



1           **EC-TYPE EXAMINATION CERTIFICATE**

2           Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3           Certificate Number:     SIRA99ATEX2132X

4           Equipment:     TX6273 and TX6274 Temperature Sensor/Transmitters

5           Applicant:     Trolex Limited

6           Address:     Newby Road  
                      Hazel Grove  
                      Stockport  
                      SK7 5DY  
                      UK

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7           This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8           Sira Certification Service, notified body number 0518 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number R52A5937B.

9           Compliance with the Essential Health and Safety Requirements, with exception to those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 50014:1997  
EN 50020:1994  
EN 50284:1999  
prEN 50303 (April 1999)

10          If the sign 'X' is placed after the certificate number, it indicates that the equipment or is subject to special conditions for safe use specified in the schedule to this certificate.

Project Number   52X5937  
Date             26 October 1999  
Re-issued        15 November 1999  
C. Index         14

M Shearman  
Certification Manager

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**Sira Certification Service**

Rake Lane, Eccleston, Chester, CH4 9JN, England  
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EC-TYPE EXAMINATION CERTIFICATE NUMBER

SIRA99ATEX2132X

- 11 This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.
- 12 The marking of the equipment shall include the following:



I M1  
EEx ia I (T<sub>a</sub> = -20°C to +60°C)

or



II 1 G  
EEx ia IIC T4 (T<sub>a</sub> = -20°C to +60°C)

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Reissued 15 November 1999

To replace Report No R52A5937A by Report No R52A5937B.

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**SCHEDULE**

**EC-TYPE EXAMINATION CERTIFICATE NUMBER**

SIRA99ATEX2132X

13 **DESCRIPTION OF EQUIPMENT**

The TX627x Temperature Sensor/Transmitters take a signal from a temperature sensor; this signal is conditioned and an analogue signal is then transmitted to other monitoring equipment. There are two type designations covered: the TX6273 and the TX6274, differing in the location of the sensing element.

The equipment comprises one of two output boards connected to an optional display board. The following versions are covered:

- Group I, 0.4 to 2V
- Group I, 5 to 15 Hz
- Group I, 4 to 20 mA, 3/4-wire
- Group I, 4 to 20 mA, 2-wire
- Group II, 4 to 20 mA, 2-wire

The assembly is housed in a polycarbonate enclosure with a polycarbonate window glued into a recess. The enclosure may or may not be steel filled; if not, the marking bears a static warning label.

The TX627x has the following safety descriptions:

**Group I, 0.4 to 2 V**

	<b>Terminals 1 to 4 (supply/signal)</b>
U <sub>i</sub>	16.5 V
P <sub>i</sub>	Not Specified
C <sub>i</sub>	122 nF
L <sub>i</sub>	9 μH

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**Group I, 5 to 15 Hz**

	<b>Terminals 3 &amp; 4 (supply)</b>	<b>Terminals 1 &amp; 2 (signal)</b>
U <sub>i</sub>	16.5 V	16.5 V
P <sub>i</sub>	Not Specified	2.5 W
C <sub>i</sub>	0	0
L <sub>i</sub>	9 μH	9 μH

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Group I, 4 to 20 mA, 3/4 wire

	Terminals 1 to 4 (supply/signal)
$U_i$	16.5 V
$P_i$	Not Specified
$C_i$	122 nF
$L_i$	9 $\mu$ H

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Group I, 4 to 20 mA, 2 wire

	Terminals 1 & 4	Terminals 2 & 3
$U_i$	16.5 V	1.5 V
$I_i$	Not Specified	100 mA
$P_i$	Not Specified	25 mW
$C_i$	0	0
$L_i$	9 $\mu$ H	9 $\mu$ H
$U_o$	N/A	16.5 V
$I_o$	N/A	17 mA
$C_o$	N/A	11 $\mu$ F
$L_o$	N/A	1614 mH

Group II, 4 to 20 mA, 2 wire

	Terminals 1 & 4	Terminals 2 & 3
$U_i$	28 V	1.5 V
$I_i$	120 mA	100 mA
$P_i$	0.84 W	25 mW
$C_i$	38 nF	0
$L_i$	9 $\mu$ H	9 $\mu$ H
$U_o$	N/A	28 V
$I_o$	N/A	28 mA
$C_o$	N/A	45 nF
$L_o$	N/A	45 mH

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**SCHEDULE**

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14 **DESCRIPTIVE DOCUMENTS**

