



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 13.0146X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 9	Issue 8 (2021-05-19)
Date of Issue:	2022-01-18		Issue 7 (2020-09-14)
Applicant:	Topworx 3300 Fern Valley Road Louisville KY 40213 United States of America		Issue 6 (2020-07-30)
Equipment:	TV* Series Valve Position Indicators		Issue 5 (2019-03-20)
Optional accessory:			Issue 4 (2019-03-07)
Type of Protection:	Intrinsically Safe ia and Dust Protection by Enclosure tb		Issue 3 (2018-01-29)
Marking:	TVH & TVL Ex ia IIC T* Gb (Ta = -*°C to +*°C) Ex tb III C T*°C Db (Ta = -*°C to +*°C) IP66/68 or IP64 dependent upon type of 'O' ring fitted		Issue 2 (2016-10-27)
	TVA & TVF Ex ia IIC T* Gb (Ta = -*°C to +*°C)		Issue 1 (2016-01-22)
			Issue 0 (2014-08-29)

* The temperature class, ambient temperature range and surface temperature depend on devices used in the construction of these products, see Conditions of Manufacture.

Approved for issue on behalf of the IECEx
Certification Body:

N Jones

Position:

Certification Manager

Signature:
(for printed version)

Date:

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.
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Certificate issued by:

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





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Date of issue: 2022-01-18

Issue No: 9

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

Additional
manufacturing
locations:

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

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

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 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

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/CSAE/ExTR22.0015/00
GB/SIR/ExTR16.0215/00
GB/SIR/ExTR19.0069/00
GB/SIR/ExTR21.0088/00

GB/SIR/ExTR14.0190/00
GB/SIR/ExTR18.0018/00
GB/SIR/ExTR20.0142/00

GB/SIR/ExTR15.0261/00
GB/SIR/ExTR19.0053/00
GB/SIR/ExTR20.0153/00

Quality Assessment Reports:

GB/BAS/QAR06.0020/10

GB/SIR/QAR07.0025/09

NL/DEK/QAR11.0004/06



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Valve Position Indicator consists of an enclosure (approximately 150 mm x 100 mm by 60 mm) made up of a body and a lid. All models have a visual indicator of valve position. In models with an all-metal enclosure, there is an additional plastic dome housing the indicator; the dome does not contribute to the ingress protection. Models with a Lexan lid have no additional dome. There are threaded entries to allow the installation of cable glands. (refer to the Annexe for the table showing Models, etc.)

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 'Conditions of Manufacture' section of the certificate.

Refer to the Annexe for additional information

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 $U_i = 30 \text{ V}$, $I_i = 200 \text{ mA}$ and $P_i = 0.72 \text{ W/switch (T4)}$ or $P_i = 0.34 \text{ W/switch (T5/T6)}$. The entity parameters of certified devices fitted must be obtained from the applicable certificate.



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Date of issue: 2022-01-18

Issue No: 9

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This issue, Issue 9, recognises the following change; refer to the certificate annex to view a comprehensive history:

1. Correct component ID 10 of Internal Components Table to reference the correct IECEx report (IECEX PTB 11.0021X).

Annex:

[IECEX SIR 13.0146X Iss 9 Annexe.pdf](#)



Enclosures types

Model	Body	Lid	Dome	Protection method(s)
TVA	Lexan	Lexan	None	ia
TVF	Aluminium	Lexan	None	ia
TVH	Stainless Steel	Stainless Steel	Lexan	ia, tb
TVL	Aluminium	Aluminium	Lexan	ia, tb

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 1;
8	IFM Electronic Inductive Proximity Switch	N	N*50**, N95001 & K15030 (supply types 1, 2 + 3)	IECEX BVS 06.0003 issue 4
9	Pepperl + Fuchs Slot Type Initiators	N	SJ... & SC... (supply types 1, 2 + 3)	IECEX TUN 04.0016X issue 0
10	Pepperl + Fuchs Cuboidal Inductive Proximity sensor	E	Type NJ2-V3-N... (supply types 1, 2 + 3)	IECEX PTB 11.0021X issue 0
11	Pepperl + Fuchs Cuboidal Inductive Proximity sensor	E	All other types (supply types 1, 2 + 3)	IECEX PTB 11.0021X issue 0;
14	TopWorx 4-20 mA transmitter module & associated potentiometer	X	N/A	IECEX SIR 12.0076U issue 0
15	Turk Two Wire Proximity Sensors	N	Type ...-...-Y1.-.../...	IECEX KEM 06.0036X issue 3
16	Go switch	Q	36 Series	IECEX BAS 15.0092U
17	LED board	S	ES-05116-1	Used with K, M, P, Q2, R and D sensing options
18	GO Switch	D	36 SD Series (D2, D4 or DS)	IECEX UL 19.0002U
19	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 TUN 04.0016X issue 0, IECEX TUN 04.0014X issue 0, IECEX PTB 11.0021X issue 0, IECEX PTB 11.0091X, issue 1 IECEX PTB 11.0092X, issue 1 IECEX PTB 11.0037X, 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.

