

**General Safety Instructions:**

READ SAFETY INSTRUCTIONS

**Servicing:**

These products are not customer serviceable TDK-Lambda UK LTD and their authorised agents only are permitted to carry out repairs.

**Critical Components:**

These products are not authorised for use as critical components in nuclear control systems, life support systems or equipment for use in hazardous environments without the express written approval of the Managing Director of TDK-Lambda EMEA.

**Product Usage:**

These products are designed for use within a host equipment which restricts access to authorised competent personnel.

This product is a component power supply and is only to be installed by qualified persons within other equipment and must be not operated as a stand alone product.

This product is for sale to business to business customers and can be obtained via distribution channels. It is not intended for sale to end users.

This product is a component power supply and does not fall within the scope of the EMC directive. Compliance with the EMC directive must be considered in the final installation. Please contact your local TDK-Lambda office.

**Environmental:**

These products are IPX0, and therefore chemicals/solvents, cleaning agents and other liquids must not be used.

**Environment:**

This power supply is a switch mode power supply for use in applications within a Pollution Degree 2, overvoltage category II environment. Material Group IIIb PCB's are used within it.

**Output Loading:**

The output power taken from the power supply must not exceed the rating stated on the power supply label, except as stated in the product limitations in this handbook.

**Input Parameters:**

This product must be operated within the input parameters stated in the product limitations in this handbook.

**End of Life Disposal:**

The unit contains components that require special disposal. Make sure that the unit is properly disposed of at the end of its service life and in accordance with local regulations.



RISK OF ELECTRIC SHOCK

**High Voltage Warning:**

Dangerous voltages are present within the power supply. The professional installer must protect service personnel from inadvertent contact with these dangerous voltages in the end equipment.

**WARNING:** When installed in a Class 1 end equipment, this product must be reliably earthed and professionally installed.

The (+) or (-) output(s) can be earthed or left floating.

The unit cover(s)/chassis (where applicable) must not be made user accessible.

The mains input connector is not acceptable for use as field wiring terminals.

For encased products, do not use mounting screws, which penetrate the unit more than; See drawings.

Internal fuses protect the unit and must not be replaced by the user. In case of internal defect, the unit must be returned to TDK-Lambda UK LTD or one of their authorised agents.

A suitable mechanical, electrical and fire enclosure must be provided by the end use equipment for mechanical, electric shock and fire hazard protection.

**Energy Hazards:**

The main output of this product is capable of providing hazardous energy (240VA). Final equipment manufacturers must provide protection to service personnel against inadvertent contact with the output terminals.

The unit cover/chassis, where applicable, is designed to protect skilled personnel from hazards. They must not be used as part of the external covers of any equipment where they may be accessible to operators, since under full load conditions, part or parts of the unit chassis may reach temperatures in excess of those considered safe for operator access.

**Allgemeine Sicherheitsvorschriften:**

LESEN SIE DIE SICHERHEITSVORSCHRIFTEN

**Wartung:**

Diese Produkte können nicht durch den Kunden gewartet werden. Nur TDK-Lambda UK LTD. und deren zugelassene Vertriebshändler sind zur Durchführung von Reparaturen berechtigt.

**Kritische Komponenten:**

Diese Produkte sind nicht für die Verwendung als kritische Komponenten in nuklearen Kontrollsystemen, Lebenserhaltungssystemen oder Geräten in gefährlichen Umgebungen geeignet, sofern dies nicht ausdrücklich und in Schriftform durch den Geschäftsführer von TDK-Lambda EMEA genehmigt wurde.

**Produktverwendung:**

Diese Produkte sind zur Verwendung innerhalb von Host-Anlagen gedacht, die einen auf das Fachpersonal beschränkten Zugang haben.

Dieses Produkt ist eine Stromversorgungs-Komponente und sie darf nur von qualifiziertem Personal in andere Geräte eingebaut werden und sie darf NICHT als eigenständiges ("Stand-Alone") Gerät betrieben werden.

Dieses Produkt ist für den Verkauf an Geschäftskunden entwickelt worden und es kann über Distributionskanäle bezogen werden.

Es ist NICHT für den Verkauf an Endkunden gedacht und konzipiert.

Dieses Produkt ist eine Stromversorgungsbaugruppe und sie fällt NICHT in den Bereich der EMV Direktive.

Die Konformität mit der EMV Richtlinie muss in der finalen Gesamtinstallation betrachtet werden.

Bitte kontaktieren Sie Ihr regionales TDK-Lambda Vertriebsbüro im Falle von Rückfragen.

**Umwelt:**

Diese Produkte sind IPX0, aus diesem Grund dürfen keine Chemikalien/Lösungsmittel, Reinigungsmittel und andere Flüssigkeiten verwendet werden.

**Umgebung:**

Dieses Netzteil ist ein Schaltnetzteil zur Verwendung in einer Umgebung mit einem Verschmutzungsgrad 2, Überspannungskategorie II. Materialgruppe IIIb mit darin verwendeten PCBs.

**Ausgangsstrom:**

Der Ausgangsstrom des Netzteiles darf die Leistung, die auf dem Label des Netzteiles vermerkt ist, nur dann überschreiten, wenn dies in den Produktgrenzen dieses Handbuches ausgezeichnet ist.

**Eingangsparameter:**

Dieses Produkt muss innerhalb der Eingangsparameter, die in den Produktgrenzen dieses Handbuches angegeben sind, betrieben werden.

**Entsorgung am Ende der Betriebszeit:**

Das Gerät enthält Komponenten die unter Sondermüll fallen. Das Gerät muss am Ende der Betriebszeit ordnungsgemäß und in Übereinstimmung mit den regionalen Bestimmungen entsorgt werden.

**GEFAHR DURCH ELEKTRISCHEN SCHLAG****Hochspannungswarnung:**

Innerhalb des Netzteiles gibt es gefährliche Spannungen. Der Elektroinstallateur muss das Wartungspersonal vor versehentlichem Kontakt mit den gefährlichen Spannungen im Endgerät schützen.

**WARNUNG!** Falls Sie unser Netzgerät in eine Anwendung mit Schutzklasse 1 eingebaut haben, stellen Sie sicher, dass es fachgerecht installiert und zuverlässig geerdet ist.

Die (+) oder (-) Ausgänge können geerdet werden oder unangeschlossen bleiben.

Die Abdeckung des Gerätes/das Gehäuse darf für den Benutzer nicht zugänglich sein.

Der Haupteingangsanschluss ist nicht für die Verwendung als Feldverdrahtungsanschluss geeignet.

Für ummantelt Produkte, verwenden Sie keine Schrauben, die das Gerät mehr als durchdringen; siehe Zeichnung. Eine interne Sicherung schützt das Gerät und darf durch den Benutzer nicht ausgetauscht werden. Im Fall von internen Defekten muss das Gerät an TDK-Lambda UK LTD oder einen der autorisierten Vertriebshändler zurückgeschickt werden.

Ein geeignetes mechanisches, elektrisches und brandgeschütztes Gehäuse muss als Schutz vor der Gefahr von mechanischen Risiken, Stromschlägen und Brandschutz in dem Endgerät vorgesehen werden.

**Gefahren durch elektrische Energie:**

Von bestimmten Modulen kann je nach Einstellung der Ausgangsspannung gefährliche elektrische Energie ausgehen (240 VA). Die Endgerätehersteller müssen einen Schutz für Servicepersonal vor unbeabsichtigtem Kontakt mit den Ausgangsanschlüssen dieser Module vorsehen. Kann aufgrund der Einstellung gefährliche elektrische Energie auftreten, dürfen die Modulanschlüsse für den Benutzer nicht zugänglich sein.

Die Geräteabdeckung/das Gehäuse ist so entworfen, dass das Fachpersonal vor Gefahren geschützt wird. Sie dürfen nicht als Teil der externen Abdeckung für Geräte verwendet werden, die für den Betreiber zugänglich sein müssen, da Teile oder das gesamte Gerätegehäuse unter voller Auslastung übermäßige Temperaturen erreichen kann, die für den Zugang des Betreibers nicht mehr als sicher betrachtet werden.

**Consignes générales de sécurité:**

LIRE LES CONSIGNES DE SECURITE

**Entretien:**

Ces produits ne peuvent pas être réparés par l'utilisateur. Seuls, TDK-Lambda UK LTD et ses agents agréés sont autorisés à effectuer des réparations.

**Composants critiques:**

Ces produits ne doivent pas être utilisés en tant que composants critiques dans des systèmes de commande nucléaire, dans des systèmes de sauvetage ou dans des équipements utilisés dans des environnements dangereux, sans l'autorisation écrite expresse du directeur général de TDK-Lambda EMEA.

**Utilisation du produit:**

Ces produits sont conçus pour être utilisés dans un équipement hôte dont l'accès n'est autorisé qu'aux personnes compétentes.

Ce produit est une alimentation considérée comme un composant devant être installé par des personnes qualifiées, dans un autre équipement. Il ne doit pas être utilisé en tant que produit fini.

Ce produit est destiné à la vente entre entreprises et peut être obtenu via des canaux de distribution.

Il n'est pas prévu à la vente pour les particuliers.

Ce produit est une alimentation considérée comme un composant, il ne relève pas du champ d'application de la directive CEM. Le respect de la directive CEM doit être pris en compte dans l'installation finale. Veuillez contacter votre bureau TDK-Lambda le plus proche.

