

Certificate of Conformity

Ex EQUIPMENT

Certificate No.: ANZEx 06.3057X	Current Issue: 6	Date of Issue: 2026-02-12
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Applicant: **Trolex Limited**
Newby Road, Hazel Grove
Stockport SK7 5DY
U.K.

Equipment: Programmable Sensor Controller Type TX9042

Type of Explosion Protection: Intrinsic safety "ia"

Explosion Protection Marking: Trolex Ltd
TX9042 Programmable Sensor Controller
Ex ia I
ANZEx 06.3057X
Ser No. ...

*This certificate is granted subject to the requirements as set out in
Joint Accreditation System of Australia and New Zealand Publications
ANZEx System Rules 2020 & ANZEx Certified Equipment Scheme Rules 2021*

Signed for and on behalf of issuing body



Name & Position

Acting Quality & Certification Manager

This certificate is not transferable and remains the property of the issuing body.

The status of this certificate can be confirmed through the database located at www.anzex.com.au

Certificate issued by:

TestSafe Australia
919 Londonderry Road, Londonderry NSW 2753 Australia

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Manufacturer : **Trox Limited**
Newby Road, Hazel Grove
Stockport SK7 5DY
U.K.

Manufacturing Location(s): **Trox Limited**
Newby Road, Hazel Grove
Stockport SK7 5DY
U.K.

STANDARDS:

The equipment 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 60079-0:2000** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
- IEC 60079-11:1999** Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety "i"

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

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Schedule

Equipment Description:

The Programmable Sensor Controller Type TX9042 provides signal conditioning and monitoring for up to 8 transducers. Each transducer is connected via a dedicated Input PCB which provides the signal conditioning. A programmable microprocessor circuit monitors the conditioned signals to provide local display, monitoring and control signals, and digital data transmission.

The TX9042 is powered from an external nominal 12 V certified IS power supply ($U_i \leq 16.5$ V).

The electronic circuitry, comprising up to 13 PCBs (Power Supply module, Display PCB, Control PCB, Input PCB, Comms Module and up to 8 'Input' Modules), is housed in a moulded plastic enclosure which is itself housed in a stainless steel outer enclosure that provides facilities such as gland entries for restraining incoming cables. This enclosure has been assessed as providing a degree of protection of not less than IP54.

The Control PCB carries the microprocessor circuitry and the control relays and is mounted in the centre of the moulded enclosure; mounted over this, fixed to the top of the enclosure and connected to the Control PCB by a flat ribbon connector, is the Display PCB. An LCD is fitted on the Display PCB along with a connector to interface with a membrane keypad moulded into the top of the unit; the relay status LEDs and a piezo-electric buzzer are also mounted on the Display PCB.

Optional data link circuitry is fitted onto a small daughter board (Digital Comms, RS485 Comms) which has pins for connection onto the Control PCB.

Beneath the Control PCB is fitted an Input PCB which carries up to eight transducer 'Input Modules' which can be selected from the following list and which may be fitted in any position on the Input PCB. Each Input Module is a small PCB fitted with input terminals and signal processing circuitry.

The Input Modules comprise:

- DC Analogue Input (that can be configured for voltage, current or temperature input)
- Digital Input (with an option of Vortex input)
- Digital Input (Failsafe)
- AC (RMS) Analogue Input
- Thermocouple Input
- Strain gauge Input
- Flow Sensor Input

A Power Supply Module connects to the underside of both the Input PCB and the Control PCB.

Connections between the modules, Input PCB, Power Supply Module and Control PCB are by PCB-mounted two-part connectors.

