

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 Netztesles darf die Leistung, die auf dem Label des Netztesles 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 Netztesles 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 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 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.

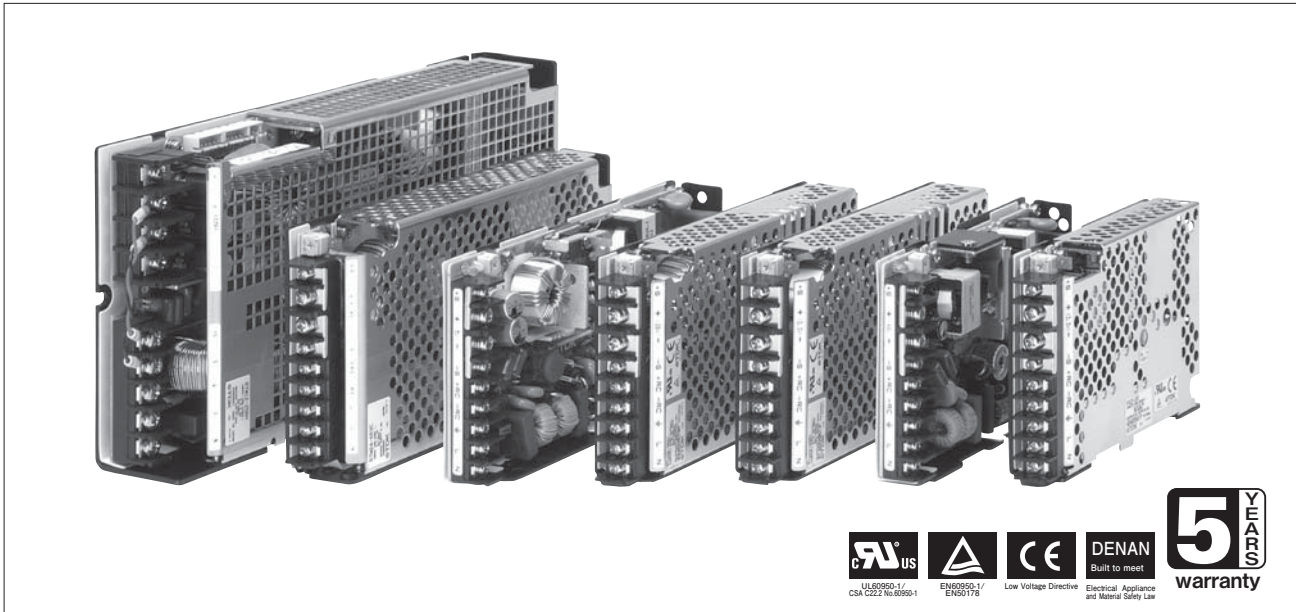
O chassis/cobertura da unidade está concebido de forma a proteger o pessoal especializado de perigos. Não devem ser utilizados como parte das coberturas externas de qualquer equipamento em que possam estar acessíveis aos operadores, uma vez que em condições de carga máxima, algumas peças do chassis da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

TDK-Lambda

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RTW SERIES

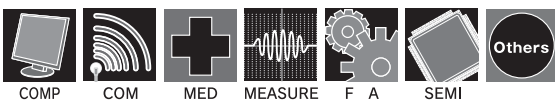
Unit type power supply



Features

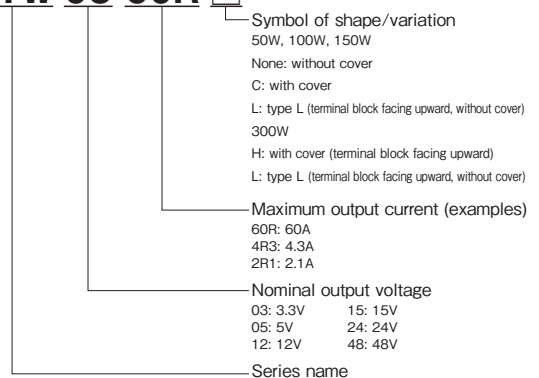
- Worldwide-applicable input, super-slim type (1U/2U rack size)
- Meeting the standard of the harmonics current limiter EN61000-3-2
- Approved by safety standards (UL, C-UL, TÜV), complying with Electrical Appliance and Material Safety Law, CE marking applicable
- EMS standard complying with EN61000-4-2/3/4/5/6/8/11
- Complying with radiation noise and conduction noise regulations FCC-B and VCCI-B
- Remote On/Off function incorporated (use and nonuse can be switched by the internal switch)
- Electrolytic capacitor lifetime: 60,000H or over

Applications



Model-naming method

RTW 05-60R □



Conformity to RoHS Directive

This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

Product Line up

		50W			100W			
Output voltage	Output current	Without cover	With cover	Type L	Output current	Without cover	With cover	Type L
3.3	12.5	RTW03-12R	RTW03-12RC	RTW03-12RL	25	RTW03-25R	RTW03-25RC	RTW03-25RL
5	10	RTW05-10R	RTW05-10RC	RTW05-10RL	20	RTW05-20R	RTW05-20RC	RTW05-20RL
12	4.3	RTW12-4R3	RTW12-4R3C	RTW12-4R3L	8.4	RTW12-8R4	RTW12-8R4C	RTW12-8R4L
15	3.5	RTW15-3R5	RTW15-3R5C	RTW15-3R5L	6.7	RTW15-6R7	RTW15-6R7C	RTW15-6R7L
24	2.2	RTW24-2R2	RTW24-2R2C	RTW24-2R2L	4.2	RTW24-4R2	RTW24-4R2C	RTW24-4R2L
28	1.8	RTW28-1R8	RTW28-1R8C	RTW28-1R8L	3.6	RTW28-3R6	RTW28-3R6C	RTW28-3R6L
48	1.1	RTW48-1R1	RTW48-1R1C	RTW48-1R1L	2.1	RTW48-2R1	RTW48-2R1C	RTW48-2R1L

		150W			300W		
Output voltage	Output current	Without cover	With cover	Type L*	Output current	With cover	Type L
3.3	35	RTW03-35R	RTW03-35RC	RTW03-35RL	70	RTW03-70RH	RTW03-70RL
5	30	RTW05-30R	RTW05-30RC	RTW05-30RL	60	RTW05-60RH	RTW05-60RL
12	12.5	RTW12-12R	RTW12-12RC	RTW12-12RL	25	RTW12-25RH	RTW12-25RL
15	10	RTW15-10R	RTW15-10RC	RTW15-10RL	20	RTW15-20RH	RTW15-20RL
24	6.3	RTW24-6R3	RTW24-6R3C	RTW24-6R3L	13	RTW24-13RH	RTW24-13RL
28	5.4	RTW28-5R4	RTW28-5R4C	RTW28-5R4L	11	RTW28-11RH	RTW28-11RL
48	3.2	RTW48-3R2	RTW48-3R2C	RTW48-3R2L	6.5	RTW48-6R5H	RTW48-6R5L

* Contact us separately for coating variations. ** Planning to get approval of safety standards

RTW50W Specifications

ITEMS/UNITS		MODEL	RTW03-12R	RTW05-10R	RTW12-4R3	RTW15-3R5	RTW24-2R2	RTW28-1R8	RTW48-1R1	
Input	Voltage Range (Nominal: 100-240VAC)	V	AC85-265							
	Frequency (Nominal: 50-60 single phase)	Hz	47-66							
	Power Factor (100/240VAC)(typ)		0.99/0.94							
	Efficiency (100VAC)(typ)	%	75	80	81	82				
	Efficiency (200VAC)(typ)	%	77	82	83	85				
	Current (100-120/200-240VAC) (max)	A	0.7/0.4 (3.3V: 0.6/0.3)							
	Inrush Current (100/200VAC)(typ) (*1)	A	14/28							
Leakage Current (100/240VAC) (max)	mA	0.45/0.6								
Output	Nominal Voltage	VDC	3.3	5	12	15	24	28	48	
	Maximum Current (*2)	A	12.5	10	4.3	3.5	2.2	1.8	1.1	
	Maximum Power	W	41.2	50	51.6	52.5	52.8	50.4	52.8	
	Maximum Line Regulation (Within input voltage range) (max/typ)		0.2%/0.1%							
	Maximum Load Regulation (0-100% load) (max/typ)		0.4%/0.2%							
	Temperature Coefficient (Ambient temperature -10°C to +71°C) (max/typ)	%	1.0/0.5							
	Warm Up Drift (max/typ) (*3)	%	0.5/0.2							
	Max Power Total Regulation (max/typ)	%	± 1.8/ ± 0.9							
	Maximum Ripple Voltage (max) (*4)	mVp-p	80	100			150	200		
	Maximum Ripple & Noise (max) (*4)	mVp-p	120	150			200	300		
	Start Up Time (100/240VAC)(typ) (*5)	ms	400/200							
	Hold-up Time (100/240VAC)(typ)	ms	55	30				35	30	
	Function	Voltage Adjustable Range	VDC	2.6-4.0	4.0-5.8	9.6-13.2	12.0-16.5	19.2-26.4	22.4-30.8	38.4-52.8
Over Current Protection (*6)		A	13.2-15.6	10.5-12.5	4.5-5.4	3.68-4.38	2.3-2.75	1.9-2.25	1.15-1.38	
Over Voltage Protection (*7)		VDC	4.2-5.2	6.0-6.9	13.7-15.7	17.0-19.0	27.0-30.5	32.0-35.0	55.0-60.0	
Over Temperature Protection			Not available							
Remote Sensing			Available							
Remote ON/OFF Control (*8)			Available							
Parallel Operation			Not available							
Series Operation			Applicable							
Operation Indicator			Available (green LED)							
Variable Output Voltage			Not available							
Monitoring Signal			Not available							
Environment		Operating Temperature	°C	-10 to +71						
	Storage Temperature	°C	-30 to +75							
	Operating Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)							
	Storage Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)							
	Vibration		5-10Hz, 10 minutes sweep, 10mm-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s ² (2G) acceleration, 3 directions, 1h for each, in non-operation							
	Shock		Mounting A: 196m/s ² (20G), Mounting B/C: 588m/s ² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation							
Isolation	Withstand Voltage		For 1 minute at ordinary temperature and humidity Between input terminal and ground terminal: 2.0kVAC, 10mA cutout current Between input terminal and output terminal: 3.0kVAC, 10mA cutout current Between output terminal and ground terminal: 500VAC, 20mA cutout current							
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Between input terminal and ground terminal, between input terminal and output terminal, and between output terminal and ground terminal							
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1 (C-UL), EN60950-1 (TUV), complying with Electrical Appliance and Material Safety Law (meeting the regulations of creepage surface and spacial distance in item 8 of the appendix table)							
	PFHC		Complying with EN61000-3-2							
	EMI		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B							
Mechanical	Immunity		Complying with EN61000-4-2 Level2, 3, -3 Level3, -4 Level3, -5 Level3, 4, -6 Level3, -8 Level4, -11							
	Weight without cover / with cover / type L (max)	g	250/290/250							
	Size (W x H x D) without cover / with cover / type L	mm	22 x 82 x 124/22 x 82 x 124/22 x 82 x 134.5							
Models of different	Detailed product name1 with cover		RTW03-12RC	RTW05-10RC	RTW12-4R3C	RTW15-3R5C	RTW24-2R2C	RTW28-1R8C	RTW48-1R1C	
	Detailed product name2 type L		RTW03-12RL	RTW05-10RL	RTW12-4R3L	RTW15-3R5L	RTW24-2R2L	RTW28-1R8L	RTW48-1R1L	

With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.

(*1) In primary surge current, 25°C, and cold starting.

(*2) The maximum output current value is between -10°C and +40°C. For use in outside this temperature range, derating is needed.

(*3) 30min to 8h after the start of input voltage application.

(*4) 1.5 times the value in 100MHz and at between -10°C and 0°C.

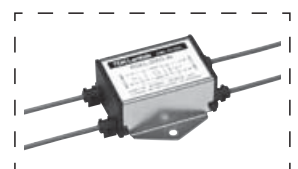
(*5) In cold starting at between -20°C and 0°C, lowering of output voltage can occur. It may take 3 seconds or so until the voltage becomes stable.

