

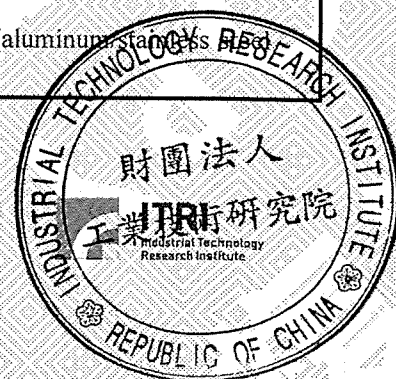
# Electrical Equipment for Explosive Atmospheres

## Certificate of Type Verification

<b>Applicant</b>	TopWorx Inc.		
<b>Applicant address</b>	3300 Fern Valley Road Louisville, Kentucky 40213 United States of America	TEL	+1-502-969-8000
<b>Manufacturer</b>	1. TopWorx Inc. 2. Emerson Machinery Equipment (Shenzhen) Co., Ltd 3. Emerson Automation Fluid Control & Pneumatics Poland Sp. z o. o. (Emerson AFPCP Poland Sp. z o.o.) 4. ASCO Valve (Shanghai) Co., Ltd 5. Ascoval Indústria e Comércio Ltda		
<b>Manufacturer address</b>	1. 3300 Fern Valley Road Louisville, Kentucky 40213 United States of America 2. 101 Building 2, COFCO Park, Hongliang North 2nd Road, Xin'an Street Bao'an District, Shenzhen 51801 China 3. Kurczaki 132 Lodz 93-331 Poland 4. No. 480, Xin Miao No.3 Road Xin Qiao Town, Song Jiang District Shanghai 201612 China 5. Rua Goiatuba 81 Jardim Mutinga 06465-010 Barueri - SP Brazil	TEL	
<b>Name of product Type</b>	Switchbox DX-Series		
<b>Ex marking</b>	Ex ia IIC T6...T4 Gb Ex tb IIIC T*°C Db The temperature class depends on the electrical device fitted in the Switchbox, refer to Annex.		
<b>Certificate No.</b>	(ITRI)2021 第 07-00205X 號		
<b>Date of first issue</b>	October 25, 2021		
<b>Date of Renewal</b>	December 27, 2024		
<b>Valid period</b>	October 25, 2024 to October 24, 2027		
<b>Standards:</b>	IEC 60079-0 : 2017 IEC 60079-11 : 2011 IEC 60079-31 : 2013		
<b>Ratings:</b>	Refer to Specific conditions of use.		
<b>Ambient temperature:</b>	The ambient temperature depends on the electrical devices fitted in the Switchbox, refer to Annex.		
<b>Main components:</b>	Lower casing(aluminum/stainless steel/resin), upper casing(aluminum/stainless steel/resin), shaft, switch, O-ring, indicator.		

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<b>Applicant</b>	TopWorx Inc.
<b>Type variants:</b>	Refer to Annex.
<b>Specific conditions of use:</b>	The Switchbox may contain one or more devices covered by the following certificates:
<b>Description</b>	<b>Certificate number</b>
ASCO Electro-valve Module type 3021...IA	IECEX INE 10.0002X Issue 3 If fitted, the entity parameters are : Interface type 1 $U_i=28\text{ V}$ , $I_i=120\text{ mA}$ , $P_i=1.6\text{ W}$ , $C_i=0$ , $L_i=0$ Interface type 2 $U_i=26\text{ V}$ , $I_i=150\text{ mA}$ , $P_i=1.6\text{ W}$ , $C_i=0$ , $L_i=0$ Interface type 3 $U_i=20\text{ V}$ , $I_i=300\text{ mA}$ , $P_i=1.6\text{ W}$ , $C_i=0$ , $L_i=0$
Pepperl+Fuchs cuboidal inductive sensors, type NJ...	IECEX PTB 11.00021X Issue 4 If T6 temperature class is marked, the input entity parameters to sensors covered by this certificate (if fitted) shall be limited to $U_i=16\text{ V}$ , $I_i=25\text{ mA}$ , $P_i=34\text{ mW}$ (type 1 supply).
TopWorx HART v7 Module	IECEX SIR16.0107U Issue 2 If fitted, the entity parameters are $U_i=28\text{ V}$ , $I_i=100\text{ mA}$ , $P_i=700\text{ mW}$ , $C_i=11\text{ nF}$ , $L_i=14\text{ }\mu\text{H}$ ; $U_o=7.71\text{ V}$ , $I_o=100\text{ mA}$ , $P_o=700\text{ mW}$ , $C_o=0.993\text{ nF}$ , $L_o=3541\text{ }\mu\text{H}$
Hans Turck two-wire proximity sensors type ...-Y1-.../...	IECEX KEM 06.0036X Issue 7 Refer to certificate for entity parameters specific to the model number.

