INTRINSICALLY SAFE POWER SUPPLIES (Exeq)

with 3Ahr Battery Back-up

INSTALLATION & OPERATING DATA

ATEX
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DESIGNED TO CONVERT AC SUPPLY VOLTAGE INTO A STABILISED AND REGULATED I.S. SOURCE FOR SUPPLYING POWER TO APPROVED SENSORS AND ELECTRONIC CONTROL DEVICES

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ISSUE D 09/07

1 PRINCIPAL OPERATING FEATURES

The TX6648 Power Supply will convert an ac supply voltage into a stabilised and regulated Intrinsically Safe source for supplying power to approved sensors and electronic control devices.

- Input voltage options: 110V ac, 230V ac
- The input supply is protected by two primary fuses.
- Integral 3Ahr back-up battery.
- There is a choice of Intrinsically Safe output voltage: 12V dc or 7.5V dc.
- The output circuit is resistively limited in accordance with certification standards for Intrinsically Safe, ia, equipment.
- The output circuit incorporates voltage regulation, current limiting and continuous short circuit protection.
- Robust stainless steel housing.
- 3Ahr back-up battery with automatic uninterrupted power transfer and unrestricted charge to full capacity.
- Output contact to signal power failure.
- Analogue output signal to indicate charge condition.
- Battery conserve timer for use on mobile machinery.

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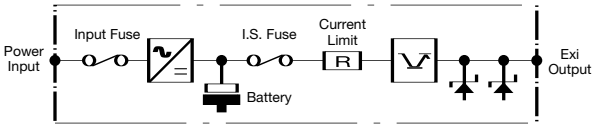
2 TECHNICAL DETAILS

Input Voltage:	110V ac or 230V ac. 50/60Hz
Output Voltage:	7.5V dc ±0.2V or 12V dc ±0.2V
Output Current:	1A
Output Ripple/Noise:	150mV max.
Line Regulation:	<5% over the input voltage range.
Load Regulation:	Better than 5% over 10% of load current (–10% at full load).
Voltage Limiting:	Over voltage detection with fuse rupturing 'crowbar' protection and short circuit protection.
Current Limiting:	Automatic current limiting to the intrinsically safe output also limits the current to less than the rupturing capacity of the output protection fuse. 'Reset' the power supply by removing the output load and then reconnecting.
Max. Operating Temperature:	–20°C...+40°C.
Storage Temperature:	–20°C...+70°C.
Humidity:	0...95% RH, non-condensing.
Vibration Limits/Low Frequency:	0.25mm pk, sinusoidal vibration in the range 10Hz to 100Hz in 3 perpendicular planes.
Medium Frequency:	2g pk, sinusoidal vibration in the range 10Hz to 600Hz in 3 perpendicular planes.
Mechanical Shock:	1000 shocks of 40g minimum in 3 perpendicular planes.
Housing Material:	Stainless Steel.
Back-up Battery:	• Sealed lead/acid. 3Ahr max. • Automatic unrestricted charge control to full capacity. • Automatic uninterrupted power transfer on power failure.
Power Fail Indication:	Output contact opens on Power Failure. Contact rating: 0.5Ahr 30V dc max.
Charge Condition:	4...20mA output signal proportional to the charge level of the battery.



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3 CONFORMITY CHECK

110V ac • 230V ac

- Does the supply voltage marked on the product agree with the locally available supply?

1.0A

- Check that the output current rating marked on the product is adequate for the total current demand of the system being installed.

Exi Group I

- Ensure that the Power Supply certification details are fully compliant with the monitoring system requirements.
  If in any doubt, please contact the Trolex Sales department.