(*6) Fixed current reduction system and automatically resumes when the causes are removed.

(*7) Output voltage shutdown system and resumes by restarting input (approximately 30s interval).

(*8) Use and nonuse can be switched by the internal switch.

Recommended EMC Filter

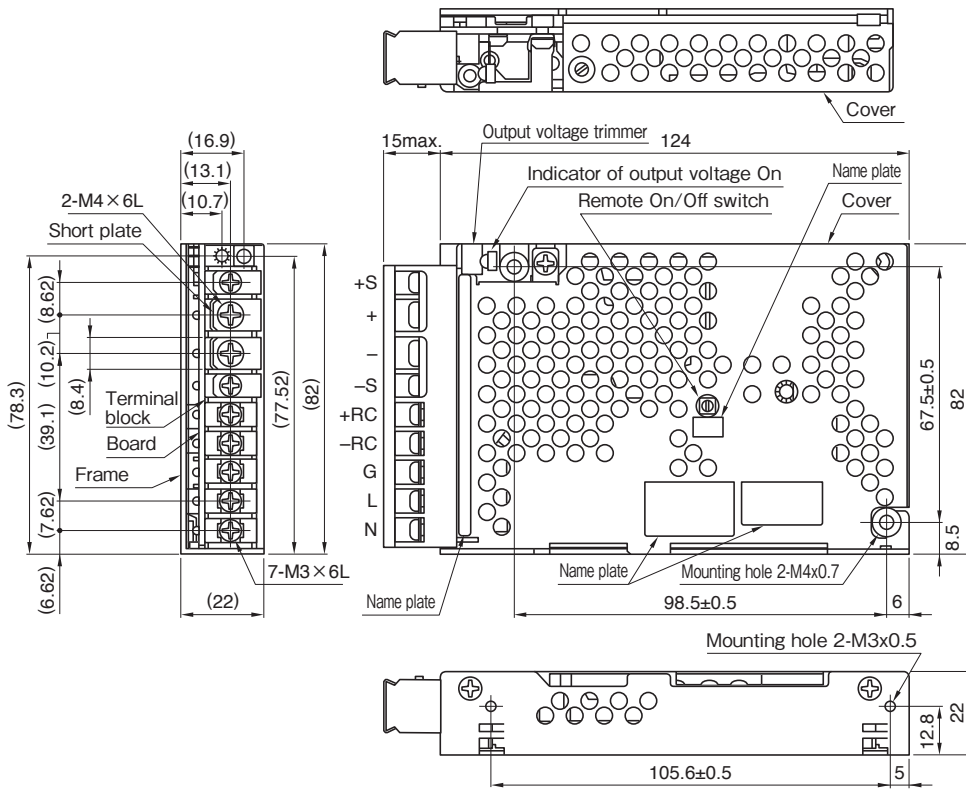


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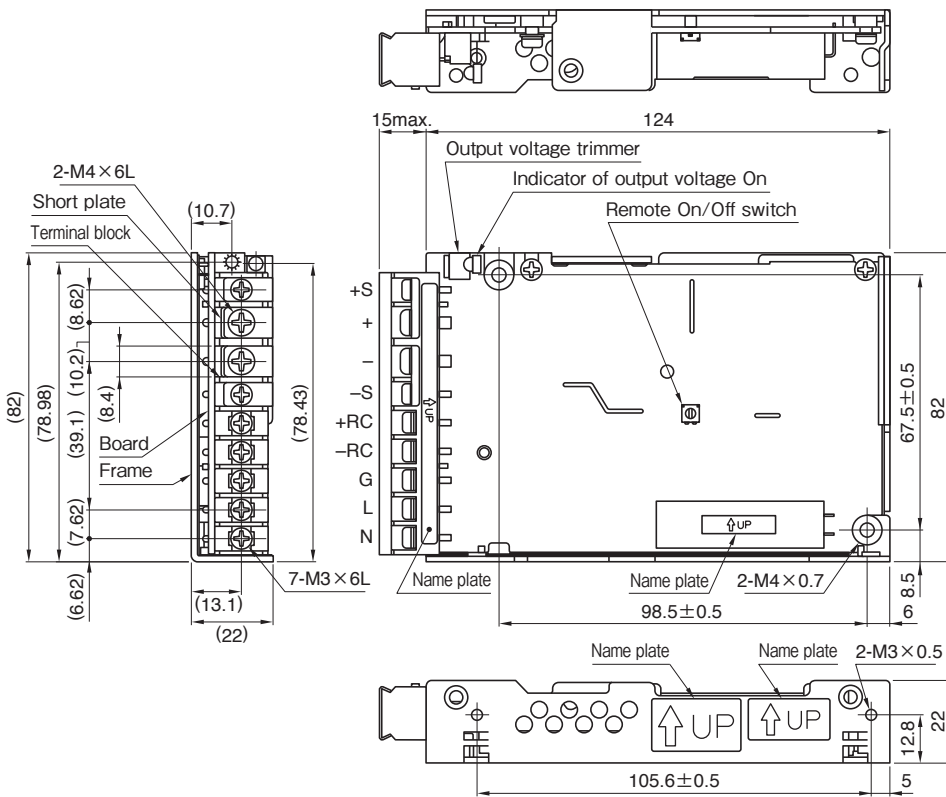
Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing

Type with cover



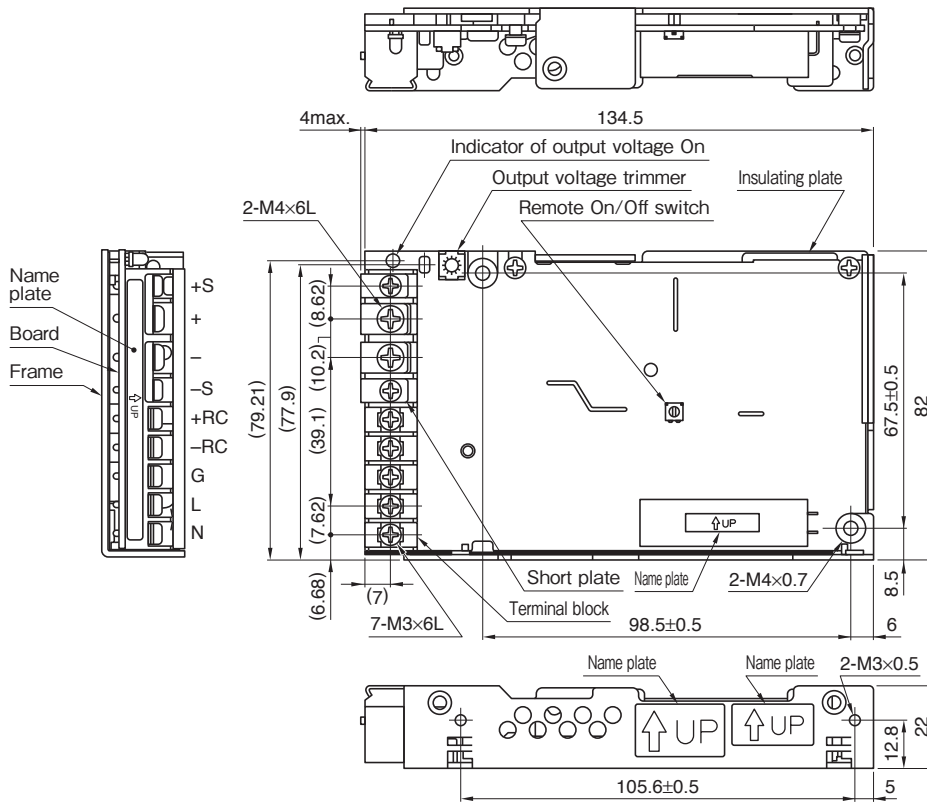
Type without cover



Unit: mm

* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface. Allowable tolerance is ± 1 mm if not specified separately.

Type L (terminal block facing upward, without cover)



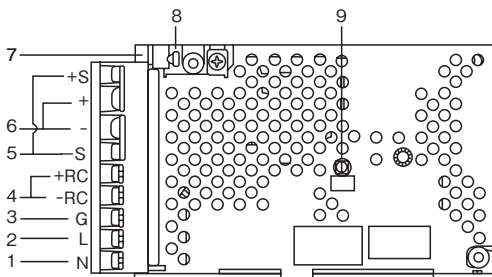
Unit: mm

* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface.

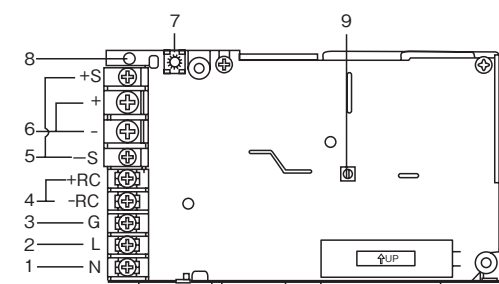
Allowable tolerance is ±1mm if not specified separately.

Terminals

Type with cover/without cover



Type L



Terminal No.	Name and function	
1	AC input terminal (N)	Connects to AC.100-120V or AC.200-240V input line.
2	AC input terminal (L)	Connects to AC.100-120V or AC.200-240V input line.
3	Ground terminal (G)	Connects to the ground line. This is connected to the case.
4	Remote On/Off terminal (+RC, -RC)	By inputting external signals between terminals, the output voltage can be switched on and off from outside the power supply. Output is not generated if voltage is not applied to RC terminal. The RC terminal is floated.
5	Remote sensing terminal (+S, -S)	Used to compensate for a voltage drop to load. The line between the remote sensing terminal and DC output terminal is short-circuited with a short piece.
6	DC output terminal (+, -)	Connects to the load line.
7	Output voltage trimmer (V _{ADJ})	Output voltage can be varied. Voltage increases by turning the trimmer in a clockwise direction.
8	LED output indicator (green)	The LED is lit green when output voltage is generated.
9	Switch for use/nonuse of Remote On/Off function	Remote On/Off function is activated by setting the switch for use/nonuse of Remote On/Off function, located in the center of the power supply, to Y (turning in a clockwise direction).

