

TX6641/TX6642 INTRINSICALLY SAFE POWER SUPPLIES (Ex i)



INSTALLATION & OPERATING DATA

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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INSTALLATION & OPERATING DATA

1 PRINCIPAL OPERATING FEATURES

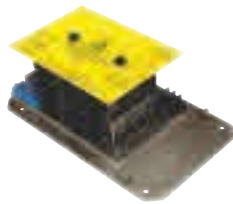
The TX6641 Power Supply will convert an ac supply voltage into a stabilised and regulated Intrinsically Safe source for supplying power to approved sensors and electronic control devices.

Input voltage options: 110 V ac or 230 V ac

The input supply is protected by two primary fuses.

The output circuit is resistively limited in accordance with certification standards for Intrinsically Safe, ia, equipment.

The TX6641 Power Supply Chassis may be fitted and wired into an existing Exd housing (specific system certification may also be required) or into a standard protective housing that is in a SAFE AREA.



The TX6642 version is the TX6641 Series Power supply mounted in a Trolex Exd housing for use in a



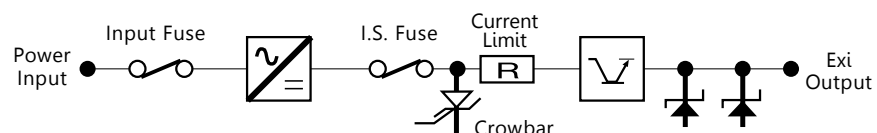
Group I hazardous area.

Intrinsically Safe isolation relays may be supplied with all versions for switching control currents emanating from

other Ex d enclosures or high voltage systems.

2 TECHNICAL DETAILS

Input Voltage:	110 V ac or 230 V ac, 50/60 Hz
Output Voltage:	12 V dc $\pm_{0.6V}^{0.0V}$
Output Current:	900 mA
Output Ripple/Noise:	150 V 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 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 to +40°C.
Storage Temperature:	-20°C to +70°C.
Humidity:	0 to 95% RH, non-condensing.
Vibration Limits/Low Frequency:	0.25 mm pk, sinusoidal vibration in the range 10 Hz to 100 Hz in 3 perpendicular planes.
Medium Frequency:	2 g pk, sinusoidal vibration in the range 10 Hz to 600 Hz in 3 perpendicular planes.
Mechanical Shock:	1000 shocks of 40 g minimum in 3 perpendicular planes.



INSTALLATION & OPERATING DATA

3 CONFORMITY CHECK

110 V ac 230 V ac

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

Refer to Section 4.1

900 mA

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

Refer to Section 6

Ex d or Safe Area

Is the Power Supply mounted in the correct enclosure for the application?

Ex i 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.

12 V dc

Is the output voltage correct for the system being used?

12 V dc

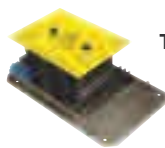
If isolating relays are fitted, is the voltage rating of the coils correct?

Refer to Section 5

If isolating relays are fitted, are the relay parameters suitable for the load being switched?

Refer to Section 5

OPTIONS AVAILABLE



TX6641 INTRINSICALLY SAFE POWER SUPPLY CHASSIS
(Supplied loose, ready for fitting and wiring)



TX6642 INTRINSICALLY SAFE POWER SUPPLY
in Ex d Housing

Input Voltage Options:

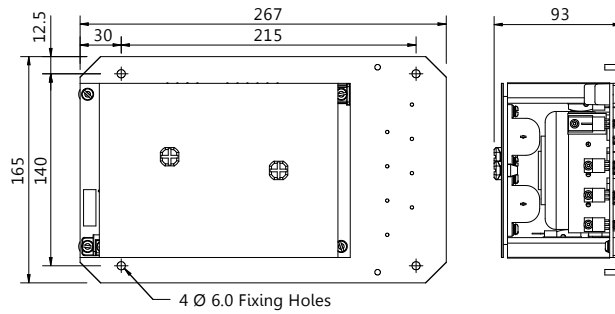
110 V ac (.105)

