



CPCI Power Supplies

User Guide Rev. 1.0

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 CPCI POWER SUPPLIES – USER GUIDE

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You understand and agree that your use of Kontron devices as a component in High Risk Applications is entirely at your risk. To minimize the risks associated with your products and applications, you should provide adequate design and operating safeguards. You are solely responsible for compliance with all legal, regulatory, safety, and security related requirements concerning your products. You are responsible to ensure that your systems (and any Kontron hardware or software components incorporated in your systems) meet all applicable requirements. Unless otherwise stated in the product documentation, the Kontron device is not provided with error-tolerance capabilities and cannot therefore be deemed as being engineered, manufactured or setup to be compliant for implementation or for resale as device in High Risk Applications. All application and safety related information in this document (including application descriptions, suggested safety measures, suggested Kontron products, and other materials) is provided for reference only.

CAUTION

Handling and operation of the product is permitted only for trained personnel within a work place that is access controlled. Please follow the "General Safety Instructions" supplied with the system.

NOTICE

You find the most recent version of the "General Safety Instructions" online in the download area of this product.

Revision History

Revision	Brief Description of Changes	Date of Issue	Author
1.0	Initial Issue	2021-May-06	hjs

Terms and Conditions

Kontron warrants products in accordance with defined regional warranty periods. For more information about warranty compliance and conformity, and the warranty period in your region, visit <http://www.kontron.com/terms-and-conditions>.

Kontron sells products worldwide and declares regional General Terms & Conditions of Sale, and Purchase Order Terms & Conditions. Visit <http://www.kontron.com/terms-and-conditions>.

For contact information, refer to the corporate offices contact information on the last page of this user guide or visit our website [CONTACT US](#).

Customer Support

Find Kontron contacts by visiting: <https://www.kontron.de/support-and-services>.

Customer Service

As a trusted technology innovator and global solutions provider, Kontron extends its embedded market strengths into a services portfolio allowing companies to break the barriers of traditional product lifecycles. Proven product expertise coupled with collaborative and highly-experienced support enables Kontron to provide exceptional peace of mind to build and maintain successful products.

For more details on Kontron's service offerings such as: enhanced repair services, extended warranty, Kontron training academy, and more visit <https://www.kontron.de/support-and-services>.

Customer Comments

If you have any difficulties using this user guide, discover an error, or just want to provide some feedback, contact [Kontron support](#). Detail any errors you find. We will correct the errors or problems as soon as possible and post the revised user guide on our website.

Symbols

The following symbols may be used in this user guide

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

NOTICE indicates a property damage message.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.



Electric Shock!

This symbol and title warn of hazards due to electrical shocks (> 60 V) when touching products or parts of products. Failure to observe the precautions indicated and/or prescribed by the law may endanger your life/health and/or result in damage to your material.



ESD Sensitive Device!

This symbol and title inform that the electronic boards and their components are sensitive to static electricity. Care must therefore be taken during all handling operations and inspections of this product in order to ensure product integrity at all times.



HOT Surface!

Do NOT touch! Allow to cool before servicing.



Laser!

This symbol inform of the risk of exposure to laser beam and light emitting devices (LEDs) from an electrical device. Eye protection per manufacturer notice shall review before servicing.



This symbol indicates general information about the product and the user guide.

This symbol also indicates detail information about the specific product configuration.



This symbol precedes helpful hints and tips for daily use.

For Your Safety

Your new Kontron product was developed and tested carefully to provide all features necessary to ensure its compliance with electrical safety requirements. It was also designed for a long fault-free life. However, the life expectancy of your product can be drastically reduced by improper treatment during unpacking and installation. Therefore, in the interest of your own safety and of the correct operation of your new Kontron product, you are requested to conform with the following guidelines.

High Voltage Safety Instructions

As a precaution and in case of danger, the power connector must be easily accessible. The power connector is the product's main disconnect device.

⚠ CAUTION

Warning

All operations on this product must be carried out by sufficiently skilled personnel only.

⚠ CAUTION



Electric Shock!

