



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE NUMBER ITS16ATEX28408X Issue 3

13. Description of Equipment 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 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.

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.

Equipment provides several terminals for connection to external circuits:

The power supply input 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:

$C_i = 2\text{nF}$	$L_i = 4\mu\text{H}$
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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 EN 60079-11:2012.

The equivalent parameters are:

$C_i = 2\text{nF}$	$L_i = 4\mu\text{H}$
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The input terminals 3, 4, 5 and 6 and input terminals 7, 8, 9 and 10 have the following input parameters:

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

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The equivalent parameters are:

$C_1 = 2\text{nF}$ $L_1 = 4\mu\text{H}$

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:

$C_1 = 0$ $L_1 = 0$

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

$U_i = 28\text{V}$ $U_o = 1.47\text{V}$
 $I_i = 200\text{mA}$ $I_o = 1\mu\text{A}$
 $P_i = 0.84\text{W}$ $P_o = 2\mu\text{W}$

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:

$C_1 = 22\text{nF}$ $L_1 = 4\mu\text{H}$

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

$U_i = 28\text{V}$ $U_o = 0$
 $I_i = 200\text{mA}$ $I_o = 0$
 $P_i = 0.84\text{W}$ $P_o = 0$

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:

$C_1 = 0$ $L_1 = 0$

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

$U_i = 28\text{V}$ $U_o = 0$
 $I_i = 200\text{mA}$ $I_o = 0$
 $P_i = 0.84\text{W}$ $P_o = 0$

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:

$C_1 = 2.2\text{nF}$ $L_1 = 4\mu\text{H}$

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 $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$

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

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

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

BA314G, BA334G, BA364G, BA374G and BA384G

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

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

14. Report Number

Intertek Report Ref. 102170728LHD-001A Issue 1 dated March 2016.

Intertek Report Ref. 102578398LHD-001A Issue 1 dated August 2016.

Intertek Report Ref. 102738036LHD-001A Issue 1 dated November 2016.



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15. Special Conditions of Certification

(a). Specific Conditions of Safe 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 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 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: $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$.
- 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.

(b). Conditions of Manufacture - Routine Tests

- 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

16. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report Ref. 102578398LHD-001A Issue 1 dated August 2016.

17. 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

18. Details of Certificate changes

Modifications to the product covered under **Issue 2**:

- Addition of Warning 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.

