1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 14ATEX2241X** Issue: **10**

4 Equipment: **D-Series Switchbox**

5 Applicant: **TopWorx Inc.**

6 Address: 3300 Fern Valley Road
Louisville
KY, 40213
USA

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-31:2014

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 2G
Ex ia IIC T4 Gb *or*
Ex ia IIC T6 Gb
Ta = -*°C to +*°C

II 2GD
Ex ia IIC T4 Gb *or*
Ex ia IIC T6 Gb
Ex tb IIIC T*°C Db
Ta = -*°C to +*°C

* The temperature class and ambient temperature depends on the electrical devices that are fitted in the Switchbox.

Signed: M Halliwell

Title: Director of Operations

13 DESCRIPTION OF EQUIPMENT

The D-Series Switchbox is a valve position indicator. A rotating cam activates a number of internal devices that sense the status of the valve position. The Switchbox consists of an enclosure made up of a body and a lid. All models have a visual valve position indicator underneath a plastic dome. The body has threaded entries to allow the installation of cable glands.

The approved internal devices are as shown in the Conditions of Certification.

Enclosures types

Model	Body	Lid	Dome
DXP	Aluminium	Aluminium	Lexan
DXS	Stainless steel	Stainless steel	Lexan
DXR	Resin	Resin	Lexan

Variation 1 - This variation introduced the following changes:

i. The HART 4-20 mA board was replaced with the HART v7 Module, Sira 16ATEX2342U, this required additions and amendments to the Specific Conditions of Use and Conditions of Manufacture.

Variation 2 - This variation introduced the following changes:

i. Recognise update to HART v7 Module certificate and thereby modify the Specific Conditions of Use and the Conditions of Manufacture.

Variation 3- This variation introduced the following change:

i. The change of manufacturing location;

From:	To:
Emerson Process Management Magyarorszag Kft. Fisher Controls International LLC, Holland Fasor 6, Székesfehérvár, 8000, Hungary	ASCO Numatics Sp.z o.o. Kurczaki 132 93 331 Lodz Poland

Variation 4 - This variation introduced the following change:

i. The change to the name of the facility in Poland was recognised;

From:	To:
ASCO Numatics Sp. z o.o.	Emerson Automation Fluid Control & Pneumatics Poland Sp. z o.o.

Variation 5 - This variation introduced the following changes:

i. Add new ambient ranges for Pepperl +Fuchs Switches and sensors when used without any other components.
ii. Add T5 temperature code for Simple Switches.
iii. The Specific Conditions of Use and Conditions of Manufacture were amended.

Variation 6 - This variation introduced the following change:

i. Addition of an alternative hall effect sensor connected to HART v7, Model ES-04900-1 module certified under IECEx SIR 16.0107U and Sira 16ATEX2342U.

Variation 7 - This variation introduced the following changes:

i. Addition of an alternate construction of the external indicator.
ii. Manufacturer address change for Shenzhen location.

Variation 8 - This variation introduced the following changes:

i. Upgrade standard from EN 60079-0:2012/A11:2013 to EN IEC 60079-0:2018.
ii. Update standard from IEC 60079-31:2013 to EN 60079-31:2014.
iii. Update Ex component list and evaluate ASCO part "3021....IA" to EN IEC 60079-0:2018.
iv. Update routine dielectric testing requirement by including 1.2 times AC/DC test voltage options with duration of 1 sec.
v. Remove reference to alternative factory addresses from the certificate.

Variation 9 - This variation introduced the following changes:

i. Conditions of Manufacture is revised to replace the Novotechnic WAL305 potentiometer with a generic 10k potentiometer that has a 0.5 mm separation distance through a solid insulation.
ii. Manufacturer's Name & Address for ATEX certification is revised to reflect the latest QAN.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	07 July 2015	R70013008A	The release of the prime certificate.
1	17 July 2017	R70095229A	This Issue covers the following changes: • EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. *(In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)* • The introduction of Variation 1.
2	22 October 2018	R70191411A	The introduction of Variation 2.
3	07 March 2019	R70209081A	The introduction of Variation 3.
4	15 October 2019	0844	Transfer of certificate Sira 14ATEX2241X from Sira Certification Service to CSA Group Netherlands B.V.
5	30 July 2020	R80050077A	The introduction of Variation 4.
6	14 September 2020	R80047581A	The introduction of Variation 5.
7	15 February 2021	R80054407A	The introduction of Variation 6.
8	04 October 2021	R80082520A	The introduction of Variation 7.
9	26 September 2022	R80103686A	The introduction of Variation 8.
10	11 January 2024	R80188973A	The introduction of Variation 9.

