IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx SIR 14.0045X**

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Status: **Current**

Issue No: 10

Date of Issue: 2024-04-05

Applicant: **TopWorx**
3300 Fern Valley Road
Louisville
Kentucky 40213
United States of America

Equipment: **TX* Series Valve Position Indicators**

Optional accessory:

Type of Protection: **Intrinsic Safety ia and Dust Protection by Enclosure tb**

Marking: Ex ia IIC T* Gb (Ta = -*°C to +*°C)
Ex tb III C T*°C Db (Ta = -*°C to +*°C)
IP66/67
* The temperature class, ambient temperature range and surface temperature depend on devices used in the construction of these products, see Conditions of Manufacture.

Certificate history:
Issue 9 (2024-01-08)
Issue 8 (2022-09-26)
Issue 7 (2021-05-19)
Issue 6 (2020-09-14)
Issue 5 (2020-07-30)
Issue 4 (2019-03-19)
Issue 3 (2019-03-07)
Issue 2 (2016-10-27)
Issue 1 (2015-11-03)
Issue 0 (2014-08-29)

Approved for issue on behalf of the IECEx Certification Body: **Michelle Halliwell**

Position: **Director Operations, UK & Industrial Europe**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom

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Manufacturer:
Topworx
3300 Fern Valley Road
Louisville
Kentucky 40213
United States of America

Manufacturing locations:

Topworx
3300 Fern Valley Road
Louisville
Kentucky 40213
United States of America

Emerson Machinery Equipment (Shenzhen) Co. Ltd
101 Building 2, COFCO Park
Honglang North 2nd Road
Xin'an Street
Bao'an District
Shenzhen 51801
China

Emerson Automation Fluid Control & Pneumatics Poland Sp. z o. o. (Emerson AFCP Poland Sp. z o.o.)
Kurczaki 132
Lodz 93-331
Poland

See following pages for more locations

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

GB/SIR/ExTR14.0192/00
GB/SIR/ExTR15.0260/00
GB/SIR/ExTR16.0281/00
GB/SIR/ExTR19.0053/00
GB/SIR/ExTR19.0073/00
GB/SIR/ExTR20.0142/00
GB/SIR/ExTR20.0154/00
GB/SIR/ExTR21.0088/00
GB/SIR/ExTR22.0140/00
GB/SIR/ExTR24.0005/00
GB/SIR/ExTR24.0040/00

Quality Assessment Reports:

BR/ULBR/QAR17.0001/04
GB/BAS/QAR06.0020/12
GB/SIR/QAR07.0025/11
GB/SIR/QAR07.0041/11
NL/DEK/QAR11.0004/07

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Valve Position Indicators consist of a metal enclosure (approximately 150 mm x 100 mm by 60 mm) comprising a body and a lid. There is a plastic dome housing a visual indicator; the dome does not contribute to the ingress protection. There are threaded entries to allow the installation of cable glands.

Model	Body	Lid	Dome
TXP	Aluminium	Aluminium	Lexan
TXS	Stainless Steel	Stainless Steel	Lexan

Internally, a rotating cam activates a number of internal devices that sense the status of the valve position. The approved internal devices are as shown in the Condition of Manufacture section in the Certificate Annexe.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The 4-20 mA loop circuit and the various additional sub-assemblies (switches, sensors, valves, etc.) shall be treated as separate intrinsically safe circuits.
2. The entity parameters for simple switches that are not covered by a certificate are Ui = 30 V, Ii = 200 mA and Pi = 0.72 W/switch (T4) or Pi = 0.34 W/switch (T6). The entity parameters of certified devices fitted shall be obtained from the applicable certificate.
3. If the equipment is fitted with a HART v7 Module, it may be supplied with a bonding strap that could be used to connect the shield (screen) of the cable to ground when installed in a metallic enclosure. In this case, the user/installer shall take this into consideration and ensure that earthing arrangements of the final circuitry comply with the requirements of the relevant Code of Practice.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
This issue, Issue 10, recognises the following changes; refer to the certificate annex to view a comprehensive history:

1. Inclusion of ES-04900-2 component as an approved internal device in the Condition of Manufacture.
2. Manufacturer's Name & Address for IECEx certification is revised to reflect the latest QARs for the alternate manufacturing locations.