7.5V dc *or* 12V dc

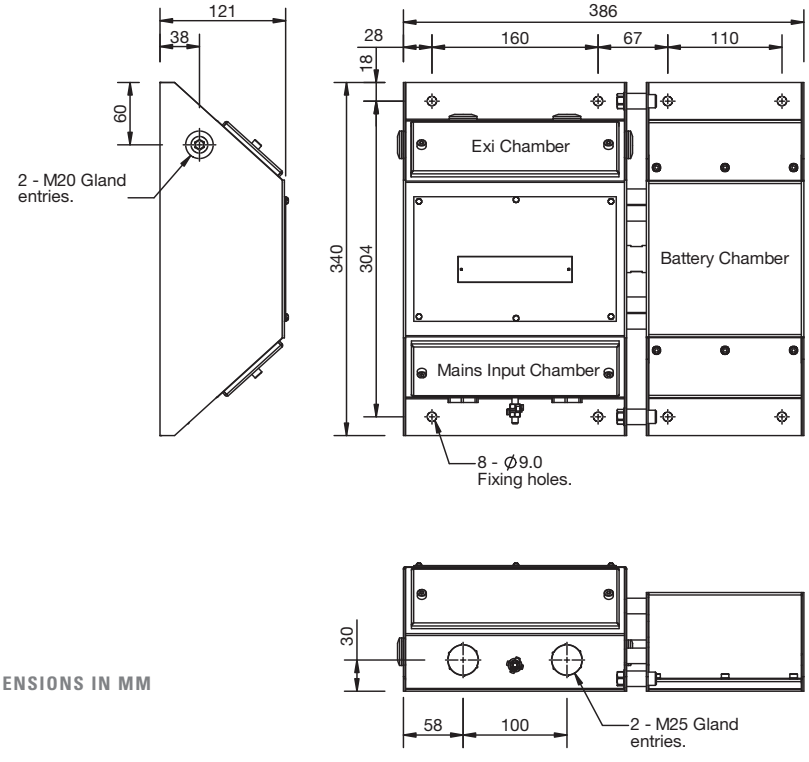
- Is the output voltage correct for the system being used?

OPTIONS AVAILABLE

**TX6648 INTRINSICALLY SAFE POWER SUPPLY (Exeq)
with 3Ahr Battery Back-up**

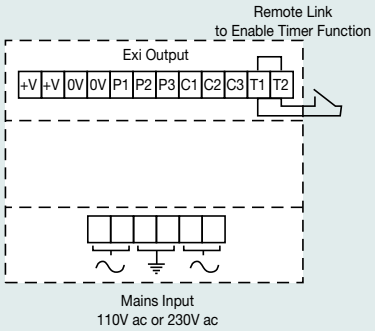
Input Voltage Options:		Output Voltage Options:	
110V ac	(.105)	7.5V dc Exi	(.109)
230V ac	(.106)	12V dc Exi	(.101)

4 DIMENSIONS



ALL DIMENSIONS IN MM

5 CONNECTIONS



P1 = C
P2 = N/C
P3 = N/O
} Power Fail Relay

C1 = 0.4...2V
C2 = 0V
C3 = 4...20mA
} Charge Condition Monitor Output

T1
T2
} Timer Control Terminals

6 BATTERY CONSERVE TIMER

The TX6648 Power Supply is fitted with a Battery Conserve Timer.
The timer is used to conserve battery power when used on mobile machinery where battery support will only be required for short intervals between long periods.

- The battery will be charged in the normal way when the main power is ON.
- The battery back-up will be terminated 30 minutes after the main power is OFF.
- The battery back-up may be re-instated at any time for a period of 30 minutes by operation of a pushbutton on the side of the power supply housing, or a remote pushbutton connected to T1 and T2.
- The timer is disabled by fitting a link between T1 and T2.

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7 PRECAUTIONS

- Ensure that all covers on Exe housings and their fixing devices are properly secured in compliance with statutory regulations before switching on the input supply.
- Never remove the cover of an Exe housing whilst the input supply is connected. Isolate elsewhere before removing the cover in accordance with statutory regulations.
- The housing of all power supplies must be securely earthed in compliance with statutory regulations.
- Carry out a current consumption audit to ensure that the maximum current loading of the power supply is not exceeded.
- Ensure that the installation of the power supply, particularly with regard to the connecting cables, complies with the certification parameters (section 8).

Refer to Section 8

- The Exe housing must be inspected and maintained regularly in accordance with statutory regulations.
- All cables entering the mains input terminal chamber must be terminated with suitable, certified cable entry devices.
- Do not drill holes in the Exe housing or modify it in any way.
- The battery contains corrosive substances and must be disposed of in the correct way.
  Please return the complete unit to Trolex or an approved distributor for servicing and replacement.