**Environnement:**

Ces produits sont IPX0, et donc on ne doit pas utiliser des produits chimiques/solvants, des produits de nettoyage et d'autres liquides.

**Environnement fonctionnel :**

Cette alimentation fonctionne en mode commutation pour utilisation dans des applications fonctionnant dans un environnement avec Degré de Pollution 2 et catégorie de surtension II. Elle utilise des cartes des circuits imprimés (PCB) de Groupe IIIb.

**Intensité soutirée:**

L'intensité soutirée de l'alimentation ne doit pas dépasser l'intensité nominale marquée sur la plaque signalétique, sauf indications contraires dans les limitations du produit décrit dans ce manuel.

**Paramètres d'entrée:**

Ce produit doit être utilisé à l'intérieur des paramètres d'entrée indiqués dans les limitations du produit dans ce manuel.

**Élimination en fin de vie:**

L'alimentation contient des composants nécessitant des dispositions spéciales pour leur élimination. Vérifiez que cette alimentation est mise au rebut correctement en fin de vie utile et conformément aux réglementations locales en vigueur.



RISQUE DE CHOC ELECTRIQUE

**Attention-Danger haute tension:**

Des tensions dangereuses sont présentes dans l'alimentation. L'installateur doit protéger le personnel d'entretien contre un contact involontaire avec ces tensions dangereuses dans l'équipement final.

**AVERTISSEMENT:** Si ce produit est installé dans un équipement final de classe I, il doit être mis à la terre de manière fiable et installé par un professionnel averti.

Les sorties (+) ou (-) peuvent être raccordées à la terre ou laissées flottantes.

Le couvercle/châssis de l'alimentation ne doit pas être accessible à l'utilisateur. Le connecteur d'entrée d'alimentation principale ne doit pas être utilisé comme borne de raccordement.

N'utilisez pas de vis pénétrant dans le module sur une profondeur supérieure à : Voir dessins.

Un fusible interne protège le module et ne doit pas être remplacé par l'utilisateur. En cas de défaut interne, le module doit être renvoyé à TDK-Lambda UK LTD ou l'un de ses agents agréés.

Une enceinte appropriée doit être prévue par l'utilisateur final pour assurer la protection contre les chocs mécaniques, les chocs électriques et l'incendie.

**Energies dangereuses :**

Certains modules peuvent générer une énergie dangereuse (240 VA) selon le réglage de tension de sortie. Le fabricant de l'équipement final doit assurer la protection des techniciens d'entretien contre un contact involontaire avec les bornes de sortie de ces modules. Si une telle tension dangereuse risque de se produire, les bornes ou les connexions du module ne doivent pas être accessibles par l'utilisateur.

Le couvercle et le châssis du module sont conçus pour protéger des personnels expérimentés. Ils ne doivent pas être utilisés comme couvercles extérieurs d'un équipement, accessible aux opérateurs car en condition de puissance maximum, des parties du châssis peuvent atteindre des températures considérées comme dangereuses pour l'opérateur.

**Norme generali di sicurezza:**

SI PREGA DI LEGGERE LE NORME DI SICUREZZA

**Manutenzione:**

Il cliente non può eseguire alcuna manutenzione su questi prodotti. L'esecuzione delle eventuali riparazioni è consentita solo a TDK-Lambda UK LTD e ai suoi agenti autorizzati.

**Componenti critici:**

Non si autorizza l'uso di questi prodotti come componenti critici all'interno di sistemi di controllo nucleari, sistemi necessari alla sopravvivenza o apparecchiature destinate all'impiego in ambienti pericolosi, senza l'esplicita approvazione scritta dell'Amministratore Delegato di TDK-Lambda EMEA.

**Uso dei prodotti:**

Questi prodotti sono progettati per l'uso all'interno di un'apparecchiatura ospite che limiti l'accesso al solo personale competente e autorizzato.

Questo prodotto è da considerarsi come un alimentatore professionale componente e come tale deve essere installato da personale qualificato all'interno di altre apparecchiature e non può essere utilizzato come prodotto indipendente.

Questo prodotto non è inteso per la vendita al dettaglio o agli utilizzatori finali.

Questo alimentatore è da considerarsi come un componente e come tale non è assoggettato dagli scopi della direttiva EMC. Conformità alla direttiva EMC deve essere considerata nell'installazione finale di utilizzo. Gli uffici di TDK-Lambda Sas Succursale Italiana sono a vostra disposizione per ulteriori raggugli.

**Condizioni ambientali:**

Questi prodotti sono classificati come IPX0, dunque non devono essere utilizzati sostanze chimiche/solventi, prodotti per la pulizia o liquidi di altra natura.

**Ambiente:**

Questo prodotto è un alimentatore a commutazione, destinato all'uso in applicazioni rientranti in ambienti con le seguenti caratteristiche: Livello inquinamento 2, Categoria sovratensione II. Questo prodotto contiene schede di circuiti stampati in materiali di Gruppo IIIb.

**Carico in uscita:**

La potenza in uscita ottenuta dall'alimentatore non deve superare la potenza nominale indicata sulla targhetta dell'alimentatore, fatto salvo dove indicato nei limiti per il prodotto specificati in questo manuale.

**Parametri di alimentazione:**

Questo prodotto deve essere utilizzato entro i parametri di alimentazione indicati nei limiti per il prodotto, specificati in questo manuale.

**Smaltimento:**

L'unità contiene componenti che richiedono procedure speciali di smaltimento. Accertarsi che l'unità venga smaltita in modo corretto al termine della vita utile e nel rispetto delle normative locali.



RISCHIO DI SCOSSA ELETTRICA

**Avvertimento di alta tensione:**

All'interno dell'alimentatore sono presenti tensioni pericolose. Gli installatori professionali devono proteggere il personale di manutenzione dal rischio di contatto accidentale con queste tensioni pericolose all'interno dell'apparecchiatura finale.

**ATTENZIONE:** Se installato in un'attrezzatura di classe I, questo prodotto deve essere collegato a terra in modo affidabile ed installato in modo professionale.

Le uscite (+) o (-) possono essere messa a terra o lasciate isolate.

I coperchi/il telaio dell'unità non devono essere accessibili da parte dell'utente.

Il connettore dell'alimentazione principale non può essere utilizzato come terminale di collegamento di campo.

Non utilizzare viti che penetrano nell'unità per più di : Vedi disegni

Un fusibile interno protegge l'unità e non deve essere sostituito dall'utente. Nell'eventualità di un difetto interno, restituire l'unità a TDK-Lambda UK LTD o a uno dei suoi agenti autorizzati.

L'apparecchiatura finale deve includere una recinzione meccanica, elettrica e antincendio per proteggere dai pericoli di natura meccanica, dalle scosse elettriche e dai pericoli di incendio.

**Pericoli energetici:**

Alcuni moduli sono in grado di erogare energia pericolosa (240 VA) a seconda della tensione in uscita impostata. I produttori delle apparecchiature finali sono tenuti a proteggere il personale di manutenzione dal rischio di contatto accidentale con questi terminali dei moduli di uscita. Se impostati su livelli che non escludono l'erogazione di energia pericolosa, questi terminali o collegamenti non devono risultare accessibili da parte dell'utente.

Il coperchio/telaio dell'unità è realizzato per proteggere il personale esperto dai pericoli. Non deve essere usato come parte degli involucri esterni di qualsiasi apparecchiatura, se risulta accessibile da parte degli addetti, poiché è possibile che in condizioni di pieno carico una o più parti del telaio dell'unità giunga/ giungano a temperature superiori ai limiti considerati sicuri per l'accesso da parte degli addetti.



**Instrucciones generales de seguridad:**

LEA LAS INSTRUCCIONES DE SEGURIDAD

**Servicio:**

Estos productos no pueden ser reparados por los clientes. TDK-Lambda UK LTD. y sus agentes autorizados son los únicos que pueden llevar a cabo las reparaciones.

**Componentes fundamentales:**

Estos productos no pueden ser utilizados como componentes fundamentales en sistemas de control nuclear, sistemas de soporte vital o equipos a utilizar en entornos peligrosos sin el consentimiento expreso por escrito del Director General de TDK-Lambda EMEA.

**Uso de los productos:**

Estos productos han sido diseñados para ser utilizados en un equipo central que restrinja el acceso al personal cualificado autorizado.

Este producto es una fuente de alimentación y sólo puede ser instalado por personal cualificado dentro de otros equipos y no debe ser tratado como un producto independiente. Este producto debe ser vendido entre empresas profesionales y solo puede obtenerse a través de los canales de distribución. No está destinado para la venta a usuarios finales.

Este producto es una fuente de alimentación y no se ve afectada por la directiva EMC. El cumplimiento de la directiva EMC se debe considerar en la instalación final. Por favor, póngase en contacto con su oficina local de TDK - Lambda.

**Medioambiental:**

Estos productos son IPX0 y, por tanto, no pueden utilizarse sustancias químicas/disolventes, agentes de limpieza ni otros líquidos.

**Medio ambiente:**

Esta fuente de alimentación es una fuente de alimentación de modo conmutado a utilizar en aplicaciones dentro de un entorno con un Grado de contaminación 2 y una Categoría de sobretensión II. En él se utilizan policloruros de bifenilo del Grupo de materiales IIIb.

**Carga de salida:**

La potencia de salida tomada de la fuente de alimentación no puede sobrepasar el valor nominal indicado en la etiqueta de la fuente de alimentación, excepto en los casos indicados en las limitaciones del producto en este manual.

