



Intertek ETL SEMKO

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: **ITS99ATEX2002**
4. Equipment or Protective System: **BA324D 4½ DIGIT INDICATOR**
5. Manufacturer: **BEKA ASSOCIATES LIMITED**
6. Address: **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 Intertek 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:
ERA Report No: 87IV0382, dated September 1999
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014:1992 and 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, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.
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
Certification Manager
28 January 2005

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey
KT22 7SB

Tel: + 44 (0)1372 370900 Fax: +44 (0)1372 370977

<http://www.uk.intertek-etlsemko.com>

Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

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

This certificate, originally dated 24 February 2000, has been re-issued in the new format to correct ambient temperature range in the coding.

Schedule

13.

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS99ATEX2002

15. Description of Equipment or Protective System.

The BA324D 4½ Digit Indicator is a two-wire field mounted equipment designed to be connected in a 4/20 mA process loop and provide a display in Engineering units.

The BA324D may alternatively be identified as a GSI 24/1 or DA4/Ex-50A 4½ Digit Indicator.

The BA324D comprises a terminal board, main/display board and an optional root extractor or calibrator board and a back light board, all housed within a metallic enclosure or conductive plastic enclosure which may have a conductive coating on the inside surfaces. 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 Ω minimum in normal operation and 24.75 Ω minimum under fault conditions.

The maximum intrinsically safe input parameters are as follows:

Terminals 1 and 3

$U_i = 30$ V dc

$I_i = 200$ mA dc

$P_i = 0.85$ W

The equivalent parameters are:

$C_i = 0.02$ μ F

$L_i = 0.01$ mH

Terminals 8 and 9; 10 and 11

$U_i = 30$ V dc

$I_i = 200$ mA dc

$P_i = 0.85$ W

The equivalent parameters are:

$C_i = 0.04$ μ F

$L_i = 0.02$ mH

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0)1372 370900 Fax: +44 (0)1372 370977
<http://www.uk.intertek-etisemko.com>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification

13.

Schedule

14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS99ATEX2002

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:

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

$L_i = 0.02\text{mH}$

For intrinsic safety considerations, under fault conditions the voltage, current and power at the 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.

16. Report No. ERA Report Ref 87IV0382, dated September 1999

17. SPECIAL CONDITIONS FOR SAFE USE

None

18. Essential Health and Safety Requirements

The essential health and safety requirements not covered by reference to the standards identified in Section 9 above have been addressed in ERA Report Reference 87IV0382

19. DRAWINGS

Number	Issue	Date	Description
CI320-06, sheets 1 to 18	1	Dec 98	BA324D Certification Information

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0)1372 370900 Fax: +44 (0)1372 370977

<http://www.uk.intertek-etlsemko.com>

Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification

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: ITS99ATEX2002/1**
4. **Equipment or Protective System: BA324D 4½ DIGIT INDICATOR**
5. **Manufacturer: BEKA ASSOCIATES LIMITED**
6. **Address: Old Charlton Road, Hitchin, Herts, SG5 2DA**
7. This supplementary certificate extends EC-Type Examination Certificate Number ITS99ATEX2002 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 04013184

This Supplementary Certificate shall be held with the original Certificate

A Cuthbert
Deputy Certification Manager
28 April 2004

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.uk.intertek-etlsemko.com>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.

Intertek ETL SEMKO

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS99ATEX2002/1

VARIATION ONE

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

- a) Deletion of material specification from GRP enclosure.
- b) Addition of an optional Loop Powered Back Light. Original Back Light is now defined as a Separately Powered Back Light.
- c) Minor changes to the label- Notified Body Number 600 replaced by 0359

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
CI320-06, sheets 1 to 3, 9, 14 to 17, 19 to 21	2	Oct 03	BA324D Certification Information

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.uk.intertek-etlsemko.com>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.



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: **ITS99ATEX2002/2**
4. Equipment or Protective System: **BA324D 4½ DIGIT INDICATOR**
5. Manufacturer: **BEKA ASSOCIATES LIMITED**
6. Address: **Old Charlton Road, Hitchin, Herts, SG5 2DA**
7. This supplementary certificate extends EC-Type Examination Certificate Number ITS99ATEX2002 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

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.uk.intertek-etlsemko.com>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS99ATEX2002/2

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 60°C)

Ⓢ II 1 GD, EEx ia IIC T5 (Tamb= -20°C to 60°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
CI320-06, sheets 2, 16, 17	3	July 04	BA324D Certification Information

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.uk.intertek-etlsemko.com>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.



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: **ITS99ATEX2002/3**
4. Equipment or Protective System: **BA324D 4½ DIGIT INDICATOR**
5. Manufacturer: **BEKA ASSOCIATES LIMITED**
6. Address: **OLD CHARLTON ROAD, HITCHIN, HERTS, SG5 2DA**
7. This supplementary certificate extends EC-Type Examination Certificate Number ITS99ATEX2002 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 07024066 dated March 2007

This Supplementary Certificate shall be held with the original Certificate

A M Smart
Principal Engineer
5 March 2007

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.etlsemko.com/uk>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.

Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS99ATEX2002/3

VARIATION THREE

Description of the Variation to the Equipment or Protective System.

To permit the following changes:

- a) Addition of a diode, a transistor and a resistor in the main/display circuit.
- b) Deletion of X201 and R216 in the main/display circuit.
- c) Some of the capacitors which were through hole components are now 0603 SMT, and all C2xx capacitors are changed to 0603 types.
- d) Replacement of some of the resistors with new quad pack resistors.
- e) Some of the semiconductors which were through holes are now SMT types.
- e) Changes to the printed circuit board PC104 due to the above changes.

The above changes do not impair intrinsic safety. The entity parameters are unchanged.

Report No.

Intertek Report Ref 07024066

SPECIAL CONDITIONS FOR SAFE USE

None

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Sheets	Issue	Date	Description
CI320-06	2, 5, 6, 10, 11	4	Jan '07	Certification Information for BA324D 4 ½ Digit indicator

Intertek Testing & Certification Limited
Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: + 44 (0) 1372 370900 Fax: +44 (0) 1372 370977
<http://www.etlsemko.com/uk>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of Intertek Testing and Certification Ltd
and is subject to Intertek Testing and Certification Conditions for Granting Certification.