

British Approvals Service for Electrical Equipment in Flammable Atmospheres

## CERTIFICATE OF CONFORMITY

1.

2. BAS No Ex 90C2408

3. This certificate is issued for the electrical apparatus:

A DIGITAL TOTALISER TYPE BA334B

4. manufactured and submitted for certification by:

BEKA ASSOCIATES LTD  
of Hitchin, Herts, SG5 2DD

5. This electrical apparatus and any acceptable variation thereto is specified in the Schedule to this Certificate and the documents therein referred to.

6. BASEEFA being an Approved Certification Body in accordance with Article 14 of the Council Directive of the European Communities of 18 December 1975 (76/117/EEC) confirms that the apparatus has been found to comply with harmonised European Standards

EN50 014 (1977) + Amendments 1 to 5  
EN50 020 (1977) + Amendment 1 and 2

and has successfully met the examination and test requirements which are recorded in confidential Test Report

No 90(i)483

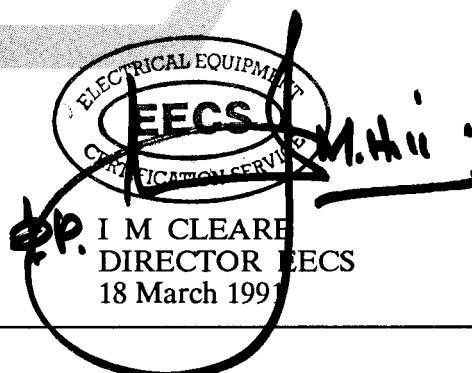
7. The apparatus marking shall include the code

EEx ia IIC T4  
(T<sub>amb</sub> = 60°C)

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8. The supplier of the electrical apparatus referred to in this certificate, has the responsibility to ensure that the apparatus conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.

9. This apparatus may be marked with the Distinctive Community Mark specified in Annex II to the Commission Directive of 16 January 1984 (Doc 84/47/EEC). A facsimile of this mark is printed on sheet 1 of this certificate.



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**DATED** 18 March 1991

## APPARATUS

**A Digital Totaliser Type BA334B** is designed to count and display the number of pulses from a variety of input sources.

The apparatus comprises 3 printed circuit boards and an 8 digit liquid crystal display all housed in an aluminium or plastic enclosure fitted with a glass window. External connections are made via integral terminal blocks.

Terminal 1 to 6

$U_{\text{max:in}} = 30 \text{ V}$   
 $I_{\text{max:in}} = 0.5 \text{ A}$   
 $W_{\text{max:in}} = 1.2 \text{ W}$   
 $C_{\text{eq}} = 0.054 \mu\text{F}$

Terminal 1 with respect to terminal 2

$U_{\text{max:out}} = 11.86 \text{ V}$   
 $I_{\text{max:out}} = 16.5 \text{ mA}$   
 $W_{\text{max:out}} = 49 \text{ mW}$

Terminal 3 with respect to terminal 4

$U_{\text{max:out}} = 5.4 \text{ V}$   
 $I_{\text{max:out}} = 5.7 \text{ mA}$   
 $W_{\text{max:out}} = 7.7 \text{ mW}$

The Capacitance and either the Inductance or the Inductance to Resistance (L/R) ratio of the load connected to terminals 1 and 2 must not exceed the following values:

GROUP	CAPACITANCE In $\mu\text{F}$	INDUCTANCE in mH	OR	L/R RATIO in $\mu\text{H}/\text{ohm}$
IIC	1.446	120		0.815
IIB	4.446	360		2.44
IIA	11.946	960		8.15

The Capacitance and either the Inductance or the Inductance to Resistance (L/R) ratio of the load connected to terminals 3 and 4 must not exceed the following values:

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GROUP	CAPACITANCE in $\mu\text{F}$	INDUCTANCE in H	OR	L/R RATIO in mH/ohm
IIC	600	1.2		5
IIB	1800	3.7		15.5
IIA	4800	12.3		51.5

## DRAWINGS

Number	Issue	Date	Description
CI334-01 Sheet 2	2	Dec 1990	Modification record
CI334-01 Sheet 3	2	Dec 1990	Circuit diagram
CI334-01 Sheets 4 & 5	2	Dec 1990	Parts list
CI334-01 Sheet 6	2	Dec 1990	General assembly
CI334-01 Sheet 7	2	Dec 1990	Artwork PC6
CI334-01 Sheet 8	2	Dec 1990	Artwork PC7
CI334-01 Sheet 9	2	Dec 1990	Artwork PC8
CI334-01 Sheet 10	2	Dec 1990	Label details

## VARIATION ONE

To permit the following:

1. The field mounting enclosure to be replaced by a plastic panel mounting enclosure.
2. The 3 printed circuit boards to be replaced by 2 modified printed circuit boards.

The apparatus having the above changes is designated a Digital Totaliser Type BA339B.