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8 APPROVALS AND CERTIFICATION

8.1 Certification

The TX6648 Power Supply is designed and approved meet the ATEX directive (94/9/EC).

Sira 02ATEX3418

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8.2 Electro Magnetic Compatibility

The TX6648 Power Supply is designed and tested to meet the requirements of the EMC directive (89/336/EC).

8.3 Low Voltage

The TX6648 Power Supply is designed and tested to meet the requirements of the Low Voltage directive (73/23/EC).

8.4 Certification Parameters

TX6648.106.101 (230V ac, 12V dc, 1.0A)
TX6648.105.101 (110V ac, 12V dc, 1.0A)

Um = 250V ac rms
Uo = 12.0V
Io = 1.76 A
Co = 30.29µF
Lo/Ro = 36.17µH/
Po = 12.73W

TX6648.106.109 (230V ac, 7.5V dc, 1.0A)
TX6648.105.109 (110V ac, 7.5V dc, 1.0A)

Um = 250V ac rms
Uo = 7.5V
Io = 1.76 A
Co = 560.0µF
Lo/Ro = 36.17µH/
Po = 10.63W

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8 APPROVALS AND CERTIFICATION continued

8.5 Compliance with ATEX Directives

GB

Instructions specific to hazardous area installations (reference European ATEX Directive 94/9/EC, Annex II, 1.0.6.)

The following instructions apply to equipment covered by certificate numbers Sira 02ATEX3418:

1. The TX6648 (Sira 02ATEX3418) may be located in a hazardous area with flammable gases and vapours with Group I apparatus.
2. The equipment is only certified for use in ambient temperatures in the range –20°C...+55°C and should not be used outside this range.
3. Installation shall be carried out in accordance with the applicable code of practice by suitably trained personnel.
4. Replacement of fuses or repair of this equipment shall be carried out in accordance with the applicable code of practice.
5. Certification marking as detailed in drawing numbers P5531.09 (TX6641).
6. If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

Aggressive Substances - e.g. acidic liquids or gases that may attack metals or solvents that may affect polymeric materials.

Suitable Precautions - e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals.

D

Bedingungen für die Installation in explosionsgefährdeten Räumen (Europäische ATEX-Richtlinie 94/9/EC, Zusatz II, 1.0.6.)

Die folgenden Bedingungen gelten für Geräte mit den Zertifikationsnummern Sira 02ATEX3418:

1. Das TX6648 (Sira 02ATEX3418) kann mit Geräten der Gruppe I in explosionsgefährdeten Bereichen, in denen entflammbare Gase und Dämpfe präsent sind, positioniert werden.
2. Das Gerät ist nur für den Einsatz bei Umgebungstemperaturen von –20°C bis +55°C zertifiziert und darf außerhalb dieses Bereiches nicht eingesetzt werden.
3. Installation muss nach den jeweils geltenden Betriebsvorschriften von qualifizierten Personen vorgenommen werden.
4. Wechseln von Sicherungen und Reparaturen müssen nach den jeweils geltenden Betriebsvorschriften ausgeführt werden.
5. Zertifikationsmarkierungen entsprechen Zeichnungsnummern P5531.09 (TX6641).
6. Falls die Gefahr besteht, dass das Gerät mit aggressiven Substanzen in Kontakt kommt, obliegt es dem Benutzer, entsprechende Maßnahmen zu treffen, dass es nicht beschädigt und der Geräteschutz nicht beeinträchtigt wird.

Aggressive Substanzen - z.B. säurehaltige Flüssigkeiten oder Gase, die Metalle angreifen, bzw. Lösungsmittel die Polymerstoffe zersetzen.

Geeignete Vorkehrungen - z.B. regelmäßige Kontrollen als Teil von Routineinspektionen bzw. anhand von Materialdatenblättern ermitteln, ob es gegen bestimmte Chemikalien resistent ist.

