



CPCI-PS24

24V-Power Supply



Hardware Manual

to Product I.2301.21



NOTE

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Document History

The changes in the document listed below affect changes in the hardware as well as changes in the description of the facts, only.

Revision	Chapter	Changes versus previous version	Date
-	-	First draft	2012-09-12

Technical details are subject to change without further notice.



Safety Instructions

- When working with CPCI-PS24 follow the instructions below and read the manual carefully to protect yourself from injury and the CPCI-PS24 from damage.
- The device is a built-in component. It is essential to ensure that the device is mounted in a way that can not lead to endangering or injury of persons or damage to objects.
- The device has to be securely installed in the CPCI rack before commissioning.
- Protect the CPCI-PS24 from dust, moisture and steam.
- Protect the CPCI-PS24 from shocks and vibrations.
- The CPCI-PS24 may become warm during normal use. Always allow adequate ventilation around the CPCI-PS24 and use care when handling.
- Do not operate the CPCI-PS24 adjacent to heat sources and do not expose it to unnecessary thermal radiation. Ensure an ambient temperature as specified in the technical data.
- Do not use damaged or defective cables to connect the CPCI-PS24.
- Current circuits which are connected to the device have to be sufficiently protected against hazardous voltage (SELV according to EN 60950-1).
- The CPCI-PS24 may only be driven by power supply current circuits, that are contact protected.
- The input of the unit is not internally fused. An external fuse of 8 A is recommended.
- If the installation requirements are different as listed above, please contact the esd support.



Attention !

Electrostatic discharges may cause damage to electronic components.

To avoid this, please perform the steps described on page 7 *before* you touch the CPCI-PS24, in order to discharge the static electricity from your body.

Qualified Personal

This documentation is directed exclusively towards personal qualified in control and automation engineering. The installation and commissioning of the product may only be carried out by qualified personal, which is authorized to put devices, systems and electric circuits into operation according to the applicable national standards of safety engineering.

Conformity

The CPCI-PS24 is an industrial product and meets the demands of the EU regulations and EMC standards printed in the conformity declaration at the end of this manual.

Warning: In a residential, commercial or light industrial environment the CPCI-PS24 may cause radio interferences in which case the user may be required to take adequate measures.

Intended Use

The intended use of the CPCI-PS24 is the operation as 24 V-power supply module in a CPCI system. The guarantee given by esd does not cover damages which result from improper use, usage not in accordance with regulations or disregard of safety instructions and warnings.

- The CPCI-PS24 is intended for installation in a CPCI only.
- The operation of the CPCI-PS24 in hazardous areas, or areas exposed to potentially explosive materials is not permitted.
- The operation of the CPCI-PS24 for medical purposes is prohibited.

Service Note

The CPCI-PS24 does not contain any parts that require maintenance by the user. The CPCI-PS24 does not require any manual configuration of the hardware.

Disposal

Devices which have become defective in the long run have to be disposed in an appropriate way or have to be returned to the manufacturer for proper disposal. Please, make a contribution to environmental protection.

Table of contents

1. Overview.....	6
2. Hardware Installation.....	7
3. LEDs.....	9
3.1 Position of the LEDs.....	9
3.2 LED Indication.....	9
4. Technical Data.....	10
4.1 General Technical Data.....	10
4.2 24 V-Input.....	10
4.3 Output.....	11
5. Connector Assignments.....	12
5.1 24 V-Input Voltage (P1).....	12
5.2 CompactPCI Connector Strip (J2).....	13
6. Cabling of the CompactPCI Backplane.....	14
7. Declaration of Conformity.....	15
8. Order Information.....	16