**Parámetros de entrada:**

Este producto debe ser utilizado dentro de los parámetros de entrada indicados en las limitaciones del producto en este manual.

**Desecho de la unidad:**

La unidad contiene componentes que deben ser desechados de una manera especial. Asegúrese de desechar correctamente la unidad al final de su vida útil y conforme a las normas locales vigentes.



PELIGRO DE DESCARGAS ELÉCTRICAS

**Advertencia de alta tensión:**

En esta fuente de alimentación hay tensiones peligrosas. El instalador profesional debe proteger al personal de servicio contra cualquier contacto accidental con estas tensiones peligrosas en el equipo final.

**ADVERTENCIA:** La instalación de este producto en un equipo de clase I la deben llevar a cabo profesionales y el producto debe estar conectado a tierra.

La salida o salidas (+) o (-) pueden conectarse a tierra o se las puede dejar flotando.

Debe impedirse el acceso de los usuarios a la cubierta o cubiertas y al chasis de la unidad.

El conector de entrada de la red no es apto para ser utilizado a modo de bornes de cableado de campo.

No utilice tornillos de montaje susceptibles de penetrar en la unidad más de: Ver dibujos.

Un fusible interno protege la unidad y este no debe ser nunca reemplazado por el usuario. En caso de existir algún defecto interno, la unidad debe ser enviada a TDK-Lambda UK LTD o a uno de sus agentes autorizados.

El equipo de uso final debe constituir un recinto de protección mecánica, eléctrica y contra incendios de protección mecánica, contra descargas eléctricas y contra el peligro de incendios.

**Peligros de energía:**

Algunos módulos pueden generar energía peligrosa (240VA) dependiendo de la configuración de la tensión de salida. Los fabricantes de equipos finales deben proteger al personal de servicio contra un contacto accidental con estos bornes de salida de los módulos. Si se configura de modo que pueda generarse energía peligrosa, hay que evitar que el usuario pueda acceder a los bornes o conexiones del módulo.

La cubierta/chasis de la unidad ha sido diseñada para que proteja a las personas cualificadas de los peligros. No deben ser utilizadas como parte de las cubiertas externas de cualquier equipo al que pueden acceder los operarios, ya que bajo unas condiciones de carga completa, la pieza o piezas del chasis de la unidad pueden alcanzar temperaturas superiores a las consideradas seguras para el acceso de los operarios.

**Instruções gerais de segurança:**

LEIA AS INSTRUÇÕES DE SEGURANÇA

**Manutenção:**

Estes produtos não são podem ser submetidos a manutenção por parte do cliente. Apenas a TDK-Lambda UK LTD e os seus agentes autorizados têm permissão para realizar reparações.

**Componentes essenciais:**

Não é autorizada a utilização destes produtos como componentes essenciais de sistemas de controlo nuclear, sistemas de suporte de vida ou equipamento para utilização em ambientes perigosos sem a expressa autorização por escrito do Director-Geral da TDK-Lambda EMEA.

**Utilização do produto:**

Estes produtos foram concebidos para utilização dentro de um equipamento de alojamento que apenas permita o acesso a pessoal qualificado autorizado.

Este produto é uma alimentação considerado com um componente para ser instalado por pessoas qualificadas, em outros equipamentos. Não deve ser usado como um produto acabado.

Este produto é destinado para venda entre as empresas e pode ser obtido através de canais de distribuição. Não se destina à venda aos particulares.

Este produto é uma alimentação considerado com um componente, não é dentro do application âmbito da directiva CEM.

Conformidade com a directiva CEM devem ser considerados na instalação final.

Entre em contacto com seu escritório TDK-Lambda mais próximo.

**Ambiental:**

Estes produtos são IPX0 e, como tal, não se devem utilizar químicos/solventes, agentes de limpeza e outros líquidos.

**Ambiente:**

Esta fonte de alimentação é uma fonte de alimentação do modo de comutação para utilização em aplicações com um Nível de Poluição 2 e ambientes da categoria de sobretensão II. São utilizadas placas de circuitos impressos do grupo de materiais IIIb.

**Carga de saída:**

A potência de saída extraída da fonte de alimentação não deve exceder a classificação assinalada na etiqueta da fonte de alimentação, excepto quando indicado nas limitações do produto neste guia.

**Parâmetros de entrada:**

Este produto deve ser utilizado dentro dos parâmetros de entrada indicados nas limitações do produto neste guia.

**Eliminação no fim de vida:**

A unidade contém componentes que necessitam de procedimentos especiais de eliminação. Certifique-se de que a unidade é devidamente eliminada no fim da sua vida útil e que tal é feito em conformidade com os regulamentos locais.



RISCO DE CHOQUE ELÉCTRICO

**Aviso de alta tensão:**

Estão presentes tensões perigosas dentro da fonte de alimentação. O profissional que realizar a instalação deve proteger o pessoal de assistência contra contactos inadvertidos com estas tensões perigosas do equipamento final.

**AVISO:** Quando instalado num equipamento de Classe I, este produto deve ser ligado à terra de forma fiável e instalado por um profissional.

As saídas (+) e (-) podem ser ligadas à terra ou deixadas soltas.

O chassis/cobertura(s) da unidade não deve estar acessível ao utilizador.

O conector de entrada de alimentação não deve ser utilizado como terminal de cablagens no local.

Não utilize parafusos de montagem, uma vez que estes penetrarão na unidade em mais do que: Veja os desenhos

Existe um fusível interno que protege a unidade e que não deve ser substituído pelo utilizador. Em caso de defeito interno, a unidade deve ser devolvida à TDK-Lambda UK LTD ou a um dos seus agentes autorizados.

O equipamento de utilização final deve fornecer um bastidor com protecção mecânica, eléctrica e contra incêndios adequada.

**Perigos de energia:**

Alguns módulos tem a capacidade de fornecer energia perigosa (240 VA), de acordo com a configuração da tensão de saída. O equipamento final do fabricante deve garantir que o pessoal de assistência está protegido contra contactos inadvertidos com estes terminais de saída do módulo. Se essa energia perigosa for produzida, as ligações e os terminais do módulo não devem ser acessíveis pelos utilizadores.

O chassis/cobertura da unidade está concebido de forma a proteger o pessoal especializado de perigos. Não devem ser utilizados como parte das coberturas externas de qualquer equipamento em que possam estar acessíveis aos operadores, uma vez que em condições de carga máxima, algumas peças do chassis da unidade podem atingir temperaturas superiores às consideradas seguras para o acesso do operador.

## **TDK-Lambda**

TDK-Lambda UK Ltd  
Kingsley Avenue, Ilfracombe  
Devon, EX34 8ES  
Telephone - Sales and Service +44 (0)1271 856666  
Head Office and Works +44 (0)1271 856600  
Facsimile +44 (0)1271 864894  
WEBSITE: [www.uk.tdk-lambda.com](http://www.uk.tdk-lambda.com)

# *ZWD225PAF Series*

## *Instruction Manual*

### **BEFORE USING THE POWER SUPPLY UNIT**

Pay attention to all warnings and cautions before using the unit. Incorrect usage could lead to an electrical shock, damage to the unit or a fire hazard.

### **WARNING and CAUTION**

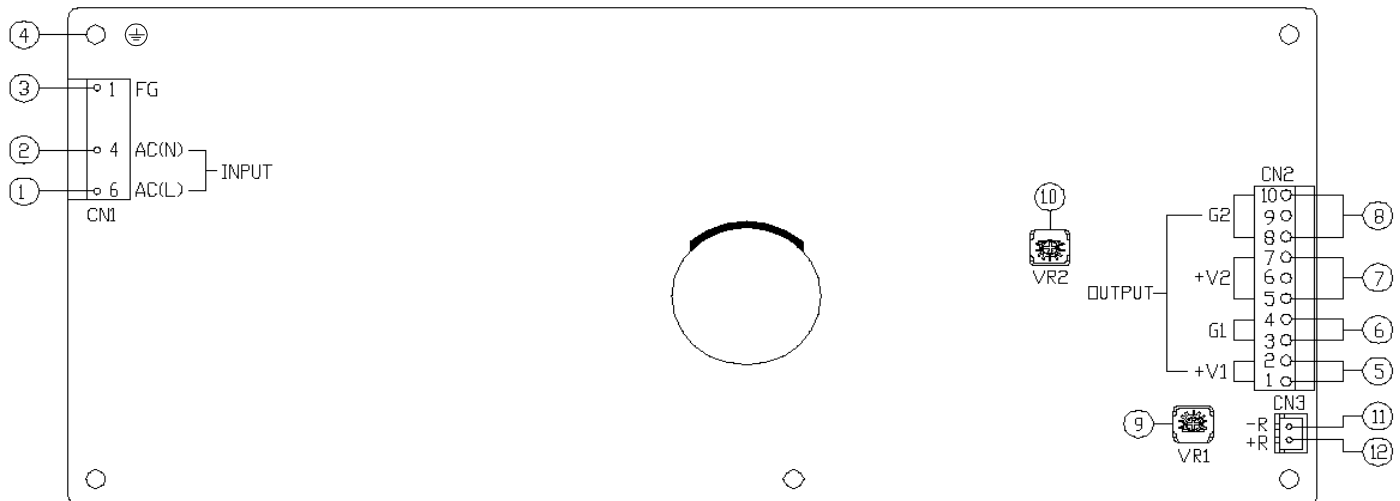
- Do not modify.
- Do not touch the internal components, they may have high voltage or high temperature. You may get electrical shock or burned.
- When the unit is operating, keep your hands and face away from it, you may get injured by an accident.
- This power supply is primarily designed and manufactured to be used and enclosed in other equipment. Stick the WARNING label for users on the system equipment and describe the notice in the instruction manual.
- Never operate the unit under over current or shorted conditions for 30 seconds or more and outside of its specified Input Voltage Range which could result in damage. There is no possibility of fire or burning.
- Confirm that connections to input/output terminals are correct as indicated in the instruction manual.
- This power supply is PC board type unit. Please hold the board edge while mounting, and do not touch the component side. Please lift the power supply with a spacer when mounting the power supply on any surface.
- This power supply is capable of providing hazardous energy output(240VA), the end equipment manufacturer must provide protection personal against inadvertent contact with output terminals. This terminal must not be user accessible.
- Under single fault conditions in secondary circuits, the output(s) of this product may go non-SELV between parts of the secondary circuits and earth. It is therefore necessary to earth the output(s) to maintain SELV between output(s) and earth. Alternatively, the output(s) may be considered hazardous and must not be made user accessible in the end equipment.
- Do not drop or apply shock to power supply unit.

