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

Certificate No.:	IECEx ITS 14.0048X	issue No.:0	Certificate history:
Status:	**Current**		
Date of Issue:	**2014-08-19**	Page 1 of 3	

Applicant: **BEKA Associates Ltd**
Old Charlton Road,
Hitchin,
SG5 2DA
United Kingdom

Electrical Apparatus: **BA307E-SS & BA327E-SS**
Optional accessory:

Type of Protection: **intrinsically safe "ia"**

Marking: Ex ia IIC T5 Ga -40≤Ta≤+70°C
Ex ia IIIC T80°C Da IP20 -40°C≤Ta≤+70°C
IECEx ITS 14.0048X

Approved for issue on behalf of the IECEx Certification Body: D G Bosson

Position: Certification Officer

Signature:
(for printed version)

Date: 19 Aug 2014

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:

Intertek Testing & Certification Limited
ITS House, Cleeve Road,
Leatherhead,
Surrey, KT22 7SB
United Kingdom

IECEx Certificate of Conformity

Certificate No.: IECEx ITS 14.0048X

Date of Issue: **2014-08-19** Issue No.: **0**

Manufacturer: **BEKA Associates Ltd**
Old Charlton Road,
Hitchin,
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 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 electrical apparatus 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 : 2007-10 Edition: 5	Explosive atmospheres - Part 0:Equipment - General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 61241-11 : 2005 Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'iD'

*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 equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
GB/ITS/ExTR11.0017/00 GB/ITS/ExTR11.0017/01 GB/ITS/ExTR11.0017/03

Quality Assessment Report:

GB/ITS/QAR06.0002/03

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

The BA307E-SS and BA327E-SS 4 and 5 digit panel mounting indicators are loop powered instruments enclosed in BEKA's stainless steel robust 105x60mm panel enclosure (certificate number IECEx ITS 14.0007U), 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 instruments 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 IECEx certificate number IECEx ITS 14.0007U.
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)
Ui= 30V
Ii= 200mA
Pi= 0.84W
Ci= 13nF
Li= 0.008mH (0.01mH)
TB2 Terminals 12, 13 and 14 (Backlight Input)
Ui= 30V
Ii= 200mA
Pi= 0.84W
Ci= 13nF
Li= 0.008mH (0.01mH)
TB3 Terminals RS1 and RS2

Ui=	30V	Co =	53nF
Ii=	200mA	Lo =	0.79mH
Pi=	0.84W	Uo =	6V
Ci=	13nF	Io =	2.5mA
Li=	0.008mH (0.01mH)	Po =	3.75mW

TB4 Terminals 8 and 9' Terminals 10 and 11 (Alarm 1 and Alarm 2)
Ui= 30V
Ii= 200mA
Pi= 0.84W
Ci= 24nF
Li= 0.008mH (0.01mH)
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 IEC 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 IECEx ITS 11.0015X) and the BEKA robust 105x60mm panel enclosure (certificate number IECEx ITS 14.0007U). 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

CONDITIONS OF CERTIFICATION: YES as shown below:

Conditions of Use

- For use in group IIIC conductive dust atmospheres, the Indicator shall be mounted such that the instrument 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 instrument must be powered by an appropriately rated Zener barrier or galvanic isolator located in a safe area.
- When installed in an 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 the equipment with pressurized type of protection shall be rated for a prospective short circuit current of not more than 10kA.

Condition of Manufacture

- The voltages applied to infallible transformers shall conform to the values given in Table 10 as per the requirements of IEC 60079-11:2006, Clause 11.2, Routine tests for infallible transformers.

Annex: Annex to IECEx ITS 14.0048X issue 0.pdf

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

This IECEx Certificate of Conformity IECEx ITS 14.0048X for the intrinsically safe BA307E-SS and BA327E-SS 4/20mA loop powered indicators refers to the IECEx Component Certificate IECEx ITS 14.0007U 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:

Ex e IIC Gb	Protection by Increased safety IEC 60079-7:2006
Ex p IIC Gb	Protection by pressurised enclosure IEC 60079-2:2007
Ex nA IIC Gc	Type of protection 'n' IEC 60079-15:2010
Ex ta IIIC Da	Dust ignition protection by enclosure IEC 60079-31:2008

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 defined by the Conditions of Certification in the IECEx Certificate of Conformity IECEx ITS 14.0048X.

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 IECEx Component Certificate number does not appear on the indicator's certification label.

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Certificate No.:	IECEx ITS 14.0007U issue No.:0	Certificate history:
Status:	**Current**	
Date of Issue:	**2014-06-10**	Page 1 of 4

Applicant: **BEKA**
Old Charlton Road
Hitchin SG5 2DD
United Kingdom

Electrical Apparatus: **Robust 105-60mm Panel Enlosure**
Optional accessory:

Type of Protection: **"p", "e", "nA", "ta"**

Marking: IECEx ITS 14.0007U
Ex e IIC Gb, Ex p IIC Gb, Ex nA IIC Gc, Ex ta IIIC Da

Approved for issue on behalf of the IECEx Certification Body: V K Varma

Position: Certification Officer

Signature:
(for printed version) Vijay K. Varma

Date: 2014-06-10

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Intertek

IECEx Certificate of Conformity

Certificate No.: IECEx ITS 14.0007U

Date of Issue: **2014-06-10** Issue No.: **0**

Manufacturer: **BEKA**
Old Charlton Road
Hitchin SG5 2DD
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 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 electrical apparatus 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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-2 : 2007-02 Edition: 5	Explosive Atmospheres - Part 2 Equipment protection by pressurized enclosure "p"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-7 : 2006-07 Edition: 4	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 equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
GB/ITS/ExTR14.0024/00

Quality Assessment Report:

GB/ITS/QAR06.0002/03

IECEx Certificate of Conformity

Certificate No.: IECEx ITS 14.0007U

Date of Issue: **2014-06-10** Issue No.: **0**

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

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.

CONDITIONS OF CERTIFICATION: NO

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Additional information:

Schedule of Limitation
- 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 the 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 manufacturer is -40°C to +70°C.