30W Reliable Railway DC-DC Converter

RSD-30 series

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 (reinforced isolation)
- Half encapsulated , cooling by free air convection
- -40~+70℃ wide working temperature
- Built-in constant current limiting circuit
- LED indicator for power on
- 3 years warranty

Applications

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

Description

RSD-30 is a 30W 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℃, 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

RSD - 30 G - 5

- 5 — Output voltage (3.3/5/12/24Vdc)
- G — Input voltage (G: 9~36Vdc, L: 18~72Vdc, H: 40~160Vdc)
- 30 — Rated wattage
- RSD — Series name

SPECIFICATION

MODEL		RSD-30G-3.3	RSD-30G-5	RSD-30G-12	RSD-30G-24	RSD-30L-3.3	RSD-30L-5	RSD-30L-12	RSD-30L-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	24V	3.3V	5V	12V	24V
	RATED CURRENT	6A	6A	2.5A	1.25A	6A	6A	2.5A	1.25A
	CURRENT RANGE	0 ~ 6A	0 ~ 6A	0 ~ 2.5A	0 ~ 1.25A	0 ~ 6A	0 ~ 6A	0 ~ 2.5A	0 ~ 1.25A
	RATED POWER	19.8W	30W	30W	30W	19.8W	30W	30W	30W
	RIPPLE & NOISE (max.) Note.2	70mVp-p	70mVp-p	60mVp-p	50mVp-p	70mVp-p	70mVp-p	60mVp-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	120ms, 85ms at full load							
	HOLD UP TIME (Typ.)	G type comply with S1 level(3ms) @full load,S2 level(10ms) @80% load; L type comply with S2 level(10ms) @full load							
INPUT	VOLTAGE RANGE CONTINUOUS	9 ~ 36VDC				18 ~ 72VDC			
	EFFICIENCY (Typ.)	84%	85%	86.5%	89%	84%	86%	90%	91%
	DC CURRENT (Typ.)	1.1A/24V	1.5A/24V			0.52A/48V	0.8A/48V		
	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	3.8 ~ 4.5V	5.75 ~ 7V	13.8 ~ 16.2V	27.6 ~ 32.4V	3.8 ~ 4.5V	5.75 ~ 7V	13.8 ~ 16.2V	27.6 ~ 32.4V
		Protection type : Shut down o/p voltage, re-power on to recover							
ENVIRONMENT	WORKING TEMP.	-40 ~ +55℃ (no derating) ; +70℃ @ 60% load by free air convection ; +70℃ (no derating with external base plate)							
	WORKING HUMIDITY	5 ~ 95% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)							
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes ; Mounting : compliance to IEC61373							
SAFETY & EMC (Note 4)	SAFETY STANDARDS	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℃/ 70% RH							
	EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**					
		Conducted	EN55032	Class A					
		Radiated	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 ; EN50155 / IEC60571 including IEC61373 for shock & vibration, EN50121-3-2 for EMC							
OTHERS	MTBF	396.9K hrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	113*60*25mm (L*W*H)							
	PACKING	0.25Kg; 56pcs/15Kg/0.83CUFT							

NOTE

1. All parameters NOT specially mentioned are measured at 24,48VDC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. 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 http://www.meanwell.com)
5. Strongly recommended that external output capacitance should not exceed 5000uF.