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15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 The Switchbox may contain one or more devices covered by the following certificates:

Description	Certificate number
ASCO Electro-valve Module type 3021....IA	INERIS 03ATEX0249X. If fitted, the entity parameters are Ui = 28V, Ii = 300mA, Pi = 1.6W, Ci = 0, Li = 0.
Pepperl & Fuchs slot-type initiators, types SJ... & SC...	PTB 99ATEX2219X plus supplement 1. If a T6 temperature class is marked, the input entity parameters to sensors covered by this certificate (if fitted) shall be limited to Ui = 16V, Ii = 25mA, Pi = 34mW ("type 1" supply).
Pepperl & Fuchs cuboidal inductive sensors, type NJ...	PTB 00ATEX2032X plus Supplements 1 & 2. If a T6 temperature class is marked, the input entity parameters to sensors covered by this certificate (if fitted) shall be limited to Ui = 16V, Ii = 25mA, Pi = 34mW ("type 1" supply).
Pepperl & Fuchs cylindrical inductive sensors, types NC... & NJ...	PTB 00ATEX2048X plus Supplements 1, 2 & 3. If a T6 temperature class is marked, the input entity parameters to sensors covered by this certificate (if fitted) shall be limited to Ui = 16V, Ii = 25mA, Pi = 34mW ("type 1" supply).
Pepperl & Fuchs SN sensors, type NJ...	PTB 00ATEX2049X plus Supplement 1. If a T6 temperature class is marked, the input entity parameters to sensors covered by this certificate (if fitted) shall be limited to Ui = 16V, Ii = 25mA, Pi = 34mW ("type 1" supply).
Topworx 4-20 mA Transmitter Module	Sira 12ATEX2192U issue 1. If fitted, the entity parameters are Ui = 30V, Pi = 1.5W, Ci = 0, Li = 0. Ii can be any value from an intrinsically safe source meeting the Ui and Pi requirements.
Topworx HART v7 Module	Sira 16ATEX2342U issue 1. If fitted, the entity parameters are Ui = 28V, Ii = 100mA, Pi = 700mW, Ci = 11nF, Li = 14µH; Uo = 7.71V, Io = 100mA, Po = 700mW, Co = 0.993µF, Lo = 3541µH.
Turck two-wire proximity sensors type ...-....-.Y1.-...../....	KEMA 02ATEX1090X plus Amendment 1. 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 (with particular reference to entity parameters).

15.2 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 Ui = 30 V, Ii = 200 mA and Pi = 0.34 W per switch circuit.

15.3 If fitted, the entity parameters for the Topworx PN Cube are Ui = 28 V, Ii = 250 mA and Pi = 0.8 W per switch circuit.

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

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

15.6 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.

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

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

15.9 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 the relevant Code of Practice.

15.10 The Switchbox may contain switches/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.

Description	Certificate number
Pepperl+Fuchs Switches/Sensors SC, SJ, NC or NJ	PTB 00ATEX2032X PTB 00ATEX2048X PTB 00ATEX2049X PTB 99ATEX2219X

Only one type of switch to be used as per drawing CERT-ES-08677-1 without any other components.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF MANUFACTURE**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.

17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

17.3 The manufacturer shall subject 100% of completed units to the dielectric strength test in accordance with EN 60079-11:2012 clauses 6.3.12 and 10.3, by applying a voltage of 500 Vrms to all input terminals and the outer enclosure for a minimum of 60 s. Alternatively, apply a test voltage of 600 Vrms for 1 sec; or a test voltage of 707 Vdc for 60 sec; or a test voltage of 845 Vdc for 1 sec. The current flowing during the test shall not exceed 5 mA.

