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
Saftey	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°C,$V_{in\ nom}$,$I_{out\ nom}$, unless otherwise specified

SPECIFICATION Input 14,4 - 154 VDC

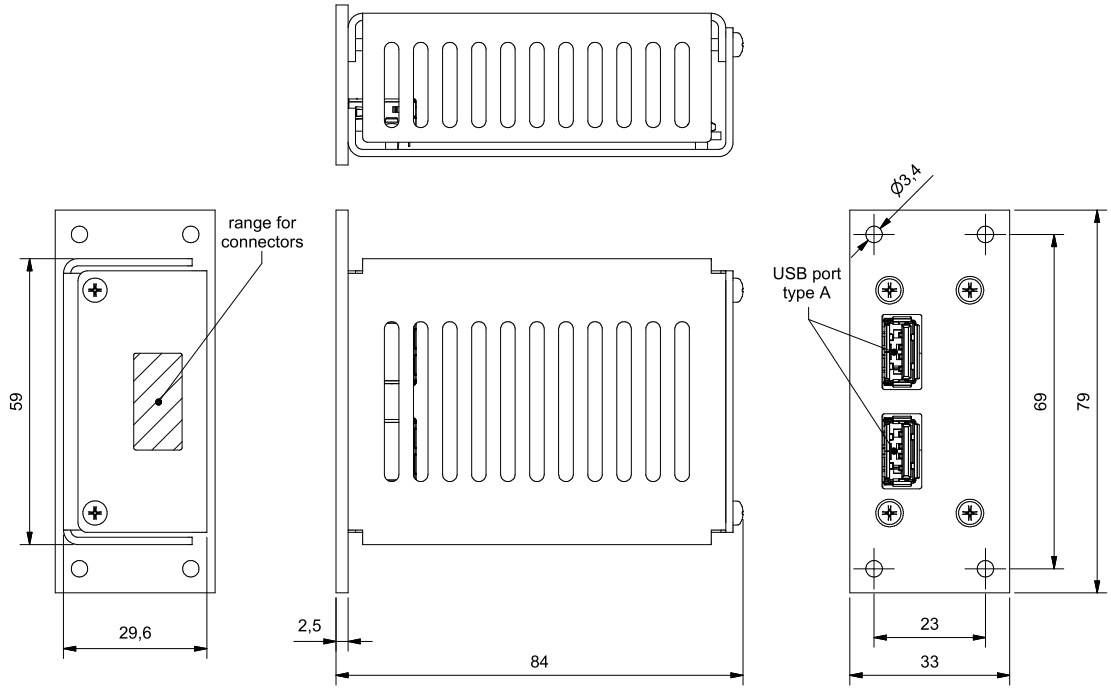
	TYPE		USB20-W/G				
	ORDER NUMBER		87 73 08 0225 6				
	CHARACTERISTIC	Unit					
INPUT	Input Voltage Nominal	V	24	36	48	72	110
	Input Voltage Range	V	14,4…36	21,6…51	28,8…67,2	43,2…101	66…154
	Under Voltage Turn-on	V	<15,0…16,8				
	Under Voltage Turn-off	V	<12,0…14,4 (14,4V < Vin < 16,8V at t > 1 sec.)				
	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

1. Dimensions are in mm
2. Unless otherwise specified, general tolerances +/-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



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