



British Approvals Service for Electrical
Equipment in Flammable Atmospheres

1 **CERTIFICATE OF CONFORMITY**

2. BAS No Ex 93C2431

3. This certificate is issued for the intrinsically safe electrical apparatus:

MODEL NO.BA390 LED CLUSTER LAMP

4. manufactured and submitted for certification by:

BEKA ASSOCIATES
of Hitchin, Herts, SG5 2DY

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) certifies that the apparatus has been found to comply with harmonised European Standards

EN 50 014 (1977) + Amendments 1 to 5
EN 50 020 (1977) + Amendments 1 and 2

and has successfully met the examination and test requirements as recorded in confidential Report No. ERA Ref 3627/668, dated January 1994.

7. The apparatus marking shall include the code

EEx ia IIC T4 ($T_{amb} = 60^{\circ}C$)

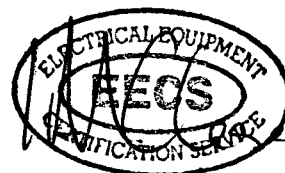
EEx ia IIC T4

See Schedule

File No: EECS 0121/02/009

Sheet 1/4

ref/R0008CA/REP



I M CLEARE
DIRECTOR EECS
25February1994



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





British Approvals Service for Electrical
Equipment in Flammable Atmospheres

Certificate of Conformity BAS No Ex 93C2431 dated 25 February 1994

8. The manufacturer 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.

This certificate is granted subject to conditions applicable to the Approval Service, it does not necessarily indicate that the apparatus may lawfully be used in particular industries or circumstances.

Sheet 2/4



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Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
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Schedule

Certificate of Conformity BAS No Ex 93C2431 dated 25 February 1994

APPARATUS

A MODEL NO. BA390 LED CLUSTER LAMP is a panel mounting unit which may be clear or of different colours.

An addition of a suffix after the model number designates the colour of the lamp, ie

Model No. BA390R - Red lamp

Model No. BA390G - Green lamp

Model No. BA390A - Amber lamp

Model No. BA390B - Blue lamp

Model No. BA390S - Special colour lamp

The Model No. BA390 consists of two printed circuit boards, one containing a voltage regulating chip and five light emitting diodes and the second a terminal block. The two printed circuit boards are housed within a plastics enclosure.

The enclosure provides a degree of protection IP20.

Intrinsic safety is assured by limitation of voltage, current and power.

The intrinsically safe input parameters are:

$$U_{\max:\text{in}} = 30\text{V dc}$$

$$I_{\max:\text{in}} = 159\text{mA dc}$$

$$W_{\max:\text{in}} = 1.2\text{W}$$

For which the code is EEx ia IIC T4 ($T_{\text{amb}} = 60^{\circ}\text{C}$)



Schedule

Certificate of Conformity BAS No Ex 93C2431 dated 25 February 1994

Or alternatively

$$U_{\max:\text{in}} = 30\text{V dc}$$

$$I_{\max:\text{in}} = 185.5\text{mA dc}$$

$$W_{\max:\text{in}} = 1.3\text{W}$$

For which the code is EEx ia IIC T4 ($T_{\text{amb}} = 40^{\circ}\text{C}$)

The equivalent parameters of the apparatus are:

$$C_{\text{eq}} = 0$$

$$L_{\text{eq}} = 0$$

DRAWINGS

Number	Issue	Date	Description
CI390-01 sheets 1 to 6	1	May 93	Certification Information



British Approvals Service for Electrical
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Certificate of Conformity Variation

THIS IS TO CERTIFY THAT CERTIFICATE BAS No Ex 93C2431

Held by **BEKA ASSOCIATES**

of **Hitchin, Herts, SG5 2DA**

for the **MODEL NO BA390 LED CLUSTER LAMP**

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 variation specified in the attached Schedule.

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

File No. EECS 0121/02/009
ERA Ref: 3627/732



Sheet 1/2
CERTIFICATE BAS No Ex 93C2431/1

I M CLEARE
DIRECTOR EECS
5 August 1994

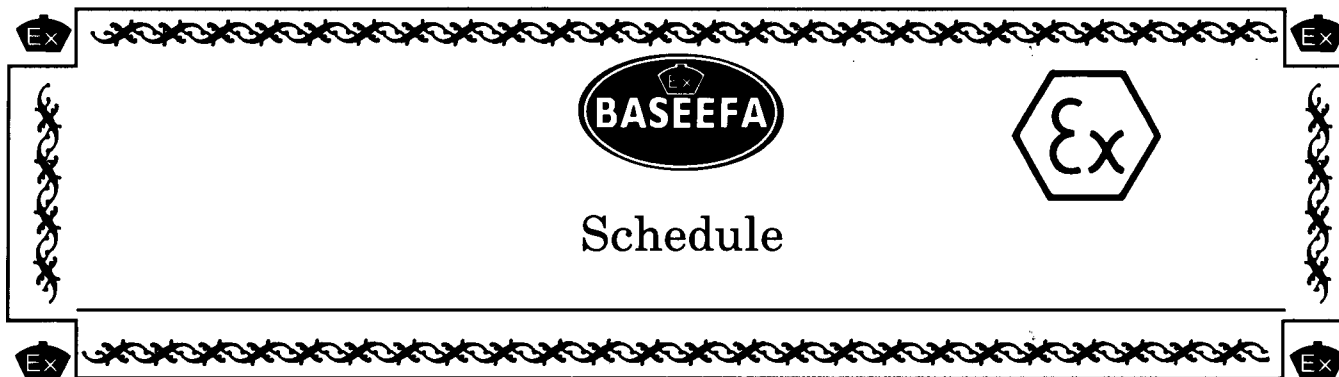
VKV1/C0410/27

This certificate is issued under NACCB accreditation No. 020



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Certificate of Conformity BAS No. Ex 93C2431/1 dated 5 August 1994