Connections to external power sources can be made at :

- i. Terminals A17, A18 - input to Power Supply Module
- ii. Terminals B1 to B6 - Digital comms

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- iii. Terminals B7 to B18 - Relay contacts (3 contacts per relay)
- iv. Terminals A1 to A16, A19 to A34 - Input Modules (4 terminals per module)

Electrical Ratings/Parameters

Power Supply Connection

Terminals A17, A18 (Power)

U _i	16.5 V
C _i	0
L _i	0

Terminals A35, A36 (Control Function)

U _i	0
I _i	0
P _i	0
C _i	0
L _i	0

DC Analogue Input Module Connections

This module may be configured, when ordered, for any one of three types of signal input – voltage, current or temperature:

Voltage Input:

Power Output Terminal T1 w.r.t. T4

U _o	U _i (power supply connection)
I _o	*
P _o	*
C _o	*
L _o	*
L _o /R _o	*

Input Terminals T2, T3 w.r.t. T4

U _i	16.5 V
C _i	120 nF
L _i	0

U _o	6.51 V
I _o	1.3 mA
C _o	300 μF
L _o	100 mH

Note: parameters marked * are obtained from the certification documents of the power supply connected

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Current Input:

Power Output Terminal T1 w.r.t. T2

U _o	= U _i (power supply connection)
I _o	*
P _o	*
C _o	*
L _o	*
L _o /R _o	*

Input Terminal T2 w.r.t. T3 or T4

U _i	16.5 V
C _i	120 nF
L _i	0

U _o	6.51 V
I _o	1.3 mA
C _o	300 µF
L _o	100 mH

Note: parameters marked * are obtained from the certification documents of the power supply connected

Temperature Input:

Power Output Terminal T1 w.r.t. T2, T3 or T4

U _o	= U _i (power supply connection)
I _o	10 mA
P _o	42 mW
C _o	*
L _o	*
L _o /R _o	*

Input Terminal T2 w.r.t. T3 or T4

U _i	16.5 V
C _i	120 nF
L _i	0

U _o	6.51 V
I _o	1.3 mA
C _o	100 µF
L _o	100 mH

Note: parameters marked * are obtained from the certification documents of the power supply connected

Digital Input Module Connections

This module can be configured as either of two versions, digital and vortex :

Digital Input:

Power Output Terminal T1 w.r.t. T4

U _o	16.5 V
I _o	40 mA
P _o	163 mW
C _o	5 µF
L _o	5 mH
L _o /R _o	100 µH/Ω

U _i	0 V
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Input Terminals T2, T3

U _i	16.5 V
C _i	0
L _i	0

U _o	6.51 V
I _o	16 mA
C _o	100 µF
L _o	100 mH

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Vortex Input:

Power Output Terminal T1 w.r.t. T4

U _o	6.51 V
I _o	40 mA
P _o	153 mW
C _o	100 µF
L _o	26 mH
L _o /R _o	240 µH/Ω

Input Terminals T2, T3

U _i	16.5 V
C _i	0
L _i	0

U _o	6.51 V
I _o	7 mA
C _o	100 µF
L _o	100 mH

Digital Input (Failsafe) Module Connections

Power Output Terminals T1 or T3 w.r.t. T2 or T4

U _o	12.51 V
I _o	3.4 mA
P _o	10.5 mW
C _o	5 µF
L _o	10 mH

U _i	0 V
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Input Terminals T2, T4

U _i	16.5 V
C _i	12 nF
L _i	0

U _o	6.51 V
I _o	3.6 mA
C _o	100 µF
L _o	100 mH

AC (rms) Analogue Input Module Connections

Power output Terminal T1 w.r.t. T4

U _o	= U _i (power supply connection)
I _o	*
P _o	*
C _o	*
L _o	*
L _o /R _o	*

Loop power Output Terminal T2 w.r.t. T3 or T4

U _i	16.5 V
C _i	12 nF
L _i	0

U _o	= U _i (power supply connection)
I _o	121 mA at U _i = 16.5 V
P _o	497 mW at U _i = 16.5 V
C _o	*
L _o	30 mH

Note: parameters marked * are obtained from the certification documents of the power supply connected