The installer shall confirm which certified sub-assemblies are contained within the equipment and ensure compliance with the appropriate certificate.

If fitted, the entity parameters for uncertified simple mechanical or reed switches (including the TopWorx R2 and R4 Cubes), with or without line fault detection, are  $U_i=30\text{ V}$ ,  $I_i=200\text{ mA}$  and  $P_i=0.34\text{ W}$  per switch circuit.

If fitted, the entity parameters for TopWorx PN Cube are  $U_i=28\text{ V}$ ,  $I_i=250\text{ mA}$  and  $P_i=0.8\text{ W}$  per switch circuit.

The supplies to all internal devices shall be treated as separate intrinsically safe circuits.

The DXP version of the Switchbox has an enclosure that is manufactured from aluminum alloy. In rare cases, ignition sources due to impact and frictional sparks could occur. This shall be considered when the equipment is installed.

The plastic parts of the Switchbox may generate an ignition-capable level of electrostatic charge. Therefore the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.

When marked for use in combustible dust atmospheres, the DXR (resin) enclosure shall only be installed where there is a low risk of mechanical damage.

The air pressure to the valve block, when fitted, shall not exceed 10.0 bar.

If the equipment is fitted with a HART v7 Module, it may be supplied with a bonding strap that could be used to connect the shield (screen) of the cable to ground when installed in a metallic enclosure. In this case, the user/installer shall take this into consideration and ensure that earthing arrangements of the final circuitry comply with the requirements of local code of practice.

The Switchbox may contain switch/sensors covered by the following certificates, when only one type of switch/sensor is used as per drawing CERT-ES-08677-1 without any other components.

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<b>Applicant</b>	TopWorx Inc.										
	<b>Description</b>	<b>Certificate number</b>									
	Pepperl+Fuchs Swithes/Sensors SC, SJ, NC or NJ	IECEX PTB 11.0021X Issue 4 IECEX PTB 11.0091X Issue 4 IECEX PTB 11.0092X Issue 4 IECEX PTB 11.0037X Issue 5									
	The assessment for cable entry devices is not included. For safe use, certified cable entry devices with proper type of protections shall be correctly fitted to maintain the integrity of specified protections.										
<b>Routine tests:</b>	The manufacturer shall carry out the routine tests as prescribed in Clause 6.3.13 and Clause 10.3 of IEC 60079-11. The dielectric test shall be performed at the voltage 600 Vrms applied for 1 s.										
<b>Approval reference:</b>	The assessment of the above equipment is based on the review of IECEX Certificate of Conformity (IECEX SIR 14.0078X Issue 10) issued by CSA Group Testing UK Ltd (CSAE), United Kingdom and the associate test reports (GB/SIR/ExTR15.0178/00, GB/SIR/ExTR17.0150/00, GB/SIR/ExTR18.0194/00, GB/SIR/ExTR19.0053/00, GB/SIR/ExTR20.0142/00, GB/SIR/ExTR20.0155/00, GB/SIR/ExTR20.0214/00, GB/SIR/ExTR21.0088/00, GB/CSAE/ExTR21.0022/00, GB/SIR/ExTR22.0134/00, GB/SIR/ExTR24.0006/00).										
<b>Certificate history:</b>	Issue 1 (B202100318)					(2021-10-25)					
	Issue 2 (B202400412)					(2024-12-27)					
<b>Annex:</b>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	DX	P	-	L	2	0	*	*	*	B 0	
	(1)Series- DX (2)Enclosure material- P : aluminum ; S : stainless 316SS ; R : resin (3)(4)Bus/sensor Code of column (3)- K, M, P, R, L, Z, T, 8, 0, PN, 1, N, E, B, F, J, V, 3, C, G, Y (Code C, G, Y are only combined with code H) Code of column (4)- H, X, 1,2,3,4,5,6 (Code 5 and 6 are only for DXP/DXS) (5)Area class- 0 : Ex i (9)O-ring- S : silicone ; B : BUNA (10)Pilot- 0/blank : not installed ; 1 : 24 Vdc fail O/C ; 2 : 24 Vdc fail L/P Column (6), (7), (8) are not related to Ex protection.										
				<b>Limiting ambient temperature range</b>							
<b>Device</b>	<b>Style</b>	<b>Type</b>	T4		T5		T6				
			DXS/ DXP	DXR	DXS/ DXP	DXR	DXS/ DXP	DXR			
Mechanical switch	K	V7	-60 °C to +92 °C	-60 °C to +85 °C	-60 °C to +85 °C	-60 °C to +75 °C	-60 °C to +70 °C	-60 °C to +60 °C			
Micro/Limit switch	M	VS10N001C2									
Reed switch	P	HSR-V933									
	R	LV-ELE145									
GO switch	L/Z	35 Series									
DPDT micro switch	T/8	Cherry Burrell E19 or ITW DPDT-ZZ #26-804									

