

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.

Elimination 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

HWS300P-600P Series

Instruction Manual

BEFORE USING THE POWER SUPPLY UNIT

Be sure to read this instruction manual thoroughly before using this product. Pay attention to all warnings and cautions before using this product. Incorrect usage could lead to an electrical shock, damage to the unit or a fire hazard.

⚠ DANGER

Never use this product in locations where flammable gas or ignitable substances are present.

⚠ WARNING

- Do not touch this product or its internal components while it is in operation, or shortly after shut down. There may be high voltage or high temperature present and you may receive an electric shock or burn.
- When the product is operating, keep your hands and face away from it; an accident may injure you.
- Do not make unauthorised changes to this product, otherwise you may receive an electric shock and void your warranty.
- Do not use this product in the event of the emission of smoke or abnormal smell and sound etc. It might lead to fire and/or electric shock. In such cases, please contact us. Do not attempt repair by yourself, as it is dangerous for the user.
- Do not operate these products in the presence of condensation. It might lead to fire and/or electric shock.
- Do not drop or insert anything into the product. It might lead to a failure, fire and/or electric shock. Do not use the product which dropped.

⚠ CAUTION

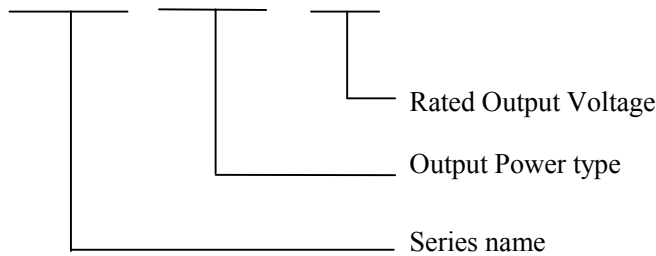
- This power supply is designed for use within an end product.
- Confirm connections to input/output terminals and signal terminals are correct as indicated in the instruction manual before switching on.
- Input voltage, Output current, Output power, ambient temperature and ambient humidity should be kept within specifications, otherwise the product will be damaged.
- Do not operate and store this product in an environment where condensation might occur. In such case, waterproof treatment is necessary.
- Do not use this product in environment with a strong electromagnetic field, corrosive gas or conductive substances.
- For applications which require very high reliability (Nuclear related equipment, traffic control equipment, medical equipment, etc.) it is necessary to provide a fail safe mechanism in the end equipment.
- The information in this document is subject to change without prior notice. Please refer to the latest version of the data sheet, etc., for the most up-to date specifications of the product.
- No part of this document may be copied or reproduced in any form without prior written consent of Densi-Lambda.
- Do not inject abnormal voltages into the output or signal of this product. The injection of reverse voltage or over voltage exceeding nominal output voltage into the output or signal terminals might cause damage to internal components.
- The output of this product is considered to be a hazardous energy level (The voltage is 2V or more and the power is 240VA or more). It must not be made accessible to users. Protection must be provided for Service Engineers against indirect contact with the output terminals and/or to prevent tools being dropped across them. While working on this product, the AC input power must be switched off and the input and output voltage should be zero.
- This product has a built-in fan for air-cooling. Do not block the air intake and exhaust as this might lead to fire.

Note : CE MARKING

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

1. Model name identification method

HWS 300P – 24

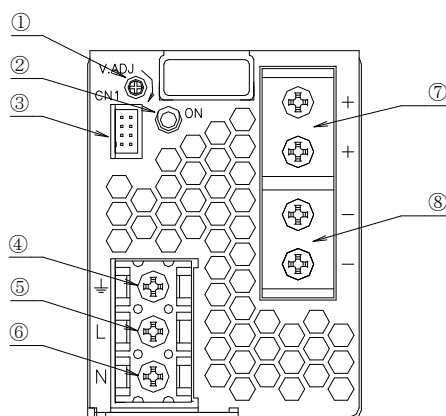


2. Terminal Explanation

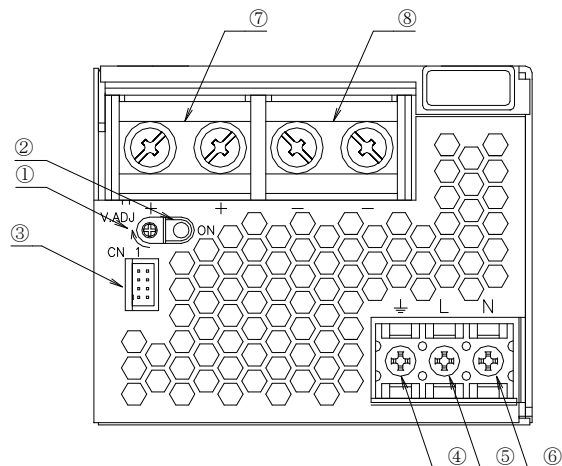
Please pay extra attention to the wiring. Incorrect connection will damage the power supply.

