



EC - TYPE EXAMINATION CERTIFICATE

**Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

**UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS**

T.E.L. ENGINEERING LIMITED

- 3 EC - Type Examination Certificate Number : **Baseefa02ATEX0253X**
- 4 Equipment or protective system: **Type TX470*Range of Slip Ring Units**
- 5 Manufacturer : **T.E.L Engineering Limited also trading as Trolex Engineering**
- 6 Address : **Stockport, Cheshire, SK7 5DA**
- 7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8 Baseefa (2001) Ltd. Notified body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
- The examination and test results are recorded in confidential Report No. **02(C)0180/5**
- 9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014: 1997 + Amendments 1 & 2 EN 50018: 2000 + Amendment 1 EN 50281-1-1: 1998
except in respect of those requirements listed at item 18 of the Schedule.
- 10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.
- 11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.
- 12 The marking of the equipment or protective system shall include the following :

⊕ II 2 GD EEx d IIB T85°C

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa (2001) Ltd. Customer Reference No. **1428**

Project File No. **02/0180**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa (2001) Ltd.

Health and Safety Laboratory Site, Harpur Hill,
Buxton, Derbyshire SK17 9JN
Telephone +44 (0) 1298 28255 Fax +44 (0) 1298 28216
e-mail info@baseefa2001.biz web site www.baseefa2001.biz
Registered in England No. 4305578 at 13 Dovedale Crescent, Buxton,
Derbyshire, SK17 9BJ

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

Re-issued 27th August 2008 to replace original



UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS

T.E.L. ENGINEERING LIMITED

13

Schedule

14

Certificate Number Baseefa02ATEX0253X

15 Description of Equipment or Protective System

The TX470* range of slip ring units comprises a cast base and cover manufactured from a number of specified materials. The base unit houses two rolling element bearings which support a slip ring shaft, which has a maximum operating speed of 200 rev/min. The base unit and the end of the slip ring may be machined to accept cable glands or Type TX3700 or TX3701 sockets to BAS02ATEX2278U or BAS02ATEX2281U respectively, with or without a right angled adaptor fitted. The number of slip rings and the height of the cover can vary to form the alternative type designations. The slip rings can be provided with two to eight brushes per ring and the maximum rating per brush is 6A and per slip ring is 24A. The maximum voltage and number of slip rings are indicated below. Other options include the installation of a shaft encoder with a reduction in the number of rings for the TX4703 and TX4704 units, a longer cover for the TX4702 unit (TX4702X), installation of a receiver / converter (TX4704F), and a combination of intrinsically safe and non-intrinsically safe circuits without the right angled adaptor fitted (TX4702i).

Type	Maximum number of slip rings	Maximum Voltage*	Maximum Total Current. (A)
TX4701	3	1500Va.c., 1800Vd.c	18
TX4702 & TX4702X	8	1500Va.c., 1800Vd.c	48
TX4703	16	1000Va.c., 1200Vd.c.	96
TX4704	24	1000Va.c., 1200Vd.c	144
TX 4704F	24	1000Va.c., 1200Vd.c	144
TX 4702i	4 I.S. & 3 non I.S.	60V I.S. & 240Va.c.non I.S.	18

* When the angled adaptor and the Type TX3700 or TX3701 sockets option is fitted the voltage is reduced depending upon the quantity of contacts as specified in the certificates associated with the sockets.

The enclosure may be provided with a potentiometer or a shaft encoder and internal and external earth facilities are provided.

Cable entry holes are provided as specified on the certified drawings for the accommodation of suitable BASEEFA certified flameproof cable entry devices, with or without the interposition of a suitable BASEEFA certified flameproof thread adapter. Unused entries are to be fitted with suitable BASEEFA certified flameproof stopping plugs.

Suitable flameproof cable entry devices, thread adapters and stopping plugs certified as Equipment (not a Component) under an EC Type Examination Certificate to Directive 94/9/EC may also be used in the manner specified above.

16 Report No.

02(C)0180/5

17 Special Conditions for Safe Use

1. The integral cables, when fitted, must be protected against impact and be terminated in a suitable junction facility.
2. For slip ring units carrying intrinsically safe circuits:-
 - 2.1 The voltage of each intrinsically safe circuit and between separate intrinsically safe circuits shall not exceed 60V.
 - 2.2 The sum of the maximum peak voltages of intrinsically safe and non-intrinsically safe circuits shall not exceed 1575V.
 - 2.3 Each intrinsically safe circuit shall be separately screened.



18 Essential Health and Safety Requirements

None additional to those covered by the standards listed at item 9

19 Drawings and Documents

Number	Issue	Date	Description
1/475/1 Sheets 1 to 3	A	22.11.02	General Assembly TX4701, TX4702, TX4703 and TX4704
1/475/295	D	22.11.02	General Assembly TX4702i
1/475/365	C	03.01.03	General Assembly TX4704F
1/475/465	A	20.11.02	Cable and Gland Details
1/475/420	C	22.11.02	Recovery Techniques

UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS
T.E.L. ENGINEERING LIMITED



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0253X/1**

4 Equipment or Protective System: **Type TX470* Range of Slip Ring Units**

5 Manufacturer: **T.E.L Engineering Limited also trading as Trolex Engineering**

6 Address: **Hazel Grove, Stockport, Cheshire SK7 5DA**

**UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS**

T.E.L. ENGINEERING LIMITED

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa02ATEX0253X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **1428**

Project File No. **05/0646**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address


R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa00ATEX0253X/1

15 Description of the variation to the Equipment or Protective System

Variation 1.1

Reduction in the minimum ambient temperature to -40°C .

