

Intertek



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: **ITS11ATEX27254X**

4. Equipment or Protective System: **4 and 5 Digit Panel Mounting Indicators and Rate Totaliser**

5. Manufacturer: **BEKA ASSOCIATES LIMITED**

6. Address: **Hitchin, Herts, SG5 2DA**

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 Ref 10048733B Issue 1 dated April 2011.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards EN 60079-0:2009, EN 60079-11:2007, EN 60079-26:2007 and EN 61241-11:2006, except in respect of those requirements referred to at item 18 of the Schedule.

10. 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.

11. This EC-Type examination certificate relates only to the design and construction 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 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, $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$

A T Austin
Certification Officer
Date: 15 April 2011

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13. SCHEDULE
14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS11ATEX27254X
15. Description of Equipment or Protective System

The 4 and 5 Digit Panel Mounting Indicators and Rate Totaliser are panel mounted loop powered equipment 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 linear 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 and Rate Totaliser may be one of the following;

BA307E and BA308E 4 Digit Indicators
BA327E and BA328E 5 Digit Indicators
BA358E Rate Totaliser

The 4 and 5 Digit Panel Mounting Indicators and Rate Totaliser may optionally be fitted with Alarm board and may additionally be fitted with an optional Backlight board.

The 4 and 5 Digit Panel Mounting Indicator and Rate Totaliser comprise a main board, a display module, an optional Alarm board and an optional Backlight board, all housed within a plastic enclosure. The enclosure provides a degree of protection of at least IP20.

Intrinsic safety is assured by limitation of voltage, current and power, limitation of capacitance and inductance, and infallible segregation.

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)

$U_i = 30 \text{ V}$	$U_o = 1.1 \text{ V}$
$I_i = 200 \text{ mA}$	$I_o = 3 \text{ mA}$
$P_i = 0.84 \text{ W}$	$P_o = 4.5 \text{ mW}$
$C_i = 13 \text{ nF}$	
$L_i = 0.008 \text{ mH (0.01 mH)}$	
$C_o = 53 \text{ nF}$	
$L_o = 0.78 \text{ mH}$	

TB2 Terminals 12, 13 and 14 (Backlight Input)

$U_i = 30 \text{ V}$
$I_i = 200 \text{ mA}$
$P_i = 0.84 \text{ W}$
$C_i = 13 \text{ nF}$
$L_i = 0.008 \text{ mH (0.01 mH)}$
$C_o = 53 \text{ nF}$
$L_o = 0.79 \text{ mH}$

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TB3 Terminals RS1 and RS2

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

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

$U_i = 30 \text{ V}$	$U_o = 1.47 \text{ V}$
$I_i = 200 \text{ mA}$	$I_o = 1 \mu\text{A}$
$P_i = 0.84 \text{ W}$	$P_o = 2.2 \mu\text{W}$
$C_i = 24 \text{ nF}$	
$L_i = 0.008 \text{ mH (0.01 mH)}$	
$C_o = 42 \text{ nF}$	
$L_o = 0.79 \text{ mH}$	

For intrinsic safety considerations, under faults 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.

16. Report Number:
Intertek Report Ref 10048733B Issue 1 dated April 2011.
17. CONDITIONS OF CERTIFICATION:
- (a). Special Conditions for safe use
For use in Group IIIC conductive dust atmospheres, the Indicator or Totaliser shall be mounted such that the instrument terminals have at least IP6X protection.
- (b). Conditions For Use (Routine Tests)
The voltages applied to infallible transformers shall conform to the values given in Table 9 as per the requirements of EN 60079-11:2007 clause 11.2, Routine tests for infallible transformers.
18. Essential Health and Safety Requirements (EHSR's)
The relevant EHSR's have been identified and assessed in Intertek Report Ref 10048733B Issue 1 dated April 2011.

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19. Drawings and Documents

Number	Title	Issue	Date
CI300-61, sheets 1-8* 16, 17, 21-27, 28* 30, 31, 32*,33, 34	Certification Information for BA307E, BA308E, BA327E, BA328E Digital Indicators & BA358E Rate Totaliser	1	Oct. '10

Drawings marked * are common to Certificate No ITS11ATEX27253

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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