VARIATION ONE

To permit the following changes thus forming a MODEL NO BA390xSx LED CLUSTER LAMP:

- (i) Replacement of D1, IC1 and R1 by links.
- (ii) Addition of an optional sleeve inside the lens enclosure.

DRAWINGS

Number	Issue	Date	Description
CI390-01 Sheets 1 to 6	2	June 94	Certification Information

British Approvals Service for Electrical
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Certificate of Conformity - Variation

SUPPLEMENTARY CERTIFICATE BAS No. Ex 93C2431/2

This is to certify that Apparatus Certificate number:

Ex 93C2431

held by:

BEKA ASSOCIATES

of:

Hitchin, Herts, SG5 2DA

for the:

MODEL NO BA390 LED CLUSTER LAMP

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

This Supplementary Certificate shall be held with the original Certificate.

File No: EECS 0121/02/009

Sheet 1 of 2

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances. Representation of equipment as "Certified" is valid only when the number of the prime certificate to which this certificate is a supplement is given on the relevant EECS Manufacturing Licence or Verification Certificate.



**I M CLEARE
DIRECTOR**

4 December 1995



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire. SK17 9JN. United Kingdom
Tel: 01298 28000 Fax: 01298 28244



Registration Number
020
The use of the Accreditation
Mark indicates accreditation in
respect of those activities
covered by the accreditation
certificate number 020.

British Approvals Service for Electrical
Equipment in Flammable Atmospheres



Schedule

Supplementary Certificate BAS No. Ex 93C2431/2

VARIATION TWO

To permit the following:-

- (i) Model No BA390 R to be alternatively known as Model LED-Ex1.R.
- (ii) Model No BA390 G to be alternatively known as Model LED-Ex1.G.
- (iii) Model No BA390 A to be alternatively known as Model LED-Ex1.A.
- (iv) Model No BA390 B to be alternatively known as Model LED-Ex1.B.
- (v) Model No BA390 S to be alternatively known as Model LED-Ex1.S.
- (vi) Label format and fonts to vary.

DRAWINGS

<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
CI390-01 Sheets 2 & 6	3	Nov 95	Certification Information

British Approvals Service for Electrical
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Certificate of Conformity - Variation

SUPPLEMENTARY CERTIFICATE BAS No. Ex 93C2431/3

This is to certify that Apparatus Certificate number:

Ex 93C2431

held by:

BEKA ASSOCIATES

of:

Hitchin, Herts, SG5 2DA

for the:

MODEL NO. BA390 LED CLUSTER LAMP

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

This Supplementary Certificate shall be held with the original Certificate.

File No: EECS 0121/02/009

Sheet 1 of 2

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**I M CLEARE
DIRECTOR**

18 October 1996



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Schedule

Supplementary Certificate BAS No. Ex 93C2431/3

VARIATION THREE

To permit the following alternative model numbers:

Model No.	Alternative
BA390 R	VSI R
BA390 G	VSI G
BA390 A	VSI A
BA390 B	VSI B
BA390 S	VSI S

and to permit alternative symbols for the input parameters.

There is no other change to the apparatus.

DRAWINGS

<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
CI390-01 Sheet 2	4	Aug 96	Certification Information
CI390-01 Sheet 6	4	Aug 96	Label Details

British Approvals Service for Electrical
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Certificate of Conformity - Variation

SUPPLEMENTARY CERTIFICATE BAS No. Ex 93C2431/4

This is to certify that Apparatus Certificate number:

Ex 93C2431

held by:

BEKA ASSOCIATES

of:

Hitchin, Herts, SG5 2DA

for the:

MODEL No. BA390 LED CLUSTER LAMP

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

This Supplementary Certificate shall be held with the original Certificate.

File No: EECS 0121/02/009

Sheet 1 of 2

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**I M CLEARE
DIRECTOR**

20 February 1997



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Harpur Hill, Buxton, Derbyshire. SK17 9JN. United Kingdom
Tel: 01298 28000 Fax: 01298 28244



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020
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certificate number 020.

British Approvals Service for Electrical
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Schedule

Supplementary Certificate BAS No. Ex 93C2431/4

VARIATION FOUR

To permit:-

- i) the replacement of up to four LEDs by general purpose diodes,
- ii) an alternative type of LED, and
- iii) alternative model numbers.

DRAWINGS

<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
CI390-01 Sheet 2	5	Jan 97	Modification Record
CI390-01 Sheet 3	5	Jan 97	Circuit
CI390-01 Sheet 4	5	Jan 97	Parts List
CI390-01 Sheet 6	5	Jan 97	Label Details