Before installing a non hot-swappable Kontron product into a system always ensure that your mains power is switched off. This also applies to the installation of piggybacks. Serious electrical shock hazards can exist during all installation, repair, and maintenance operations on this product. Therefore, always unplug the power cable and any other cables which provide external voltages before performing any work on this product.

Earth ground connection to vehicle's chassis or a central grounding point shall remain connected. The earth ground cable shall be the last cable to be disconnected or the first cable to be connected when performing installation or removal procedures on this product.

Special Handling and Unpacking Instruction

NOTICE



ESD Sensitive Device!

Electronic boards and their components are sensitive to static electricity. Therefore, care must be taken during all handling operations and inspections of this product, in order to ensure product integrity at all times.

Do not handle this product out of its protective enclosure while it is not used for operational purposes unless it is otherwise protected.

Whenever possible, unpack or pack this product only at EOS/ESD safe work stations. Where a safe work station is not guaranteed, it is important for the user to be electrically discharged before touching the product with his/her hands or tools. This is most easily done by touching a metal part of your system housing.

It is particularly important to observe standard anti-static precautions when changing piggybacks, ROM devices, jumper settings etc. If the product contains batteries for RTC or memory backup, ensure that the product is not placed on conductive surfaces, including anti-static plastics or sponges. They can cause short circuits and damage the batteries or conductive circuits on the product.

Lithium Battery Precautions

If your product is equipped with a lithium battery, take the following precautions when replacing the battery.

▲ CAUTION

Danger of explosion if the battery is replaced incorrectly.

- ▶ Replace only with same or equivalent battery type recommended by the manufacturer.
 - ▶ Dispose of used batteries according to the manufacturer's instructions.
-

General Instructions on Usage

In order to maintain Kontron's product warranty, this product must not be altered or modified in any way. Changes or modifications to the product, that are not explicitly approved by Kontron and described in this user guide or received from Kontron Support as a special handling instruction, will void your warranty.

This product should only be installed in or connected to systems that fulfill all necessary technical and specific environmental requirements. This also applies to the operational temperature range of the specific board version that must not be exceeded. If batteries are present, their temperature restrictions must be taken into account.

In performing all necessary installation and application operations, only follow the instructions supplied by the present user guide.

Keep all the original packaging material for future storage or warranty shipments. If it is necessary to store or ship the product then re-pack it in the same manner as it was delivered.

Special care is necessary when handling or unpacking the product. See Special Handling and Unpacking Instruction.

Quality and Environmental Management

Kontron aims to deliver reliable high-end products designed and built for quality, and aims to complying with environmental laws, regulations, and other environmentally oriented requirements. For more information regarding Kontron's quality and environmental responsibilities, visit <http://www.kontron.com/about-kontron/corporate-responsibility/quality-management>.

Disposal and Recycling

Kontron's products are manufactured to satisfy environmental protection requirements where possible. Many of the components used are capable of being recycled. Final disposal of this product after its service life must be accomplished in accordance with applicable country, state, or local laws or regulations.

WEEE Compliance

The Waste Electrical and Electronic Equipment (WEEE) Directive aims to:

- ▶ Reduce waste arising from electrical and electronic equipment (EEE)
- ▶ Make producers of EEE responsible for the environmental impact of their products, especially when the product become waste
- ▶ Encourage separate collection and subsequent treatment, reuse, recovery, recycling and sound environmental disposal of EEE
- ▶ Improve the environmental performance of all those involved during the lifecycle of EEE



Environmental protection is a high priority with Kontron.

Kontron follows the WEEE directive

You are encouraged to return our products for proper disposal.

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1/ Overview

Kontron's power supply unit family includes both AC and DC input power devices with up to 12HP front panels and 3U in height. The devices are provided with P-series or DIN M-series output connectors.

The power supply units can be provided for an output power range of 75 W to 200 W for AC/DC power supply units and 75 W to 200 W for DC/DC power supply units with output voltages of + 3.3 V, + 5.1 V, and either + 12 V or \pm 12 V.

