

EXPLOSION PROTECTION

CERTIFICATE OF CONFORMITY

Certificate No.: GYJ15.1138X

Manufacturer: Topworx Inc.
(Address: 3300 Fern Valley Road, Louisville, Kentucky 40213, USA)

Product: Valve Position Indicators

Model Specification: TVA, TVF, TVH and TVL series

Anti-explosion Mark: Ex ia IIC T4/T6 Gb, Ex tb IIIC T75°C Db, IP64/66/68

Product standard /

Drawing No. CERT-ES-04334-1 Rev.11

After examining the drawings and technical documents as well as sample testing, it has been confirmed that the abovementioned products are in compliance with GB 3836.1-2010, GB 3836.4-2010, GB 3836.20-2010, and IEC 60079-31:2008 standards, and this certificate is hereby issued.

This certificate is valid from May 22, 2015 to May 21, 2020

Remarks:

1. Please refer to the attachment of this certificate for safety precautions.
2. Please refer to the attachment of this certificate for specific model specifications.
3. Intrinsic electrical parameter is specified in the attachment to this certificate.
4. This certificate is also applicable to products with the same model number manufactured by Emerson Machinery Equipment (Shenzhen) Co., Ltd. (Address: Bao Heng Technology Industry Park, Liu Xian 1st Road, District 68, Bao'an District, Shenzhen) and by Emerson Process Management Magyarorszag Kft. (Address: 8000 Szekesfehervar, Holland Fasor 6, Hungary)

Director [Signature - illegible]
National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation
Date of Issue May 22, 2015
[Seal – National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation]

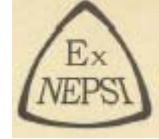
This certificate is valid only for products matching the approved documentation and sample.

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Edition 05



EXPLOSION PROTECTION CERTIFICATE OF CONFORMITY

Cert. No. GYJ15.1138X

This is to certify that the product
Valve Position Indicators
manufactured by Topworx Inc.
(Address: 3300 Fern Valley Road, Louisville, Kentucky 40213, USA)
which model is TVA, TVF, TVH, TVL series
Ex marking Ex ia IIC T4/T6 Gb, Ex tb IIIC T75°C Db, IP64/66/68
product standard /
drawing number CERT-ES-04334-1 Rev.11

**has been inspected and certified by NEPSI, and that it conforms to GB 3836.1-2010,
GB 3836.4-2010, GB 3836-20-2010, IEC 60079-31:2008**

This approval shall remain in force until May 21, 2020

Remarks

1. Conditions for safe use are specified in the attachment to this certificate.
2. Safe parameters specified in the attachment to this certificate.
3. Intrinsic safety parameter specified in the attachment to this certificate.
4. This certificate is also applicable for the product with the same type manufactured by Emerson Machinery Equipment (Shenzhen) Co., Ltd. (Address: Bao Heng Technology Industry Park, Liu Xian 1st Road, District 68, Bao'an District, Shenzhen, P.R. China) and Emerson Process Management Magyarorszag Kft. (Address: 8000 Szekesfehervar, Holland Faszor 6, Hungary).

Director [Signature - illegible]
**National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation**
Issued Date May 22, 2015
**[Seal – National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation]**

This certificate is valid for products compatible with the documents and samples approved by NEPSI.

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National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation

(GYJ15.1138X)

(Attachment I)

GYJ15.1138X Explosion Protection Certificate of Conformity Attachment I

After inspection by the National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI), the TVA, TVF, TVH and TVL series of valve position indicators produced by Topworx Inc., Emerson Machinery Equipment (Shenzhen) Co., Ltd. and Emerson Process Management Magyarország Kft., have been found to be in compliance with the following standards:

GB3836.1-2010 Explosive Atmosphere Part 1: Equipment - General Requirements

GB3836.4-2010 Explosive Atmosphere Part 4: Equipment Protected by Explosion Protection Type "i"

GB3836.20-2010 Explosive Atmosphere Part 20: Equipment whose Equipment Protection Level (EPL) is Ga Level

IEC 60079-31:2008 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"

The anti-explosion mark of TVA, TVF series valve position indicators is: Ex ia IIC T4/T6 Gb;
the anti-explosion mark of TVH, TVL series valve position indicators is Ex ia IIC T4/T6 Gb, Ex tb IIIC T75°C, IP64/66/68. The Explosion Protection Certificate of Conformity number is GYJ15.1138X.

This certificate recognizes products with the specific model number: TV **a-b c 0 d e f g h l j k**

Where: **a** indicates enclosure material; can be A, F, H or L;

b indicates main line and sensor information; can be L, M, P, R, T, K, X, E or N;

c indicates number of switches; can be 1~4;

d e f g h l j k are parameters not related to explosion protection.