Thermocouple Input Module Connections

Power output Terminal T1 w.r.t. T4

U _o	= U _i (power supply connection)
I _o	*
P _o	*
C _o	*
L _o	*
L _o /R _o	*

Input Terminals T2, T3 w.r.t. T4

U _i	6.88 V
C _i	0
L _i	0

U _o	6.51 V
I _o	16 mA
C _o	100 µF
L _o	100 mH

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Note: parameters marked * are obtained from the certification documents of the power supply connected

Strain Gauge Input Module Connections

Power Output Terminal T1 w.r.t. T4

U _o	= U _i (power supply connection)
I _o	129 mA at U _i = 16.5 V
P _o	0.53 W at U _i = 16.5 V
C _o	*
L _o	*
L _o /R _o	*

Input Terminals T2, T3 w.r.t. T4

U _i	16.5 V
P _i	0.53 W
C _i	10 nF
L _i	0

U _o	6.88 V
I _o	21 mA
C _o	100 μF
L _o	100 mH

Note: parameters marked * are obtained from the certification drawings of the power supply connected

Flow Sensor Input Module Connections

Power Output Terminal T1 w.r.t. T4

U _o	7.14 V
I _o	131 mA
P _o	234 mW
C _o	100 μF
L _o	10 mH
L _o /R _o	1834 μH/Ω

Input Terminal T2 w.r.t. T4

U _i	7.14 V
C _i	1.1 nF
L _i	0

U _o	6.88 V
I _o	3.3 mA
C _o	100 μF
L _o	100 mH

Input Terminal T3 w.r.t. T4

U _i	16.5 V
C _i	1.1 nF
L _i	0

U _o	6.88 V
I _o	3.3 mA
C _o	100 μF
L _o	100 mH

RS485 Comms Connections

Terminals B2, B3 w.r.t. B1

U _o	6.88 V
I _o	154 mA
P _o	265 mW
C _o	10 μF
L _o	4 mH
L _o /R _o	139 μH/Ω

U _i	12 V
P _i	1.41 W
C _i	0
L _i	0

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Up to 6 RS485 Comms Modules (in separate Programmable Sensor Controllers type TX9042) may be daisy-chained together (i.e. terminals B1 all linked together, terminals B2 all linked together and terminals B3 all linked together). Provided that the number of daisy-chained PSC's is reduced to 5, these comms lines may be connected to unspecified safe area equipment via an appropriately certified shunt zener diode safety barrier (dual channel a.c.), whose output parameters do not exceed the following per channel:

$$U_o = 9 \text{ V}, I_o = 100 \text{ mA}, P_o = 225 \text{ mW}$$

OR $U_o = 12 \text{ V}, I_o = 80 \text{ mA}, P_o = 240 \text{ mW}$

e.g. suitably certified MTL 761, MTL766, MTL7761ac, MTL7766ac.

The cable parameters shall not exceed the following: $C_c = 2.8 \mu\text{F}$, $L_d/R_c = 222 \mu\text{H}/\Omega$

Digital Comms Connections

Terminal B3, B4, B6 w.r.t. B1

U_o	6.88 V
I_o	3.2 A pk (340 mA long term)
P_o	2.34 W
C_o	100 μF
L_o	100 μH
L_o/R_o	139 $\mu\text{H}/\Omega$

U_i	6.88 V
P_i	0.34 W

Relay Output Connections

The relay contacts must only be connected to an IS circuit which is powered by the same IS Power Supply as the TX9042.

$$U_i = 16.5\text{V}$$

Specific Conditions of Use:

The above parameters shall be taken into account during installation.