17.4 The only approved potentiometer is a 10k potentiometer that has a 0.5 mm separation distance through a solid insulation.

17.5 The certification codes, ambient temperature ranges and (where applicable) dust temperature marking shall be as shown in the table below. The ambient temperature range marked is dependent on the internal devices fitted and shall reflect the most restrictive values.

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				Limiting ambient temp. range					
				Ex ia IIC T4 Gb (3.78W max.)		Ex ia IIC T5 Gb (1.36W max.)		Ex ia IIC T6 Gb (1.36W max.)	
Device	Style	Type	Description	DXS/DXP (8 K internal temp. rise)	DXR (15 K internal temp. rise)	DXS/DXP (3 K internal temp. rise)	DXR (13 K internal temp. rise)	DXS/DXP (3 K internal temp. rise)	DXR (13 K internal temp. rise)
Mechanical switch	K	V7	Simple Switch	-60ºC to +92ºC	-60ºC to +85ºC	-60ºC to +85ºC	-60ºC to +75ºC	-60ºC to +70ºC	-60ºC to +60ºC
Micro/Limit Switch	M	VS10N001C2	Simple Switch						
Reed Switch	P	HSR-V933	Simple Switch						
Reed Switch	R	LV-ELE145	Simple Switch						
Go Switch	L/Z	35 Series	Simple Switch						
DPDT Micro Switch	T/8	Cherry Burrell E19 or	Simple Switch						
Line fault detection	-	-	Not certified. -60ºC to +100ºC	-60ºC to +92ºC	-60ºC to +85ºC	Not permitted	Not permitted	Not permitted	Not permitted
Topworx Cube	PN	2 reed switch with LEDs	Not certified. -60ºC to +100ºC	-60ºC to +92ºC	-60ºC to +85ºC	Not permitted	Not permitted	Not permitted	Not permitted
ASCO Electro-valve	1 or 2	3021....IA	INERIS 03ATEX0249X Ex ia IIC T6/T5/T4 -40ºC to 40/50/90ºC	-40ºC to +82ºC	-40ºC to +75ºC	Not permitted	Not permitted	Not assessed for T6	Not assessed for T6
Pepperl & Fuchs Slot Type Initiators	N	SJ... & SC... T4: with supply types 1, 2 +3 only T6: with supply type 1 only	PTB 99ATEX2219X Ex ia IIC T4 -60ºC to +75ºC Ex ia IIC T6 -60ºC to +72ºC	-60ºC to +67ºC	-60ºC to +60ºC	Not permitted Not permitted	Not permitted Not permitted	-60ºC to +69ºC	-60ºC to +59ºC
Pepperl & Fuchs Cuboidal Inductive Proximity sensor	E	Type NJ2-V3-N... only (with supply types 1, 2 +3 only)	PTB 00ATEX2032X Ex ia IIC T4/T6 Ga -60ºC to +89/73ºC	-60ºC to +81ºC	-60ºC to +74ºC	Not permitted	Not permitted	-60ºC to +70ºC	-60ºC to +60ºC
		All other types (with	Ex ia IIC T4/T6 Ga -60ºC to +63/55ºC	-60ºC to +55ºC	-60ºC to +48ºC	Not permitted	Not permitted	-60ºC to +52ºC	-60ºC to +42ºC

