



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: ITS00ATEX2010

4. Equipment or Protective System: BA358C LOOP 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 87003941, dated May 2000

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 (see Schedule for additional information)

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G R Oliver  
Certification Manager  
28 June 2000

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

# **ITS** Intertek Testing Services

## 13. Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS00ATEX2010

15. The equipment may be operated in an ambient temperature of  $-40^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ . The equipment may therefore be marked with the code EEx ia IIC T5 ( $T_{\text{amb}} = -40^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ ).

16. Description of Equipment or Protective System.

BA358C Loop Powered Rate Totaliser is a two-wire field mounting equipment designed to be connected in a 4/20 mA loop and provide a display in engineering units.

The BA358C comprises a main board, display board and optional alarm interface and/or backlight boards all housed with a metallic 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.

The equivalent resistance of the apparatus at terminals 1 and 3 is  $14.85\ \Omega$  minimum in normal operation and  $24.75\ \Omega$  minimum under fault condition.

The maximum intrinsically safe input parameters are as follows:

### **Terminals 1 and 3**

$U_i = 30\ \text{V dc}$

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

$P_i = 0.85\ \text{W}$

The equivalent parameters are:

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

$L_i = 0.01\ \text{mH}$

### **Terminals 8 and 9; 10 and 11**

$U_i = 30\ \text{V dc}$

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

$P_i = 0.85\ \text{W}$

The equivalent parameters are:

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

$L_i = 0.02\ \text{mH}$

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13. **Schedule**

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**Terminals 12 and 13**

$U_i = 28 \text{ V dc}$   
 $I_i = 159 \text{ mA dc}$   
 $P_i = 0.8 \text{ W}$

The equivalent parameters are:

$C_i = 0.04 \text{ } \mu\text{F}$   
 $L_i = 0.02 \text{ mH}$

**Terminals RS1 and RS2**

$U_i = 28 \text{ V dc}$   
 $I_i = 98 \text{ mA dc}$   
 $P_i = 0.65 \text{ W}$

The equivalent parameters are:

$C_i = 1.2 \text{ nF}$   
 $L_i = 0$

For intrinsic safety considerations, under fault conditions the voltage, current and power at terminals 1 and 3, 8 and 9, and 10 and 11 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.

17. Report No. ITS Report Ref 87003941.

18. SPECIAL CONDITIONS FOR SAFE USE  
None

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# Intertek Testing Services

- 13. **Schedule**
- 14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS00ATEX2010
- 19. 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 50014 and EN 50020
1.03	Special checking and maintenance conditions	No special requirements
1.06	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

20. **DRAWINGS**

Number	Issue	Date	Description
CI330-11 sheets 1-9, 13 -17, 19-21	1	Sep 99	BA358C 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: ITS00ATEX2010/1**
4. **Equipment or Protective System: BA358C LOOP 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 ITS00ATEX2010 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 Report Ref 04013130

This Supplementary Certificate shall be held with the original Certificate

**R M Adams**  
**Certification Manager**  
**3 May 2004**

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**Schedule**

**SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS00ATEX2010/1**

**VARIATION ONE**

**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) Addition of earthing point on rear of panel, which may be omitted when membrane with inner conductive layer is not fitted.
- e) Addition of an optional Loop Powered Back Light. Original Back Light is now defined as a Separately Powered Back Light.

The above changes do not impair intrinsic safety.

**Report No.**

Intertek Report Ref 04013130

**SPECIAL CONDITIONS FOR SAFE USE**

None

**Essential Health and Safety Requirements**

See original certificate

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**Intertek ETL SEMKO**

**Schedule**

**SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS00ATEX2010/1**

**DRAWINGS**

<b>Number</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
CI330-11, sheets 1-3, 9, 16, 17, 19, 22-24	2	Nov 03	BA354D Certification Information

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