1.1. Input Voltages

Power supply units running on AC input power are provided with a switching feature to choose among common US (Japan) and Europe an AC voltage ranges. For the sake of understanding these voltage ranges can be indicated as the two rated voltages:

- ▶ $V_{US} = 110\text{ V}$
- ▶ $V_{EU} = 230\text{ V}$

1.2. Voltage Switching

Depending on the power supply unit, the V_{EU} / V_{US} switching is accomplished automatically ("autoranging") or manually.

1.3. Output Voltages

The common output voltages are referred to as follows:

- ▶ $V1 = +5.1\text{ V}$
- ▶ $V2 = +3.3\text{ V}$
- ▶ $V3 = +12\text{ V}$
- ▶ $V4 = -12\text{ V}$

2/ Distinctive Features

The CompactPCI power supplies can be distinguished according to the following distinctive features:

- ▶ Form factor (height)
- ▶ Front panel dimensions
- ▶ Mechanics
- ▶ Plug-in compatibility
- ▶ Input voltages
- ▶ Voltage switching (AC devices)
- ▶ Output power
- ▶ Output voltages and currents
- ▶ Power supply connector
- ▶ Cooling
- ▶ Redundant supply capability
- ▶ Status indication
- ▶ Special features:
 - ▶ Ultra wide input range
 - ▶ Hold-up time > 10ms
 - ▶ EN 50155 compliant

3/ Kontron CompactPCI Standard Power Supply Units

The following table provide information to assist users in the selection of power supplies which are suitable to the user's requirements. The table may omit power supplies which are not recommended for new designs.

Table 1: Characteristics of the Kontron CompactPCI Standard PSU Family

Input Type	Power Output	Connector	Input Range	Special	Cooling Required	Front (Hp)	Power Supply
AC	75 W	M24/8	184 ... 264V		active	8	CP3-SVE-M76AC-230
	180 W	M24/8	187 ... 264V 99 ... 138V autoranging		passive	12	CP3-SVE-M180AC
	200 W	P47	85 ... 264V	RED OP* Load Share IPMI (Opt)	active	8	CP3-SVE-P200AC
DC	120 W	M24/8	14.4 ... 36V (24V nominal) 21.6 ... 51V (36V nominal) 28.8 ... 67.2V (48V nominal) 43.2 ... 101V (72V nominal) 57.6 ... 134.4V (96V nominal) 66 ... 154V		passive	6	CP3-SVE-M120DC-WV
	200 W	P47	18 ... 36V	RED OP* Load Share IPMI (OPT)	active	8	CP3-SVE-P200DC-24V
	200 W	P47	36 ... 75V	RED OP* Load Share IPMI (OPT)	active	8	CP3-SVE-P200DC-48V

*) RED OP = Redundant Operation Possible

4/ Power Supply Connectors

The AC or DC input voltages to the power supply unit and the output voltages from the power supply unit to the backplane are connected via a power supply connector complying with one of the following specifications:

Table 2: Power Supply Connectors

Connector Type	Description
DIN M-Series Connectors	3 or 4-pole DIN M-series male power supply connectors for power throughput to the power supply unit and a 30- (32-) pole DIN M24/8 male power supply connector for power reception from the power supply unit (DIN 41612)
Positronic P-Series Connectors	Female 47-pin Positronic connector for power supply from the reverse side of the backplane and a 47-pin Positronic male power supply connector for power reception from the power supply unit

NOTICE

The term "power supply connector" is used both for the connectors receiving the backplanes' power supply and the mating output connectors of the power supply units.

