

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.

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

Allgemeine Sicherheitsvorschriften:

LESEN SIE DIE SICHERHEITSVORSCHRIFTEN

Wartung:

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

Kritische Komponenten:

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

Produktverwendung:

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

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

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

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

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

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

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

Umwelt:

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

Umgebung:

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

Ausgangsstrom:

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

Eingangsparameter:

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

Entsorgung am Ende der Betriebszeit:

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

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

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

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

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

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

Der Haupteingangsanschluss ist nicht für die Verwendung als Feldverdrahtungsanschluss geeignet.

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

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.

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.

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.

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.

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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ZWQ Series

ZWQ80/130

Instruction Manual

BEFORE USING THE POWER SUPPLY UNIT

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

WARNING and CAUTION

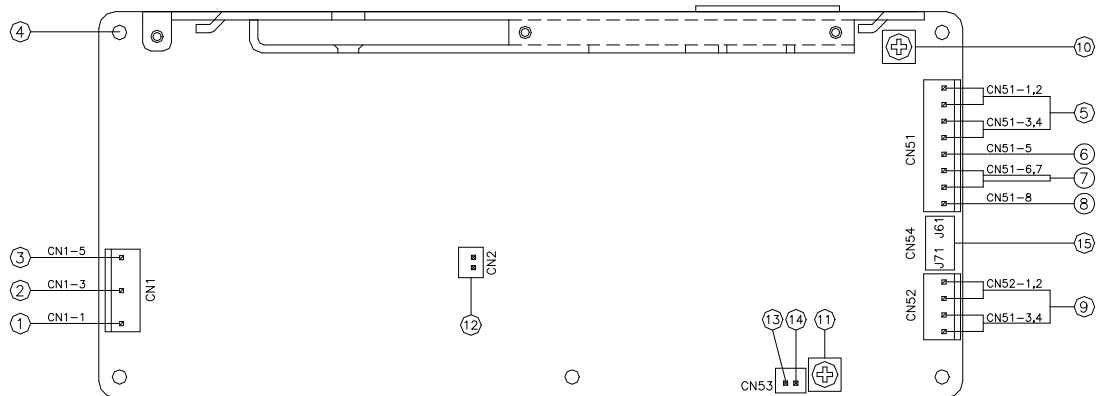
- Do not modify.
- Do not touch the internal components, they may have high voltage or high temperature. You may get electrical shock or burned.
- When the unit is operating, keep your hands and face away from it, you may get injured by an accident.
- This power supply is primarily designed and manufactured to be used and enclosed in other equipment. Stick the WARNING label for users on the system equipment and describe the notice in the instruction manual.
- Never operate the unit under over current or shorted conditions for 30 seconds or more and except Input Voltage Range in specification which could result in damage or insulation failure or smoking or burning.
- Confirm connections to input/output terminals are correct as indicated in the instruction manual.
- This powersupply is PC board type unit. Please hold the board edge while mouting, and do not touch the component side. In using the apparatus, please lift the power supply with a metal spacer.
- Do not drop or apply shock to power supply unit.

Note: CE MARKING

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

1. Terminal Explanation

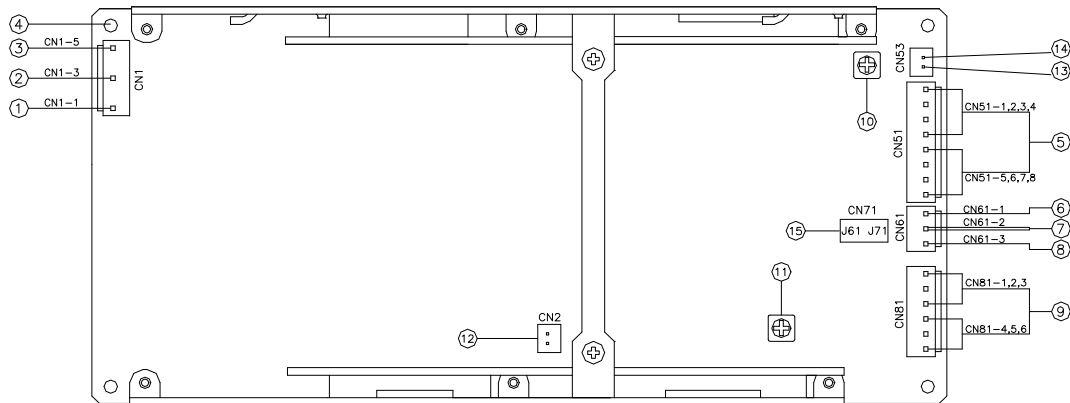
ZWQ80



- ① L; AC Input terminal Live line (Fuse in line)
CN1 - 1
- ② N; AC Input terminal Neutral line
CN1 - 3
- ③ FG; Input terminal FG (Safety earth : \perp)
CN1 - 5
Connect to safety ground of apparatus or equipment.
- ④ FG; Frame Ground
Must be connected to electrically safety ground of apparatus or equipment by electrically conductive spacers. The mounting surface of the spacer should be within MAX 8mm.
- ⑤ V1 (5A max. / pin)
CN51 - 1,2 : V1 + Output pin
CN51 - 3,4 : V1 Ground
- ⑥ V2 (5A max. / pin)
CN51 - 5 : V2 + Output pin
- ⑦ V2,V3 (5A max. / pin)
CN51 - 6,7 : V2,V3 Common Ground
- ⑧ V3 (5A max. / pin)
CN51 - 8 : V3 - Output pin
- ⑨ V4 (5A max. / pin)
CN52 - 1,2 : V4 + Output pin
CN52 - 3,4 : V4 Ground
- ⑩ VR51; Output voltage of V1 adjustment trimmer
- ⑪ VR81; Output voltage of V4 adjustment trimmer
The output voltage rises when a trimmer is turned clockwise.
- ⑫ CN2; Remote ON/OFF control at primary
- ⑬ CN53; Remote ON/OFF control at secondary : - R
- ⑭ CN53; Remote ON/OFF control at secondary : + R

Can not use Remote ON/OFF control at with Cover type(/A).
- ⑮ Select jumper
J61 Short : V2 Output voltage is +12V.
J61 Open : V2 Output voltage is +15V.
J71 Short : V3 Output voltage is -12V.
J71 Open : V3 Output voltage is -15V.

