



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx SIR 13.0146X issue No.:2

Status: **Current**

Date of Issue: **2016-10-27** Page 1 of 4

Certificate history:
Issue No. 2 (2016-10-27)
Issue No. 1 (2016-1-22)
Issue No. 0 (2014-8-29)

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

Equipment: **TV* Series Valve Position Indicators**
Optional accessory:

Type of Protection: **Intrinsically Safe and Dust Protection by Enclosure**

Marking: **TVH & TVL**
Ex ia IIC T* Gb (Ta = -*°C to +*°C)
Ex tb IIIC T*°C Db (Ta = -*°C to +*°C)
IP66/68 or IP64 dependent upon type of 'O' ring fitted
TVA & TVF
Ex ia IIC T* Gb (Ta = -*°C to +*°C)

* 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) PP PJWalker.

Date: 2016-10-27

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom





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

Additional Manufacturing location(s):

Emerson Machinery Equipment (Shenzhen) Co. Ltd. Fisher Controls Division Bao Heng Technology Industry Park Liu Xian 1st Road District 68 Bao'an District Shenzhen 518101 China	Emerson Process Management Magyarország Kft. Fisher Controls International LLC. Holland Fisor 6 Szekesfehevar Hungary
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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 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:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition: 2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical 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 Report:

GB/SIR/ExTR14.0190/00

GB/SIR/ExTR15.0261/00

GB/SIR/ExTR16.0215/00

Quality Assessment Report:

GB/BAS/QAR06.0020/05

GB/BAS/QAR13.0005/01

GB/SIR/QAR07.0025/05



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Schedule

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.

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

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

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



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

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 Faszor 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.

Annexe to: IECEx SIR 13.0146X Issue 2
Applicant: TopWorx
Apparatus: TV* Series Valve Position Indicators



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 TUN 040014X 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

* 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 +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

Sira Certification Service

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Annexe to: IECEx SIR 13.0146X Issue 2

Applicant: TopWorx

Apparatus: TV* Series Valve Position Indicators



ID (see table above)	Gas or dust	Ambient temperature range (°C)	Temperature class or T*°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

- 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.

Date: 27 October 2016

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Form 9530 Issue 1

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