



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: **ITS11ATEX27253**

4. Equipment or Protective System: **4 and 5 Digit Field 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 10048733A 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, $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
II 1 D, Ex ia IIIC T80°C Da IP66, $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$



A T Austin
Certification Officer
Date: 15 April 2011

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13. SCHEDULE
14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS11ATEX27253
15. Description of Equipment or Protective System

The 4 and 5 Digit Field Mounting Indicators and Rate Totaliser are field 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 Field Mounting Indicators and Rate Totaliser may be one of the following:

BA304E 4 Digit Indicator
BA324E 5 Digit Indicator
BA354E Rate Totaliser

The 4 and 5 Digit Field Mounting Indicators and Rate Totaliser may optionally incorporate Alarm circuit on the main display board and may additionally be fitted with an optional Backlight board.

The 4 and 5 Digit Field Mounting Indicators and Rate Totaliser comprise a field terminal board, a main display board, a display module and an optional Backlight board, all housed within a plastic, glass reinforced polyester, enclosure or a stainless steel casting. The enclosure provides a degree of protection of at least IP66.

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)

| | |
|------------------------------------|------------------------|
| $U_i = 30 \text{ V}$ | $U_o = 1.1 \text{ V}$ |
| $I_i = 200 \text{ mA}$ | $I_o = 3 \text{ mA}$ |
| $P_i = 0.84 \text{ W}$ | $P_o = 4.5 \text{ mW}$ |
| $C_i = 13 \text{ nF}$ | |
| $L_i = 0.016 \text{ mH (0.02 mH)}$ | |
| $C_o = 53 \text{ nF}$ | |
| $L_o = 0.78 \text{ mH}$ | |

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 10048733A Issue 1 dated April 2011.

17. CONDITIONS OF CERTIFICATION:

(a). Special Conditions for safe use

There are no special conditions for safe use.

(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 10048733A Issue 1 dated April 2011.

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- 19. Drawings and Documents

| Number | Title | Issue | Date |
|--|---|-------|----------|
| CI300-61, sheets 1-8*, 9-15, 18-20, 28*, 29, 32* | Certification Information for BA304E, BA324E Digital Indicators & BA354E Rate Totaliser | 1 | Oct. '10 |

Drawings marked * are common to Certificate No ITS11ATEX27254X

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