ZWQ130



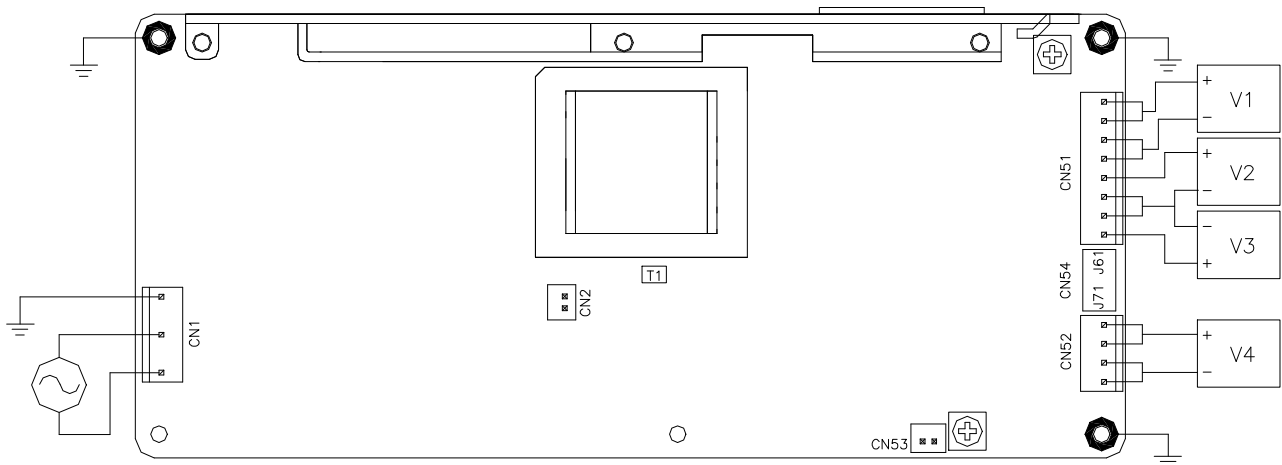
- | | |
|---|---|
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 CN1 - 5
 Connect to safety ground of apparatus or equipment.</p> <p>④ FG; Frame Ground
 Must be connected to electrically safety ground of apparatus or equipment by electrically conductive spacer. The mounting surface of the spacer should be within MAX 8mm.</p> <p>⑤ V1 (5A max. / pin)
 CN51 - 1,2,3,4 : V1 + Output pin
 CN51 - 5,6,7,8 : V1 Ground</p> <p>⑥ V2 (5A max. / pin)
 CN61 - 1 : V2 + Output pin</p> <p>⑦ V2,V3 (5A max. / pin)
 CN61 - 2 : V2,V3 Common Ground</p> <p>⑧ V3 (5A max. / pin)
 CN61 - 3 : V3 - Output pin</p> <p>⑨ V4 (5A max. / pin)
 CN52 - 1,2,3 : V4 + Output pin
 CN52 - 4,5,6 : V4 Ground</p> | <p>⑩ VR51; Output voltage of V1 adjustment trimmer</p> <p>⑪ VR81; Output voltage of V4 adjustment trimmer
 The output voltage rises when a trimmer is turned clockwise.</p> <p>⑫ CN2; Remote ON/OFF control at primary</p> <p>⑬ CN53; Remote ON/OFF control at secondary : + R</p> <p>⑭ CN53; Remote ON/OFF control at secondary : - R

 Can not use Remote ON/OFF control at with Cover type(A).</p> <p>⑮ Select jumper
 J61 Short : V2 Output voltage is +12V.
 J61 Open : V2 Output voltage is +15V.
 J71 Short : V3 Output voltage is -12V.
 J71 Open : V3 Output voltage is -15V.</p> |
|---|---|

2. Terminal connecting method

- Input must be off when making connections.
- Connect FG terminal of input connector and mountable FG to ground terminal of the equipment.
- Output current of each connector pin must be less than 5A.
- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- Remote ON/OFF control lines shall be twisted or use shielded wire.
- When connecting or removing connector, do not apply stress to PCB.
- Use the input/output connector specified in outline drawing. Also, use recommended crimping tool. Connector is not included with this product.

ZWQ80



* Input & Output connector (J.S.T.)

	ZWQ80		
	Connector	Housing	Terminal Pin
Input(CN1)	B3P-5-VH	VHR-5N	SVH-21T-P1.1
Output(CN51)	B8P-VH	VHR-8N	SVH-21T-P1.1
Output(CN52)	B4P-VH	VHR-4N	SVH-21T-P1.1

*Output Current of each connector pin must be less than 5A.

* Hand Crimping Tool : YC-160R MANUFACT. : J.S.T.

