

**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 ummantelte 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 Vertriebs Händler 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 ragguagli.

**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)

# *SWS-L Series*

## *Instruction Manual*

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

Be sure to read the following precautions thoroughly before using this power supply unit.

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

#### **⚠ WARNING**

- Do not make unauthorized changes to power supply unit, otherwise you may have electric shock and void warranty.
- 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, an accident may injure you.
- Do not use unit under unusual condition such as emission of smoke or abnormal smell and sound etc. It might cause fire and electric shock.

In such case, please contact us; do not repair by yourself, as it is dangerous for the user.



- Do not drop or insert anything into unit. It might cause failure and fire, when using the unit under such condition.
- Do not operate these units at the condition of condensation. It may cause fire and electric shock.
- The outputs of these products must be earthed in the end use equipment to maintain SELV. If the outputs are not earthed, they must be considered hazardous and must not be made user accessible. The output and control terminals of SWS600L-48, SWS600L-48/RF, SWS1000L-48 and SWS1000L-48/RF are ELV. The output and control terminals of SWS600L-60, SWS600L-60/RF, SWS1000L-60 and SWS1000L-60/RF are hazardous voltage. These terminals must not be user and service person accessible.
- This power supply is capable of providing hazardous energy output (240VA), the end equipment manufacturer must provide protection to service personal against inadvertent contact with output terminals. These terminals must not be user accessible.

#### **⚠ CAUTION**

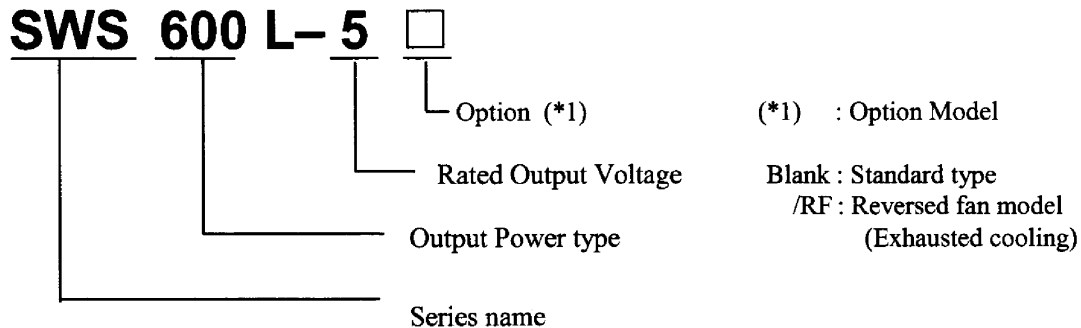
- This power supply is primarily designed and manufactured to use and enclose in other equipment.
- This power supply unit has a built-in fan for air-cooling. Do not block air intake and exhaust. It might cause fire.
- Input voltage, Output current, Output power, ambient temperature and ambient humidity should be within specifications, otherwise the unit will be damaged.
- The unit might be broken down by accident or unexpected situation. For application equipment, which requires very high reliability (nuclear related equipment, traffic control equipment, medical equipment, etc.), please provide fail safety function in the equipment.
- Do not make an improper wiring to input and output terminals. It may cause damage.
- Do not use in environment such as strong electromagnetic field, erosive gas etc, or any environment where conductive foreign substance may enter.
- Do not operate and store this unit at the condition of condensation. In such case, waterproof treatment is necessary.
- Do not operate this unit after it falls down.
- The output voltage of this power supply is considered to be a hazardous energy level, and must not be accessible to an operator.

#### **Note: CE MARKING**

CE Marking, when applied to a product covered by this handbook indicates compliance with the low voltage directive (2006/95/EC) in that it complies with EN60950-1.

DWG NO. : CA757-04-01E		
APPD	CHK	DWG
 18-JUL-12	Kevin He 18-JUL-12	 17-JUL-12

## 1. Model name identification method

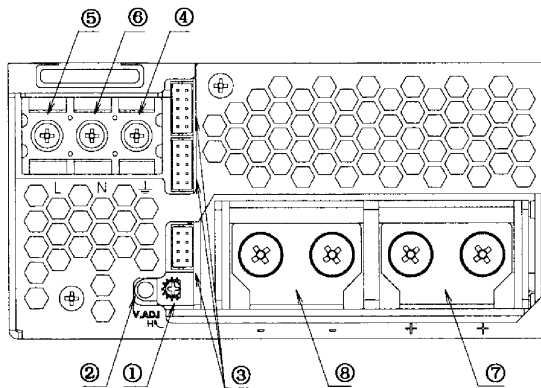


## 2. Terminal Explanation

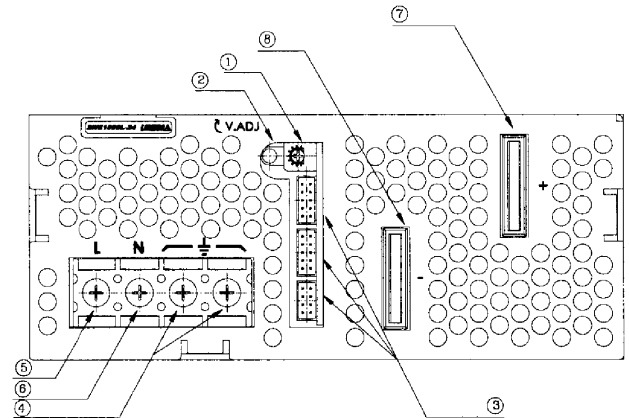
Please pay extra attention to the wiring. Incorrect connection will damage the power supply.

### 2-1. Front Panel Explanation

**SWS600L**



**SWS1000L**



- 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, CN2, CN3 : Remote sensing, ON/OFF control signal, current balance signal, power fail alarm signal, auxiliary output, output voltage external control signal. (Refer to 2-2.)
- ④  $\perp$  : Protective earth (Frame ground), M4 screw. (SWS1000L: M4 screw x 2)
- ⑤ AC input terminal L : Live line (Fuse in line), M4 screw.
- ⑥ AC input terminal N : Neutral line, M4 screw.
- ⑦ + : + Output terminal  
(SWS600L: M5 screw x 2 / SWS1000L:  $\phi 9$  hall , M4 tapped hall x 2)
- ⑧ - : - Output terminal  
(SWS600L: M5 screw x 2 / SWS1000L:  $\phi 9$  hall , M4 tapped hall x 2)

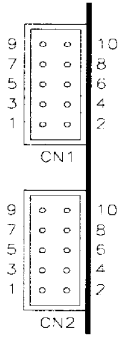
## 2-2. CN1, CN2, CN3 Connector pin Configuration and Function

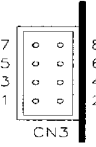
CN1 and CN2 are same pin configuration and function.

They are connected to each other in this power supply unit.

When the pin of CN1 side is shorted, the same function pins of CN2 side are also shorted.

