



DISCOVERY
RANGE

IsoTek®

V5 ELEKTRA

INSTRUCTION MANUAL



ENGLISH | FRANÇAIS | DEUTSCH | ESPAÑOL | 中文 | РУССКИЙ



DISCOVERY
RANGE

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IsoTek® | DISCOVERY

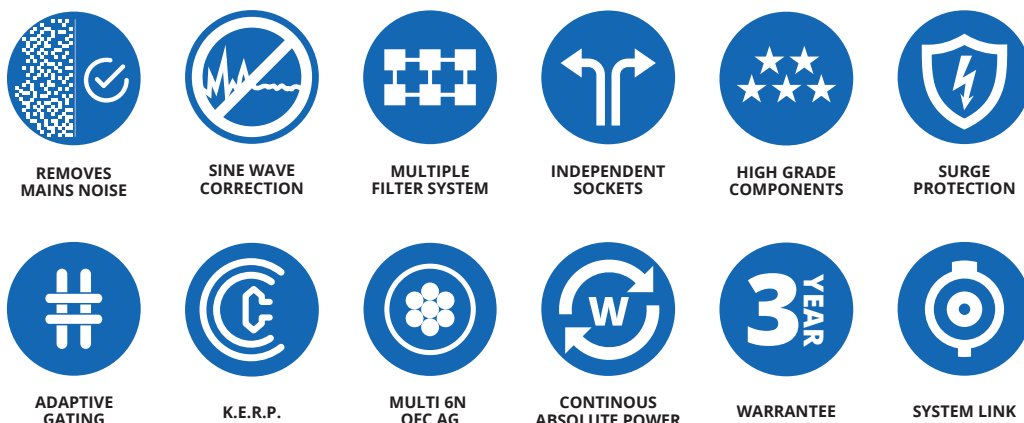
Congratulations on purchasing an IsoTek Elektra designed specifically for your audio, audio-visual or streaming based systems. For more than 20 years IsoTek has earned the reputation as the leader in clean power technology for high-quality audio or audio-visual replay, consistently winning multiple international awards for performance and innovation.

Without mains power, no audio or audio-visual component can function. Your musical enjoyment is reduced by poor mains quality through noise contamination – this can be from either Differential or Common Mode mains noise. Differential Mode noise is created by the power supplies in all electronic devices, while Common Mode noise is introduced by RFI and the wireless communications that surround us.

Elektra is part of the IsoTek Discovery range and with it installed you will hear significantly better sound reproduction, with more detail and greater dynamic range. All connected components will be improved and protected, allowing you to realise the best possible performance from your system, whenever you listen.

FEATURES

(For more technical information please turn to page 15-19 of this manual.)





SAFETY FIRST

PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE INSTALLATION

DO NOT expose this product to dripping or splashing and no objects filled with liquids, such as vases, shall be placed near the apparatus. If liquid enters the chassis immediately unplug from the wall socket.

DO NOT impede ventilation by covering the ventilation openings with items, such as newspapers, tablecloths, curtains, etc.

DO NOT expose this product to naked flame sources, such as lighted candles, these should not be placed near the apparatus.

MAKE SURE that this appliance (CLASS 1) is connected to a mains outlet socket with protective earth.

PLEASE NOTE that the mains plug is used as the disconnect device and must remain readily operable.

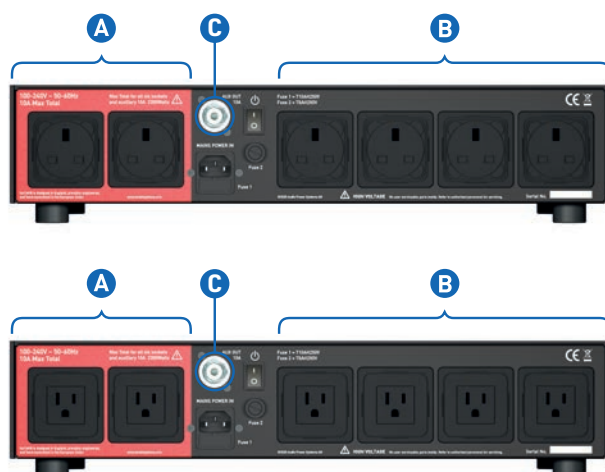


OUTPUT SOCKETS

ADDITIONAL INFORMATION ON FUSING AND RATINGS

- A** The two output sockets marked 'A' are designed for use with power amplifiers, active subwoofers or loudspeaker systems. These sockets are protected by a 10A fuse (T10AH250V) which can be located under the IEC input on the back panel of the product.
- B** The four output sockets marked 'B' are designed for use with CD players, preamplifiers, music servers, digital to analogue converters, loads of typically no greater than 200W. These sockets are protected by a 5A fuse (T5AH250V) which can be located on the back panel of the product.
- C** In addition there is an IsoTek System Link outlet (Neutrik powerCON) marked 'C' for connecting multiple IsoTek devices without the need for additional wall sockets. The added advantage is maintaining a fully star earthed system. This is also rated at 10A.

The rated maximum total load for all six sockets together (A + B + C System Link) is 10A, 2300W at 230V / 1150W at 115V.



SERVICE & REPAIR

NO USER SERVICEABLE PARTS INSIDE

Should the unit fail, or cease to function, or function in a manner which seems unusual, please immediately turn off and unplug from the mains supply.

