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

1 **EC - TYPE EXAMINATION CERTIFICATE**

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

3 EC - Type Examination Certificate Number: **Baseefa14ATEX0240**

4 Equipment or Protective System: **Type TX4715, TX4716 and TX 4717 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 equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, 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. **GB/BAS/ExTR14.0212/00**.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 EN 60079-1:2007 EN 60079-7:2007 EN 60079-31:2009

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 for 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. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ex II 2 GD Ex d e IIB T* Gb (T_{amb} -**°C to +**°C) (See schedule)

Ex tb IIIC T*°C Db

Baseefa Customer Reference No. **1428**

Project File No. **14/0488**

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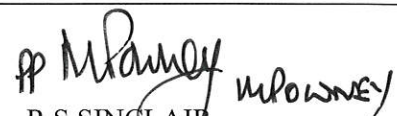
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R S SINCLAIR
GENERAL MANAGER

On behalf of SGS Baseefa Limited

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Schedule

14

Certificate Number Baseefa14ATEX0240

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15 Description of Equipment or Protective System

The **Type TX4715, TX4716 and TX 4717 Slip Ring Units** comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath. The TX4715 also uses thinner materials for the flameproof enclosure, with the minimum thickness being 22mm as opposed to the 25mm of the TX4716 and TX4717 enclosure.

TX4715

The Type TX4715 Slip Ring Unit's flameproof enclosure has a length of 465mm, incorporating a maximum of 55 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 22mm.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 928A.

There are several optional variants of the TX4715, including:

- An anti-condensation heater and alternative bearing arrangements (TX47151Units).
- Alternative larger increased safety terminal enclosures (TX47152 Units).
- A combination of both of the above (TX47153 Units).

Unit Type	*		**	Max Current
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	928A
TX47154	T5	T100°C	-40°C to +55°C	928A

TX4716

The Type TX4716 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 655mm, incorporating a maximum of 80 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4716 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4717.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There is an optional variant of the TX4716 which features an increased ambient temperature range, with a change in the temperature classification to T4.

Unit Type	*		**	Max Current
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A

TX4717

The Type TX4717 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 835mm, incorporating a maximum of 107 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4717 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4716.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There are several optional variants of the TX4717, including:

- A reduced maximum total throughput of 420A with an increased ambient temperature range.
- A unit with an increased number of fasteners, with an associated IP rating of IPX7.

Unit Type	*		**	Max Current
TX4717	T5	T100°C	-40°C to +45°C	1166A
TX4717BW	T4	T135°C	-40°C to +55°C	1166A
TX47174	T5	T100°C	-40°C to +50°C	420A

16 Report Number

SGS Baseefa certification report GB/BAS/ExTR14.0212/00.

17 Specific Conditions of Use

1. For equipment fitted with an internal heater; it must be ensured that power to the heating circuit is removed before the slip ring is initialised.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

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19 Drawings and Documents

Number	Sheet	Issue	Date	Description
3/466/631	1 of 1	E	25/09/2014	Nameplate – TX47154 Unit
1/466/315	1 to 4	J	25/09/2014	General Assembly and Nameplate – TX4715 Unit
1/466/412	1 to 3	F	25/09/2014	General Assembly and Nameplate – TX47151 to TX47153 Units
1/4715/1280	1 of 1	E	25/09/2014	General Assembly and Nameplate – TX4716
1/4716/078	1 of 1	D	24/09/2014	General Assembly and Nameplate – TX4717
1/4715/760	1 of 1	F	24/09/2014	Recovery Techniques – All Units
1/466/940	1 of 1	D	04/10/2014	Cables and Gland Details – All Units
1/466/1219	1 of 1	B	04/10/2014	Cables and Gland Details – All Units
1/4717/084	1 to 2	B	24/09/2014	Terminal Box – TX4717 Unit
1/4715/1636	1 of 1	A	01/02/2013	Nameplate Update

1 **TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3 EU - Type Examination Certificate **Baseefa14ATEX0240 – Issue 1**
Number:

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **Type TX4715, TX4716 and TX 4717 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 re-issued certificate extends EU Type Examination Certificate No. BaseefayyATEXnnnnX to apply to product 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

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. **GB/BAS/ExTR16.0125/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 EN 60079-1:2007 EN 60079-7:2007 EN 60079-31:2009

