

cPCI DC/DC Converter

80 Watt

80 PCB 220 Q05 E10

$V_{In\ Nom} = 220\ V_{AC}$

$V_{O1\ Nom} = 5.0\ V, I_{O1\ Nom} = 10\ A$ $V_{O2\ Nom} = 3.3\ V, I_{O2\ Nom} = 5\ A$

$V_{O3\ Nom} = 12\ V, I_{O3\ Nom} = 0.5\ A$ $V_{O4\ Nom} = -12\ V, I_{O4\ Nom} = -0.5\ A$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT						
V_{In}	Input Voltage Range	Continuously	176	220	253	V_{AC}
$V_{In\ low}$	Switch ON		160		175	V_{AC}
	Switch OFF		150		160	V_{AC}
$V_{In\ high}$	Switch OFF		260	265	270	V_{AC}
λ	Power Factor	$V_{In} = 220\ V_{AC}, \sum P_O = 80\ W$	0.95	0.97		
f	Input line frequency		47	50	63	Hz
I_l	Leakage current			1	3	mA
I_{In}	Input Current no load	$V_{In} = 253\ V_{AC}, \sum P_O = 0\ W$		60	125	mA
	Nominal Loads	$V_{In} = 220\ V_{AC}, \sum P_O = 80\ W$		0.5		A
	Nominal Loads	$V_{In} = 176\ V_{AC}, \sum P_O = 80\ W$			0.8	A
	Switch ON Input Current Integral	$V_{In} = 253\ V_{AC}$			10	A ² s
	Input Fuse	Fuse	6 A			
C_{In}	Input Capacity Converter				100	μF
	Maximum External Line Inductivity				50	μH
	Input Reversal Protection		yes			

OUTPUT POWER

$$176\ V_{AC} \leq V_{In} \leq 253\ V_{DC}$$

$P_{O\ Nom}$	Continuously	$\sum P_O$		80		W
$P_{O\ peak}$	Short time overload capability	$t < 30\ sec$		120		W
V_{O1}	Voltage Factory Adjust		5.0	5.05	5.1	V_{DC}
ΔV_{O1}	Regulation Accuracy V_{O1} static (V_{In}, I_o, T_A, t)	$0\ W \leq P_{O1} \leq 50\ W$	$\leq 2\ \% V_{O1\ Nom}$			
V_{O2}	Voltage Factory Adjust		3.25	3.33	3.40	V_{DC}
ΔV_{O2}	Regulation Accuracy V_{O2} static (V_{In}, I_o, T_A, t)	$0\ W \leq P_{O2} \leq 17\ W$	$\leq 2\ \% V_{O2\ Nom}$			
V_{O3}	Voltage Factory Adjust		11.9	12.0	12.1	V_{DC}
ΔV_{O3}	Regulation Accuracy V_{O3} static (V_{In}, I_o, T_A, t)	$0\ W \leq P_{O3} \leq 6\ W$	$\leq 2.5\ \% V_{O3\ Nom}$			
V_{O4}	Voltage Factory Adjust		-11.9	-12.0	-12.1	V_{DC}
ΔV_{O4}	Regulation Accuracy V_{O4} static (V_{In}, I_o, T_A, t)	$0\ W \leq P_{O4} \leq 6\ W$	$\leq 3.0\ \% V_{O4\ Nom}$			
$V_{O\ pp}$	Ripple & Noise in acc. to $V_{o, nom}$	V_{O1-O4} : Nominal Loads BW 20 MHz			1.5	%
t_{on}	Set Up Time V_{O1-O4}	$0\ W \leq P_O \leq 80\ W$		50	250	ms
t_H	Hold Up Time (Input Voltage Interruption)		20			ms
I_{O1}	Output Current	V_{O1} : 5.1 V		10.0		A
I_{O2}	Output Current	V_{O2} : 3.33 V		5.0		A
I_{O3}	Output Current	V_{O3} : +12 V		0.5		A
I_{O4}	Output Current	V_{O4} : -12 V		-0.5		A
	Threshold Output Current Limit $I_{O1/O2/O3/O4}$		$110\ \% \times I_{O1/O2/O3/O4\ Nom}$			
I_{OSC}	Output Short Circuit Current		$120\ \% \times I_{O1/O2/O3/O4\ Nom}$			

Signaling

LED	V_{In}, V_{O1-4} (V_{oi} = summary signalling)	LED green at front plate LED red at front plate	ON, when V_{In} o.k. ON, when V_{oi} o.k.
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CONTROL

Enable	Converter ON: EN connected to Gnd Converter OFF: EN open	Potential ref. to output Gnd				
Inhibit	Modular Power Operation	INH# = EN# = Power status =	Low Low "OFF"	Low Open "OFF"	Open Low "ON"	Open Open "OFF"

COMMON DATAS

f_1	Switching Frequency	PFC converter		65		kHz
f_2		DC/DC converter		130		kHz
η	Efficiency	$P_O \geq 0.7 \times P_{O\ Nom}$	80	82		%
	MTBF (SN 29500)	$V_{In} = 220\ V_{AC}, P_O = 80\ W, T_A = +40^\circ C$		400 000		h
	No load & Short Circuit Approved		continuously			