Send an email to: support@isoteksystems.com



RECOMMANDATIONS DE SECURITE

VEUILLEZ LIRE CES INSTRUCTIONS AVANT D'INSTALLER L'APPAREIL

N'EXPOSEZ PAS ce produit aux éclaboussures de liquide ni à l'humidité. Ne posez pas des récipients contenant des liquides sur ou à proximité de l'appareil. Si un liquide parvenait à entrer dans le châssis, débranchez l'appareil immédiatement de la prise murale.

ASSUREZ-VOUS qu'il y a une ventilation adéquate tout autour de l'appareil. Evitez d'obstruer les ouïs de ventilation avec des journaux, nappes, rideaux etc.

N'UTILISEZ PAS l'appareil à proximité de sources de chaleur telles que les radiateurs, réchauds, poêles, bougies ou d'autres flammes nues et de tout autre appareil produisant de la chaleur.

ASSUREZ-VOUS que cet appareil (Classe 1) est branché sur une prise murale munie d'un circuit de terre.

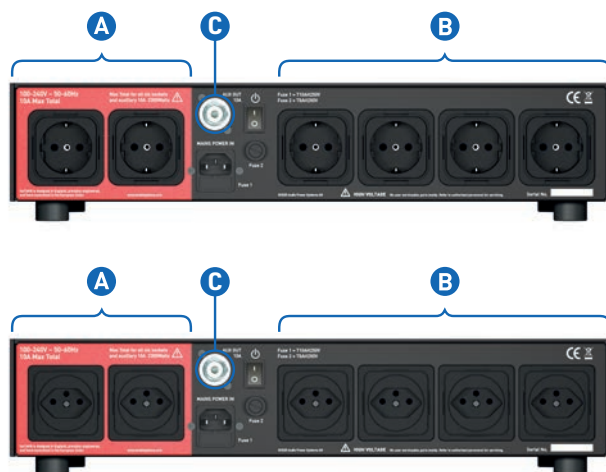
NOTEZ que la prise secteur est utilisée pour déconnecter l'appareil et doit rester accessible.



PRISES DE SORTIE

INFORMATIONS COMPLEMENTAIRES CONCERNANT LES FUSIBLES ET LE CLASSEMENT ELECTRIQUE

- A** Les deux prises de sortie marquées « A » sont conçues pour être utilisées avec des amplificateurs de puissance, des subwoofers actifs ou des systèmes de haut-parleurs. Ces prises sont protégées par un fusible 10A (T10AH250V) qui peut être situé sous l'entrée IEC sur le panneau arrière du produit.
- B** Les quatre prises de sortie marquées « B » sont conçues pour être utilisées avec des lecteurs de CD, des préamplificateurs, des serveurs de musique, des convertisseurs numérique-analogique, des charges ne dépassant généralement pas 200 W. Ces prises sont protégées par un fusible 5A (T5AH250V) qui peut être situé sur le panneau arrière du produit.
- C** De plus, il y a une prise IsoTek System Link (Neutrik powerCON) marquée « C » pour connecter plusieurs appareils IsoTek sans avoir besoin de prises murales supplémentaires. L'avantage procuré est de maintenir un système entièrement mis à la terre en étoile. Ceci est également évalué à 10A. La charge totale maximale nominale pour les six prises ensemble (A + B + C System Link) est de 10A, 2300W à 230V / 1150W à 115V.



SAV ET REPARATIONS

IL N'Y A AUCUNE PIECE REPARABLE PAR LE PARTICULIER A L'INTERIEUR

En cas de dysfonctionnement ou d'arrêt précipité de l'appareil, éteignez-le et débranchez-le de la prise secteur.

Envoyer un email à: support@isoteksystems.com



SICHERHEITSHINWEISE

BITTE LESEN SIE VOR DEM ANSCHLUSS DES GERÄTS DIE FOLGENDEN HINWEISE

SCHÜTZEN SIE das Gerät vor Spritzwasser und stellen Sie keine mit Flüssigkeit gefüllten Gegenstände wie Vasen in die Nähe des Geräts. Sollte Flüssigkeit ins Gerät gelangen, ziehen Sie sofort den Netzstecker aus der Steckdose.

VERDECKEN SIE die Lüftungsöffnungen des Geräts nicht mit Gegenständen, die eine ausreichende Belüftung des Geräts beeinträchtigen, z.B. Zeitungen, Tischdecken oder Gardinen.

VERMEIDEN SIE offene Flammen wie zum Beispiel brennende Kerzen in der Nähe des Geräts.

STELLEN SIE SICHER, dass dieses Gerät (CLASS 1) an eine Steckdose mit Schutzleiter angeschlossen ist.

BITTE BEACHTEN SIE, dass der Netzstecker als Trennvorrichtung verwendet wird und frei zugänglich bleiben muss.