### **Note: CE MARKING**

CE Marking, when applied to a product covered by this handbook, indicates compliance with the low voltage directive.

## 1. Terminal Explanation

### 1-1. ZWD225PAF



- ① L: AC Input terminal (pin 6 of CN1)  
Live line (fuse in line)
- ② N: AC input terminal (pin 4 of CN1)  
Neutral line
- ③ FG: Input terminal FG (pin 1 of CN1)  
Safety earth (Frame Ground)  
Connect to safety ground of apparatus or equipment.
- ④ PE: Protective Earth (Connected to pin 1 of CN1)  
Must be connected to electrically safety ground of apparatus or equipment by electrically conductive spacers. The mounting surface of the spacer should be within MAX  $\phi$ 8mm.
- ⑤ V1: CH1 +ve Output terminal
- ⑥ G1: CH1 -ve Output terminal
- ⑦ V2: CH2 +ve Output terminal
- ⑧ G2: CH2 -ve Output terminal
- ⑨ V.ADJ: 5V Output Voltage adjust trimmer (VR1)  
The 5V Output voltage rises when the trimmer is turned clockwise.
- ⑩ V.ADJ : 24V Output Voltage adjust trimmer (VR2)  
The 24V Output voltage rises when the trimmer is turned clockwise.

- ⑪ -R : CN3 ON/OFF control -R terminal
- ⑫ +R : CN3 ON/OFF control +R terminal

\*Input & Output connector (MOLEX)  
(also for option model /L,/A)

	Connector	Recommended	
		Housing	Terminal Pin
Input (CN1)	5414-30B	5195-06 or 2139-06 or 3069-06	5194PBTL
Output (CN2)	5273-10A	5195-10 or 2139-10 or 3069-10	5194PBTL

\*Output Current of each connector pin must be less than 5A.(7A at peak load)

\*Hand Crimping Tooling : 11-26-0058 (MOLEX)

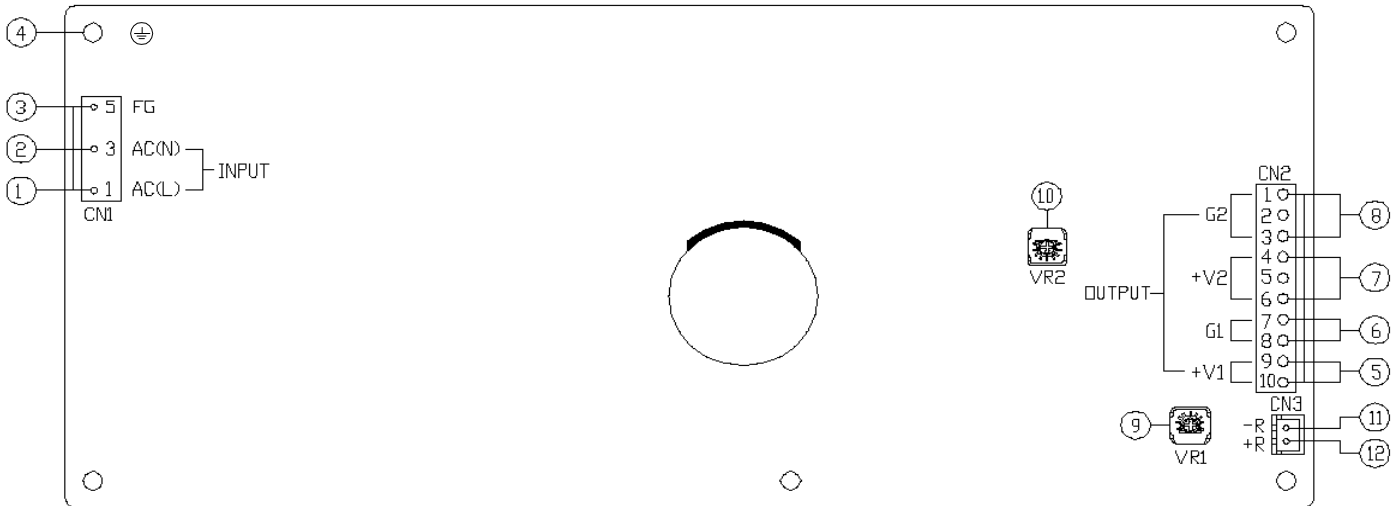
\*Connector for Remote ON/OFF control: CN3 (J.S.T)

Connector	Housing	Recommended
		Terminal Pin
B2B - XH - A	XHP - 2	BXH - 001T - P0.6 or SXH - 001T - P0.6

\*CN3 is normally shorted by JM-2W-96 ( J.S.T )

\*Hand Crimping Tool: YC-110R (J.S.T) or YRS-110 (J.S.T)

**1-2. ZWD225PAF/J**



- ① L: AC Input terminal (pin 1 of CN1)  
Live line (fuse in line)
- ② N: AC input terminal (pin 3 of CN1)  
Neutral line
- ③ FG: Input terminal FG (pin 5 of CN1)  
Safety earth (Frame Ground)  
Connect to safety ground of apparatus or equipment.
- ④ PE: Protective Earth (Connected to pin 5 of CN1)  
Must be connected to electrically safety ground of apparatus or equipment by electrically conductive spacers. The mounting surface of the spacer should be within MAX  $\phi 8\text{mm}$ .
- ⑤ V1: CH1 +ve Output terminal
- ⑥ G1: CH1 -ve Output terminal
- ⑦ V2: CH2 +ve Output terminal
- ⑧ G2: CH2 -ve Output terminal
- ⑨ V.ADJ: 5V Output Voltage adjust trimmer (VR1)  
The 5V Output voltage rises when the trimmer is turned clockwise.
- ⑩ V.ADJ : 24V Output Voltage adjust trimmer (VR2)  
The 24V Output voltage rises when the trimmer is turned clockwise.

- ⑪ -R : CN3 ON/OFF control -R terminal
- ⑫ +R : CN3 ON/OFF control +R terminal

\*Input & Output connector ( J.S.T )  
(also for option model /JL,/JA)

	Connector	Recommended	
		Housing	Terminal Pin
Input (CN1)	B3P5-VH	VHR-5N	SVH-21T-P1.1
Output (CN2)	B10P-VH	VHR-10N	SVH-21T-P1.1

\*Output Current of each connector pin must be less than 5A.  
(7A at peak load)

\*Hand Crimping Tool : YC-160R ( J.S.T )

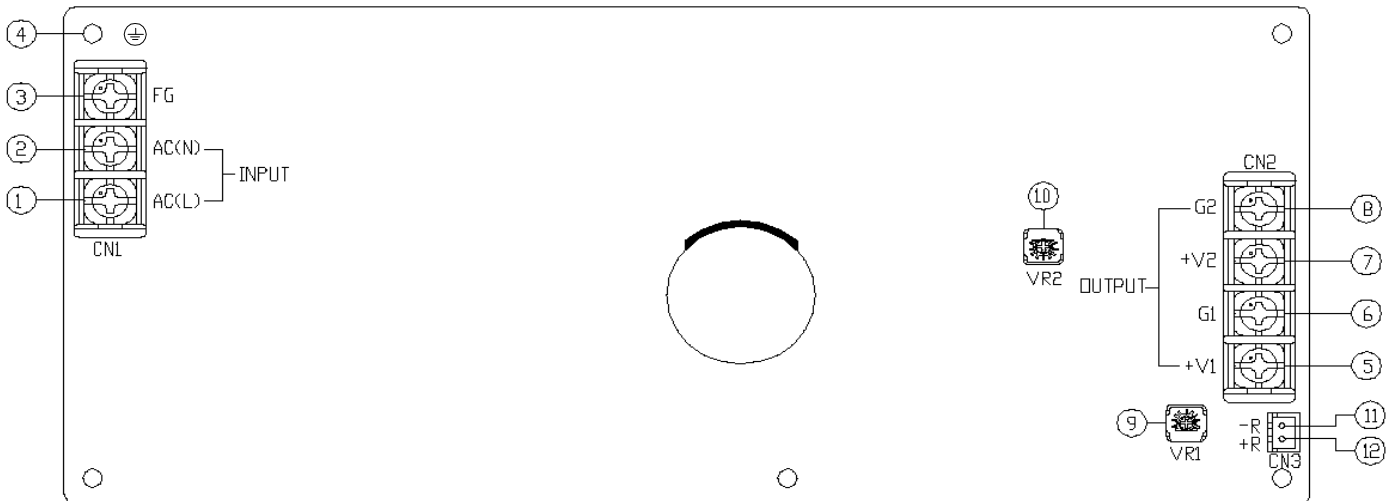
\*Connector for Remote ON/OFF control: CN3 (J.S.T)