RTW100W Specifications

ITEMS/UNITS		MODEL	RTW03-25R	RTW05-20R	RTW12-8R4	RTW15-6R7	RTW24-4R2	RTW28-3R6	RTW48-2R1
Input	Voltage Range (Nominal: 100-240VAC)	V	AC85-265 (90% load derating in 90VAC or lower)						
	Frequency (Nominal: 50-60 single phase)	Hz	47-66						
	Power Factor (100/240VAC)(typ)		0.99/0.93						
	Efficiency (100VAC)(typ)	%	79	83	84	85			
	Efficiency (200VAC)(typ)	%	81	85	86	87			88
	Current (100-120/200-240VAC) (max)	A	1.5/0.75 (3.3V: 1.2/0.6)						
	Inrush Current (100/200VAC)(typ) (*1)	A	14/28						
Leakage Current (100/240VAC) (max)	mA	0.45/0.6 (100VAC (Electrical Appliance and Material Safety Law) / 240VAC (UL, IEC))							
Output	Nominal Voltage	VDC	3.3	5	12	15	24	28	48
	Maximum Current (*2)	A	25	20	8.4	6.7	4.2	3.6	2.1
	Maximum Power	W	82.5	100	100.8	100.5	100.8		
	Maximum Line Regulation (Within input voltage range) (max/typ)		0.2%/0.1% (3.3V: 10mV/5mV)						
	Maximum Load Regulation (0-100% load) (max/typ)		0.4%/0.2% (3.3V: 20mV/10mV)						
	Temperature Coefficient (Ambient temperature -10°C to +71°C) (max/typ)	%	1.0/0.5						
	Warm Up Drift (max/typ) (*3)	%	0.5/0.2						
	Max Power Total Regulation (max/typ)	%	± 1.8/ ± 0.9						
	Maximum Ripple Voltage (max) (*4)	mVp-p	80	100			150	200	
	Maximum Ripple & Noise (max) (*4)	mVp-p	120	150			200	300	
	Start Up Time (100/240VAC)(typ) (*5)	ms	400/200						
	Hold-up Time (100/240VAC)(typ)	ms	35						
	Voltage Adjustable Range	VDC	2.6-4.0	4.0-5.8	9.6-13.2	12.0-16.5	19.2-26.4	22.4-30.8	38.4-52.8
Function	Over Current Protection (*6)	A	26.2-33.7	21-25	8.82-10.5	7.03-9.04	4.41-5.25	3.78-4.86	2.2-2.62
	Over Voltage Protection (*7)	VDC	4.2-5.2	6.0-6.9	13.7-15.7	17.0-19.0	27.0-30.5	32.0-35.0	55.0-60.0
	Over Temperature Protection		Not available						
	Remote Sensing		Available						
	Remote ON/OFF Control (*8)		Available						
	Parallel Operation		Not available						
	Series Operation		Applicable						
	Operation Indicator		Available (green LED)						
	Variable Output Voltage		Not available						
	Monitoring Signal		Not available						
Environment	Operating Temperature	°C	-10 to +71						
	Storage Temperature	°C	-30 to +75						
	Operating Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)						
	Storage Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)						
	Vibration		5-10Hz, 10 minutes sweep, 10mmp-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s ² (2G) acceleration, 3 directions, 1h for each, in non-operation						
	Shock		Mounting A: 196m/s ² (20G), Mounting B/C: 588m/s ² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation						
Isolation	Withstand Voltage		For 1 minute at ordinary temperature and humidity Between input terminal and ground terminal: 2.0kVAC, 10mA cutout current Between input terminal and output terminal: 3.0kVAC, 10mA cutout current Between output terminal and ground terminal: 500VAC, 20mA cutout current						
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Between input terminal and ground terminal, between input terminal and output terminal, and between output terminal and ground terminal						
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1 (C-UL), EN60950-1 (TUV), complying with Electrical Appliance and Material Safety Law (meeting the regulations of creepage surface and spacial distance in item 8 of the appendix table)						
	PFHC		Complying with EN61000-3-2						
	EMI		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B						
Mechanical	Immunity		Complying with EN61000-4-2 Level2, 3, -3 Level3, -4 Level3, -5 Level3, -6 Level3, -8 Level4, -11						
	Weight without cover / with cover / type L (max)	g	380/450/380						
	Size (W x H x D) without cover / with cover / type L	mm	25 x 82 x 160/25 x 82 x 160/25 x 82 x 171.5						
Models of different	Detailed product name1 with cover		RTW03-25RC	RTW05-20RC	RTW12-8R4C	RTW15-6R7C	RTW24-4R2C	RTW28-3R6C	RTW48-2R1C
	Detailed product name2 type L		RTW03-25RL	RTW05-20RL	RTW12-8R4L	RTW15-6R7L	RTW24-4R2L	RTW28-3R6L	RTW48-2R1L

With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.

(*1) In primary surge current, 25°C, and cold starting.

(*2) The maximum output current value is between -10°C and +40°C. For use in outside this temperature range, Derating is needed.

(*3) 30min to 8h after the start of input voltage application.

(*4) 1.5 times the value in 100MHz and at between -10°C and 0°C.

(*5) In cold starting at between -20°C and 0°C, lowering of output voltage can occur.

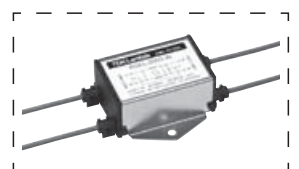
It may take 3 seconds or so until the voltage becomes stable.

(*6) Intermittent operation system and automatically resumes when the causes are removed.

(*7) Output voltage shutdown system and resumes by restarting input (approximately 30s interval).

(*8) Use and nonuse can be switched by the internal switch.

Recommended EMC Filter

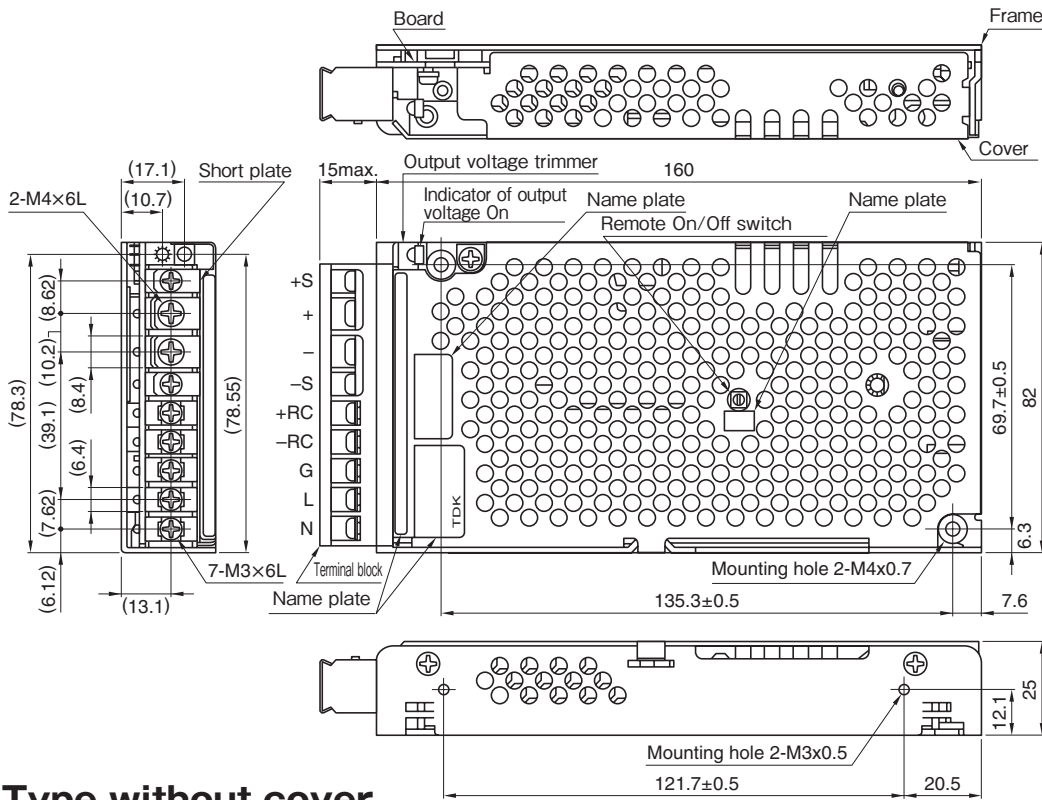


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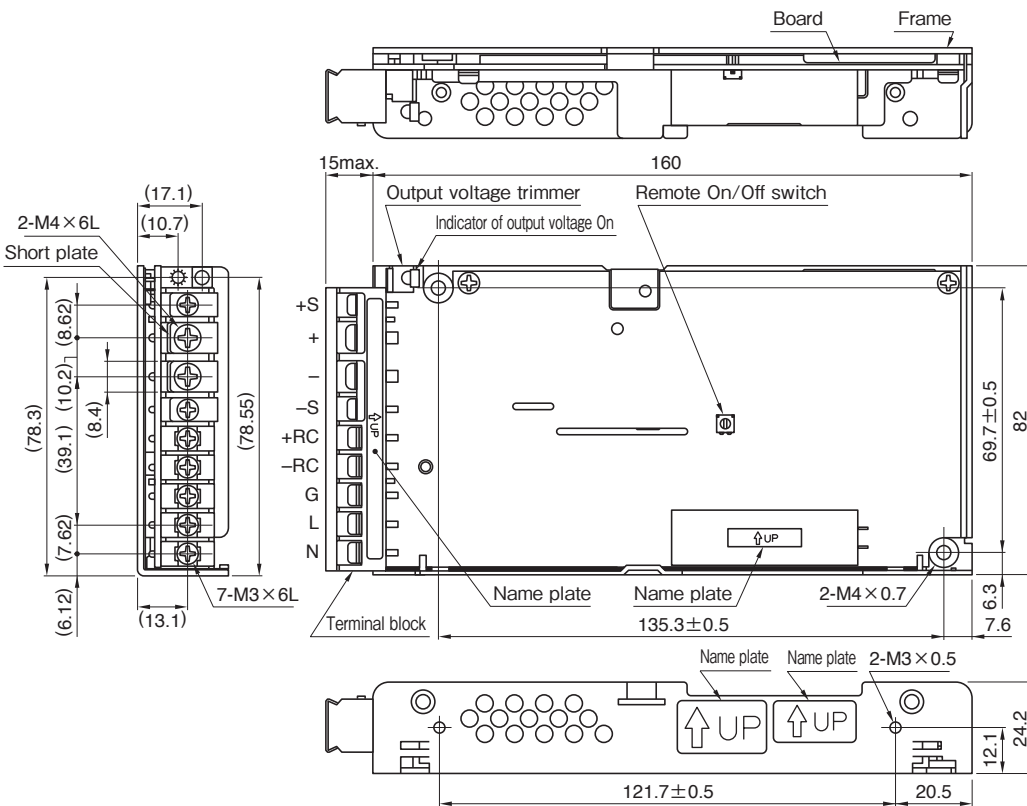
Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing

Type with cover



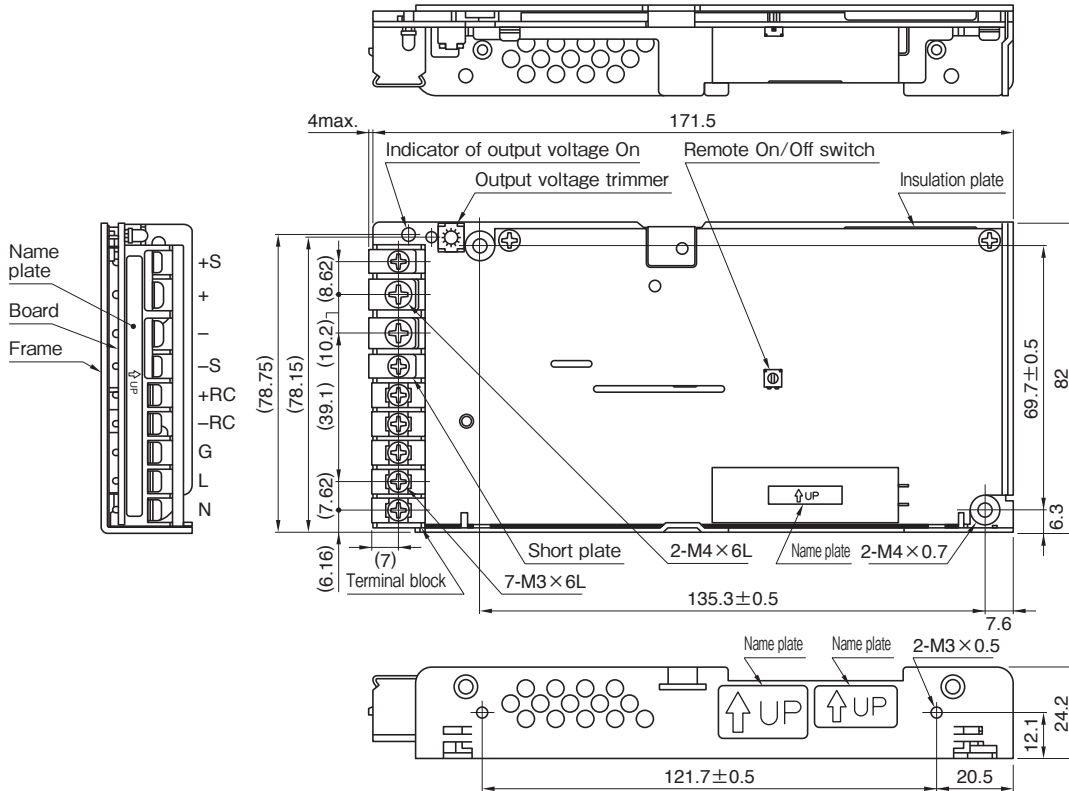
Type without cover



Unit: mm

* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface. Allowable tolerance is ±1mm if not specified separately.