2-1. Front Panel Explanation

HWS300P

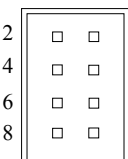


HWS600P



- ① V.ADJ : Output voltage adjustment trimmer.
(The output voltage rises when a trimmer is turned clockwise.)
- ② ON : Output (Power On) indication LED.
(The indicator turns on when the power supply output is in normal operating condition.)
- ③ CN1 : Remote ON/OFF control signal, Current balance signal (only as for HWS600P), Power fail signal.
(Refer to 2-2.)
- ④ \perp : Protective Earth terminal (Frame ground), M4 screw.
- ⑤ AC input terminal L : Live Line (Fuse in line), M4 screw.
- ⑥ AC input terminal N : Neutral line, M4 screw.
- ⑦ + : + Output terminal
(HWS300P: M4 screw x 2 / HWS600P: M5 screw x 2)
- ⑧ - : - Output terminal
(HWS300P: M4 screw x 2 / HWS600P: M5 screw x 2)

2-2. CN1 Connector pin Configuration and Function

	Pin No.	Configuration	Function
	1	COM	GND for PC signals (Only as for HWS600P. HWS300P is NC.)
	2	PC	Current balance terminal. (For output current balancing in parallel operation. Only as for HWS600P. HWS300P is NC.)
	3	NC	No connect
	4	NC	No connect
	5	CNT	Remote ON/OFF control terminal. (Power supply ON/OFF control with an external signal.)
	6	TOG	GND for CNT and PF signals. (Same as Pin No.8)
	7	PF	Power fail signal (PF signal) output terminal. (Uses the open collector method. As the output voltage drops, or Fan stops, “Power Fail” terminal will output “High”.)
	8	TOG	GND for CNT and PF signals. (Same as Pin No.6)

CN1 Connector & Housing & Terminal Pin

PART DESCRIPTION	PART NAME	MANUFACT
PIN HEADER	S8B-PHDSS	J.S.T.

SOCKET HOUSING	PHDR-08VS	J.S.T.
TERMINAL PINS	SPHD-002T-P0.5(AWG28~24) or SPHD-001T-P0.5(AWG26~22)	J.S.T.
HAND CRIMPING TOOL	YRS-620(SPHD-002T-P0.5) or YC-610R(SPHD-001T-P0.5)	J.S.T.

※Attached connector is mounted on CN1 at shipment. (CNT-TOG is short)

3. Terminal Connection Method

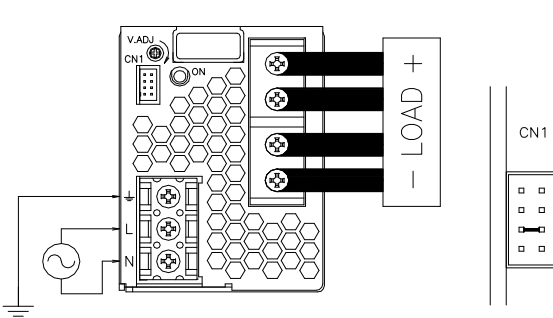
Please pay extra attention to the wiring. Incorrect connection will damage the power supply.

- When connecting input and output wiring, and CN1, input AC-Line should be off.
- Input wiring and output wiring shall be separated to improve noise sensibility.
- The protective earth (PE) must be connected to the \perp terminal or chassis.
- Remote ON/OFF control lines shall be twisted or used shielded wires. Separate from load line.
- Output current of each terminal screw shall be less than 40A for HWS300P. And shall be less than 60A for HWS600P.

HWS300P Panel Side (Common HWS600P)

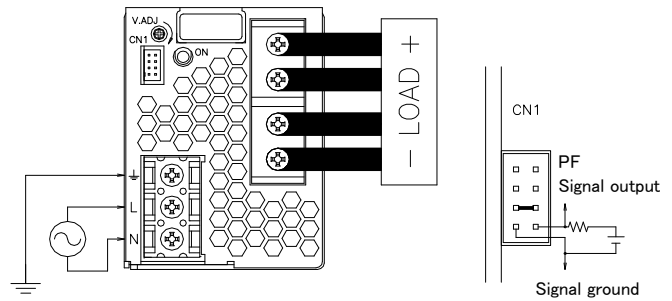
• Basic connection

Connect “CNT” terminal to “TOG” terminal with the attached connector.



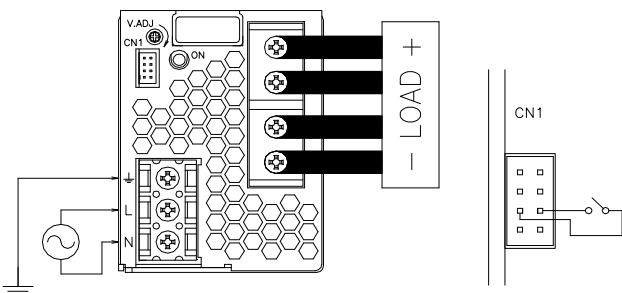
• PF signal output required

Open collector method shown below shall be used.
 “TOG” terminal is ground for “PF” terminal.



• Remote ON/OFF control required

“TOG” terminal is ground for “CNT” terminal.
 Connect an outside signal between CNT-TOG.



4. Functions and Precautions

4-1. Input Voltage Range

Input voltage range is single phase 85 ~ 265VAC (47 ~ 63Hz) or 120 ~ 330VDC. Input voltage, which is out of specification, may cause unit damage. Rated input voltage for safety standard application is 100 ~ 240VAC(50/60Hz).

4-2. Output Voltage Range

Output voltage is set to the rated voltage value at shipment. V.ADJ trimmer on the front panel side is used to adjust the output voltage within the range specified.