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

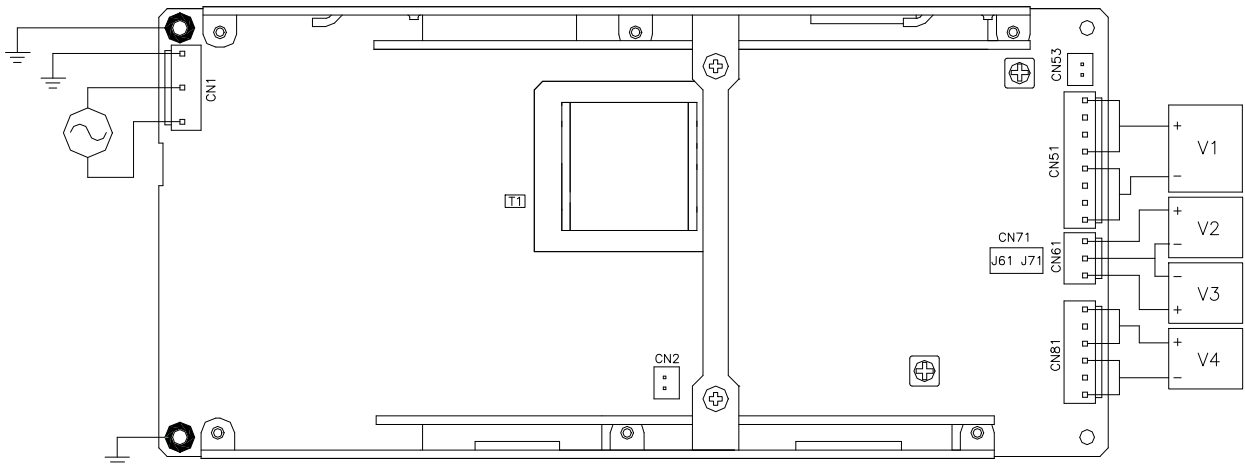
Connector	Housing	Terminal Pin
B2B - XH - AM	XHP - 2	BXH - 001T - P0.6 or SXH - 001T - P0.6

*Can not use Remote ON/OFF control at With Cover type (/A).

*Hand Crimping Tool : YC-110R or YSR-110 MANUFACT. : J.S.T.

* CN2 is normally shorted by JM-2W-96 MANUFACT. J.S.T.

ZWQ130



* Input & Output connector (J.S.T.)

	ZWQ130		
	Connector	Housing	Terminal Pin
Input(CN1)	B3P-5-VH	VHR-5N	SVH-21T-P1.1
Output(CN51)	B8P-VH	VHR-8N	SVH-21T-P1.1
Output(CN61)	B3P-VH	VHR-3N	SVH-21T-P1.1
Output(CN81)	B6P-VH	VHR-6N	SVH-21T-P1.1

*Output Current of each connector pin must be less than 5A.

* Hand Crimping Tool : YC-160R MANUFACT. : J.S.T.

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

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

*Can not use Remote ON/OFF control at With Cover type (/A).

* Hand Crimping Tool : YC-110R or YSR-110 MANUFACT. : J.S.T.

* CN2 is normally shorted by JM-2W-96 MANUFACT. : J.S.T.

3. Explanation of Functions and Precautions

3-1. Input Voltage Range

Input voltage range is single phase 85 ~ 265VAC (47 ~ 63Hz) or 120 ~ 370VDC. Input voltage which is out of specification may cause unit damage. For cases where conformance to various safety spec(UL,CSA,EN) are required, input voltage range of application for safety 100 ~ 240VAC (50/60Hz).

3-2. Output Voltage Range

V.ADJ trimmer (VR51, VR81) can adjust the output voltage of V1 and V4 within the range. To turn the trimmer clockwise, the output voltage will be increased. Output voltage range of V1 is within 5 ~ 5.25V, V4 is following range. Note over voltage protection (OVP) function may trigger if the output voltage is increased excessively.

V4 Output Voltage Range	
5223;	2.0V ~ 3.63V
5225;	2.0V ~ 5.25V
5222;	11.4V ~ 12.6V
5224;	22.8V ~ 25.2V

3-3. Inrush Current

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

3-4. Wattbox

This series designed as a WATTBOX. You are flexibly adjust output power of each channel within the limit of the total allowable output power in specification.

$$W_{TOTAL} \geq W_{V1} + W_{V2} + W_{V3} + W_{V4}$$

- W_{V1} : Less than maximum V1 output power.
- W_{V2} : Less than maximum V2 output power.
- W_{V3} : Less than maximum V3 output power.
- W_{V4} : Less than maximum V4 output power.

3-5. Minimum output Current

The output voltage of all channel is stabilized when minimum output current of V1 is more than 12% of maximum output current. Note all channel may not when V1 has no load.

3-6. Over Voltage Protection (OVP)

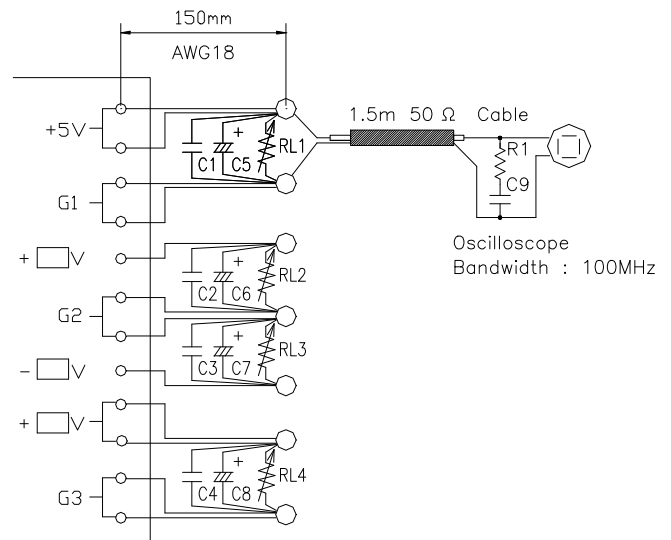
The OVP function (Inverter shut down method, manual reset type) built into each channel. (OVP function at V2 and V3 is total voltage detection method.) When OVP of each channel triggers, the all outputs will be shut down. The input shall be removed for a few minutes, and then re-input for recovery of the output to recover. OVP setting shall be fixed and not to be adjusted externally.

3-7. Over Current Protection (OCP)

Total & constant current limiting, automatic recovery. OCP function operates when the total maximum output power exceeds 102% of total allowable peak output power on specification. The output will be automatically recovered when the overload condition is canceled. Also, this unit employs total current detection for OCP. Therefore, take note that the unit might be damaged because OCP may not operate even if each channel exceeds each maximum output current specification. Never operate the unit under over current or shorted conditions over 30 seconds which could result in damage, insulation failure, smoking or burning.