4.1. Types of Power Supply Connectors

Figure 1: P-Series Positronic P47 Connector

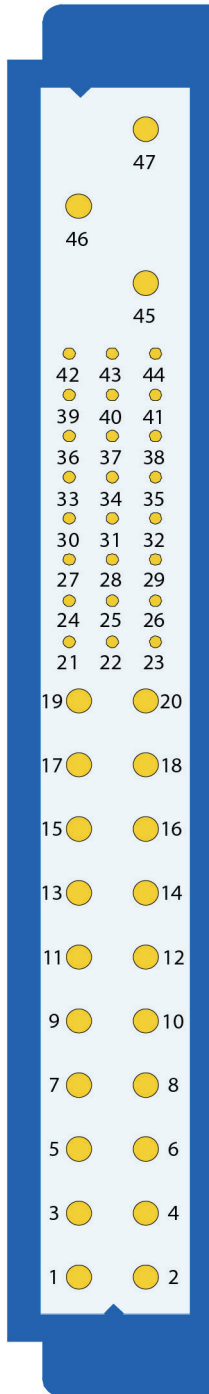
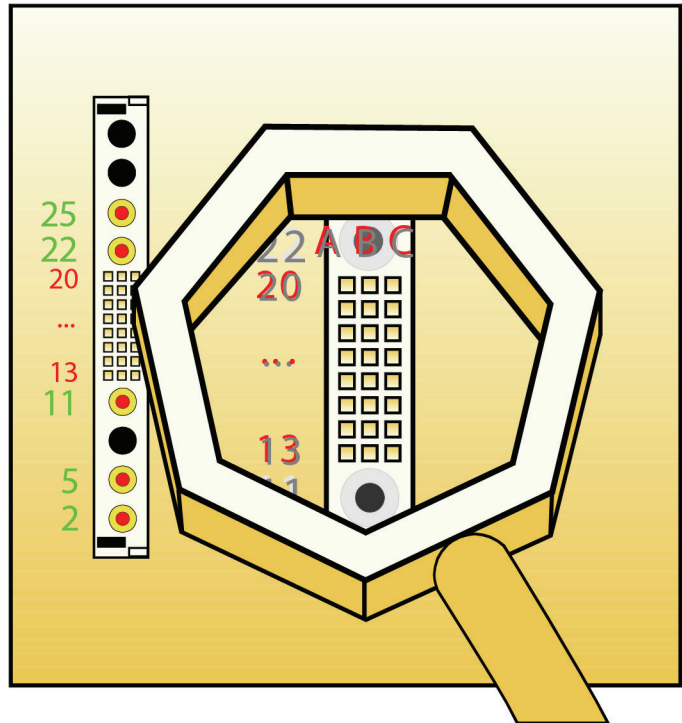


Figure 2: M-Series DIN 24/8 Connector



5/ Implementation Considerations

Power supply requirements are always based on the individual system requirements. As such, Kontron's family of power supplies are designed to meet an extensive range of requirements from simple one unit systems to high capacity systems requiring multiple redundancy with load sharing capability.

Table 1 provides basic selection information for determining which power supply satisfies what requirement regarding its suitability for redundancy and load sharing applications. The system integrator must be fully aware of the implications of redundancy and load sharing as well as total power requirements before making any decision as to which power supply(-ies) to integrate in a given application.

Kontron offers two categories of power supplies which can be used for redundant operations: the M-series which have only redundant operational capability, and the P-series which have both redundant as well as load sharing capabilities. Because the redundant M-series power supplies do not support load sharing they may not be used to increase available power in a system. The P-series power supplies, however, may be used for both purposes. It is, therefore, the responsibility of the system integrator to assure that all operational requirements of a given application have been considered before implementing a power supply scheme. Care must be taken to satisfy total projected system loading without overloading occurring, particularly where redundancy is required.

⚠ WARNING

Failure to comply with the implementation considerations as described above could result in physical damage to the power supplies themselves or to other system components. Kontron assumes no responsibility or liability for any damage incurred directly or indirectly caused by improper system implementation or operation.

6/ Product Documentation Guide

The product documentation organization for Kontron's CPCI Power Supplies is as follows:

1. CPCI PSU Manual (this document)
2. specific Kontron CPCI PSU Product Documentation or datasheet, respectively.

This table indicates the PD reference ID which is made up of the ID of the related CPCI Power Supply Manual and the PD ID. Each product as well as the current revision status of the PD is indicated. The status of a product which is no longer relevant is indicated in the Remarks column.

