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|----|---|
| EN | PS9011-2420-0001 Installation Manual |
| DE | PS9011-2420-0001 Installationsanleitung |
| FR | PS9011-2420-0001 Manuel d'installation |
| ES | PS9011-2420-0001 Manual de instalación |
| IT | PS9011-2420-0001 Manuale di installazione |
| PT | PS9011-2420-0001 Manual de instalação |

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|----------------------------------|
| Buffer Module 24V, 20A |
| Puffermodul 24V, 20A |
| Module tampon CC 24V, 20A |
| Unidad buffer SAI en CC 24V, 20A |
| Modulo tampone 24V, 20A |
| Unidade buffer 24V, 20A |

BECKHOFF

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Read this first!

English

Before operating this device, please read this manual thoroughly and retain this manual for future reference! This device may only be installed and put into operation by qualified personnel. If damage or malfunction should occur during operation, immediately turn power off and send device to the factory for inspection. The device does not contain serviceable parts. The information presented in this document is believed to be accurate and reliable and may change without notice. For any clarifications the English translation will be used.

⚠ WARNING

Risk of electrical shock, fire, personal injury, or death:

- Turn power off before working on the device. Protect against inadvertent re-powering.
- Do not open, modify or repair the device.
- Use caution to prevent any foreign objects from entering the housing.
- Do not use in wet locations or in areas where moisture or condensation can be expected.
- Do not touch during power-on and immediately after power-off. Hot surfaces may cause burns.

Vor Inbetriebnahme lesen!

Deutsch

Bitte lesen Sie diese Warnungen und Hinweise sorgfältig durch, bevor Sie das Gerät in Betrieb nehmen. Bewahren Sie die Anleitung zum Nachlesen auf. Das Gerät darf nur durch fachkundiges und qualifiziertes Personal installiert werden. Bei Funktionsstörungen oder Beschädigungen schalten Sie sofort die Versorgungsspannung ab und senden das Gerät zur Überprüfung ins Werk. Das Gerät beinhaltet keine Servicebauteile. Die angegebenen Daten dienen allein der Produktbeschreibung und sind nicht als zugesicherte Eigenschaften im Rechtssinne aufzufassen. Im Zweifelsfall gilt der englische Text.

⚠ WARNING

Missachtung nachfolgender Punkte kann einen elektrischen Schlag, Brände, schwere Unfälle oder Tod zur Folge haben:

- Schalten Sie die Eingangsspannung vor Installations-, Wartungs- oder Änderungsarbeiten ab und sichern Sie diese gegen unbeabsichtigtes Wiedereinschalten.
- Führen Sie keine Änderungen oder Reparaturversuche am Gerät durch. Gerät nicht öffnen!
- Verhindern Sie das Eindringen von Fremdkörpern, wie z.B. Büroklammern und Metallteilen.
- Betreiben Sie das Gerät nicht in feuchter Umgebung oder in einer Umgebung, bei der mit Betauung oder Kondensation zu rechnen ist.
- Gehäuse nicht während des Betriebes oder kurz nach dem Abschalten berühren. Heiße Oberflächen können Verletzungen verursachen.

A lire avant mise sous tension!

Français

Veillez lire ces instructions de montage et d'entretien avant de mettre l'alimentation sous tension. Conservez ce manuel qui vous sera toujours utile. Cette alimentation ne doit être installée que par du personnel qualifié et compétent. En cas de dommage ou dysfonctionnement, coupez immédiatement la tension d'alimentation et retournez l'appareil à l'usine pour vérification. ! L'alimentation ne contient pas de pièces échangeables Les données indiquées dans ce document servent uniquement à donner une description du produit et n'ont aucune valeur juridique. En cas de divergences, le texte anglais fait foi.