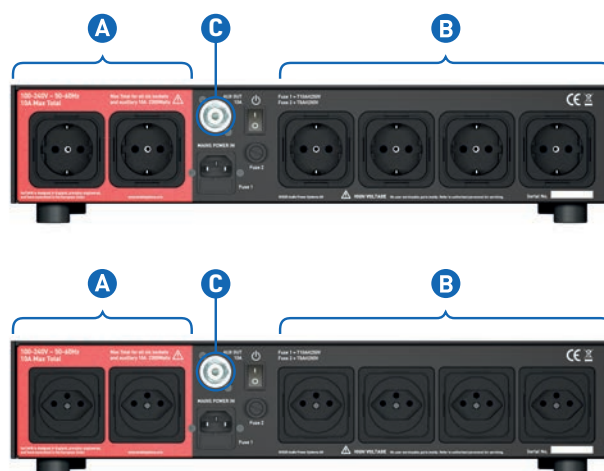


AUSGÄNGE

ZUSÄTZLICHE INFORMATION ZUR ABSICHERUNG UND MAXIMALEN BELASTUNG

- A** Die zwei mit 'A' gekennzeichneten Ausgänge sind für den Anschluss von Endstufen, aktiven Subwoofern oder Aktivlautsprechern vorgesehen. Die Ausgänge sind mit einer 10A Sicherung geschützt (T10AH250V), diese befindet sich unterhalb des Netzanschlusses, auf der Rückseite des Gerätes.
- B** Die vier mit 'B' gekennzeichneten Ausgänge sind für den Anschluss von CD-Spielern, Vorverstärkern, Musikservern oder Digital-Analog-Wandlern mit einer maximalen Stromaufnahme von 200W vorgesehen. Diese Ausgänge sind mit einer 5A Sicherung geschützt (T5AH250V), diese befindet sich auf der Rückseite des Gerätes.
- C** Darüber hinaus gibt es einen IsoTek System Link Ausgang (Neutrik powerCON), der mit 'C' gekennzeichnet ist, um weitere IsoTek Geräte anzuschließen, ohne dass weitere Wandsteckdosen erforderlich sind. Ein zusätzlicher Vorteil ist die Aufrechterhaltung einer sternförmigen Masseverdrahtung des Systems. Dieser ist ebenfalls mit 10A ausgelegt.

Die maximale Stromaufnahme für alle sechs Ausgänge zusammen (A + B + C System Link) beträgt 10A, 2300W (230V) / 1150W (115V).



SERVICE & REPARATUREN

IM GEHÄUSE BEFINDEN SICH KEINE VOM BENUTZER ZU WARTENDE ODER ZU REPARIERENDE TEILE

Sollte dieses Gerät nicht mehr korrekt funktionieren oder eine Funktion ungewöhnlich erscheinen, schalten Sie es bitte sofort aus und trennen es vom Stromnetz.

Senden Sie eine E-Mail an: support@isoteksystems.com



NOTAS SOBRE SEGURIDAD

POR FAVOR, LEA ESTAS INSTRUCCIONES ANTES DE LA INSTALACIÓN DEL PRODUCTO

DO exponga este producto a posibles salpicaduras de líquidos y no sitúe recipientes que contengan líquidos cerca del aparato. Si entrara algún líquido dentro del chasis, desenchúfelo de la toma de red inmediatamente.

DO dificulte la circulación de aire cubriendo las ranuras de ventilación con ningún elemento (periódicos, manteles, cortinas etc).

DO exponga este producto a llamas vivas; no sitúe nunca una vela cerca del aparato.

ASEGÚRESE de que este aparato (CLASE 1) está conectado a un enchufe con toma de tierra.

ADVERTENCIA: el enchufe sirve para desconectar el aparato, por lo que siempre debe estar accesible.

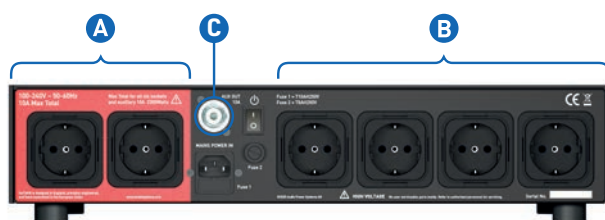


TERMINALES DE SALIDA

INFORMACIÓN ADICIONAL SOBRE FUSIBLES Y POTENCIAS

- A** Los dos terminales de salida marcados con "A" han sido diseñados para su uso con etapas de potencia, subwoofers o sistemas de altavoces activos.
Están protegidos con un fusible de 10A ubicado en la parte trasera del aparato, bajo la entrada IEC.
- B** Los cuatro terminales de salida marcados con "B" han sido diseñados para su uso con reproductores de CD, preamplificadores, servidores de música, convertidores digital a analógico, cargas generalmente no superiores a 200W. Estos terminales están protegidos con un fusible de 5A (T5AH250V) ubicado en la parte trasera del aparato.
- C** Además también encontrará un terminal IsoTek System Link (Neutril powerCON) marcado con "C" para conectar otros dispositivos IsoTek múltiples sin necesidad de más tomas de alimentación en la pared. La ventaja añadida es mantener la configuración de tierra en estrella. También está ponderado en 10A.

La carga máxima total ponderada para todos los terminales juntos (A + B + C System Link) es 10A 2300W @ 230V / 1150W a 115V.



SERVICIO & REPARAR

NO CONTIENE PIEZAS QUE PUEDA REPARAR EL USUARIO

Si el aparato fallara, dejara de funcionar o funcionara de algún modo diferente l habitual, apáguelo inmediatamente y desconéctelo de la red eléctrica.

