

DC-DC CONVERTER USB20-W/G

RAILWAY CONVERTER.

FOR CHASSIS MOUNTING



HIGHLIGHTS

- + Output Power up to 20 Watts*
- + Supports all mobile devices
- + Efficiency up to 87%
- + Ultra Wide Input Range
- + Wide Temperature Range
- + Hold-up-time > 10ms
- + RoHS compliance
- + According to EN50155

INPUT

Input Voltage Nominal	24, 36, 48, 72 and 110 VDC
Input Voltage Operating	16,8-137,5 VDC
Input Voltage Range	14,4-154 VDC (t ≤ 1,0 sec.)
No Load Input Current	See table page 2

OUTPUT

Output Voltage	5,0 V
Output Current	2 x 2A (full load for each USB-Output)
Initial Set Accuracy	< 2 % (no load)
Minimum Load	No minimum load
Short circuit	Continuous short circuit proof
Line Regulation	< 0,5 %
Load Regulation	< 2 % (0% - 100% load)
Ripple & Noise	< 2 % pk-pk, 20 MHz bandwidth
Start Time	< 900 ms
Max. Output Capacitance	500 uF x I _{out, nom}
Temperature Coefficient	< 0.01 %/°C

FEATURES

Reverse Polarity Protection	Max.160 V
Hold-up-time	> 10 ms at full load

PROTECTION

Output Over Voltage Protection (OVP)	110-130 % V _{out, nom}
Over Current Protection (OCP)	See table page 2
Over Temperature Protection (OTP)	Shutdown at +110-115°C PCB-temp. with about 5°C hysteresis and auto recovery.

GENERAL

Product Standard	EN 50155:2007
Isolation	2200 VDC Input to Output 1500 VDC Input to Earth (PE) 710 VDC Output to Earth (PE)
Switching Frequency	Typ. 120 kHz
Dimensions [mm]	(84x79x33)
Weight	(approx. 200 g)
MTBF	950.000h acc. to MIL-HDBK-217F (GB, 45°C)
Fire & Smoke	UNI CEI 11170-3 Ed.2005 + FA 2007, LR4 NF F 16-101:1988 and NF F16-102:1988, F1 I2 EN 45545-2:2016-02, HL-HL2-HL3 (R25)

ENVIRONMENTAL

Operating Ambient Temp.	-40°C to +85°C*
Storage Temperature	-40°C to +85°C
Vibration / Shock / Bump	EN 61373:1999, Cat. 1B

EMC

EMC Standard	EN 50121-3-2:2015
Conducted Emissions	EN 55011:2007+A2:2009+A1:2010, Class A**
ESD Immunity	EN 61000-4-2:2009, level 3 (6kV/8kV), Criteria A
Burst	EN 61000-4-4:2012, level 3 (2kV), Criteria A
Surge	EN 50121-3-2:2015, line to line ±1kV, 42R, and line to case ±2kV, 42R, Criteria A
Conducted Immunity	EN 61000-4-6:2014, level 3 (10V), Criteria A
Radiated Immunity	EN 61000-4-3+A1:2008+A2:2010, 20V/m, Criteria A
Safety	Design to meet EN 61204-7:2006

* +70°C continuously, +85°C max. 10 minutes. Natural convection should be assured.

** In built-in condition the devices may show different EMC properties.

TECHNICAL DATA

For $T_{amb} = 25^{\circ}C, V_{in nom}, I_{out nom}$ unless otherwise specified

SPECIFICATION Input 14,4 - 154 VDC

TYPE		USB20-W/G					
ORDER NUMBER		87 73 08 0225 6					
CHARACTERISTIC		Unit					
INPUT	Input Voltage Nominal	V	24	36	48	72	110
	Input Voltage Range	V	14,4...36	21,6...51	28,8...67,2	43,2...101	66...154
	Under Voltage Turn-on	V	<15,0...16,8				
	Under Voltage Turn-off	V	<12,0...14,4 (14,4V < V_{in} < 16,8V at $t > 1$ sec.)				
	Input Current @ Full Load	A	1,1	0,7	0,5	0,35	0,22
	Input Current @ No Load	A	0,09	0,06	0,05	0,03	0,02
	Recommended External Fuse	A	2,0				
OUTPUT			Output 1		Output 2		
	Output Voltage Nominal	V	5,0		5,0		
	Output Current Nominal	A	2		2		
	Output Power	W	10		10		
	Efficiency @ Full Load (typical)	%	83	84	84	84,5	87
	Output Current limit	A	4,0...5,0				
	Short Circuit Current (typical)		8 (pulse approx. 3Hz)*				
Transient Response 25 % / 75 % Load Step Recovery Time < 1 ms	mV	± 150					

*Peak current pulsating

MECHANICAL DETAILS

- Dimensions are in mm
- Unless otherwise specified, general tolerances $\pm 0,5$ are for values in brackets (XX)
Values not in brackets are according to ISO-2768-1m

Coating: Lackwerke Peters ELPEGUARD SL 1307-FLZ/2

