EN	**TP480.241, TP480.241-C Installation Manual**	**Power Supply 3-Phase, 24V, 20A, 480W**
DE	**TP480.241, TP480.241-C Installationsanleitung**	**Stromversorgung 3-Phase, 24V, 20A, 480W**
FR	**TP480.241, TP480.241-C Manuel d'installation**	**Alimentation d'Énergie 3-Phase, 24V, 20A, 480W**
ES	**TP480.241, TP480.241-C Manual de instalación**	**Fuente de alimentación 3-Phase, 24V, 20A, 480W**
IT	**TP480.241, TP480.241-C Manuale di installazione**	**Gruppo di alimentazione 3-Phase, 24V, 20A, 480W**
PT	**TP480.241, TP480.241-C Manual de instalação**	**Fonte de alimentação 3-Phase, 24V, 20A, 480W**

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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.

⚠ 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 duvidas 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., clipes 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 superficie poderá estar quente e provocar lesões.

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Product Description

The TP480.241 is a DIN rail mountable three-phase-input power supply, which provides a floating, stabilized and galvanically separated SELV/PELV output voltage.
The TP480.241-C device is the same as the TP480.241 but with conformally coated pc-boards.

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 and measurement equipment or the like.
Do not use this device in equipment where malfunction 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 input terminals on the bottom of the device. Other mounting orientations require a reduction in output current.
Make sure that the wiring is correct by following relevant 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.
Use ferrules for wires on the input terminals.
The device is designed for a pollution degree 2 indoor environment. Condensation or frost are not allowed. For outdoor use, install the device in an outdoor enclosure.
The enclosure of this built-in device provides a degree of protection of IP20 and has no protection against spilled liquids.
The isolation of the device is designed to withstand impulse voltages of up to 4kV, which relates to overvoltage category III according to IEC 60664-1.
The device is designed as “Class of Protection I” equipment according to IEC 61140. Do not use without a PE (Protective Earth) connection.
The device can be supplied with either a three-phase or a two-phase voltage. For two-phase operation, reduce the output current.
The device is suitable to be supplied from TN-, TT- and IT mains networks. The voltage between the L terminals and the PE terminal must not exceed 550Vac. The device is also designed to be used on corner grounded delta systems.
A disconnecting means shall be provided for the input of the device.
The device is designed for free convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid!
The device is designed for use at altitudes up to 5000m. Above 2000m, a reduction in output current is required, and it only withstand the impulse voltage requirements of OVC II. Delta-grounded power systems are only permitted up to an altitude of 2000 m with OVC II.
Keep the following minimum installation clearances: 40mm on top and the bottom, 5mm at left and right side. Increase from 5mm to 15mm in case the adjacent device is a heat source. When the device is permanently loaded with less than 50%, no lateral clearances are required.
The device is designed, tested and approved for branch circuits up to 32A (IEC) and 30A (UL) without additional protection device. If an external input protection device is utilized, do not use one lower than 6A B- or C-Characteristic to avoid a nuisance tripping.
The maximum surrounding air temperature is +70°C. The operational temperature is the same as the ambient or surrounding air temperature and is defined 2.5cm below the device.
The device is designed to operate in areas between 5% and 95% relative humidity.

Functional Description

The output is galvanically isolated from the input voltage. The output is electronically protected against no-load, overload and short circuit. In case of a protection event, audible noise may occur. The device is designed to supply resistive, capacitive or inductive loads. Capacitive loads larger than 1F can result in an intermittent mode of the device. At heavy overloads (when output voltage falls below 10V), the device delivers continuous output current for 2s. After this, the output is switched off for 8s before a restart attempt is automatically performed for 2s. This cycle is repeated as long as overload exists.
Do not apply return voltages from the load to the output higher than 35Vand energies not higher than 4J.
The output voltage can be adjusted with a small flat-blade screwdriver on the front of the unit.
A green DC LED reports an output voltage above 90% of the adjusted voltage of a running device and is independent of a return voltage from a unit which is connected in parallel.
A red DC LED reports an output voltage below 90% due to overload or output short circuit.
The device is also equipped with a bargraph. Five LEDs show the power consumption as a percentage of the nominal value of 480W.
The DC OK relay monitors the output voltage and the contact is closed when the DC LED is green. Max. 0.3A for resistive loads. The sum of output and applied DC OK voltage must not exceed 60Vdc.
The device is equipped with an over-temperature protection. In case of over-temperature, the output shuts down and restarts automatically after cooling off.
Do not parallel devices for higher output currents.
Same devices can be connected in series for higher output voltages. It is allowed to connect as many devices in series as needed, providing the sum of the output voltage does not exceed 150Vdc.
In case of an internal defect, a redundant circuit limits the maximum output voltage to 32V. The output switches off and performs three restart attempts. If the failure continues, the output shuts down. Cycle input power to reset.