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Applicant		TopWorx Inc.						
Device	Style	Type	Limiting ambient temperature range					
			T4		T5		T6	
			DXS/ DXP	DXR	DXS/ DXP	DXR	DXS/ DXP	DXR
Line fault detection	-	-	-60 °C to +92 °C	-60 °C to +85 °C	not permitted	not permitted	not permitted	not permitted
TopWorx Cube	PN	2 reed switch LEDs	-60 °C to +92 °C	-60 °C to +85 °C	not permitted	not permitted	not permitted	not permitted
ASCO Electro-valve	1 or 2	3021....IA	-40 °C to +82 °C	-40 °C to +75 °C	not permitted	not permitted	not permitted	not permitted
Pepperl+Fuchs Cuboidal Inductive Proximity Sensor	E	Type NJ2-V3-N... only (with supply 1, 2+3 only)	-60 °C to +81 °C	-60 °C to +74 °C	not permitted	not permitted	-60 °C to +70 °C	-60 °C to +60 °C
		All other types (with supply types 1, 2+3 only)	-60 °C to +55 °C	-60 °C to +48 °C	not permitted	not permitted	-60 °C to +52 °C	-60 °C to +42 °C
TopWorx 4-20 mA Transmitter Module and associated potentiometer	X	N/A	-40 °C to +72 °C	-40 °C to +65 °C	not permitted	not permitted	not permitted	not permitted
TopWorx HART v7 Module	H	N/A						
Hans Turk two wire proximity sensors	N	Type .....- .Y1-...../...	-25 °C to +62 °C	-25 °C to +55 °C	not permitted	not permitted	-25 °C to +67 °C	-25 °C to +57 °C
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)	The ambient temperature and the temperature class will depend on number of switches inside, as marked on internal labels (reference drawing CERT-ES-08677-1)					
Group III (dust) minimum ambient temperature (silicone S7395-60 flange O-ring, S70R2 shaft O-rings)			-60 °C	-20 °C	not permitted	not permitted	-60 °C	-20 °C

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Applicant		TopWorx Inc.						
Device	Style	Type	Limiting ambient temperature range					
			T4		T5		T6	
			DXS/ DXP	DXR	DXS/ DXP	DXR	DXS/ DXP	DXR
Group III (dust) maximum ambient temperature			As Gp. II	40 °C	not permitted	not permitted	As Gp. II	42 °C
Ex tb IIIC T* °C Db where T* °C is:			Ta (max) +14 K	T55 °C	not permitted	not permitted	Ta (max) +10 K	T55 °C

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