⚠ AVERTISSEMENT

Prendre en compte les points suivants, afin d'éviter toute détérioration électrique, incendie, dommage aux personnes ou mort:

- Mettre l'alimentation hors tension avant toute intervention sur celle-ci et s'assurer qu'il n'y a pas risque de redémarrage.
- Ne pas ouvrir, modifier ou réparer l'alimentation.
- Veiller à ce qu'aucun objet ne rentre en contact avec l'intérieur de l'alimentation (trombones, pièces métalliques).
- Ne pas faire fonctionner l'appareil dans un environnement humide ou dans un environnement où il peut y avoir de la condensation.
- Ne pas toucher le carter pendant le fonctionnement ou directement après la mise hors tension. Surface chaude risquant d'entraîner des blessures.

Lea primero!

Español

Conserve este manual como referencia para futuras consultas. La fuente de alimentación solo puede ser instalada y puesta en funcionamiento por personal cualificado. Por favor lea detenidamente este manual antes de conectar la fuente de alimentación. Si se produce un fallo o mal funcionamiento durante la operación, desconecte inmediatamente la tensión de alimentación. En ambos casos, el equipo debe ser inspeccionado en fábrica. La información presentada en este documento es exacta y fiable en cuanto a la descripción del producto y puede cambiar sin aviso. En casa de duda, prevalece el texto inglés.

⚠ ADVERTENCIA

Riesgo de descarga eléctrica, incendio, accidente grave o muerte:

- Desconectar la tensión de red antes de trabajar en la fuente de alimentación. Evite una posible reconexión involuntaria.
- No realizar ninguna modificación o reparación de la unidad. No abrir la unidad.
- Evitar la introducción en la carcasa de objetos extraños.
- No usar el equipo en ambientes húmedos. No operar el equipo en ambientes donde se espere la formación de rocío o condensación.
- No tocar durante el funcionamiento ni inmediatamente después del apagado. El calor de la superficie puede causar quemaduras graves.

Leggere prima questa parte!

Italiano

Prima di collegare il sistema di alimentazione elettrica si prega di leggere attentamente le seguenti avvertenze. Conservare le istruzioni per la consultazione futura. Il sistema di alimentazione elettrica deve essere installato solo da personale competente e qualificato. Se durante il funzionamento si verificano anomalie o guasti, scollegare immediatamente la tensione di alimentazione. In entrambi i casi è necessario far controllare l'apparecchio dal produttore! I dati sono indicati solo a scopo descrittivo del prodotto e non vanno considerati come caratteristiche garantite dell'apparecchio. In caso di differenze o problemi è valido il testo inglese

⚠ AVVERTENZA

Il mancato rispetto delle seguenti norme può provocare folgorazione elettrica, incendi, gravi incidenti e perfino la morte:

- Prima di eseguire interventi di installazione, di manutenzione o di modifica scollegare la tensione di rete ed adottare tutti i provvedimenti necessari per impedire il ricollegamento non intenzionale.
- Non tentare di aprire, di modificare o di riparare da soli l'apparecchio.
- Impedire la penetrazione di corpi estranei nell'apparecchio, ad esempio fermagli o altri oggetti metallici.
- Non far funzionare l'apparecchio in un ambiente umido. Non far funzionare l'apparecchio in un ambiente soggetto alla formazione di condensa o di rugiada.
- Non toccare quando acceso e subito dopo lo spegnimento. La superficie calda può causare scottature.

Leia primeiro!

Português

Recomendamos a leitura cuidadosa das seguintes advertências e observações, antes de colocar em funcionamento a fonte de alimentação. Guarde as Instruções para futura consulta, em casos de dúvida. A fonte de alimentação deverá ser instalada apenas por profissionais da área, tecnicamente qualificados. Se por acaso, durante a utilização ocorrer algum defeito de funcionamento ou dano, desligue imediatamente a tensão de alimentação. Em ambos os casos, será necessária uma verificação na Fábrica! Os dados mencionados têm como finalidade somente a descrição do produto, e não devem ser interpretados como propriedades garantidas no sentido jurídico. Em caso de dúvidas aplica-se o texto em inglês.