Please note that the function cannot be separately set with CN1 and CN2.

CN1, CN2	Pin No.	Configuration	Function
	1	+Vm	+OUTPUT VOLTAGE MONITOR.
	2	+S	+SENSING
	3	-Vm	-OUTPUT VOLTAGE MONITOR
	4	-S	-SENSING
	5	N.C.	NO CONNECTION
	6	PC	CURRENT BALANCE
	7	PV	ADJUSTMENT OF OUTPUT VOLTAGE
	8	COM	GROUND FOR PC AND PV SIGNAL
	9	CNT2	REMOTE ON/OFF (2)
	10	TOG	GROUND FOR CNT2

CN3	Pin No.	Configuration	Function
	1	COM	GROUND FOR PC AND PV SIGNAL
	2	COM	GROUND FOR PC AND PV SIGNAL
	3	AUX	AUXILIARY OUTPUT (12V 0.1A)
	4	CNT1	REMOTE ON/OFF (1)
	5	G2	GROUND FOR AUX AND CNT1
	6	G2	GROUND FOR AUX AND CNT1
	7	ALM	ALARM
	8	G1	ALARM GROUND

### CN1, CN2, CN3 Connector & Housing & Terminal Pin

PART DESCRIPTION	PART NAME	MANUFACT
PIN HEADER	S10B-PHDSS (CN1,CN2) S8B-PHDSS (CN3)	JST
SOCKET HOUSING	PHDR-10VS (CN1,CN2) PHDR-8VS (CN3)	JST
TERMINAL PINS	SPHD-002T-P05(AWG28~24) SPHD-001T-P05(AWG26~22)	JST
HAND CRIMPING TOOL	YRS-620(SPHD-002T-P0.5) YC-610R(SPHD-001T-P0.5)	JST

### 3. Terminal Connection Method

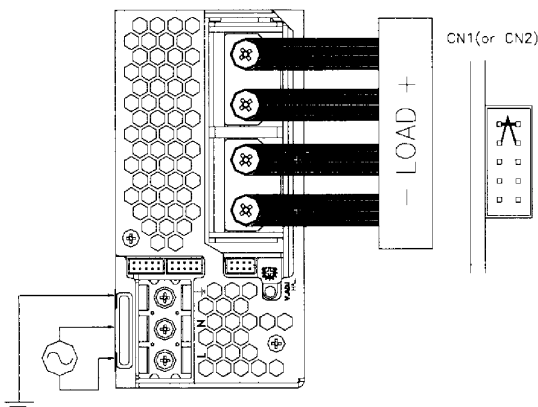
Please pay extra attention to the wiring. Incorrect connection will damage the power supply.

- When connecting input, output wiring and CN1, CN2, CN3, 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 sensing lines shall be twisted or used shielded wires.
- Remote ON/OFF control lines shall be twisted or used shielded wires. Separate from load line.
- Output current of each terminal screw shall be 60A or less for SWS600L.

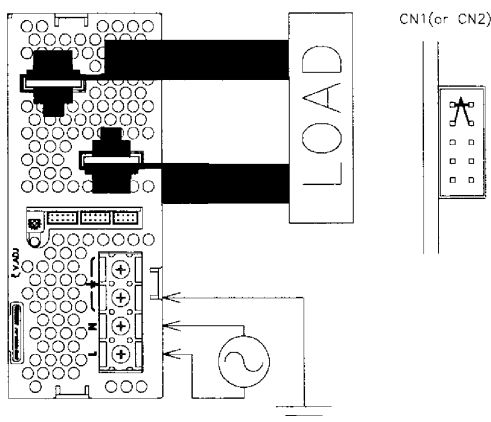
#### Panel Side

- Basic connection (Local sensing)  
Connect “+S” terminal to “+Vm” terminal and  
“-S” terminal to “-Vm” terminal .

#### SWS600L

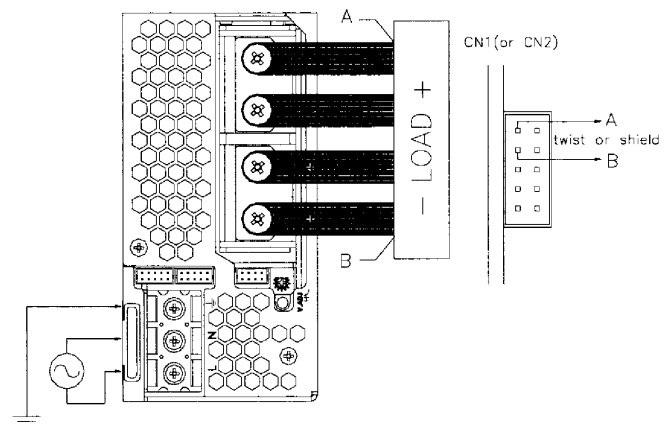


#### SWS1000L

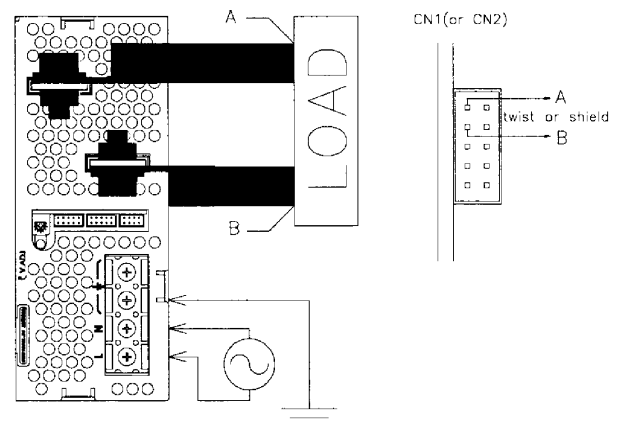


- Remote sensing required  
Connect “+S” terminal to “+” terminal of load and  
“-S” terminal to “-” output terminal of load with  
wires.