230 V ac (.106)

INSTALLATION & OPERATING DATA

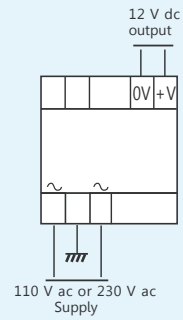
4 DIMENSIONS

4.1 TX6641 INTRINSICALLY SAFE POWER SUPPLY CHASSIS

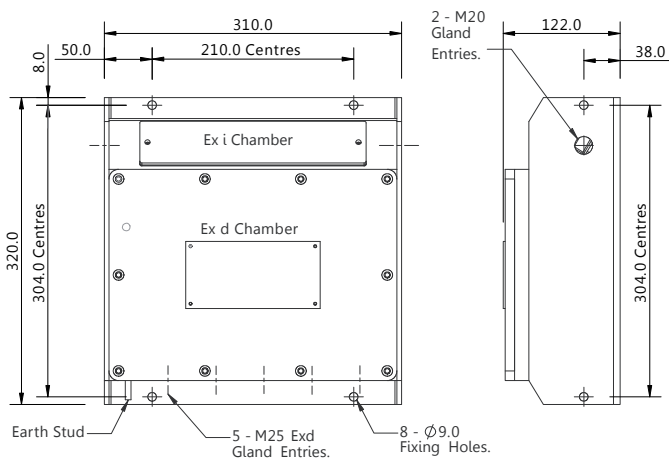


ALL DIMENSIONS IN MM

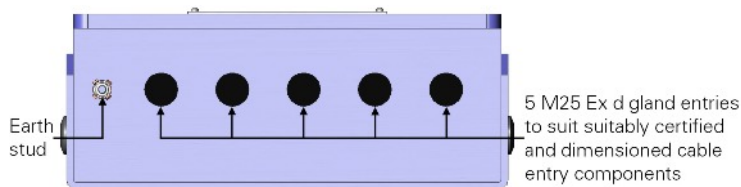
Connections



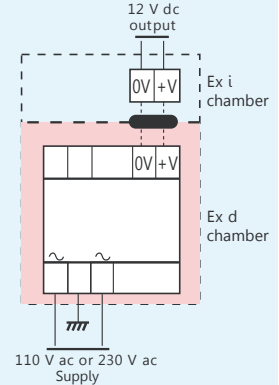
4.2 TX6642 INTRINSICALLY SAFE POWER SUPPLY in Ex d HOUSING



ALL DIMENSIONS IN MM



Connections



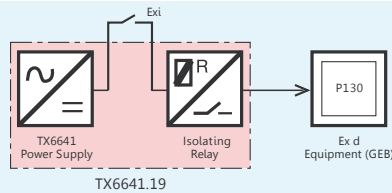
Current Limiting: Automatic current limiting to the intrinsically safe output also limits the current to less than the rupturing capacity of the output protection fuse. 'Reset' the power supply by removing the output load and then reconnecting.

INSTALLATION & OPERATING DATA

5 ISOLATING RELAYS



Isolating relays may be combined with a TX6641 Power Supply. The operating coils of the relays are Intrinsically Safe and the contacts are clearance compatible for switching non-intrinsically safe apparatus or devices in separate Ex d enclosures (eg. P130 pilot circuits).



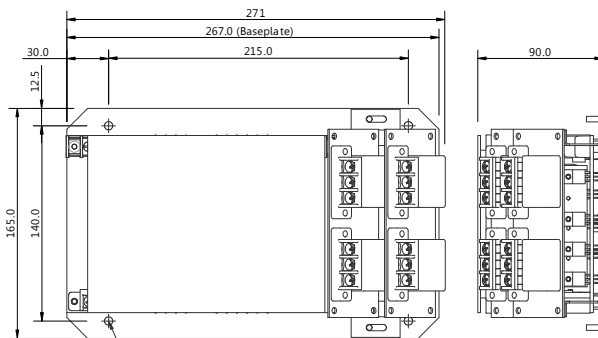
A standard power supply chassis is fitted and wired with four independent relays with field connection facilities for coils and contacts.

5.1 Technical Details

	TX6641.19
Quantity of Relays	4
Contact Type	One changeover
Contact Rating	5 A, 230 V ac
Coil Resistance	460 Ohms
Coil Voltage	12 V dc
Current Consumption (each)	26 mA