Connector	Housing	Recommended
		Terminal Pin
B2B - XH - A	XHP - 2	BXH - 001T - P0.6 or SXH - 001T - P0.6

\*CN3 is normally shorted by JM-2W-96 ( J.S.T )

\*Hand Crimping Tool: YC-110R (J.S.T) or YRS-110 (J.S.T)

### 1-3. ZWD225PAF/T



- ① L: AC Input terminal L (M4 screw)  
Live line (fuse in line)
- ② N: AC input terminal N (M4 screw)  
Neutral line
- ③ FG: Input terminal FG (M4 screw)  
Safety earth (Frame Ground)  
Connect to safety ground of apparatus or equipment.
- ④ PE: Protective Earth  
Must be connected to electrically safety ground of apparatus or equipment by electrically conductive spacers. The mounting surface of the spacer should be within MAX  $\phi 8\text{mm}$ .
- ⑤ V1: CH1 +ve Output terminal
- ⑥ G1: CH1 -ve Output terminal
- ⑦ V2: CH2 +ve Output terminal
- ⑧ G2: CH2 -ve Output terminal
- ⑨ V.ADJ: 5V Output Voltage adjust trimmer (VR1)  
The 5V Output voltage rises when the trimmer is turned clockwise.
- ⑩ V.ADJ : 24V Output Voltage adjust trimmer (VR2)  
The 24V Output voltage rises when the trimmer is turned clockwise.

- ⑪ -R : CN3 ON/OFF control -R terminal
- ⑫ +R : CN3 ON/OFF control +R terminal

\* Input & Output connector ( EMUDEN )  
(also for option model /TL,/TA)

	Connector
Input (CN1)	T6957-A-X
Output (CN2)	T6958-A-X

\*Connector for Remote ON/OFF control: CN3 (J.S.T)

Recommended		
Connector	Housing	Terminal Pin
B2B - XH - A	XHP - 2	BXH - 001T - P0.6 or SXH - 001T - P0.6

\*CN3 is normally shorted by JM-2W-96 ( J.S.T )

\*Hand Crimping Tool: YC-110R (J.S.T) or YRS-110 (J.S.T)

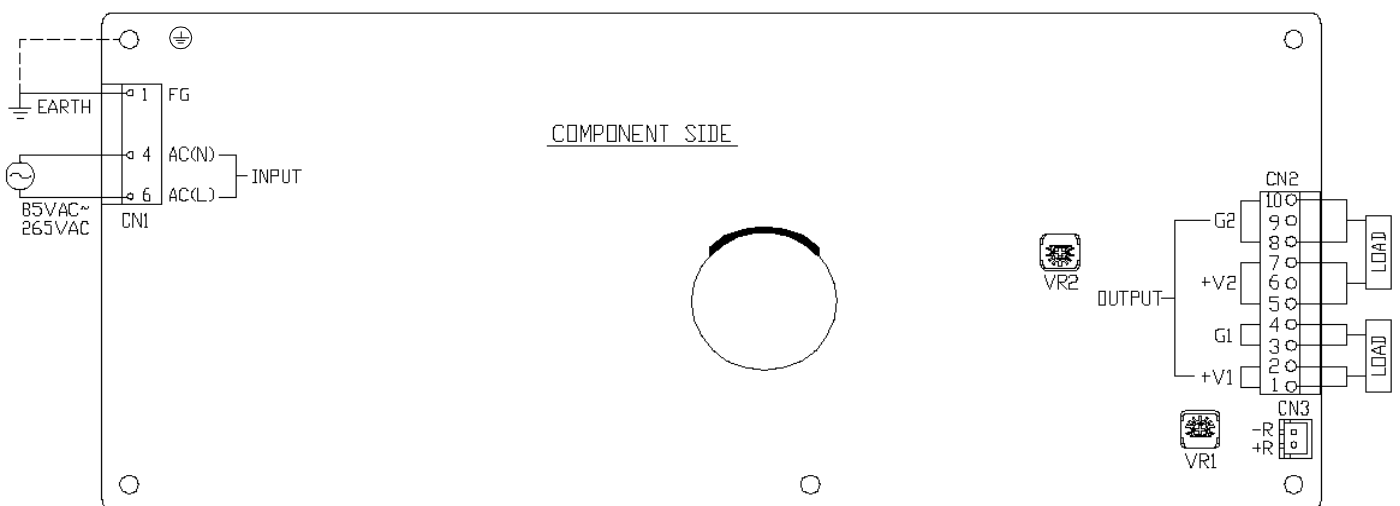


## 2. Terminal Connecting Method

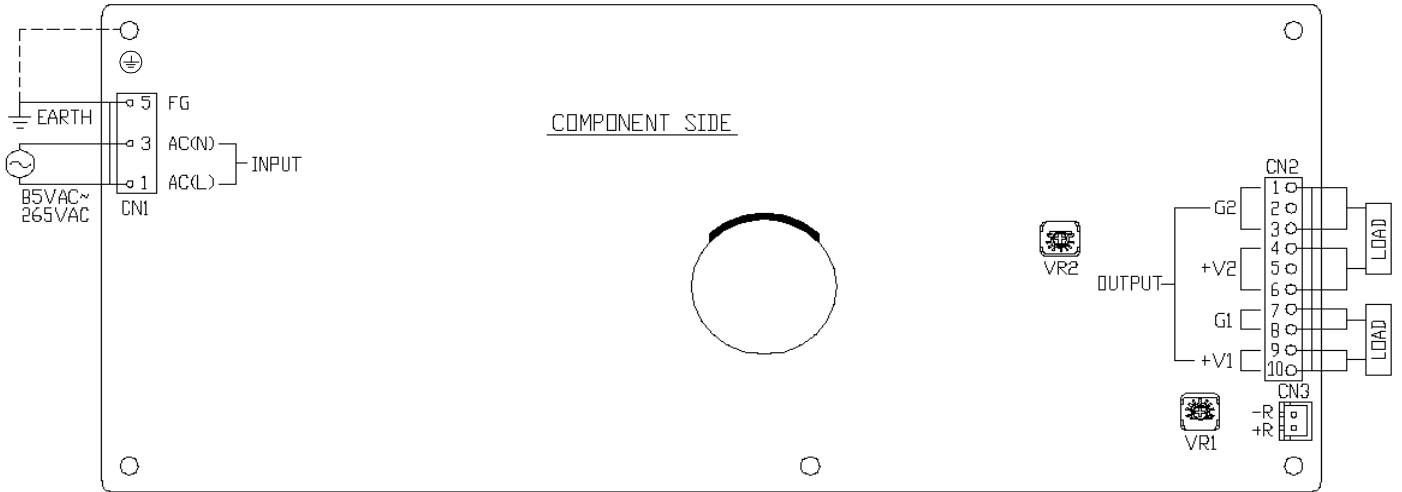
Pay attention to the input wiring. If it is connected to the wrong terminal, the power supply will be damaged.

- Input must be turned off when making connections.
- Connect FG terminal of input connector and mountable PE to ground terminal of the equipment.
- Output current of each connector pin must be less than 5A. ( Except /T model which M4 screw is used. )
- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- Remote ON/OFF control lines shall be twisted or use shielded wire.
- Use recommended input/output connector housing, terminal pin & crimping tool.  
Connector housing and terminal pin is not included with this product.
- When connecting or removing connector, do not apply stress to PCB.

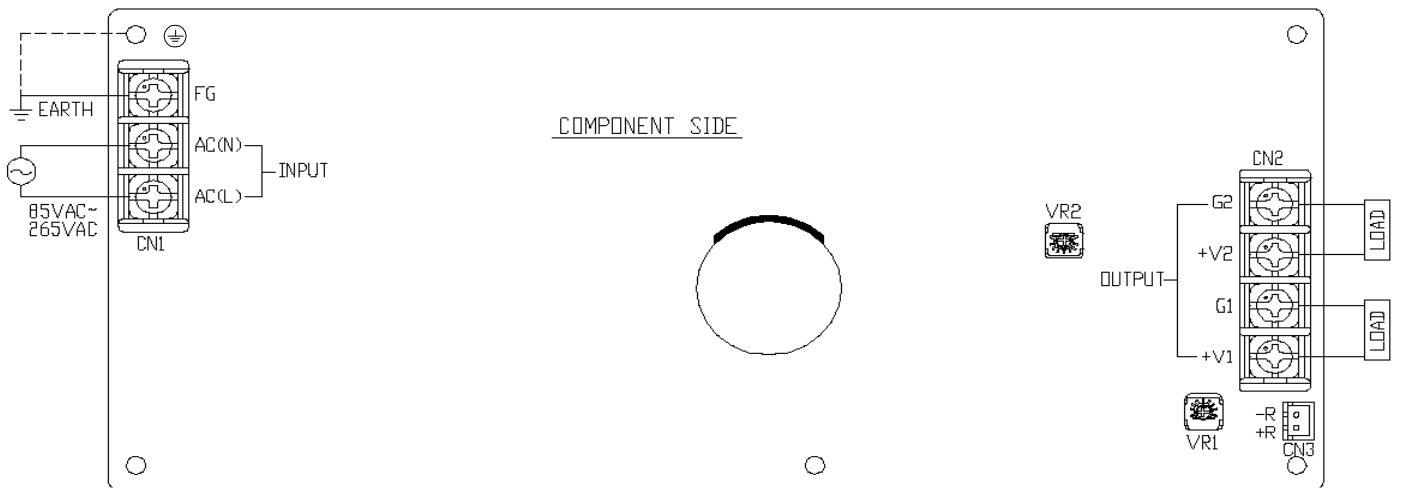
### ZWD225PAF



**ZWD225PAF/J**



**ZWD225PAF/T**



### 3. Explanation of Function and Precautions

#### 3-1. Input Voltage Range

Input voltage range is single phase 85 ~ 265VAC ( 47 ~ 63Hz ) or 120 ~ 300VDC. For cases of application under 300 to 370VDC input, please contact to our sales office. Input voltage which is out of specification may damage unit. For cases where conformance to various safety specs(UL,CSA,EN) are required, input voltage range will be 100 ~ 240VAC ( 50/60Hz ).

