ITS Intertek Testing Services

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: ITS02ATEX2027

4. Equipment or Protective System: BA304C 3½ DIGIT INDICATOR

5. Manufacturer: BEKA ASSOCIATES LIMITED

6. Address: Old Charlton Road, 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. The ITS 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 Report Number:
   ITS Report Ref 02006736, dated July 2002

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
   EN 50014: 1992, EN 50020: 1994, EN 50284: 1999
   except in respect of those requirements listed 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 of the specified equipment or protective system. Further requirements of this Directive apply to the manufacture and supply of this equipment or protection system.

12. The marking of the equipment or protective system shall include the following: -

    II 1 G, EEx ia IIC T5 (T_{amb}= -40°C to 60°C)

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R M Adams
Deputy Certification Manager
31 July 2002

13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS02ATEX2027

15. Description of Equipment or Protective System.

THE BA304C 3½ Digit Indicator is a two wire apparatus designed to be connected in a 4/20 mA process loop and provide a display in engineering units.

The BA304C 3½ Digit Indicator may alternatively be identified as a DA4-Ex/70, GSI 04 3½ Digit Indicator

The BA304C is a field mounting indicator comprising a terminal board, a main/display board and an optional root extractor or calibrator board, all housed within a metallic or conductive plastics enclosure, which may have a conductive coating on the inside surfaces. 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, suppression of inductance, and infallible segregation.

The equivalent resistance of the apparatus at terminals 1 and 3 is 14.85 Ω minimum in normal operation and 24.75 Ω minimum under fault conditions.

The maximum intrinsically safe input parameters are as follows:

U_i = 30 V dc
I_i = 200 mA
P_i = 0.85 W

The equivalent parameters of the apparatus at the supply terminals are:

C_i = 0.02 µF
L_i = 0.01 mH

13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS02ATEX2027

15. Description of Equipment or Protective System. (cont.)

For intrinsic safety considerations, under fault conditions, the voltage, current and power at terminals 1 and 3 do not exceed those specified in Clause 5.4 of EN 50020: 1994. The equivalent capacitance and inductance are the result of r.f. suppression components directly connected to the apparatus terminals.

16. Report No. ITS Report Ref 02006736

17. SPECIAL CONDITIONS FOR SAFE USE
None

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13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER I ITS02ATEX2027

18. Essential Health and Safety Requirements

Essential Health and Safety Requirements not covered by Standards listed at (9)		
Clause	**Subject**	**Compliance**
1.01	Principal of integrated explosion protection	The equipment is designed to comply with the requirements of EN 50014 and EN 50020
1.02	Analysis of possible operating faults	The equipment is designed to comply with failure modes specified in EN 50020
1.0.3	Special checking and maintenance conditions	No special requirements
1.0.6	Instructions	Instruction Manual provides all the information
1.2.1	Design with regard to technical knowledge	The state of the art as specified in EN 50014 and EN 50020 satisfies this requirement
1.2.4	Dust deposits	Certification for gas atmospheres only
1.2.5	Additional means of protection	No special requirements
1.2.7	Protection against other hazards	The equipment is designed to comply with the requirements of EN 50014
2.1.1	Explosive atmospheres caused by gases, vapours or hazes.	Equipment is designed to comply with the requirements of EN 50020

19. **DRAWINGS**

Number	**Issue**	**Date**	**Description**
CI300-41, sheets 1 to 29	1	Dec 01	BA304C, BA307C & BA308C Certification Information

13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER I ITS02ATEX2027

20 VARIATION ONE

To permit the following changes to form a BA307C 3½ DIGIT INDICATOR.

a) Re-arrangement of electronic components onto a main board and a display board which are mounted in a metallic enclosure for panel mounting.

b) An optional backlight board may be fitted

The intrinsically safe input parameters at terminals 12 & 13 are as follows:
U_i = 28 V dc
I_i = 110 mA
P_i = 0.77 W

The equivalent parameters are:
Terminals 12 and 13
C_i = 0.045 µF
L_i = 0.02 mH

Terminals 1 & 13 (3 & 12 connected in series)
C_i = 0.04 µF
L_i = 0.03 mH

The BA307C 3½ Digit Indicator may alternatively be identified as a DA4-Ex/60 or GSI 07 3½ Digit Indicator

21 VARIATION TWO

To permit the use of a larger display board than the BA307C to form a BA308C 3½ DIGIT INDICATOR.

The equivalent parameters are unchanged i.e.
C_i = 0.045 µF
L_i = 0.02 mH

The BA308C 3½ Digit Indicator may alternatively be identified as a DA4-Ex/65 or GSI 08 3½ Digit Indicator

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ITS Intertek Testing Services

1. **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**

2. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3. Supplementary EC-Type Examination Certificate Number: **ITS02ATEX2027/1**

4. Equipment or Protective System: **BA304C 3½ DIGIT INDICATOR**

5. Manufacturer: **BEKA ASSOCIATES LIMITED**

6. Address: **Old Charlton Road, Hitchin, Herts, SG5 2DA**

7. This supplementary certificate extends EC-Type Examination Certificate Number ITS02ATEX2027 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having variations specified in the Schedule attached to this certificate and the documents therein referred to.

ITS Report Ref 02009360.

This Supplementary Certificate shall be held with the original Certificate

R M Adams
Deputy Certification Manager
17th February 2003

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ITS Intertek Testing Services

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS02ATEX2027/1

VARIATION ONE

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

1. Alternative window coating material, polyester with Dupont Zelec ECP or/and SC Technologies ABF or TMF static dissipative film coating for BA307C and BA308C Indicators.

2. Omission of earthing point on rear of panel when membrane with inner conductive layer is not fitted.

3. Change of maximum input parameters at Terminals 1 and 13 (3 & 12 connected in series) to

   $U_i = 30$ V dc
   $I_i = 200$ mA
   $P_i = 0.85$ W

The above changes do not impair Intrinsic Safety and the Temperature Class of the apparatus is unaltered.

Report No.

ITS Report Ref 02009360

SPECIAL CONDITIONS FOR SAFE USE

None

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ITS Intertek Testing Services

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS02ATEX2027/1

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Issue	Date	Description
CI300-41, sheets 2, 21 & 22	2	Nov 02	BA304C, BA307C & BA308C Certification Information

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