



UNITED KINGDOM CONFORMITY ASSESSMENT

1 **UK TYPE EXAMINATION CERTIFICATE**

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Certificate Number: **CSAE 21UKEX2698X** Issue: **1**

4 Product: **TV* Series Valve Position Indicators**

5 Manufacturer: **TopWorx Inc.**

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

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

8 CSA Group Testing UK Limited, Approved Body number 0518, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations. 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 has been assured by compliance with:

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

Except in respect of those requirements listed at Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

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

11 This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall be in accordance with Regulation 41 and include the following:

TVH & TVL



II 2GD①

Ex ia IIC T② Gb (T_a = -②°C to +②°C)

Ex tb IIIC T②°C Db (T_a = -②°C to +②°C)

IP66/68 or IP64 dependent upon type of 'O' ring fitted


- ① II 2G for products bearing a T3 temperature class.
- ② The temperature class, ambient temperature range and surface temperature depend on devices used in the construction of these products, see Production Control.

TVA & TVF



II 2G

Ex ia IIC T② Gb (T_a = -②°C to +②°C)

Name: M Halliwell 
Title: Director of Operations



SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

CSAE 21UKEX2698X

Issue 1

13 DESCRIPTION OF PRODUCT

The Valve Position Indicator consists of an enclosure (approximately 150 mm x 100 mm by 60 mm) made up of a body and a lid. All models have a visual indicator of valve position. In models with an all-metal enclosure, there is an additional plastic dome housing the indicator; the dome does not contribute to the ingress protection. Models with a Lexan lid have no additional dome. There are threaded entries to allow the installation of cable glands.

Enclosures types

| Model | Body | Lid | Dome | Protection method(s) |
|-------|-----------------|-----------------|-------|----------------------|
| TVA | Lexan | Lexan | None | ia |
| TVF | Aluminium | Lexan | None | ia |
| TVH | Stainless Steel | Stainless Steel | Lexan | ia, tb |
| TVL | Aluminium | Aluminium | Lexan | ia, tb |

Internally, a rotating cam activates a number of internal devices that sense the status of the valve position. The approved internal devices are as shown in the 'Production Control' section of the certificate.

The product description includes the following applicable amendments, only amendments directly applicable to UKCA certification have been included in this list.

The amendments are numbered to include a reference to the previous ATEX variation at which these were introduced.

- 1a The following reductions in the lower ambient temperature were approved for devices intended for use in flammable gas atmospheres:
 - -65°C for Valve Position Indicators containing only simple switches
 - -60°C for PTB-certified P+F switches to; for group IIC gas certification only
- 1b The introduction of a T3 temperature class option; this applies to Valve Position Indicators containing only simple switches that are intended for use in flammable gas atmospheres.
- 1c An existing condition of manufacture was reviewed and revised to recognise new values and to clarify the content.
- 1d The addition of line fault detection options for devices intended for use in flammable gas atmospheres with T4 and T3 temperature classes; as a result, a new condition of manufacture was added.
- 2a To include the component-certified Series 36 Go Switch as an alternative option for the Series 35 Go Switch, with resulting amendments to the Conditions of Manufacture.
- 3a The addition of a LED circuit board, sensing option S, to enclosure models TVF/TVL/TVH to be used in conjunction with listed sensing options K, M, P, Q2 and R, the relevant Conditions of Manufacture being supplemented.
- 5a The introduction of the Series 36SD GO Switch, associated with new sensing options D2, D4 or DS.
- 5b Condition of Manufacturer referencing "Internal Components Table" was revised to include D sensing options to ID 17 LED Board and add ID 18 to include the new Go Switch.
- 5c Condition of Manufacturer referencing "The temperature class, ambient temperature range and surface temperature" was revised to add ID 18; to include the temperature class, ambient temperature range and surface temperature information for the new Go Switch.
- 7a Add new ambient ranges for Pepperl +Fuchs Switches and sensors (Internal component ID 19) when used without any other components.

SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

**CSAE 21UKEX2698X
Issue 1**

- 7b Add T5 temperature code for Simple Switches (Internal Component ID 1 to 6).
- 7c The Specific Conditions of Use and Conditions of Manufacture were amended to reflect these changes.

Variation 1 - 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 plastic insulation.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

| Issue | Date | Report number | Comment |
|-------|-------------------|---------------|---------------------------------------|
| 0 | 28 September 2022 | R80088232A | The release of the prime certificate. |
| 1 | 21 December 2023 | R80188964A | The introduction of Variation 1. |

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

- 15.1 The 4-20 mA loop circuit and the various additional sub-assemblies (switches, sensors, valves, etc.) shall be treated as separate intrinsically safe circuits.
- 15.2 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.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.