Manufacturer's Documents/Drawings associated with this issue:

Drawing/Document No.:	Page/s:	Title:	Revision Level:	Date: yyyy-mm-dd
P5423.02	1	General Arrangement	J	2011-07-04
P5093.27	1	*Reed Relay	D	2024-10-01
P5423.09	1	Power Supply PCB Certified Circuit Diagram	E Salvage	2003-12-02
P5423.09	2	Power Supply PCB Certified Circuit Diagram	J	2007-02-27

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Drawing/Document No.:	Page/s:	Title:	Revision Level:	Date: yyyy-mm-dd
P5423.06	1	Power Supply PCB Artwork	J	2006-09-19
P5423-547	1	P5423.06 Issue E PCB Salvage Modifications	B	02 Dec.2003
P5423.01	2	Control PCB Certified Circuit Diagram	D	2003-01-22
P5423.03	1	Control PCB Artwork	D	2011-05-06
P5423.08	1	Display PCB Certified Circuit Diagram	C	2011-05-23
P5423.05	1	Display PCB Artwork	A	1996-05-08
P5423.47	1	Battery PCB Certified Circuit Diagram	C	2011-12-14
P5423.29	1	Battery PCB Artwork	C	2002-07-22
P5423.46	1	Digital Comms PCB Certified Circuit Diagram	B	2002-09-05
P5423.28	1	Digital Comms PCB Artwork	A	1996-05-08
P5423.45	1	RS485 Comms PCB Certified Circuit Diagram	D	2003-01-22
P5423.254	1	RS485 Comms PCB Artwork	D	2003-06-10
P5423-550	1	P5423.254 issue D PCB Salvage Modifications	A	2003-11-11
P5423.07	1	Input PCB Certified Circuit Diagram	C	2003-01-22
P5423.04	1	Input PCB Artwork	C	2002-07-22
P5423.42	2	Digital Input Module Certified Circuit Diagram	C	2003-09-06
P5423.22	1	Digital Input Module PCB Artwork	D	2003-06-01
P5423-549	1	P5423.22 Issue C PCB Salvage Modifications	A	2003-11-11
P5423.139	2	Digital Input (Fail Safe) Module Certified Circuit Diagram	B	2003-06-12
P5423.135	1	Fail Safe Digital Input Module PCB Artwork	B	2002-07-22
P5423.41	2	DC Analogue Input Module Certified Circuit Diagram	B	2003-06-09
P5423.21	1	DC Analogue Input Module PCB Artwork	B	2002-07-22
P5423.43	1	AC (rms) Analogue Input Module PCB Certified Circuit Diagram	E	2003-01-22
P5423.23	1	AC (rms) Analogue Input Module PCB Artwork	F	2003-06-01
P5423-548	1	P5423.23 Issue E PCB Salvage Modifications	A	2003-11-11
P5423.248	2	Thermocouple Input Module Certified Circuit Diagram	B	2003-06-03
P5423.25	1	Thermocouple Input Module PCB Artwork	B	2003-06-14
P5423.178	2	Flow Sensor Input Module Certified Circuit Diagram	B	2003-04-01

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Drawing/Document No.:	Page/s:	Title:	Revision Level:	Date: yyyy-mm-dd
P5423.179	1	Flow Sensor Input Module PCB Artwork	B	2003-06-09
P5423.138	2	Strain Gauge Input Module Certified Circuit Diagram	C	2003-06-10
P5423.131	1	Strain Gauge Input Module PCB Artwork	C	2002-07-22
P5423.545	1	Certification Label Details Australian	B	2006-12-15
P5423.554	1	Flow Sensor Input Module (Rosemount) PCB Artwork	A	2005-07-28
P5423.555	2	Certified Circuit Diagram Flow Sensor Input Module For Rosemount DP Sensor	A	2005-08-02
P5423.300.ATEX.IE CEx	1	Schematic RTC Adaptor	A	2017-06-26
P5423.301.ATEX.IE CEx	1	PCB, RTC Adaptor	A	2017-06-26

Note: An * is included before the title of documents that are new or revised.

Additional Information:

None.

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Register of Issues and Variations

includes the current issue

Issue 0 dated 2006-12-21

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs:	Baseefa 03(C)0683 in TestSafe file 2003/022220
QAR No. & Issuing CB:	IECEX SIRA 04.018
File Reference:	2006/038129

Issue 1 dated 2007-06-14

Variations Included in this Issue

Option of fitting an alternative relay in the potted relay module. This optional relay has exactly the same operating coil and protection diodes, with the only difference being that it uses a reed that is normally open only (instead of the change over type used previously). This reed is capable of carrying a higher current of 1A (instead of the 250 mA used previously).

