



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX BAS 16.0107X** Page 1 of 4 Certificate history:  
Status: **Current** Issue No: 2 [Issue 1 \(2018-09-17\)](#)  
[Issue 0 \(2017-01-17\)](#)  
Date of Issue: 2023-11-14  
Applicant: **Topworx Incorporated**  
3300 Fern Valley Road  
Louisville  
Kentucky 40213  
**United States of America**  
Equipment: **K5L & K7L Switchbox**  
Optional accessory:  
Type of Protection: **Intrinsic Safety & Protection by Enclosure 'tb'**  
Marking: **Ex ia IIC T5/T6 Gb**  
**Ex tb III C T100°C / T85°C Db ('D' Models only)**

Approved for issue on behalf of the IECEx  
Certification Body:

**R.S. Sinclair**

Position:

**Technical Manager**

Signature:  
(for printed version)

Date:  
(for printed version)

14/11/2023

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**Staden Lane**  
**Buxton, Derbyshire SK17 9RZ**  
**United Kingdom**





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

Manufacturing locations: **Topworx Incorporated**  
3300 Fern Valley Road  
Louisville  
Kentucky 40213  
**United States of America**

**Asco Joucomatic Limited Trading as  
Asco Numatics**  
2 Pit Hey Place  
West Pimbo  
Skelmersdale  
Lancashire WN8 9PG  
**United Kingdom**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[GB/BAS/ExTR16.0260/00](#)

[GB/SGS/ExTR23.0103/00](#)

Quality Assessment Reports:

[GB/SIR/QAR06.0056/11](#)

[GB/SIR/QAR07.0025/11](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The K7L Switchbox comprises an aluminium or stainless steel enclosure containing up to two sets of terminals blocks, up to four voltage free switches and up to four certified proximity sensors in any combination and interconnection facilities for remote mounted intrinsically safe equipment connections. The K5L Switchbox is of a similar construction to the K7L but is housed in a low profile enclosure.

Both K5L & K7L versions may include an optional mechanical visual indicator. External electrical connections are made using screw terminals via up to four tapped holes.

Models of the equipment with a 'D' in the model number are gas and dust certified. The installation of the external connections and plugging of the unused entries in these variants must be carried out using appropriately certified IP6X cable glands and blanking plugs.

Models of the equipment marked with a 'G' in the model number are only gas certified. The installation of the external connections and plugging of the unused entries in these variants must be carried out using appropriate cable glands and blanking plugs with a minimum ingress protection of at least IP20. These variants may also be optionally fitted with plug and socket connections fitted to the entries of the enclosure.

See the Certificate Annex for model, electrical and temperature parameters.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

1. The cable glands used as entries to the enclosure must be suitably certified cable glands to the requirements of IEC 60079-0, Edition 7, including Annex A, with a minimum IP rating of IP6X in order to comply with the requirements of IEC 60079-31, Edition 2.
2. Any unused entries must be fitted with a suitably certified blanking plug certified to the requirements of IEC 60079-0, Edition 7 with a minimum IP rating of IP6X in order to comply with the requirements of IEC 60079-31, Edition 2.



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

### Variation 2.1

Confirm the current equipment design meets the requirements of IEC 60079-0:2017.

### Variation 2.2

Introduction of new conditions of use. "X" suffix added to the end of the certificate number.

### Variation 2.3

Updated Proximity Sensor information in Annex.

ExTR: **GB/SGS/ExTR23.0103/00**

File Reference: **21/0357**

## Annex:

[IECEX BAS 16.0107 Annex Iss 0.pdf](#)

### K5L & K7L Switchbox Model Ranges

#### Dual Gas & Dust Certified 'D' Models

**Models of the K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:**

##### **Model No. S-M-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

VF Contact:  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

**Models of the K5L & K7L Switchbox containing only proximity sensors are designated as follows:**

##### **Model No. S-F-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 145\text{nF}$   $L_i = 340\mu\text{H}$

##### **Model No. S-P-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T5 Gb ( $-25^\circ\text{C} \leq T_a \leq +57^\circ\text{C}$ )

Ex tb IIIC T100°C Db ( $-25^\circ\text{C} \leq T_a \leq +57^\circ\text{C}$ )