Type L (terminal block facing upward, without cover)

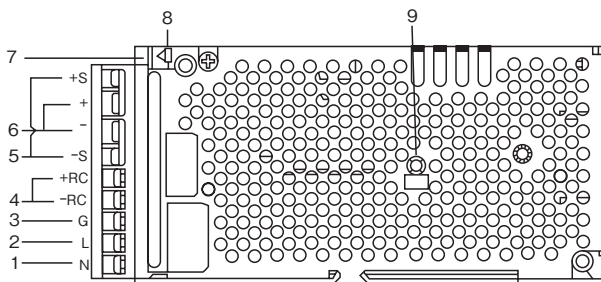


Unit: mm

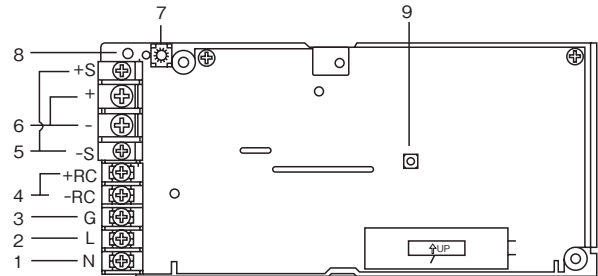
* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface. Allowable tolerance is ±1mm if not specified separately.

Terminals

Type with cover/without cover



Type L



Terminal No.	Name and function	
1	AC input terminal (N)	Connects to AC.100-120V or AC.200-240V input line.
2	AC input terminal (L)	Connects to AC.100-120V or AC.200-240V input line.
3	Ground terminal (G)	Connects to the ground line. This is connected to the case.
4	Remote On/Off terminal (+RC, -RC)	By inputting external signals between terminals, the output voltage can be switched on and off from outside the power supply. Output is not generated if voltage is not applied to RC terminal. The RC terminal is floated.
5	Remote sensing terminal (+S, -S)	Used to compensate for a voltage drop to load. The line between the remote sensing terminal and DC output terminal is short-circuited with a short piece.
6	DC output terminal (+, -)	Connects to the load line.
7	Output voltage trimmer (V _{ADJ})	Output voltage can be varied. Voltage increases by turning the trimmer in a clockwise direction.
8	LED output indicator (green)	The LED is lit green when output voltage is generated.
9	Switch for use/nonuse of Remote On/Off function	Remote On/Off function is activated by setting the switch for use/nonuse of Remote On/Off function, located in the center of the power supply, to Y (turning in a clockwise direction).

RTW150W Specifications

ITEMS/UNITS		MODEL	RTW03-35R	RTW05-30R	RTW12-12R	RTW15-10R	RTW24-6R3	RTW28-5R4	RTW48-3R2	
Input	Voltage Range (Nominal: 100-240VAC)	V	AC85-265							
	Frequency (Nominal: 50-60 single phase)	Hz	47-66							
	Power Factor (100/240VAC)(typ)		0.99/0.96							
	Efficiency (100VAC)(typ)	%	80	83	84	86				
	Efficiency (200VAC)(typ)	%	83	86	87	88		89		
	Current (100-120/200-240VAC) (max)	A	1.9/1.0 (3.3V: 1.6/0.85)							
	Inrush Current (100/200VAC)(typ) (*1)	A	14/28							
	Leakage Current (100/240VAC) (max)	mA	0.45/0.65							
Output	Nominal Voltage	VDC	3.3	5	12	15	24	28	48	
	Maximum Current (*2)	A	35	30	12.5	10	6.3 (peak 10)	5.4	3.2	
	Maximum Power	W	115.5	150		151.2		153.6		
	Maximum Line Regulation (Within input voltage range) (max/typ)		0.2%/0.1%							
	Maximum Load Regulation (0-100% load) (max/typ)		0.4%/0.2%							
	Temperature Coefficient (Ambient temperature -10°C to +71°C) (max/typ)	%	1.0/0.5							
	Warm Up Drift (max/typ) (*3)	%	0.5/0.2							
	Max Power Total Regulation (max/typ)	%	± 1.8/ ± 0.9							
	Maximum Ripple Voltage (max) (*4)	mVp-p	80	100		150		200		
	Maximum Ripple & Noise (max) (*4)	mVp-p	120	150		200		300		
	Start Up Time (100/240VAC)(typ) (*5)	ms	220/120							
	Hold-up Time (100/240VAC)(typ)	ms	50/55	35/40						
	Voltage Adjustable Range	VDC	2.85-4.0	4.0-5.8	9.6-13.2	12.0-16.5	19.2-26.4	22.4-30.8	38.4-52.8	
	Function	Over Current Protection (*6)	A	38.5-45.5	33-39	13.7-16.3	11-13	10.5-13.5	5.94-7.02	3.52-4.16
		Over Voltage Protection (*7)	VDC	4.2-5.2	6.0-6.9	13.7-15.7	17.0-19.0	27.0-30.5	32.0-35.0	55.0-60.0
Over Temperature Protection			Not available							
Remote Sensing			Available							
Remote ON/OFF Control (*8)			Available							
Parallel Operation			Not available							
Series Operation			Applicable							
Operation Indicator			Available (green LED)							
Variable Output Voltage			Not available							
Monitoring Signal			Not available							
Environment	Operating Temperature	°C	-10 to +71							
	Storage Temperature	°C	-30 to +75							
	Operating Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)							
	Storage Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)							
	Vibration		5-10Hz, 10 minutes sweep, 10mmp-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s ² (2G) acceleration, 3 directions, 1h for each, in non-operation							
	Shock		588m/s ² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation							
Isolation	Withstand Voltage		For 1 minute at ordinary temperature and humidity Between input terminal and ground terminal: 2.0kVAC, 10mA cutout current Between input terminal and output terminal: 3.0kVAC, 10mA cutout current Between output terminal and ground terminal: 500VAC, 20mA cutout current							
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Between input terminal and ground terminal, between input terminal and output terminal, and between output terminal and ground terminal							
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1 (C-UL), EN60950-1 (TUV), complying with Electrical Appliance and Material Safety Law (meeting the regulations of creepage surface and spacial distance in item 8 of the appendix table)							
	PFHC		Complying with EN61000-3-2							
	EMI		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B							
Mechanical	Immunity		Complying with EN61000-4-2 Level2, 3, -3 Level3, -4 Level3, -5 Level3, 4, -6 Level3, -8 Level4, -11							
	Weight without cover / with cover / type L (max)	g	520/600/520							
Models of different	Size (W x H x D) without cover / with cover / type L	mm	30 x 92 x 180/30 x 92 x 180/30 x 92 x 191.5							
	Detailed product name1 with cover		RTW03-35RC	RTW05-30RC	RTW12-12RC	RTW15-10RC	RTW24-6R3C	RTW28-5R4C	RTW48-3R2C	
	Detailed product name2 type L		RTW03-35RL	RTW05-30RL	RTW12-12RL	RTW15-10RL	RTW24-6R3L	RTW28-5R4L	RTW48-3R2L	

With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.

(*1) In primary surge current, 25°C, and cold starting.

(*2) The maximum output current value is between -10°C and +30°C. For use in outside this temperature range, Derating is needed.

(*3) 30min to 8h after the start of input voltage application.

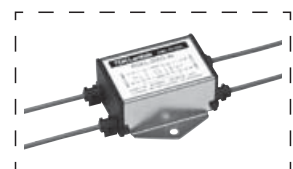
(*4) 1.5 times the value in 100MHz and at between -10°C and 0°C.

(*5) Fixed current reduction system and automatically resumes when the causes are removed.

(*6) Output voltage shutdown system and resumes by restarting input (approximately 30s interval).

(*7) Use and non-use can be switched by the internal switch.

Recommended EMC Filter

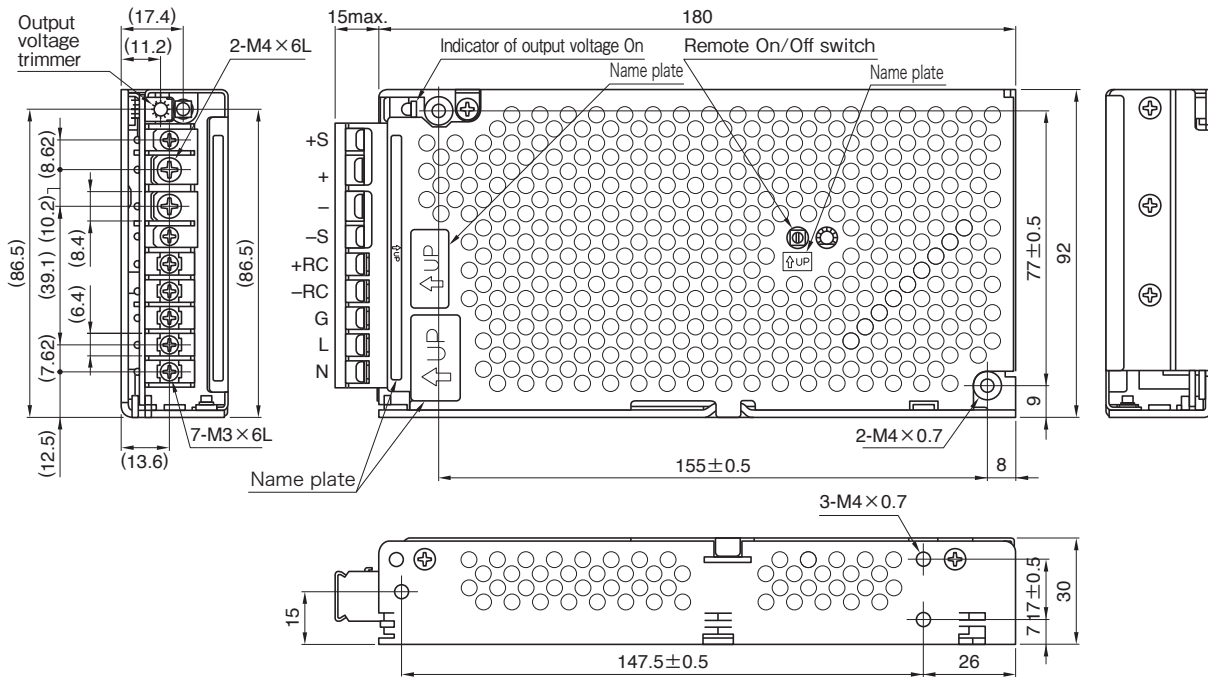


RSEL-2003W

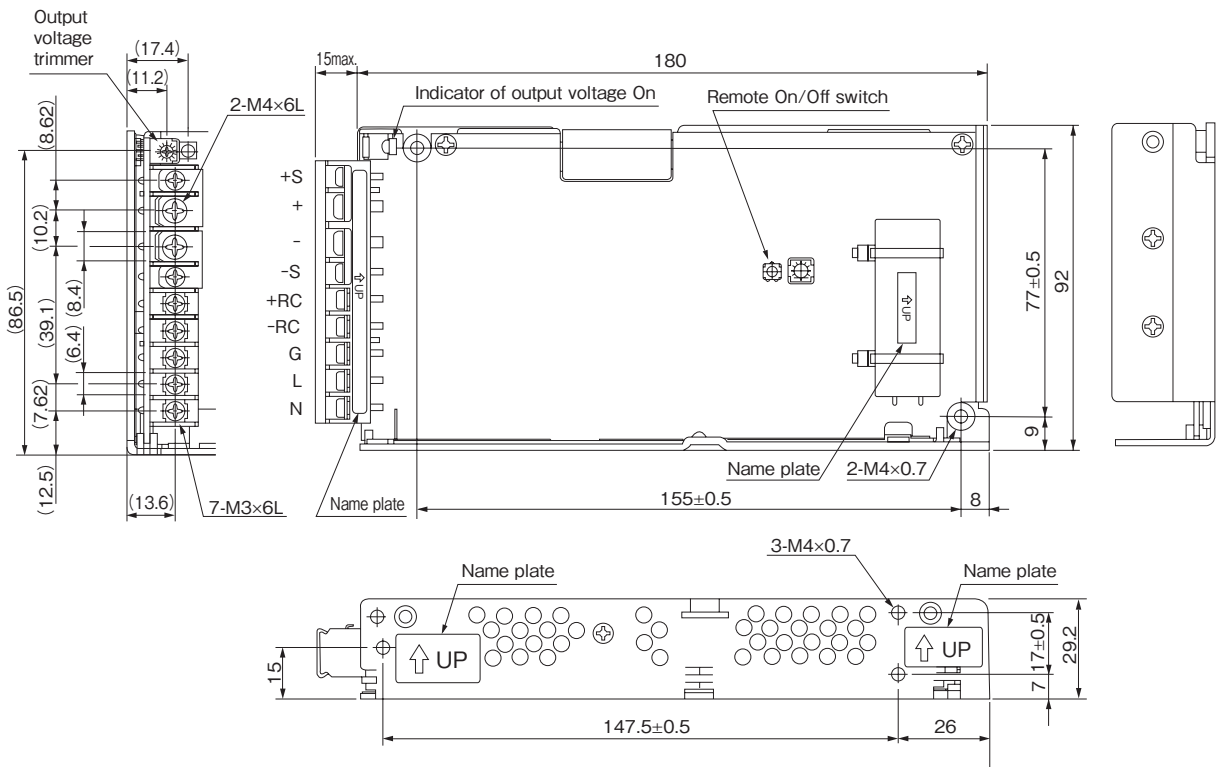
Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing

Type with cover



Type without cover

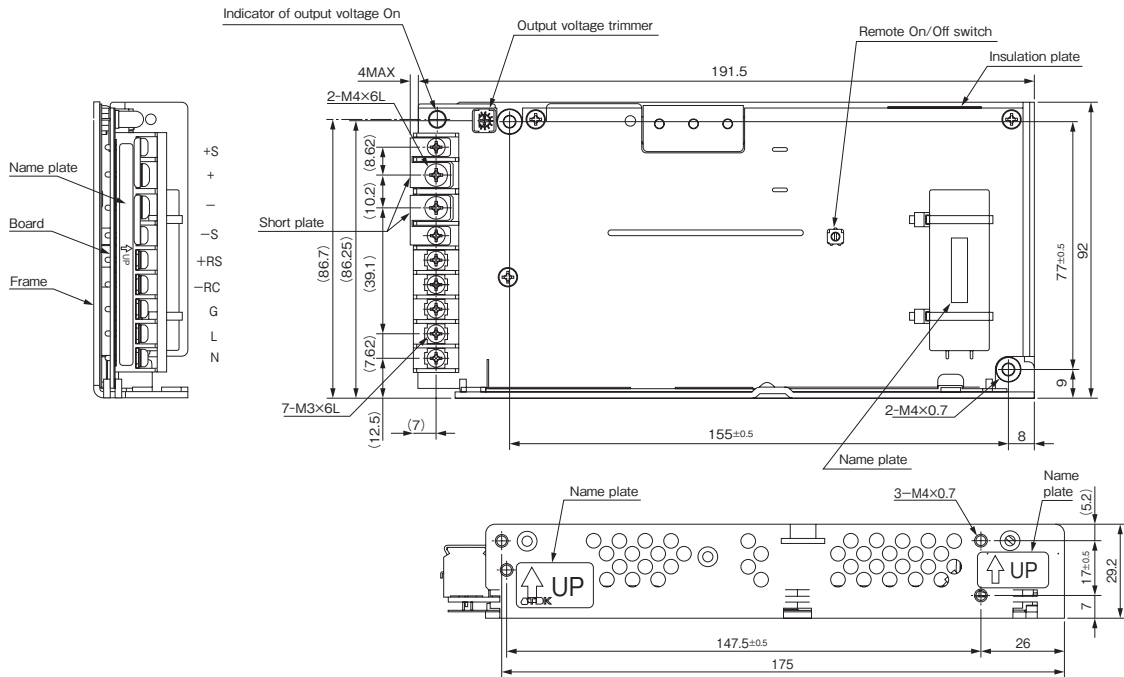


Unit: mm

* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface. Allowable tolerance is ±1mm if not specified separately.

Outline Drawing

Type L (terminal block facing upward, without cover)

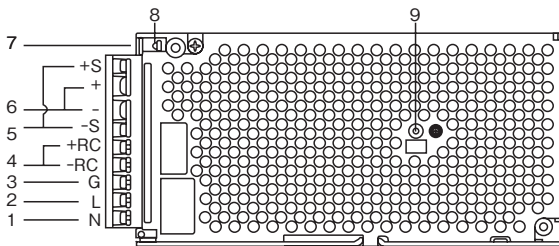


Unit: mm

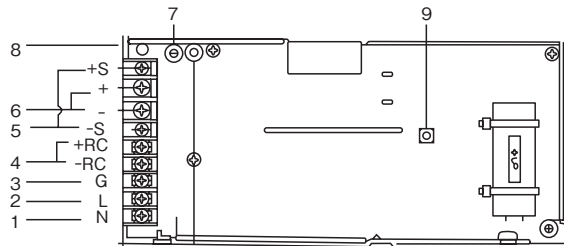
* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface. Allowable tolerance is ±1mm if not specified separately.

Terminals

Type with cover/without cover



Type L



Terminal No.	Name and function	Description
1	AC input terminal (N)	Connects to AC.100-120V or AC.200-240V input line.
2	AC input terminal (L)	Connects to AC.100-120V or AC.200-240V input line.
3	Ground terminal (G)	Connects to the ground line. This is connected to the case.
4	Remote On/Off terminal (+RC, -RC)	By inputting external signals between terminals, the output voltage can be switched on and off from outside the power supply. Output is not generated if voltage is not applied to RC terminal. The RC terminal is floated.
5	Remote sensing terminal (+S, -S)	Used for compensating for voltage drop to load. The line between the remote sensing terminal and DC output terminal is short-circuited with a short piece.
6	DC output terminal (+, -)	Connects the load line.
7	Output voltage trimmer (V _{ADJ})	Output voltage can be varied. Voltage increases by turning the trimmer in a clockwise direction.
8	LED output indicator (green)	The LED is lit green when output voltage is generated.
9	Switch for use/nonuse of Remote On/Off function	Remote On/Off function is activated by setting the switch for use/nonuse of Remote On/Off function, located in the center of the power supply, to Y (turning in a clockwise direction).

RTW300W Specifications

ITEMS/UNITS		MODEL	RTW03-70RH	RTW05-60RH	RTW12-25RH	RTW15-20RH	RTW24-13RH	RTW28-11RH	RTW48-6R5H
Input	Voltage Range (Nominal: 100-240VAC)	V	AC85 - 265						
	Frequency (Nominal: 50-60 single phase)	Hz	47 - 66						
	Power Factor (100/240VAC)(typ)		0.99/0.93						
	Efficiency (100VAC)(typ)	%	83	84	83	85		86	
	Efficiency (200VAC)(typ)	%	86	87	86	88		89	
	Current (100/200VAC) (max)	A	4.0/2.0(3.3V:3.6/1.8) max						
	Inrush Current (100/200VAC)(typ) (*1)	A	15/30						
	Leakage Current (100/240VAC) (max)	mA	0.5/0.7						
Output	Nominal Voltage	VDC	3.3	5	12	15	24	28	48
	Maximum Current (*2)	A	70	60	25	20	13 (ピーク 20)	11	6.5
	Maximum Power	W	231	300		312		308	312
	Maximum Line Regulation (Within input voltage range) (max/typ)		0.2%/0.1%						
	Maximum Load Regulation (0-100% load) (max/typ)		0.4%/0.2%						
	Temperature Coefficient (Ambient temperature -10°C to +71°C) (max/typ)	%	1.0/0.5						
	Warm Up Drift (max/typ) (*3)	%	0.5/0.2						
	Max Power Total Regulation (max/typ)	%	± 1.8/ ± 0.9						
	Maximum Ripple Voltage (max) (*4)	mVp-p	80	100		150		200	
	Maximum Ripple & Noise (max) (*4)	mVp-p	120	150		200		300	
	Start Up Time (100/240VAC)(typ) (*5)	ms	220/120						
	Hold-up Time (100/240VAC)(typ)	ms	30/40	25/30	30/40	25/30	30/40		
	Voltage Adjustable Range	VDC	1.8 - 3.6	3.5 - 5.6	7.2 - 14.4	10.5 - 18.0	16.8 - 26.4	19.6 - 33.6	33.6 - 55.0
	Function	Over Current Protection (*6)	A	73.5 - 84.0	63.0 - 72.0	26.3 - 30.0	21.0 - 24.0		11.5 - 13.2
Over Voltage Protection (*7)		VDC	Vo+0.66 - 1.32	Vo+1.0 - 2.0	Vo+2.4 - 4.8	Vo+3.0 - 6.0	Vo+4.8 - 9.6	Vo+5.6 - 10.4	Vo+1.0 - 10
Over Temperature Protection			Not available						
Remote Sensing			Available						
Remote ON/OFF Control (*8)			Available						
Parallel Operation			Applicable (current balance function and master/slave operation are supported; synchronized operation is not supported)						
Series Operation			Available (green LED)						
Operation Indicator			Available						
Variable Output Voltage			Available (power fail signal)						
Low Output Voltage Dection (*7)			Available						
Environment		Operating Temperature	°C	-10 to +71					
	Storage Temperature	°C	-30 to +75						
	Operating Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)						
	Storage Humidity	% RH	10-95 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)						
	Vibration		5-10Hz, 10 minutes sweep, 10mmp-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s ² (2G) acceleration, 3 directions, 1h for each, in non-operation						
	Shock		588m/s ² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation						
Isolation	Withstand Voltage		For 1 minute at ordinary temperature and humidity Between input terminal and ground terminal: 2.0kVAC, 10mA cutout current Between input terminal and output terminal: 3.0kVAC, 10mA cutout current Between output terminal and ground terminal: 500VAC, 40mA cutout current						
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Between input terminal and ground terminal, between input terminal and output terminal, and between output terminal and ground terminal						
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1 (C-UL), EN60950-1 (TÜV), complying with Electrical Appliance and Material Safety Law (meeting the regulations of creepage surface and spacial distance in item 8 of the appendix table)						
	PFHC		Complying with EN61000-3-2						
	EMI		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B						
Mechanical	Immunity		Complying with EN61000-4-2 Level2, 3, -3 Level3, -4 Level3, -5 Level3, 4, -6 Level3, -8 Level4, -11						
	Weight without cover / with cover / type L (max)	g	1300/1200						
	Size (W x H x D) without cover / with cover / type L	mm	40 x 120 x 250/40 x 120 x 250						
Models of different	Detailed product name ¹ with cover		RTW03-70RL	RTW05-60RL	RTW12-25RL	RTW15-20RL	RTW24-13RL	RTW28-11RL	RTW48-6R5L

With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.

(*1) In primary surge current, 25°C, and cold starting.

(*2) The maximum output current value is between -10°C and +40°C. For use in outside this temperature range, Derating is needed.

(*3) 30min to 8h after the start of input voltage application.

(*4) 1.5 times the value in 100MHz and at between -10°C and 0°C.

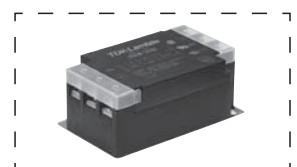
(*5) Fixed current reduction system; current is shut down if overload condition continues 15 seconds or over. Restarting input Resumes after (approximately 30s interval) or resetting remote control. (Shutdown by low output voltage detection in 3/5/28V models)

(*6) The detection value tracks the set output voltage (Vo). Output voltage shutdown system, Resumes by restarting input (approximately 30s interval) or resetting remote control.

(*7) Output is shut down in the condition of 60% or lower of the nominal voltage for 3.3V and 5V models. For 28V models, Output is shut down in the when the nominal voltage is 20% or lower. Other models do not have this function.

• All specifications are subject to change without notice.