1. Overview

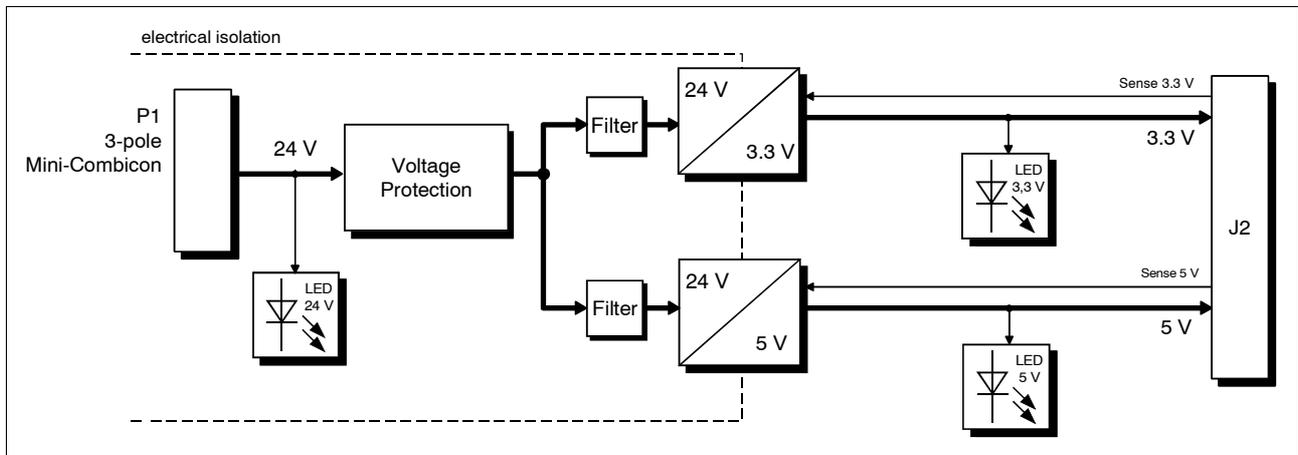


Figure 1: Block circuit diagram

The CPCI-PS24 is a power supply circuit in 3 U height 4 HP width for CompactPCI® systems. It is equipped with a standard CPCI front panel. It offers output voltages of 3.3 V and 5 V.

The CPCI-PS24 is equipped with two DC/DC-power modules. The modules tolerate an input voltage from 18 V to 32 V and can deliver up to 50 W of power for each voltage source. consumption of 120 W. The 24 V input voltage is fed via a PHOENIX CONTACT MINI COMBICON connector in the front panel. The CPCI-PS24 is equipped with a reverse voltage protection.

LEDs display the status of input and outputs.

2. Hardware Installation



Read the safety instructions at the beginning of this document carefully, before you start with the hardware installation!



Danger!

Electric shock risk. Never carry out work while power supply voltage is switched on!



Attention !

Electrostatic discharges may cause damage to electronic components. To avoid this, please discharge the static electricity from your body by touching the metal case of the CPCI system *before* you touch the CPCI-PS24.



The input of the unit is not internally fused. An external fuse of 8 A is recommended.

The CPCI-PS24 needs a free slot of 4 HP width in the CPCI system. Beside the backplane, a 15-pin female multipoint connector according to DIN 41 612 has to be mounted, to connect the CPCI-PS24 via J2.



Do not plug the CPCI-PS24 into the CPCI backplane.