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				Limiting ambient temp. range					
				Ex ia IIC T4 Gb (3.78W max.)		Ex ia IIC T5 Gb (1.36W max.)		Ex ia IIC T6 Gb (1.36W max.)	
Device	Style	Type	Description	DXS/DXP (8 K internal temp. rise)	DXR (15 K internal temp. rise)	DXS/DXP (3 K internal temp. rise)	DXR (13 K internal temp. rise)	DXS/DXP (3 K internal temp. rise)	DXR (13 K internal temp. rise)
Pepperl & Fuchs cylindrical inductive sensors	N	Types NC... & NJ... T4: Supply types 1, 2 +3 only T6: supply type 1 only	PTB 00ATEX2048X plus supplements 1, 2, 3 & 4 Ex ia IIC T4 -60ºC to +67ºC Ex ia IIC T6 -60ºC to +72ºC	-60ºC to +59ºC	-60ºC to +52ºC	Not permitted	Not permitted	-60ºC to +69ºC	-60ºC to +59ºC
Pepperl + Fuchs SN sensors	N	Types NJ... & SJ... with supply types 1, 2 +3 only), exclusions listed below With supply type 1 only), exclusions listed below	PTB 00ATEX2049X plus supplements 1 & 2 Ex ia IIC T4 -60ºC to +68ºC Ex ia IIC T6 -60ºC to +73ºC	-60ºC to +60ºC	-60ºC to +53ºC	Not permitted	Not permitted	-60ºC to +70ºC	-60ºC to +60ºC
TopWorx 4-20 mA Transmitter Module and associated potentiometer	X	N/A	Sira 12ATEX2192U iss. 1 Ex ia IIC Ga -40ºC to +80ºC	-40ºC to +72ºC	-40ºC to +65ºC	Not permitted	Not permitted	Not permitted	Not permitted
TopWorx HART v7 Module	H	N/A	Sira 16ATEX2342U Iss.1; Ex ia IIC Ga -40ºC to +80ºC	-40ºC to +72ºC	-40ºC to +65ºC	Not permitted	Not permitted	Not permitted	Not permitted

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EU-TYPE EXAMINATION CERTIFICATE **Sira 14ATEX2241X**
Issue 10

				Limiting ambient temp. range					
				Ex ia IIC T4 Gb (3.78W max.)		Ex ia IIC T5 Gb (1.36W max.)		Ex ia IIC T6 Gb (1.36W max.)	
Device	Style	Type	Description	DXS/DXP (8 K internal temp. rise)	DXR (15 K internal temp. rise)	DXS/DXP (3 K internal temp. rise)	DXR (13 K internal temp. rise)	DXS/DXP (3 K internal temp. rise)	DXR (13 K internal temp. rise)
Turk Two Wire Proximity Sensors	N	Type ...-...-.Y1.-..../...	KEMA 02ATEX1090X issue 6 Ex ia IIC T4/T6 Gb -25ºC to +70ºC	-25ºC to +62ºC	-25ºC to +55ºC	Not permitted	Not permitted	-25ºC to +67ºC	-25ºC to +57ºC
Pepperl+Fuchs Switches/sensors	N, E, B, F, J, V, 3 and N_ +N _ _ _	SC, SJ, NC (Only one type of switch to used as per drawing ES-08677-1 without any other components)	PTB 00ATEX2032X PTB 00ATEX2048X PTB 00ATEX2049X PTB 99ATEX2219X	Tamb and Tcode 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				-60ºC	-20ºC	Not permitted	Not permitted	-60ºC	-20ºC
Group III (dust) maximum ambient temperature:				As Gp.	40ºC	Not permitted	Not permitted	As Gp. II	42ºC
Ex tb IIIC T*ºC Db where T*ºC is:				Ta(max) + 14	T55ºC	Not permitted	Not permitted	Ta(max) + 10 K	T55ºC
IP rating:				IP66/67	IP67	IP66/67	IP67	IP66/67	IP67
Additional ATEX marking:				CE nnnn  II 2G or 2GD					

Since the exact composition of the Valve Position Indicators is variable, the manufacturer shall:

- Supply the installer/end user with a full set of appropriate certificates and instructions that are relevant to the contents of the enclosure;
- Ensure that the installer/end user can identify which certified sub-assemblies are fitted to each Valve Position Indicator.

17.6 For a T6 temperature class, the following P&F NJ... sensors listed in certificate PTB 00ATEX2049X shall not be fitted:

NJ 2-11-SN... NJ 1-12GK-SN... NJ 3-18GK-S1N... NJ 3-12GK-SN...
NJ 5-18GK-SN... NJ 5-30GK-S1N... NJ 6-22-SN... NJ 6S1+U.+N...
NJ 8-18GK-SN... NJ 10-30GK-SN... NJ 15-30GK-SN... NJ 15S-U.-N...
NJ 20S-U.-N...