Recommended EMC Filter

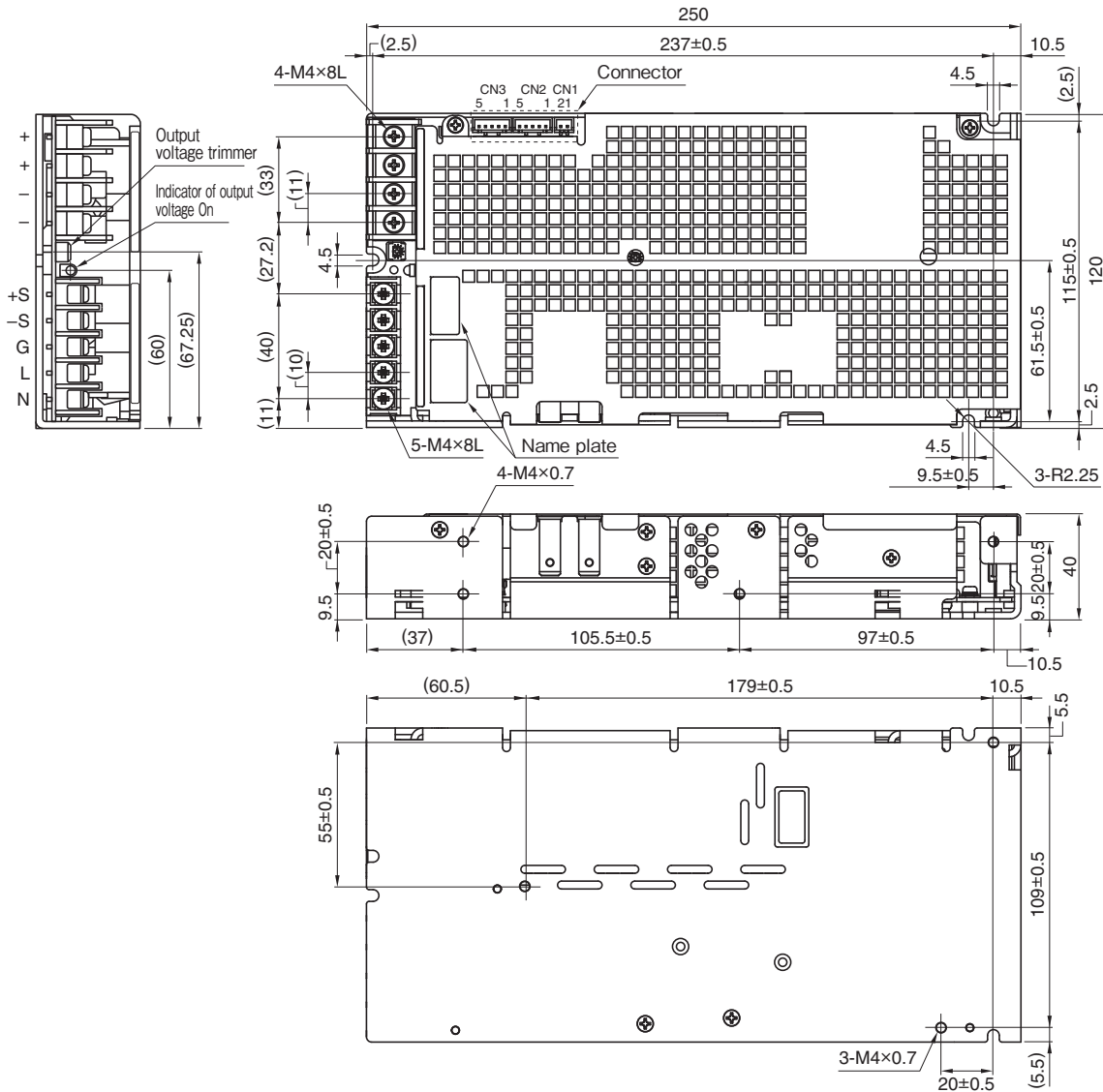


RSEN-2006W

Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing

Type with cover

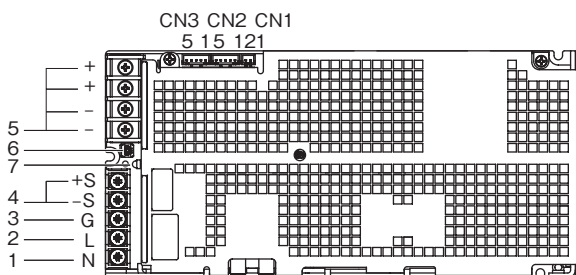


Unit: mm

* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface. Allowable tolerance is ±1mm if not specified separately.

Terminals

Type with cover/Type L

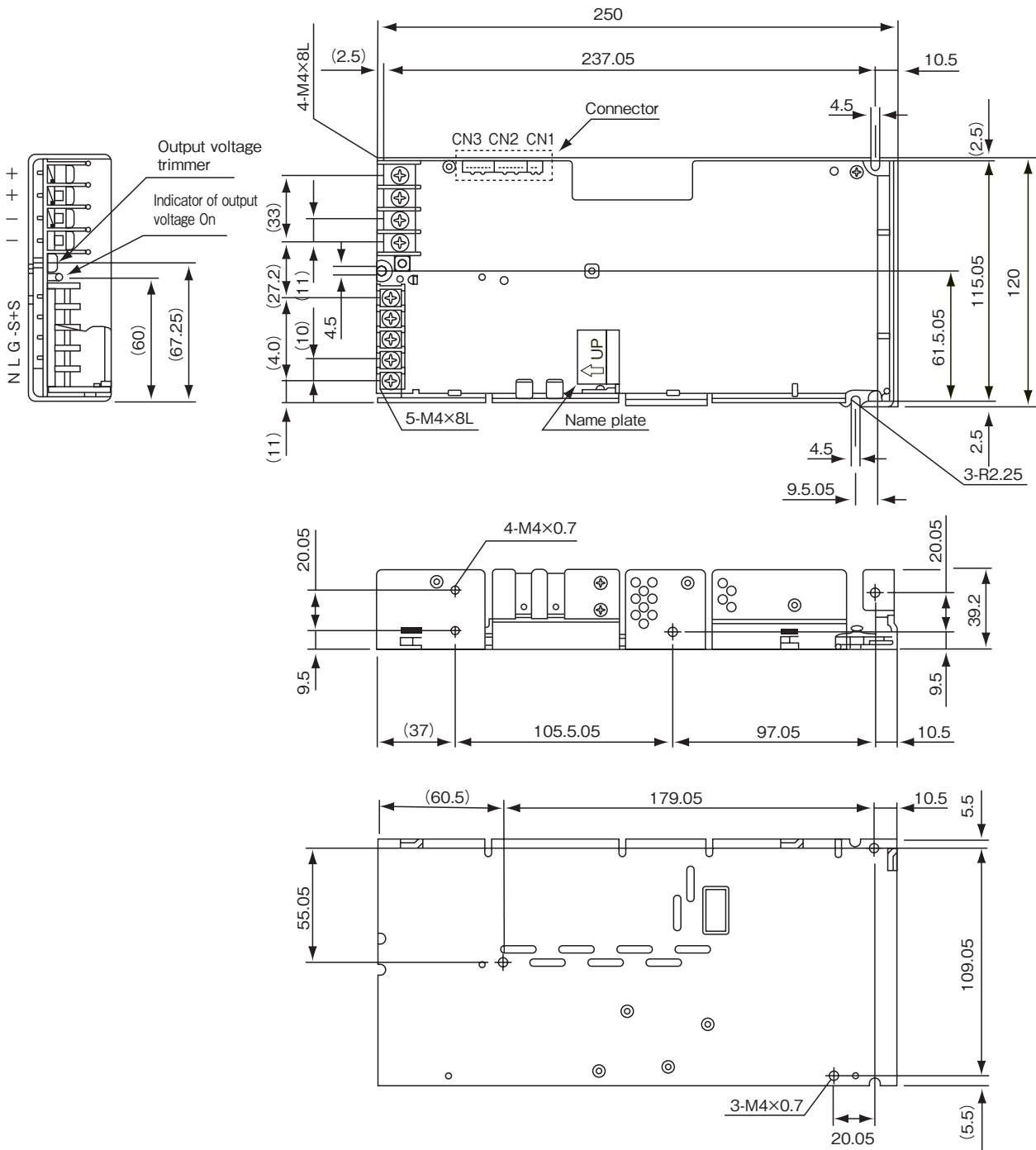


CN1	CN2	CN3
1 -PF	1 -RC	1 -RC
2 +PF	2 +RC	2 +RC
	3 CB	3 CB
	4 RV	4 RV
	5 -S	5 -S

Terminal No.	Name and function
1	AC input terminal (N)
2	AC input terminal (L)
3	Ground terminal (G)
4	Remote sensing terminal (+S, -S)
5	DC output terminal (+, -)
6	Output voltage trimmer (V _{ADJ})
7	LED output indicator (green)

Outline Drawing

Type L (terminal block facing upward, without cover)



Unit: mm

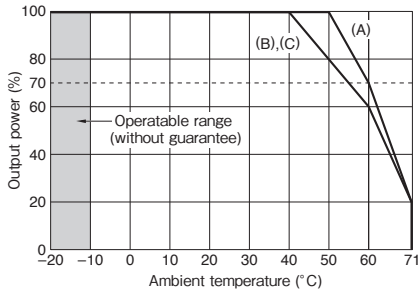
* The insertion length of screws used for mounting the power supply should be within 6mm from the product surface.

Allowable tolerance is ± 1 mm if not specified separately.

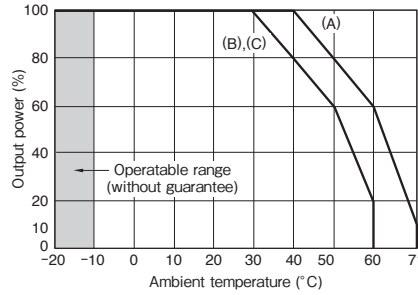
Derating Curve

50W

Type without cover/Type L

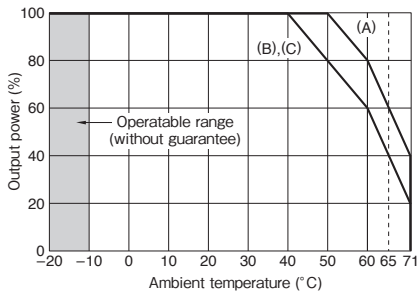


Type with cover

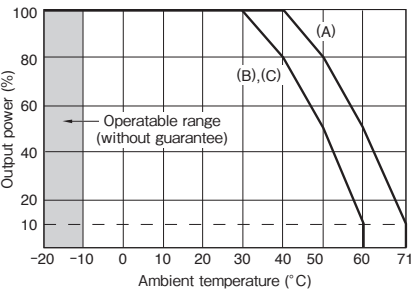


100W

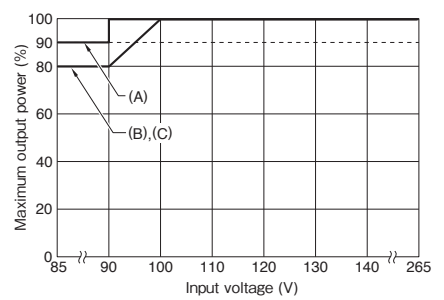
Type without cover/Type L



Type with cover

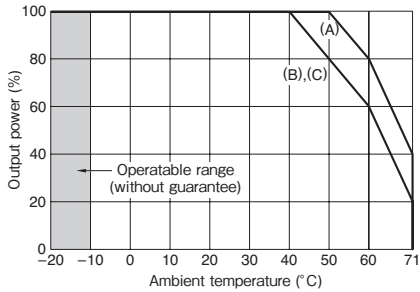


Input voltage derating (for type with cover)