Ex ia IIC T6 Gb ( $-25^\circ\text{C} \leq T_a \leq +42^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-25^\circ\text{C} \leq T_a \leq +42^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.169\text{W}$   $C_i = 100\text{nF}$   $L_i = 550\mu\text{H}$

##### **Model No. S-PH-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-25^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-25^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 25\text{mA}$   $P_i = 0.034\text{W}$   $C_i = 100\text{nF}$   $L_i = 550\mu\text{H}$

##### **Model No. S-T-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 20\text{V}$   $I_i = 60\text{mA}$   $P_i = 0.08\text{W}$   $C_i = 250\text{nF}$   $L_i = 350\mu\text{H}$

**Models of the Low Temperature K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:**

##### **Model No. S-LM-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-50^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-50^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

VF Contact:  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

**Models of the Low Temperature K5L & K7L Switchbox containing only proximity sensors are designated as follows:**

**Model No. S-LF-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Each Sensor:  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

**Model No. S-LP-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T5 Gb ( $-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex tb IIIC T100°C Db ( $-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +45^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-40^\circ\text{C} \leq T_a \leq +45^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.169\text{W}$   $C_i = 120\text{nF}$   $L_i = 200\mu\text{H}$

**Model No. S-LPH-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 25\text{mA}$   $P_i = 0.034\text{W}$   $C_i = 120\text{nF}$   $L_i = 200\mu\text{H}$

**Model No. S-LP-D-50-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T5 Gb ( $-50^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex tb IIIC T100°C Db ( $-50^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex ia IIC T6 Gb ( $-50^\circ\text{C} \leq T_a \leq +45^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-50^\circ\text{C} \leq T_a \leq +45^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.169\text{W}$   $C_i = 70\text{nF}$   $L_i = 150\mu\text{H}$

**Model No. S-LPH-D-50-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-50^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-50^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 25\text{mA}$   $P_i = 0.034\text{W}$   $C_i = 70\text{nF}$   $L_i = 150\mu\text{H}$

**Model No. S-LT-D-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Ex tb IIIC T85°C Db ( $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 20\text{V}$   $I_i = 20\text{mA}$   $P_i = 0.20\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

### **Gas only Certified 'G' Models**

**Models of the K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:**

#### **Model No. S-M-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

VF Contact:  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

**Models of the K5L & K7L Switchbox containing only proximity sensors are designated as follows:**

#### **Model No. S-F-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 145\text{nF}$   $L_i = 340\mu\text{H}$

#### **Model No. S-P-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T5 Gb ( $-25^\circ\text{C} \leq T_a \leq +57^\circ\text{C}$ )

Ex ia IIC T6 Gb ( $-25^\circ\text{C} \leq T_a \leq +42^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.169\text{W}$   $C_i = 100\text{nF}$   $L_i = 550\mu\text{H}$

#### **Model No. S-PH-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-25^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 25\text{mA}$   $P_i = 0.034\text{W}$   $C_i = 100\text{nF}$   $L_i = 550\mu\text{H}$

#### **Model No. S-T-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 20\text{V}$   $I_i = 60\text{mA}$   $P_i = 0.08\text{W}$   $C_i = 250\text{nF}$   $L_i = 350\mu\text{H}$

**Models of the Low Temperature K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:**

#### **Model No. S-LM-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-50^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

VF Contact:  $U_i = 28\text{V}$   $I_i = 120\text{mA}$   $P_i = 1.3\text{W}$   $C_i = 0$   $L_i = 0$

**Models of the Low Temperature K5L & K7L Switchbox containing only proximity sensors are designated as follows:**

#### **Model No. S-LF-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Each Sensor:  $U_i = 15\text{V}$   $I_i = 50\text{mA}$   $P_i = 0.12\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

**Model No. S-LP-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T5 Gb ( $-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +45^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.169\text{W}$   $C_i = 120\text{nF}$   $L_i = 200\mu\text{H}$

**Model No. S-LPH-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 25\text{mA}$   $P_i = 0.034\text{W}$   $C_i = 120\text{nF}$   $L_i = 200\mu\text{H}$

**Model No. S-LP-G-50-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T5 Gb ( $-50^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

Ex ia IIC T6 Gb ( $-50^\circ\text{C} \leq T_a \leq +45^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 52\text{mA}$   $P_i = 0.169\text{W}$   $C_i = 70\text{nF}$   $L_i = 150\mu\text{H}$

