



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 12ATEX4210X** Issue: **10**

4 Equipment: **TV\* Switchboxes**

5 Applicant: **Topworx Inc.**

6 Address: **3300 Fern Valley Road** Refer to the Certificate Schedule for alternative Manufacturing  
**Louisville** locations  
**Kentucky 40213**  
**USA**

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

8 CSA Group Netherlands B.V. certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design of Category 2 3 equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

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

EN 60079-0:2012 EN 60079-15:2010 EN 60079-31:2009

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This Type Examination Certificate relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured. 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:



II 3GD

Refer to the Equipment Schedule for the marking pertinent to each model

Project Number 80050077

Signed: J A May

Title: Director of Operations

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## SCHEDULE

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#### 13 DESCRIPTION OF EQUIPMENT

TV* option	Certification code (gas)	Certification code (dust)	Ambient temperature range
P2	Ex nA nC IIC T6 Gc Ex nA nC IIC T4 Gc	Ex tc IIIC T85°C Dc, IP66/68 Ex tc IIIC T115°C Dc, IP66/68	-40°C to +55°C -40°C to +80°C
R2, R4	Ex nA nC IIC T3 Gc Ex nA nC IIC T3 Gc	Ex tc IIIC T85°C Dc, IP66/68 Ex tc IIIC T115°C Dc, IP66/68	-40°C to +60°C -40°C to +95°C
OX	Ex nA IIC T4 Gc	Ex tc IIIC T70°C Dc IP66/68	-40°C to +55°C
PX, RX	Ex nA nC IIC T4 Gc	Ex tc IIIC T115°C Dc, IP66/68	-40°C to +55°C
Q2, Q4, G2, G4	Ex nA nC IIC T6 Gc Ex nA nC IIC T4 Gc	Ex tc IIIC T85°C Dc, IP66/68 Ex tc IIIC T115°C Dc, IP66/68	-40°C to +55°C -40°C to +80°C
AS, DN, PB	Ex nA nC IIC T4 Gc	Ex tc IIIC T115°C Dc, IP66/68	-40°C to +85°C

The TV\*-series Switchboxes consist of an enclosure (approximately 145 mm x 100 mm by 80 mm, without dome) comprising a base and a lid. The enclosure can be made from aluminium alloy (TVL) or stainless steel (TVH), with or without a Lexan indicator dome, depending upon the application. The lid is fitted with a seal inside a groove and four captive screws for attachment to the base. There are two types of lid; one is normal (flat) the other is a flat lid with a bushing and indicator dome. The bushing version of the lid has a hole in its centre to allow a shaft to be fitted for a Position Indicator under the Lexan dome. The base provides a cable entry via screwed entry holes for cable glands.

The permitted internal devices are as follows:

Device	Style	Ambient temp. range
Two reed switches (nC) type HSR-634W only	P2	-40°C to +55°C
Two or four reed switches (nC) type LV ELE145 only	R2, R4	-40°C to +95°C
ASI module (nA) plus two reed switches (nC)	AS	-40°C to +85°C
DeviceNet module (nA) plus two reed switches (nC)	DN	-40°C to +85°C
Profibus module (nA) plus two reed switches (nC)	PB	-40°C to +85°C
Two reed switches (nC) plus TopWorx 4-20 mA Transmitter Module (nA, Sira 12ATEX4193U) and associated potentiometer	PX, RX	-40°C to +55°C
TopWorx 4-20 mA Transmitter Module (nA, Sira 12ATEX4193U) and associated potentiometer only	OX	-40°C to +55°C
Two or four Series 36 GO switches (nC), 120Vac/4A, 24Vdc/3A	G2/G4	-40°C to +80°C
Two or four Series 36 GO switches (nC), 120Vac/2A, 24Vdc/1A	Q2/Q4	-40°C to +80°C
LED Board, Q, P, R switch options	S	-40°C to +60°C

**Variation 1** - This variation introduced the following change:

- i. The introduction of an alternative manufacturing location:  
**Emerson Machinery Equipment (Shenzhen) Co. Ltd.**  
Bao Heng Technology Industry Park, North Hong Long 2<sup>nd</sup> Road, District 68, Boan District, Shenzhen 51810, China.
- ii. A typographical error to the description was amended

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**Variation 2** - This variation introduced the following change:

- i. The introduction of an alternative manufacturing location:  
**Emerson Process Management Magyarország Kft.**  
Fisher Controls International LLC., H-8001 Szekesfehervar Berenyi U, 72-100, Hungary.