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Additional manufacturing locations:

ASCO VALVE (Shanghai) Co;Limited
No. 480, Xin Miao No. 3 Road
Xin Qiao Town, Song
Jiang District
Shanghai 201612
China

Ascoval Indústria e Comércio Ltda.
Rua Goiatuba, 81
Jardim Mutinga
Barueri, SP 06465-010
Brasil
Brazil

Annex:

IECEx SIR 14.0045X Annexe Iss 10.pdf

Conditions of Manufacture

i. The Valve Position Indicators shall only be fitted with devices that that are listed in the table below. Where applicable; these devices shall also conform to the certificates, supplements and amendments that are also listed therein. Because the exact composition of the Valve Position Indicator is variable, Topworx Inc. shall:

- Supply the installer/end user with a full set of appropriate certificates and instructions that are relevant to the contents of the enclosure.
- Indicate which certificates apply to the contents of the enclosure.

Internal Components Table

ID*	Device	Sensing option	Type	Description
1	Mechanical switch	K	V7	Simple switch
2	Go switch	L	35 Series	Simple switch
3	Micro/Limit switch	M	VS10N001C2	Simple switch
4	Reed switch	P	HSR-V933	Simple switch
5	Reed switch	R	LV-ELE145	Simple switch
6	DPDT Micro switch	T	Cherry Burrell E19 or ITW DPDT-ZZ #26-804	Simple switch
7	ASCO Electro-valve Module	1 or 2	3021....IA	IECEx INE 10.0002X issue 2
11	Pepperl + Fuchs Cuboidal Inductive Proximity sensor	E	All other types (supply types 1, 2 + 3)	IECEx PTB 11.0021X issue 2
14	TopWorx 4-20 mA transmitter module & associated potentiometer	X	N/A	IECEx SIR 12.0076U issue 1
15	Turk Two Wire Proximity Sensors	N	Type ...-...-.Y1.-..../...	IECEx KEM 06.0036X issue 5
16	Go switch	Q	36 Series	IECEx BAS 15.0092U
17	GO Switch	D	36 SD Series (D2, D4)	IECEx UL 19.0002U
18	Pepperl+Fuchs Switches/sensors	N, E, B, F, J, V, 3 and N_+N _ _ _	SC, SJ, NC or NJ (Only one type of switch to be used as per drawing CERT-ES-08677-1 without any other components)	IECEx PTB 11.0021X issue 2 IECEx PTB 11.0091X, issue 3 IECEx PTB 11.0092X, issue 2 IECEx PTB 11.0037X, issue 4
19	HART v7	G	ES-04900-2	IECEx SIR 16.0107U Issue 2 Sira 16ATEX2342U Issue 4 CSAE 21UKEX2700U Issue 1

* This number was created by CSA Sira and is used as a cross-reference to enable the marking that is applicable to each permissible device to be specified.

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Hawarden Deeside CH5 3US, UK.

ii. The temperature class, ambient temperature range and surface temperature depend on the devices used in the construction of these Valve Position Indicators, the manufacturer shall therefore mark their products in accordance with the table below:

ID (see table above)	Gas or dust	Ambient temperature range (°C)	Temperature class or T*°C
1, 2, 3, 4, 5 and 6	Gas	-65 to +55	T6
		-65 to +70	T5
		-65 to +85	T4
		-65 to +100	T3
	Dust	-50 to +55	T75°C
		-50 to +85	T104°C
7	Gas	-40 to +56	T4
	Dust	-40 to +56	T75°C
11	Gas	-60 to +35	T4
	Dust	-50 to +35	T75°C
12	Gas	-60 to +39	T4
	Dust	-50 to +39	T75°C
13	Gas	-60 to +40	T4
	Dust	-50 to +40	T75°C
14	Gas	-40 to +52	T4
	Dust	-40 to +52	T75°C
15	Gas	-25 to +42	T4
	Dust	-25 to +42	T75°C
16	Gas	-55 to +55	T6
		-55 to +85	T4
		-55 to +100	T3
	Dust	-50 to +55	T75°C
		-50 to +85	T104°C
17	Gas	-55 to +55	T6
		-55 to +85	T4
	Dust	-50 to +55	T75°C
		-50 to +85	T104°C
18	Gas	Tamb and Tcode will depend on number of switches inside, as marked on internal labels (reference drawing CERT-ES-08677-1)	
	Dust	-50 to +85	T104°C
19	Gas	-40 to +80	T5
	Dust	-40 to +80	T104°C

iii. Line fault detection shall not be fitted to equipment marked with a T6 temperature class.

iv. When the equipment incorporates a 4-20 mA Transmitter Module, the output from the 4-20mA Transmitter Module shall only be connected to a 10k potentiometer, that has a 0.5 mm separation distance through a solid insulator, also located within the Valve Position Indicator. When the 4-20 mA Transmitter Module is fitted, a maximum of two switches is permitted.