Envíe un e-mail a: support@isoteksystems.com



安全措施

安装之前, 请阅读以下说明

严禁沾水! 本设备不允许有液体滴入、溅入! 请勿将液体容器 (如花瓶) 放置在设备周围。如若进水, 立即从墙壁插座上拔下电源。

严禁阻碍散热! 本设备的散热通风口不要用物品 (如报纸、桌布、窗帘等) 覆盖。

严禁在设备周围放置明火 (如点燃的蜡烛)。

确保 将本设备 (CLASS1) 连接至带有接地保护的主电源输出插座。

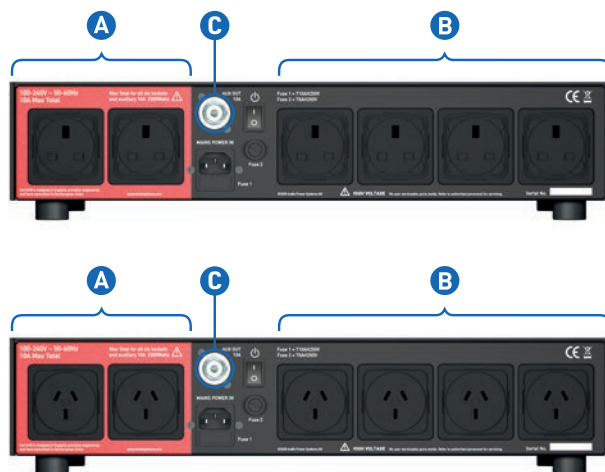
请注意, 必须保证本设备的电源插头作为断电手段、随时可用。



输出插座

关于保险丝和插座规格的有关信息

- A** 两个标示 'A' 的输出插座是为高电流器材而特别设计, 适用于功率放大器或单声道功率放大器, 超低音扬声器及有源音箱等器材。此 IEC 插座由 10A 保险丝 (T10AH250V) 保护, 位置处于机背。
- B** 那四个标示 'B' 的输出插座是专为 CD 机、前级放大器、音乐伺服器、数模转换器而设计, 负载通常不超过 200W。它们由位于机背板的 5A (T5AH250V) 保险丝保护。位置处于机背。
- C** 另外一个标示 'C' 的 Isotek System Link 作延伸线材, 可使用 Neutrik powerCON 接驳到其他 IsoTek 产品, 得以使用更多插座, 同时仍享用着星型接地的设定而无需占用额外墙身的插座
合共六个插座 (A + B + C System Link) 的额定最高总负载为 10A, 2,300W @230V, 1,150W@115V。



服务与维修

产品中没有用户可以自己维修的部件。

当设备发生故障、停止运作、或运转不正常时, 请立即关机, 并拔掉电源插头。

发送电子邮件至: support@isoteksystems.com



БЕЗОПАСНОСТЬ В ПЕРВУЮ ОЧЕРЕДЬ

ПОЖАЛУЙСТА, ПРОЧИТАЙТЕ СЛЕДУЮЩИЕ ИНСТРУКЦИИ ПЕРЕД УСТАНОВКОЙ

Не подвергайте устройство воздействию капель, брызг, а также предметов, наполненных жидкостью; например, вазы не должны быть размещены рядом с устройством.

Не закрывайте вентиляцию газетами, скатертями, шторами и т.д.

Не подвергайте устройство воздействию источников открытого огня; например, зажженные свечи не должны быть размещены рядом с устройством.

Убедитесь, что данное устройство (КЛАСС 1) подключено к розетке с заземлением.

Обратите внимание, что кабель питания служит как устройство отключения и должен быть в рабочем состоянии.



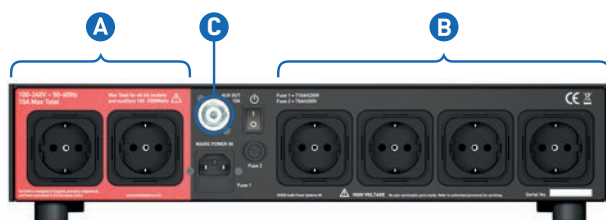
Выходные разъемы

Дополнительная информация по предохранителям и характеристикам

- A** Две выходные розетки помеченные буквой 'A' предназначены для усилителей мощности, активных сабвуфров или активных колонок. Эти розетки защищены 10A предохранителем (T10AH250V) который расположен под разъемом сетевого входного кабеля на задней панели.
- B** Четыре выходные розетки помеченные буквой 'B' предназначены для использования с CD проигрывателями, предусилителями, музыкальными серверами, цифро-аналоговыми преобразователями с потреблением не более 200 W и защищены 5A предохранителем (T5AH250V) который находится на задней панели продукта.
- C** В дополнении есть специальный выход под названием Isotek System Link (с разъемом Neutrik powerCON) помеченный 'C' для подключения дополнительных устройств без использования розеток в стене.

Это дополняет преимущество использования заземления 'star earth'. Он защищён 10A предохранителем.

Общая максимальная нагрузка для всех 6 выходов (A + B + C System Link) равна 10A, 2300W на 230V / 1150W на 115V.



ОБСЛУЖИВАНИЕ И РЕМОНТ

Необслуживаемые компоненты

Если устройство неисправно или перестает функционировать, или работает не должным образом, пожалуйста, немедленно выключите устройство и отключите от электросети.

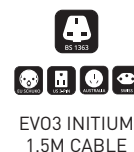
Написать по электронной почте: support@isoteksystems.com

1 UNPACK

DEBALLAGE | DESEMBALAR
AUSPACKEN | 打开包装
| РАСПАКОВКА

WHAT IS IN THE BOX?