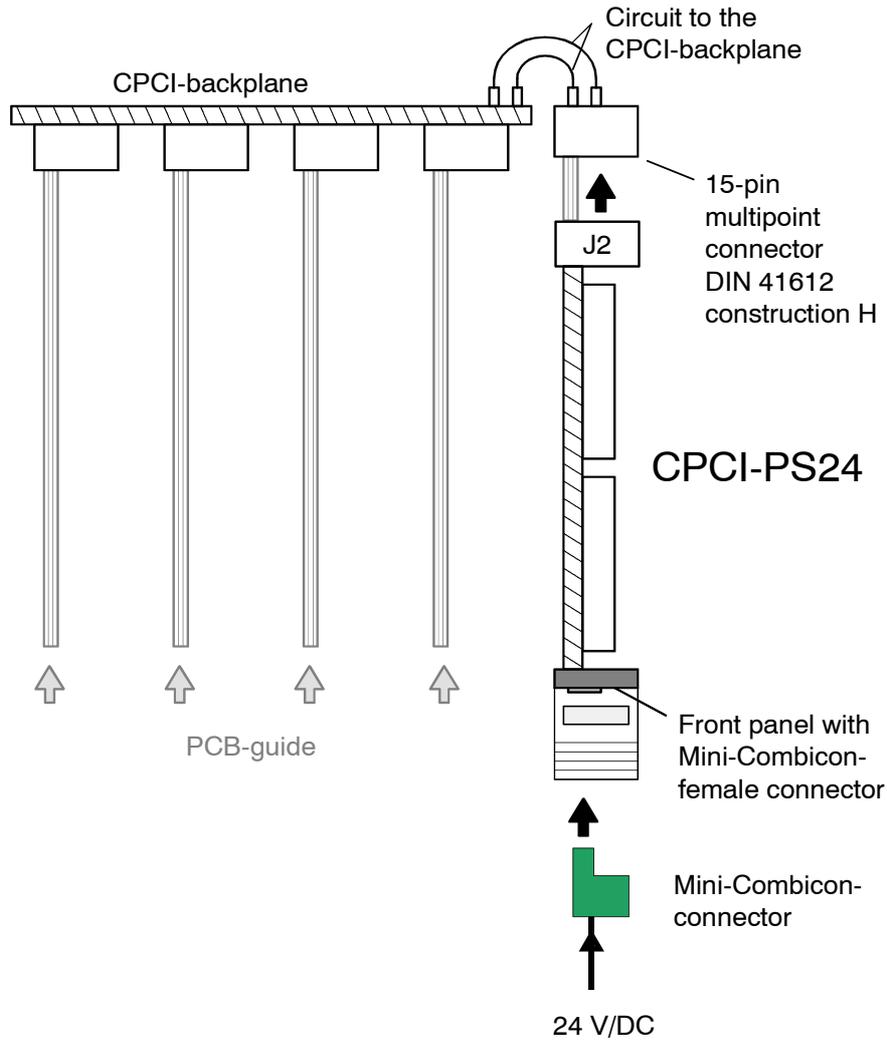


Figure 2: PCB top view

3. LEDs

3.1 Position of the LEDs

The front panel is equipped with three green LEDs.

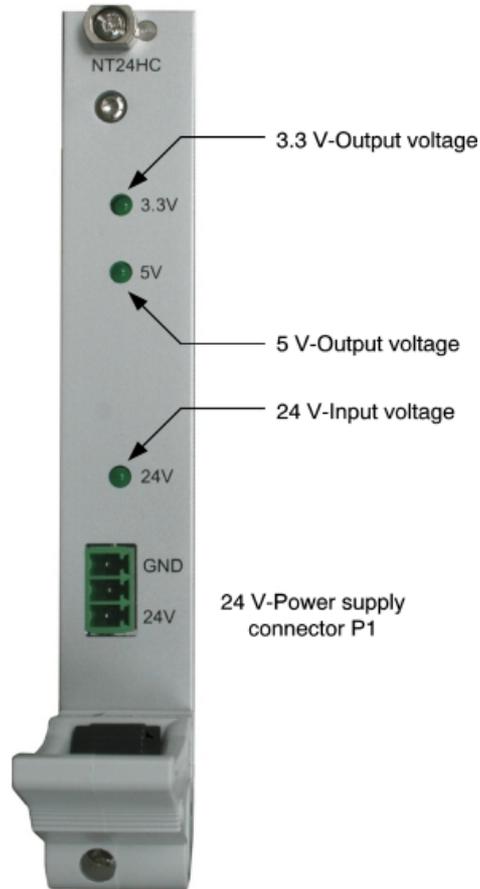


Figure 3: Front panel connector and LEDs

3.2 LED Indication

LED	Colour	Function	Indicator State	Description	LED name in schematic diagram
3.3 V	Green	Output voltage	on	3.3 V-Output voltage on	LED130
5 V	Green	Output voltage	on	5 V-Output voltage on	LED131
24 V	Green	Input voltage	on	24 V-Input Voltage on	LED133

Table 1: Description of LEDs

4. Technical Data

4.1 General Technical Data

Connectors	P1 (3-pin PHOENIX CONTACT MINI COMBICON connector) input voltage (24 V) J2 (15-pin male multipoint connector, DIN 41 612, construction H) output voltages (3.3 V and 5 V)
Temperature range	0...50 °C ambient temperature
Humidity	max. 90%, non-condensing
CPCI dimensions	3 U, 4 HP
PCB dimensions	100 mm x 160 mm
Front panel	CompactPCI conform
Weight	269 g

Table 2: General data of the module

4.2 24 V-Input

Operating input voltage range	18 V ... 34 V
Electrical isolation	The input is electrically isolated from functional earth (FE) and output.
Electrical grounding	The input shield line should be externally connected to FE to meet the EMC requirements. The input shield line is connected to the front panel of the board.
Power consumption	max. 120 W
Input Connector	Connector: PHOENIX CONTACT MINI COMBICON, order number: 1803581
	Tightening torque: Min. 0.22 Nm / max. 0.25 Nm
	Screw thread: M2
	Required conductor cross section: 1.5 mm ² (*1)
	Required AWG according to UL/CUL: 14 (*1)

(*1) These values are required for 8 A input current and external 8 A current limitation. Smaller diameter are possible if lower current is sufficient and the current is limited by an external device.

