

**Australian/New Zealand
Certification Scheme for
EXPLOSION-PROTECTED ELECTRICAL EQUIPMENT**

ANZEx Scheme

Certificate of Conformity

Certificate No.: ANZEx 12.3013X

Issue No.: 0

Date of Issue: 2012-06-01

Applicant: Trolex Ltd
Newby Road, Hazel Grove
Stockport, Cheshire SK7 5DY
United Kingdom

Electrical Apparatus: TX614x Series Pressure Sensor / Transmitter

Type of Protection: Ex ia

Marking Code: Ex ia I (Ta = 60 °C)
Ex ia IIC T4 (Ta = 60 °C) IP54

Manufacturer: Trolex Ltd
Newby Road, Hazel Grove
Stockport, Cheshire SK7 5DY
United Kingdom

Manufacturing Location(s): As above

The EPEE certification database located at <http://www.anzex.com.au> shows the validity of this Certificate.

	<p>Certificate issued by:</p> <p style="text-align: center;"><i>TestSafe Australia</i> 919 Londonderry Road, Londonderry NSW 2753 Australia Phone: +61 2 4724 4900 Fax: +61 2 4724 4999 http://www.testsafe.com.au</p>	 <p style="text-align: center;">www.jas-anz.org/register</p>
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This certificate is granted subject to the conditions as set out in Standards Australia/Standards New Zealand Miscellaneous Publication MP87.1:2008.

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:

- | | |
|----------------------|---|
| AS/NZS 60079.0:2005 | Electrical apparatus for explosive gas atmospheres – Part 0: General requirements (including Amendment 1) |
| AS/NZS 60079.11:2006 | Explosive atmospheres – Part 11: Equipment protection by Intrinsic safety ‘i’ |
| AS 60529:2004 | Degree of protection provided by enclosures (IP code) |

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

ASSESSMENT & TEST REPORTS:

The equipment listed has successfully met the assessment and test requirements as recorded in:

Test Report No. and Issuing Body:	33511, TestSafe Australia
Quality Assessment Report No. and Issuing Body:	GB/SIR/QAR07.0017/02, Sira

File Reference:	2012/001014
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Ujen Singh

Signed for and on behalf of issuing body

Quality & Certification Manager

Position

2012-06-01

Date of Issue

**This certificate is not transferable and remains the property of the issuing body
and must be returned in the event of it being revoked or not renewed.**

This certificate and schedule shall not be reproduced except in full

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Schedule

EQUIPMENT:

The Trolex TX614x – Series Pressure Sensor/Transmitters are designed to measure differential, gauge and absolute pressure in process pipeline, atmosphere and tank monitoring applications. The sensor element comprises a ceramic or stainless steel diaphragm in contact with strain gauge resistive elements in a Wheatstone Bridge configuration; in the case of the differential pressure sensor, there is a second diaphragm. Any deflection of the diaphragm due to changes in pressure difference across the diaphragm will unbalance the bridge and result in a signal proportional to the pressure difference. The bridge excitation is either voltage or current depending on the type of sensor. An analog-to-digital converter is used to provide a digital signal which is read by the micro-controller. The micro-controller software calculates the true scaled pressure reading and performs other functions such as linearisation and temperature compensation as well as conversion of the displayed pressure reading in units other than bar. The scaled pressure reading is displayed on an LCD module which also allows users to re-calibrate the apparatus as well as change the default settings affecting operation. The scaled reading is also converted into a standard process signal such as 0.4 – 2 V, 5 – 15 Hz and 4 – 20 mA for use in monitoring and control processes.

The two types of TX614x-Series covered by the certificate are:

TX6141: gauge or absolute pressure

TX6143: differential pressure

The apparatus is housed in a metal-loaded polycarbonate or polycarbonate/ABS enclosure with anti-static properties. A polycarbonate window is fitted to allow viewing of the liquid crystal display.

