



MELCHER
The Power Partners.

a bel power solutions brand

RCM500/1000 Series

500/1000 W DC-DC Converters



The RCM500 and RCM1000 Series converters are reliable power supplies for railway and transportation systems. They are optimized for 72 or 110 V railway batteries. The output delivers 24 V with 500 or 1000 W. The converters are designed for chassis mounting and exhibit a closed housing with cooling openings.

Many options are available, such as an output ORing FET for redundant operation, output voltage adjustment, interruption time of 10 ms, shutdown input, and a monitoring relay (change-over contact).

Features

- Optimized for 72 V or 110 V railway batteries
- Output voltage 24 V
- Closed housing for chassis mounting
- Extremely high efficiency and high power density
- Low inrush current
- 3 connectors: Input, output, auxiliary (option)
- Overtemperature, overvoltage, overcurrent, and short-circuit protection
- Many options available
- Compliant to EN 50155, EN 50121-3-2, AREMA
- RoHS-compatible for all 6 substances
- Fire and smoke: compliant to EN 45545 and NFPA 130
- 5 year warranty

Safety-approved to the latest edition of IEC/EN 60950-1 and UL/CSA 60950-1



¹ pending

Table of Contents

Description.....	1
Model Selection.....	2
Functional Description.....	3
Electrical Input Data	4
Electrical Output Data.....	6
Description of Options	9

Electromagnetic Compatibility (EMC).....	11
Immunity to Environmental Conditions	13
Mechanical Data	14
Safety and Installation Instructions.....	15
Accessories	17

Model Selection

Table 1: Standard models

Input voltage			Output		Power	Efficiency ²		Model	Options
$V_{i min}^1$ [V]	$V_{i cont}$ [V]	$V_{i max}^1$ [V]	$V_{o nom}$ [V]	$I_{o nom}$ [A]	$P_{o nom}$ [W]	η_{min}	η_{typ} [%]		
43.2	50.4 (72) 90	110	24	21	500		96	72RCM500-24	D, M, Q, F, K
			24	41	1000		96	72RCM1000-24	
66	77 (72) 137.5	154	24	21	500	96	96.4	110RCM500-24	
			24	41	1000	96	96.4	110RCM1000-24	

¹ Short time; see table 2 for details.

² Efficiency at $T_A = 25^\circ\text{C}$, $V_{i nom}$, $I_{o nom}$, $V_{o nom}$, only option D fitted.

Part Number Description

Operating input voltage $V_{i cont}$ (continuously):

50.4 – 90 VDC 72
77 – 137.5 VDC 110

Series RCM

Output power:

500 W 500
1000 W 1000

Nominal output voltage:

24 V -24

Auxiliary functions and options:

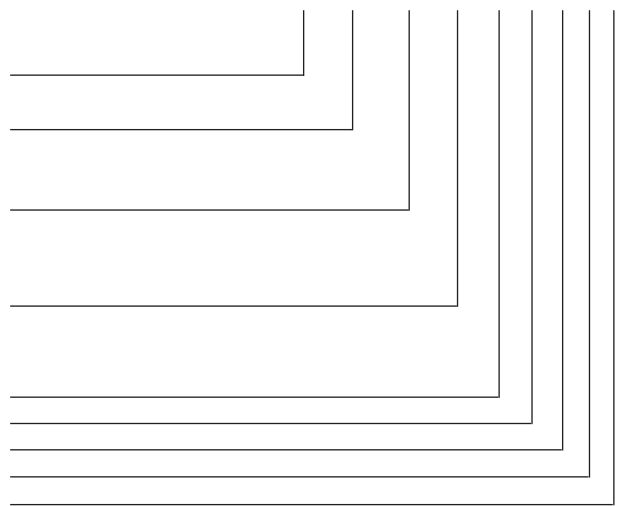
Out OK, output voltage adjust, shutdown ¹ D
Interruption time M
ORing FET Q
Fuse built-in F
Pluggable Connectors K

¹ Opt. D requires the auxiliary connector.

Note: The sequence of options must follow the order above.

Note: All models are RoHS-compliant for all six substances.

110 RCM 500 -24 D M Q F K



Available combinations of options:

72/110RCMxxx-24 (K)
72/110RCMxxx-24D (K)
72/110RCMxxx-24DF (K)
72/110RCMxxx-24DMQ (K)
72/110RCMxxx-24DMQF (K)

Example: 110RCM500-24DMQ: DC-DC converter, input voltage range 77 to 137.5V continuously, output providing 24 V / 21 A, monitoring relay, output voltage adjust, shutdown input, active current sharing, interruption time 10 ms, integrated ORing FET, RoHS-compliant for all six substances.

Product Marking

Type designation, applicable safety approval and recognition marks, CE mark, pin allocation, and product logo.

Input voltage range and input current, nominal output voltage and current, degree of protection, batch no., serial no., and data code including production site, version (modification status) and date of production.