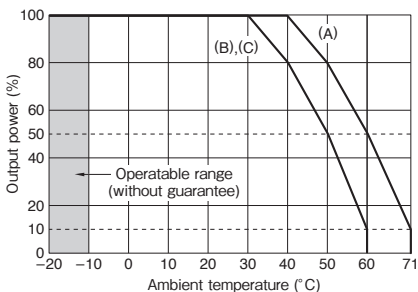


150W

Type without cover/Type L

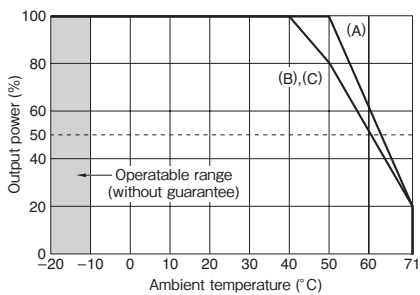


Type with cover

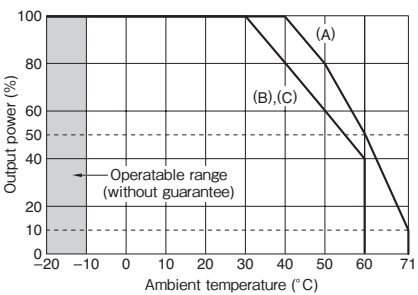


300W

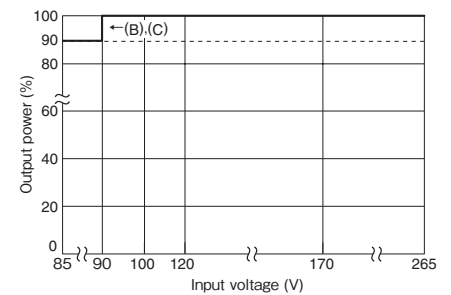
Type L



Type with cover



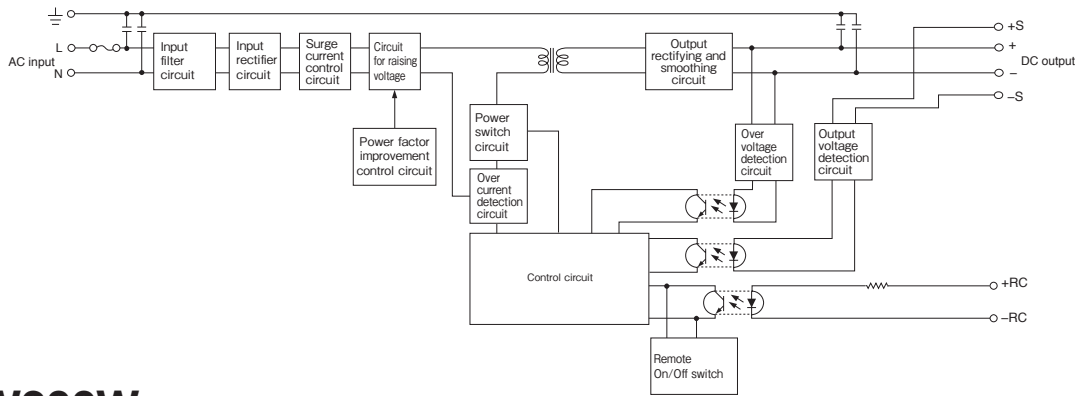
Input voltage derating



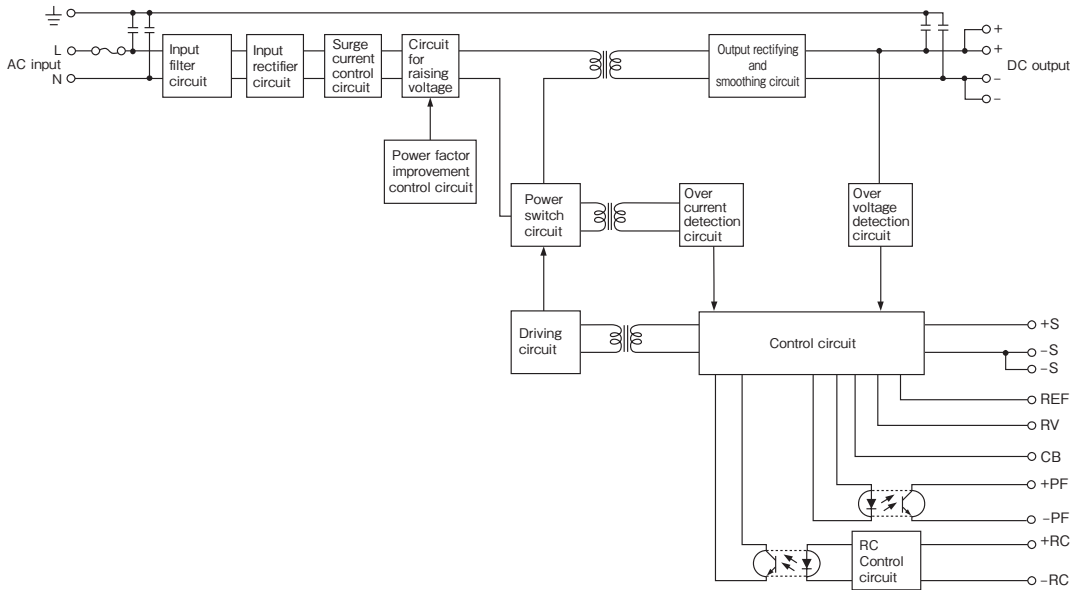
*Refer to the item regarding mounting in the handling instructions for (A), (B), and (C).

Block Diagram

RTW50-150W

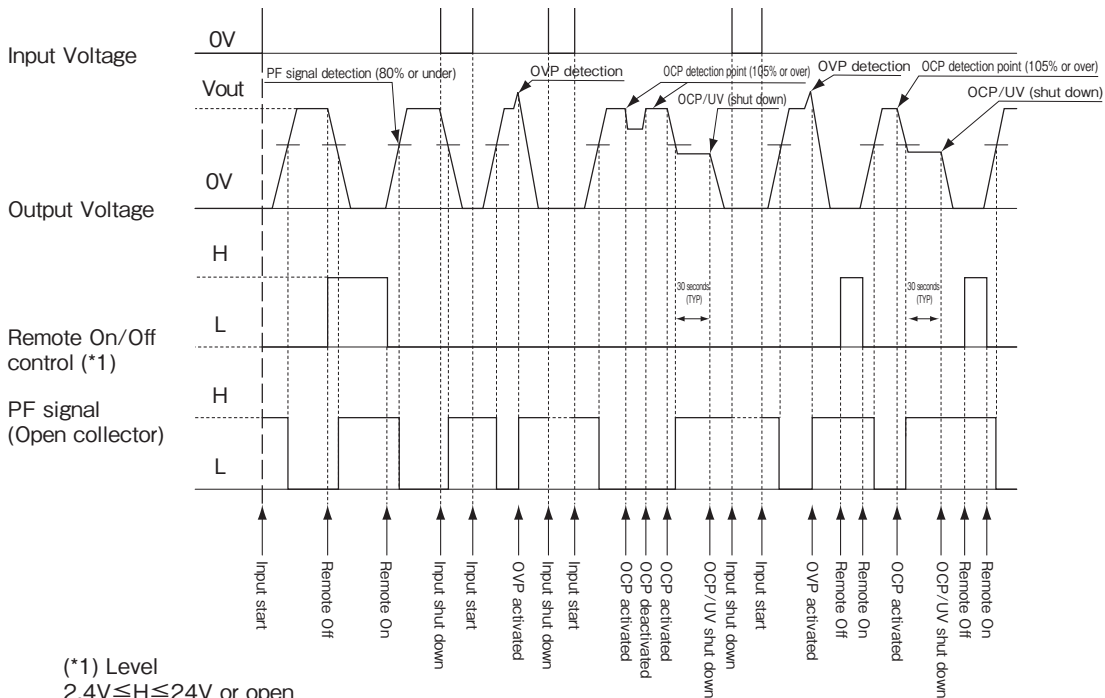


RTW300W



Sequence Time Chart

RTW300W



• All specifications are subject to change without notice.

RTW Instruction Manual

1. Explanation of functions and notes

1 Remote sensing function

When the stability at the load terminal is a problem due to the effect of the line-drop from power supply to load, the stability can be improved by remote sensing.

Between output terminal and load terminal and for one side, up to

3.3V output: 0.15V max.

5V output: 0.25V max.

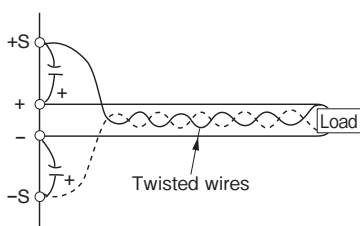
12-48V output: 0.4V max.

remote sensing is possible.

For output voltage and output power of the power supply, use this within the range of output characteristics. When in drastic load changes, specifications for dynamic load change may not be satisfied.

Remove the short plate between +S/+ and -S/- terminals, and make wiring as shown in the figure below. Use shielded wires or twisted wires for sensing line (5m at maximum is recommended).

If the OVP function tends to be activated easily or vibration easily occurs, set an external electrolytic capacitor with 470 μ F or over between +S and +, and between -S and -.



2 Remote On/Off function (50-150W)

Remote On/Off function is activated by setting the switch for use/nonuse of Remote On/Off function, located in the center of the power supply, to Y (turning in a clockwise direction).

By inputting signals described below to the remote On/Off terminals (+RC, -RC), output voltage can be switched on and off from outside the power supply. Output is not generated if voltage is not applied to RC terminal.

Output voltage is switched on in the condition of H level (4.5-24.5V external voltage application)* between +RC and -RC.

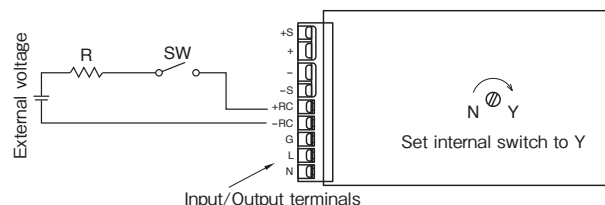
Output voltage is switched off in the condition of L level (shorted or 0-0.8V voltage between terminals) between +RC and -RC.

* When in 12.5-24.5V external voltage application, attach an external resistance (1.5k Ω).

\pm RC terminals are insulated from the AC input terminal and DC output terminal.

The insulation between the \pm RC terminals and the out-

puts conforms to the specification of insulation resistance (between output terminal and ground terminal), and the withstand voltage of the AC input terminal and the \pm RC terminals conforms to the specification (withstand voltage between input terminal and output terminal).



3 Remote On/Off function (300W)

By inputting signals described below to the remote On/Off terminals (+RC, -RC) of the function connector CN2 or CN3, output voltage can be switched on and off from outside the power supply.

\pm RC pins are connected by a cable kit when shipped. Remove the cable kit when using Remote On/Off function.

The output voltage is switched off in the condition of H level (open or 2.4-24V external voltage application (1.0mA max. inflowing current)) between +RC and -RC.

The output voltage is switched on in the condition of L level (shorted or 0-0.4V voltage between terminals (1.6mA max. outflowing current)) between +RC and -RC.

\pm RC terminals are insulated from the AC input terminal and DC output terminal.

The insulation between the \pm RC terminals and the outputs conforms to the specification of insulation resistance (between output terminal and ground terminal), and the withstand voltage of the AC input terminal and the \pm RC terminals conforms to the specification (withstand voltage between input terminal and output terminal).

4 Variable output voltage (RV) (300W)

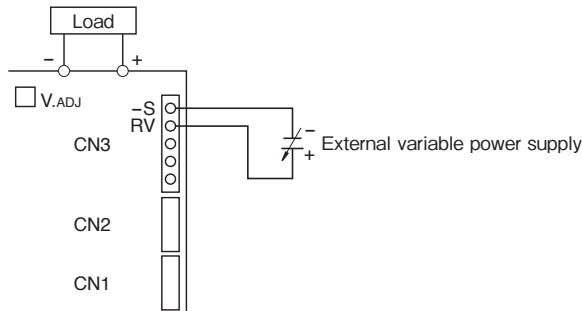
Output voltage can be varied by external voltage using variable output voltage (RV) of the function connector CN2 or CN3. The nominal output voltage can be generated by approximately 5V RV voltage.

When using this function, use twisted or bundled wires (recommended length is 2m max.) for wiring from RV/-S terminals.

- Set the output voltage to the lower limit value to be varied by turning the output voltage trimmer (V.ADJ).
- Output voltage is lowered by turning the trimmer in a

counterclockwise direction.

- Connect "+" of the external variable power supply to RV pin, and its "-" to -S pin.
- Output voltage can be varied by varying the voltage of the external variable power supply.