This minor change does not affect the intrinsic safety assessment provided in the earlier report Baseefa 03(C)0683 held in TestSafe file 2003/022220

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs:	Baseefa 03(C)0683 in TestSafe file 2003/022220
QAR No. & Issuing CB:	IECEX SIRA 04.018
File Reference:	2007/018048

Issue 2 dated 2007-12-04

Variations Included in this Issue

Modifications have been made to the design of the power supply module within the Programmable Sensor Controllers type TX9042. Test report Baseefa 06(C)0985 provides the compliance assessment of this change.

Option of fitting an alternative LCD 'Plus Opto EW20400YLY' in the Display PCB. Test report 29704 provides the compliance assessment of this change.

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs:	Baseefa 06(C)0985 and TestSafe 29704
QAR No. & Issuing CB:	TestSafe QAR 07.021
File Reference:	2007/028449

Issue 3 dated 2012-03-14

Variations Included in this Issue

Modifications have been made to the Programmable Sensor Controller Type 9042 to include the following:

- Use of an alternative Flow Sensor Input Module (Rosemount) for use with Rosemount Pressure Sensor
- Alternative Control PCB (P5423.01 Iss E or Iss F)
- Alternative LCD Module

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- Alternative diode type on Battery PCB
- Correction to Digital Input Module Uo value

These modifications have been addressed in test reports Baseefa 05(C)0460 and 10(C)0863 and 12(C)0126.

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: Baseefa 06(C)0985, TestSafe 29704, Baseefa 05(C)0460, 10(C)0863, 12(C)0126
 QAR No. & Issuing CB: GB/SIR/QAR07.0017/02
 File Reference: 2011/019531

Issue 4 dated 2012-11-06

Variations Included in this Issue

There are no changes to the design of the equipment.

The Relay connection parameters have been revised as provided below. The earlier restriction that the relay contacts must only be connected to an IS circuit which is powered by the same IS Power Supply as the TX9042 has been removed, and the $U_i = 16.5$ V has now increased to 23 V. These changes have been addressed in test report 33925.

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: Baseefa 06(C)0985, TestSafe 29704, Baseefa 05(C)0460, 10(C)0863, 12(C)0126, TestSafe 33925
 QAR No. & Issuing CB: GB/SIR/QAR07.0017/02
 File Reference: 2012/016979

Issue 5 dated 2018-02-23

Variations Included in this Issue

Modifications have been made to the Programmable Sensor Controller Type 9042 to include the following:

- Use of an alternative component (U105 Real Time Clock) to the Control PCB
- Minor error fixed to the Control PCB schematic

This has been assessed for compliance in Baseefa test report GB/BAS/ExTR17.0194/00.

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs: Baseefa 06(C)0985, TestSafe 29704, Baseefa 05(C)0460, 10(C)0863, 12(C)0126, TestSafe 33925, Baseefa GB/BAS/ExTR17.0194/00
 QAR No. & Issuing CB: GB/SIR/QAR07.0017/07
 File Reference: 2017/017016

Issue 6 dated 2026-02-12

Variations Included in this Issue

1. Drawing P5093.27 updated from rev. C to D to update relay encapsulation details.

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2. Align the I_o and P_o parameters for the Temperature Input Module recalculated as I_o = 10 mA and P_o = 42 mW to account for the safety resistor R22 min 1.64 kΩ protecting the output, assuming worst-case U_o of the connected power supply of 16.5 V. No changes to existing circuitry/drawings.

Test & Assessment Reports relevant for this issue:

TR No. & Issuing CBs:	TestSafe 38816
QAR No. & Issuing CB:	GB/SIR/QAR07.0017/14
File Reference:	2025/011869