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: ITS01ATEX2002

4. Equipment or Protective System: BA338C EXTERNALLY POWERED RATE TOTALISER

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 00001155, dated April 2001

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
   EN 50014: 1992, EN 50020: 1994
   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 (Tamb= -40°C to 60°C)

R M Adams
Quality Manager
18 May 2001

ITS Testing & Certification Limited
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This certificate may only be reproduced in its entirety and without any change, schedule included.

13. # Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2002

15. Description of Equipment or Protective System.

BA338C Externally Powered Rate Totaliser is a panel mounting equipment primarily intended for use with flowmeters and provide a display in engineering units.

The BA338C may additionally be fitted with optional Alarm Interface board , Backlight boards, 4-20mA Sub-board and/or Retransmitted Pulse circuit.

The BA338C comprises main boards, a display board, and optional Alarm Interface board, Backlight boards and/or a 4-20 mA Sub-board all housed within a metallic enclosure. The enclosure provides a Degree of Protection of at least IP20.

The optional 4-20 mA circuit and retransmitted pulse circuit are galvanically isolated from the main circuit by opto-isolators, Certificate BAS No Ex 89C2096U.

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

The maximum intrinsically safe input parameters are as follows:

Power supply terminals 1 and 2
U_i = 28 V dc
I_i = 100 mA dc
P_i = 0.7 W

The equivalent parameters are:
C_i = 0.02 µF
L_i = 0.02 mH

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13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2002

Pulse input terminals 3 and 4

U_i = 28 V dc
I_i = 100 mA dc
P_i = 0.7 W

Uo = 1.1 V dc
Io = 0.5 mA dc
Po = 0.2 mW

The equivalent parameters are:
C_i = 0.02 µF
L_i = 0.02 mH

Pulse input terminals 5 and 6

U_i = 28 V dc
I_i = 100 mA dc
P_i = 0.7 W

Uo = 10.5 V dc
Io = 9.2 mA dc
Po = 24 mW

The equivalent parameters are:
C_i = 0.02 µF
L_i = 0.02 mH

Reset terminals 7 and 8

U_i = 28 V dc
I_i = 100 mA dc
P_i = 0.7 W

Uo = 3.8 V dc
Io = 1.6 mA dc
Po = 2.0 mW

The equivalent parameters are:
C_i = 0.02 µF
L_i = 0 mH

Backlight terminals B1 and B2

U_i = 28 V dc
I_i = 159 mA dc
P_i = 0.8 W

The equivalent parameters are:
C_i = 0.04 µF
L_i = 0.03 mH

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13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2002

Alarm terminals A1 and A2; A3 and A4

U_i = 28 V dc
I_i = 200 mA dc
P_i = 0.85 W

Uo = 0.7 V dc
Io = 1.3 µA
Po = 4.1 µW

The equivalent parameters are:
C_i = 0.04 µF
L_i = 0.03 mH

Pulse output terminals P1 and P2

U_i = 28 V dc
I_i = 100 mA dc
P_i = 0.7 W

Uo = 0
Io = 0

The equivalent parameters are:
C_i = 0.02 µF
L_i = 0.02 mH

4-20 mA output terminals C1 and C2

U_i = 28 V dc
I_i = 100 mA dc
P_i = 0.7 W

Uo = 0
Io = 0

The equivalent parameters are:
C_i = 0.002µF
L_i = 0.008 mH

For intrinsic safety considerations, under fault conditions the voltage, current and power at terminals 3 and 4, A1 and A2, and A3 and A4 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 00001155.

17. SPECIAL CONDITIONS FOR SAFE USE
None

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ITS Intertek Testing Services

13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2002

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
1.6.4	Hazards arising from connections	The equipment is provided with suitable conduit entries
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**
CI330-16 sheets 1 to 27	1	Oct 00	BA334D, BA338C, BA364D and BA368C Certification Information

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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: **ITS01ATEX2002/1**

4. Equipment or Protective System: **BA338C EXTERNALLY POWERED RATE TOTALISER**

5. Manufacturer: **BEKA ASSOCIATES LIMITED**

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

7. This supplementary certificate extends EC-Type Examination Certificate Number ITS01ATEX2002 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 Project Number 02007375.

This Supplementary Certificate shall be held with the original Certificate

R M Adams
Deputy Certification Manager

7th May 2002

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ITS Intertek Testing Services

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2002/1

VARIATION ONE

Description of the Variation to the Equipment or Protective System.

To permit the addition of R410 on PC100. This change does not affect Intrinsic Safety

Report Nos.

None

SPECIAL CONDITIONS FOR SAFE USE

None

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Issue	Date	Description
CI330-16 Sheets 2, 13 and 23	2	April. 02	BA334D, BA338C, BA364D and BA368C Certification Information

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Intertek ETL SEMKO

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: **ITS01ATEX2002/2**

4. Equipment or Protective System: **BA338C EXTERNALLY POWERED RATE TOTALISER**

5. Manufacturer: **BEKA ASSOCIATES LIMITED**

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

7. This supplementary certificate extends EC-Type Examination Certificate Number ITS01ATEX2002 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.

Intertek Ref 04013097

This Supplementary Certificate shall be held with the original Certificate

T Cuthbert
Deputy Certification Manager
24 March 2004

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Intertek ETL SEMKO

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2002/2

VARIATION TWO

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

a) Modification of the description of the anti-static properties of the front panel membrane and bezel.
b) Alternatively a maximum transfer charge of less than 10nC may be specified for the membrane
c) Omission of certification information from the front panel membrane.
d) Omission of earthing point on rear of panel when membrane with inner conductive layer is not fitted.

The above changes do not impair intrinsic safety.

Report No.

Intertek Ref 04013097

SPECIAL CONDITIONS FOR SAFE USE

None

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Issue	Date	Description
CI330-16, sheets 2 & 25	3	Nov 03	BA334D, BA338C, BA364D and BA368C Certification Information

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