



国家防爆

防爆合格证

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

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

Product Switchbox

Type TV*-*0***M*****

Marking Ex ia IIC T3/T4/T5/T6 Gb

Standard(s) --

Drawing No. CERT-ES-04334-1

The drawings, technical documents and the samples are verified and certified according to standard(s) for safety as below:

- GB 3836.1-2010 Explosive atmospheres - Part 1: Equipment - General requirements
- GB 3836.4-2010 Explosive atmospheres - Part 4: Equipment protection by intrinsic safety "i"

Note:
 See Annex (4 pages in total).

Director

Date:

2022-03-07

Valid until:

2027-03-06



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 NAN YANG EXPLOSION PROTECTED ELECTRICAL APPARATUS RESEARCH INSTITUTE
 国家防爆电气产品质量检验检测中心
 CHINA NATIONAL QUALITY SURVEY AND TEST CENTER FOR EXPLOSION PROTECTED ELECTRICAL PRODUCTS
 Address: No.20 North Zhongjing Rd, Nanyang, Henan 473008, P.R. China
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Note: This certificate is only valid for products which are identical with the sample(s) tested and verified. Holder of this certificate has the responsibility to ensure the products comply with relevant standards.



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- This product has been IECEx certified, certificate No. IECEx SIR 13.0146X, issue 8, dated 2021-05-19.
- Type designation:

TV	*	-	*	0	*	*	*	M	*	*	*	*	*	*
1)	2)		3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)

1) Enclosure

2) Enclosure Material:

F = Aluminum Base, Engineered Resin Cover

A = Engineered Resin

3) Bus/Sensor

D2, D4 = 36SD SERIES GO SWITCH

DS = (2) 36SD GO SWITCH w/LED INDICATION

E1, E2, E3, E4 = P+F NJ2-V3-N

EX = (2) P+F NJ2-V3-N w/4-20mA Transmitter

K1, K2, K3, K4 = MECH SWITCH SPDT w/GOLD CONTACTS

KS = MECH SWITCH SPDT w/LED INDICATION

KX = (2) MECH SWITCH SPDT w/4-20mA Transmitter

L1, L2 = GO SWITCH SPDT

M1, M2, M3, M4 = MECH SWITCH SPDT

MS = MECH SWITCH SPDT w/LED INDICATION

MX = (2) MECH SWITCH SPDT w/4-20mA Transmitter

N1, N2, N3, N4 = ANY NAMUR SWITCH

NX = (2) ANY NAMUR SWITCH w/4-20mA Transmitter

P1, P2, P3, P4 = 3 AMP REED SWITCH

PS = 3 AMP REED SWITCH w/LED INDICATION

Q2, Q4 = 36 SERIES GO SWITCH

QS = (2) 36 SERIES GO SWITCH w/LED INDICATION

R1, R2, R3, R4 = 1 AMP REED SWITCH

RS = 1 AMP REED SWITCH w/LED INDICATION

T1, T2 = MECH SWITCH DPDT

TX = MECH SWITCH DPDT w/4-20mA Transmitter

OX = NO SWITCHES w/4-20mA Transmitter

4) Area Class

0 = Intrinsic Safety

5) Visual Display:

ANY NUMBER OR LETTER

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Address: No.20 North Zhongjing Rd, Nanyang, Henan(473008), P.R.China
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6) Shaft

ANY NUMBER OR LETTER

7) Conduit Entries

ANY NUMBER OR LETTER

8) O-Rings

M = SILICONE

9) Pilot

0 or BLANK = No Pilot

1 = 24VDC FAIL Open/Closed

2 = 24VDC FAIL Last Position

10) Spool

ANY NUMBER OR LETTER OR BLANK

11) Valve Cv

ANY NUMBER OR LETTER OR BLANK

12) Override

ANY NUMBER OR LETTER OR BLANK

13) Regional Certs

0 or BLANK = UL (North America), IECEx, ATEX

B = InMetro (Brazil)

K = KCs (Korea)

N = CCCEX (China)

P = PESO (India)

R = EAC (Eurasian Economic Union)

T = ITRI (China Taiwan)

14) Custom Build Indents

6 digits (without relevance for explosion protection)

3. The switch box 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 switch box is variable, Topworx Inc. shall:

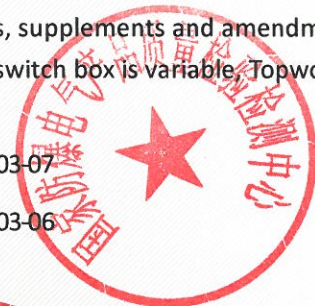
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- 1) Supply the installer/end user with a full set of appropriate certificates and instructions that are relevant to the contents of the enclosure.
- 2) Indicate which certificates apply to the contents of the enclosure.

Internal Components Table:

ID	Device	Sensing Option	Type
1	Mechanical switch	K	V7
2	Go switch	L	35 Series
3	Micro/Limit switch	M	VS10N001C2
4	Reed switch	P	HSR-V933
5	Reed switch	R	LV-ELE145
6	DPDT Micro switch	T	Cherry Burrell E19 or ITW DPDT-ZZ #26-804
7	ASCO Electro-valve Module	1 or 2	3021....IA
8	Pepperl + Fuchs Slot Type Initiators	N	SJ... & SC... (supply types 1, 2 + 3)
9	Pepperl + Fuchs Cuboidal Inductive Proximity sensor	E	Type NJ2-V3-N... (supply types 1, 2 + 3)
10	Pepperl + Fuchs Cuboidal Inductive Proximity sensor	E	All other types (supply types 1, 2 + 3)
11	Pepperl + Fuchs Cylindrical Inductive Proximity sensor	N	Types NC... and NJ... (supply types 1, 2 + 3)
12	Pepperl + Fuchs SN sensor	N	Types NC... and NJ... (supply types 1, 2 + 3)
13	TopWorx 4-20 mA transmitter module & associated potentiometer	X	N/A
14	Go switch	Q	36 Series
15	LED board	S	ES-05116-1
16	GO Switch	D	36 SD Series (D2, D4 or DS)
17	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)

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4. 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)	Ambient temperature range	Temperature class
1, 2, 3, 4, 5, 6	-65~+55°C	T6
	-65~+70°C	T5
	-65~+85°C	T4
	-65~+100°C	T3
7	-40~+56°C	T4
8	-60~+47°C	T4
9	-60~+56°C	T4
10	-60~+35°C	T4
11	-60~+39°C	T4
13	-40~+52°C	T4
14	-55~+55°C	T6
	-55~+85°C	T4
	-55~+100°C	T3
15	-65~+60°C	T4
16	-50~+55°C	T6
	-50~+85°C	T4
17	Tamb and Tcode will depend on number of switches inside, as marked on internal labels (reference drawing CERT-ES-08677-1)	

5. Ex marking: Ex ia IIC T3/T4/T5/T6 Gb

6. Specific conditions of safety use:

- 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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