Table 3: Input data and input connector

4.3 Output

Supply voltage	Via CompactPCI bus, nominal voltage: 5 V \pm 3% <u>and</u> 3.3 V \pm 3%	
Output power	5 V: 50 W	3.3 V: 50 W
Safety instructions	The outputs are SELV (safety extra-low voltage) acc. EN 60950-1.	
	The outputs are electrically isolated from FE and input.	
	The outputs should be externally connected to FE. It is a good practice to connect the output voltage ground (GND) via the module rack to FE.	

Table 4: Output data

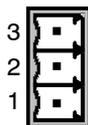
5. Connector Assignments

5.1 24 V-Input Voltage (P1)

Device connector: 3-pin PHOENIX CONTACT MINI COMBICON CONNECTOR
MC 1,5/3-G-3,81

Line connector: PHOENIX CONTACT MC 1,5/3 -ST-3,81
Order number: 1803581

Pin Position:



Pin Assignment:

Pin	Signal
1	GND
2	Shield
3	24 V

Signal Description:

GND ... ground
Shield... shield connected to the front panel
24 V... input voltage

5.2 CompactPCI Connector Strip (J2)

Device connector: 15-pin male multipoint connector, DIN 41 612 construction H

Pin Assignment:

Line d		Line z	
Signal	PIN	PIN	Signal
GND (3.3 V)	6	4	GND (3.3 V)
3.3 V	10	8	3.3 V
GND (5 V)	14	12	GND (5 V)
5 V	18	16	5 V
n.c.	22	20	n.c.
GND (Sense 3.3 V)	26	24	n.c.
GND (Sense 5 V)	30	28	Sense 3.3 V
		32	Sense 5 V

Signal Description:

n.c. ... not connected
 GND (...) ... reference potential of the output voltage or rather the sense-signal line
 Sense 3.3 V... sense-signal for 3.3 V supply voltage
 Sense 5 V... sense-signal for 5 V supply voltage

