UK-TYPE EXAMINATION
CERTIFICATE

Product or Protective Systems Intended for Use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

1. **UK-Type Examination Certificate Number:** **ITS21UKEX0087X** **Issue 00**

2. **Product:** 4 and 5 Digit Field Mounting Indicators and Rate Totaliser

3. **Manufacturer:** BEKA Associates Ltd

4. **Address:** Old Charlton Road, Hitchin, Herts, SG5 2DA, United Kingdom

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

6. Intertek Testing and Certification Limited, Approved Body number 0359, 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 report G102060844 dated July 2015 and 10048733A Issue 1 dated April 2011.

7. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012+A11:2013 and EN 60079-11:2012 except in respect of those requirements referred to within item 14 of the Schedule.

8. If the sign “X” is placed after the certificate number, it indicates that the product is subject to the special conditions of use specified in the Schedule to this certificate.

9. 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.

10. The marking of the product shall include the following:

    II 1 G Ex ia IIC T5 Ga

    II 1 D Ex ia IIIC T80°C Da IP66

    -40°C ≤ Ta ≤ +70°C

Certification Officer: M Newman **Date:** 5th July 2021

SCHEDULE:

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11. Description of Product or Protective System

The 4 and 5 Digit Field Mounting Indicators are field mounted loop powered equipment designed to display a measured variable in meaningful engineering units within the hazardous area. The zero and span of the display are independently adjustable allowing the indicator to be calibrated to display any linear variable represented by the 4/20 mA signal. A root extractor and an adjustable sixteen segment lineariser enable the indicator to display flow and non-linear variables such as tank level in engineering units.

The models are BA304E & BA304G 4 Digit Indicator, BA324E & BA324G 5 Digit Indicator and BA354E and BA354G Rate Totaliser.

The 4 and 5 Digit Field Mounting Indicators and Rate Totaliser may additionally be fitted with an optional Back Light Board.

The 4 and 5 Digit Field Mounting E-series indicators BA304E & , BA324E and Rate Totaliser BA354E comprise a Field Terminal Board, Main Display Board with optional Alarm circuits, Display LCD101 and optional Back Light Board all housed within an IP66 stainless steel or a glass reinforced polyester (GRP) enclosure.

The G-series models BA304G 4 Digit Indicator, BA324G 5 Digit Indicator and BA354G Rate Totaliser are similar to the E-series. They are housed within a pre-certified enclosure with IP rating of at least IP66.

The boards in both E-series and G-series contain fixed resistors, keypads, liquid crystal display (LCD), transformers, capacitors, inductors, semiconductor devices, connectors for printed circuit board (pcb) interconnections, terminal blocks for external connections and plastic spacers for pcb mounting.

The maximum intrinsically safe input and output parameters at the external connections are as follows:

TB1 Terminal 1 and 3 (Loop Input); TB2 Terminal 12 and TB1 Terminal 3 (TB2 - 13 and TB1 -1 connected in series)

U_i = 30 V

I_i = 200 mA

P_i = 0.84 W

U_o = 1.1 V

I_o = 3 mA

P_o = 4.5 mW

C_i = 13 nF (for E-series)

C_i = 5.4 nF (for G – Series)

L_i = 0.016 mH (0.02 mH)

C_o = 53 nF (for E-series)

C_o = 60.6 nF (for G – Series)

L_o = 0.78 mH

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TB2 Terminals 12, 13 and 14 (Backlight Input)

U_i = 30 V

I_i = 200 mA

P_i = 0.84 W

C_i = 13 nF (for E-series)

C_i = 3.3 nF (for G – Series)

L_i = 0.008 mH (0.01 mH)

C_o = 53 nF (for E-series)

C_o = 63 nF (for G – Series)

L_o = 0.79 mH

TB3 Terminals RS1 and RS2

U_i = 30 V

I_i = 200 mA

P_i = 0.84 W

C_i = 13 nF (for E-series)

C_i = 0 (for G – Series)

L_i = 0.008 mH (0.01 mH)

C_o = 53 nF (for E-series)

C_o = 66 nF (for G – Series)

L_o = 0.79 mH

U_o = 6 V

I_o = 2.5 mA

P_o = 3.75 mW

TB4 Terminal 8 and 9; Terminals 10 and 11 (Alarm 1 and Alarm2)

U_i = 30 V

I_i = 200 mA

P_i = 0.84 W

C_i = 24 nF (for E-series)

C_i = 0 (for G – Series)

L_i = 0.008 mH (0.01 mH)

C_o = 42 nF (for E-series)

C_o = 66 nF (for G – Series)

L_o = 0.79 mH

U_o = 1.47 V

I_o = 1 µA

P_o = 2.2 µW

SCHEDULE:

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For intrinsic safety considerations, under fault conditions, the voltage, current and power at the output terminals TB1 - 1 & 3, terminals TB2 - 12 & TB1 - 3 and terminals TB4 - 8 & 9 and 10 & 11 do not exceed those specified in clause 5.7 of EN60079-11. The equivalent capacitance and inductance are the result of r.f. suppression components directly connected across the apparatus input terminals.

12. Report Number

Intertek Report: G102060844 dated July 2015 and 10048733A Issue 1 dated April 2011.

13. Special Conditions of Certification

(a). Special Conditions of Use

• When installed in potentially explosive atmosphere requiring apparatus of Category 1G, the equipment shall be installed such that even in the event of rare incidents, an ignition source due to impact or friction between aluminium label and other iron/steel parts is excluded.

(b). Conditions of Manufacture

• Routine tests for infallible transformers, 500V between primary and secondary windings (both windings are supplied from intrinsically safe circuits).

14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report: 104629389CHE-011 dated 25th May 2021.

15. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
ATEX & IECEx Certification Information for BA304E 4 Digit Indicator, BA324E 5 Digit Indicator and BA354E Rate Totaliser (Sheets 1-15, 18-20, 26-28, 29, 32, 37-50	CI300-61	3	August '15
UKCA Certification Information for BA304E, BA307E & 308E 4 Digit Indicators BA324E, 327E & BA328E 5 Digit Indicators BA354E & BA358E Rate Totalisers (2 Sheets)	CI300-61-UKCA	1	May 2021

Additional information about the BA304G-SS-PM and BA324G-SS-PM UKCA certification

This UKCA UK-Type Examination Certificate ITS21UKEX0087X confirms the intrinsic safety compliance of the BA304G-SS and BA324G-SS 4/20mA loop powered indicators.

IECEx Component Certificate IECEx CML 18.0071U for the BEKA stainless steel G series enclosure in which the BA304G-SS-PM and BA324G-SS-PM indicators are housed confirms the impact and ingress protection required for the following types of protection:

Ex eb IIC Gb	Protection by Increased safety EN 60079-7:2015
Ex ec IIC Gc	Protection by Increased safety EN 60079-7:2015
Ex pxb IIC Gb	Protection by pressurised enclosure EN 60079-2:2014-07
Ex pyb IIC Gb	Protection by pressurised enclosure EN 60079-2:2014-07
Ex pzc IIC Gc	Protection by pressurised enclosure EN 60079-2:2014-07
Ex ta IIIC Da	Dust ignition protection by enclosure EN 60079-31:2013

When a BA304G-SS-PM or a BA324G-SS-PM indicator is correctly installed in a cabinet having one of these types of protection, installation of the indicator does not invalidate the cabinet's certification.

Installation requirements for these loop powered indicators is contained in the BA304G-SS-PM and BA324G-SS-PM Instruction Manual and in the BEKA Application Guide AG300 both of which may be downloaded from this website.

Please note that the IECEx G Enclosure Component Certificate number does not appear on the indicator's certification label.

A copy of the IECEx G Enclosure Component Certificate IECEx CML 18.0071U follows this note.

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Ex COMPONENT CERTIFICATE

Certificate No.: IECEx CML 18.0071U

Issue No: 0

Certificate history:
Issue No. 0 (2018-06-08)

Status: **Current**

Date of Issue: **2018-06-08**

Applicant: **BEKA associates**
Old Charlton Road, Hitchin, Hertfordshire, SG5 2DA
United Kingdom

Ex Component: **Stainless-Steel G Series Enclosure**

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 600079-0).

Type of Protection: **Increased Safety "eb/ec", Pressurized "pxb/pyb/pzc", Dust Ignition "ta"**

Marking:

Ex eb IIC Gb
Ex ec IIC Gc
Ex pxb IIC Gb
Ex pyb IIC Gb
Ex pzc IIC Gc
Ex ta IIIC Da

Ta: -40°C to +80°C

Approved for issue on behalf of the IECEx Certification Body: A C Smith

Position: Technical Operations Director

Signature:
(for printed version)

Date: 2018-06-08

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Certification Management Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom

IECEx Certificate of Conformity

Certificate No:	IECEx CML 18.0071U	Issue No: 0
Date of Issue:	2018-06-08	Page 2 of 3
Manufacturer:	**BEKA associates** Old Charlton Road, Hitchin, Hertfordshire, SG5 2DA **United Kingdom**	

Additional Manufacturing location(s):

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 Component 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 Ex Component 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 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-2 : 2014-07 Edition:6	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

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

TEST & ASSESSMENT REPORTS:

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

Test Report:

GB/CML/ExTR18.0096/00

Quality Assessment Report:

GB/ITS/QAR06.0002/06

IECEx Certificate of Conformity

Certificate No: IECEx CML 18.0071U Issue No: 0

Date of Issue: 2018-06-08 Page 3 of 3

Schedule

Ex Component(s) covered by this certificate is described below:

The Stainless-Steel G Series Enclosures consist of a metallic enclosure fitted with a toughened glass window and a silicone rubber front panel keypad. The enclosures incorporate the use of silicone adhesives and gaskets. They include entries for fitting suitably dimensioned and separately certified entry devices.

Refer to Annex for full description, Conditions of Manufacture and Schedule of Limitations.

SCHEDULE OF LIMITATIONS:

Refer to Annex for full description, Conditions of Manufacture and Schedule of Limitations.

Annex:

IECEx CML 18.0071U Iss. 0 Certificate Annex.pdf

Annexe to:	**IECEx CML 18.0071U Issue 0**
Applicant:	**BEKA associates**
Apparatus:	**Stainless-Steel G Series Enclosure**

Product Description

The Stainless-Steel G Series Enclosures consist of a metallic enclosure fitted with a toughened glass window and a silicone rubber front panel keypad. The enclosures incorporate the use of silicone adhesives and gaskets. They include entries for fitting suitably dimensioned and separately certified entry devices.

The enclosures can be installed in three different ways; as a standalone enclosure, as a panel mount with only the front of the enclosure used, and as a panel mount using both the front and back of the enclosure used.

Conditions of Manufacture

The following are conditions of manufacture:

i. When the enclosures incorporate plain entries, the entry size shall be no more than 0.7 mm greater than the separately certified entry device it is intended to be used with.
ii. When the enclosures incorporate threaded entries, the entries must comply with the requirements of IEC 60079-31 clause 5.3.2.

Schedule of Limitations

The following is the schedule of limitations:

i. The component enclosures have an operating temperature range of -40°C to +80°C and shall not be used outside of this range.
ii. The component enclosures shall be used with suitably dimensioned and appropriately certified entry devices with a Level of Protection of IP66.

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