PRODUCT WEIGHT 9kg
PRODUCT DIMENSIONS 450mm (A) x 350mm (B) x 110mm (C)



EV03 INITIUM
1.5M CABLE



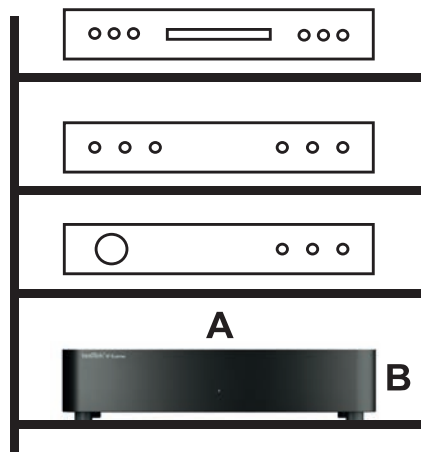
V5 ELEKTRA

3 PLACEMENT

PLACEMENT | UBICACIÓN
POSITIONIEREN | 安全置放
| УСТАНОВКА

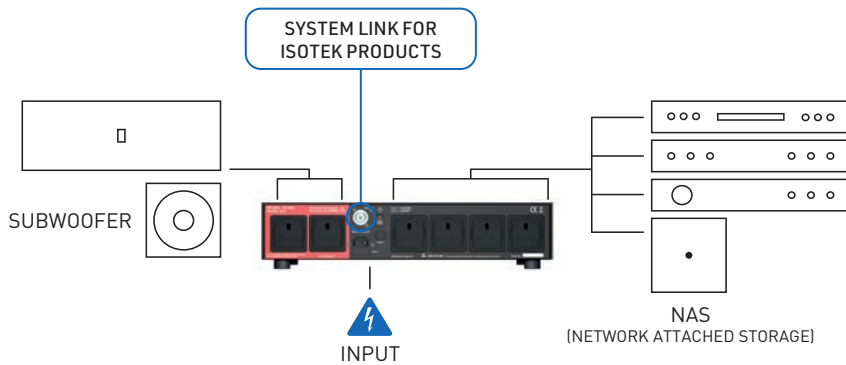
MINIMUM SPACE & MAXIMUM WEIGHT

MINIMUM SPACE A & B = 30mm
MAXIMUM WEIGHT 20KG



V5 ELEKTRA





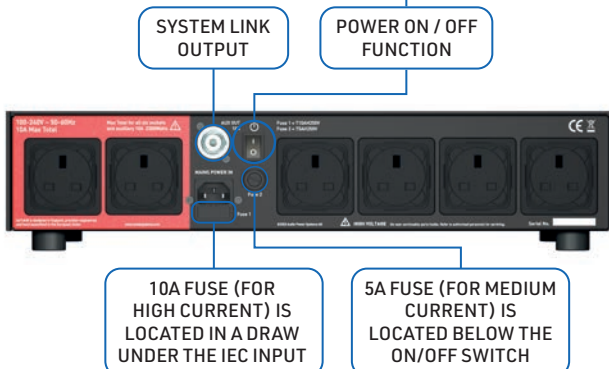
2 PLUG IN

BRANCHEMENT SECTEUR
CONECTAR | EINSTECKEN
| 打开包装 | ПОДКЛЮЧЕНИЕ
К СЕТИ


**POWER
ON | OFF**




**PROTECTION
SHIELD**
67"500A



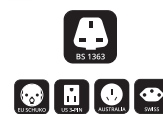
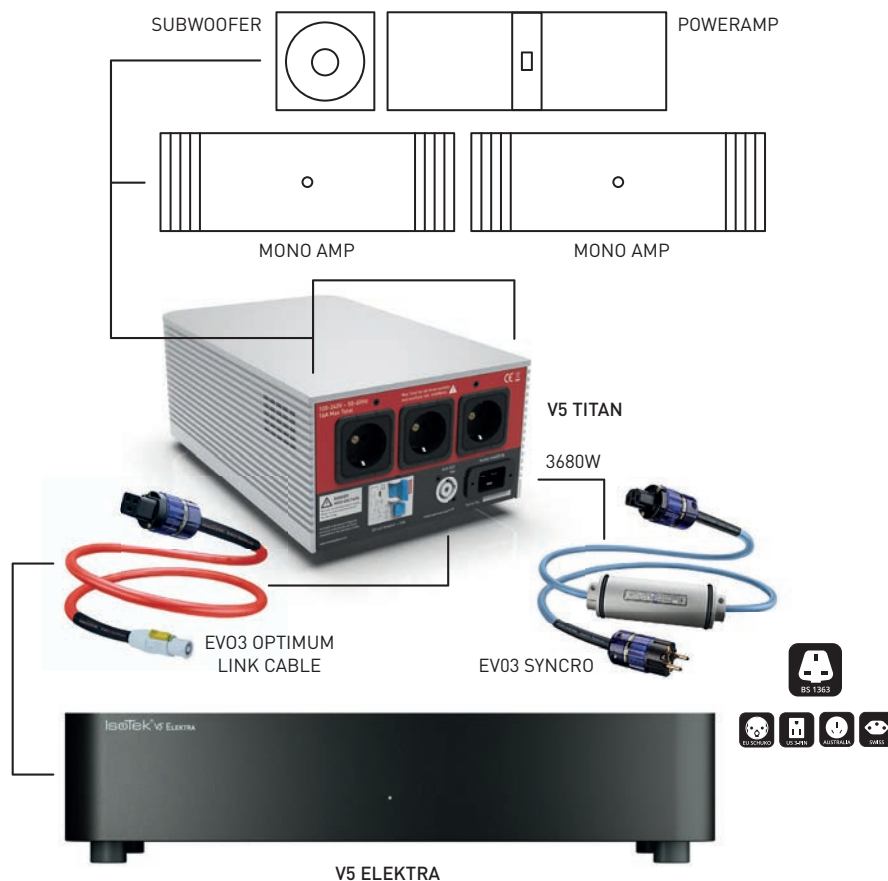
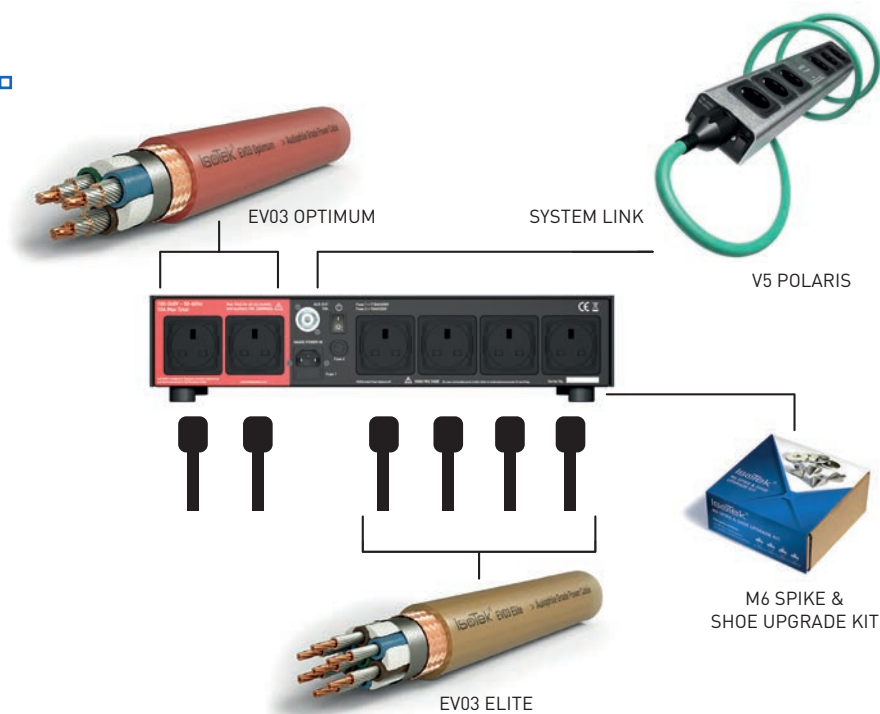
4 TURN ON