Output voltage range is within $-20\% \sim +10\%$ of rated output voltage.

To turn the trimmer clockwise, the output voltage will be increased. Take note when the output voltage is increased excessively, over voltage protection (OVP) function may trigger and output voltage will be shut down.

When output voltage increased, average output power and peak output power have to use less than specification.

4-3. Over Voltage Protection (OVP)

The OVP function (Inverter shutdown method, manual reset type) is provided. OVP function operates within 115-135% of the rated output voltage value, and the output will be shut down when OVP function trigger. To reset OVP, remove the input of power supply for a few minutes, and then re-input. Or, use CNT reset (remote ON/OFF : OFF to ON). OVP value is fixed and not to be adjusted externally.

Never apply more than rated output voltage to output terminal, which may lead damage to power supply. In the case of inductive load, use decoupling diode at output line.

4-4. Delay Shut Down

This product have a delay shut down function provided to protect power supply and equipment at the time of the consecutive peak current. When the product operate peak current for more than 5 seconds, delay shut down function operates and the output will be shut down.

To reset delay shut down, remove the input of power supply for a few minutes, and then re-input. Or, use CNT reset (remote ON/OFF : OFF to ON).

Delay Shut Down Time value is fixed and not to be adjusted externally.

Use it about the peak electricity in specifications range. The details see at "4-14. Output Peak Power".

4-5. Over Current Protection (OCP)

The OCP function (manual reset type) is provided. Output will be shut down in condition over current or output short-circuit.

To reset OCP, remove the input of power supply for a few minutes, and then re-input. Or, use CNT reset (remote ON/OFF : OFF to ON).

Also avoid over current condition or output short-circuit. Otherwise the product will be damage.

OCP value is fixed and not to be adjusted externally.

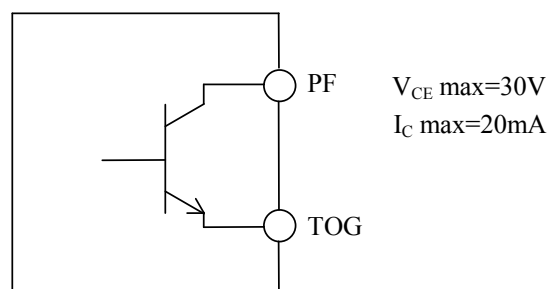
4-6. Over Temperature Protection (OTP)

The OTP function (manual reset type) is provided. When ambient or internal temperature rises abnormally, OTP function operates and output will be shut down. To reset OTP, remove the input and cool it down. Then re-input.

Or, use CNT reset after cool it down(remote ON/OFF : OFF to ON).

4-7. Low Output Detection Circuit (PF)

Low output voltage detection circuit is provided. Power Fail (PF) signal will turn "High" level to indicate the abnormal status when the output voltage becomes within 65 ~ 80% of rated value caused by either the drop or brownout of the input voltage or OCP, OVP, Delay Shut Down and OTP etc function operation. When the built-in Fan of this power supply unit stops, PF signal will turn to "High". The PF signal is isolated from input and output by a photo-coupler. It uses the open collector method shown in below.



4-8. Remote ON/OFF Control

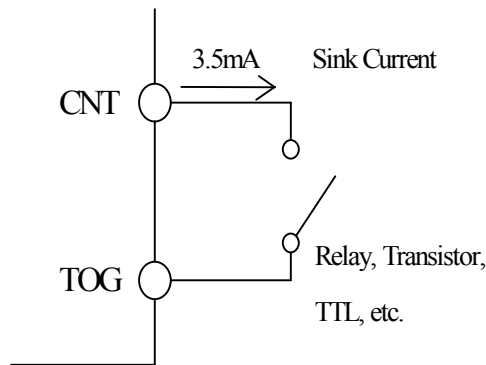
Remote ON/OFF control is provided.

Using this function, output ON/OFF is allowed to control without input voltage ON/OFF. The output is turned to ON when TOG and CNT terminals are shorted, and the output is turned to OFF when these terminals are opened. When the function is not used, connect TOG and CNT terminals. The standards for this function are as follows. “TOG” terminal is return for “CNT” terminal.

- (1) TTL compatible. The maximum input voltage to CNT terminal is 12V, and the maximum allowable reverse voltage is $-1.0V$. The sink current for CNT terminal is 3.5mA.
- (2) A switch and relay or a transistor can be used as ON/OFF switch.
- (3) Remote ON/OFF control circuit is isolated from the input and output by a photo-coupler and can be controlled regardless of the output potential (+ or -). Connect TOG terminal to ground of control signal.