6. Cabling of the CompactPCI Backplane

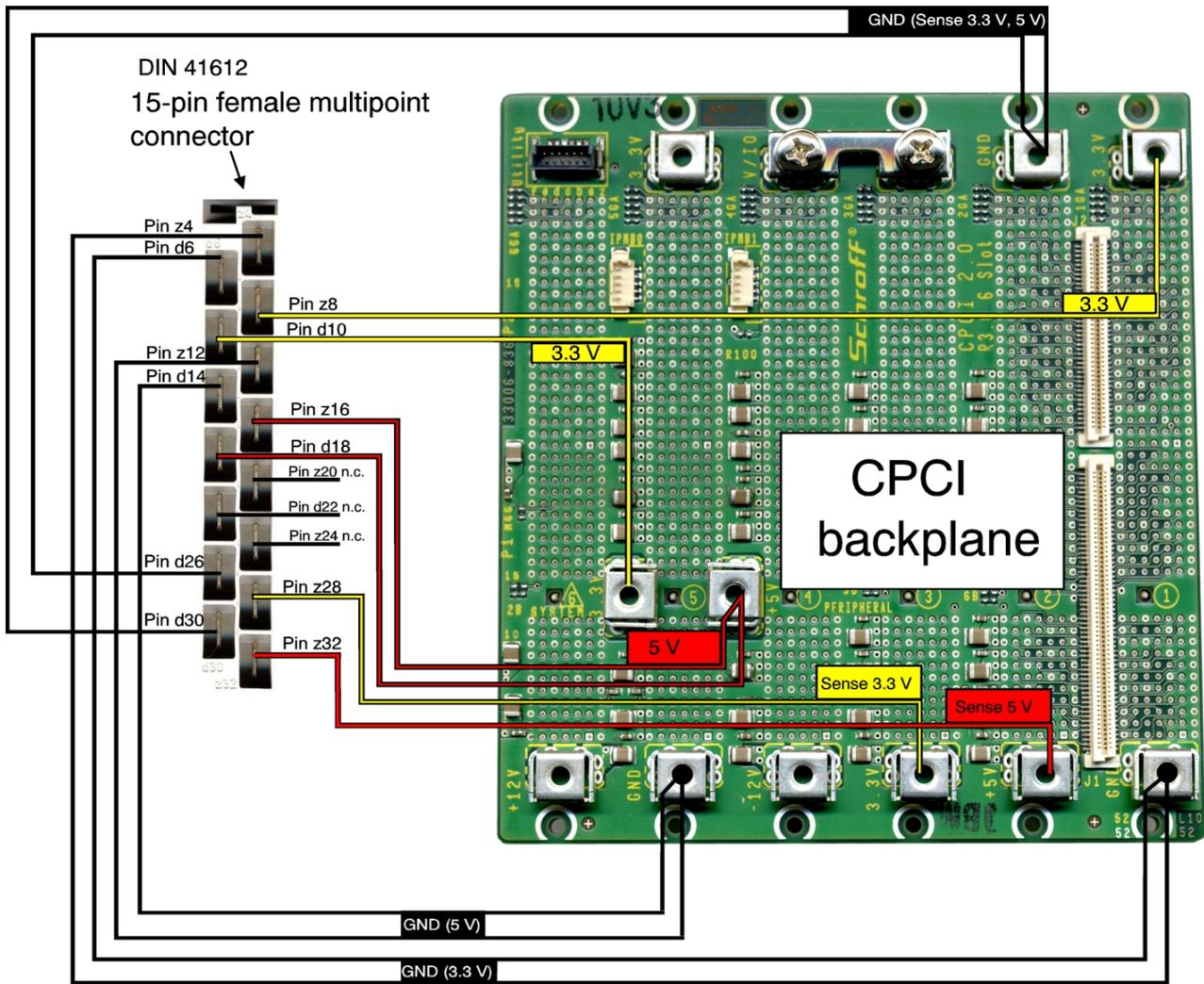


Table 5: Cables of the 15-pin female multipoint connector to the CPCI backplane

7. Declaration of Conformity

EG-KONFORMITÄTSERKLÄRUNG EC DECLARATION OF CONFORMITY



Adresse **esd electronic system design gmbh**
Address **Vahrenwalder Str. 207**
30165 Hannover
Germany

esd erklärt, dass das Produkt
esd declares, that the product
CPCI-PS24

Typ, Modell, Artikel-Nr.
Type, Model, Article No.
I.2301.04

die Anforderungen der Normen
fulfills the requirements of the standards

EN 61000-6-2:2005,
EN 61000-6-3:2007+A1:2011

gemäß folgendem Prüfbericht erfüllt.
according to test certificate.

H-K00-0451-12

Das Produkt entspricht damit der EG-Richtlinie „EMV“
Therefore the product corresponds to the EC-Directive 'EMC'

2004/108/EG

Das Produkt entspricht der EG-Richtlinie „RoHS“
The product corresponds to the EC-Directive 'RoHS'

2011/65/EU

Diese Erklärung verliert ihre Gültigkeit, wenn das Produkt nicht den Herstellerunterlagen entsprechend eingesetzt und betrieben wird, oder das Produkt abweichend modifiziert wird.
This declaration loses its validity if the product is not used or run according to the manufacturer's documentation or if non-compliant modifications are made.

Name / Name T. Ramm
Funktion / Title CE-Koordinator / CE Coordinator
Datum / Date Hannover, 2012-08-10

Rechtsgültige Unterschrift / authorized signature

8. Order Information

Type	Properties	Order No.
CPCI-PS24	1x 24 V-Power Supply for CPCI bus	I.2301.05

Table 6: Order information

PDF Manuals

Manuals are available in English and usually in German as well. For availability of English manuals see table below.

Please download the manuals as PDF documents from our esd website www.esd.eu for free.

Manuals	Order No.
CPCI-PS24-ME	Hardware manual in English I.2301.21

Table 7: Available manuals

Printed Manuals

If you need a printout of the manual additionally, please contact our sales team: sales@esd.eu for a quotation. Printed manuals may be ordered for a fee.