#### SWS600L



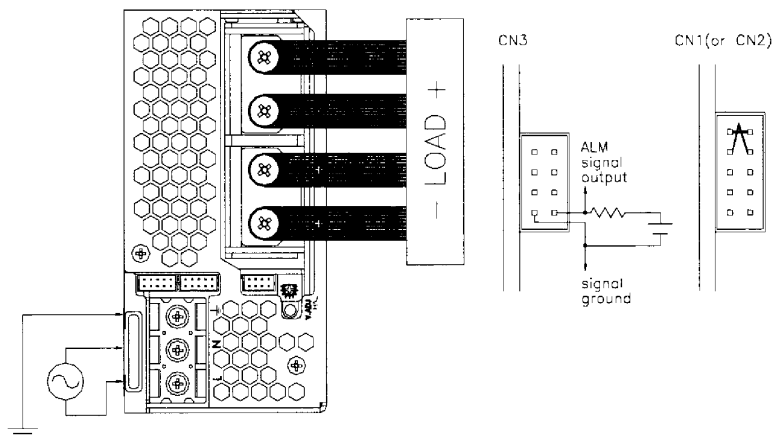
#### SWS1000L



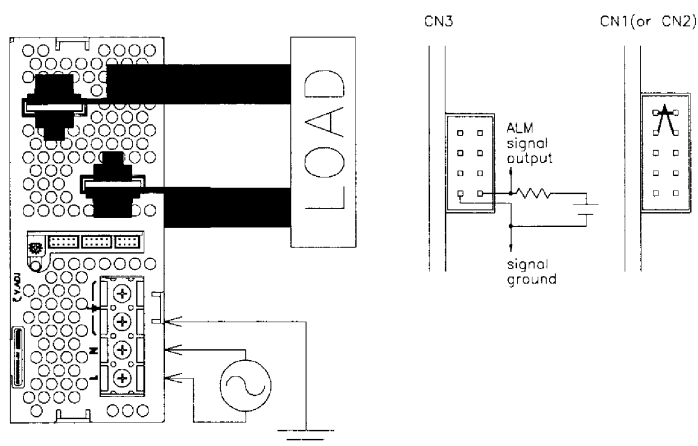


- ALM signal output required  
Open collector method shown below shall be used.  
“G1” terminal is ground for “ALM” terminal

### SWS600L



### SWS1000L



## 4. Functions and Precautions

### 4-1. Input Voltage Range

Input voltage range is single phase 85 ~ 265VAC (47 ~ 63Hz) or 120 ~ 350VDC. Input voltage, which is out of specification, may cause unit damage. Rated input voltage for safety standard application is 100AC-240VAC(50/60Hz).

### 4-2. Output Voltage Range

Output voltage is set to the rated value at shipment. V.ADJ trimmer on the front panel side can be used to adjust the output voltage within the range specified (refer to specifications for adjustable range).

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.

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

The OVP function (Inverter shutdown method, manual reset type) is provided. OVP function operates within specified range (refer to specification) of the rated output voltage value and the output will be shut down when OVP function triggers (refer to specifications for OVP range of each models). To reset OVP, remove the input of power supply for a few minutes, and then re-input. Or, use CNT to 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 leads to damage. In the case of inductive load, use decoupling diode at output line.

#### **4-4. Over Current Protection (OCP)**

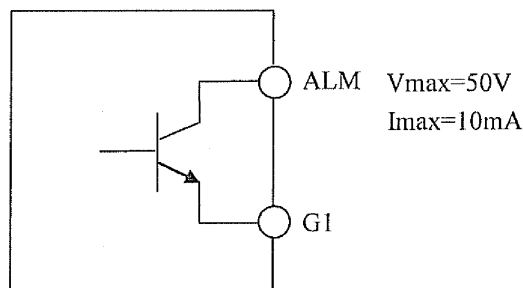
The OCP function is provided. OCP characteristic is constant current limiting, automatic recovery. OCP function operates when the output current exceeds 105% (24V and 48V output model: 101% of peak current) of maximum DC output current specification. The output will be automatically recovered when the overload condition is canceled. Never operate the unit under over current or shorted conditions for more than 30 seconds, which may leads to damage. OCP setting is fixed and not to be adjusted externally.

#### **4-5. 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. After shut down, remove the input and cool it down to reset OTP. Then re-input.

#### **4-6. Power Failure Detection Circuit (ALM)**

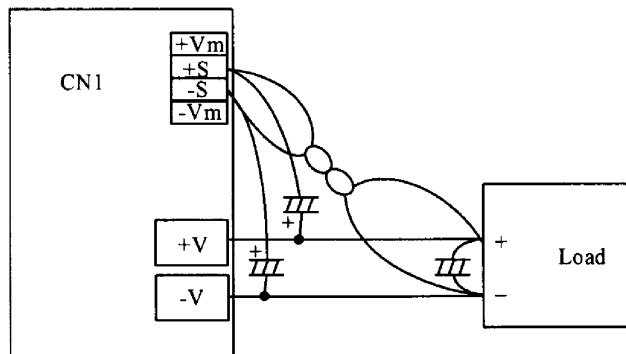
Power failure detection circuit is provided. ALM (Alarm) signal will turn “High” level to indicate the abnormal status when converter stop. Please take note in parallel or N+1 operation at light load condition, maybe only one of the power supply operates and other power supply stops. When the built-in FAN motor of this power supply unit stops, ALM signal will turn to “High” too. If the output voltage is decreased to less than 20% of rated voltage, or decreased rapidly through an external adjustment mechanism when load is light, the ALM signal may turn “High”. The ALM signal is isolated from input and output by a photo-transistor. It uses the open collector method shown as below.



#### 4-7. Remote Sensing (+S, -S terminal)

This function compensates voltage drop of wiring from output terminals to load terminals. Connect “+S” terminal to “+” terminal of load and “-S” terminal to “-” terminal of load with sensing wires. The total line voltage drop (+ side line and - side line) shall be less than 0.3V. In case that sensing lines are too long, it is necessary to put an electrolytic capacitor in following places.

- 1) across the load terminal,
- 2) between “+S” terminal and “+V” terminal,
- 3) between “-S” terminal and “-V” terminal.



When the function of remote sensing is not in used, connect +S terminal to +Vm terminal, and -S terminal to -Vm terminal by the attachment connector.

If remote sensing terminals are opened, the stability and the accuracy of the output deteriorated. Therefore, terminal +S, -S must be connected.

#### 4-8. Remote ON/OFF Control

Remote ON/OFF control is provided.

