



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx CML 15.0050X Issue No: 0 Certificate history:
Issue No. 0 (2015-08-27)

Status: **Current** Page 1 of 3

Date of Issue: **2015-08-27**

Applicant: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**
Newby Road
Hazel Grove
Stockport
SK7 5DA
United Kingdom

Electrical Apparatus: **Type TX4789 Slip Ring Unit**
Optional accessory:

Type of Protection: **Flameproof, Increased Safety**

Marking:
Ex db eb IIA T6 Gb, Tamb = -20°C to +50°C

Approved for issue on behalf of the IECEx
Certification Body:

D R Stubbings MIET

Position:

Technical Director

Signature:
(for printed version)

Date:

2015-08-27

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Certification Management Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port
CH65 4LZ
United Kingdom



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SUBJECT TO AMENDMENTS

T.E.L. ENGINEERING LIMITED



IECEX Certificate of Conformity

Certificate No: IECEX CML 15.0050X Issue No: 0

Date of Issue: 2015-08-27 Page 2 of 3

Manufacturer: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**
Newby Road
Hazel Grove
Stockport
SK7 5DA
United Kingdom

Additional Manufacturing
location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-1 : 2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-7 : 2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition:5.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/CML/ExTR15.0054/00](#)

Quality Assessment Report:

[GB/BAS/QAR08.0003/05](#)

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T.E.L. ENGINEERING LIMITED



IECEx Certificate of Conformity

Certificate No: IECEx CML 15.0050X

Issue No: 0

Date of Issue: **2015-08-27**

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Type TX4789 Slip Ring Unit is rated at up to 500 Vac, and 250 A, with a 10 A maximum on an individual ring circuit.

The main flameproof compartment comprises of a rotating cylindrical enclosure and a static inner cylindrical wall. There is a increased safety terminal compartment mounted to the side of the unit. For full description, refer to certificate Annex.

CONDITIONS OF CERTIFICATION: YES as shown below:

Refer to certificate Annex

Annex:

[IECEx CML 15.0050X Certificate Annex Issue 0.pdf](#)



Annexe to: IECEx CML 15.0050X Issue 0
Applicant: T.E.L. Engineering Limited
(Trading as Trolex Engineering)
Apparatus: Type TX4789 Slip Ring Unit

Description

The Type TX4789 Slip Ring Unit is rated at up to 500 Vac, and 250 A, with a 10 A maximum current on an individual ring circuit.

The unit is fabricated from stainless steel and comprises of a rotating cylindrical enclosure and a static inner cylindrical wall. The unit pivots on two rolling element bearings with separate seals, mounted at each end. The unit is provided with six M16 threaded holes for fitting to a mounting stool at the bottom end.

The top end bearing cap is mounted by sixteen M8 screws and forms a flanged flamepath against the cylindrical enclosure. The inner cylindrical wall forms a cylindrical flamepath against the top end bearing cap and has a retaining ring secured by sixteen M6 bolts.

At the bottom end of the unit, the bearing housing is fitted to the cylindrical enclosure by twenty M8 screws entering from the top side of the unit, and forming a flanged flamepath. The bottom end bearing cap is fitted to the bearing housing by twenty M8 screws, also forming a flanged flamepath. A cylindrical flamepath is formed between the bottom end bearing cap and the inner cylindrical wall.

The area in the centre of the inner cylindrical wall/stator is outside the flameproof enclosure on these units.

A maximum of eight M20 and one M32 threaded entries into the flameproof enclosure are provided on the bottom face of the inner cylindrical wall/stator.

Four stainless steel bolt-on access covers are fitted to rectangular facings welded to the cylindrical surface. The two smaller covers are bolted with ten M8 screws and the two larger covers a bolted with fourteen M8 screws. O-ring seals are incorporated in all of the cover and component joints of the flameproof enclosure.

All screws securing flameproof joints are made of A2 stainless steel with a yield strength of 70 Kg/cm.

The inner cylindrical wall (stator) has forty slip ring assemblies attached and the outer cylindrical wall (rotor) has the brush contact assemblies attached. A self-regulating anti-condensation heater rated at 30 W, 230 V is also fitted.

Internal termination facilities are provided for the various incoming and outgoing cables.

An increased safety terminal enclosure is mounted to the side of the flameproof rotor enclosure. This enclosure comprises of steel sheets bolted to a frame via M6 screws and rivet nuts. All joints are sealed with white silicone gaskets.

This enclosure contains a row of Ex component approved increased safety terminals and plane holes are provided in the enclosure wall to allow field wiring to these terminals by the end user.