3-8. Output Ripple & Noise

The standard specification for maximum ripple value is measured according to measurement circuit specified by EIAJ-RC9131. When load lines are longer, ripple will becomes larger. In this case, electrolytic capacitor, film capacitor, etc. might be necessary to use across the load terminal. The output ripple cannot be measure accurately if the probe ground lead of oscilloscope is too long.

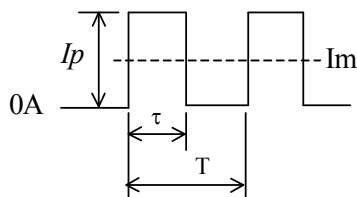


- (※) The number of terminals are different by model.
- (※) Oscilloscope Probe: please use a bayonet adapter or equivalent.

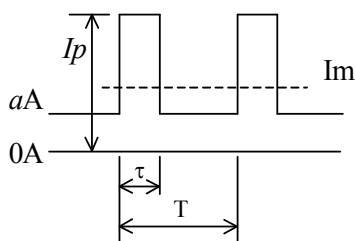
	Capacitance
C1,C2,C3,C4 : Film Cap.	0.1 μF
C5 : Elec. Cap.	1000 μF
C6,C7,C8 : Elec. Cap.	100 μF
C9 : Film Cap.	4700 pF
R1 : Resistor	50Ω

3-9. Peak Output Current

For ZWQ series, relation between maximum output current (Convection cooling) and peak output current must satisfy formulas below. Also operating time at peak output current (τ) should be less than 10sec, period(T) should be more than 10msec. (Duty \leq 0.35)



$$I_{av} \geq I_m = \frac{I_p \times \tau}{T}$$



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

- I_p : Peak output current (A)
- I_{av} : Maximum output current of Specification (Convection cooling) (A)
- I_m : Average output current (A)
- τ : Pulse width of peak output current (sec) (Operating time at peak output)
- T : Period (sec)

3-10. Remote ON/OFF Control

Remote ON/OFF control(CN2,CN52) function is available. Using this function allows the user to turn the all outputs on and off without having to turn the AC input on and off. Remote ON/OFF control can be used by following 2 modes

When shipping, CN2 is installed with a short connector. When use this function, must be put off a short connector.

However, for Cover & Chassis type (ZWQ/A), can not be used.

Primary side

A connector(CN2) for ON/OFF control is provided in the Primary Circuit. When using CN2, safety standard requirements should be considered in application design or choice of switch, relay or connector.

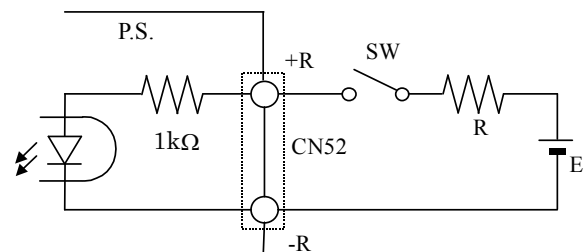
In particular:-

- (1) Basic insulation must be provided between the ON/OFF control circuit and earth.
- (2) Reinforced insulation must be provided between the ON/OFF control circuit and any secondary circuit or accessible part.
- (3) Wiring must be drawn to avoid damage to the insulation of the wire or sleeving.

Terminal condition	Output Condition
Connector(CN2) Short	ON
Connector(CN2) Open	OFF

Secondary side

When using Secondary side ON/OFF Control, put off a jumper J1 at CN2. It is controlled by the voltage applied to +R and -R at CN53. This circuit never connect in the Primary (input) side. And this circuit is isolated from the output by a photocoupler.



The control mode is shown below.

The control mode is shown below.+ R & - R terminal condition	Output Condition
SW ON (Higher than 4.5V)	ON
SW OFF (Lower than 0.8V)	OFF

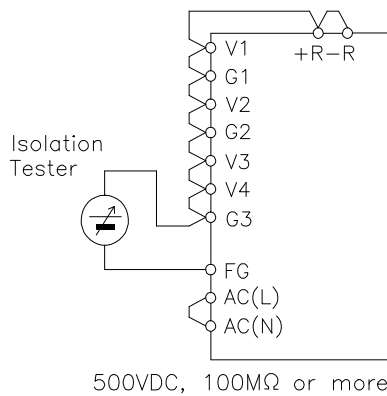
External voltage level : E	External resistance : R
4.5~12.5VDC	No required
12.5~24.5VDC	1.5kΩ

4. Isolation Test / Withstand Voltage

4-1 Isolation Test

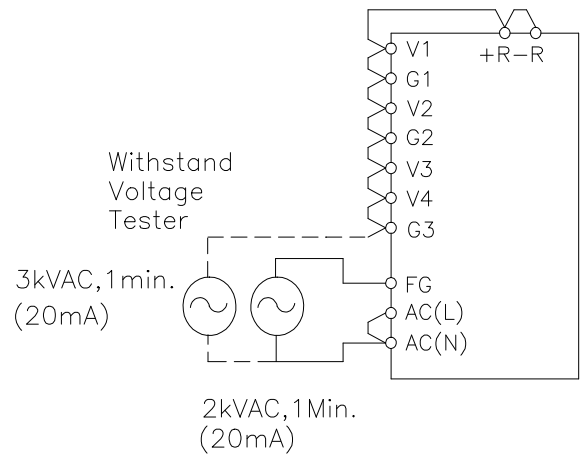
Isolation resistance between output and FG (chassis) shall be more than 100MΩ at 500VDC. For safety operation, voltage setting of DC isolation tester must be done before the test. Ensure that the unit is fully discharged after the test.

