

UK-TYPE EXAMINATION CERTIFICATE

Product or Protective Systems Intended for Use in Potentially Explosive Atmospheres

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

- UK-Type Examination Certificate Number:** ITS21UKEX0098X **Issue 00**
- Product:** '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.
- Manufacturer:** BEKA Associates Ltd
- Address:** Old Charlton Road, Hitchin, Herts, SG5 2DA, United Kingdom
- This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 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 104629389CHE-021 dated 8th February 2022.
- 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.
- 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.
- 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.
- 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
-40°C ≤ Ta ≤ +**°C (see description for more detailed marking)

Certification Officer: _____



M Newman

Date: _____

3rd March 2022

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11. Description of Product or Protective System

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 ITS21UKEX0094U 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 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. ITS14ATEX18140U. 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.

Models BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS can be used in an ambient of $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ 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.

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Equipment provides several terminals for connection to external circuits:

The power supply input terminals 1 and 2 have following parameters:

$U_i = 28V$	$U_o = 0$
$I_i = 200mA$	$I_o = 0$
$P_i = 0.84W$	$P_o = 0$

The equivalent parameters are:

$C_i = 2nF$
 $L_i = 4\mu H$

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

$U_i = 28V$	$U_o = 1.1V$
$I_i = 200mA$	$I_o = 0.5mA$
$P_i = 0.84W$	$P_o = 0.2mW$

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 EN 60079-11:2012.

The equivalent parameters are:

$C_i = 2nF$
 $L_i = 4\mu H$

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

$U_i = 14V$	$U_o = 10.5V$
$I_i = 200mA$	$I_o = 9.2mA$
$P_i = 0.7W$	$P_o = 24mW$

The equivalent parameters are:

$C_i = 2nF$
 $L_i = 4\mu H$

The Reset terminals RS1 and RS2 have the following parameters:

$U_i = 28V$	$U_o = 3.8V$
$I_i = 200mA$	$I_o = 1mA$
$P_i = 0.84W$	$P_o = 1mW$

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The equivalent parameters are:

$$C_i = 0$$

$$L_i = 0$$

Optional Alarm output terminals A1, A2 and A3, A4 have the following 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 EN 60079-11:2012.

The equivalent parameters are:

$$C_i = 22nF$$

$$L_i = 4\mu H$$

Optional Pulse output terminals P1, P2 have the following 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 EN 60079-11:2012.

The equivalent parameters are:

$$C_i = 0$$

$$L_i = 0$$

Optional 4-20mA output terminals C1, C2, C3 and C4 have the following 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 EN 60079-11:2012.

The equivalent parameters are:

$$C_i = 2.2nF$$

$$L_i = 4\mu H$$

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Marking for the equipment:

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

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

BA317E-SS, BA337E-SS, BA367E-SS, BA377E-SS:

II 1G Ex ia IIC T5 Ga $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$ (see description)

II 1D Ex ia IIIC T80°C Da $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$

BA314G, BA334G, BA364G, BA374G and BA384G:

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

II 1D Ex ia IIIC T80°C Da $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$

12. Report Number

Intertek Report: 104629389CHE-021 dated 8th February 2022.

13. Special Conditions of Certification

(a). Special Conditions of Use

- For use in Group IIIC 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 EN 60079-0 standard.
- For installation in Ex e, 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 connection.
- When installed purely as intrinsically safe equipment, the ambient temperature range of the BA317E-SS, BA337E-SS, BA367E-SS and BA377E-SS models is: $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$.
- 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.

(b). Conditions of Manufacture

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

14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report: 104629389CHE-021 dated 8th February 2022.

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15. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
IECEX and ATEX Ex ia Certification Information for 'E' series externally powered rate totalisers BA317E, BA318E, BA337E, BA338E, BA367E, BA368E, BA377E, BA378E and BA388E .	CI330-41	1	Feb 2016
*UKCA Ex ia Certification Information for 'E' series externally powered rate totalisers BA317E, BA318E, BA337E, BA338E, BA367E, BA368E, BA377E, BA378E and BA388E (2 Sheets)	CI330-41-UKCA	1	May 2021