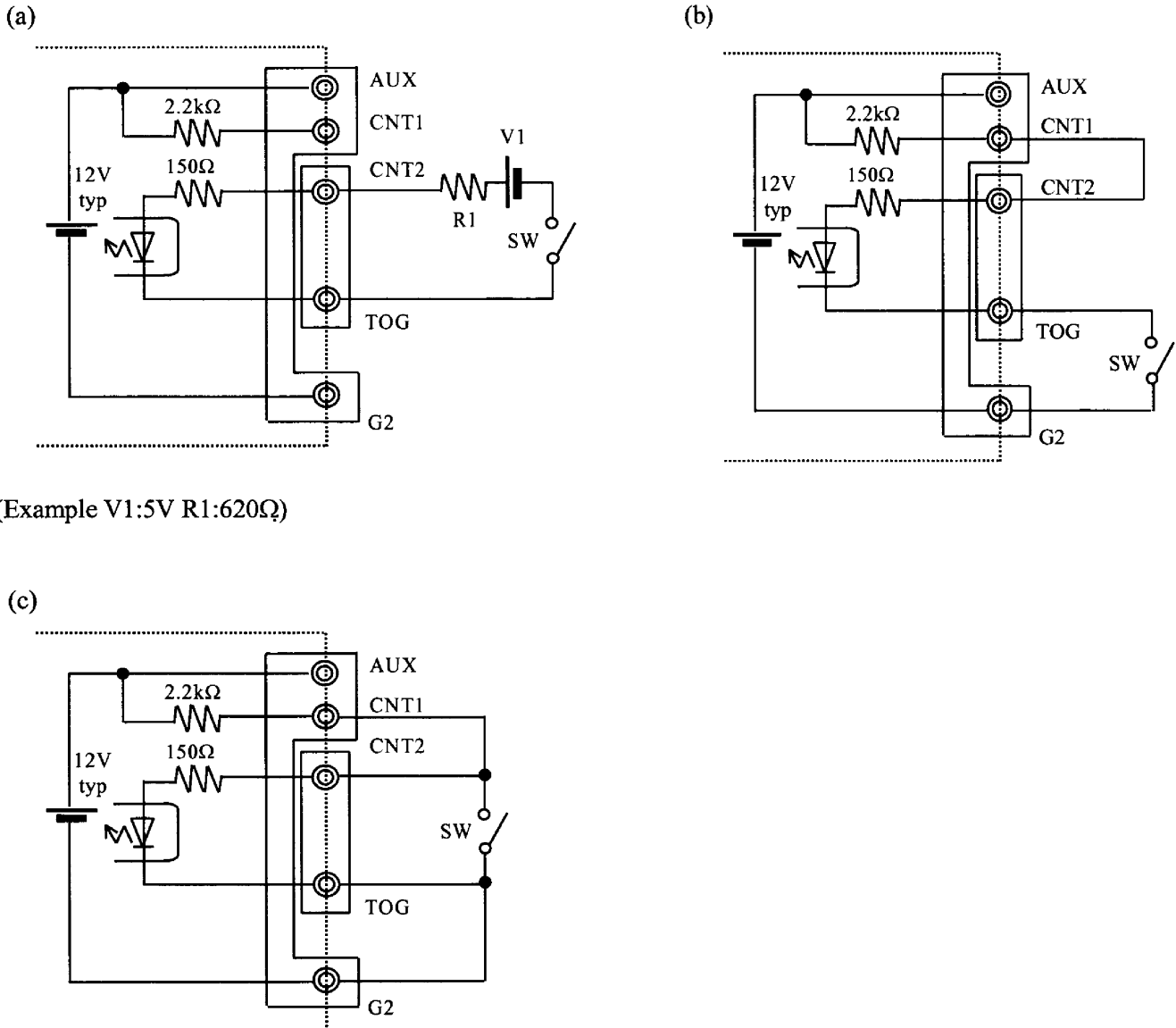
Using this function, output on/off is allowed to control without input voltage on/off.

- (1) The maximum input voltage to CNT2 terminal is 12V, and the maximum allowable reverse voltage is -1V; Current flow into CNT2 is 5mA typical and 12mA maximum.
- (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.

#### Specifications of remote ON/OFF

CNT2-TOG current or voltage condition:

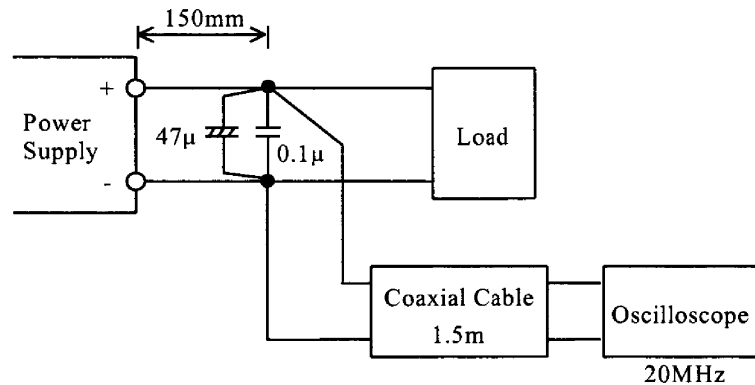
Connection method		(a)	(b)	(c)
SW Logic	Output on	SW open (0.1mA max)	SW open (0.1mA max)	SW close (0.5V max)
	Output off	SW close (3mA min)	SW close (3mA min)	SW open (0.1mA max)
pin		CNT2,TOG	CNT1,CNT2,TOG,G2	CNT1,CNT2,TOG,G2



**Fig.2.3 Examples of connecting remote ON/OFF circuit**

#### 4-9. Output Ripple & Noise

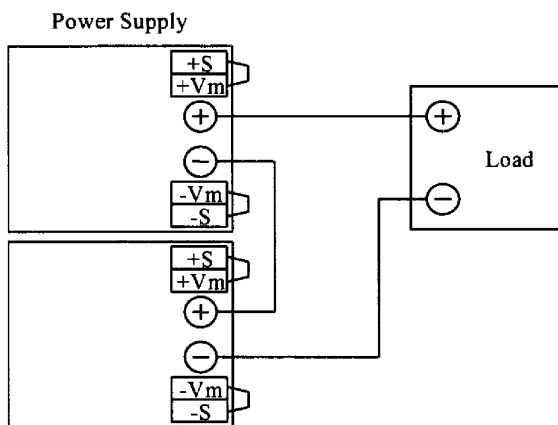
The standard specification for maximum ripple value is measured by measurement circuit as below. When load lines are longer, ripple becomes larger. In this case, electrolytic capacitor, film capacitor, etc. might be necessary to use across the load terminal. The output ripple cannot be measured accurately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



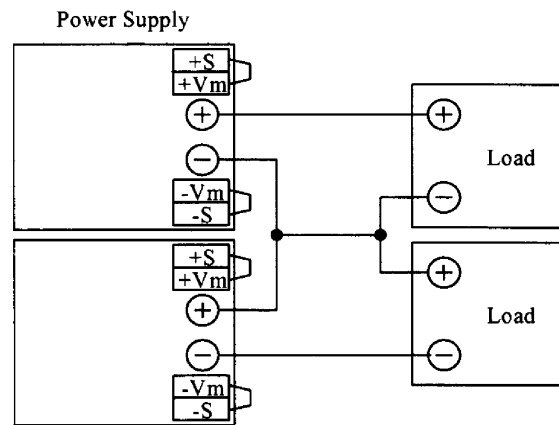
#### 4-10. Series Operation

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

Current balancing function is provided. Both operations mode (A) and (B) are possible.

##### (A) To Increase the Output Current

Connect 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.

1. Adjust the output voltage of each power supply to be same value within 1% or 100mV whichever is smaller.
2. Use same length and type of wires for all load lines.
3. Please make sure that the sum of output current values does not exceed a value obtained from the right side of following equation.

