

EN	QS5.241-60 Instruction Manual
DE	QS5.241-60 Bedienungsanleitung
FR	QS5.241-60 Manual d'instructions
ES	QS5.241-60 Manual de instrucciones
IT	QS5.241-60 Manuale di Istruzione
PT	QS5.241-60 Manual de Instruções

DC/DC Converter 110V/24V, 4.2A, 100W
DC/DC-Wandler 110V/24V, 4.2A, 100W
Convertisseur 110V/24V, 4.2A, 100W
Convertidores 110V/24V, 4.2A, 100W
Convertitore 110V/24V, 4.2A, 100W
Conversor 110V/24V, 4.2A, 100W

PULS
DIMENSION
QS5.241-60

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.

⚠ WARNUNG 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

Veuillez 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 impedirne 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.

Product Description

The QS5.241-60 is a DIN-rail mountable DC/DC converter with conformal coated pc-boards of the DIMENSION series. It provides a floating, stabilized and galvanically separated SELV/PELV output voltage.

Intended Use

This device is designed for installation in an enclosure and is intended for general use such as in rolling stock for railway applications (according to EN 50155) or in industrial control, office, communication, and instrumentation equipment. Do not use this device in equipment, where malfunction may cause severe personal injury or threaten human life.

Installation Notes

- This device does not contain serviceable parts. The tripping of an internal fuse is caused by an internal defect. If damage or malfunction should occur during installation or operation, immediately turn power off and send device to the factory for inspection.
- 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 input terminals on the bottom of the device. For other orientations see de-rating requirements in the datasheet.
- 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.
- For use in a controlled environment. Do not use the device in pollution degree 3 areas without additional protection or in applications where a degree of protection better than IP20 is required.
- The input can also be powered from batteries or similar DC sources. The voltage between the (+) or (-) terminal and the PE terminal must not exceed 375Vdc continuously acc. to IEC 62477-1.
- Check correct input polarity. The device does not start when input voltage is reversed.
- A disconnecting means shall be provided for the input or output of the device when used in applications according to CSA C22.2 No 107.1-01 or CSA C22.2 No 107.1-16.
- The device is designed as "Class of Protection I" equipment according to IEC 61140. A PE (Protective Earth) connection is required.
- The output is electronically protected against no-load, overload and short circuit and can supply any kind of loads, including unlimited capacitive and inductive loads.
- Do not apply return voltages from the load to the output higher than 35V.
- The device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid (e.g. cable conduits) by more than 30%!
- The device is designed for altitudes up to 6000m. See details in the product datasheet for additional requirements above 2000m.
- Keep the following minimum installation clearances when the device is permanently loaded with more than 50% of the nominal current: 40mm on top, 20mm on the bottom, 5mm left and right side. Increase the 5mm to 15mm in case the adjacent device is a heat source.
- The device is designed, tested and approved for branch circuits up to 32A without additional protection device. If an external fuse is utilized, do not use circuit breakers smaller than 6A B- or 3A C-Characteristic to avoid a nuisance tripping of the circuit breaker.
- The maximum surrounding air temperature is +85°C / +185°F. The operational temperature is the same as the ambient or surrounding air temperature and is defined as the air temperature 2cm below the device.
- For suitable accessories, such as mounting brackets or supplementary devices, see product datasheet.

Functional Description

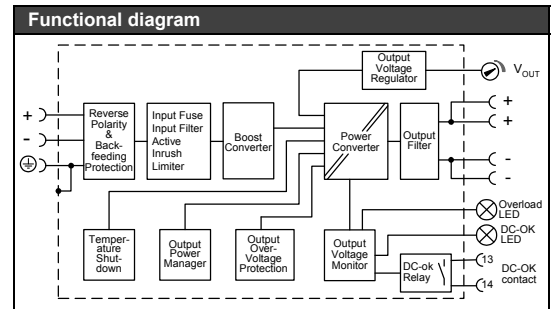
- The output voltage can be adjusted. Open the flap on the front to set the output voltage with a small flat-blade screwdriver. The factory setting is 24.1V.
- The green DC-OK LED on the front of the device reports a functional unit and is synchronized with the DC-OK relay contact. The LED is on when the output voltage is >90% of the adjusted output voltage.
- The DC-OK relay contact monitors the output voltage, which is produced by the device itself. It is independent of a back-fed voltage from a device connected in parallel to the device's output.
- The red overload LED is on, when the voltage falls below 90% of the adjusted output voltage or in case of a short circuit in the output. The LED is flashing, when the device has switched off due to over-temperature. Input voltage is required.
- The device is equipped with an over-temperature protection. In case of a high temperature, the output shut-down and starts automatically again after cooling off.
- The device can be paralleled to increase the output power. The output voltage shall be adjusted to the same value (±100mV) with the same load conditions on all devices, or the devices can be left with the factory settings. The ambient temperature is not allowed to exceed +60°C. If more than three devices are connected in parallel, a fuse or circuit breaker with a rating of 8A or 10A is required on each output. Alternatively, a diode or redundancy module can also be utilized.
- Devices of the same type can be connected in series for higher output voltages. It is possible to connect as many devices in series as needed, providing the sum of the output voltage does not exceed 150Vdc. Avoid return voltages from the load to the output.
- In case of an internal defect, a redundant circuit limits the maximum output voltage to 36Vdc. The output shuts down and automatically attempts to restart.

Technical data

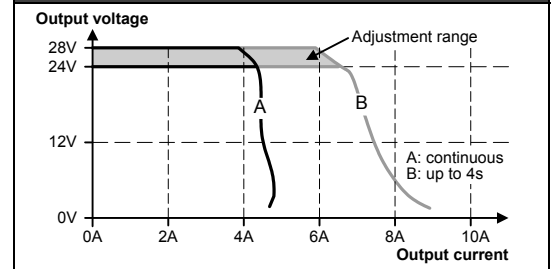
All parameters are typical values specified at 110Vdc input voltage, 24V 4.2A output, 25°C ambient temperature and after a 5 minutes run-in time unless otherwise noted.

Output voltage, nominal	DC 24V	
Adjustment range	24 – 28Vdc	Factory setting 24.1V
Output current	4.2 – 3.6A	Continuous, < +70°C
	6.3 – 5.4A	For 4 seconds, < +70°C
	4.2 – 3.6A	For 10 minutes, < +85°C
Input voltage DC	DC 110V	
Input voltage range	77 – 154Vdc	
Input current DC	1.0A	
Input inrush current	10A pk	
Efficiency	91.1%	
Power losses	9.8W	
Hold-up time	42ms	
Temperature range	-25°C to +70°C	Continuous
Maximum wire size ¹⁾	6mm ² / 4mm ²	Input terminals
Wire size AWG	AWG 20-10	Input terminals
Maximum wire diameter ²⁾	2.8mm	Input terminals
Wire stripping length	10mm / 0.4inch	Input terminals
Maximal wire size ¹⁾	4mm ² / 2.5mm ²	Output, DC-OK terminals
Wire size AWG	AWG 26-12	Output, DC-OK terminals
Maximal wire diameter ²⁾	2.25 mm	Output, DC-OK terminals
Wire stripping length	6mm / 0.25inch	Output, DC-OK terminals
Size (wxhxd)	40x124x117mm	Without DIN-rail
Weight	640g / 1.41lb	

1) Solid / stranded wire 2) Including ferrules



Output characteristic



Temperature range