**Model No. S-LPH-G-50-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-50^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 16\text{V}$   $I_i = 25\text{mA}$   $P_i = 0.034\text{W}$   $C_i = 70\text{nF}$   $L_i = 150\mu\text{H}$

**Model No. S-LT-G-IEC**

No indicator or indicator  $\leq 20\text{cm}^2$  surface area

Ex ia IIC T6 Gb ( $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ )

Each Sensor:  $U_i = 20\text{V}$   $I_i = 20\text{mA}$   $P_i = 0.20\text{W}$   $C_i = 150\text{nF}$   $L_i = 150\mu\text{H}$

Where interconnection facilities for remote mounted intrinsically safe equipment connections are fitted, the input parameters for these terminals for all models are as follows: -

$$U_i = 30\text{V}$$

Details of these terminal arrangements including interconnections are detailed on an internal label within the equipment.



### Proximity Sensor Information

The following certified Proximity Sensors are fitted in the various models of the equipment:

Sensor	IECEX Certificate No.	Standards
<b>K5L &amp; K7L Switchbox Model No.'s S-P*-IEC &amp; S-PH*-IEC</b>		
Pepperl + Fuchs - Slot-type Proximity Sensors	IECEX PTB 11.0091X	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2006 Ed. 5 IEC 60079-26: 2006 Ed. 2
Pepperl + Fuchs - Cuboidal Inductive Proximity Sensors	IECEX PTB 11.0021X	IEC 60079-0: 2004 Ed. 4 IEC 60079-11: 2006 Ed. 5 IEC 60079-26: 2006 Ed. 2
Pepperl + Fuchs - Cylindrical Inductive Proximity Sensors	IECEX PTB 11.0037X	IEC 60079-0: 2004 Ed. 4 IEC 60079-11: 2006 Ed. 5 IEC 60079-26: 2006 Ed. 2
Pepperl + Fuchs - SN-Type Proximity Sensors	IECEX PTB 11.0092X	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2006 Ed. 5 IEC 60079-26: 2006 Ed. 2
<b>K5L &amp; K7L Switchbox Model No.'s S-LP*-IEC &amp; S-LPH*-IEC</b>		
Pepperl + Fuchs - SN-Type Proximity Sensors	IECEX PTB 11.0092X	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2006 Ed. 5 IEC 60079-26: 2006 Ed. 2
<b>K5L &amp; K7L Switchbox Model No.'s S-LP*-50-IEC &amp; S-LPH*-50-IEC</b>		
Pepperl + Fuchs - SN-Type Proximity Sensors	IECEX PTB 11.0092X	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2006 Ed. 5 IEC 60079-26: 2006 Ed. 2
<b>K5L &amp; K7L Switchbox Model No. S-F*-IEC</b>		
IFM Electronic GmbH - Inductive Proximity Switch Types N*50*A, NN5013, NN5017, NN5018, N95001, N*500*, KI5030	IECEX BVS 06.0003	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2011 Ed. 6 IEC 60079-26: 2006 Ed. 2
<b>K5L &amp; K7L Switchbox Model No. S-LF*-IEC</b>		
IFM Electronic GmbH - Inductive Proximity Sensors	IECEX BVS 09.0016	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2011 Ed. 6 IEC 60079-26: 2006 Ed. 2
<b>K5L &amp; K7L Switchbox Model No. S-T*-IEC</b>		
Hans Turck GmbH & Co. KG - Two Wire Proximity Sensors Types ...-...-Y1.-...../....	IECEX KEM 06.0036X	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2011 Ed. 6 IEC 60079-26: 2006 Ed. 2
<b>K5L &amp; K7L Switchbox Model No. S-LT*-IEC</b>		
Hans Turck GmbH & Co. KG - Two Wire Proximity Sensors Types ...-...-Y1.-...../....	IECEX KEM 06.0036X	IEC 60079-0: 2011 Ed. 6 IEC 60079-11: 2011 Ed. 6 IEC 60079-26: 2006 Ed. 2

Where the above sensors are certified to older editions of the standards than those listed for the K5L & K7L Switchbox, the differences between the editions of the standards listed have been reviewed and determined to have no technical differences affecting the sensors.