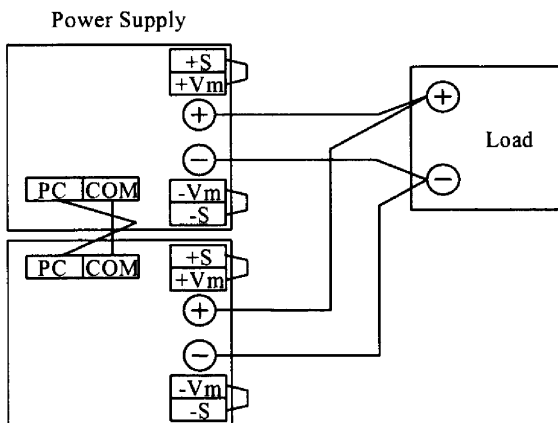
$$\text{Maximum of total output current in parallel operation} \leq \text{Rated current per unit} \times \text{Number of units} \times 0.9$$

4. Parallel operation is possible up to 5 units.

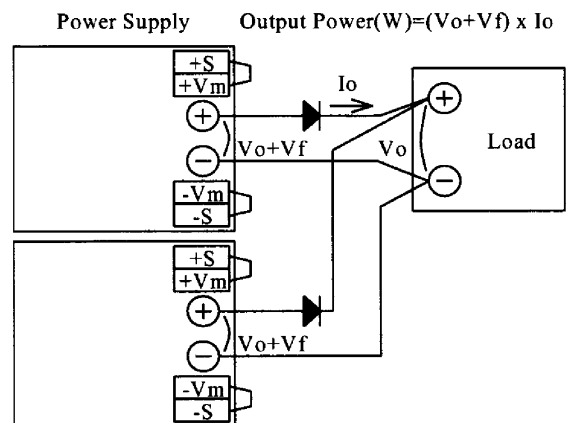
**(B) To Use as a Backup Power Supply**

1. Adjust the output voltage( $V_o$ ) of each power supply to be same value within 1% or 100mV whichever is smaller.
2. Set power supply output voltage higher to compensate the forward voltage drop of diode.
3. Use within the specifications for output voltage and output current.
4. When one of power supplies fails, the remaining non-failure power supplies continue to maintain the output. If one of the power supplies stop operating, the output voltage may change about 400mV(3V, 5V), 5%(12V, 15V, 24V, 36V, 48V, 60V) in its transient response.

**Method (A)**



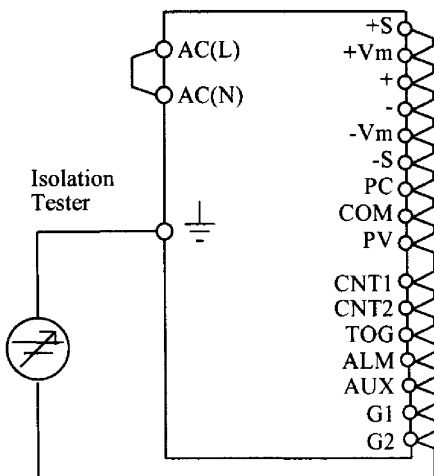
**Method (B)**



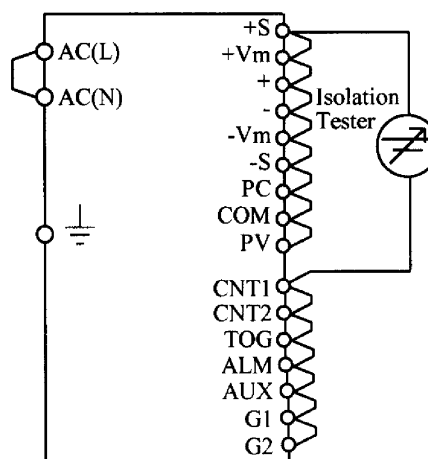
**4-12. Isolation Test**

Isolation resistance between output and  $\perp$  (chassis) shall be more than 50M  $\Omega$  at 500VDC and between output and AUX, CNT, ALM shall be more than 50M  $\Omega$  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 ~ FG (chassis) : 500VDC 50M $\Omega$  or more



Output ~ CNT · AUX · ALM : 100VDC 50M $\Omega$  or more



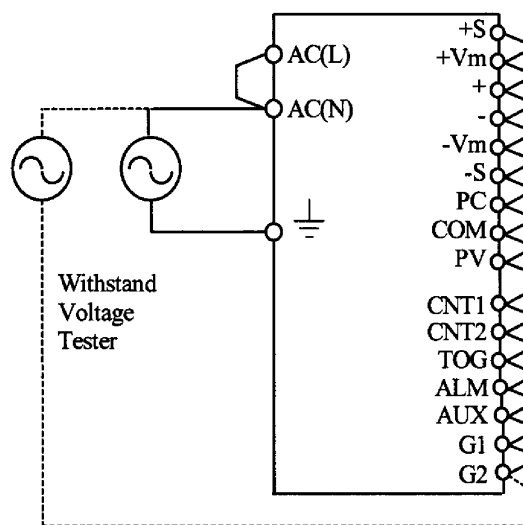
#### 4-13. Withstand Voltage

SWS600L is designed to withstand 3.0kVAC, SWS1000L is designed to withstand 4.0kVAC between input and output, This series is designed to withstand 2.0kVAC between input and  $\perp$  (chassis), 500VAC between output and  $\perp$  (chassis), and 100VAC between output and CNT, AUX, ALM terminal each for 1 minute. When testing withstand voltage, set current limit of withstand voltage test equipment at 20mA.

(Output- $\perp$  (chassis) and Output-Control: 100mA).

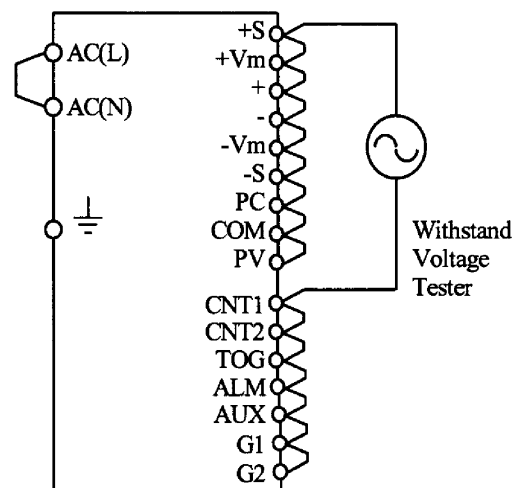
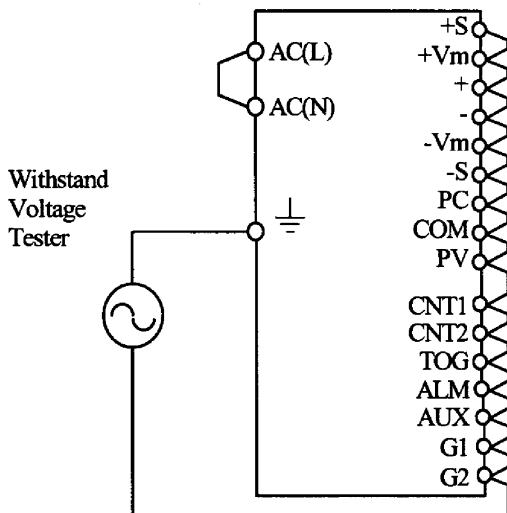
The applied voltage must be gradually increased from zero to testing value and then gradually decreased for shut down. When timer is used, the power supply may be damaged by high impulse voltage at timer switch on and off. Connect input and output as follows.