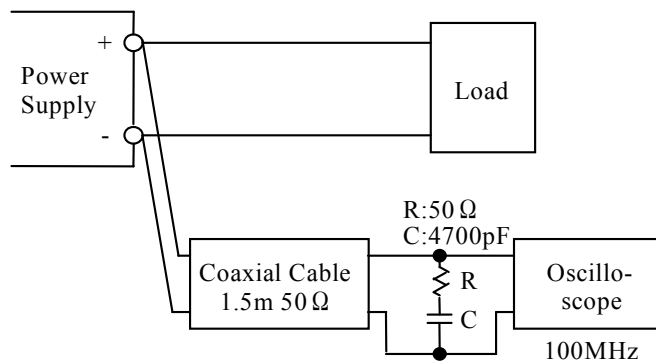
The mode of control

CNT Level for TOG Terminal	Output	Built-in Fan
Short or L (0V - 0.8V)	ON	Rotate
Open or H (2.4V - 12V)	OFF	Stop



4-9. Output Ripple & Noise

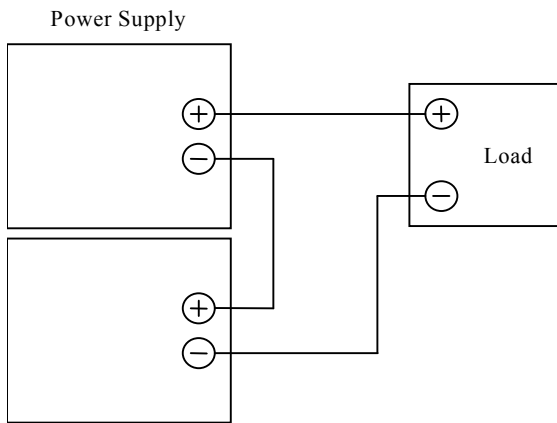
The standard specification for maximum ripple value is measured specified measurement circuit (JEITA-RC9131A). When load lines are longer, ripple becomes larger. In this case, electrolytic capacitor, film capacitor, etc. might be necessary to use across the load terminal. The output ripple cannot be measure accurately if the probe ground lead of oscilloscope is too long.



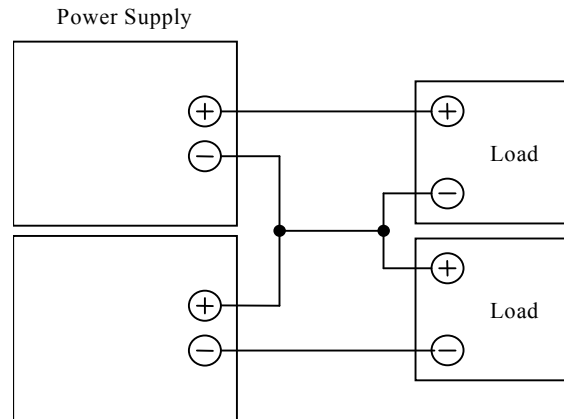
4-10. Series Operation

For series operation, both method (A) and (B) are possible.
 There might be a step in the output rise waveform during series operation.

Method (A)



Method (B)



4-11. Parallel Operation

There are operation Mode (A) and (B).
 As for HWS300P, Mode (B) is possible. As for HWS600P, Mode (A) and (B) are possible.

(A) To Increase the Output Current(only as for HWS600P)

Current balancing function is provided. Connecting PC to PC terminal and COM to COM terminal, the current balancing function activates and output current of each power supply is equivalently supplied to load. Wires to PC terminals, COM terminals shall be as short as possible and same length and twisted.

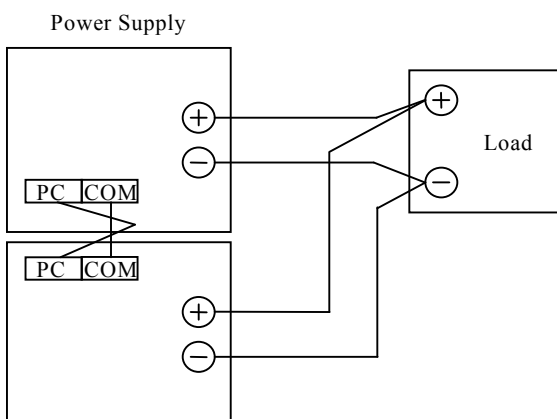
Parallel operation is possible up to 2 units.

1. Adjust the output voltage of each power supply to be same value within 100mV.
2. Use same length and type of wires for all load lines.
3. Peak output current and average output current use less than specification for all paralleled models.

(B) To Use as a Backup Power Supply

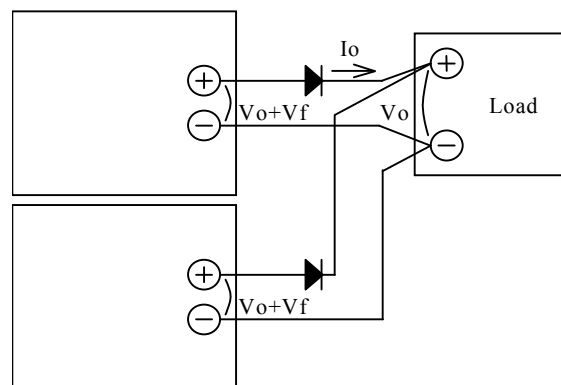
1. Adjust the output voltage of each power supply to be same value.
2. Set power supply output voltage higher by the forward voltage drop of diode.
3. Use within the specifications for output voltage and output power.