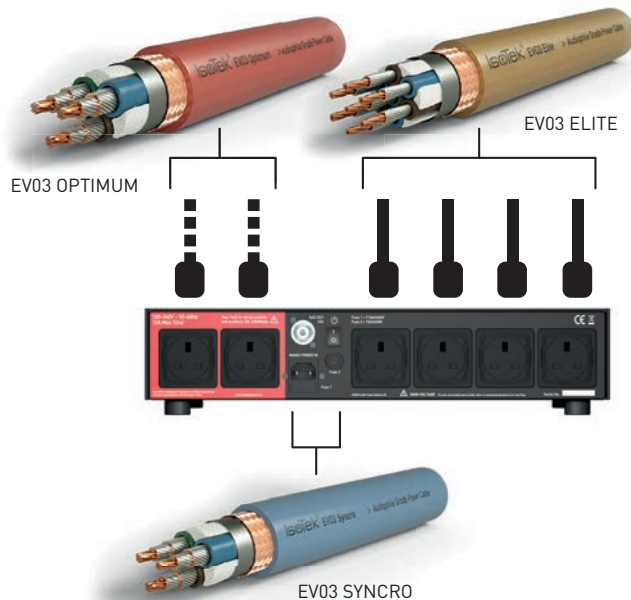
MISE EN ROUTE |
EINSCHALTEN | ENCENDER
| 启动电源 | ВКЛЮЧЕНИЕ



5 UPGRADE

MISE A JOUR | UPGRADE
ACTUALIZAR | 修正微调
| ОБНОВЛЕНИЕ





EXTEND YOUR WARRANTY FOR FREE

PROLONGEZ LA GARANTIE GRATUITEMENT

KOSTENLOSE GARANTIEVERLÄNGERUNG UNTER

REGISTRO: PROLONGUE LA GARANTÍA GRATIS

注册会员: 可延长质保, 享受更多增值服务

РЕГИСТРАЦИЯ: РАСШИРЯЕТ
БЕСПЛАТНУЮ ГАРАНТИЮ

6 REGISTER

[ISOTEKSYSTEMS.COM/REGISTER](https://isoteksystems.com/register)



THE POWER TO PERFORM

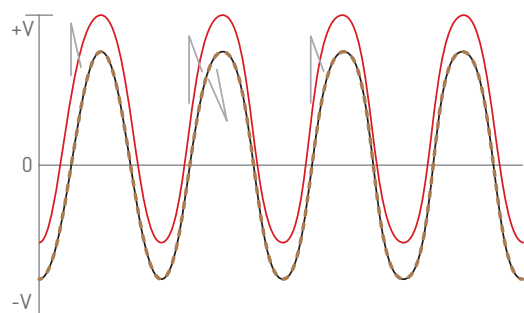
The first input into any audio or AV system is electricity. It flows through the system, utilised by each component in turn to create the signal that eventually moves the speakers' drive units or delivers the pixels on-screen. What we see and hear is ultimately fashioned from, and by, mains electricity – it is the 'raw material' from which the 'art' is created.

The mains supply is distorted by numerous factors as it travels from power stations to be distributed throughout our homes, eroding the performance of high-quality audio and AV systems. As the electronic devices we use proliferate and the demand for electrical power intensifies, the quality of the electricity we feed our systems continues to slide.

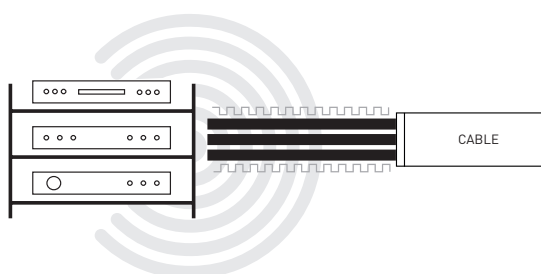
'**Differential Mode noise**' is especially exacerbated by the switch-mode power supplies that are common in many modern devices, from computers to kitchen appliances.