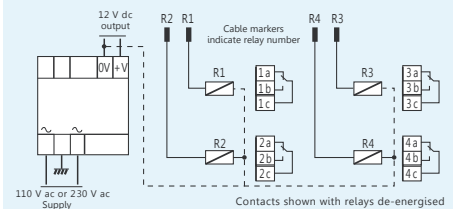
5.2 Dimensions

5.2.1 TX6641.19 INTRINSICALLY SAFE POWER SUPPLY CHASSIS, with 4 ISOLATING RELAYS

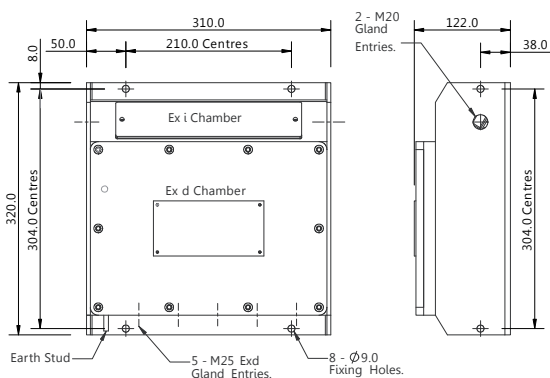


ALL DIMENSIONS IN MM

Connections

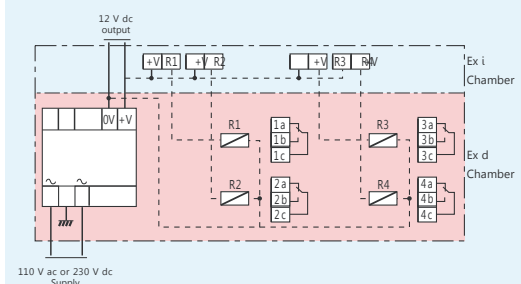


5.2.2 TX6642.19 INTRINSICALLY SAFE POWER SUPPLY in Ex d HOUSING, with 4 ISOLATING RELAYS



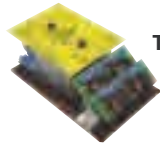
ALL DIMENSIONS IN MM

Connections



5 ISOLATING RELAYS continued

5.2.3 OPTIONS AVAILABLE



TX6641.19 INTRINSICALLY SAFE POWER SUPPLY CHASSIS with 4 Isolating Relays



TX6642.19 INTRINSICALLY SAFE POWER SUPPLY in Ex d Housing with 4 Isolating Relays

Input Voltage Options:

110 V ac (.105)

230 V dc (.106)

6 PRECAUTIONS

Ensure that all covers on Ex d housings and their fixing devices are properly secured in compliance with statutory Ex d regulations before switching on the input supply.

Never remove the cover of an Ex d 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

Ex d housings must be inspected and maintained regularly in accordance with statutory regulations.

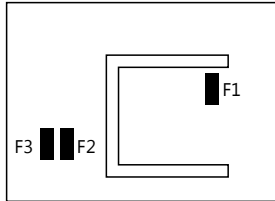
Use only the correct Trolex replacement fuses (section 7). Do not substitute any form of equivalent or linking device.

Refer to Section 7

The TX6641 Ex i Power Supply must be mounted in an approved Ex d housing when located in a hazardous area.

All cables entering the Ex d housing must be terminated with suitable Ex d certified cable glands.

7 ACCESSORIES



REPLACEMENT FUSES

1A versions

F1 = 5.0 A (F) Type S#401.0070

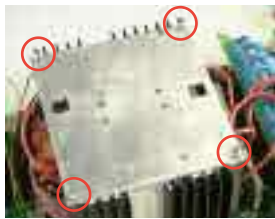
F2 = 3.15 A (T) Type S#401.0062

F3 = 3.15 A (T) Type S#401.0062



TO REPLACE A FUSE

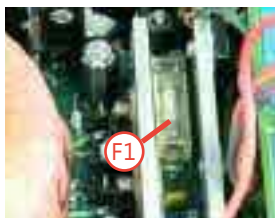
Release quarter-turn fasteners and remove label



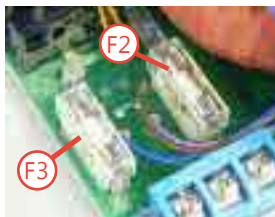
Remove 4 M2.5 countersunk head screws to allow removal of the top plate assembly.



Place the top plate assembly to one side taking care not to strain the connecting wires to the printed circuit board.



All the fuses are now accessible.



7 ACCESSORIES continued



To change a fuse, the fuse cover must be removed to gain access to the fuse holder.



Remove the blown fuse and replace it with a good one.
Note: The transformer securing screw may have to be loosened to enable F4 fuse cover to be removed.

Ensure that the transformer securing screw is re-tightened.



All fuse covers must be replaced.



Replace top head cover assembly and secure with the 4 M2.5 countersunk head screws.

Re-fit the label plate.

8 APPROVALS AND CERTIFICATION

8.1 TX6641

8.1.1 Europe (ATEX)



Ex Certificate number: SIRA 01ATEX2229X
 Ex Certification code: I (M1) [Ex ia Ma] I (Ta = -20°C to +55°C)

Specific Conditions of Use:

1. The TX6641 Power Supply Chassis shall be housed in an enclosure in accordance with the following criteria:
 - 1.1 Safe area applications: The enclosure shall have an ingress protection of at least IP20 and the circuits of the TX6641 shall have infallible creepage and clearance distances to the enclosure walls, as defined by clause 6.3 of EN 60079-11:2007.
 - 1.2 Hazardous area applications: The enclosure shall be certified and suitable for use in hazardous area application; the arrangement of the TX6641 with the enclosure shall be re-certified by a notified body.
2. The connections to the relay boards must both be configured as either Option 1 or Option 2. It is not permitted to mix the connection of these relays.
3. The wiring carrying non-hazardous area circuits to the relays must be routed to ensure that they are segregated from hazardous area circuits, maintaining compliance with Table 5 of EN 60079-11:2007, namely 6 mm of clearance through air and/or 1 mm clearance through solid insulation.