#### 3-2. Output Voltage Range

V.ADJ trimmer (VR1 & VR2) which is nearby to output connector is for output voltage adjustment. Please refer to the specifications for the output adjustment range. When the trimmer is turned clockwise, the output voltage will increase. Note that over voltage protection (OVP) function may trigger if the output voltage is increased excessively.

#### 3-3. Inrush Current

This series used Power Thermistor to protect the circuit from Inrush Current. Please carefully select input switch and fuse in cases of high temperature and brown-out.

#### 3-4. Over Voltage Protection ( OVP )

OVP circuit will shutdown output correspondingly. OVP for V1, both V1 & V2 will shutdown, OVP for V2, only V2 shutdown. Manual reset or input voltage recycling is needed for output recovery.

#### 3-5. Over Current Protection ( OCP )

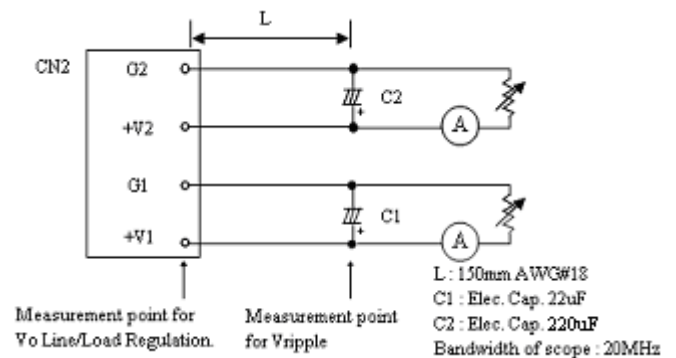
OCP type is constant current limiting with automatic recovery. OCP function operates when the output current exceeds OCP specifications. The output will automatically recover when the overload condition is removed. Do not operate overload or dead short conditions for more than 30 seconds, which could result in damage. There is no possibility of fire or burning.

#### 3-6. Over Temperature Protection ( OTP )

OTP circuit is built into the power supply to prevent user from fire hazard when ambient temperature is over the specification.

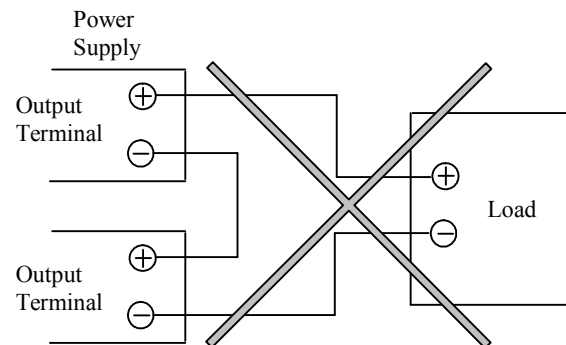
#### 3-7. Output Ripple & Noise

The standard specification for maximum ripple and noise value is measured according to measurement circuit specified below. When load lines are longer, ripple and noise may become larger. In this case, electrolytic capacitor, film capacitor, etc. might be necessary across the load terminal. The output ripple and noise cannot be measured accurately if the oscilloscope probe ground lead is too long.



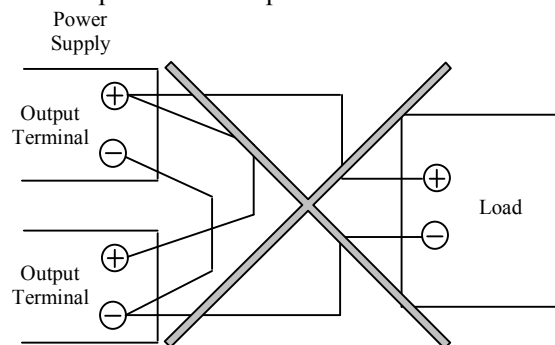
#### 3-8. Series Operation

Series operation is not possible.



#### 3-9. Parallel Operation

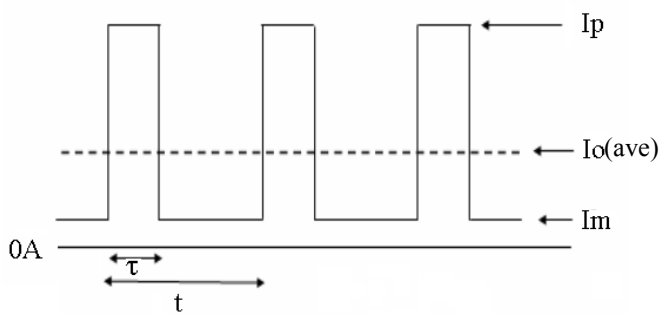
Paralled operation is not possible.



### 3-10. Peak Output Current

For ZWD225PAF series, the peak output current should satisfy the conditions below:

- 1) Should not exceed the rated peak current in the specification.  
(eg. 14/18A respectively for 100VAC/200VAC)
- 2) The relation between peak output current with average output current is defined as below.



$I_p$  = Peak output current  
 $I_m$  = Minimum output current  
 $D$  = Duty cycle,  $\tau/T$   
 $\tau$  = Peak output current operating time  
 $T$  = Period  
 $I_o$  = Maximum allowable average output current of specifications ( $I_o$  should be average load after derating at various mounting and ambient temperature)

- 3) For peak output current ( $I_p \leq 14A$ ) at 100VAC & 200VAC, the duty cycle of the peak output current is  $\leq 35\%$  and operating time of the peak output current is less than 10 seconds. For peak output current ( $I_p \leq 18A$ ) at 200VAC only, the duty cycle of the peak output current is  $\leq 20\%$  and operating time of the peak output current is less than 5 seconds. Maximum ambient has to be reduced by  $10^\circ C$  if 35% duty operation is required.

Vin (VAC)	$I_p$ (max)	Duty(max)	$\tau$ (sec)
85 ~ 132	14A	35%	10sec
170 ~ 265	14A	35%	10sec
170 ~ 265	18A	20%	5sec

4) Formula:

$$\text{ZWD225PAF: } I_o(\text{ave}) = I_p \times D + I_m \times (1-D) \leq I_o \text{ spec. (refer to derating curve)}$$

Example : For ZWD225PAF-0524 at  $T_a = 60^\circ C$ , Mounting A,  
 $\text{Max } I_o(\text{ave}) = 4.5A$  (after 50% Derating)  
 $I_o(\text{ave}) = I_p \times D + I_m \times (1-D) \leq I_o \text{ spec.}$

(A) 100VAC : In case of  $I_m = 0$ ,  $I_p = 14A$ ,  
 $D \leq 32\%$

(B) 200VAC : In case of  $I_m = 2A$ ,  $I_p = 18A$ ,  
 $D \leq 15\%$

### 3-11. Remote ON/OFF Control

Remote ON/OFF control (CN3) function is available. Using this function allows the user to turn the 24V output on and off without having to turn the AC input on and off.

It is controlled by short or open between +R & -R of CN3. CN3 is provided in the secondary circuit for ON/OFF control by means of a switch or other device.

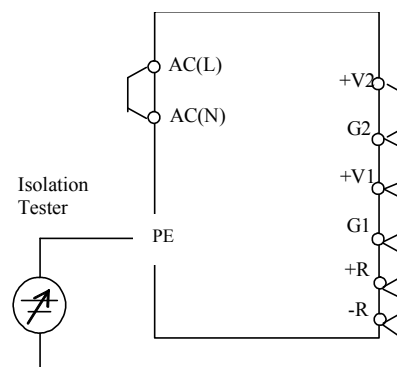
[CN3] The control mode is shown below.

+R & -R Terminal condition	Output condition of V2
Short < 0.5V	ON
Open > 4.5V	OFF

### 3-12. Isolation Test

Isolation resistance between output and PE (Chassis) shall be more than  $100M\Omega$  at 500VDC. For safety operation, voltage setting of DC isolation tester must be done before the test. Ensure that it is fully discharged after the test.