'**Common Mode noise**' is ever-increasing thanks to wireless networking in the home, with mobile phones, Wi-Fi and Bluetooth bathing us in a sea of airborne interference. Without IsoTek, you are only accessing around 80 percent of your system's full potential, at best.

SINE WAVE CORRECTION

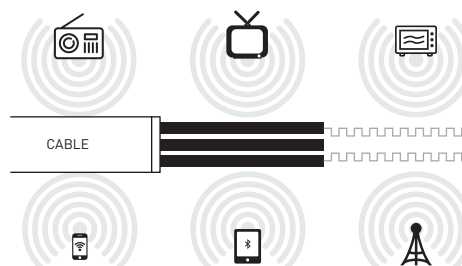


MAINS SINE WAVE OFF (DC ON THE MAINS)
ISOTEK CORRECT MAINS SINE WAVE
PERFECT SINE WAVE
POWER SURGE AND MAINS SPIKE PROTECTION SYSTEM



DIFFERENTIAL MODE

Differential Mode mains noise is created by all electrical appliances – everything with a power supply, in fact. This includes your microwave oven, your television and your computer, as well as every hi-fi component you own.



COMMON MODE

Common Mode mains noise is often referred to as RFI – transmitted frequencies that surround us but we cannot see. For example, imagine how much data is transmitted by smartphones and tablets; cheap power cables act as aerials for these unwanted frequencies.

FEATURES



REMOVES MAINS NOISE

Differential Mode mains noise is created by all electrical appliances – everything with a power supply, in fact. This includes your microwave oven, your television and your computer, as well as every hi-fi component you own.

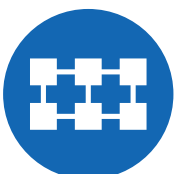
Common Mode mains noise is often referred to as RFI – transmitted frequencies that surround us but we cannot see. For example, imagine how much data is transmitted by smartphones and tablets; cheap power cables act as aerials (antennas) for these unwanted frequencies.



SINE WAVE CORRECTION

From a high quality audio point of view, mains electricity needs two factors; a nice 50 or 60Hz sine wave supplied from a very low impedance source, without radio frequency noise. The low impedance makes for a near constant voltage regardless of how much power is used in the surrounding area. In reality we can typically expect around 5% fluctuation. The very low impedance of the mains, which is way below 1 ohm at 50 or 60Hz is not maintained when approaching radio frequencies ($> 50 \text{ ohms} > 100 \text{ kHz}$) and acts as an aerial (antenna) inviting RF noise.

IsoTek's power cleaning circuits are designed to reduce impedance whilst remaining safe as well as correcting well into the audio frequency bands. This is not only a judgment from sound electrical engineering, but it also follows the codes of electrical safety, which are independently assessed.



MULTIPLE FILTER SYSTEM

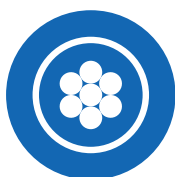
Many IsoTek products are not just a single power cleaning system but are multiple power cleaners in one convenient chassis. The advantage being that each component in your audio system has its own dedicated clean power delivery system. Furthermore, Differential Mode noise, created as electrical devices draw power, is kept to a minimum and the possibility of electrical noise cross contamination between outlet sockets is eliminated.

Many power cleaning systems simply place a standard filter design in a box with all outlet sockets joined together in series one after the other, thus connected equipment cross contaminates and the purpose of the product is lost.



INDEPENDENT SOCKETS

IsoTek products feature outlet sockets that are totally independent from each other; no two outlet sockets being directly connected. This is a critical point for limiting or eliminating the cross contamination of Differential Mode mains noise. Each socket connects directly back to the PCB and is serviced by IsoTek's unique power cleaning technologies.



MULTI 6N OFC AG

As one would expect, the internal wiring of any IsoTek product is of the highest standard, pure 6n OFC (Oxygen Free Copper – 99.9999%) conductor strands with silver-plating offer low resistance and high amperage. An FEP dielectric is used to protect the conductors as well as giving the ultimate internal power delivery system.

IsoTek's internal wiring synergizes with the range of IsoTek power cables. One critical but overlooked area is maintaining commonality of design and material properties though an audio wiring loom, be it signal carrying cables or your power cable network.



ADAPTIVE GATING

IsoTek's unique Adaptive Gating system determines the appropriate level of differential filtration for any connected load. The maximum level of overall power filtration is achieved whilst respecting current requirements.

This system also eliminates Differential Mode noise cross contamination between outlet sockets, as all connected devices will corrupt the supplied clean power upon consumption throwing back Differential Mode noise. It is vital that this noise isn't allowed to affect another component's performance.



SYSTEM LINK

Some IsoTek products contain a System Link outlet, this is designed to connect multiple units together, maintaining a shared earth reference, and preserving the need for multiple wall outlet sockets.

In the Mosaic One Series this is particularly useful for joining multiple units together using our System Link cable.



K.E.R.P.

Technical papers state that Kirchhoff's circuit laws are two equalities that deal with the current and potential difference (commonly known as voltage) in the lumped element model of electrical circuits. They were first described in 1845 by German physicist Gustav Kirchhoff. This generalized the work of Georg Ohm and preceded the work of James Clerk Maxwell. Widely used in electrical engineering, they are also called Kirchhoff's rules or simply Kirchhoff's laws. These laws can be applied in time and frequency domains and form the basis for network analysis.