(A) To Increase the Output Current
 (only as for HWS600P)



(B) To Use as a Backup Power Supply

Output Power(W)=(V_o+V_f) x I_o

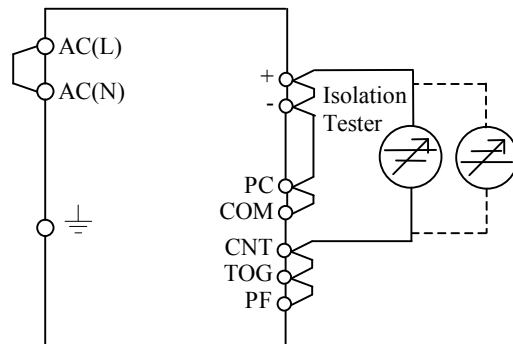
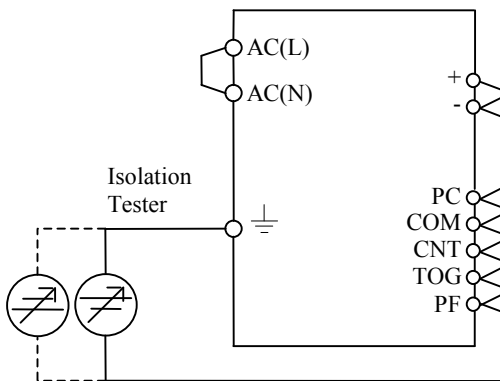


4-12. Isolation Test

Isolation resistance between output and \perp (Frame ground) shall be more than 100M Ω at 500VDC and between output and CNT·PF shall be more than 10M Ω at 100VDC. 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 ~ \perp (Frame ground) : 500VDC 100M Ω or more

• Output ~ CNT · PF : 100VDC 10M Ω or more



Note 1. "PC" and "COM" are NC in HWS300P.

4-13. Withstand Voltage

This series is designed to withstand 3.0kVAC between input and output, 2.5kVAC between input and \perp (Frame ground), 500VAC between output and \perp (Frame ground), and 100VAC between output and CNT·PF terminal each for 1 minute. When testing withstand voltage, set current limit of withstand voltage test equipment at 20mA.

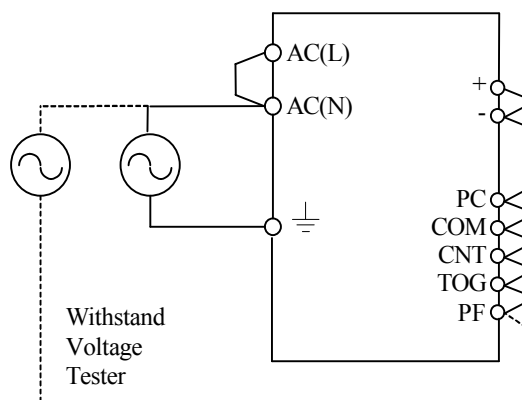
(Output- \perp (Frame ground) and Output-CNT·PF: 100mA).

The applied voltage must be gradually increased from zero to testing value and then gradually decreased for shut down. When timer is used, the power supply may be damaged by high impulse voltage at timer switch on and off. Connect input and output as follows.

In the test by state of output open, there is a thing that output voltage is generated momentarily.

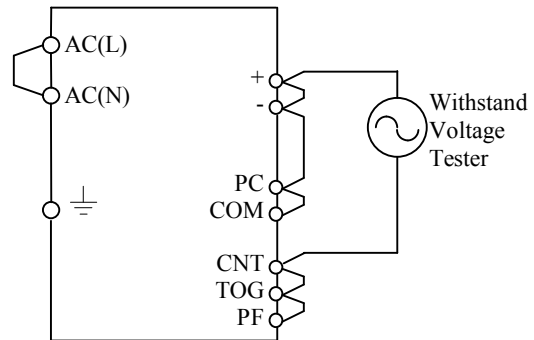
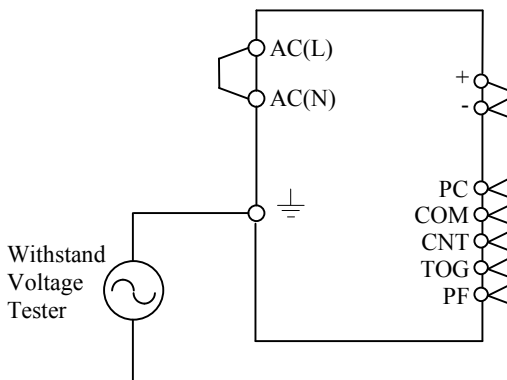
Input ~ Output (dotted line) : 3.0kVAC 1min. (20mA)

Input ~ \perp (Frame ground) (solid line) : 2.5kVAC 1min. (20mA)



Output ~ ⏏ (Frame ground) : 500VAC 1min. (100mA)

Output ~ CNT·PF : 100VAC 1min. (100mA)



Note 1, "PC" and "COM" are NC in HWS300P.

Note 2, This product have monolithic ceramic capacitor in secondary circuit to frame ground.

Some of the withstand voltage tester may generate high voltage at the matching with monolithic ceramic capacitor and may cause the unit damage.

So, please check the waveform of test voltage.

4-14. Output Peak Power

This product must be use to satisfy (a) and (b).

Allowable peak output operating time is less than 5sec.

When the product operate peak power for more than 5 sec, the delay shut down function operates and the output will shut down.

Peak output power and average output power use less than specification.

Peak output power is limited depending on Duty. The details see at (b).

The product might be damage to use beyond the limits of (a) and (b).

