



### ■ Features

- Compliance to EN50155 and EN45545-2 railway standard
- Ultra compact and 1U low profile(25mm)
- 4:1 wide input range
- No minimum load required
- Protections: Short circuit / Overload / Over voltage / Input reverse polarity
- 4000VDC I/O isolation
- Half encapsulated , cooling by free air convection
- -40~+70°C wide working temperature
- Built-in constant current limiting circuit
- LED indicator for power on
- 3 years warranty

### ■ Applications

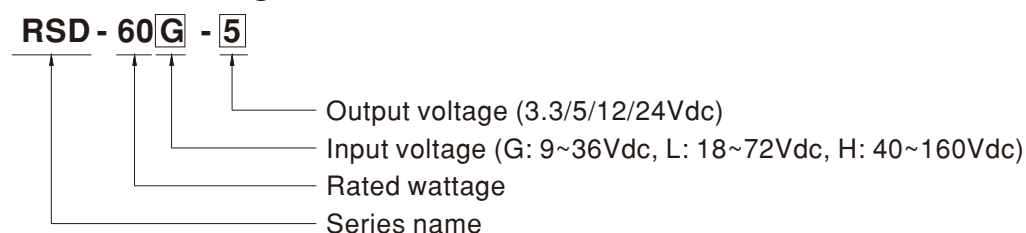
- Bus, tram, metro or railway system
- Highly vibrating, highly dusty, extremely low or high temperature harsh environment
- Wireless network
- Telecom or datacom system
- Industry control system

### ■ Description

RSD-60 is a 60W enclosed type DC-DC reliable railway converter. This series is compliant with EN50155/ IEC60571 railway standard, constituting three types of models with 4:1 wide but different input ranges 9~36V/18~72V/40~160V, suitable for railway and all kinds of transportation systems exploiting the frequently used standard input voltages such as 12V, 24V, 36V, 48V, 72V, 96V and 110V. Various output voltages, 3.3V, 5V, 12V and 24V are available for selection.

This series has the capability of working under -40~+70°C, low ripple and noise, supreme EMC characteristics, 4KVDC I/P-OP, low enclosure profile 25mm and an interior with semi-potted silicone. It does not only well fits the in-car systems or the facilities by rails for railway, trams and buses but also can be used in the harsh environment with high vibration, high dust, extremely low or high temperature, etc.

### ■ Model Encoding





**SPECIFICATION**

MODEL	RSD-60G-3.3	RSD-60G-5	RSD-60G-12	RSD-60G-24	RSD-60L-3.3	RSD-60L-5	RSD-60L-12	RSD-60L-24		
OUTPUT	DC VOLTAGE	3.3V	5V	12V	24V	3.3V	5V	12V	24V	
	RATED CURRENT	12A	12A	5A	2.5A	12A	12A	5A	2.5A	
	CURRENT RANGE	0 ~ 12A	0 ~ 12A	0 ~ 5A	0 ~ 2.5A	0 ~ 12A	0 ~ 12A	0 ~ 5A	0 ~ 2.5A	
	RATED POWER	39.6W	60W	60W	60W	39.6W	60W	60W	60W	
	RIPPLE & NOISE (max.) Note.2	60mVp-p	100mVp-p	50mVp-p	50mVp-p	60mVp-p	80mVp-p	50mVp-p	50mVp-p	
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.3%	±0.2%	±0.5%	±0.5%	±0.3%	±0.2%	
	LOAD REGULATION	±0.5%	±0.5%	±0.3%	±0.2%	±0.5%	±0.5%	±0.3%	±0.2%	
	SETUP, RISE TIME	100ms, 60ms at full load								
HOLD UP TIME (Typ.)	G type comply with S1 level(3ms) @full load, S2 level(10ms) @50% load; L type comply with S2 level(10ms) @full load									
INPUT	VOLTAGE RANGE CONTINUOUS	9 ~ 36VDC				18 ~ 72VDC				
	EFFICIENCY (Typ.)	86.5%	88%	92%	90%	88.5%	89%	93%	92%	
	DC CURRENT (Typ.)	2.1A/24VDC 3A/24VDC				0.95A/48VDC 1.5A/48VDC				
	INRUSH CURRENT (Typ.)	20A/24VDC				20A/48VDC				
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	4.3 ~ 4.95V	5.75 ~ 7V	13.8 ~ 16.2V	27.6 ~ 32.4V	4.3 ~ 4.95V	5.75 ~ 7V	13.8 ~ 16.2V	27.6 ~ 32.4V	
ENVIRONMENT	WORKING TEMP.	-40 ~ +55°C (no derating) ; +70°C @ 60% load by free air convection ; +70°C (no derating with external base plate)								
	WORKING HUMIDITY	5 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing								
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)								
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes ; Mounting : compliance to IEC61373								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	Meet IEC60950-1 (LVD)								
	WITHSTAND VOLTAGE	I/P-O/P:4KVDC I/P-FG:2.5KVDC O/P-FG:2.5KVDC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH								
	EMC EMISSION	Parameter		Standard			Test Level / Note			
		Conducted			EN55011			Class A		
					EN55032			Class B		
		Radiated			EN55011			Class A		
					EN55032			Class B		
		Harmonic Current			EN6100-3-2			Class A		
	Voltage Flicker			EN6100-3-3			-----			
	EMC IMMUNITY	Parameter		Standard			Test Level / Note			
		ESD		EN61000-4-2			Level 3, ±8KV air ; Level 3, ±6KV contact			
		Radiated Field		EN61000-4-3			Level X			
EFT / Burst		EN61000-4-4			Level 3, 2KV at power Level 4, 2KV at signal					
Surge		EN61000-4-5			Level 3, 1KV Line-Line, Level 3, 2KV Line-Earth					
Conducted		EN61000-4-6			Level 3					
RAILWAY STANDARD	Compliance to EN45545-2 for fire protection ; Meet EN50155 / IEC60571 including IEC61373 for shock & vibration, EN50121-3-2 for EMC									
OTHERS	MTBF	593.8K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	128*60*25mm (L*W*H)								
	PACKING	0.29Kg; 48pcs/14.9Kg/0.76CUFT								
NOTE	<ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 24,48VDC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</li> <li>Strongly recommended that external output capacitance should not exceed 5000uF.</li> </ol>									