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.



ATEX Directive (94/9/EC)
 EMC Directive (2004/108/EC)



8 APPROVALS AND CERTIFICATION *continued*

8.1 TX6641 *continued*

8.1.2 International (IECEX)



Ex Certificate number: IECEx SIR 10.0107X
 Ex Certification code: [Ex ia Ma] I (Ta = -20°C to +55°C)

Conditions of Certification:

1. The TX6641 Power Supply Chassis shall be housed in an enclosure in accordance with the following criteria:
 - 1.1 Safe area applications: The enclosure shall have an ingress protection of at least IP20 and the circuits of the TX6641 shall have infallible creepage and clearance distances to the enclosure walls, as defined by clause 6.3 of IEC 60079-11:2006.
 - 1.2 Hazardous area applications: The enclosure shall be certified and suitable for use in hazardous area application; the arrangement of the TX6641 with the enclosure shall be re-certified by a notified body.
2. The connections to the relay boards must both be configured as either Option 1 or Option 2. It is not permitted to mix the connection of these relays.
3. The wiring carrying non-hazardous area circuits to the relays must be routed to ensure that they are segregated from hazardous area circuits, maintaining compliance with Table 5 of IEC 60079-11:2006, namely 6 mm of clearance through air and/or 1 mm clearance through solid insulation.

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

8.1.3 Russia (GOST-R)



Ex certificate number: POCC GB.ME92.B02881

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate for any special conditions for safe use. The user must ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.



8 APPROVALS AND CERTIFICATION *continued*

8.1 TX6641 *continued*

8.1.4 South Africa (MASC)



Ex certificate number: MASC M/11-313X
 Ex Certification code: [Ex ia Ma] I (Ta = -20°C to +55°C)

Specific Conditions of Use:

1. The TX6641 Power Supply Chassis shall be housed in an enclosure in accordance with the following criteria:
 - 1.1 Safe area applications: The enclosure shall have an ingress protection of at least IP20 and the circuits of the TX6641 shall have infallible creepage and clearance distances to the enclosure walls, as defined by clause 6.3 of EN 60079-11:2007.
 - 1.2 Hazardous area applications: The enclosure shall be certified and suitable for use in hazardous area application; the arrangement of the TX6641 with the enclosure shall be re-certified by a notified body.
2. The connections to the relay boards must both be configured as either Option 1 or Option 2. It is not permitted to mix the connection of these relays.
3. The wiring carrying non-hazardous area circuits to the relays must be routed to ensure that they are segregated from hazardous area circuits, maintaining compliance with Table 5 of EN 60079-11:2007, namely 6 mm of clearance through air and/or 1 mm clearance through solid insulation.

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

8.1.5 Australia (ANZEx)



Ex Certificate number: ANZEx 14.3006X
 Ex Certification code: [Ex ia] I (Ta = -20°C to +55°C)

Conditions of Safe Use:

1. The TX6641 Power Supply Chassis shall be housed in a suitably certified Ex d enclosure when used in a hazardous area. When used in a non-hazardous area it must be housed inside an enclosure that affords a degree of protection of at least IP20.
2. The TX6641 circuits must have infallible creepage and clearance distances to the enclosure walls, as defined by clause 6.3 of IEC 60079-11.
3. The connections to the relay boards must both be configured as either to IS circuits or non-IS circuits. It is not permitted to mix the connection of IS and non-IS circuits to these relays.
4. The wiring carrying non-hazardous area circuits to the relays must be routed to ensure that they are segregated from hazardous area circuits, maintaining compliance with Table 5 of IEC 60079-11:2011, namely 6 mm of clearance through air and/or 1 mm clearance through solid insulation.

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.



8 APPROVALS AND CERTIFICATION *continued*

8.2 TX6642

8.2.1 Europe (ATEX)



Ex Certificate number: SIRA 01ATEX1230
Ex Certification code: I M2 (M1) EEx d [ia] I (Ta = -20°C to +55°C)

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

8.2.2 Russia (GOST-R)



Ex Certificate number: POCC GB.ME92.B02881

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate for any special conditions for safe use. The user must ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

8.2.3 Australia (ANZEx)



Ex Certificate number: ANZEx 14.3001X
Ex Certification code: Ex d [ia] I Mb (Ta = -20°C to +55°C)

Conditions of Safe Use:

1. It is a condition of specific use that the flamepath dimensions will be maintained in accordance with dimensions detailed in drawing P5531.02.02.
2. The installation entry to the main compartment shall be via suitably Ex d certified cable gland components.
3. It is a condition of the certificate that all conditions listed in ANZEx 14.3006X shall be applied.

General Conditions of Use:

1. Prior to installation, it is essential that user refers to the above certificate for any special conditions for safe use. The user must ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.



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