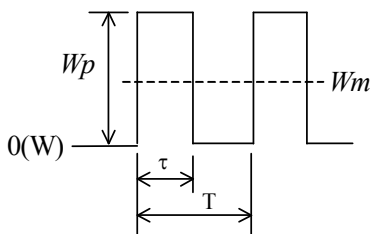
When using pulse load, a noise may be heard from power supply unit. Please evaluate and check before using.

(a) Expression of relations

A formula about Duty

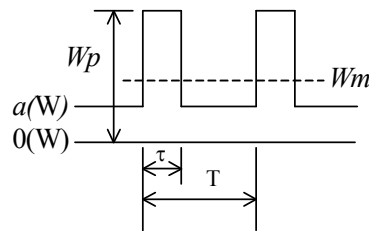
$$Duty = \frac{\tau}{T} \times 100(\%)$$

A formula about average output power



$$W_{avg} \geq W_m = \frac{W_p \times \tau}{T}$$

W_p : Peak output power (W)
 W_{avg} : Average output power of Specification (W)
 W_m : Average output power (W)

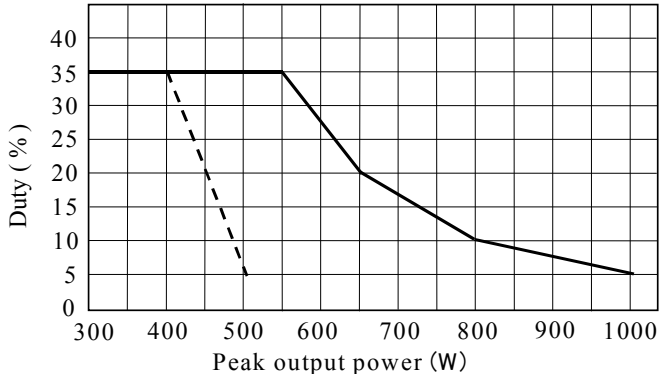


$$W_{avg} \geq W_m = \frac{(W_p - a) \times \tau}{T} + a$$

τ : Pulse width of peak output power (sec)
 (Operating time at peak output)
 T : Period (sec)
 Duty : The duty is pulse width of peak output power of one period(%)

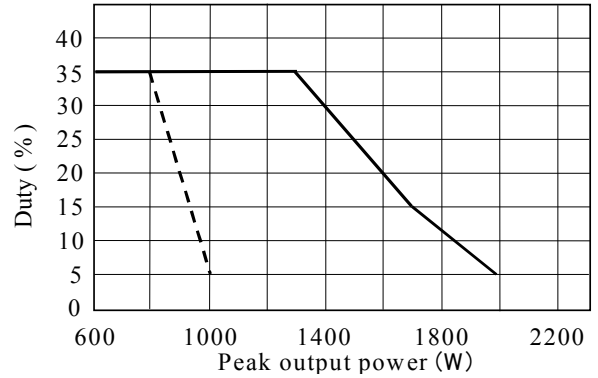
(b) Peak output power VS Duty
HWS300P

Vin:100VAC(dotted line)
 Vin:200VAC(solid line)



HWS600P

Vin:100VAC(dotted line)
 Vin:200VAC(solid line)



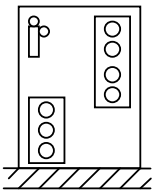
5. Mounting Directions

5-1. Output Derating according to the Mounting Directions.

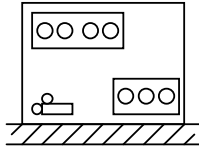
Recommended standard mounting method is (A). Method (B) is also possible. Refer to the derating below.

HWS300P

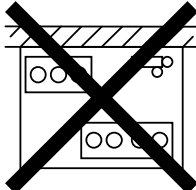
(A) Standard Mounting



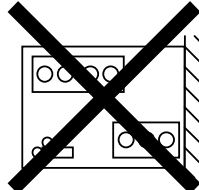
(B)



(C) Inhibit

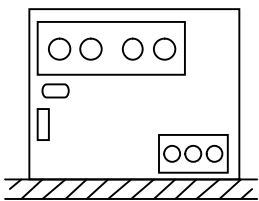


(D) Inhibit

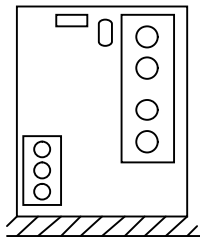


HWS600P

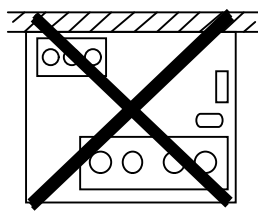
(A) Standard Mounting



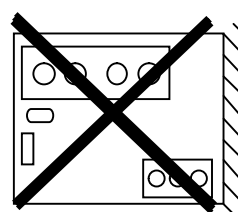
(B)