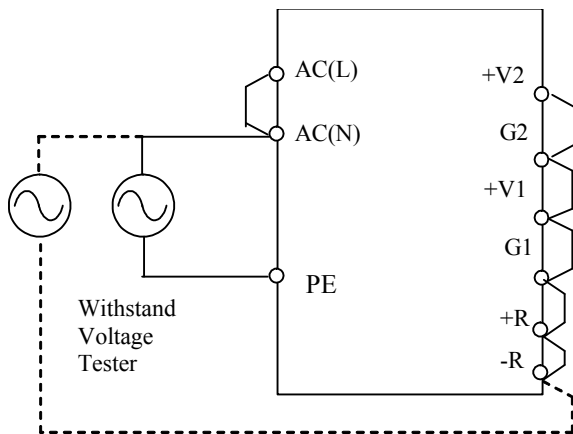
Output – PE ( Chassis )  
500VDC  $100M\Omega$  or more



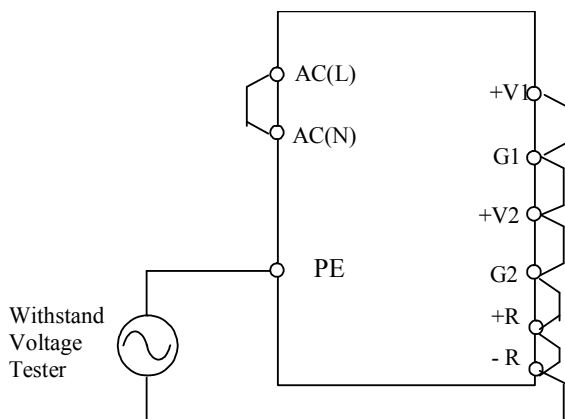
### 3-13. Withstand Voltage

This series is designed to withstand 3.0kVAC between input and output, 2.0kVAC between input and PE (Chassis) and 500VAC between output and the PE (Chassis) each for 1 minute. When performing this test, set current limit of the withstand voltage test equipment to 20mA ( Output - PE (Chassis) : 100mA ). The applied voltage must be gradually increased from zero to the test value and then gradually decreased for shut down. When timer is used, the power supply may be damaged by high impulse voltage during timer switch on and off. Connect input and output as follows.

- Input ~ Output (dotted line )  
3kVAC 1min. ( 20mA )
- Input ~ PE (Chassis) (solid line )  
2kVAC 1min. ( 20mA )



- Output ~ PE (Chassis)  
500VAC 1min. ( 100mA )



### 3-14. External connection of circuit with protective separation

All the outputs is protected using protection of SELV. ( As per required in the EN50178, clause 5.2.8)

### 3-15. Max Current during abnormal

The Max output current of CH1 under any abnormal situation is 8.1 A (DC)

The Max output current of CH2 under any abnormal situation is 21.2 A (DC)

### 3-16. Climatic condition

This product is certified to the Climatic condition, Type B of the EN50178.

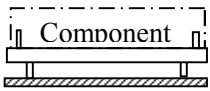
## 4. Mounting Directions

### 4-1. Output Derating according to the Mounting Directions

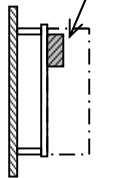
Recommended standard mounting method is (A). Method (B), (C), (D), (E) are also possible. Mounting (F), (G), (H), (I) are prohibited. Refer to the derating curve. In the following derating curve, average load(%) is percent of maximum output load (both Maximum Output Current and Maximum Output Power in specifications). Do not exceed the load deratings.

#### PCB type

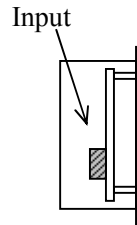
(A)  
Standard Mounting



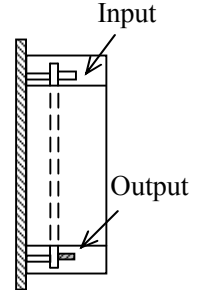
(B)  
Input



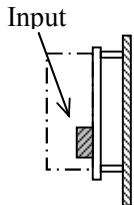
(C)



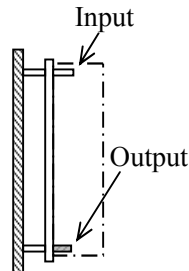
(D)



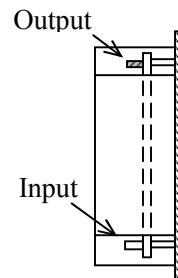
(C)



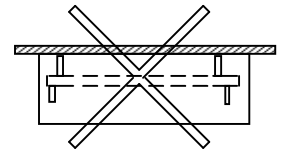
(D)



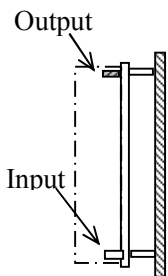
(E)



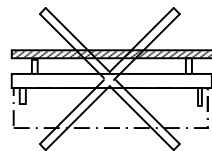
(F)  
Prohibit



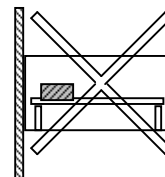
(E)



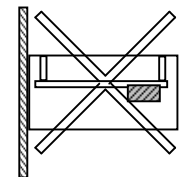
(F)  
Prohibit



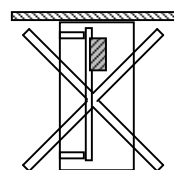
(G)  
Prohibit



(H)  
Prohibit

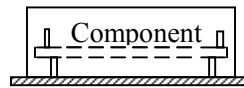


(I)  
Prohibit

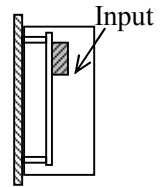


### With chassis and with chassis&cover type mounting method

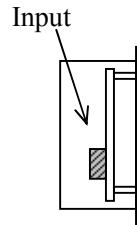
(A)  
Standard Mounting



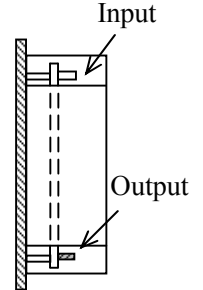
(B)



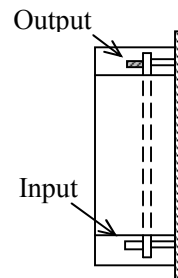
(C)



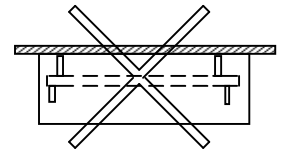
(D)



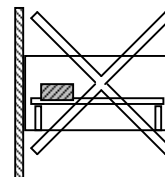
(E)



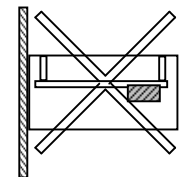
(F)  
Prohibit



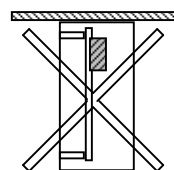
(G)  
Prohibit



(H)  
Prohibit



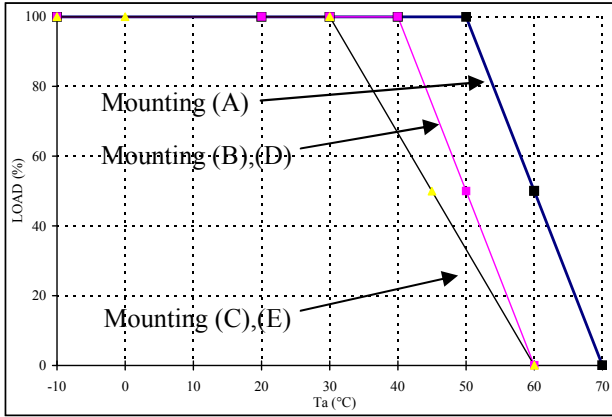
(I)  
Prohibit



## Output Derating

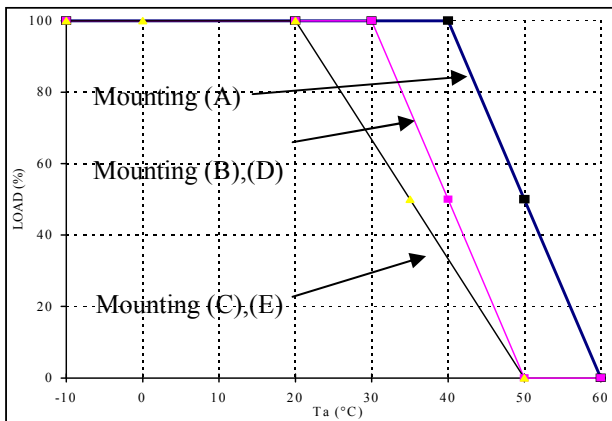
- Convection cooling

PCB type and with chassis type



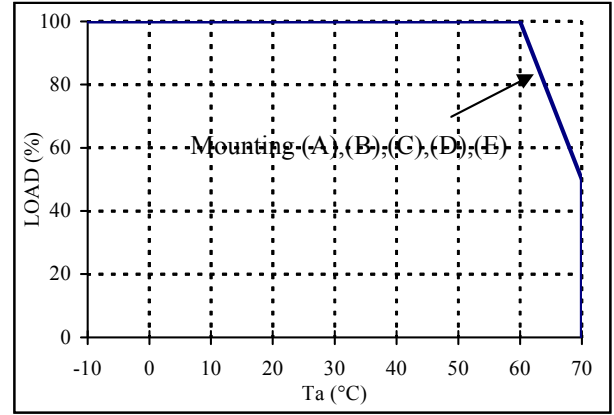
Convection		Average Load (%)		
Mounting		A	B,D	C,E
Ta				
-10~ 30°C		100	100	100
40°C		100	100	66
50°C		100	50	33
60°C		50	0	0
70°C		0	-	-