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ex II 2 GD **Ex d e IIB T* Gb** (T_{amb} -**°C to +**°C) (See Schedule)
Ex tb IIIC T*°C Db

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SGS Baseefa Customer Reference No. **1428**

Project File No. **16/0224**

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RS SINCLAIR
R S SINCLAIR

TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

13

Schedule

14

Certificate Number Baseefa14ATEX0240 – Issue 1

15 Description of Product

The **Type TX4715, TX4716 and TX4717 Slip Ring Units** comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath. The TX4715 also uses thinner materials for the flameproof enclosure, with the minimum thickness being 22mm as opposed to the 25mm of the TX4716 and TX4717 enclosure.

TX4715

The Type TX4715 Slip Ring Unit's flameproof enclosure has a length of 465mm, incorporating a maximum of 55 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 22mm.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 928A.

There are several optional variants of the TX4715, including:

- An anti-condensation heater and alternative bearing arrangements (TX47151Units).
- Alternative larger increased safety terminal enclosures (TX47152 Units).
- A combination of both of the above (TX47153 Units).

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Unit Type	*	**	Max Current	
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	928A
TX47154	T5	T100°C	-40°C to +55°C	928A

TX4716

The Type TX4716 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 655mm, incorporating a maximum of 80 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4716 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4717.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There are two optional variants of the TX4716, including:

- a unit with an increased ambient temperature range, with a change in the temperature classification to T4.
- A unit with a fixed configuration of 4 x Stahl Increased Safety Ethernet terminals, 27 x WDU4 terminals and a max combined total throughput of 150A.

Unit Type	*		**	Max Current
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A
TX4716.14509	T6	T85°C	-40°C to +45°C	150A

TX4717

The Type TX4717 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 835mm, incorporating a maximum of 107 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4717 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4716.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There are several optional variants of the TX4717, including:

- A reduced maximum total throughput of 420A with an increased ambient temperature range.
- A unit with an increased number of fasteners, with an associated IP rating of IPX7.

Unit Type	*		**	Max Current
TX4717	T5	T100°C	-40°C to +45°C	1166A
TX4717BW	T4	T135°C	-40°C to +55°C	1166A
TX47174	T5	T100°C	-40°C to +50°C	420A

16 Report Number

GB/BAS/ExTR16.0125/00

17 Specific Conditions of Use

None

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18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	LVD type requirements	Standards require manufacturer's declaration, supplied.
1.2.8	Overloading of equipment (protection relays, etc.)	Covered by installation rules and manufacturer's instructions
1.4.1	External effects	The Purchaser should make the manufacturer aware of such issues. Covered in Instructions
1.4.2	Aggressive substances, etc.	The Purchaser should make the manufacturer aware of such issues. Covered in Instructions

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
3/466/631	1	G	06 Jun 16	Approval Drawing
1/4715/1636	1	C	10 Jun 16	Nameplate Update

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
1/466/315	1 to 4	J	25/09/2014	General Assembly and Nameplate – TX4715 Unit
1/466/412	1 to 3	F	25/09/2014	General Assembly and Nameplate – TX47151 to TX47153 Units
1/4715/1280	1 of 1	E	25/09/2014	General Assembly and Nameplate – TX4716
1/4716/078	1 of 1	D	24/09/2014	General Assembly and Nameplate – TX4717
1/4715/760	1 of 1	F	24/09/2014	Recovery Techniques – All Units
1/466/940	1 of 1	D	04/10/2014	Cables and Gland Details – All Units
1/466/1219	1 of 1	B	04/10/2014	Cables and Gland Details – All Units
1/4717/084	1 to 2	B	24/09/2014	Terminal Box – TX4717 Unit

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20 Certificate History

Certificate No.	Date	Comments
Baseefa14ATEX0240	27 November 2014	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0:2012, EN 60079-1:2007, EN 60079-7:2007, EN 60079-31:2009. Findings contained within Report No GB/BAS/ExTR14.0212/00 of Project 14/0488.
Baseefa14ATEX0240- Issue 1	14 June 2016	This issue of the certificate permits the addition of a new model, Type TX4716.14509, to the range, certified for T6 and configured at a max total throughput of 150A . Findings contained within Report No GB/BAS/ExTR16.0125/00 of Project 16/0224.

For drawings applicable to each issue, see original of that issue.