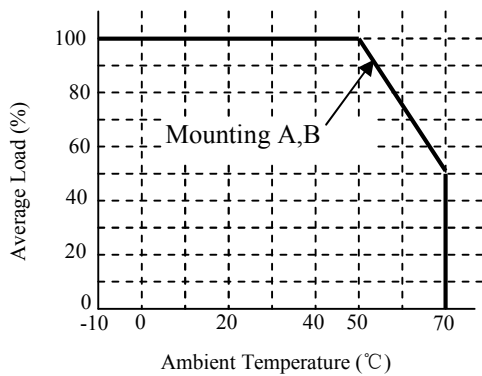
(C) Inhibit



(D) Inhibit



5-2. Output Derating

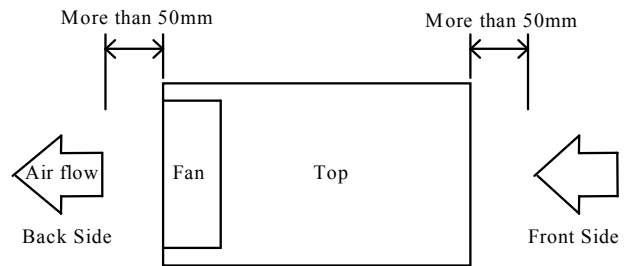


Ta(°C)	Average Load (%)	
	Mounting(A)	Mounting(B)
-10 ~ +50	100	
+70	50	

Note 1, Peak power does not have the derating.

5-3. Mounting Method

- (1) Forced air-cooling type power supply.
 This power supply has ventilating holes on the front and back side panels. Keep these two areas freely as much as possible.
- (2) The maximum allowable penetration is 6mm.
 Incomplete thread of mounting screw should not be penetrated.
- (3) Recommended torque for mounting screw :
 M4 screw : 1.27 N · m (13.0kgf · cm)



6. Wiring Method

- (1) The output load line and input line shall be separated to improve noise sensitivity.
- (2) Use all lines as thick and short as possible to make lower impedance.
- (3) Attaching a capacitor to the load terminals can eliminate noise.
- (4) For safety and EMI considerations, connect \perp terminal to the mounting set ground terminal.
- (5) Recommended torque for the terminal ;
 HWS600P Output terminal (M5 screw) : 2.50 N · m (25.5kgf · cm)
 HWS300P Input, Output terminal & HWS600P Input terminal (M4 screw) : 1.27 N · m (13.0kgf · cm)

[The PHD connector manufacture method]

This product is using SPHD-001T-P0.5 or SPHD-002T-P0.5 connector made from JAPAN SOLDERLESS TERMINAL MFG CO LTD.

Regarding to manufacture of a connector, it becomes the regulation as following.

a). Applicable Wire and Crimping tool

Wire size to use for SPHD-001T-P0.5 is AWG#26 ~ AWG#22 and insulation outer diameter is ϕ 1.0 ~ ϕ 1.5 mm.

Wire size to use for SPHD-002T-P0.5 is AWG#28 ~ AWG#24 and insulation outer diameter is ϕ 0.9 ~ ϕ 1.5 mm.

Crimping tool is as blow.

Crimping tool	Crimping applicator	Dies
AP-K2 or AP-KS	MKS-LS-10 or MKS-L-10	SPHD-001-05/SPHD-002-05

b). Crimping Operation

The reference value of wire strip is 2.3mm. As wire strip length differs depending on type of wire and crimping method , decide the best wire strip length considering processing condition. When wire is stripped, do not damage or cut off wire conductores.

Table of crimp height

SPHD-001T-P0.5

Wire Size	Insulation O.D (mm)	Crimp height (mm)	
		Conductor part	Insulation part
AWG#26	1.3	0.60 ~ 0.70	1.7
AWG#24	1.5	0.65 ~ 0.75	1.8
AWG#22	1.4	0.70 ~ 0.80	1.8

SPHD-002T-P0.5

Wire Size	Insulation O.D (mm)	Crimp height (mm)	
		Conductor part	Insulation part
AWG #28	1.2	0.55 ~ 0.60	1.6
AWG #26	1.3	0.60 ~ 0.65	1.7
AWG #24	1.5	0.62 ~ 0.67	1.8

Note 1. Crimp height at wire barrel should be set to pre-determined dimensions.

Note 2. Adjust crimp height at wire insulation barrel to the extent that wire insulation is slightly pressed, and set it so that crimping is not excessivary.

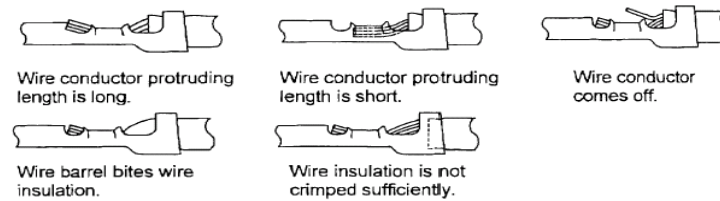
Note 3. Crimping condition at wire insulation barrel is as below Fig.1.

Note 4. For AWG#28,#26,#24, use UL1007 type. For AWG#22, use UL1061 type.

Fig.1



Fig.2: Examples of defective crimping



Check of crimping appearance visually for correct crimping as referring to above Fig.2
 Check the tensile strength at crimped part when operation finishes.

Table of tensile strength at crimped part.
 SPHD-001T-P0.5

Wire size	Requirement N min.	Actual value N
AWG#26	20	39.2 ~ 45.1
AWG#24	30	68.6 ~ 74.5
AWG#22	40	92.1 ~ 96.0

SPHD-002T-P0.5

Wire size	Requirement N min.	Actual value N
AWG#28	15	27.0 ~ 34.3
AWG#26	20	44.1 ~ 48.0
AWG#24	30	66.6 ~ 71.5

c). Inserting contact into housing

Inserting crimped contact into housing

- (1) Do not apply any pulling force to crimped part, and insert contact parallel to housing.
- (2) Insert contact into housing without stopping to innermost.
- (3) Check secure locking per each insertion by pulling wire softly in order to check that contact does not come off housing. Besides, check whether there is the backlash in the direction of insertion axis.