Output ~ FG (chassis)

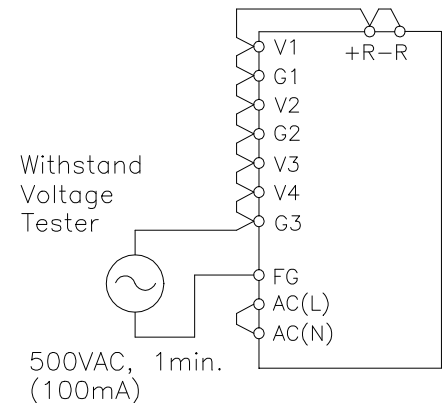


Input ~ FG (chassis) : solid line

Input ~ Output : dotted line



Output ~ FG (chassis)



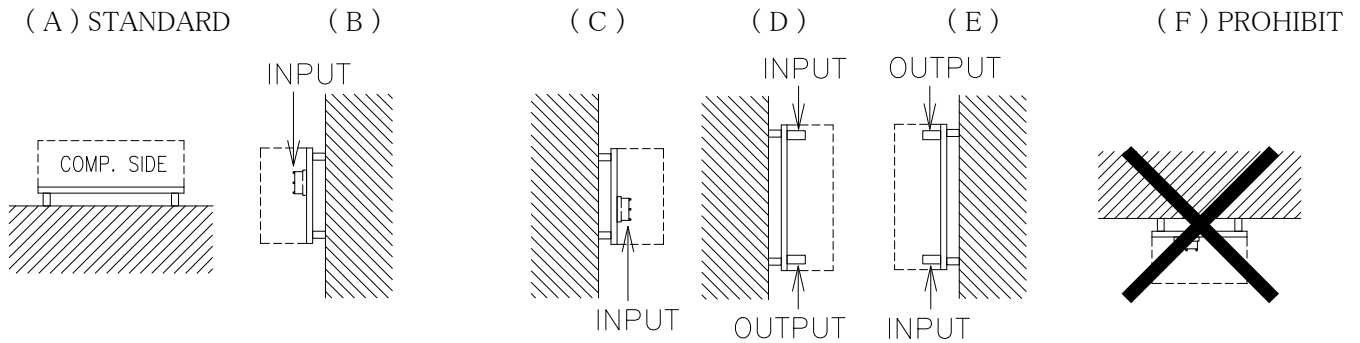
4-2. Withstand Voltage

This series is designed to withstand 3.0kVAC between input and output, 2.0kVAC between input and FG (chassis) and 500VAC between output and the FG (chassis) each for 1 minute. When testing withstand voltage, set current limit of the withstand voltage test equipment to 20mA (Output - FG (chassis) : 100mA). The applied voltage must be gradually increased from zero to the 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.

5. Mounting Directions

5-1. Output Derating according to the Mounting Directions

Recommend standard mounting is method (A). Method (B), (C), (D), (E) are also possible. Refer to the derating below. Please do not use installation method (F), where the PCB will be on the top side and heat will be trapped inside the unit. In the following derating curve, Load (%) is percent of total allowable output power or each maximum output current, whichever is greater.

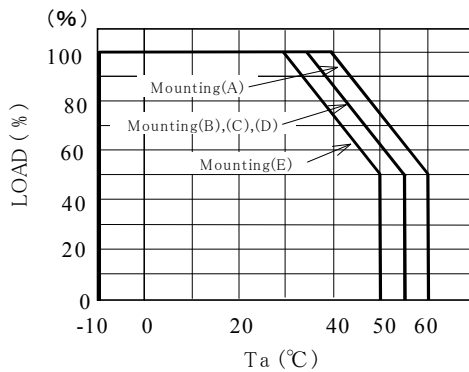


Output Derating

PCB type and with chassis type

(Convection cooling)

ZWQ80



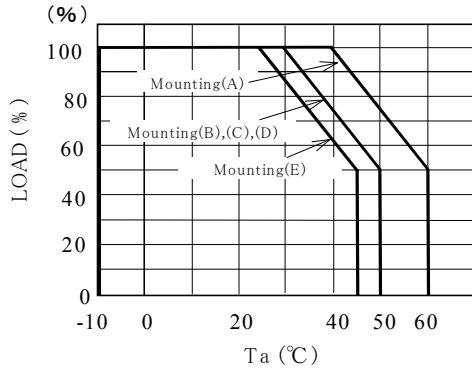
Mounting Ta	LOAD(%)				
	A	B	C	D	E
- 10 ~ 25°C	100	100	100	100	100
30°C	100	100	100	100	100
35°C	100	100	100	100	87
40°C	100	87	87	87	75
45°C	87	75	75	75	62
50°C	75	62	62	62	50
55°C	62	50	50	50	
60°C	50				

(Mounting A)

	Total allowable output power(W)		
	40°C	50°C	60°C
ZWQ80	80	60	40

	CH	Output voltage	Each allowable output power(W)			Maximum output current(A)		
		(V)	40°C	50°C	60°C	40°C	50°C	60°C
522*	V1	5	40	30	20	8	6	4
	V2	+12/+15	24/30	18/22.5	12/15	2	1.5	1
	V3	-12/-15	24/30	18/22.5	12/15	2	1.5	1
5223	V4	3.3	23.1	17.3	11.5	7	5.2	3.5
5225	V4	5	35	26.2	17.5	7	5.2	3.5
5222	V4	12	36	27	18	3	2.2	1.5
5224	V4	24	36	27	18	1.5	1.1	0.7

ZWQ130



Mounting Ta	LOAD(%)				
	A	B	C	D	E
- 10 ~ 25°C	100	100	100	100	100
30°C	100	100	100	100	87
35°C	100	87	87	87	75
40°C	100	75	75	75	62
45°C	87	62	62	62	50
50°C	75	50	50	50	
55°C	62				
60°C	50				