**Variation 3** - This variation introduced the following changes:

- i. Introduction of model numbers TV\* Px.... (Profibus), TV\* Ax.... (ASi) and TV\* Dx.... (DeviceNet), where 'x' = K, M or R.
- ii. The product description and marking were amended for clarity.

**Variation 4** - This variation introduced the following changes:

- i. The introduction new models that incorporate a 4-20mA Transmitter Module Sira 12ATEX4193U, plus an associated Novotechnic WAL305 potentiometer. This change required the application of a new Condition of Manufacture.
- ii. The removal of the nitrile O-ring option; only silicone O-rings will now be fitted.
- iii. The following model number changes were recognised:  
TV\*.AR to TV\*.AS (ASi option)  
TV\*.DR to TV\*.DN (DeviceNet option)  
TV\*.PR to TV\*.PB (Profibus option)
- iv. The Description of Equipment and the marking were extensively modified to better describe the product in its current format and recognise the following.
  - The introduction the new models that incorporate a 4-20mA Transmitter Module.
  - The removal of the nitrile O-ring option.
  - The clarification of the ambient temperature ranges that are applicable to alternative internal constructions.

It should be noted that previous Issues of the certificate are still relevant and apply to products manufactured in accordance with already certified constructions.

**Variation 5** - This variation introduced the following changes:

- i. The introduction of S50440A silicone O-ring on the lid/base joint as a replacement to S7395-60 silicone.
- ii. The replacement of IP64 with IP66/68, the marking was amended accordingly.
- iii. The removal of the following devices that incorporate mechanical switches:

Device	Style	Ambient temp. range
2 switches plus ASi module (nA)	AK, AM	-40°C to +85°C
2 switches plus DeviceNet module (nA)	DK, DM	-40°C to +85°C
2 switches plus Profibus module (nA)	PK, PM	-40°C to +85°C

The product description was amended accordingly and an additional Condition of Certification was introduced.

- iv. The addition of ASi, DeviceNet and Profibus drawings.
- v. EN 60079-0:2009 and IEC 60079-0:2011 were replaced by EN 60079-0:2012 in the list of assessment standards.



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**Variation 6** - This variation introduced the following changes:

- i. Change of manufacturing locations:

#### Hungary

Changed from:	to
Emerson Process Management Magyarország Kft., Fisher Controls International LLC, H-8001 Szekesfehervar Berenyi U, 72-100, Hungary	Emerson Process Management Magyarország Kft., Fisher Controls International LLC, Holland Faszor 6, Szekesfehervar, Hungary 8000

#### China

Changed from	to
Emerson Machinery Equipment (Shenzhen) Co. Ltd., Fisher Controls Division, Bao Heng Technology Industry Park, North Hong Long 2 <sup>nd</sup> Road, District 68, Boan District, Shenzhen 51810, China	Emerson Machinery Equipment (Shenzhen) Co. Ltd., Bao Heng Technology Industry Park, Liu Xian 1 <sup>st</sup> Road, District 68, Bao'an District, Shenzhen, China 518101

- ii. Introduction of the 36-series GO Switch, associated with sensing options Q2/Q4 and G2/G4, requiring the addition of a Specific Condition of Use.
- iii. Rationalisation of dust temperature marking to T85°C (associated with gas T6 marking) and T115°C (associated with gas T4 marking) for all except the 'OX' option.
- iv. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012 was replaced by EN 60079-0:2012/A11:2013

**Variation 7** - This variation introduced the following changes:

- i. The addition of an LED circuit board (option S) to enclosure models TVL/TVH to be used in conjunction with listed switch options Q, P and R and referred to as options QS, PS and RS was recognised, and the description was amended accordingly.
- ii. A Specific Condition of Use was introduced.
- iii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-31:2009 was replaced with EN 60079-31:2014 in the list of certification standards.



