

1 **EU - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3 EU - Type Examination Certificate **Baseefa16ATEX0138X – Issue 1**
Number:

3.1 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. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **K5L and K7L Switchbox**

5 Manufacturer: **Topworx Incorporated**

6 Address: **3300 Fern Valley Road, Louisville, Kentucky, 40213 United States of America**

7 This re-issued certificate extends EC Type Examination Certificate No. **Baseefa16ATEX0138** to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See Certificate History**

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 item 18 of the Schedule.

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

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

12 The marking of the product shall include the following:

 **See certificate schedule**

SGS Fimko Oy Customer Reference No. **2191**

Project File No. **21/0357**

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Schedule

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Certificate Number Baseefa16ATEX0138X – Issue 1

15 Description of Product

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.

The following models of the K5L & K7L Switchbox are covered by this certificate: -

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

⊕ II 2 GD Ex ia IIC T6 Gb ($-20^\circ\text{C} \leq \text{Ta} \leq +70^\circ\text{C}$)
Ex tb IIIC T85°C Db ($-20^\circ\text{C} \leq \text{Ta} \leq +70^\circ\text{C}$)

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

⊕ II 2 GD Ex ia IIC T6 Gb ($-20^\circ\text{C} \leq \text{Ta} \leq +70^\circ\text{C}$)
Ex tb IIIC T85°C Db ($-20^\circ\text{C} \leq \text{Ta} \leq +70^\circ\text{C}$)

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-F-D

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

⊕ II 2 GD Ex ia IIC T6 Gb ($-20^\circ\text{C} \leq \text{Ta} \leq +70^\circ\text{C}$)
Ex tb IIIC T85°C Db ($-20^\circ\text{C} \leq \text{Ta} \leq +70^\circ\text{C}$)

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

⊕ II 2 GD Ex ia IIC T5 Gb ($-25^\circ\text{C} \leq \text{Ta} \leq +57^\circ\text{C}$)
Ex tb IIIC T100°C Db ($-25^\circ\text{C} \leq \text{Ta} \leq +57^\circ\text{C}$)
Ex ia IIC T6 Gb ($-25^\circ\text{C} \leq \text{Ta} \leq +42^\circ\text{C}$)
Ex tb IIIC T85°C Db ($-25^\circ\text{C} \leq \text{Ta} \leq +42^\circ\text{C}$)

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

⊕ II 2 GD 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

⊕ II 2 GD 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 $U_i = 20\text{V}$ $I_i = 60\text{mA}$ $P_i = 0.08\text{W}$ $C_i = 250\text{nF}$ $L_i = 350\mu\text{H}$

The following versions of the K5L & K7L Switchbox operate at lower ambient temperatures. These versions are to be designated as Low Temperature K5L & K7L Switchboxes.

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

⊕ II 2 GD 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

⊕ II 2 GD 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

⊕ II 2 GD 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

⊕ II 2 GD 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

⊕ II 2 GD 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

⊕ II 2 GD 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

⊕ II 2 GD 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

⊕ II 2 G 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

⊕ II 2 G 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-F-G

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

⊕ II 2 G 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

⊕ II 2 G 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

⊕ II 2 G 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

⊕ II 2 G Ex ia IIC T6 Gb ($-20^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$)
Each Sensor $U_i = 20\text{V}$ $I_i = 60\text{mA}$ $P_i = 0.08\text{W}$ $C_i = 250\text{nF}$ $L_i = 350\mu\text{H}$

The following versions of the K5L & K7L Switchbox operate at lower ambient temperatures. These versions are to be designated as Low Temperature K5L & K7L Switchboxes.

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 II 2 G 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 II 2 G 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 II 2 G 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 II 2 G 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 II 2 G 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 II 2 G 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 II 2 G 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 to be detailed on an internal label within the apparatus.

16 Report Number

See Certificate History

17 Specific Conditions of Use

1. The cable glands used as entries to the enclosure must be suitably certified cable glands to the requirements of EN IEC 60079-0: 2018, including Annex A, with a minimum IP rating of IP6X in order to comply with the requirements of EN 60079-31: 2014.
2. Any unused entries must be fitted with a suitably certified blanking plug certified to the requirements of EN IEC 60079-0: 2018 with a minimum IP rating of IP6X in order to comply with the requirements of EN 60079-31: 2014.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CERT-ES-09202-1	1 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Sensors
CERT-ES-09202-1*	2 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Certification Label – II 2 GD
CERT-ES-09202-1*	3 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Certification Label – II 2 G
CERT-ES-09202-1	4 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Product with Optional Connector(s)
CERT-ES-09202-1	5 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Indicator Options for Gas and Dust
CERT-ES-09202-1	6 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Enclosure Detail
CERT-ES-09202-1	7 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Circuit Detail
CERT-ES-09202-1	8 of 8	AC	2023-10-05	K5L/K7L Switchbox – Ex ia Typical Termination Label

The above drawings are held with IECEx BAS 16.0107X.

*These drawings are also common to BAS21UKEX0671X.

Current drawings which remain unaffected by this issue:

None.

20 Certificate History

Certificate No.	Date	Comments
Baseefa16ATEX0138	17 January 2017	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2012 + A11: 2013, EN 60079-11: 2012 and EN 60079-31, Edition 2 is documented in IECEx ExTR GB/BAS/ExTR16.0260/00 and held with Project No. 16/0281.



Certificate No.	Date	Comments
Baseefa16ATEX0138X Issue 1	10 November 2023	This issue of the certificate confirms the current design meets the requirements of EN IEC 60079-0: 2018 including the revision of the equipment marking in accordance with these standards. The variation also introduces conditions of safe use. The test and assessment is documented in GB/SGS/ExTR23.0103/00 and held with Project No. 21/0357.
For drawings applicable to each issue, see original of that issue.		