The guiding principles for IsoTek circuits are driven by Kirchhoff's two current laws, a simple analogy would be that for every litre of water placed into a water distribution system we would expect to get the same out.

To put it another way, Kirchhoff and Gauss described how seemingly impossible problems could be resolved by the concept of a town. If traffic flows on a circular orbital road around the town there is no effect on the town. However, if traffic enters the town, then there will be an effect on the town, and however many cars that enter eventually have to leave. The structure of that town will have either a positive or negative effect on that migration. In electronics this is also true. We must totally respect the signal path as, whether one wishes it or not, ultimately everything will be in the signal path to a greater or lesser degree.



HIGH GRADE COMPONENTS

Every IsoTek product uses the finest grade electrical components, many custom made, using the highest quality metals and materials which are specifically designed for purpose. Quality doesn't stop at parts but also extends into the PCB designs, which maintain high levels of amperage and extraordinarily low levels of resistance, using up to eight times the general standard of copper prior to pure silver plating.

Internal wiring also uses high purity coppers combined with silver plating, with either Fluorinated Ethylene Propylene (FEP) dielectric or IsoTek's Virtual Dielectric of Air (VDA), where a FEP tube is wound around the conductor before an extruded FEP dielectric protects this construction giving unrivalled performance and the ultimate low resistance, high performance internal power delivery system.



SURGE PROTECTION

Power surges or spikes on the mains supply are generally very bad for any electrical device especially a high quality audio replay system. Power surges occur when there is a boost to the electrical charge at some point in the power lines. This causes an increase in the electrical potential energy, which can increase the current flowing to your wall outlet. This in turn can damage your sensitive audio system.

The IsoTek protection system uses an array of VDRs which offer a cascading level of protection, in some cases over 100,000A. These step in fast and sequentially dependent upon the severity of the encountered power surge or spike. The architecture of the protection circuit extends dramatically and almost instantly when required.

The protection circuit has two primary functions, one to preserve itself and the second to step in gradually as any problem increases, with the ability to act very fast should an extreme condition occur. The protection circuits also protect the filters and the filters assist the protection in the initial stage. Unlike many protection devices these assist sound quality as well as providing protection. Studies suggest this problem is not subtle and is frequent. The disturbing challenge is the 1,000 to 6,000V range. It is likely most protection systems do very little good and probably cause sound degradation.



CONTINUOUS ABSOLUTE POWER

IsoTek delivers absolute power, unrestricted current delivery within what the power company can supply and regulations allow. Generally for power amplifiers or high wattage electronics IsoTek provides output which offers extremely low impedance and low DCR, this completely eliminates (within the concepts of power filtering) any possibility of current restriction and enhances dynamic range, the impedance of the chain back to the power station being far larger. When power is contaminated dynamic range is reduced.

It is impossible to get more than 100% out of the mains supply. The very principle of AC power is that it doesn't store energy in the transmission system. It is therefore impossible to store energy in an AC system by the very principles by which it works. There can be no so-called power reserve, thus a power reserve within an AC circuit in the truest sense of the word does not and cannot exist.



CONTINUOUS ABSOLUTE POWER

Power reserve would require the voltage to increase as ohms law insists it must, saying a circuit doesn't sag isn't a reserve of power. The AC waveform goes between maximum and minimum points at 50 Hz in 10 mS, it then swings to the maximum negative value. At 20 mS a full cycle is achieved. Therefore, in fact the average values of an AC waveform is zero. Only as a power wave can it be positive, this is due to the law of squared negatives. It looks like a ballooned sine wave where the value of 45 degrees is 0.5 not 0.7071 from a trigonometric table. Were this only a voltage wave it would have a long-term value of zero! As far as energy storage is concerned zero is the value of stored energy.

Direct Current resistance (DCR) will cause sag. To put it in other words, a system has to be developed which does not limit the power reserve of the power station, meaning a circuit needs to have extremely low resistance whilst maintaining sufficiently high inductance. When done correctly and in perfect balance the inductance is virtually zero at 50/60 Hz and the Direct Current resistance (DCR) is also very close to zero. Therefore an ideal filter circuit must maintain zero Ohms resistance DC (or very close) and considerable AC resistance to noise above 50/60 Hz. Despite statements to the contrary, this is precisely where correctly specified materials matter most. Whilst some might consider these 'exotic' they represent a critical and important part of the function and appropriate to use. Remarkably IsoTek filter designs can maintain very low resistance at 50/60Hz but have very high amounts of noise cancellation above that frequency.

Most AC circuits are reactive – produce a reaction either from the power drawn or the circuit itself, but simply they are not pure resistors and behave like a capacitance and resistance or an inductance and resistance. In an ideal world the only allowable impediment is resistance and ideally this needs to be extremely low. A dilemma, do you want high transient power or do you want heavy filtration – amazingly you can have both, but one must have components of the very highest quality, which are designed specifically for purpose with totally correct architecture. This is extremely complex and has resulted in the design of specialist parts; these do not exist outside the world of specialist power engineering and are unique to IsoTek designs.



3 YEAR WARRANTY

As part of our on-going commitment to the highest standards of customer service, IsoTek offers you the opportunity to extend the standard 2 years product warranty to 3 years, free of charge.

Simply **REGISTER YOUR PURCHASE** with IsoTek. We do not share your personal details with any third parties without your permission.



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