Defect example of slanting insertion



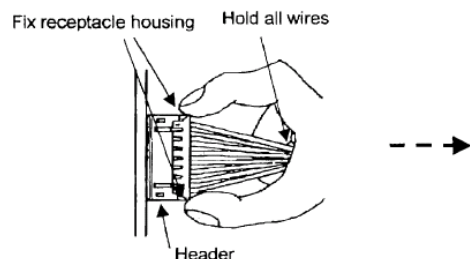
d). Mating and Unmating Connector

- (1) Inserting connector

Hold receptacle housing securely and insert into header straight against to header post until click sounds.

- (2) Unmating connector

Hold all wires securely and fix receptacle housing by fingers so as to pry, and then, withdraw it on the mating axis.



e). Routing of Wire

Routing wire so as not to apply external force to connector except force to such an extent that wire slightly buckles, considering an enough length to route and fixing of wire.

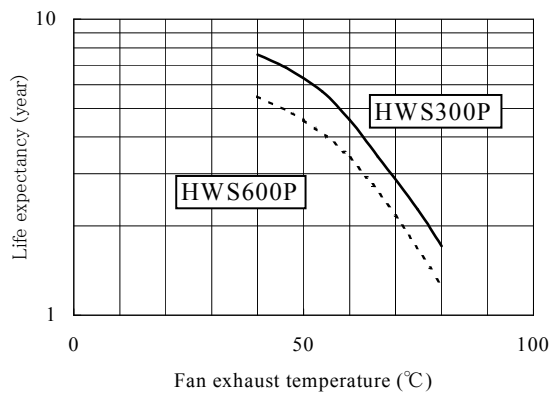
7. External Fuse Rating

Refer to the following fuse rating when selecting the external fuses that are to be used on input line. Surge current flows when line turns on. Use slow-blow or time-lag type fuse, not 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.

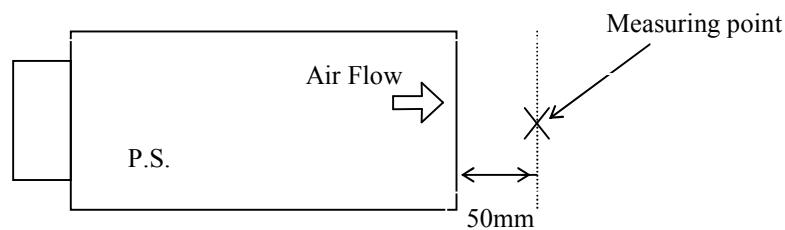
HWS300P : 12A
HWS600P : 20A

8. Fan life expectancy

The Fan life has limitation. Therefore, periodic maintenance by exchanging the life-expired fan is required for the power supply. The following figure shows the Fan life. The built-in Fan replacement is charged. Please contact to our sales office for Fan replacement.



Measurement point of fan exhaust temperature



The difference between the intake temperature and the exhaust temperature of the Power Supply at average load.

HWS300P : 4°C
HWS600P : 8°C

9. Before concluding that the unit is at fault...

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

- (1) Check if the rated input voltage is connected.
- (2) Check if the wiring of input and output is correct.
- (3) Check if the I/O terminal connection is properly tighten by regulated torque.
- (4) Check if the wire thickness is enough.
- (5) Check if the output voltage control (V.adj) is properly adjusted. OVP might be triggered and output is shut down.
- (6) If use function of the Remote ON/OFF control, check if the Remote ON/OFF control connector is not opened.
If in open condition, power supply will not output.
- (7) Check if the built-in Fan is not stopped. Is Fan stopped by something irregulars or etc?
If Fan stops, the PF signal turn "High" level and OTP might be activated.
- (8) Power supply has ventilating holes on the front and back panels. Check if there is any irregulars or dust, etc.
- (9) Is the chassis of power supply hot abnormally? The output is shut down by OTP operation.
Please re-input after the unit to cool down sufficiently.
- (10) Check if the output current and output power does not over specification.
- (11) Audible noise may be heard when input voltage waveform is not sinusoidal.
- (12) Audible noise may be heard during dynamic load operation.

10. Range of free warranty

This product is warranted for a period of 5 years from the date of shipment. As for the breakdown under a normal use during free warranty term, repair is at free of charge. However, the built-in Fan replacement is charged.

Please contact to our sales office for Fan replacement. Please see "8. Fan life expectancy" for the exchange time of Fan.

Conditions of usage at the free of charge warrantee are as follows.

- (1) Average operating temperature (ambient temperature of the power supply unit) is under 40°C
- (2) Average load factor is 80% or less.
- (3) Mounting method : Standard mounting.

However, the maximum rating is within the output derating.

Following cases are not covered by warranty.

- (1) Improper usage like dropping products, applying shock and defects from operation exceeding specification of the units.
- (2) Defects resulting from natural disaster (fire, flood).
- (3) Unauthorized modifications or repair by the buyers defects not cause by DENSEI LAMBDA.