Input ~ Output (dotted line) : 3.0kVAC 1min. (20mA), (SWS1000L: 4.0kVAC 1min 20mA)  
Input ~  $\perp$  (chassis) (solid line) : 2.0kVAC 1min. (20mA)



Output ~  $\perp$  (chassis) : 500VAC 1min. (100mA),  
(SWS600L-60 and SWS1000L-60: 651VAC 1min 130mA)

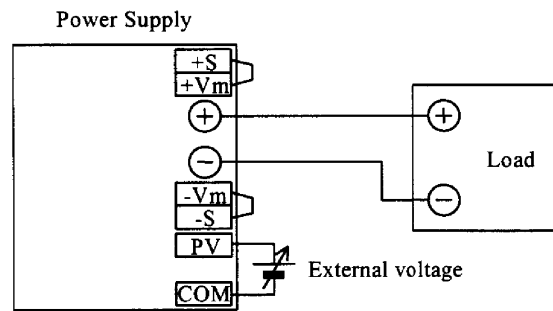
Output ~ CNT · AUX · ALM : 100VAC 1min. (100mA)



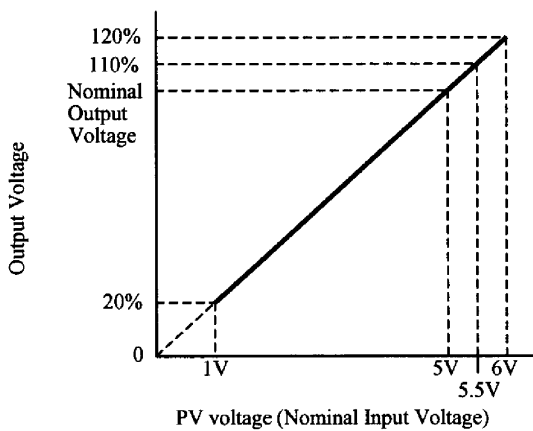
#### 4-14. Output Voltage External Control (PV)

Output voltage external control function is available. Output voltage can be varied by applying an external voltage (1 – 6v) to “PV” terminal and “COM” terminal. Please consider the following characteristics.

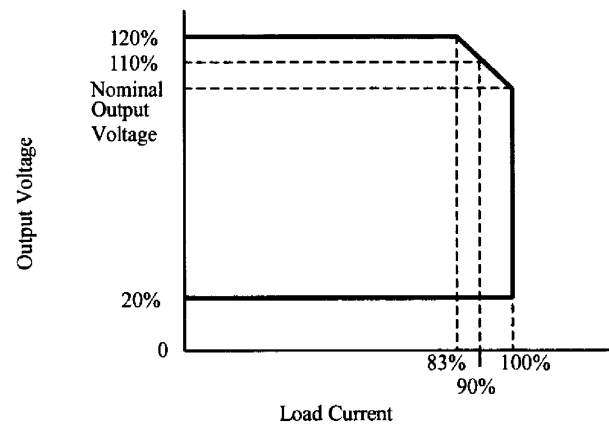
Connection method



Output Voltage Linearity



Output Voltage Derating



Note 1. Regarding output voltage adjustment below 20%, please consult our sales.

Note 2. For 3.3V output model, limit output voltage variation range at 30% ~ 120%. At PV voltage variation 1.5V ~ 6V.  
For 15V output model, limit output voltage variation range at 20% ~ 130%. At PV voltage variation 1V ~ 6.5V.  
For 48V output model, limit output voltage variation range at 20% ~ 116.7%. At PV voltage variation 1V ~ 5.8V.  
For 60V output model, limit output voltage variation range at 20% ~ 110%. At PV voltage variation 1V ~ 5.5V.

#### 4-15. Output Peak Current

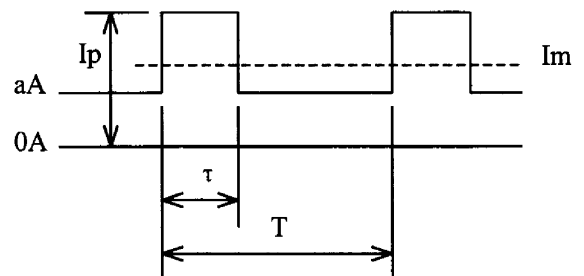
For 24V, 48V output model, please meet the following conditions. Reduce peak current value according to output derating as section 5-2.

Input voltage range : AC170V~265V  
Continuous Peak output time (  $\tau$  ) : Within 10 seconds  
Peak output current (  $I_p$  ) : Within the rated peak output current  
Average DC output current (  $I_m$  ) : Within the rated output current,  $I_{av}$

$$I_m = \frac{(I_p - a) \times \tau}{T} + a$$

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

Duty : up to 35(%)



$I_p$  : Peak output current (A)  
 $I_{av}$  : Rated output current (A)  
 $I_m$  : Average output current (A)  
 $\tau$  : Peak current pulse width (sec)  
 $T$  : Period (sec)



#### 4-16. Auxiliary Supply

Auxiliary supply (12V, 0.1A max) is provided to ease customer application. Aux voltage is functionally isolated from all other signal terminals and output terminals, and it is always available as long as input power in the specified voltage range is present.

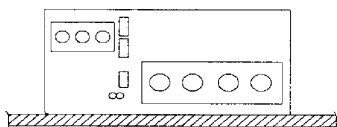
### 5. Mounting Directions

#### 5-1. Mounting Directions.

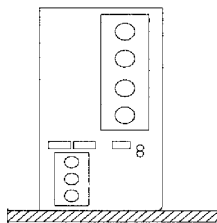
Recommended standard mounting method is (A). Method (B), (C) is also possible. Refer to the derating below.

