



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 16.0004X Issue No: 2 Certificate history:
Status: **Current** Issue No. 2 (2016-11-25)
Date of Issue: **2016-11-25** Page 1 of 6 Issue No. 1 (2016-08-15)
Applicant: **BEKA associates Limited** Issue No. 0 (2016-03-15)
Old Charlton Road
Hitchin
Herts SG5 2DA
United Kingdom

Equipment: 'E' and 'G' series field and panel mount externally powered rate totalizers BA317E, BA337E, BA367E, BA377E, BA318E, BA338E, BA368E, BA378E, BA388E, BA317E-SS, BA337E-SS, BA367E-SS, BA377E-SS, BA314E, BA334E, BA364E, BA374E, BA384E, BA314G, BA334G, BA364G, BA374G and BA384G

Optional accessory:

Type of Protection: **Intrinsic safety 'i'**

Marking: IECEx ITS 16.0004X
BEKA associates
Ex ia IIC T5 Ga
-40°C ≤ Ta ≤ +60°C
-40°C ≤ Ta ≤ +70°C (see page 4 for more detailed marking)
Ex ia III C T80°C Da
-40°C ≤ Ta ≤ +60°C

Approved for issue on behalf of the IECEx
Certification Body:

A T Austin

Position:

Certification Officer

Signature:
(for printed version)

Date:

2016-11-25

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](http://www.iecex.com).

Certificate issued by:

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





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Manufacturer: **BEKA associates Limited**
Old Charlton Road
Hitchin
Herts 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*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/ExTR16.0005/00](#)

[GB/ITS/ExTR16.0005/01](#)

[GB/ITS/ExTR16.0005/02](#)

Quality Assessment Report:

[GB/ITS/QAR06.0002/04](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The BEKA 'E' and 'G' series externally powered rate totalizers, models BA317E, BA337E, BA367E, BA377E, BA318E, BA338E, BA368E, BA378E, BA388E, BA317E-SS, BA337E-SS, BA367E-SS, BA377E-SS, BA314E, BA334E, BA364E, BA374E, BA384E, BA314G, BA334G, BA364G, BA374G and BA384G are indicators displaying rate value and/or total value in various engineering units. They are controlled and configured via the four push-buttons located in front panel which are accessible to the user.

Models BA317E, BA337E, BA367E, BA377E, BA318E, BA338E, BA368E, BA378E, BA388E, BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS are panel mounted while models BA314E, BA334E, BA364E, BA374E, BA384E, BA314G, BA334G, BA364G, BA374G and BA384G are field mounted.

There are two main versions of the rate totalizers: single channel input and dual channel input. Factory fitted accessories include display backlight, dual alarms output, an isolated 4-20mA output and single alarm / single pulse output. Equipment comprises connectors or terminals for connection to external circuits. All external connections must be supplied from suitable and certified equipment meeting input/output parameters of external connections.

The panel mounted models BA317E, BA337E, BA367E and BA377E are housed in non-metallic (bezel size 96mm x 48mm) enclosures, models BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS within stainless steel (bezel size 105mm x 60mm) enclosure and BA318E, BA338E, BA368E, BA378E and BA388E models are housed in non-metallic (bezel size 144mm x 72mm) enclosure. Stainless steel enclosure is Ex component certified under IECEx ITS14.0007U and allows equipment to be installed also in panels for use in explosive dust atmospheres. The front of the stainless steel enclosure complies with requirements for 'Ex e', 'Ex nA', 'Ex p' and 'Ex t' type of protection providing adequate mechanical strength and minimum degree of protection by enclosure of IP66.

The 'G' models are housed within small field Ex approved non-metallic enclosure certified under IECEx certificate no. IECEx ITS14.0063U. The 'G' series enclosures provide minimum degree of protection by enclosures of IP66. The models BA314E, BA334E, BA364E, BA374E and BA384E are housed within a large field non-metallic enclosure with minimum ingress of protection of IP66.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- For use in Group III C explosive dust atmospheres only models BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS shall be used and mounted such that the instrument terminals are protected by at least IP6X enclosure in accordance with IEC 60079-0 standard.
- For installation in Ex e, Ex nA, Ex p or Ex t panel enclosure, all connections of BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS models must be supplied via appropriately rated and approved equipment meeting input/output parameters of external connections.
- When installed purely as intrinsically safe equipment, the ambient temperature range of the BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS models is: $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$.
- When installed in a Zone 0 potentially explosive atmosphere requiring EPL Ga apparatus, the instrument shall be installed such that even in the event of rare incidents, an ignition source due to impact or friction between the aluminium label and iron/steel is excluded.
- Provision is made for field mounted equipment for fitting cable entry devices suitable for intended use, location and protection concept cable glands maintaining the ingress of protection of the enclosure.

Conditions of Manufacture

- The infallible transformers shall be routinely tested as per IEC 60079-11:2011 Clause 11.2 with applied voltage values given in Table 10 for routine tests for other than mains transformers.