⚠ ATENÇÃO

A não observância ou o incumprimento dos pontos a seguir mencionados, poderá causar uma descarga elétrica, incêndios, acidentes graves ou morte:

- Antes de trabalhos de instalação, manutenção ou modificação, desligue a tensão de alimentação, protegendo-a contra uma nova ligação involuntária.
- Não efectue nenhuma modificação ou tentativa de reparação no aparelho. Quando necessário contacte o seu distribuidor. Não abra o aparelho.
- Proteger a fonte de alimentação contra a introdução inadvertida de corpos metálicos, como por ex., cliques ou outras peças de metal.
- Não usar o aparelho em ambientes húmidos. Não usar o aparelho em ambientes propensos a condensações.
- Não tocar enquanto estiver em funcionamento, nem após a desligar. A superfície poderá estar quente e provocar lesões.

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Product Description

The PS9011-2420-0001 buffer module is a supplementary device for regulated DC power supplies and can be used as power source to bridge failures of the DC voltage supply system or to extend the hold-up time after loss of the AC power or to deliver short-term peak current above the current rating of the power supply.

Intended Use

This device is designed for installation in an enclosure and is intended for commercial use, such as in industrial control, process control, monitoring, measurement equipment or the like.

Do not use this device in equipment, where malfunctioning may cause severe personal injury or threaten human life without additional appropriate safety devices, that are suited for the end-application.

If this device is used in a manner outside of its specification, the protection provided by the device may be impaired.

Installation Instructions

Install the device in an enclosure providing protection against electrical, mechanical and fire hazards. Install the device onto a DIN-rail according to EN 60715 with the power terminals on the top of the unit.

Make sure that the wiring is correct by following all local and national codes. Use appropriate copper cables that are designed for a minimum operating temperature of 60°C for ambient temperatures up to +45°C, 75°C for ambient temperatures up to +60°C and 90°C for ambient temperatures up to +70°C. Ensure that all strands of a stranded wire enter the terminal connection.

The device is designed for pollution degree 2 areas in controlled environments. No condensation or frost is allowed.

The enclosure of the device provides a degree of protection of IP20. The enclosure does not provide protection against spilled liquids.

The isolation of the devices is designed to withstand impulse voltages up to 1.5kV according to IEC 60664-1.

The device can be powered from a regulated power supply or a similar DC source. The continuous voltage between the supply voltage terminals and the PE potential must not exceed 60Vdc. Use an appropriately sized 24V power supply, which can deliver the additional internal current consumption, required to charge the capacitors. Check for correct supply voltage polarity. The device will not operate when the voltage is reversed. The device must be powered from a PELV or SELV source or an "Isolated Secondary Circuit" in order to maintain a SELV or PELV level.

The device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid!

Keep the following minimum installation clearances: 40mm on top, 20mm on the bottom, 0mm left and right side.

The device is designed for altitudes up to 5000m (16400ft).

The maximum surrounding air temperature is +70°C (+158°F). The operational temperature is the same as the ambient or surrounding air temperature and is defined 2cm below the device.

The device is designed to operate in areas between 5% and 95% relative humidity.

For EMI reasons, signal lines (ready, active and inhibit) must be shorter than 30m.

Functional Description

Green Status LED

This LED is on solid, when the capacitor is charged. During charging, the LED is flashing with a slow frequency and rapid flashing is an indication of a buffer event.

Back-up Threshold Selector

The buffer behavior can be selected with the back-up jumper between "Fixed Mode" and "Variable Mode". In "Fixed Mode", the unit switches to buffer mode as soon as the voltage falls below 22.5V. In "Variable Mode", the unit switches to buffer mode when input voltage decreases by 1V. Voltage changes slower than 0.54V/s will be ignored if the voltage is above 22.5V. Below 22.5V buffering starts immediately.