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#### Variation 8 - The introduction of the change of manufacturing location

From:	To:
Emerson Process Mgmt	ASCO Numatics Sp.z o.o.
Magyarország	Kurczaki 132
Holland Fasor 6	93 331 Lodz
Szekesfehervar, Hungary	Poland
8000	

#### Variation 9 - This variation introduced the following change:

- i. The change to the name of the facility in Poland was recognised;
- |                          |   |
|--------------------------|---|
| From:                    | To:   |
| ASCO Numatics Sp. z o.o. | Emerson Automation Fluid Control & Pneumatics Poland Sp. z o.o. |

## 14 DESCRIPTIVE DOCUMENTS

### 14.1 Drawings

Refer to Certificate Annexe.

### 14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	07 August 2012	R25902B/00	The release of prime certificate.
1	16 November 2012	R29073A/00	The introduction of Variation 1.
2	21 May 2013	R30386A/00	The introduction of Variation 2.
3	05 June 2013	R28243D/00	The introduction of Variation 3.
4	07 November 2013	R26878D/00	The introduction of Variation 4.
5	04 February 2015	R70013654A	The introduction of Variation 5.
6	28 September 2017	R70128304A	This Issue covers the following changes: <ul style="list-style-type: none"> <li>Type Examination Certificate in accordance with 94/9/EC updated to Type Examination Certificate in accordance with Directive 2014/34/EU. (In accordance with Article 41 of Directive 2014/34/EU, 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. Variations to such Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</li> <li>The introduction of Variation 6.</li> </ul>
7	29 March 2018	R70145489A	The introduction of Variation 7.
8	31 January 2019	R70209081A	The introduction of variation 8
9	15 October 2019	0538	Transfer of certificate Sira 12ATEX4210X from Sira Certification Service to CSA Group Netherlands B.V.
10	30 July 2020	R80050077A	The introduction of variation 9.

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#### 15 SPECIFIC CONDITIONS OF USE

- 15.1 When fitted with an indicator dome, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall only be cleaned with a damp cloth.
- 15.2 When the supply to the Series 36 GO Switches does not exceed 60 Vac/85 Vdc, the supply shall be protected such that transients are limited to a maximum of 119 V. If the supply is above 60 Vac/85 Vdc but not exceeding 120 Vac, the supply shall be protected such that transients are limited to a maximum of 238 V.
- 15.3 The supply values, when option S LED board is fitted, are  $U_{max} = 24V$ ,  $I_{max} = 250 \text{ mA}$  and  $P_{max} = 1.2W$ .

#### 16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.

# Certificate Annexe



Certificate Number: Sira 12ATEX4210X

Equipment: TV\* Switchboxes

Applicant: Topworx Inc. .

## Issue 0

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
CERT-ES-02967-1	1 of 1	4	16 Jul 12	ATEX Master, Assembly
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH
ES-01596-1	1 of 1	5	29 Aug 12	Clear Cover (Lexan Dome)
ES-01598-1	1 of 1	3	16 Jul 12	Assembly, Dome
CERT-ES-01901-1	1 of 1	6	16 Jul 12	Assembly Shaft, Standard (T-Series, Thinwall)
CERT-ES-02265-1	1 of 1	5	16 Jul 12	Assembly Shaft (Namur)
CERT-ES-02266-1	1 of 1	4	16 Jul 12	Assembly Shaft (Standard)
CERT-ES-02280-1	1 of 1	5	16 Jul 12	Assembly Shaft
CERT-ES-02768-1	1 of 1	1	16 Jul 12	Assembly Shaft (Linear)
CERT-ES-02772-1	1 of 1	1	16 Jul 12	Assembly Shaft (Linear)
S-S01-0037	1 of 1	3	16 Jul 12	Shaft O-rings
ES-00403-1	1 of 1	6	16 Jul 12	Assey, 'R' Reed Switch
ES-00530-1	1 of 1	8	16 Jul 12	Assey, 'P' Reed Switch
PS-00094-1	1 of 1	3	16 Jul 12	'R' Reed Switch details
PS-00125-1	1 of 1	2	16 Jul 12	'P' Reed Switch details