Table 3: Current Product Documentation Overview

REF ID		Product	PD Rev	Date of PD Rev	Remarks
MAN ID	PD ID				
		CP3-SVE-M120DC		01.02.2021	Datasheet
24139	PD03	CP3-SVE-M150DC	01	01.02.2002	Original issue; product EOL
		CP3-SVE-M180AC		01.02.2021	Datasheet
		CP3-SVE-P200AC		01.02.2021	Datasheet
		CP3-SVE-P200DC-48V		01.02.2021	Datasheet
24139	PD11	CP3-SVE-M75DC	02	24.09.2008	Updated to include errata 1 and other changes
			-	28.02.2011	Product end of life
24139	PD12	CP3-SVE-M75AC	01	01.02.2004	Original issue; product EOL
24139	PD13	CP3-SVE-M76AC	01	18.07.2007	Original issue; product EOL
24139	PD14	CP3-SVE-P200DC-24V	02	28.06.2013	Document revised
24139	PD15	CP3-SVE-M100DC	02	14.12.2012	Document revised; product EOL
		CP3-SVE-M75DC-24		01.02.2021	Datasheet; product EOL
		CP3-SVE-M76AC-230		01.02.2021	Datasheet

7/ Related Publications

- ▶ CompactPCI Specification, V. 2.0, Rev. 2.1
- ▶ DIN 41612
- ▶ CompactPCI Power Interface Specification, 2.11 R1.0

8/ Technical Support

For technical support contact our Support Department:

- ▶ E-Mail: support@kontron.com
- ▶ Phone: +49-821-4086-888

Make sure you have the following information available when you call:

- ▶ Product ID Number (PN),
- ▶ Serial Number (SN)



The serial number can be found on the Type Label, located on the product's rear side.

Be ready to explain the nature of your problem to the service technician.

8.1. Warranty

Due to their limited service life, parts that by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law. This applies to the CMOS battery, for example.



If there is a protection label on your product, then the warranty is lost if the product is opened.

8.2. Returning Defective Merchandise

All equipment returned to Kontron must have a Return of Material Authorization (RMA) number assigned exclusively by Kontron. Kontron cannot be held responsible for any loss or damage caused to the equipment received without an RMA number. The buyer accepts responsibility for all freight charges for the return of goods to Kontron's designated facility. Kontron will pay the return freight charges back to the buyer's location in the event that the equipment is repaired or replaced within the stipulated warranty period. Follow these steps before returning any product to Kontron.

1. Visit the RMA Information website:
<http://www.kontron.com/support-and-services/support/rma-information>

Download the RMA Request sheet for **Kontron Europe GmbH** and fill out the form. Take care to include a short detailed description of the observed problem or failure and to include the product identification Information (Name of product, Product number and Serial number). If a delivery includes more than one product, fill out the above information in the RMA Request form for each product.

2. Send the completed RMA-Request form to the fax or email address given below at Kontron Europe GmbH. Kontron will provide an RMA-Number.

Kontron Europe GmbH
RMA Support
Phone: +49 (0) 821 4086-0
Fax: +49 (0) 821 4086 111
Email: service@kontron.com

3. The goods for repair must be packed properly for shipping, considering shock and ESD protection.



Goods returned to Kontron Europe GmbH in non-proper packaging will be considered as customer caused faults and cannot be accepted as warranty repairs.

4. Include the RMA-Number with the shipping paperwork and send the product to the delivery address provided in the RMA form or received from Kontron RMA Support.



About Kontron – Member of the S&T Group

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). As a part of technology group S&T, Kontron offers a combined portfolio of secure hardware, middleware and services for Internet of Things (IoT) and Industry 4.0 applications. With its standard products and tailor-made solutions based on highly reliable state-of-the-art embedded technologies, Kontron provides secure and innovative applications for a variety of industries. As a result, customers benefit from accelerated time-to-market, reduced total cost of ownership, product longevity and the best fully integrated applications overall.

For more information, please visit: www.kontron.com



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