Inhibit Input

The inhibit input disables or stops buffering. Connect pin 6 to the positive pole of the supply voltage or to an external control voltage and pin 9 to the corresponding negative pole. Inhibiting the unit also discharges the internal capacitors. Charging of the capacitor is not possible when the buffer module is in inhibit mode. The current of the inhibit input is limited to 4mA by the buffer module.

Active Signal

The signal "Active" (pin 7) is an opto-coupler output which is low ohmic while capacitors are discharged. The maximal signal current between pin 6 and 7 is 10mA and the maximal voltage is 35V.

Ready Signal

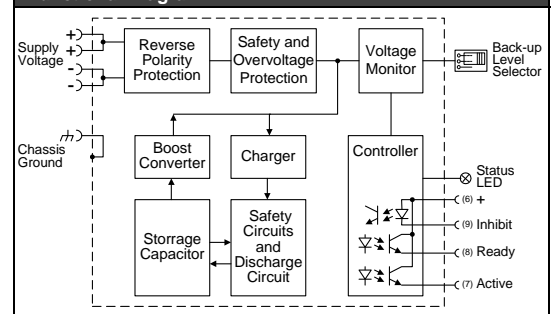
The signal "Ready" (pin 8) is an opto-coupler output which is low ohmic when capacitors are fully charged. The maximal signal current between pin 6 and 8 is 10mA and the maximal voltage is 35V.

Technical Data

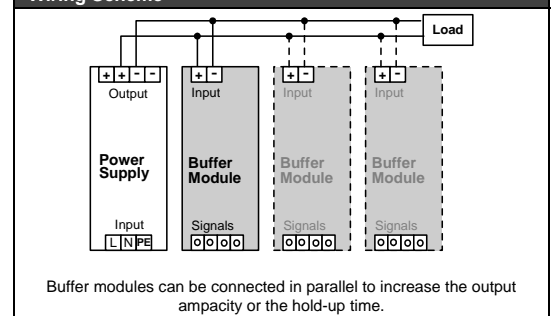
All values are typical figures specified at 24Vdc supply voltage in standby mode at 25°C ambient, no capacitor charging and after a 5 minutes run-in time unless otherwise noted.

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|--|--------------------------------|---|
| Supply voltage | DC 24V | -20%/+25% |
| Minimum input voltage to start charging and to enable buffer mode | 23Vdc | |
| Transfer voltage to switch into buffer mode | 22.5Vdc V _{IN} -1V | In fixed mode In variable mode |
| Internal current consumption | max. 0.6A | Includes charging current |
| Current limitation in buffer mode | 21.5A | |
| Buffer time | min. 200ms | At 22.5V, 20A |
| | min. 430ms | At 22.5V, 10A |
| | typ. 310ms | At 22.5V, 20A |
| | typ. 670ms | At 22.5V, 10A |
| | typ. 43s | At 22.5V, 0.1A |
| Charging time | 25s | For initial charging |
| | 18s | For recharging shortly after a buffer event |
| Power losses | 1.9W | |
| Temperature range | -25°C to +70°C | |
| Max. wire size (litz wire) | 4mm ² | For power terminals |
| Wire size AWG | AWG 20-10 | For power terminals |
| Max. wire diameter | 2.8mm | For power terminals |
| Wire stripping length | 10mm/ 0.4inch | For power terminals |
| Max. wire size (litz wire) | 2.5mm ² | For signal terminals |
| Wire size AWG | AWG 22-14 | For signal terminals |
| Max. wire diameter | 2.25mm | For signal terminals |
| Wire stripping length | 6mm/ 0.25inch | For signal terminals |
| Tightening torque | 0.4Nm/ 3.5lb.inch | For signal terminals |
| Size (wxhxd) | 64x124x102mm | Without DIN-rail |
| Weight | 740g / 1.63lb | |

Functional Diagram



Wiring Scheme



LED Signal Pattern