## DRAWINGS

Number	Issue	Date	Description
CI339-01 Sheet 2	2	Dec 1990	Modification record

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Number	Issue	Date	Description
CI339-01 Sheet 3	2	Dec 1990	Circuit diagram
CI339-01 Sheets 4 & 5	2	Dec 1990	Parts list
CI339-01 Sheet 6	2	Dec 1990	General assembly
CI339-01 Sheet 7	2	Dec 1990	Artwork PC22
CI339-01 Sheet 8	2	Dec 1990	Artwork PC25
CI339-01 Sheet 9	2	Dec 1990	Label details

## VARIATION TWO

To permit the following:

1. Modifications to the display printed circuit board and the deletion of capacitor C207.
2. The 8 digit liquid crystal display to be replaced by a 4 digit liquid crystal display.

The apparatus having the above changes is designated a Digital Totaliser Type BA333B.

## DRAWINGS

Number	Issue	Date	Description
CI333-01 Sheet 2	2	Dec 1990	Modification record
CI333-01 Sheet 3	2	Dec 1990	Circuit diagram
CI333-01 Sheets 4 & 5	2	Dec 1990	Parts list
CI333-01 Sheet 6	2	Dec 1990	General assembly
CI333-01 Sheet 7	2	Dec 1990	Artwork PC6
CI333-01 Sheet 8	2	Dec 1990	Artwork PC7
CI333-01 Sheet 9	2	Dec 1990	Artwork PC9
CI333-01 Sheet 10	2	Dec 1990	Label details



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## VARIATION THREE To permit the following

1. The field mounting enclosure to be replaced by a plastic panel mounting enclosure.
2. The 3 printed circuit boards to be replaced by 2 modified printed circuit boards and the deletion of capacitor C207.
3. The 8 digit liquid crystal display to be replaced by a 4 digit liquid crystal display

The apparatus having the above changes is designated a Digital Totaliser Type BA337B.

## DRAWINGS

Number	Issue	Date	Description
CI337-01 Sheet 2	2	Dec 1990	Modification record
CI337-01 Sheet 3	2	Dec 1990	Circuit diagram
CI337-01 Sheets 4 & 5	2	Dec 1990	Parts list
CI337-01 Sheet 6	2	Dec 1990	General assembly
CI337-01 Sheet 7	2	Dec 1990	Artwork PC22
CI337-01 Sheet 8	2	Dec 1990	Artwork PC23
CI337-01 Sheet 9	2	Dec 1990	Label details

## VARIATION FOUR To permit the following

1. The field mounting enclosure to be replaced by a plastic panel mounting enclosure.
2. The 3 printed circuit boards to be replaced by 2 modified printed circuit boards and the deletion of capacitor C207.
3. The 8 digit liquid crystal display to be replaced by a 4 digit liquid crystal display.

The apparatus having the above changes is designated a Digital Totaliser Type BA338B.

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## DRAWINGS

Number	Issue	Date	Description
CI338-01 Sheet 2	2	Dec 1990	Modification record
CI338-01 Sheet 3	2	Dec 1990	Circuit diagram
CI338-01 Sheets 4 & 5	2	Dec 1990	Parts list
CI338-01 Sheet 6	2	Dec 1990	General assembly
CI338-01 Sheet 7	2	Dec 1990	Artwork PC22
CI338-01 Sheet 8	2	Dec 1990	Artwork PC24
CI338-01 Sheet 9	2	Dec 1990	Label details



British Approvals Service for Electrical  
Equipment in Flammable Atmospheres



## *Certificate of Conformity Variation*

THIS IS TO CERTIFY THAT CERTIFICATE BAS NO Ex 90C2408

Held by **BEKA ASSOCIATES LIMITED**  
of Hitchin, Herts, SG5 2DA  
(formerly of Hitchin, Herts, SG5 2DD)

for the **DIGITAL TOTALISER TYPE BA334B**

is hereby extended to apply to apparatus designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having the variations specified in the attached Schedule.

A copy of this Supplementary Certificate shall be attached to the original Certificate.

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*JP* **I M CLEARE**  
**DIRECTOR EECS**  
21 February 1995

This certificate is issued under NACCB accreditation No. 020



**Electrical Equipment Certification Service**  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom  
Tel: 0298 262111 Fax: 0298 79514 Telex: 668113 RLSD G







**Certificate of Conformity BAS No Ex 90C2408/1**

**VARIATION FIVE** To permit the window fixing method to be specified as either, Silastic 732 with window clamps or Silastic 744 without clamps, for both the Digital Totaliser Types BA334B and BA333B.

This change does not affect the original safety assessment.

**DRAWINGS**

Number	Issue	Date	Description
CI334-01 Sheet 2	3	Nov 1994	Modification record Type BA334B
CI334-01 Sheet 6	3	Nov 1994	General assembly Type BA334B
CI333-01 Sheet 2	3	Nov 1994	Modification record Type BA333B
CI333-01 Sheet 6	3	Nov 1994	General assembly Type BA333B