Technical data

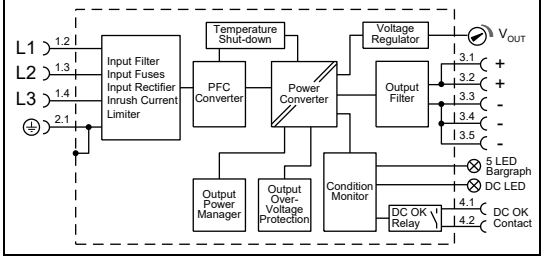
All values are typical figures specified at 3x 400Vac 50Hz input voltage, symmetrical phase voltages, 24V 20A output load, 25°C ambient temperature and after a 5 minutes run-in time unless otherwise noted.

Output voltage	DC 24V	Nominal
Adjustment range	24 – 28Vdc	Factory setting 24.1V
Output current	**Continuous for 3AC 380 – 500V mains**	
	24 – 20.6A	Below +45°C ambient
	20 – 17.1A	At +60°C ambient
	15 – 13.0A	At +70°C ambient
	Continuous for 2AC 380 – 500V mains	
	17 – 14.2A	Below +45°C ambient
	15 – 12.8A	At +60°C ambient
	11 – 9.4A	At +70°C ambient
	Short-term for 3AC 380 – 500V mains	
	40 – 34.2A	For up to 5s, below +70°C ambient

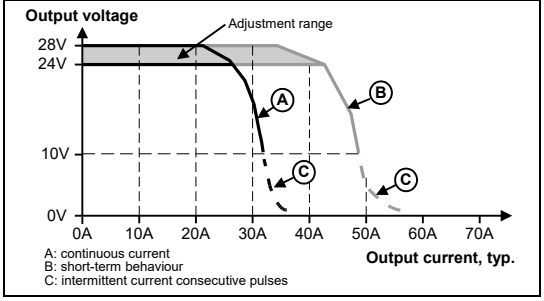
40A represents a case with 2 times the nominal output current for up to 5s. The allowed time may be longer than 5s if the short-term current is lower. See datasheet for details. The average output current must NOT exceed the continuous output current.

Input voltage	3AC 380 - 500V / 2AC 380 - 500V	-15%/+10% ±10%
Mains frequency	50 – 60Hz	±6%
Input current 3-Phase operation	1.08A	At 3x380V, 24V, 24A
	0.76A	At 3x400V, 24V, 20A
	0.64A	At 3x480V, 24V, 20A
	0.83A	At 3x500V, 24V, 24A
Input current 2-Phase operation	1.62A	At 2x380V, 24V, 17A
	1.23A	At 2x400V, 24V, 15A
	0.94A	At 2x480V, 24V, 15A
	1.07A	At 2x500V, 24V, 17A
Power factor	0.94 / 0.93	At 3x400 / 480Vac
Input inrush current	3 / 3.5A peak	At 3x400 / 480Vac
Efficiency	96.6 / 96.5%	At 3x400 / 480Vac
Power losses	16.9 / 17.4W	At 3x400 / 480Vac
Hold-up time	34 / 34ms	At 3x400 / 480Vac
Temperature range	-40 to +70°C	
Max. wire size (litz wire)	4mm²	All terminals
Max. wire size (solid wire)	6mm²	All terminals
Wire size AWG	AWG 20-10	All terminals
Max. wire diameter	2.8mm	All terminals
Wire stripping length	11mm	All terminals
Size (wxhxd)	49x124x135mm	Without DIN rail
Weight	750g	

Functional diagram

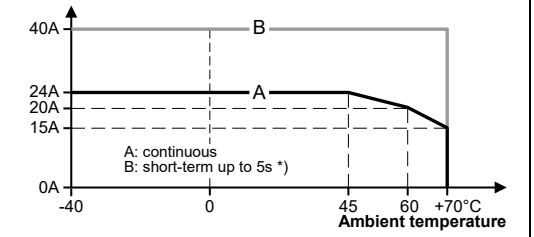


Output characteristics



Temperature range

Allowed output current at 24V and 3-phase input



*) The curve B represents 40A load current for up to 5s. The allowed time may be longer than 5s if the short-term current is lower. See datasheet for details. The average output current must NOT exceed the continuous output current.