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage, Clearance OV2 Port 10 Pollution Degree PD2 PCB FR4, V ₀ , T _G = + 140°C	Primary Secondary Primary Chassis Secondary Chassis	4.0 2.0 2.0			mm mm mm
	Isolation Piece Test: Ramp Function: 2s – 3s – 2s Type Test: 1Min.	Primary Secondary Primary Chassis Secondary Chassis			3000 2100 1000	V _{DC} V _{DC} V _{DC}
	Connector	Positronic Required femal plug:	PCIH47M400A1/11 PCIH47F300A1/AA			
	Protection Class, Protection Degree		I, IP 20			
	Dimensions incl. Front Plate	w x h x d (3RU / 6HP, 19" rack)	30.2 x 128.4 x 166.5			mm
	Weight			550		g

AMBIENT CONDITIONS						
T _A	Operating Temperature Range	Continuously 10 Minutes	- 40 + 00		+ 60 + 70	°C °C
T _{St}	Storage Temperature Range		- 40		+ 70	°C
	Cooling		Free Convection			
	Humidity		75% averaged per year, 95% 30 days			
	Vibration / Shock	IEC 61373, IEC 68-2-27, BN 411002 Kat. I 3 Shocks each Axis	50 m / s ² , 30 ms			

EMC			
	Radiation *)	Line & Radiated	EN 61000 – 6 – 4 A
	Immunity *)	ESD EN 61000 - 4 - 2	6 kV / 8 kV Performance Criteria - A -
		High Frequency Field EN 61000 - 4 - 3	20 V / m 80 MHz ... 2,5 GHz - Performance Criteria - A - *)
		Burst EN 61000 - 4 - 4	Level 4 asym., sym. Performance Criteria - A -
		Surge EN 61000 - 4 – 5	2 kV asym. / 1 kV sym. Performance Criteria - A -
		HF – Injection EN 61000 - 4 - 6	10 V _{eff} , R _i = 150 Ω Performance Criteria - A -

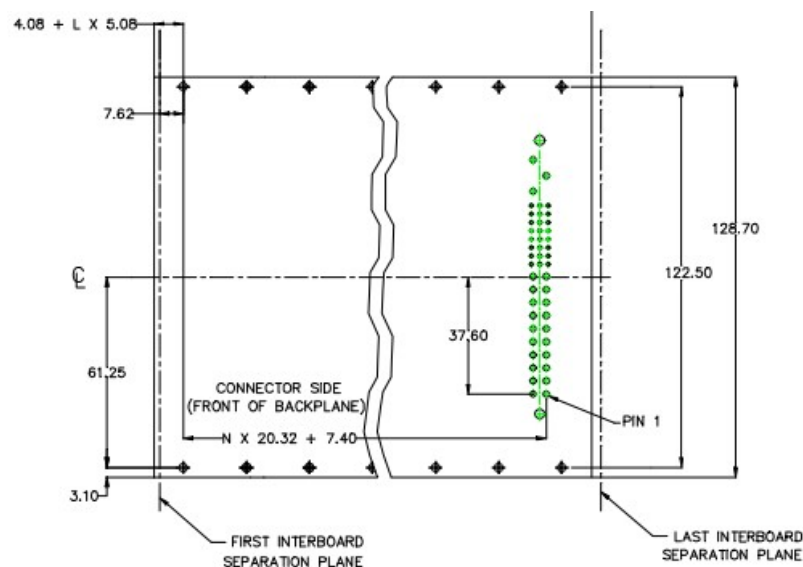
STANDARDS						
Applied Standards:	SN 29500	VDE 0106-1	EN 50124 - 1: 1996	EN 61000 - 4 - 2...6	EN 50529	
	IEC/EN 60255-5	IEC/EN 60255-6	EN 50125 - 1	EN 60068 - 2 - 6, 2...32	IEC/EN60707	
	IEC 60255-11	IEC 61373: 1999	EN 60721 - 3 - 5	IEC 60068-2-1 / 2 / 14	IEC 61373	

Technical data referenced at: - 40° C ≤ T_A ≤ + 70° C, 176 V_{AC} ≤ V_{In} ≤ 253 V_{AC}, if not otherwise specified.
 Temperature reference point: 10 cm below dc/dc converter unit. Please, consider free air convection is possible
 *) In closed housing, emission: radiated @ EN 50121-3-2, conducted @ EN 50121-3-2
 **) 1400 MHz – 2100MHz 10V/m 2100MHz – 2500MHz 5V/m 2000MHz – 2700MHz 1V/m