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EQUIPMENT (continued):

Marking for the equipment:

for models BA317E, BA337E, BA367E, BA377E, BA318E, BA338E, BA368E, BA378E, BA388E, BA314E, BA334E, BA364E, BA374E and BA384E:

Ex ia IIC T5 Ga $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$

for models BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS:

Ex ia IIC T5 Ga $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$ (see additional information)

Ex ia III C T80°C Da $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$

for models BA314G, BA334G, BA364G, BA374G and BA384G:

Ex ia IIC T5 Ga $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$

Ex ia III C T80°C Da $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$

Equipment provides several terminals for connection to external circuits:

The power supply terminals 1 and 2 have following parameters:

$U_I = 28\text{V}$ $U_O = 0$

$I_I = 200\text{mA}$ $I_O = 0$

$P_I = 0.84\text{W}$ $P_O = 0$

The equivalent parameters are:

$C_I = 2\text{nF}$ $L_I = 4\mu\text{H}$

The Reset terminals RS1 and RS2 have the following parameters:

$U_I = 28\text{V}$ $U_O = 3.8\text{V}$

$I_I = 200\text{mA}$ $I_O = 1\text{mA}$

$P_I = 0.84\text{W}$ $P_O = 1\text{mW}$

The equivalent parameters are:

$C_I = 0$ $L_I = 0$

The input terminals 4, 5 and 6 and input terminals 8, 9 and 10 have the following parameters:

$U_I = 28\text{V}$ $U_O = 1.1\text{V}$

$I_I = 200\text{mA}$ $I_O = 0.5\text{mA}$

$P_I = 0.84\text{W}$ $P_O = 0.2\text{mW}$

For intrinsic safety considerations under fault conditions, the voltage, current and power at terminals 4, 5 and 6 and input terminals 8, 9 and 10 do not exceed those stated in section 5.7 of IEC 60079-11:2011.

The equivalent parameters are:

$C_I = 2\text{nF}$ $L_I = 4\mu\text{H}$

The input terminals 3, 4, 5 and 6 and input terminals 7, 8, 9 and 10 have the following input parameters:

$U_I = 14\text{V}$ $U_O = 10.5\text{V}$

$I_I = 200\text{mA}$ $I_O = 9.2\text{mA}$

$P_I = 0.7\text{W}$ $P_O = 24\text{mW}$

The equivalent parameters are:

$C_I = 2\text{nF}$ $L_I = 4\mu\text{H}$



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

Issue 1 (GB/ITS/ExTR16.0005/01):

- Addition of warnings on the label for panel mounted equipment related to electrostatic discharge hazard and capacitance of the metallic label with reference to earth of 8pF.
- Addition of field mounted version of externally powered rate totalisers denoted by new model numbers: BA314E, BA334E, BA364E, BA374E, BA384E, BA314G, BA334G, BA364G, BA374G and BA384G.
- Update to the drawings to reflect above changes

Issue 2 (GB/ITS/ExTR16.0005/02):

- Addition of optional components not listed previously in the documentation.
- Addition of Specific Condition of Use related to aluminium label fitted on the units.
- Update to the drawings to reflect above changes.



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Additional information:

Optional Alarm output terminals A1, A2 and A3, A4 have the following input parameters:

$$U_I = 28V \quad U_O = 1.47V$$

$$I_I = 200mA \quad I_O = 1\mu A$$

$$P_I = 0.84W \quad P_O = 2\mu W$$

For intrinsic safety considerations under fault conditions, the voltage, current and power at terminals A1, A2 and A3, A4 do not exceed those stated in section 5.7 of IEC 60079-11:2011.

The equivalent parameters are:

$$C_I = 22nF \quad L_I = 4\mu H$$

Optional Pulse output terminals P1, P2 have the following input parameters:

$$U_I = 28V \quad U_O = 0$$

$$I_I = 200mA \quad I_O = 0$$

$$P_I = 0.84W \quad P_O = 0$$

For intrinsic safety considerations under fault conditions, the voltage, current and power at terminals P1, P2 do not exceed those stated in section 5.7 of IEC 60079-11:2011.

The equivalent parameters are:

$$C_I = 0 \quad L_I = 0$$

Optional 4-20mA output terminals C1, C2, C3 and C4 have the following input parameters:

$$U_I = 28V \quad U_O = 0$$

$$I_I = 200mA \quad I_O = 0$$

$$P_I = 0.84W \quad P_O = 0$$

For intrinsic safety considerations under fault conditions, the voltage, current and power at terminals C1, C2, C3 and C4 do not exceed those stated in section 5.7 of IEC 60079-11:2011.

The equivalent parameters are:

$$C_I = 2.2nF \quad L_I = 4\mu H$$

Models BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS can be used in an ambient of $-40^{\circ}C \leq T_a \leq +70^{\circ}C$ when installation is not relying upon the certified impact and ingress protection provided by the front of the enclosure to maintain the certification of the panel enclosure in which the instrument is mounted.