



EC TYPE-EXAMINATION CERTIFICATE

- 1.
2. **Equipment or Protective System Intended for use in
Potentially Explosive Atmospheres Directive 94/9/EC**
3. EC-Type Examination Certificate Number: ITS01ATEX2017
4. Equipment or Protective System: BA344D BATTERY 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 01005295, dated November 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 50°C)

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ITS House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
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Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

R M Adams
Quality Manager
30 November 2001

This certificate may only be reproduced in its entirety and without any change, schedule included.

13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2017

15. Description of Equipment or Protective System.

BA344D Battery Powered Rate Totaliser is a field mounting equipment battery powered pulse input rate totaliser primarily intended for use with flowmeters. The BA344D simultaneously displays the rate of flow and total flow in engineering units on two separate displays.

The BA344D may additionally be fitted with optional external keypad, Alarm Interface board and/or Retransmit Pulse circuit.

Power to the BA344D is supplied from a BA491 Battery Unit, Component Certificate ITS No Ex 01E2021U, coded EEx ia IIC, Tamb= -40°C to 50°C, which may be replaced in the hazardous area.

The data may be transmitted or received from the non-hazardous area apparatus via certified barriers

The BA344D comprises a terminal board, a display board and optional external keypad and Alarm Interface board all housed within a metallic or 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, limitation of inductance and infallible segregation and use of the BA491 Battery Unit.

The maximum intrinsically safe input parameters are as follows:

Voltage pulse input terminals 3 and 4

$$U_i = 28 \text{ V dc}$$

$$I_i = 100 \text{ mA dc}$$

$$P_i = 0.7 \text{ W}$$

$$U_o = 1.0 \text{ V dc}$$

$$I_o = 0.05 \text{ mA dc}$$

$$P_o = 0.02 \text{ mW}$$

The equivalent parameters are:

$$C_i = 0.03 \text{ } \mu\text{F}$$

$$L_i = 0.01 \text{ mH}$$

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Switch input terminals 5 and 6

$$U_i = 28 \text{ V dc}$$

$$I_i = 100 \text{ mA dc}$$

$$P_i = 0.7 \text{ W}$$

$$U_o = 3.7 \text{ V dc}$$

$$I_o = 2.0 \text{ mA dc}$$

$$P_o = 2.0 \text{ mW}$$

The equivalent parameters are:

$$C_i = 0.03 \mu\text{F}$$

$$L_i = 0.01 \text{ mH}$$

Reset terminals 7 and 8

$$U_i = 28 \text{ V dc}$$

$$I_i = 100 \text{ mA dc}$$

$$P_i = 0.7 \text{ W}$$

$$U_o = 3.7 \text{ V dc}$$

$$I_o = 3.7 \text{ mA dc}$$

$$P_o = 3.5 \text{ mW}$$

The equivalent parameters are:

$$C_i = 0.03 \mu\text{F}$$

$$L_i = 0.01 \text{ mH}$$

Alarm terminals A1 and A2; A3 and A4

$$U_i = 28 \text{ V dc}$$

$$I_i = 200 \text{ mA dc}$$

$$P_i = 0.85 \text{ W}$$

$$U_o = 0.7 \text{ V dc}$$

$$I_o = 1.3 \mu\text{A}$$

$$P_o = 4.1 \mu\text{W}$$

The equivalent parameters are:

$$C_i = 0.04 \mu\text{F}$$

$$L_i = 0.02 \text{ mH}$$

Retransmit Pulse output terminals P1 and P2

$$U_i = 28 \text{ V dc}$$

$$I_i = 100 \text{ mA dc}$$

$$P_i = 0.7 \text{ W}$$

$$U_o = 0$$

$$I_o = 0$$

The equivalent parameters are:

$$C_i = 0.02 \mu\text{F}$$

$$L_i = 0.01 \text{ mH}$$

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ITS Intertek Testing Services

13. Schedule

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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 01005295.

17. SPECIAL CONDITIONS FOR SAFE USE None

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13. Schedule

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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
CI330-06, sheets 1 to 17	1	Sept 01	BA344D Certification Information

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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: ITS01ATEX2017/1
4. Equipment or Protective System: BA344D BATTERY 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 ITS01ATEX2017 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 02008421/Issue 1, dated September 2002

This Supplementary Certificate shall be held with the original Certificate

R M Adams
Deputy Certification Manager

25th September 2002

ITS Testing & Certification Limited
ITS House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
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Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of ITS Testing and Certification Ltd
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Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2017/1

VARIATION ONE

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

- a) Addition of resistors, semiconductor devices and a capacitor C220, and change to the value of capacitor C217.
- b) A new board layout.

The above changes do not impair intrinsic safety and the equivalent parameters at the input/output terminals are unaffected.

Report No.

ITS Report Ref 02008421/Issue 1.

SPECIAL CONDITIONS FOR SAFE USE

None

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Issue	Date	Description
CI330-06 Sheets 1 to 3, 6 to 8, 13 and 15	2	July. 02	BA344D 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: **ITS01ATEX2017/2**
4. Equipment or Protective System: **BA344D BATTERY 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 ITS01ATEX2017 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 04014720

This Supplementary Certificate shall be held with the original Certificate

R M Adams
Certification Manager
30 November 2004

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Schedule



SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS01ATEX2017/2

VARIATION TWO

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

- a) Minor mechanical modifications to the apparatus enclosure to enable it for use in the presence of combustible dust. The enclosure provides a degree of protection IP66

The codes are:  II 1 G, EEx ia IIC T5 (Tamb= -40°C to 50°C)
 II 1 GD, EEx ia IIC T5 (Tamb= -20°C to 50°C)

- b) Alternative method of printing the label- laser marked onto aluminium label or thermally printed onto polyester label with acrylic self-adhesive backing.

The above changes do not impair intrinsic safety.

SPECIAL CONDITIONS FOR SAFE USE

None

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Issue	Date	Description
CI330-06, sheets 2, 15, 17	3	July 04	BA344D Certification Information

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