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7 APPROVALS AND CERTIFICATION continued

E

Instrucciones especificas para instalaciones en áreas peligrosas (con referencia a la Directiva Europea ATEX 94/9/CE, anexo ii,1.0.6)

Las siguientes instrucciones son aplicables a los equipos cubiertos por los certificados Sira 02ATEX3418:

1. El TX6648 (Sira 02ATEX3418) puede ser ubicado en un área peligrosa con gases inflamables y vapores, con aparatos del Grupo I.
2. El equipo solo está certificado para ser utilizado en temperaturas ambientes en un margen dentro de los –20°C y +55°C y no deberá ser utilizado fuera de este margen.
3. La instalación deberá ser realizada de acuerdo con el correspondiente código de práctica y por personal adecuadamente entrenado.
4. El reemplazo de fusibles o la reparación de este equipo deberá ser realizada de acuerdo con el correspondiente código de práctica.
5. Marcas de certificación como se detalla en el trazado número P5531.09 (TX6641).
6. Si existe alguna posibilidad de que el equipo entre en contacto con substancias agresivas, será la responsabilidad del usuario el tomar precauciones que lo prevengan de ser afectado desfavorablemente, y por consiguiente asegurarse de no arriesgar el tipo de protección.

Substancias Agresivas - por ejemplo, líquidos acídicos o gases que puedan atacar metales, o solventes que puedan afectar materiales poliméricos.

Precauciones adecuadas - por ejemplo revisaciones periódicas como parte de la inspección de rutina o verificando mediante la hoja de datos del material, que sea resistente a ciertos químicos específicos.

NL

Instructies met specifieke betrekking op installaties voor gevaarlijke ruimten (naar Europese ATEX Richtlijn 94/9/EC, Bijlage II, 1.0.6.)

De volgende instructies zijn van toepassing op onder Certificaat nummer Sira 02ATEX3418:

1. De TX6648 (Sira 02ATEX3418) mag in een gevaarlijke ruimte met vlambare gassen en dampen worden ondergebracht met apparatuur van Groep I.
2. De apparatuur is alleen officieel geschikt verklaard voor gebruik bij een omgevingstemperatuur tussen –20°C en +55°C en mag niet gebruikt worden buiten deze minimum- en maximumtemperaturen.
3. Installatiewerkzaamheden dienen uitgevoerd te worden door geschikt opgeleid personeel in overeenstemming met de van toepassing zijnde praktijkcode.
4. Het vervangen van smeltveiligheden en reparatiewerkzaamheden dienen uitgevoerd te worden in overeenstemming met de van toepassing zijnde praktijkcode.
5. Markering van de certificering volgens Tekening P5531.09 (TX6641).
6. Als het waarschijnlijk is dat de apparatuur in aanraking zal komen met agressieve stoffen, dan is het de verantwoordelijkheid van de gebruiker om geschikte voorzorgsmaatregelen te nemen om te voorkomen dat de apparatuur aangetast wordt en er zo voor te zorgen dat het type bescherming niet in gevaar gebracht wordt.

Agressieve stoffen – bijv. zure vloeistoffen of gassen die metalen kunnen aantasten ofwel oplossingen die een vergelijkbaar effect kunnen hebben op polymeren stoffen.

Geschikte voorzorgsmaatregelen – bijv. regelmatig controleren als onderdeel van routine inspecties of naar aanleiding van het gegevensblad voor materialen vaststellen dat het materiaal tegen bepaalde chemicaliën kan.

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7 APPROVALS AND CERTIFICATION continued

N

Spesifikk informasjon for installasjoner i eksplosjonsfarlige områder (ref. Europeisk ATEX Direktiv 94/9/EC, Bilag II, 1.0.6.)

Følgende instrukser gjelder for utstyr dekket av sertifikatnummer Sira 02ATEX3418:

1. TX6648 (Sira 02ATEX3418) kan plasseres på et eksplosjonsfarlig område med brannfarlige gasser og damp med Gruppe 1 apparater.
2. Utstyret er kun sertifisert for bruk i omgivelsestemperaturer fra –20ºC til +55ºC og må ikke brukes utenfor disse temperaturområdene.
3. Innstallering må utføres av kompetent personale ifølge gjeldende regler.
4. Utskifting av sikringer eller reparasjoner på dette utstyret må kun utføres ifølge gjeldende regler.
5. Sertifiseringsmerkingen vises på tegninger nummer P5531.09 (TX6641).
6. Hvis utstyret sannsynligvis vil komme i kontakt med aggressive stoffer så er det brukerens ansvar å ta passende forholdsregler for å unngå at det blir skadet, og således sikre at beskyttelsen ikke forringes.