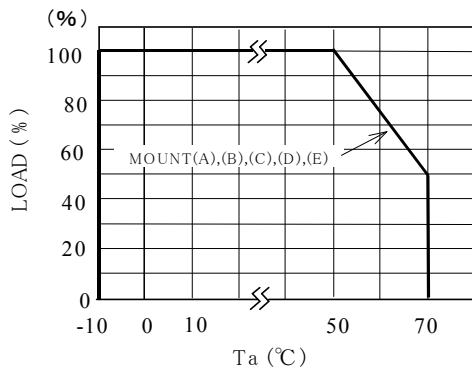
(Monoting A)

	Total allowable output power(W)		
	40°C	50°C	60°C
	ZWQ130	130	97.5

	CH	Output voltage (V)	Each allowable output power (W)			Maximum output current(A)		
			40°C	50°C	60°C	40°C	50°C	60°C
522*	V1	5	75	56.2	37.5	15	11.2	7.5
	V2	+12/+15	48/60	36/45	24/30	4	3	2
	V3	-12/-15	48/60	36/45	24/30	4	3	2
5223	V4	3.3	33	24.7	16.5	10	7.5	5
5225	V4	5	50	26.2	25	10	7.5	5
5222	V4	12	48	27	24	4	3	2
5224	V4	24	48	27	24	2	1.5	1

PCB type, with chassis type
(Forced air cooling)

ZWQ80·ZWQ130



Mounting Ta	LOAD (%)				
	A	B	C	D	E
- 10 ~ 30°C	100	100	100	100	100
35°C	100	100	100	100	100
40°C	100	100	100	100	100
45°C	87	87	87	87	87
50°C	75	75	75	75	75
55°C	62	62	62	62	62
60°C	50	50	50	50	50

(Mounting A)

	Total allowable output power(W)		
	50°C	60°C	70°C
	ZWQ80	80	60
ZWQ130	130	97.5	65

ZWQ80 (Mounting A)

	CH	Output power	Each allowable output power (W)			Maximum output current(A)		
		(V)	50°C	60°C	70°C	50°C	60°C	70°C
522*	V1	5	50	37.5	25	10	7.5	5
	V2	+12/+15	30/37.5	22.5/28.1	15/18.7	2.5	1.8	1.2
	V3	-12/-15	30/37.5	22.5/28.1	15/18.7	2.5	1.8	1.2
5223	V4	3.3	29.7	22.2	14.8	9	6.7	4.5
5225	V4	5	45	33.7	22.5	9	6.7	4.5
5222	V4	12	48	36	24	4	3	2
5224	V4	24	48	36	24	2	1.5	1

ZWQ130 (Mounting A)

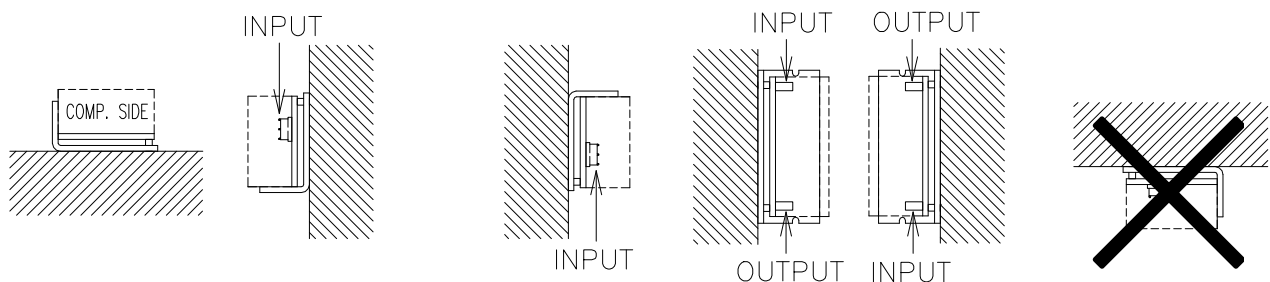
	CH	Output voltage	Each allowable output power (W)			Maximum output power (A)		
		(V)	50°C	60°C	70°C	50°C	60°C	70°C
522*	V1	5	95	71.2	47.5	19	14.2	9.5
	V2	+12/+15	60/75	45/56.2	30/37.5	5	3.7	2.5
	V3	-12/-15	60/75	45/56.2	30/37.5	5	3.7	2.5
5223	V4	3.3	39.6	29.7	19.8	12	9	6
5225	V4	5	60	45	30	12	9	6
5222	V4	12	60	45	30	5	3.7	2.5
5224	V4	24	60	45	30	2.5	1.8	1.2

*Please let air (0.85m³/min (30cfm)) flow into the Component side.
 (please make air flow to maintain Core of T1 temperature 80°C.)

5-2. Output Derating according to the Mounting Directions for with Cover type

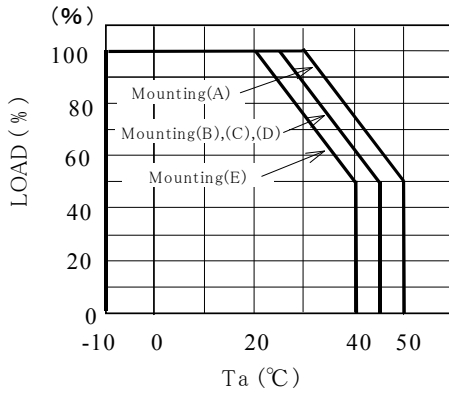
ZWQ series has option that with Cover type (/A). Recommend standard mounting is method (A). Method (B), (C), (D), (E) are also possible. Refer to the derating below. Please do not use installation method (F), where the PCB will be on the top side and heat will be trapped inside the unit. In the following derating curve, Load (%) is percent of total allowable output power or each maximum output current, whichever is greater.