##### SWS600L

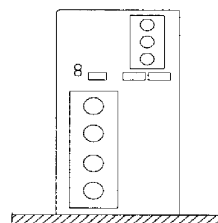
(A) Mounting A



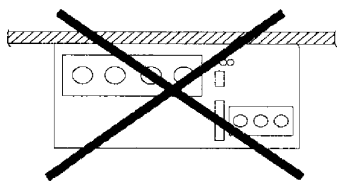
(B) Mounting B



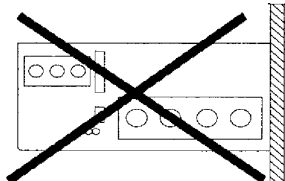
(C) Mounting C



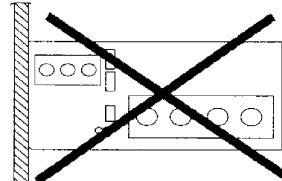
(D) Inhibit



(E) Inhibit

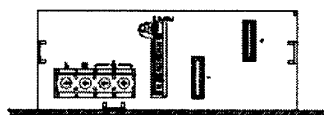


(F) Inhibit

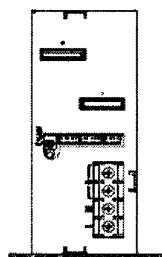


##### SWS1000L

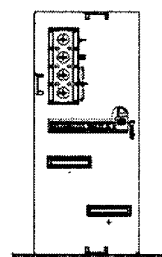
(A) Mounting A



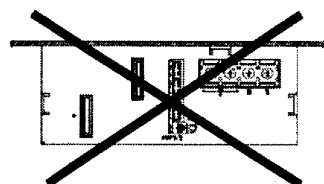
(B) Mounting B



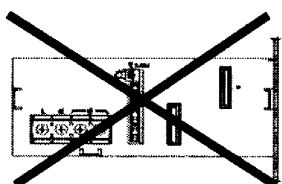
(C) Mounting C



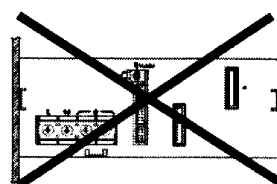
(D) Inhibit



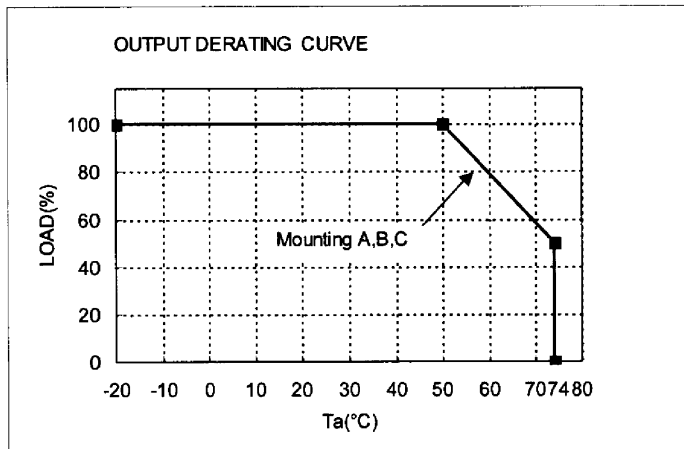
(E) Inhibit



(F) Inhibit

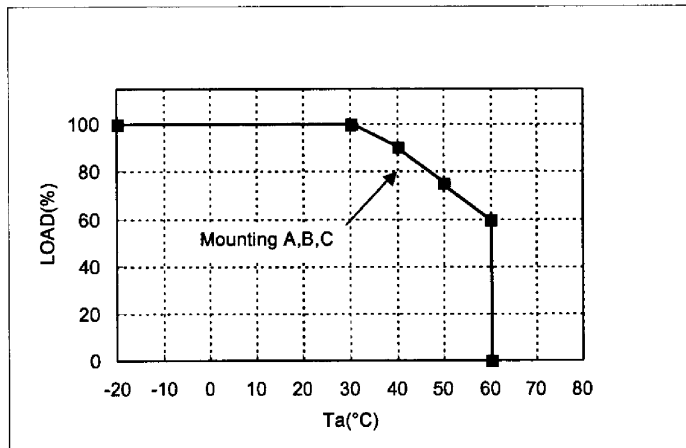


## 5-2. Output Derating



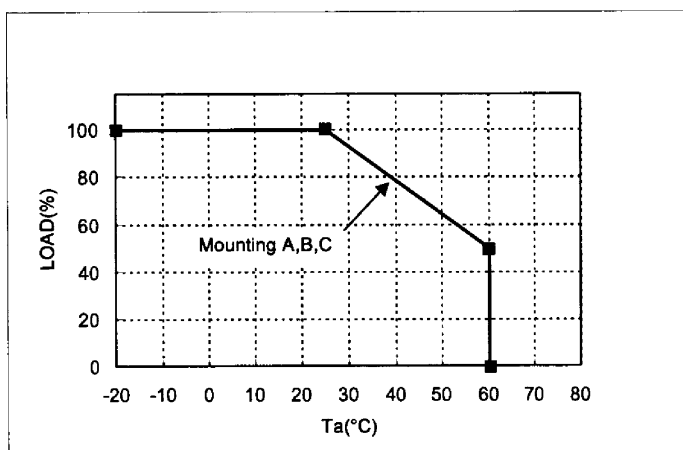
Ta(°C)	Load (%)
	Mounting A, B, C
-20 ~ +50	100
+74	50

\*Output derating for both SWSS600L and SWS1000L



Ta(°C)	Load (%)
	Mounting A, B, C
-20 ~ +30	100
+40	90
+50	75
+60	60

\*Output derating for SWSS600L/RF Models.

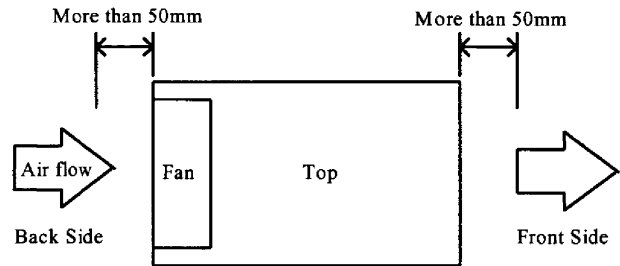


Ta(°C)	Load (%)
	Mounting A, B, C
-20 ~ +25	100
+60	50

\*Output derating for SWSS1000L/RF Models.

### 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 for screw 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) The sensing lines shall be twisted and separated from the output lines for remote sensing.
- (3) Use all lines as thick and short as possible to make lower impedance, clamping core at both input and output wires benefit EMI performance.
- (4) Attaching a capacitor to the load terminals can eliminate noise.
- (5) For safety and EMI considerations, connect  $\perp$  terminal to the mounting set ground terminal, power supply and load mounting on aluminum plate is recommended for EMI setting.
- (6) Recommended torque for the terminal :
 

SWS600L Input terminal (M4 screw)	: 1.27 N · m (13.0kgf · cm)
Output terminal (M5 screw)	: 2.5 N · m (25.5kgf · cm)
SWS100L Input terminal (M4 screw)	: 1.27 N · m (13.0kgf · cm)
Output terminal (M8 bolt & nut)	: 10.8 N · m (110kgf · cm)
(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-0.5 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 is AWG#26 ~ AWG#22 and insulation outer dia is  $\phi$  1.0 ~  $\phi$  1.5 mm.  
Appreciable wire per barrel size is UL1007 (standard wire ) and its equivalent standard wire can be used.  
Regarding the AWG#22, use UL1061 or its equivalent standard wire, because wire insulation outer diameter of UL1061 is small

Crimping tool is as below.