Certificate Annexe

Certificate Number: **Sira 14ATEX2241X**

Equipment: **D-Series Switchbox**

Applicant: **TopWorx Inc.**

Issue 0

Drawing	Sheets	Rev.	Date (Sira stamp)	Description
CERT-E-B0070	1 to 7	G	05 Jun 15	PN Cube schematic, artwork, BoM, marking
CERT-ES-02176-1	1 of 1	2	05 Jun 15	Go-Switch, 4-way, SPDT, assembly
CERT-ES-04311-1	1 to 2	7	05 Jun 15	D-series master assembly
CERT-ES-05107-1	1 of 1	3	22 Jun 15	D-series marking, IECEx/ATEX
CERT-PS-00675	1 to 3	3	05 Jun 15	GO NUMAR simulator board, schematic, BoM, artwork
ES-01005-1	1 to 7	8	20 Dec 13	HART board schematic, parts list & artwork
ES-01006-1	1 of 1	9	20 Dec 13	HART board, assembly
ES-01568-1	1 of 1	3	20 Dec 13	Cube, 4 reed switch, assembly
ES-01569-1	1 to 8	7	20 Dec 13	Cube, 4 reed switch, schematic & artwork
ES-01571-1	1 of 1	5	20 Dec 13	Cube, 2 reed switch, assembly
ES-01572-1	1 to 8	5	20 Dec 13	Cube, 2 reed switch, schematic & artwork
ES-02175-1	1 of 1	3	05 Jun 15	Sub switch 35
ES-02177-1	1 of 1	4	20 Dec 13	L2 wiring diagram
ES-02341-1	1 of 1	1	05 Jun 15	L4 wiring diagram
S-S01-0151	1 of 1	2	05 Jun 15	DPDT mechanical switch
S-S40-0033Y	1 of 1	7	05 Jun 15	PN Cube assembly

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Description
CERT-ES-04311-1	1 of 1	9	07 Jun 17	D-series master assembly
CERT-ES-05107-1	1 of 1	4	29 Jun 17	D-series marking, IECEx/ATEX

Issue 2 - No new drawings were introduced.

Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
CERT-ES-05107-1	1 of 1	4	17 Jan 19	NAMEPLATE & NOMENCL.

Issues 4 and 5 - No new drawings were introduced.

Issue 6

Drawing	Sheets	Rev.	Date (Stamp)	Title
CERT-ES-08677-1	1 to 7	AA	29 Jul 20	Internal labels

Issue 7

Drawing #	Sheets	Rev.	Date (Stamp)	Title
ES-08221-1	1 of 1	AA	02 Dec 20	Schematic AH8503 Hall Effect Sensor
ES-08619-1	1 to 2	AA	02 Dec 20	Assembly Drawing AH8503 Hall Effect Sensor
ES-08220-1	1 to 2	AA	02 Dec 20	PCB AH8503 Hall Effect Sensor
ES-05107-1	1 of 1	5	02 Dec 20	Nameplate, Markings DXP/S/R Ex ia
ES-04311-1	1 to 5	AA	02 Dec 20	D-SERIES Master Assy Ex d, Ex ia, Ex e & Ex nA nC Enclosure
ES-08567-1	1 of 1	AA	02 Dec 20	Contactless Positioner Hall Effect Sensor Board Housing
ES-08568-1	1 of 1	AA	02 Dec 20	CPS Magnet Holder Hall Effect Sensor Magnet Lid
ES-08569-1	1 of 1	AA	02 Dec 20	CPS Magnet Holder Hall Effect Sensor Magnet Holder
ES-08570-1	1 of 1	AA	02 Dec 20	Contact Position Sensor Assembly
ES-08599-1	1 of 1	AA	02 Dec 20	CPS Ring Magnet

Certificate Annexe

Certificate Number: **Sira 14ATEX2241X**

Equipment: **D-Series Switchbox**

Applicant: **TopWorx Inc.**

Issue 8

Drawing	Sheets	Rev.	Date (Stamp)	Title
CERT-ES-04311-1	1 to 5	AB	18 Jun 21	D-SERIES MASTER ASSY

Issue 9 - No new drawings were introduced.

Issue 10

Drawing	Sheets	Rev.	Date (Stamp)	Title
CERT-ES-02205-1	1 of 1	AA	19 Dec 23	Assembly, Potentiometer