17 PRODUCTION CONTROL

- 17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders
- 17.2 The Valve Position Indicators 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 Valve Position Indicator is variable, Topworx Inc. shall:
 - Supply the installer/end user with a full set of appropriate certificates and instructions that are relevant to the contents of the enclosure.
 - Indicate which certificates apply to the contents of the enclosure.

Internal Components Table

| ID* | Device | Sensing option | Type | Description |
|-----|-------------------|----------------|-----------|---------------|
| 1 | Mechanical switch | K | V7 | Simple switch |
| 2 | Go switch | L | 35 Series | Simple switch |



SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

CSAE 21UKEX2698X

Issue 1

| ID* | Device | Sensing option | Type | Description |
|-----|---|------------------------------------|--|--|
| 3 | Micro/Limit switch | M | VS10N001C2 | Simple switch |
| 4 | Reed switch | P | HSR-V933 | Simple switch |
| 5 | Reed switch | R | LV-ELE145 | Simple switch |
| 6 | DPDT Micro switch | T | Cherry Burrell E19 or ITW DPDT-ZZ #26-804 | Simple switch |
| 7 | ASCO Electro-valve Module | 1 or 2 | 3021....IA | INERIS 03ATEX0249X issue 4 |
| 9 | Pepperl + Fuchs Slot Type Initiators | N | SJ... & SC... (supply types 1, 2 + 3) | PTB 99ATEX2219X issue 1 plus supplement 1 |
| 10 | Pepperl + Fuchs Cuboidal Inductive Proximity sensor | E | Type NJ2-V3-N... (supply types 1, 2 + 3) | PTB 00ATEX2032X issue 1 plus supplement 1 |
| 11 | Pepperl + Fuchs Cuboidal Inductive Proximity sensor | E | All other types (supply types 1, 2 + 3) | PTB 00ATEX2032X issue 1 plus supplement 1 |
| 12 | Pepperl + Fuchs cylindrical inductive sensors | N | Types NC... and NJ... (supply types 1, 2 + 3) | PTB 00ATEX2048X issue 1 plus supplements 1, 2, 3, 4 |
| 13 | Pepperl + Fuchs SN sensors | N | Types NJ... and SJ... (supply types 1, 2 + 3) | PTB 00ATEX2049X issue 1 plus supplements 1, 2 |
| 14 | TopWorx 4-20 mA transmitter module & associated potentiometer | X | N/A | Sira 12ATEX2192U issue 3 |
| 15 | Turk Two Wire Proximity Sensors | N | Type ...-...-Y1.-.../... | KEMA 02ATEX1090X issue 8 |
| 16 | Go switch | Q | 36 Series | Baseefa 15ATEX0137U |
| 17 | LED board | S | ES-05116-1 | Used with K, M, P, Q2, R and D sensing options |
| 18 | GO Switch | D | 36 SD Series (D2 or D4) | DEMKO 19 ATEX 2173U |
| 19 | 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-ES08677-1 without any other components) | PTB 00ATEX2032X issue 1 PTB 00ATEX2048X issue 1 PTB 00ATEX2049X issue 1 PTB 99ATEX2219X issue 1 |

* This number was created by CSA Sira and is used as a cross-reference to enable the marking that is applicable to each permissible device to be specified.

- 17.3 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 (°C) | Temperature class or T*°C |
|----------------------|-------------|--------------------------------|---------------------------|
| 1, 2, 3, 4, 5 and 6 | Gas | -65 to +55 | T6 |

SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

CSAE 21UKEX2698X

Issue 1

| ID (see table above) | Gas or dust | Ambient temperature range (°C) | Temperature class or T*°C |
|----------------------|-------------|--|---------------------------|
| | | -65 to +70 | T5 |
| | | -65 to +85 | T4 |
| | | -65 to +100 | T3 |
| | Dust | -50 to +55 | T75°C |
| | | -50 to +85 | T104°C |
| 7 | Gas | -40 to +56 | T4 |
| | Dust | -40 to +56 | T75°C |
| 9 | Gas | -60 to +47 | T4 |
| | Dust | -50 to +47 | T75°C |
| 10 | Gas | -60 to +56 | T4 |
| | Dust | -50 to +56 | T75°C |
| 11 | Gas | -60 to +35 | T4 |
| | Dust | -50 to +35 | T75°C |
| 14 | Gas | -40 to +52 | T4 |
| | Dust | -40 to +52 | T75°C |
| 15 | Gas | -25 to +42 | T4 |
| | Dust | -25 to +42 | T75°C |
| 16 | Gas | -55 to +55 | T6 |
| | | -55 to +85 | T4 |
| | | -55 to +100 | T3 |
| | Dust | -50 to +55 | T75°C |
| | | -50 to +85 | T104°C |
| 17 | Gas | -65 to +60 | T4 |
| | Dust | -50 to +55 | T75°C |
| | | -50 to +85 | T104°C |
| 18 | Gas | -55 to +55 | T6 |
| | | -55 to +85 | T4 |
| | Dust | -50 to +55 | T75°C |
| | | -50 to +85 | T104°C |
| | | | |
| 19 | Gas | Tamb and Tcode will depend on number of switches inside, as marked on internal labels (reference drawing CERT-ES08677-1) | |
| | Dust | -50 to +85 | T104°C |

17.4 Line fault detection shall not be fitted to equipment marked with a T6 temperature class.

17.5 When the equipment incorporates a 4-20 mA Transmitter Module, the output from the 4-20mA Transmitter Module shall only be connected to a 10k potentiometer, that has a 0.5 mm separation distance through a plastic insulator, also located within the Valve Position Indicator. When the 4-20 mA Transmitter Module is fitted, a maximum of two switches is permitted. The 4-20 mA Transmitter Module shall not be fitted to TVA or TVF enclosures.



SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

CSAE 21UKEX2698X

Issue 1

- 17.6 The manufacturer shall carry out a dielectric strength test on 100% of manufactured units in accordance with EN 60079-11:2012 (IEC 60079-11:2011) as follows: apply 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. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.
- 17.7 The TVL and TVH enclosures shall only be marked IP66/68 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.
- 17.8 The earthing facility of the Series 36 GO switch shall not be used.



CSA Group Testing UK Ltd., Unit 6 Hawarden Industrial Park, Hawarden, CH5 3US, UK

This certificate and its schedules may only be reproduced in its entirety and without change

QD-1599 Issue 5 (2023-09-11)

Page 6 of 6



Certificate Annexe

Certificate Number: CSAE 21UKEX2698X
Product: TV* Series Valve Position Indicators
Manufacturer: TopWorx Inc.

Issue 0

| Drawing | Sheets | Rev. | Date (Stamp) | Title |
|-----------------|--------|------|--------------|--|
| CERT-ES-08677-1 | 1 to 7 | AA | 29 Jul 20 | Internal labels |
| ES-06719-1 | 1 to 4 | 1 | 08 Feb 19 | Sensor Assembly MINI-GO |
| ES-06720-1 | 1 to 2 | 2 | 08 Feb 19 | Switch Assembly Mini GO & Euro-Connector Assembly |
| ES-06752-1 | 1 of 1 | 1 | 08 Feb 19 | Wiring Diagram D2, D4, S2 & S4 |
| ES-06753-1 | 1 of 1 | 1 | 08 Feb 19 | Wiring Diagram DS & SS |
| CERT-ES-04334-1 | 1 to 3 | 19 | 19 Jan 18 | GA, TV-series, IECEx/ATEX |
| ES-05116-1 | 1 to 5 | 4 | 24 Jan 18 | LED PCB - schematic, BoM, artwork & assembly |
| CERT-ES-03606-1 | 1 of 1 | 12 | 25 Aug 15 | GA, TV-series, IECEx/ATEX |
| CERT-PS-00675-1 | 1 to 3 | 3 | 10 Sep 15 | Assembly, Board Go Numar Simulator (schematic pcb, layout board, parts list. |
| CERT-ES-02175-1 | 1 of 1 | 4 | 10 Sep 15 | Assy, Sub switch 35 |
| CERT-ES-09060-1 | 1 of 1 | AA | 21 Jan 22 | Markings, TVF, TVA Ex Schedule Drawing - UKCA |
| CERT-ES-09061-1 | 1 of 1 | AA | 21 Jan 22 | Markings, TVL, TVH Ex ia Schedule Drawing -UKCA |

Issue 1

| Drawing | Sheets | Rev. | Date (Stamp) | Title |
|-----------------|--------|------|--------------|-------------------------|
| CERT-ES-02205-1 | 1 of 1 | AA | 05 Dec 23 | ASSEMBLY, POTENTIOMETER |