- (A) STANDARD (B) (C) (D) (E) (F) PROHIBIT



With Cover (Convection cooling)

ZWQ80/A



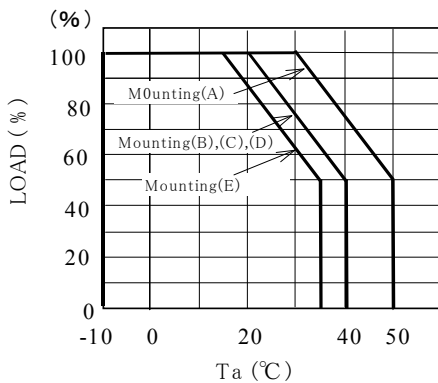
Mounting Ta	LOAD (%)				
	A	B	C	D	E
- 10 ~ 15°C	100	100	100	100	100
20°C	100	100	100	100	100
25°C	100	100	100	100	87
30°C	100	87	87	87	75
35°C	87	75	75	75	62
40°C	75	62	62	62	50
45°C	62	50	50	50	
50°C	50				

(Mounting A)

	Total allowable output power(W)		
	40°C	50°C	60°C
ZWQ80/A	80	60	40

	CH	Output voltage (V)	Each allowable output power (W)			Maximum output current (A)		
			30°C	40°C	50°C	30°C	40°C	50°C
522*	V1	5	40	30	20	8	6	4
	V2	+12/+15	24/30	18/22.5	12/15	2	1.5	1
	V3	-12/-15	24/30	18/22.5	12/15	2	1.5	1
5223	V4	3.3	23.1	17.3	11.5	7	5.2	3.5
5225	V4	5	35	26.2	17.5	7	5.2	3.5
5222	V4	12	36	27	18	3	2.2	1.5
5224	V4	24	36	27	18	1.5	1.1	0.7

ZWQ130/A



Mounting Ta	LOAD (%)				
	A	B	C	D	E
- 10 ~ 15°C	100	100	100	100	100
20°C	100	100	100	100	87
25°C	100	87	87	87	75
30°C	100	75	75	75	62
35°C	87	62	62	62	50
40°C	75	50	50	50	
45°C	62				
50°C	50				

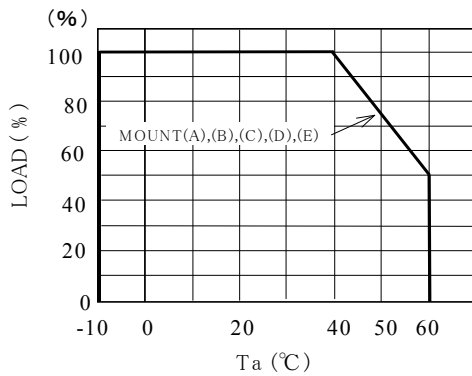
(Mounting A)

	Total allowable output power(W)		
	30°C	40°C	50°C
ZWQ130/A	130	97.5	65

	CH	Output voltage (V)	Each allowable output power (W)			Maximum output current(A)		
			30°C	40°C	50°C	30°C	40°C	50°C
522*	V1	5	75	56.2	37.5	15	11.2	7.5
	V2	+12/+15	48/60	36/45	24/30	4	3	2
	V3	-12/-15	48/60	36/45	24/30	4	3	2
5223	V4	3.3	33	24.7	16.5	10	7.5	5
5225	V4	5	50	26.2	25	10	7.5	5
5222	V4	12	48	27	24	4	3	2
5224	V4	24	48	27	24	2	1.5	1

With Cover (Forced air cooling)

ZWQ80/A · ZWQ130/A



Mounting Ta	LOAD (%)				
	A	B	C	D	E
- 10 ~ 30°C	100	100	100	100	100
35°C	100	100	100	100	100
40°C	100	100	100	100	100
45°C	87	87	87	87	87
50°C	75	75	75	75	75
55°C	62	62	62	62	62
60°C	50	50	50	50	50

(Mounting A)

	Total allowable output power(W)		
	40°C	50°C	60°C
ZWQ80/A	80	60	40
ZWQ130/A	130	97.5	65

ZWQ80/A (Mounting A)

	CH	Output voltage (V)	Each allowable output power(W)			Maximum output current (A)		
			40°C	50°C	60°C	40°C	50°C	60°C
522*	V1	5	50	37.5	25	10	7.5	5
	V2	+12/+15	30/37.5	22.5/28.1	15/18.7	2.5	1.8	1.2
	V3	-12/-15	30/37.5	22.5/28.1	15/18.7	2.5	1.8	1.2
5223	V4	3.3	29.7	22.2	14.8	9	6.7	4.5
5225	V4	5	45	33.7	22.5	9	6.7	4.5
5222	V4	12	48	36	24	4	3	2
5224	V4	24	48	36	24	2	1.5	1

ZWQ130/A (Mounting A)

	CH	Output voltage	Each allowable output power(A)			Muximum output current (A)		
		(V)	40°C	50°C	60°C	40°C	50°C	60°C
522*	V1	5	95	71.2	47.5	19	14.2	9.5
	V2	+12V/+15	60/75	45/56.2	30/37.5	5	3.7	2.5
	V3	-12V/-15	60/75	45/56.2	30/37.5	5	3.7	2.5
5223	V4	3.3	39.6	29.7	19.8	12	9	6
5225	V4	5	60	45	30	12	9	6
5222	V4	12	60	45	30	5	3.7	2.5
5224	V4	24	60	45	30	2.5	1.8	1.2

*Please let air (0.85m³/min (30cfm)) flow into the Component side.
 (please make air flow to maintain Core of T1 temperature 80°C.)