Aggressive stoffer - f.eks. etsende væsker og gasser som kan angripe metaller eller løsemidler som kan påvirke polymeriske materialer.

Passende forholdsregler - f.eks. regelmessig inspeksjon som en del av rutinesjekking eller fastslå fra materialets dataark at det er motstandsdyktig mot aktuelle kjemikalier.

I

Norme specifiche alle installazioni in zone a rischio (riferimento Direttiva Europea ATEX 94/9/EC, Allegato II, 1.0.6.)

Le norme che seguono si applicano alle apparecchiature disciplinate dai certification. Sira 02ATEX3418:

1. Il tipo TX6648 (Sira 02ATEX3418) può essere sistemato in una zona a rischio con gas e vapori infiammabili con apparecchiature del Gruppo I.
2. L'apparecchio è certificato solo per l'utilizzo ad una temperatura ambiente compresa tra –20°C e +55°C e non deve essere usato al di fuori di questo campo.
3. L'installazione deve essere eseguita in conformità al codice di procedura pertinente da personale opportunamente addestrato.
4. La sostituzione dei fusibili o la riparazione di questo apparecchio devono essere eseguite in conformità al codice di procedura pertinente.
5. La marcatura di certificazione è quella indicata sui disegni numero P5531.09 (TX6641).
6. Se è probabile che l'apparecchio venga a contatto con sostanze aggressive, è compito dell'utente prendere precauzioni idonee a impedire che ne sia attaccato, garantendo così che il tipo di protezione non venga compromesso.

Sostanze aggressive sono, ad esempio, liquidi o gas acidi che possono attaccare i metalli, o solventi che possono colpire i materiali polimerici.

Precauzioni idonee sono, ad esempio, controlli regolari che fanno parte di ispezioni ordinarie, o informazioni reperite dalla scheda tecnica del materiale che confermino che è resistente a prodotti chimici specifici.

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PROTECTING THE ENVIRONMENT

Many of our products are often used to monitor the quality of environmental conditions consequently Trolex is also particularly aware of the need to protect human health and the environment in which we live.

The Company has instituted a radical environment protection policy to ensure that all aspects of our manufacturing programme have the minimum possible detrimental impact on the environment. This covers all stages beginning with sustainable product design supported by careful selection of the materials used in their production, through to managed recovery and disposal at the end of the useful life of a product.

This policy also incorporates the principles of the Waste Electrical and Electronics Equipment (WEEE) directive, and the associated Restriction of Hazardous Substances (RoHS) directive, to be implemented in EU countries.

Progress is already well advanced on the introduction of a completely new range of products that maximise the central principle of sustainable design with the intention of reducing the end-of-life cost to the end user.

All Trolex products are manufactured to exacting standards in accordance with our stringent quality control ethos. Having chosen to use one of our products will, in itself, guarantee extended durability and a long operating life, endorsed by our commitment to recycling and recovery.

- All packaging materials are carefully selected to be bio-degradable or re-cycleable where possible.
- All plastic materials are identified for recycling purposes and re-cycled materials are used where it is possible to do so.
- Printing paper and material are sourced from suppliers that have a declared environmental management system.
- Product design centred around high quality and long term durability. Modular architecture both in construction and software design suitable for future upgrades and adaptability to alternative duty.
- Ease of product disassembly, minimisation of fixing devices, and clear separation of functional parts to benefit re-use and re-cycling.
- Control and monitoring of suppliers of components and sub-assemblies. Deal only with suppliers that have a defined commitment to environmental monitoring principles.
- Control the use of restricted substances within the design process. Deal only with suppliers that have a defined commitment to the control of restricted substances.
- Provide an efficient high speed service within Trolex for repair, refurbishing and conversion of products for alternative duty.
- Provision of an end-of-life product Take-back service for recovery, re-use, and recycling of electrical and electronic components. Retain the packaging of a new product and re-use it to return the device to us at the end of its working life. Trolex will guarantee to recover all materials and components, where practicable and arrange for them to be re-cycled in an appropriate and in a safe manner.

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