3658 E-Mail: usa@rrc-ps.com	Tel.: +852 0 2376 0106 Fax: +852 0 2376 0107 E-Mail: hkrrc@rrc-ps.cn