5-2. Mounting Method

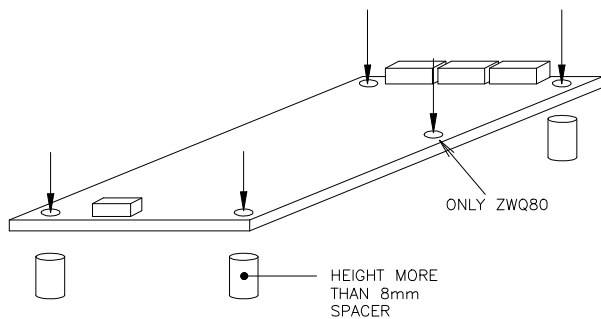
PCB type

Please use the mounting hole as:

ZWQ80 : 5 holes of $\phi 3.5$

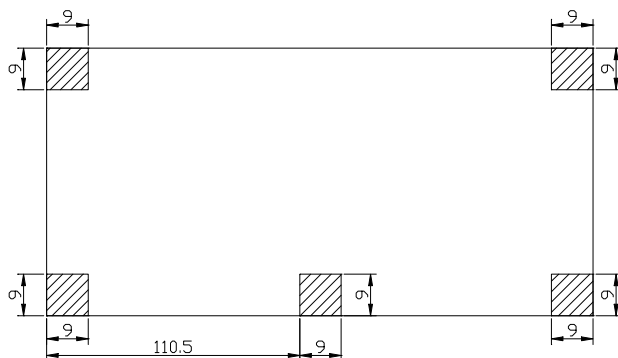
ZWQ130 : 4 holes of $\phi 3.5$

and insert the spacer (MAX $\phi 6.0$) of height over 8mm to lift the unit. Also use all mounting holes for the unit installation. The vibration spec is the value when the unit is raised by 8mm spacers.



And allowable area by metal pieces is 9mm from each PCB corners. Refer to figure below.

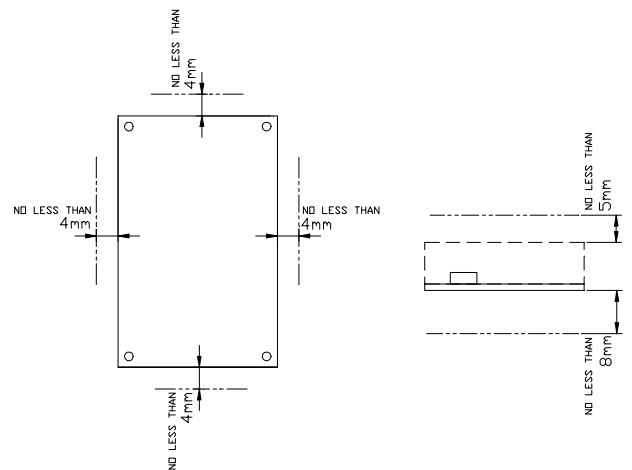
ZWQ80



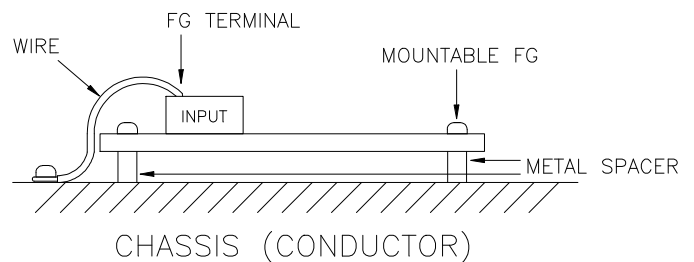
ZWQ130



Please leave 5mm space from the surfaces and left 4mm space from the sides of PCB, especially from the solder surface, 8mm space is necessary. If the space is not enough, the specification of insulation and with-stand will not be satisfied.



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

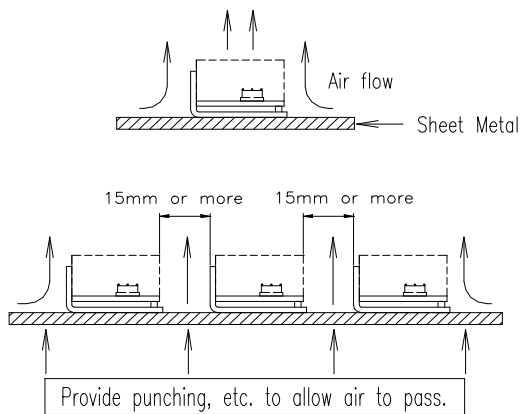


Hatching area is maximum permissible of metal part for mounting.

With chassis

- (1) In the consideration for the heat radiation and safety when the power supply is used on condition that convection cooling. Please take a distance more than 15mm between the power supply and the peripheral parts. When lining up multiple units, please make sure to place them 15mm or more apart from each other.
- (2) The maximum allowable penetration of mounting screws is 6mm.
- (3) Recommended torque for mounting screw.

M4 screw : 1.27 N·m (13.0 kgf·cm)



6. Wiring Method

- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- Use all lines as thick and short as possible to make lower impedance.
- Noise can be eliminated by attaching a capacitor to the load terminals.
- For safety and EMI considerations, connect FG terminal of input connector and mountable FG of ZWQ series to mounting set ground terminal at equipment.
- Select the wire materials to adapt the connector as follow.

INPUT ; ZWQ80/130 AWG#22-#18
 OUTPUT; ZWQ80/130 AWG#22-#18

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 fuse or time-lag type fuse. Do not use fast-blow fuse. Fuse rating is specified by in-rush current value at line turn-on. Do not select the fuse according to input current (rms.) values under the actual load condition.

ZWQ80 : 3.15A
 ZWQ130 : 5.0A

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

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

- Check if the rated input voltage is connected.
- Check if the wiring of input and output is correct.
- Check if the wire material is not too thin.
- Check if the output voltage control (V.ADJ) is properly adjusted.
- If you use function of the Remote ON/OFF control, Check if the Remote ON/OFF control connector is not opened.
- Check if the output current and output wattage dose not over specification.
- Check if the output current of CH1 is more than 12% of maximum output current.
- Audible noise can be heard during Dynamic-Load operation.
- Audible noise can be heard when input voltage waveform is not sinusoidal wave.

9. Notes

- 1) Over voltage Category II.
- 2) Radio Interference Suppression Test is not performed.

10. REPAIR

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