An additional Special Condition For Safe Use applies, the units so formed are designated as Type TX470LT Slip Ring Units and are coded

⊕ II 2 GD EEx d IIB $-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ T85 $^{\circ}\text{C}$

16 Report Number

Baseefa Certification Report 05(CI)0646

17 Special Conditions for Safe Use

1. The integral cables, when fitted, must be protected against impact and be terminated in a suitable junction facility.
2. For slip ring units carrying intrinsically safe circuits:-
 - 2.1 The voltage of each intrinsically safe circuit and between separate intrinsically safe circuits shall not exceed 60V.
 - 2.2 The sum of the maximum peak voltages of intrinsically safe and non-intrinsically safe circuits shall not exceed 1575V.
 - 2.3 Each intrinsically safe circuit shall be separately screened.
- 3 For this version, rated at -40°C , the sockets as BAS02ATEX2278U or BAS02ATEX2281U must always be fitted with the associated plugs as certificates BAS02ATEX2279U or BAS02ATEX2282U. Alternatively the sockets must be fitted with the blanking covers as BAS02ATEX2278U or BAS02ATEX2281U.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
3/475/489	-	B	05 OCT 05	Low Temperature Label – Type TX470LT Range

UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS
T.E.L. ENGINEERING LIMITED



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0253X/2**

4 Equipment or Protective System: **Type TX470* Range of Slip Ring Units**

5 Manufacturer: **T.E.L Engineering Limited also trading as Trolex Engineering**

6 Address: **Newby Road, Hazel Grove, Stockport, Cheshire, SK7 5DA**

**UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS
T.E.L. ENGINEERING LIMITED**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa02ATEX0253X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

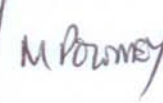
Baseefa Customer Reference No. **1428**

Project File No. **06/0958**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address



R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa02ATEX0253X/2

15 Description of the variation to the Equipment or Protective System

UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS

T.E.L. ENGINEERING LIMITED

Variation 2.1

Revised cabling arrangements comprising the use of compression type glands as Baseefa06ATEX0056X, and Baseefa06ATEX0057X only; and barrier compression type glands as Baseefa06ATEX0058X and SIRA 06ATEX1097X only.

To confirm that the equipment covered by this certificate as amended by the above changes has been reviewed against the requirements of EN60079-0: 2004, EN60079-1: 2004, EN 60079-7: 2003, IEC61241-0 and IEC61241-1 in respect of the differences from the standards to which this certificate was issued; none of these differences affect this equipment.

The units so formed are coded:

⊕ II 2 GD Exde IIB Ex tD A21 IP66 T85°C

Variation 2.2

Revised cabling arrangements comprising the use of compression type glands as SIRA01ATEX1270X and SIRA01ATEX1272X only; and barrier compression type glands as certificates SIRA03ATEX1479X only.

To confirm that the equipment covered by this certificate as amended by the above changes has been reviewed against the requirements of EN60079-0: 2004, EN60079-1: 2004 and EN 60079-7: 2003 in respect of the differences from the standards to which this certificate was issued; none of these differences affect this equipment.

The units so formed are coded:

⊕ II 2 G Exde IIB T6

16 Report Number

None

17 Special Conditions for Safe Use

None additional to those listed previously

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
3/475/496	-	A	9 NOV 06	TX470* Series Slip Ring EN/IEC Standards
1/475/497	-	A	6 DEC 06	TX470* EN/IEC Standards Glands
3/475/498	-	A	1 DEC 06	TX470* Alternative Code Labels



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres**
Directive 94/9/EC

3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0253X/3**

4 Equipment or Protective System: **Type TX470* Range of Slip Ring Units**

5 Manufacturer: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**

6 Address: **Newby Road, Hazel Grove, Stockport, Cheshire, SK7 5DA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa02ATEX0253X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS
T.E.L. ENGINEERING LIMITED

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **1428**

Project File No. **09/0280**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



13

Schedule

14

Certificate Number Baseefa02ATEX0253X/3

15 Description of the variation to the Equipment or Protective System

UNCONTROLLED DOCUMENT
THIS DOCUMENT IS NOT
SUBJECT TO AMENDMENTS

Variation 3.1

To permit the TX470* range of slip ring units to be used within an ambient up to 60°C, these units are suffixed HT. In addition the marking of the various variants is clarified.

16 Report Number

Baseefa Certification Report 09(C)0280.

17 Special Conditions for Safe Use

None additional to those listed previously.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
3/475/550	-	B	05.04.09	Certification Label – TX470*HT
3/475/498	-	B	05.04.09	Certification Label