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Company Reg No. 8554022 VAT No. GB163023642



The increased safety enclosure is mounted to a plate which is welded to the rotor enclosure. This part has five feed-through bosses which are welded to the mounting plate on one side and welded to the flameproof rotor enclosure on the other side. The feed-through bosses have a threaded flamepath to which certified cable glands are fitted, segregating the flameproof and increased safety compartments.

Conditions of Manufacture

- i. The flameproof compartment of each unit shall be subjected to a routine overpressure test in accordance with IEC 60079-1:2014, clause 16. A pressure of 13.5 bar shall be applied for a period of at least 10 seconds. There shall be no permanent deformation or damage to the enclosure or leakage via the enclosure walls or any welded joints.
- ii. The increased safety compartment of each unit shall be subjected to a routine dielectric strength test in accordance with IEC 60079-7:2015, clause 7.1. A test voltage of 2000 V r.m.s. shall be applied for 1 minute. Alternatively, a test voltage of 2400 V r.m.s. shall be maintained for 100 ms. No dielectric breakdown or flashover shall occur.
- iii. The equipment covered by this certificate includes previously certified devices. It is the manufacturer's responsibility to continually monitor the status of these certified devices. These devices shall be installed in accordance with their certificates and instructions. The manufacturer shall also inform Certification Management Limited of any changes to these devices that may impact upon the explosion safety aspects of their equipment. A copy of the appropriate certification documentation for these devices shall be provided to the end user.
- iv. Regarding to the cable glands which segregate the flameproof and increased safety compartments, and those which may be installed by the manufacturer into the entries on the flameproof enclosure; these shall be installed in accordance with their IECEx certificate, their instruction manual, and with IEC 60079-14. A suitable cable shall be selected.

IECEx Conditions of Certification (Special Conditions for Safe Use)

- i. In some cases, the flamepath dimensions are other than the relevant minimum or maximum defined in IEC 60079-1. The flamepath dimensions are specified below:

Flamepath	Type of joint	Width (L), (mm)	Gap (ic), (mm)
Top end bearing cap to stator	Cylindrical	28.6	0.52
Bottom end bearing cap to stator	Cylindrical	28.0	0.44
Top end bearing cap to enclosure	Flanged	28.2	0.4
Bottom end bearing cap to bearing housing	Flanged	31	0.4
Bearing housing to enclosure	Flanged	40.5	0.4
Access cover plates	Flanged	25.0	0.3

The flamepath gaps, ic, shall not be modified to be greater than those specified above and the flamepath widths, L, shall not be modified to be shorter than those specified above.



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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Certificate No.: IECEx CML 15.0050X

Issue No: 1

Certificate history:

Status: **Current**

Issue No. 1 (2018-07-25)

Issue No. 0 (2015-08-27)

Date of Issue: **2018-07-25**

Page 1 of 4

Applicant: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**
Unit 2 Levens Road
Newby Road Industrial Estate
Hazel Grove
Stockport
Cheshire
SK7 5DL
United Kingdom

Equipment: **Type TX4789 Slip Ring Unit**

Optional accessory:

Type of Protection: **Flameproof, Increased Safety**

Marking: Ex db eb IIA T6 Gb, Tamb = -20°C to +50°C

Approved for issue on behalf of the IECEx
Certification Body:

A Snowdon MIET

Position:

Certification Officer

Signature:
(for printed version)

Date:

July 25, 2018

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IECEX Certificate of Conformity

Certificate No: IECEx CML 15.0050X Issue No: 1

Date of Issue: **2018-07-25** Page 2 of 4

Manufacturer: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**
Unit 2 Levens Road
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Hazel Grove
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STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

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*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/CML/ExTR15.0054/00](#) [GB/CML/ExTR18.0119/00](#)

Quality Assessment Report:

[GB/BAS/QAR08.0003/07](#)

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IECEX Certificate of Conformity

Certificate No: IECEx CML 15.0050X

Issue No: 1

Date of Issue: **2018-07-25**

Page 3 of 4

Schedule

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SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to certificate Annex

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IECEX Certificate of Conformity

Certificate No: IECEx CML 15.0050X

Issue No: 1

Date of Issue: 2018-07-25

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1 introduces the following modification

1. Update of the applicant/manufacture's address.

Annex:

[IECEX CML 15.0050X Certificate Annex Issue 1.pdf](#)

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Annexe to: IECEx CML 15.0050X Issue 1
Applicant: T.E.L. Engineering Limited
(Trading as Trolex Engineering)
Apparatus: Type TX4789 Slip Ring Unit

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