With chassis and cover type



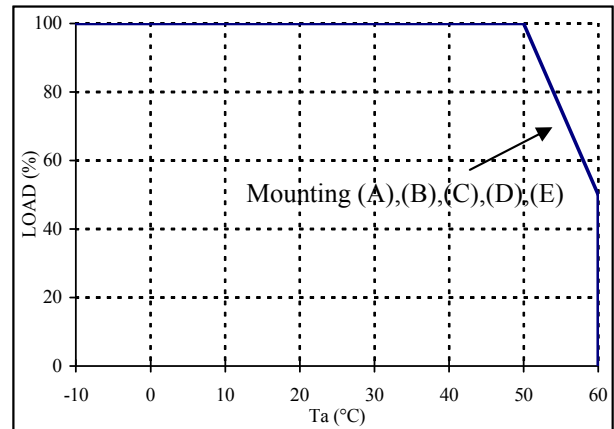
Convection		Average Load (%)		
Mounting		A	B,D	C,E
Ta				
-10~ 20°C		100	100	100
30°C		100	100	67
40°C		100	50	33
50°C		50	0	0
60°C		0	-	-

- Forced air cooling  
PCB type and with chassis type



Forced air		Average Load (%)	
Mounting		A,B,C,D,E	
Ta			
-10~ 60°C		100	
70°C		50	

With chassis and cover type



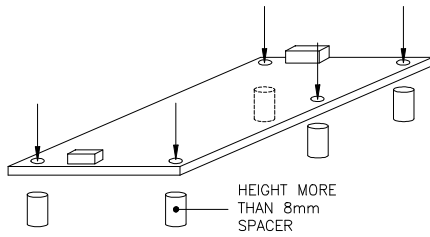
Forced air		Average Load (%)	
Mounting		A,B,C,D,E	
Ta			
-10~ 50°C		100	
60°C		50	

\*Recommended minimum air velocity : 0.7m/s  
 ( Measured at component side of PCB, air must flow through component side).

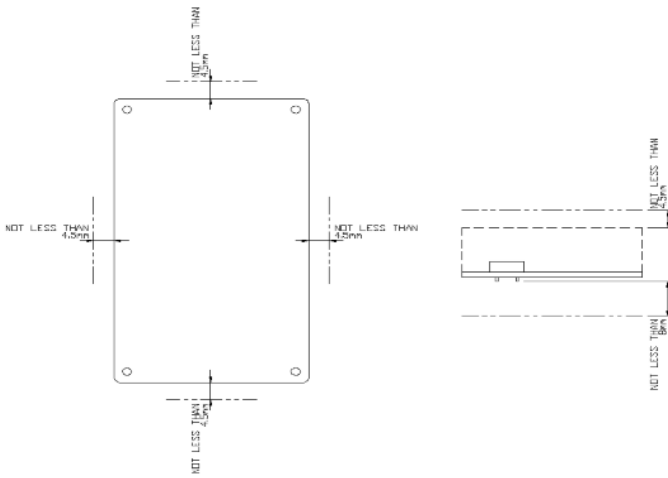
## 4-2. Mounting Method

### PCB type

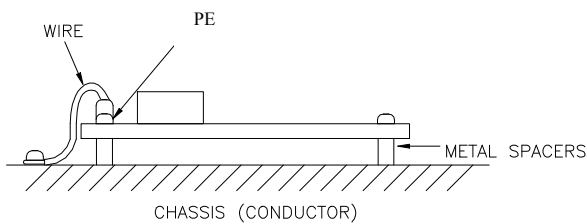
Please use the mounting holes (5 holes of  $\phi 3.5$ ) and insert the spacer (MAX $\phi 8.0$ ) of height over 8mm to lift the unit. Also use all 5 mounting holes for the unit installation. The vibration test is taken when the unit is raised by 8mm spacers.



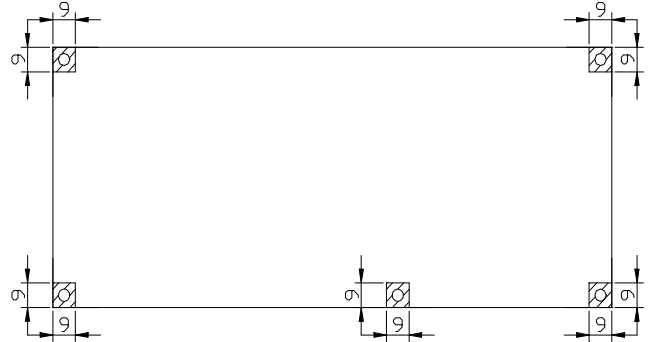
Please leave 4.5mm space from the unit surfaces and leave 4.5mm space from the sides of PCB. For the solder surface, 8mm space is necessary. If the space is not enough, the specification for insulation and withstand voltage will not be satisfied.



PE should be connected to the earth terminal of the apparatus. If not, the EMI noise and output noise will increase.



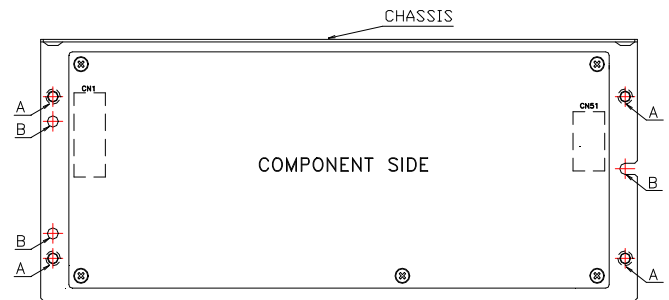
Hatching area is maximum permissible area of metal part for mounting.



### For chassis option /L, chassis & cover option /A

Recommended mounting by following holes A or B, to meet  $19.6\text{m/s}^2$  vibration specification. Mounting direction (F) & (G) is prohibited as shown in section 4-1.

- A: Embossed tapped and countersunk holes by 4-M4 screws
- B:  $\phi 4.5$  holes and R2.25 slot hole by 3-M4 screws

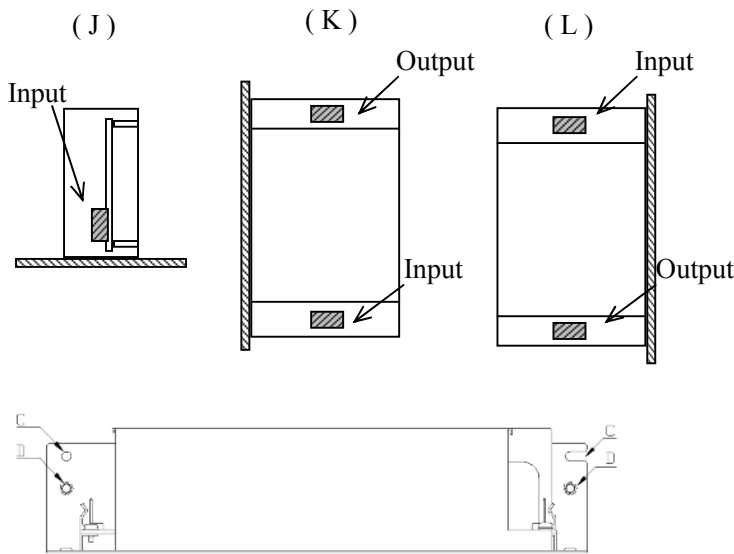


Mounting (F), (G), (H), (I) is prohibited.

For mounting method (J), (K), (L), below, the vibration specification is  $4.9\text{m/s}^2$ , mounted through holes C or D.

Note: Output derating for mounting (J) is same as mounting (C). Output derating for mounting (K) is same as mounting (E). Output derating for mounting (L) is same as mounting (D).





C: 1- $\Phi$ 4.5 holes and R2.25 slot hole by 2-M4 screws  
D: Embossed tapped and countersunk holes by 2-M4 screws.

## 5. Wiring Method

- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- Use all lines as thick and short as possible to have lower impedance.
- Noise can be eliminated by attaching a capacitor to the load terminals.
- For safety and EMI considerations, connect FG terminal of input connector and mountable PE to ground terminal of equipment.
- Recommended screw torque is 0.49N.m ( 5kg.cm )
- Select the wire materials to adapt to the MOLEX and J.S.T connector as follows.  
INPUT : AWG#22 ~ 18 ( $\Phi$  0.65mm ~ $\Phi$ 1.05mm)  
OUTPUT : AWG#22 ~ #18 ( $\Phi$  0.65mm ~ $\Phi$ 1.05mm)

## 6. External Fuse Rating

Refer to the following fuse rating when selecting the external fuses that are to be used on input line. Surge current flows when line is turned on. Use high breaking and slow-blow fuse or time-lag type fuse. Do not use fast-blow fuse. Fuse rating is specified by in-rush current value at line turn-on. Do not select the fuse according to input current (rms) values under the actual load condition.

ZWD225PAF : T6.3AH

## 7. Before concluding that the unit is at fault...

Before concluding that the unit is at fault, make the following checks.

- Check if the rated input voltage is connected.
- Check if the wiring of input and output is correct.
- Check that the wire material is not too thin.
- Check if the output voltage control ( V.ADJ ) is properly adjusted.
- If you use the Remote ON/OFF control function, make sure the Remote ON/OFF control connector is not opened.
- Check that the output current and output wattage is not over specification.
- Audible noise may be heard during Dynamic-Load operation.
- Audible noise may be heard when input voltage waveform is not sinusoidal wave.

## 8. Repair

In case of damage of this product, please return to our service center or factory.