## Issue 1

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH

## Issue 2

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH

## Issue 3

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-02883-1	1 of 1	3	8 May 13	Wiring diagram, ASi board with two mechanical switches
CERT-ES-02884-1	1 of 1	2	8 May 13	Wiring diagram, ASi board with two reed switches
CERT-ES-02887-1	1 of 1	1	8 May 13	Wiring diagram, Profibus board with two reed switches
CERT-ES-02888-1	1 of 1	2	8 May 13	Wiring diagram, Profibus board with two mechanical switches
CERT-ES-02889-1	1 of 1	1	8 May 13	Wiring diagram, DeviceNet board with two reed switches
CERT-ES-02890-1	1 of 1	2	8 May 13	Wiring diagram, DeviceNet board with two mechanical switches
CERT-ES-02967-1	1 of 1	5	8 May 13	Master assembly
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH

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# Certificate Annexe



Certificate Number: Sira 12ATEX4210X

Equipment: TV\* Switchboxes

Applicant: Topworx Inc. .

## Issue 4

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-02967-1	1 of 1	7	17 Oct 13	General assembly
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH
CERT-ES-03793-1	1 of 1	3	20 Aug 13	Nameplate, nA

## Issue 5

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-02866-1	1 of 5 4 of 5	1	5 Nov 14	ASi module schematic and BoM
CERT-ES-02867-1	1 of 5 4 of 5	1	5 Nov 14	Profibus schematic and BoM
CERT-ES-02868-1	1 to 4	1	5 Nov 14	DeviceNet, schematic, BoM and assembly
CERT-ES-02967-1	1 of 1	10	5 Nov 14	General assembly
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH
CERT-ES-03793-1	1 of 1	4	5 Nov 14	Nameplate, nA

Note: The following drawings that include mechanical switches are withdrawn:

- CERT-ES-02883-1
- CERT-ES-02888-1
- CERT-ES-02890-1

## Issue 6

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH
CERT-ES-04334-1	1 of 3	18	18 Sep 17	General assembly
CERT-ES-04334-1	3 of 3	18	18 Sep 17	General assembly
CERT-ES-06321-1	1 of 1	1	18 Sep 17	Pin clearance, 36 series
ES-03334-1	1 of 1	5	18 Sep 17	Hermetic seal, 36-series GO switch for T series
ES-03335-1	1 of 1	5	18 Sep 17	Can, 36-series GO switch, T series
ES-03890-1	1 to 2	6	18 Sep 17	Sensor assembly, 36 series TVL/TVH/TVF

Notes:

- Nameplate drawing CERT-ES-03260-1 is combined with CERT-ES-03793-1 (r4), making the latter drawing obsolete.
- New drawing CERT-ES-04334-1 replaces CERT-ES-02967-1, which is now obsolete.
- Sheet 2 of drawing CERT-ES-04334-1 refers to the intrinsic safety build only

## Issue 7

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-03260-1	1 OF 1	20	17 Jan 19	Certification Drawing, TVL/TVH
CERT-ES-04334-1	1 to 3	19	13 Feb 18	General assembly
ES-05116-1	1 to 5	2	26 Mar 18	LED indicator PCBA
ES-05482-1	1 of 1	3	23 Jan 18	Assy, Indicator QS TV Series (Led) Minigo
ES-05484-1	1 of 1	4	16 Nov 17	Assy, RS and PS Indicator TV Series (LED)
ES-05626-1	1 of 1	3	16 Nov 17	Assy, MS and KS Indicator TV Series (LED)

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Issues 8 and 9. No new drawings were introduced.

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