



国家防爆

Certificate number: CNEx22.0547X

# 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, Ex tD A21 IP64/IP66/IP68 T75°C/T104°C

**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"
- GB12476.1-2013 Electrical apparatus for use in the presence of combustible dust - Part 1:General requirements
- GB12476.5-2013 Electrical apparatus for use in the presence of combustible dust - Part 5: Protection by enclosures "tD"

**Note:**

See Annex (5 pages in total).

**Director**

**Date:**

2022-03-07

**Valid until:**

2027-03-06



南阳防爆电气研究所  
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## Electrical Apparatus for Explosive Atmospheres CERTIFICATE OF CONFORMITY

- 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)

- Enclosure
- Enclosure Material:  
H = 316SS  
L = Aluminum
- 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  
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
- Area Class  
0 = Intrinsic Safety
- Visual Display:  
ANY NUMBER OR LETTER

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## Electrical Apparatus for Explosive Atmospheres

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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:

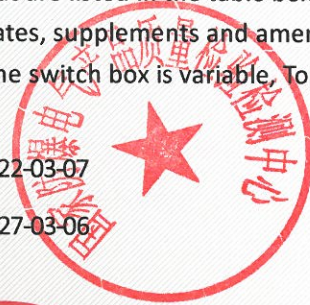
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## Electrical Apparatus for Explosive Atmospheres

# CERTIFICATE OF CONFORMITY

Page 3 of 5

- 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)	Gas or Dust	Ambient temperature range	Temperature class or T* °C
1, 2, 3, 4, 5, 6	Gas	-65~+55°C	T6
		-65~+70°C	T5
		-65~+85°C	T4
		-65~+100°C	T3
	Dust	-50~+55°C	T75°C
		-50~+85°C	T104°C
7	Gas	-40~+56°C	T4
	Dust	-40~+56°C	T75°C
8	Gas	-60~+47°C	T4
	Dust	-50~+47°C	T75°C
9	Gas	-60~+56°C	T4
	Dust	-50~+56°C	T75°C
10	Gas	-60~+35°C	T4
	Dust	-50~+35°C	T75°C
11	Gas	-60~+39°C	T4
	Dust	-50~+39°C	T75°C
	Dust	-50~+40°C	T75°C
13	Gas	-40~+52°C	T4
	Dust	-40~+52°C	T75°C
	Dust	-25~+42°C	T75°C
14	Gas	-55~+55°C	T6
		-55~+85°C	T4
		-55~+100°C	T3
	Dust	-55~+55°C	T75°C
		-55~+85°C	T104°C
15	Gas	-65~+60°C	T4
	Dust	-50~+55°C	T75°C
		-50~+85°C	T104°C
16	Gas	-50~+55°C	T6
		-50~+85°C	T4
	Dust	-50~+55°C	T75°C
		-50~+85°C	T104°C
17	Gas	Tamb and Tcode will depend on number of switches inside, as marked on internal labels (reference drawing CERT-ES-08677-1)	
	Dust	-50~+85°C	T104°C

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Page 5 of 5

5. Ex marking: Ex ia IIC T3/T4/T5/T6 Gb, Ex tD A21 IP64/IP66/IP68 T75°C/T104°C

6. Ingress protection: IP64/IP66/IP68

Note: The TVL and TVH enclosures shall only be marked IP66/68 (1m/24h) 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.

7. 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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