



**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: ITS03ATEX21378
4. Equipment or Protective System: BA454D BATCH CONTROLLER
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 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:  
Intertek Report Ref 03010033 Issue 1, dated October 2003
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
EN 50014:1997 + Amds 1 & 2, EN 50020:2002 and EN 50284:1999  
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)

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**R M Adams**  
Deputy Certification Manager  
14 October 2003

# Intertek ETL SEMKO

13. **Schedule**
14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS03ATEX21378
15. Description of Equipment or Protective System.

BA454D Batch Controller is a field mounting equipment designed to control the dispensing of liquids, solids or components in the hazardous area. The BA484D incorporates a selection of operator display screens identifying the function of the push-button switches.

The BA454D comprises a Field Connection Assembly 02, EC-Type Examination Certificate Number ITS03ATEX21375U, a Simple Power Supply Board, EC-Type Examination Certificate Number ITS03ATEX21376U, a Current and Pulse Input Board 01, EC-Type Examination Certificate Number ITS03ATEX21377U, two Alarm Board 01, EC-Type Examination Certificate Number ITS02ATEX2044U and a CPU and Display, EC-Type Examination Certificate Number ITS02ATEX2045U, all housed within a two parts plastic enclosure.

The enclosure provides a Degree of Protection of at least IP20.

Intrinsic safety is assured by the use of certified components, which provide limitation of voltage, current and power, limitation of capacitance and inductance, and infallible segregation.

The maximum intrinsically safe input and output parameters are as follows:

**TB1 terminals 1 and 2**

$U_i = 28 \text{ V}$

$I_i = 96 \text{ mA}$

$P_i = 0.84 \text{ W}$

The equivalent parameters are:

$C_i = 15 \text{ nF}$

$L_i = 8 \text{ } \mu\text{H}$

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13. **Schedule**
14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS03ATEX21378

**TB1 terminals S1 to S7**

$U_o = 14.7 \text{ V}$   
 $I_o = 99 \text{ mA}$   
 $P_o = 0.6 \text{ W}$

The equivalent parameters are:

$C_i = 30 \text{ } \mu\text{F}$  at 6 V  
 $C_i = 0.47 \text{ } \mu\text{F}$  at 14.7V  
 $L_i = 0.3 \text{ mH}$

**TB1 terminals A1 & A2, A3 & A4, A5 & A6 (each Alarm channel)**

**TB2 terminals A7 & A8, A9 & A10, A11 & A12 (each Alarm channel)**

$U_i = 28 \text{ V}$                        $U_o = 1.49 \text{ V}$   
 $I_i = 200 \text{ mA}$                        $I_o = 1 \text{ } \mu\text{A}$   
 $P_i = 0.85 \text{ W}$                        $P_o = 3 \text{ } \mu\text{W}$

The equivalent parameters are:

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

For intrinsic safety considerations, under fault conditions the output voltage, current and power at the above terminals do not exceed those specified in Clause 5.4 of EN 50020: 2002. The equivalent capacitance and inductance are the result of r.f suppression components directly connected to the apparatus terminals.

**TB2 terminals 11 and 12**

$U_o = 10.6 \text{ V}$   
 $I_o = 20 \text{ mA}$   
 $P_o = 50 \text{ mW}$

The equivalent parameters are:

$C_i = 15 \text{ nF}$   
 $L_i = 8 \text{ } \mu\text{H}$

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## 13. Schedule

### 14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS03ATEX21378

#### **TB2 terminals 13 to 17**

$U_i = 28 \text{ V}$                        $U_o = 1.1 \text{ V}$   
 $I_i = 100 \text{ mA}$                      $I_o = 0.12 \text{ mA}$   
 $P_i = 0.66 \text{ W}$                      $P_o = 35 \text{ } \mu\text{W}$

The equivalent parameters are:

$C_i = 18 \text{ nF}$   
 $L_i = 0.02 \text{ mH}$

For intrinsic safety considerations, under fault conditions the output voltage, current and power at the above terminals do not exceed those specified in Clause 5.4 of EN 50020: 2002. The equivalent capacitance and inductance are the result of r.f suppression components directly connected to the apparatus terminals.

#### **TB2 terminals 18 to 20**

$U_o = 11.7 \text{ V}$   
 $I_o = 2.4 \text{ mA}$   
 $P_o = 7 \text{ mW}$

The equivalent parameters are:

$C_i = 3.6 \text{ nF}$   
 $L_i = 0$

16. Report No. Intertek Report Ref 03010033.
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, EN 50020 and EN 50284
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
1.2.4	Dust deposits	Certification for gas atmospheres only
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

19. **DRAWINGS**

Number	Issue	Date	Description
CI450-01 sheets 1*, 2*, 3* & 5	1	Feb. 03	BA454D Certification Information

\* These drawings are common to EC-Type Examination Certificate No ITS03ATEX21379.

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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: **ITS03ATEX21378/1**
4. Equipment or Protective System: **BA454D BATCH CONTROLLER**
5. Manufacturer: **BEKA ASSOCIATES LIMITED**
6. Address: **Old Charlton Road, Hitchin, Herts, SG5 2DA**
7. This supplementary certificate extends EC-Type Examination Certificate Number ITS03TEX21378 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 ITS03ATEX21378/1**

**VARIATION ONE**

**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.

**Report No.**

Intertek Ref 04014720

**SPECIAL CONDITIONS FOR SAFE USE**

None

**Essential Health and Safety Requirements**

See original certificate

**DRAWINGS**

Number	Issue	Date	Description
CI450-01, sheets 1, 3, 5	2	July 04	BA454D Certification Information

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