The relationship between optional components and ambient temperature range for use as well as temperature groups is as follows:

Optional Components				Ambient	Gas	Dust
Product Name	Code name	Model No.	Note	Temp. for use	Temp. Group	Temp. Group
Mechanical Switch	K	V7	Simple equipment	-50 °C ~+55 °C	T6	T75 °C
Micro/Limit Switch	M	VS10N001C2	Simple equipment			
Reed Switch	P	HSR-V933	Simple equipment			
Reed Switch	R	LV-ELE 145	Simple equipment			
Go Switch	L	35 series	Simple equipment			
DPDT Micro Switch	T	Cherry Burrell E19 or ITW DPDT-ZZ #26-804	Simple equipment			

[Seam-riding seal]

ASCO Solenoid Valve Module	1/2	3021.....IA	IECEX INE 10.0002X	-40 °C ~+56 °C	T4	T75 °C
IFM Electronic Inductive Proximity Switch	N	N*50**, N95001&K15030 (power supply form 1, 2 or 3)	IECEX BVS 06.0003	-25 °C ~+42 °C	T4	T75 °C
Pepperl & Fuchs Slot-type Initiator	N	SJ, SC	IECEX TUN 04.0016X	-50 °C ~+47 °C	T4	T75 °C
Pepperl & Fuchs Cuboidal Inductive-Type Sensor	E	NJ2 V3 N (power supply form 1, 2 or 3)	IECEX PTB 11.0021X	-50 °C ~+56 °C	T4	T75 °C
		Other models (power supply form 1, 2 or 3)		-50 °C ~+35 °C		
Pepperl & Fuchs Cylindrical Inductive Sensor	N	NC, NJ (power supply form 1, 2 or 3)	PTB 00ATEX2048X	-50 °C ~+39 °C	T4	T75 °C
Pepperl & Fuchs SN Sensor	N	NC, SJ (power supply form 1, 2 or 3)	PTB 00ATEX2049X	-50 °C ~+40 °C	T4	T75 °C
TopWorx 4~20mA Transmitter Module and Associated Potentiometer	X	/	IECEX SIR L2.0076U	-40 °C ~+52 °C	T4	T75 °C
Turck 2-wire Proximity Sensor	N	Y1 type	IECEX KEM 06.0036X	-25 °C ~+42 °C	T4	T75 °C

[Seam-riding seal]

I. Specific Conditions for Safe Use of Product

If the certificate number ends with a "X", it indicates that the product is subject to special conditions for safe use:

- When a simple switch is used in the valve position indicator, it must meet the following intrinsically safe parameters:
 $U_i=30V$, $I_i=200mA$, $P_i=0.72W$ (T4) / $0.34W$ (T6), $C_i=0$, $L_i=0$.
- When the valve position indicator uses other components, its intrinsically safe parameters can be obtained by referring to the explosion protection certificate of conformity for the relevant components;
- The 4~20mA loop circuit and various optional components (switches, sensors, valves, etc.) should be treated as different intrinsically safe circuits;
- The installation method must be able to prevent the danger of ignition caused by impact or friction.

II. Safety Precaution for Use of Product

1. When the valve position indicator incorporates a 4~20mA transmitter module, the output terminal of the transmitter should be connected to a Novotechnic WAL305 potentiometer, and no more than two switches are permitted. This module cannot be used for TVA and TVF casing.
2. TVL and TVH can meet the requirements of IP66/68 only when fitted with a Spec Seals S50440A silicon O-ring; when it uses Parker S7395-60 silicon O-ring, its casing protection level is IP64;
3. To form an intrinsically safe explosion protection system for use in an explosive gas atmosphere, it must be used with certified explosion protection ancillary equipment.
4. When this product is used in a dusty environment, a cable entry device or sealing component that has passed the inspection of the State's designated testing laboratories and that is compatible with product dust anti-explosion mark with casing protection grade of IP64/66/68, and thread specification of 1/2NPT, 3/4NPT, M16x1.5 or M20x1.5 must be used for the cable entry point, and redundant cable inlets must be effectively sealed with sealing components.
5. To prevent damage, the user should not replace parts by themselves, and should work with the product manufacturer to jointly resolve malfunctions that occur during operation.
6. When this product is used onsite, its surface should be cleaned regularly and the thickness of dust accumulation should not exceed 5mm.
7. The installation, use and maintenance of this product shall comply with the relevant provisions in the product manuals, GB3836.13-2013 "Explosive Atmosphere Part 13: Repair, Inspection and Maintenance, Restoration, and Renovation of Equipment", GB3836.15-2000 "Electrical Equipment Used in Explosive Gas Atmosphere Part 15: Electrical Installation at Hazardous Sites (Except Coal Mines)", GB3836.16-2006 "Electrical Equipment Used in Explosive Gas Atmosphere Part 16: Inspection and Maintenance of Electrical Equipment (Except Coal Mines)", GB50257-1996 "Electrical Equipment Construction and Acceptance Standards for Electrical Equipment Installation in Dangerous, Explosive and Fire Hazard Atmosphere", GB15577-2007 "Safety Regulations on Dust Explosion Protection", and GB12476.2-2010 "Electrical Equipment Used in Flammable Dust Atmosphere Part 2: Selection of Model and Installation".

[Seam-riding seal]

III. Responsibilities of the Manufacturer:

1. The manufacturer must incorporate the special requirements and safety precautions mentioned above into the product manual;
2. The manufacturer must manufacture the product in strict compliance with the documentation approved by NEPSI;
3. The product nameplate must at least include the following:
 - a) NEPSI Approval Label (please refer to the Explosion Protection Certificate of Conformity)
 - b) Product Explosion Protection Mark
 - c) Certificate Number of the Explosion Protection Certificate of Conformity
 - d) Ambient temperature for use
 - e) Intrinsically safe parameters

National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation

May 22, 2015

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