



EC-TYPE EXAMINATION CERTIFICATE

1. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**
2. **EC-Type Examination Certificate Number:** ITS14ATEX28077X
3. **Equipment or Protective System:** BA307E-SS and BA327E-SS 4 and 5 digit panel mounting indicators
4. **Manufacturer:** BEKA Associates Ltd
5. **Address:** Old Charlton Road, Hitchin, SG5 2DA, United Kingdom
6. This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
7. Intertek Testing and Certification Limited, notified body number 0359 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Intertek Report 101729854MAN-001 dated August 2014.
8. Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards EN 60079-0:2009, EN 60079-11:2007 and EN61241-11:2006 except in respect of those requirements referred to at item 15 of the Schedule.
9. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
10. This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.
11. The marking of the equipment or protective system shall include the following:-




II 1 G Ex ia IIC T5 Ga $-40^{\circ}\text{C} \leq t_a \leq +70^{\circ}\text{C}$

II 1 D Ex ia IIIC T80°C Da IP20 $-40^{\circ}\text{C} \leq t_a \leq +70^{\circ}\text{C}$

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D G Bosson
Certification Officer
19 August 2014

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SCHEDULE

EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS14ATEX28077X

12. Description of Equipment or Protective System

The BA307E-SS and BA327E-SS 4 and 5 digit panel mounting indicators are loop powered indicators enclosed in BEKA's stainless steel robust 105x60mm panel enclosure (certificate number ITS14ATEX17967U), 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 indicators to be calibrated to display a 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 4 and 5 Digit Panel Mounting Indicators may optionally incorporate an Alarm board and may additionally be fitted with an optional Backlight board.

The 4 and 5 Digit Panel Mounting Indicators comprise a main board, a display module, an optional Alarm Board and an optional Backlight board, all housed within the certified BEKA 105 x 60 robust panel, stainless steel enclosure, certified under ATEX certificate number ITS14ATEX17967U.

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

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

$U_i = 30V$
 $I_i = 200mA$
 $P_i = 0.84W$
 $C_i = 13nF$
 $L_i = 0.008mH (0.01mH)$

TB2 Terminals 12, 13 and 14 (Backlight Input)

$U_i = 30V$
 $I_i = 200mA$
 $P_i = 0.84W$
 $C_i = 13nF$
 $L_i = 0.008mH (0.01mH)$

TB3 Terminals RS1 and RS2

$U_i = 30V$	$C_o = 53nF$
$I_i = 200mA$	$L_o = 0.79mH$
$P_i = 0.84W$	$U_o = 6V$
$C_i = 13nF$	$I_o = 2.5mA$
$L_i = 0.008mH (0.01mH)$	$P_o = 3.75mW$

TB4 Terminals 8 and 9' Terminals 10 and 11 (Alarm 1 and Alarm 2)

$U_i = 30V$
 $I_i = 200mA$
 $P_i = 0.84W$
 $C_i = 24nF$
 $L_i = 0.008mH (0.01mH)$

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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 EN 60079-11. The equivalent capacitance and inductance are the result of r.f. suppression components directly connected across the apparatus input terminals.

The BEKA BA307E-SS and BEKA BA327E-SS consists of the BEKA BA307E and BA327E 4 and 5 digit panel mount indicators (certificate number ITS11ATEX27254X) and the BEKA robust 105x60mm panel enclosure (certificate number ITS14ATEX17967U). The plastic case of the suffix-E type indicators has been removed and replaced with the component approved enclosure, giving a new piece of equipment with suffix-E-SS

13. Report Number

Intertek Report Ref: 101729854MAN-001 Dated: August 2014

14. Conditions of Certification

(a). Special Conditions for safe use

- For use in group IIIC conductive dust atmospheres, the Indicator shall be mounted such that the indicator terminals have at least IP6X protection.
- When installed in an Ex px, py or pz panel enclosure, the indicator must be powered by an appropriately rated Zener barrier or galvanic isolator located in a safe area.
- When installed in an Ex e panel enclosure, the indicator must be powered by an appropriately rated Zener barrier or galvanic isolator located in a safe area.
- When installed in an Ex ta, Ex tb or tc panel enclosure the indicator must be powered via appropriately rated Zener barrier or galvanic isolator located in a safe area, so that indicator push button contacts are nonincendive (Ex ia).
- The supply circuit for indicators used in the equipment with pressurized type of protection shall be rated for a prospective short circuit current of not more than 10kA.

(b). Conditions of Manufacture

- The voltages applied to infallible transformers shall conform to the values given in Table 10 as per the requirements of EN 60079-11:2007, Clause 11.2, Routine tests for infallible transformers.

15. Essential Health and Safety Requirements (EHSR's)

The relevant EHSR's have been identified and assessed in Intertek Report 101729854MAN-001 Dated: August 2014

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16. **Drawings and Documents**

Title	Drawing No.:	Rev. Level:	Date:
ATEX & IECEX Ex I Certification Information for BA307E-SS & BA327E-SS Rugged Digital Indicators (3 Sheets)	C1300-77	1	17/06/2014

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

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Additional information about the BA307E-SS and BA327E-SS ATEX Ex i certificate

This ATEX EC-Type Examination Certificate ITS14ATEX28077X for the intrinsically safe BA307E-SS and BA327E-SS 4/20mA loop powered indicators refers to ATEX Component Certificate ITS14ATEX17967U for the BEKA robust 105x60mm stainless steel enclosure in which the indicators are housed. A copy of this Component Certificate follows this note.