- 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	
8	Gas	-25 to +42	T4	
	Dust	-25 to +42	T75°C	
9	Gas	-60 to +47	T4	
	Dust	-50 to +47	T75°C	
10	Gas	-60 to +56	T4	
	Dust	-50 to +56	T75°C	
11	Gas	-60 to +35	T4	
	Dust	-50 to +35	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	-65 to +60	T4	
	Dust	-50 to +55	T75°C	
		-50 to +85	T104°C	
18	Gas	-55 to +55	T6	
		-55 to +85	T4	
	Dust	-50 to +55	T75°C	
		-50 to +85	T104°C	
		19		Gas
		Dust	-50 to +85	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 Novotechnic WAL305 potentiometer, also located within the Valve Position Indicator. When the 4-20 mA Transmitter Module is fitted, a maximum of two switches is permitted. The 4-20 mA Transmitter Module shall not be fitted to TVA or TVF enclosures.
- v. The manufacturer shall carry out a dielectric strength test on 100% of manufactured units in accordance with IEC 60079-11:2011 as follows: 500 Vac shall be applied between the circuit and the enclosure for 60 s; there shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.
- vi. The TVL and TVH enclosures shall only be marked IP66/68 when fitted with a Spec Seals S50440A silicone lid O-ring. When fitted with a Parker S7395-60 silicone lid O-ring, the TVL and TVH enclosures shall be marked IP64.
- vii. The earthing facility of the Series 36 GO switch shall not be used.

Annexe to: IECEx SIR 13.0146X Issue 9

Applicant: TopWorx

Apparatus: TV* Series Valve Position Indicators



Full certificate change history:

Issue 1 – this Issue introduced the following changes:

- 1 A reduction in the lower ambient temperature for Valve Position Indicators containing only simple switches to -65°C and PTB-certified P+F switches to -60°C; was approved for group IIC gas certification only, the conditions of manufacture were amended accordingly.
- 2 The addition of a T3 temperature rating option; applies to group IIC gas certification only, the marking was amended to reflect this.
- 3 Addition of line fault detection option for T4 and T3 temperature classes only; applies to group IIC gas certification only, a new condition of manufacture was added as a result.
- 4 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.
- 5 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 to the Series 35 Go Switch, with resulting amendments to the Conditions of Manufacture.

Issue 3 – this Issue introduced the following changes:

- 1 The addition of a LED circuit board, sensing option S, to enclosure models TVF/TVL/TVH to be used in conjunction with .listed sensing options K, M, P, Q2 and R, the relevant Conditions of Manufacture being supplemented.
- 2 Rationalisation of the marking drawings.

Issue 4 – this Issue introduced the following changes:

1. A change of the Manufacturing location on the certificate:
From: Emerson Process Management Magyarország Kft.
Fisher Controls International LLC, H-8001
Székesfehérvár,
Berenyi U, 72-100,
Hungary
To: ASCO Numatics Sp.z o.o.
Kurczaki 132
93 331 Lodz
Poland

Issue 5 – this Issue introduced the following change:

- 1 The introduction of the Series 36SD GO Switch, associated with new sensing options D2, D4 or DS.
- 2 Condition of Manufacturer referencing "Internal Components Table" was revised to include D sensing options to ID 17 LED Board and add ID 18 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 18; to include the temperature class, ambient temperature range and surface temperature information for the new Go Switch.

Issue 6 – this Issue introduced the following changes:

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

Issue 7 – this Issue introduced the following changes:

- 1 Add new ambient ranges for Pepperl +Fuchs Switches and sensors (Internal component ID 19) 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 to reflect these changes.

Annexe to: IECEx SIR 13.0146X Issue 9

Applicant: TopWorx

Apparatus: TV* Series Valve Position Indicators



Issue 8 – 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 9 – this Issue introduced the following change:

- 1 Correct component ID 10 of Internal Components Table to reference the correct IECEx report (IECEx PTB 11.0021X).