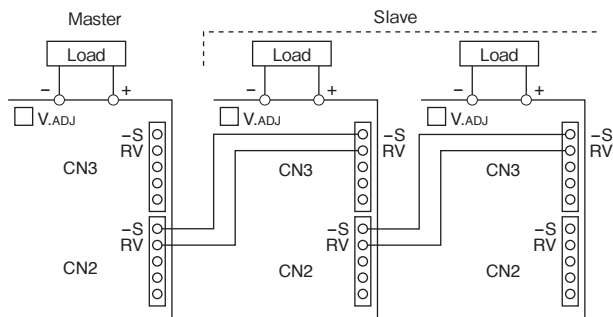


- Over Voltage Protection function may be activated if the output voltage is drastically lowered with less load.

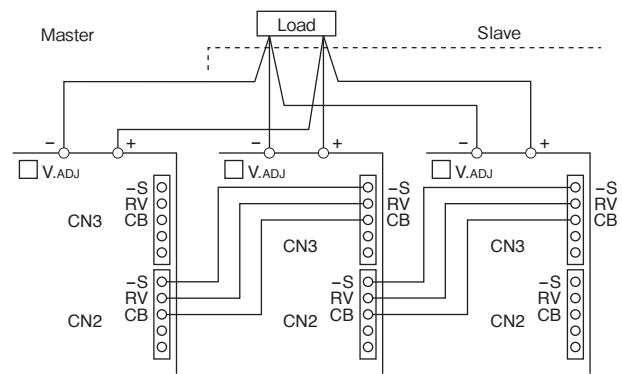
5 Master/slave function (300W)

Master/slave operation is applicable by using RV terminal. Mutually connect RV and -S of each power supply unit using CN2/CN3. Turn the voltage trimmer (V.ADJ) of the slave power supply unit counterclockwise until it stops. Outputs of all the power supply units can be varied according to V.ADJ of the master power supply unit. Use twisted or bundled wires for wiring from RV/-S terminals.

- In the case of multiple output loads



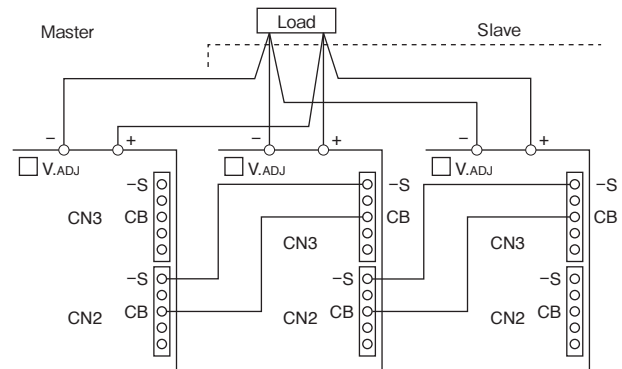
- In the case of one output load
The impedance of load line from each power supply should, if possible, be the same.



6 Current balance function (CB terminal) (300W)

When multiple power supplies are in parallel operation and their CB terminals and -S terminals are respectively mutually connected, this function controls the output current of the power supplies so that they become equal. Parallel operation should be configured with 4 units at maximum.

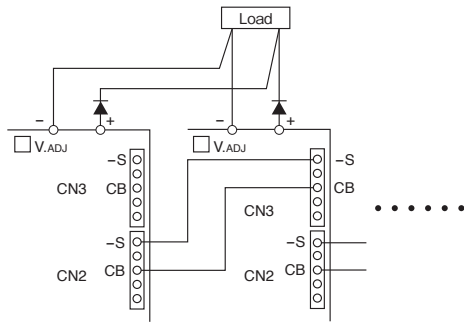
- (1) Equalization condition
Output voltage fluctuation between power supplies
(Maximum voltage - Minimum voltage)/Nominal voltage = 2% max.
Output current: 20-90% of nominal total output current
- (2) Equalization performance
Output current fluctuation between power supplies under the equalization conditions described above is 10% max. of nominal output current.
- (3) CB terminal connection diagram
Use twisted or bundled wires for wiring from CB/-S terminals.



The impedance of load line from each power supply should, if possible, be the same.

7 Redundant operation (N+1) (300W)

When in redundant operation of power supply, connect a diode to the end of the power supply's output. The impedance of load line from each power supply should be possibly the same.
Use twisted or bundled wires for wiring from CB/-S terminals.



● Over Voltage Protection function may be activated if the output voltage is drastically lowered with less load.

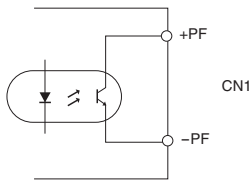
8 Power fail signal (300W)

It will become open when the output voltage drops to 80% or lower than the set voltage.

Sink current: 50mA max. Voltage between collector and emitter: 40V max. ±P/F terminals are insulated from the AC input terminal and DC output terminal.

The insulation between the ±P/F terminals and the outputs is the same as the insulation resistance between the output and the ground terminal, and the insulation between the AC input terminal and the ±P/F terminals is the same as the insulation resistance between the input terminal and the output terminal.

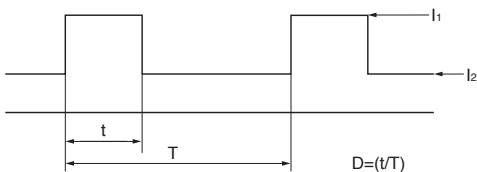
● Output specifications



9 Maximum peak current

24V-output products of 150W/300W accommodate peak power.

Observe the conditions shown below for a peak current over the nominal value.



150W

- (1) Condition of time
 $t \leq 10s$
- (2) Condition of peak current
 $I_1 \leq 10A$
- (3) Condition in effective current
 $\sqrt{DI_1^2 + (1-D)I_2^2} \leq 6.3A$
- (4) Condition of effective power
 $P \leq 151.2W$
(Effective current x output voltage)

300W

- (1) Condition of time
 $t \leq 10s$
- (2) Condition of peak current
 $I_1 \leq 20A$
- (3) Condition in effective current
 $\sqrt{DI_1^2 + (1-D)I_2^2} \leq 13A$
- (4) Condition of effective power
 $P \leq 312W$
(Effective current x output voltage)

10 CE marking

RTW series meets the EN60950-1 and the CE marking

is applicable to this series, based on 73/23/EEC and 93/68/EEC.

The custom-made power supply units (variation models) modified from this DC power supply device are not basically CE-marking applicable, except when "CE-marking applicable" is specifically declared in their specification document.

11 Insulation/withstand voltage test

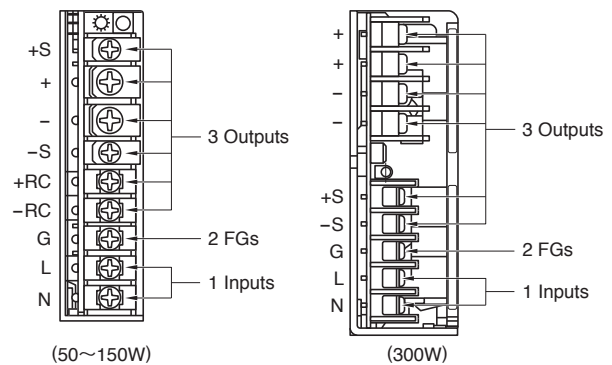
Insulation/withstand voltage test can cause deterioration. Due consideration should be given when implementing a test. It is necessary to keep the electric potential equal within inputs, within outputs, and within FGs (frame grounds), respectively.

As a testing device, it is the type which starts up gradually when in test on and automatically discharges the charged energy when in test off. If discharging after test is conducted manually, it should be conducted via approximately 100kΩ-1MΩ resistance (Note that discharging via low impedance should be avoided because it can cause deterioration).

Due attention should be paid to measures to prevent electric shock in any case.

● Power supply terminal connections for insulation/withstand voltage test

Short-circuit each terminal of outputs and inputs.

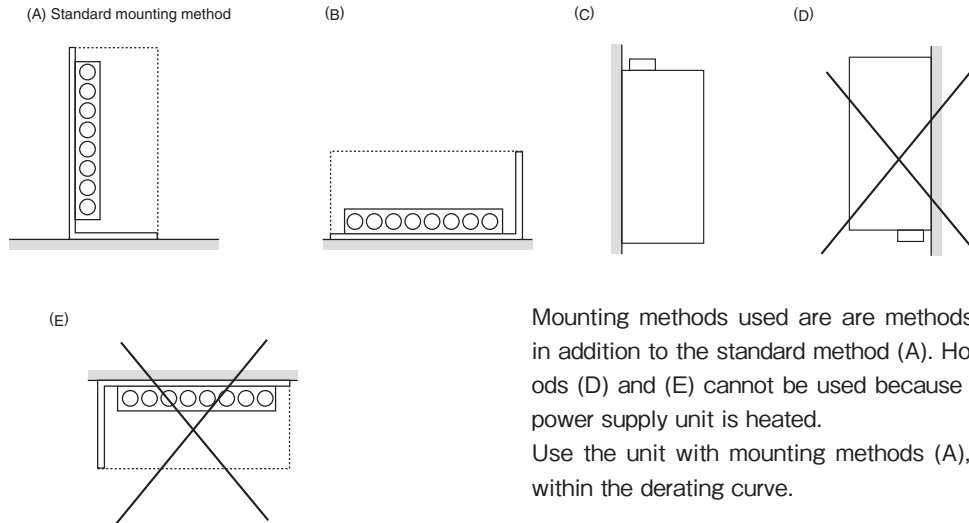


● Connections between testing device and power supply for insulation/withstand voltage test

Make connections between the testing device and power supply unit as shown in the table below. And then conduct a test.

Test conditions	Insulation testing device		Withstand voltage testing device	
	+terminal	-terminal	+terminal	-terminal
Insulation between Input and FG	1	2	—	—
Insulation between Input and Output	1	3	—	—
Insulation between Output and FG	3	2	—	—
Withstand voltage between Input and Output	—	—	1	3
Withstand voltage between Input and FG	—	—	1	2
Withstand voltage between Output and FG	—	—	3	2

2. Mounting



Mounting methods used are methods (B) through (E) in addition to the standard method (A). However, the methods (D) and (E) cannot be used because the inside of the power supply unit is heated. Use the unit with mounting methods (A), (B), or (C), and within the derating curve.

3. Precautions in use

- When using this product, confirm that the power supply's ambient temperature is within the range of operating temperatures. The power supply's ambient temperature means the temperature around the power supply unit, causing a temperature rise inside the device.
- For use with natural air cooling, locate the unit so as to generate thermal convection. Also keep a distance of 10mm or over from adjacent devices, for each side of the unit.
- Select input/output wire materials and noise filters, etc. which have enough allowance in their respective current capacity.
- If the power supply unit is not in use for a long period of time, it is recommended to apply input voltage for approximately 1 hour, every 2 years, to keep the quality of the electrolytic capacitor.
- When the power supply units are in a series operation, the nominal current is restricted according to the lowest nominal current value of the units in use. In addition, in order to prevent damage to internal elements and other parts due to reverse voltage applied to the unit, connect a diode (reverse withstand voltage: twice or over the value of total output voltage, forward current: twice or over the value of output current, forward voltage drop: possibly minimum) to prevent reverse voltage to the output terminal of the unit.
- Any materials used in this product do not contain the bromine fire retardant (PBDPEs, PBBs).
- Any ODS is not used in production of this product.

4. Troubleshooting

- Is the specified input voltage applied to the input terminal?
- Are the connections of input/output terminals correct?
- Check that the connecting wires are not too thin.
- Check that the output voltage trimmer (V.ADJ) is not turned up too high. If the output voltage trimmer (V.ADJ) is turned up too high, it causes the OVP function to be activated, and the output is shut down.
- Are the logic of of Remote On/Off function and external voltage application set correctly?
- Check that the remote sensing terminal is not open. Applying input voltage in its open status may cause the OVP function to be activated, and the output to be shut down.

5. Variation models of power supplies

We prepare variation models to meet various needs of customers.

Variation symbol	50W/100W/150W				300W		
	Without cover	With cover	Type L	Coating	With cover	Type L	Coating
None	○						
B	○			○			
C		○					
G		○		○			
L	○		○			○	
M			○	○		○	○
H					○	○	
N					○	○	○