14.1	Drawing no.	Sheets	Rev	Date	Description
	P5460.109	1 of 1	A	18 May 98	Circuit Diagram 5-15 Hz module P.C.B.
	P5485.04	1 of 1	A	30 Sep 99	Certified Parts List Group I 0.4 to 2V, 4 to 20mA and 5 to 15Hz
	P5485.05	1 of 1	A	08 Oct 99	Certification Labels
	P5486.03	1 of 1	A	06 Sep 99	Output PCB Certified Circuit Diagram
	P5486.06	1 of 4	A	01 Sep 99	Output PCB – Top Overlay
	P5486.06	2 of 4	A	01 Sep 99	Output PCB – Top Layer
	P5486.06	3 of 4	A	01 Sep 99	Output PCB – Bottom Overlay
	P5486.06	4 of 4	A	01 Sep 99	Output PCB – Bottom Layer
	P5487.01	1 of 1	A	20 Sep 99	Certified Circuit Diagram Output PCB
	P5485.02	1 of 1	A	05 Oct 99	General Arrangement
	P5487.03	1 of 4	A	21 Sep 99	Top Overlay Output PCB
	P5487.03	2 of 4	A	21 Sep 99	Top Layer Output PCB
	P5487.03	3 of 4	A	21 Sep 99	Bottom Overlay Output PCB
	P5487.03	4 of 4	A	21 Sep 99	Bottom Layer Output PCB
	P5487.04	1 of 4	A	01 Sep 99	Display PCB - Top Overlay
	P5487.04	2 of 4	A	01 Sep 99	Display PCB - Top Layer
	P5487.04	3 of 4	A	01 Sep 99	Display PCB - Bottom Overlay
	P5487.04	4 of 4	A	01 Sep 99	Display PCB - Bottom Layer
	P5487.07	1 of 1	A	01 Sep 99	Certified Circuit Diagram Display PCB
	P5487.15	1 of 1	A	05 Oct 99	Certified Block diagram

14.2 Report No. R52X5937A

15 **SPECIAL CONDITIONS FOR SAFE USE** (*denoted by X after the certificate number*)

15.1 The TX627x Temperature Sensor/Transmitters shall not be installed where the external conditions could cause a build up of electrostatic charges on their non-conducting surfaces. Additionally, the equipment shall only be cleaned with a damp cloth.

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**SCHEDULE**

**EC-TYPE EXAMINATION CERTIFICATE NUMBER**

SIRA99ATEX2132X

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSR'S)**

The table below lists all relevant EHSR's not addressed by the standards listed in this certificate. These EHSR's have been assessed in Report No. R52X5937A.

Annex II Clause Number	Title
1.0.3	Special checking and maintenance conditions
1.1.2	Effect of explosive atmosphere on materials
1.4.2	Withstanding attack by aggressive substances
1.5	Requirements in respect to safety-related devices
2.0.1.2	Protection against dust ingress
2.0.1.3	Surface temperatures to be below AIT of dust

17 **CONDITIONS OF CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of SCS Certificates.

17.2 In affixing the Sira certificate number to the apparatus the applicant attests on his own responsibility that the apparatus conforms to the documents listed herein.

If the marked apparatus is found not to comply Sira Certification Service should be notified immediately at its offices at South Hill, Chislehurst, Kent BR7 5EH, England.

17.3 This certificate relies on the following previously-certified products. When used as part of the TX627x, the key attributes listed in the table below shall still be maintained by their original certificate.

Product	Certificate number	Key attributes
Bedford OPI1264-series opto-isolator	BAS Ex 89C2096U/2	EEx ia IIC

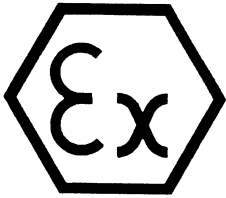
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**EC TYPE - EXAMINATION CERTIFICATE VARIATION**

**CERTIFICATE NUMBER**      SIRA99ATEX2132X      Dated      26 September 1999  
Re-issued      15 November 1999

**VARIATION NUMBER**      1 (ONE)      Dated      7 January 2000

**VARIATION TO EQUIPMENT**

To permit:

- 1      The use diodes D2 to D5 on the display board that have a higher forward voltage of 0.7 V.

**DESCRIPTIVE DOCUMENTS**

Number	Sheet	Rev	Date	Description
P5487.07	1 of 1	B	14 Dec 99	Certified Circuit Diagram Display PCB

**ADDITIONAL CONDITIONS OF CERTIFICATION**

None

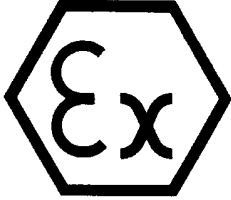
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**File No**      52V6583

**Report No.** NA

**M D Shearman**  
**Certification Manager**

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**EC TYPE-EXAMINATION CERTIFICATE VARIATION**

**CERTIFICATE NUMBER** Sira 99ATEX2132X Dated 26 October 1999  
Re-issued 15 November 1999

**VARIATION NUMBER** 2 (TWO) Dated 29 June 2000

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**VARIATION TO EQUIPMENT**

To permit:

- 1 A modification to the output board circuit to change some of the components.
- 2 The use of pad-printing as an alternative method of marking of the certification details onto the label.
- 3 The terminal capacitance to be defined separately at the supply and signal terminals for all Group I builds based on output board P5486.06.
- 3 The replacement of the quoted  $L_i$  with a value for  $L_i/R_i$  for all Group I builds.
- 4 A change in the safety description to the following:

	Group I 4-20 mA		Group I 0.4-2 V		Group I 5-15 Hz	
	T1-T2 (signal)	T3-T4 (supply)	T1-T2 (signal)	T3-T4 (supply)	T1-T2 (signal)	T3-T4 (supply)
$U_i$	16.5 V	16.5 V	16.5 V	16.5 V	16.5 V	16.5 V
$P_i$	-	-	-	-	2.5 W	-
$C_i$	9.8 $\mu$ F	0	1.2 nF	0	0	0
$L_i/R_i$	<20 $\mu$ H/ $\Omega$	<20 $\mu$ H/ $\Omega$	<20 $\mu$ H/ $\Omega$	<20 $\mu$ H/ $\Omega$	0	<20 $\mu$ H/ $\Omega$

Note that the supplies to terminals 1 & 2 and terminals 3 & 4 must be separate intrinsically safe circuits. The safety description for Group II versions is unchanged.

Group I, 4 to 20 mA, 2 wire		
	Terminals 1 & 4 (supply)	Terminals 2 & 3 (test)
$U_i$	16.5 V	1.5 V
$I_i$	-	100 mA
$P_i$	-	25 mW
$C_i$	0	0
$L_i/R_i$	<20 $\mu$ H/ $\Omega$	<20 $\mu$ H/ $\Omega$
$U_o$	N/A	16.5 V
$I_o$	N/A	17 mA
$C_o$	N/A	11 $\mu$ F
$L_o$	N/A	1614 mH

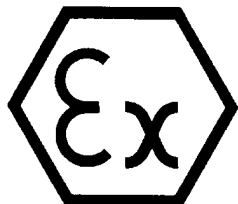
- 5 The introduction of an additional Condition for Safe Use.

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## EC TYPE-EXAMINATION CERTIFICATE VARIATION

**CERTIFICATE NUMBER**                      Sira 99ATEX2132X                      Dated                      26 October 1999  
Re-issued                      15 November 1999

**VARIATION NUMBER**                      2 (TWO)                      Dated                      29 June 2000

### DESCRIPTIVE DOCUMENTS

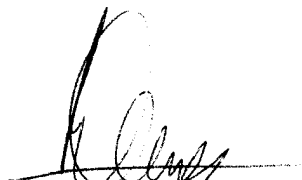
Drawing no:	Sheet	Rev.	Date	Description
P5485.02	1 of 1	B	09 May 00	General Arrangement
P5485.04	1 of 1	B	09 May 00	Certified Parts List Group I 0.4 to 2V, 4 to 20 mA and 5 to 15Hz
P5486.03	1 of 1	B	21 Jun 00	Output PCB Certified Circuit Diagram
P9000.100	1 of 1	C	07 Jun 00	Alternative Housing Arrangement

### ADDITIONAL CONDITIONS FOR SAFE USE

15.2      The modifications to this equipment that are included in variation 2 of this certification have affected the safety parameters of the Group I builds of the TX627X Temperature Sensor/Transmitter and therefore the user shall confirm the compatibility of this equipment before it is installed in a certified intrinsically safe system.

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**File No**                      52A6855  
**Report No.**                      R52A6855A

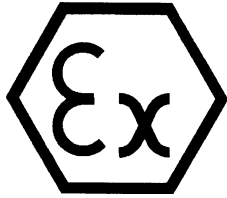


**R Cooper IEng LInstMC**  
**Deputy Chief Executive**

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## EC TYPE-EXAMINATION CERTIFICATE VARIATION

**CERTIFICATE NUMBER**      Sira 99ATEX2132X      Dated      26 October 1999  
Re-issued      15 November 1999

**VARIATION NUMBER**      3 (THREE)      Dated      24 March 2003

### VARIATION TO EQUIPMENT

To permit:

- 1      The use of 'Faradex' stainless steel filled nylon 6 as an alternative anti-static enclosure material.

### DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
P5485.02	1 of 1	D	05 Feb 03	General arrangement

### ADDITIONAL CONDITIONS OF CERTIFICATION

None

**File No**      52A9400

**Report No.** R52A9400A

  
**C Ellaby**  
Certification Officer

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