Each of the two types of TX614x can be manufactured in one of five versions:

Group I: 4 to 20 mA version (4-wire)

Group I: 0.4 to 2 V version (4-wire)

Group I: 5 to 15 Hz version (4-wire)

Group I: 4 to 20 mA version (2-wire)

Group II: 4 to 20 mA version (2-wire)

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CONDITIONS OF CERTIFICATION:

It is a condition of safe use that the following parameters shall be taken into account during installation:

Version	T3/T4 (supply)	T1/T2 (signal out) [See notes 1 & 3]	
Group I: 4 – 20 mA version (4-wire)	U _i = 16.5 V; C _i = 5 nF; L _i = 0 [see note 2]	U _i = 16.5 V; C _i = 5 nF; L _i = 0	U _o = 16.5 V; I _o = 223 mA; P _o = 0.921 W C _o = 7 μF; L _o = 0.6 mH
Group I: 0.4 - 2 V version (4-wire)	U _i = 16.5 V; C _i = 5 nF; L _i = 0 [see note 2]	U _i = 16.5 V; C _i = 5 nF; L _i = 0	U _o = 16.5 V; I _o = 41 mA; P _o = 0.17 W C _o = 7 μF; L _o = 0.6 mH
Group I: 5-15 Hz version (4-wire)	U _i = 16.5 V; C _i = 5 nF; L _i = 0	U _i = 16.5 V; C _i = 0; L _i = 0	U _o = 0
<i>T1 & T4 (supply/signal out) [T2 & T3 are not connected]</i>			
Group I 4 – 20 mA versions: (2-wire)		U _i = 16.5 V; C _i = 8 nF; L _i = 0	
Group II 4 – 20 mA versions: (2-wire)	U _i = 28 V; I _i = 120 mA P _i = 0.84 W;		R _{min} = 233 Ω C _i = 8 nF; L _i = 0

Note 1: The signal terminals T1/T2 may be connected to a powered or non-powered load.

Note 2: For all builds, the connections to terminals T1/T2 and T3/T4 are assumed to be from the same power supply. The signal terminals of 4-wire builds may be supplied from a different power supply, in which case, for system assessment purposes, the supply terminals T3/T4 should be regarded as a 16.5 V source with one countable fault via a series resistance as follows:

Group I 4-20 mA 4-wire:	73.9 Ω
Group I 0.4-2 V:	404 Ω
Group I 5-15 Hz:	No galvanic connection between the supply and signal terminals

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Note 3: The installer should refer to the parameters of the equipment connected to terminals T1/T2 and compare these to the parameters listed in the table. The more onerous set of parameters should be used.

Note 4: Terminals 5-8 are not used in any build.

DOCUMENTS:

Document No.	Sheets	Document Title	Issue	Date (yyyy-mm-dd)
P5430.01	1	Control PCB Certified Circuit Diagram	A	1997-11-03
P5430.04	1	Output PCB	C	2001-10-22
P5436.01	1 of 6	Output PCB Overall Circuit Diagram	C	2001-11-12
P5436.01	2 of 6	Output PCB GpI 0.4 to 2V Output Version	C	2001-11-12
P5436.01	3 of 6	Output PCB GpI 4 to 20mA Output (2 wire)	C	2001-11-12
P5436.01	4 of 6	Output PCB GpI 4 to 20mA Output (4 wire)	C	2001-11-12
P5436.01	5 of 6	Output PCB GpI 5 to 15Hz Output Version	C	2001-11-12
P5436.01	6 of 6	Output PCB GpII 4 to 20mA Output (2 wire)	C	2001-11-12
P5436.02	1	TX6140 Series Pressure Sensor/Transmitter General Arrangement	F	2011-11-18
P5436.08	1	TX6140 Series Pressure Sensor/Transmitter Certified Block Diagram	A	1998-03-17
P5436.16	1	TX6140 Series Pressure Sensor/Transmitter Interface PCB – Gauge/Absolute Pressure Certified Circuit Diagram	A	1998-04-21
P5436.17	1	TX6140 Series Pressure Sensor/Transmitter Interface PCB – Differential Pressure Certified Circuit Diagram	A	1998-04-21
P5436.19	1	TX6140 Series Pressure Sensor/Transmitter Certified Circuit Diagram	A	1998-03-17
P5436.21	1	TX6140 Series Pressure Sensor/Transmitter Interface PCB – Differential Pressure Certified Circuit Diagram	A	1998-04-21

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Document No.	Sheets	Document Title	Issue	Date (yyyy-mm-dd)
P5436.22	1	TX6140 Series Pressure Sensor/Transmitter Certified Block Diagram	A	1998-03-17
P5436.59	1	Certification Labels (Australia)	B	2012-05-28