v. The manufacturer shall carry out a dielectric strength test on 100% of manufactured units in accordance with IEC 60079-11:2011 as follows: apply a voltage of 500 Vrms to all input terminals and the outer enclosure for a minimum of 60 s. Alternatively, apply a test voltage of 600 Vrms for 1 sec; or a test voltage of 707 Vdc for 60 sec; or a test voltage of 845 Vdc for 1 sec.; there shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.

vi. The earthing facility of the Series 36 GO switch shall not be used.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1 – this Issue introduced the following changes:

1. The following reductions in the lower ambient temperature were approved for devices intended for use in flammable gas atmospheres:
   * -65°C for Valve Position Indicators containing only simple switches
   * -60°C for PTB-certified P+F switches to; for group IIC gas certification only
2. The introduction of a T3 temperature class option; this applies to Valve Position Indicators containing only simple switches that are intended for use in flammable gas atmospheres.
3. An existing Condition of Manufacture was reviewed and revised to recognise new values and to clarify the content.
4. Add The addition of line fault detection options for devices intended for use in flammable gas atmospheres with T4 and T3 temperature classes; as a result, a new condition of manufacture was added.
5. The address of the manufacturing location in China was changed from Fisher Controls Division, Bao Heng Technology Industry Park, North Hong Lang 2nd Road, District 68 Bao'an District, Shenzhen 518101 to Fisher Controls Division, Bao Heng Technology Industry Park, Liu Xian 1st Road, District 68, Bao'an District, Shenzhen 518101.
6. The address of the manufacturing location in Hungary was changed from H-8001 Szekesfehervar Berenyi U, 72-100 to Holland Fasor 6, Székesfehérvár.

Issue 2 – this Issue introduced the following change:

1. To include the component-certified Series 36 Go Switch (option Q) as an alternative option for the Series 35 Go Switch, with resulting amendments to the Conditions of Manufacture.

Issue 3 – this Issue introduced the following change:

1. The change of manufacturing location;

From:	To:
Emerson Process Management Magyarorszag Kft. Fisher Controls International LLC, Holland Fasor 6, Székesfehérvár, 8000, Hungary	ASCO Numatics Sp.z o.o. Kurczaki 132 93 331 Lodz Poland

Issue 4 – this Issue introduced the following changes:

1. The introduction of the Series 36SD GO Switch, associated with new sensing options D2, D4.
2. Condition of Manufacturer referencing "Internal Components Table" was revised to include D sensing options to ID 17 LED Board and add ID 17 to include the new Go Switch.
3. Condition of Manufacturer referencing "The temperature class, ambient temperature range and surface temperature" was revised to add ID 17; to include the temperature class, ambient temperature range and surface temperature information for the new Go Switch.

Issue 5 - This issue introduced the following change:

1. 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.

Issue 6 - This issue introduced the following changes:

1. Add new ambient ranges for Pepperl +Fuchs Switches and sensors (Internal component ID 18) when used without any other components.]
2. Add T5 temperature code for Simple Switches (Internal Component ID 1 to 6).
3. The Specific Conditions of Use and Conditions of Manufacture were amended.

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Issue 7 - This issue introduced the following change:

1. The address of the manufacturing location in Shenzhen was updated as was the related QAR

   Emerson Machinery Equipment (Shenzhen) Co. Ltd
   101 Building 2, COFCO Park
   Honglang North 2nd Road
   Xin'an Street
   Bao'an District
   Shenzhen
   51801
   China

Issue 8 - This issue introduced the following changes:

1. Upgrade standard from IEC 60079-0:2011 Ed.6 to IEC 60079-0:2017 Ed.7.
2. Update Ex component list and evaluate ASCO part "3021....IA" to IEC 60079-0:2017 Ed.7.
3. Update routine dielectric testing requirements by inclusion of 1.2 times AC/DC test voltage options with duration of 1 sec.

Issue 9 - This issue introduced the following changes:

1. Conditions of Manufacture is revised to replace the Novotechnic WAL305 potentiometer with a generic 10k potentiometer that has a 0.5 mm separation distance through a solid insulation.
2. Manufacturer's Name & Address for IECEx certification is revised to add two new alternate manufacturing locations.
3. Manufacturer's Name & Address for IECEx certification is revised to reflect the latest QARs for the alternate manufacturing locations.

Issue 10 - This issue introduced the following changes:

1. Inclusion of ES-04900-2 component as an approved internal device in the Condition of Manufacture.
2. Manufacturer's Name & Address for IECEx certification is revised to reflect the latest QARs for the alternate manufacturing locations.

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