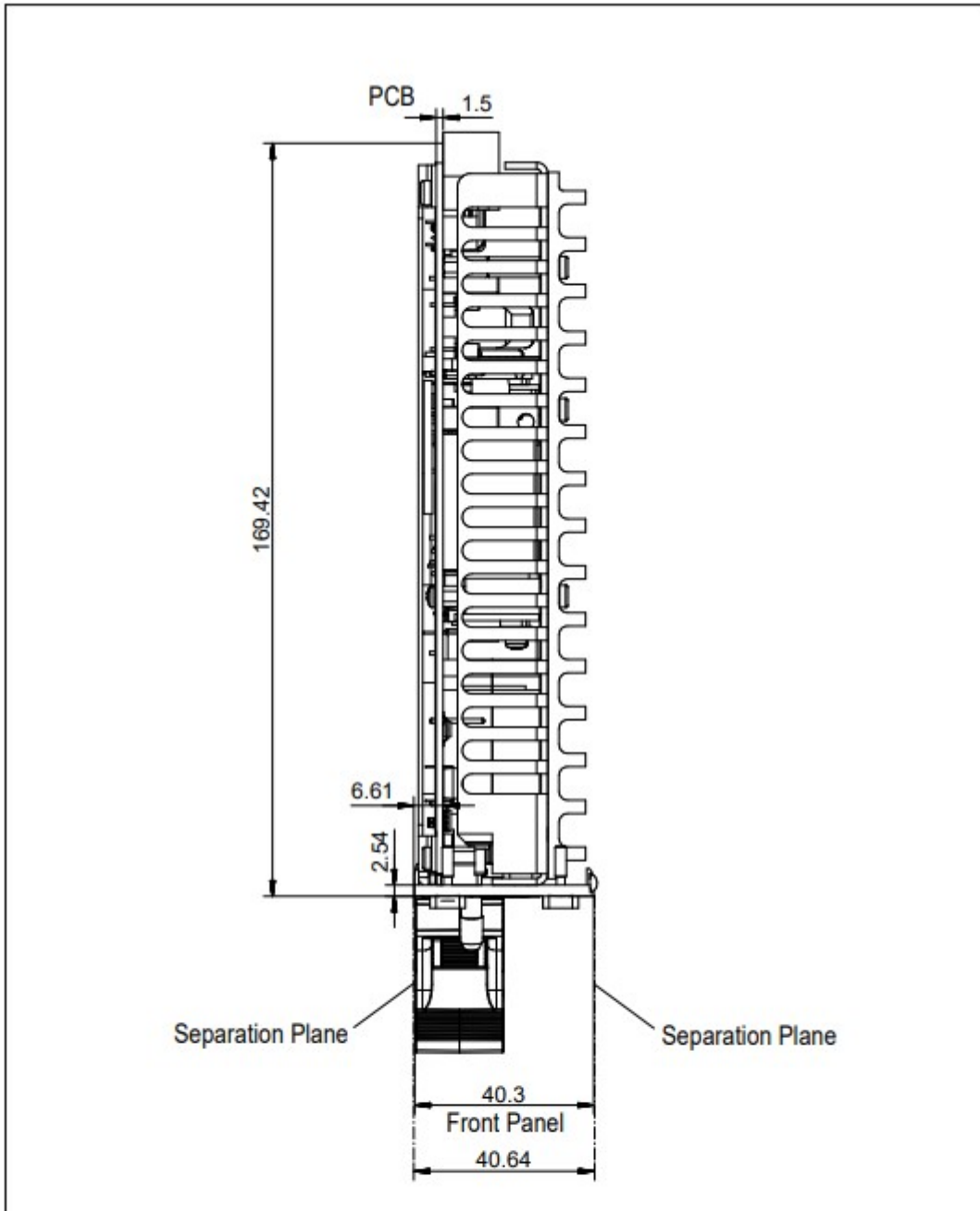
Pin assignment	
Pin	Signals Output
1-4	V ₀₁ (+ 5V)
5-12	V ₀₁ and V ₀₂ Return
13-18	V ₀₂ (+ 3,3V)
19	V ₀₃ Return
20	V ₀₃ (+ 12V)
21	V ₀₄ (- 12V)
22	Signal Return
23	reserved
24	V ₀₄ Return
26	reserved
27	EN (Enable)
29	V ₀₁ Adjust
30	V ₀₁ Sense
32	V ₀₂ Adjust
33	V ₀₂ Sense
34	Sense Return
36	V ₀₃ Sense
39	INH (Inhibit)
42	FAL (Fail Signal)
Signals Input and PE	
45	PE (chassis ground)
46	+ AC Input (L)
47	- AC Input (N)

Pin 25,28,31,35,37,38,40,41 n.c.

Mechanical drawing backplane



Note, that the slot in the card guide and injector/ejector PCB mounting surface are shifted 2,54 mm to the right respect to the front panel keying and alignment pin.



Dimensions in mm

Schutzvermerk nach DIN 34	Maßstab	Gewicht	Oberfläche		Werkstoff	Freimaßtoleranz DIN 2768m	
			Datum	Name	Bezeichnung		
			Bearb. 01.06.17	Römer	80 PCB 220 Q05 E10		
			Gepr.		Cross Section		
			Norm		Artikelnummer		Blatt
					1502-01		1
Zust.	Änderung	Datum	Name	Ers. für:			Blätter
							1