The Component Certificate confirms that the front of the stainless steel enclosure complies with the impact and ingress requirements specified for the following types of protection:

- II 2 G Ex e IIC Gb Protection by Increased safety EN 60079-7:2007
- II 2 G Ex p IIC Gb Protection by pressurised enclosure EN 60079-2:2008
- II 3 G Ex nA IIC Gc Type of protection 'n' EN 60079-15:2010
- II 1 D Ex ta IIIC Da Dust ignition protection by enclosure EN 60079-31:2009

When a BA307E-SS or BA327E-SS indicator is 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 are specified in section 14a of the indicator EC-Type Examination Certificate ITS14ATEX28077X.

Further installation information is contained in the [BA307E-SS and BA327E-SS Instruction Manual](#) and in the [BEKA Application Guide AG300](#) both of which may be downloaded from this website.

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



1. EC-TYPE EXAMINATION CERTIFICATE

2. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3. **EC-Type Examination Certificate Number:** ITS14ATEX17967U

4. **Equipment or Protective System:** BEKA 105 x 60 robust panel enclosure

5. **Manufacturer:** Beka Associates Limited

6. **Address:** Old Charlton Road, Hitchin, SG5 2DD, United Kingdom

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

8. Intertek Testing and Certification Limited, notified body number 0359 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Intertek Report G101377532 Issue 1 dated June 2014.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards EN 60079-0:2012, EN 60079-2:2008, EN 60079-7:2007, EN 60079-15:2010 and EN 60079-31:2009 except in respect of those requirements referred to at item 16 of the Schedule.

10. The sign "U" placed after the certificate number indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

11. This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12. The marking of the equipment or protective system shall include the following:-

	II 2 G Ex e IIC Gb
	II 2 G Ex p IIC Gb
	II 3 G Ex nA IIC Gc
	II 1 D Ex ta IIIC Da

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Vijay K. Varma
V K Varma
Certification Officer
9th June 2014

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13. **Description of Equipment or Protective System**

The BEKA 105 x 60 robust panel enclosure is an empty enclosure made from stainless steel. Enclosure comprises main enclosure casting with 10mm thick toughened glass and rubber silicon keypad buttons located on the front and four screws on the back of the enclosure for installation of the rear panel and further mounting purposes. Silicone rubber gasket providing degree of protection IP66 is retained to the surface of the front bezel. Enclosures were tested to meet the requirements of IP66 requirements for the front of the enclosure in accordance with IEC 60529.

Enclosures are provided with external earthing stud suitable for earthing wire. There are no openings in the front of the enclosure.

14. **Report Number**

Intertek Report Ref: G101377532 Issue: 1 Dated: June 2014.

15. **Schedule of Limitations**

- For an Ex nA instrument installed in an Ex n or Ex e panel enclosure, the instrument must be powered from an energy-limited circuit. The equipment is allowed to be installed in Zone 2 hazardous location.
- For an Ex nA instrument installed in an Ex px, py or pz panel enclosure, the instrument must be powered from the energy-limited circuit, and the rear panel must provide appropriate vents dependent on the characteristics of the gas used for the pressurised system. The equipment is allowed to be installed in Zone 2 hazardous location.
- For an Ex i instrument installed in an Ex px or py panel enclosure, the instrument must be powered via appropriately rated Zener barrier or galvanic isolator located in a safe area, and the rear panel must provide appropriate vents dependent on the characteristics of the gas used for the pressurised system. The equipment is allowed to be installed in Zone 1 or Zone 2 hazardous location.
- For an Ex i instrument installed in an Ex e panel enclosure, the instrument must be powered via appropriately rated Zener barrier or galvanic isolator located in a safe area. The equipment is allowed to be installed in Zone 1 or Zone 2 hazardous locations dependant on the intrinsically safe level of protection.
- For Ex nA instrument installed in Ex tc panel enclosure the instrument must be powered from the limited energy circuit, so that instrument push button contacts are nonincendive (Ex ic).
- For the Ex i instrument installed in Ex ta or Ex tb panel enclosure the instrument must be powered via appropriately rated Zener barrier or galvanic isolator located in a safe area, so that instrument push button contacts are nonincendive (Ex ia).
- The supply circuit for instruments used in equipment with pressurized type of protection shall be rated for a prospective short circuit current of not more than 10kA.
- Final assembly must be reassessed to the relevant standards taking into consideration all types of protection used
- Service temperature range specified by manufacture is -40°C to +70°C.

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16. **Essential Health and Safety Requirements (EHSR's)**

The relevant EHSR's have been identified and assessed in Intertek Report G101377532 Issue: 1 Dated: June 2014.

17. **Drawings and Documents**

Title	Drawing No.:	Rev. Level:	Date:
ATEX & IECEx Ex nA, Ex p, Ex ta & Ex e Certification for BEKA 105 x 60 ROBUST PANEL ENCLOSURE	CI100-07	1	13.03.2014

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

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