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		Insulation O.D (mm)	Crimp height (mm)	
Type	Size		Conductor part	Insulation part
UL1007	AWG #26	1.3	0.60 ~ 0.70	1.7
UL1007	AWG #24	1.5	0.65 ~ 0.75	1.8
UL1061	AWG #22	1.4	0.70 ~ 0.80	1.8

SPHD-002T-P0.5

Wire		Insulation O.D (mm)	Crimp height (mm)	
Type	Size		Conductor part	Insulation part
UL1007	AWG #28	1.2	0.55 ~ 0.60	1.6
UL1007	AWG #26	1.3	0.60 ~ 0.65	1.7
UL1007	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.

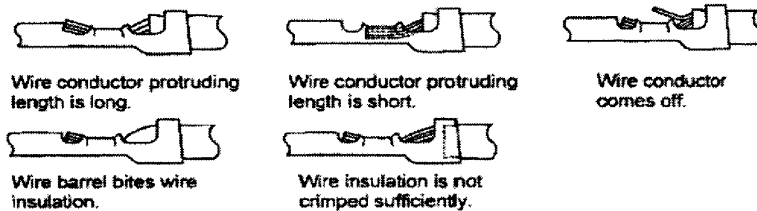
Note 3. Crimping condition at wire insulation barrel is as below Fig.1.

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
UL1007 AWG#26	20	39.2 ~ 45.1
UL1007 AWG#24	30	68.6 ~ 74.5
UL1007 AWG#22	40	92.1 ~ 96.0

SPHD-002T-P0.5

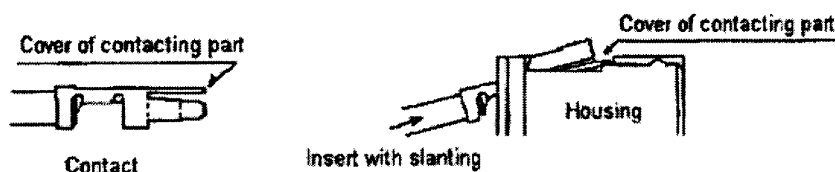
Wire size	Requirement N min.	Actual value N
UL1007 AWG#28	15	27.0 ~ 34.3
UL1007 AWG#26	20	44.1 ~ 48.0
UL1007 AWG#24	30	66.6 ~ 71.5

**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 slation insertion



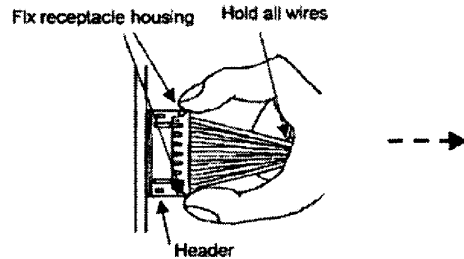
#### d). Mating and Unmating Connector

##### (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

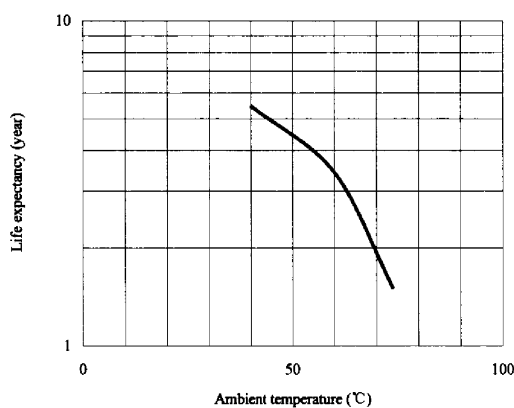
Refer to the following fuse rating when selecting the external fuses that are to be used on input line. Surge current flows when line turns on. Use slow-blow or time-lag type fuse, not fast-blow fuse. Fuse rating is specified by in-rush current value at line turn-on. Do not select the fuse according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

SWS600L : 15A      SWS1000L : 20A

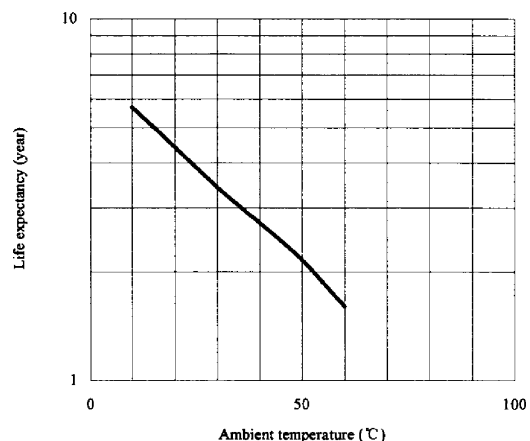
### 8. Fan life expectancy

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 life of fan.

SWS600L, SWS1000L



SWS600L/RF, SWS1000L/RF



Fan acoustic noise:

SWS600L, SWS1000L: build in fan speed control circuit.

SWS600L : 45dB[A] at room temperature, 50dB[A] at high ambient temperature.

SWS1000L: 53dB[A] at room temperature, 55dB[A] at high ambient temperature.

SWS600L/RF: 50dB[A], SWS1000L/RF: 55dB[A].

## **9. Special instructions for IEC/EN/UL/CSA 60601-1 (SWS1000L only)**

- (1) These products are designed for continuous operation within an overall enclosure, and must be mounted such that access to the mains terminals is restricted. See Clause 16, IEC/EN/UL60601-1
- (2) These products are NOT suitable for use in the presence of flammable anaesthetic mixtures with air or with oxygen or nitrous oxide.
- (3) These products are classed as ordinary equipment according to IEC/EN/UL60601-1 and are NOT protected against the ingress of water .
- (4) Connect only apparatus complying with IEC/EN/UL60601-1 to the signal ports.
- (5) Except for permanently installed equipment as defined in Clause 57.6 of IEC/EN/UL60601-1 the overall equipment in which these products are installed must have double pole fusing on the input mains supply. The products themselves have single pole fusing in the live line .
- (6) When the PSU is installed within medical equipment an all pole mains input disconnect device must be fitted.
- (7) Reference should be made to local regulations concerning the disposal of these products at the end of their useful life.
- (8) These products have not been assessed to IEC/EN60601-1-2 (EMC) but EMC test data is available from DENSEI-LAMBDA.

## **10. 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 tightened 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 is properly used.
- (7) Check if the built-in FAN is not stopped. Is FAN stopped by something irregular or etc?  
If FAN stops, the ALM signal turns "High" level and OTP might be activated.
- (8) Power supply has ventilating holes on the front and back panels. Check if there is any irregular 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 wattage does not over specification.
- (11) Audible noise can be heard when input voltage waveform is not sinusoidal.
- (12) Audible noise can be heard during dynamic load operation.