



## 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: **ITS09ATEX26155**

4. Equipment or Protective System: **BA474D Indicating Temperature Transmitter**

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. 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 Intertek Report Ref 08036506A Issue 1 dated May 2009

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007, EN 61241-0:2006 and EN 61241-11:2006, except in respect of those requirements referred to 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 and construction 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, Ga Ex ia IIC T5, Ta = -40°C to +70°C  
II (1) G, (Ga) [Ex ia] IIC, Ta = -40°C to +70°C  
II 1 D, Ex iaD 20 T80°C IP66, Ta = -20°C to +60°C  
II (1) D, [Ex iaD], Ta = -20°C to +60°C

A T Austin  
Certification Officer  
Date: 5 June 2009

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13. SCHEDULE
14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS09ATEX26155
15. Description of Equipment or Protective System

The BA474D Indicating Temperature Transmitter is a field mounting loop powered indicating temperature transmitter designed to display temperature in the hazardous process area and transmit a linearised 4/20 mA current to the non-hazardous area. It provides galvanic isolation between the input and output connections.

The BA474D may optionally be situated in the non-hazardous area as an associated electrical apparatus and provide galvanic isolation between the non-intrinsically safe area input terminals and intrinsically safe input/output terminals.

The BA474D may optionally be fitted with an Alarm board and may additionally be fitted with an optional Back Light board.

The BA474D Indicating Temperature Transmitter comprises a field terminal board, a main display board, and an optional Alarm board, and/or an optional Back Light board, all housed within a plastic, glass reinforced polyester, enclosure. The enclosure provides a degree of protection IP20 (Gas) and IP66 (Gas/Dust).

Intrinsic safety is assured by limitation of voltage, current and power, limitation of capacitance and inductance, and infallible segregation.

The maximum intrinsically safe input and output parameters at the external connections are as follows:

#### **Terminals TB2 - 5 & 6**

$U_i = 28 \text{ V}$   
 $I_i = 200 \text{ mA}$   
 $P_i = 0.85 \text{ W}$

The equivalent parameters are;

$C_i = 46.42 \text{ nF}$   
 $L_i = 0.01 \text{ mH}$   
 $C_o = 36.58 \text{ nF}$   
 $L_o = 0.69 \text{ mH}$

#### **Terminals TB3 - 8 & 9; 10 & 11**

$U_i = 30 \text{ V}$   
 $I_i = 200 \text{ mA}$   
 $P_i = 0.85 \text{ W}$   
 $U_o = 0.7 \text{ V}$   
 $I_o = 1.3 \text{ } \mu\text{A}$   
 $P_o = 4.0 \text{ } \mu\text{W}$

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14. EC-TYPE EXAMINATION CERTIFICATE NUMBER ITS09ATEX26155

The equivalent parameters are:

$C_i = 0.02 \mu\text{F}$   
 $L_i = 0.01 \text{ mH}$   
 $C_o = 46 \text{ nF}$   
 $L_o = 0.69 \text{ mH}$

**Terminals TB1 - 1, 2, 3 & 4**

$U_i = 6 \text{ V}$   
 $I_i = 100 \text{ mA}$   
 $P_i = 194 \text{ mW}$   
 $U_o = 6 \text{ V}$   
 $I_o = 30.3 \text{ mA}$   
 $P_o = 46 \text{ mW}$

The equivalent parameters are:

$C_i = 16.16 \mu\text{F}$   
 $L_i = 0$   
 $C_o = 23.84 \mu\text{F}$   
 $L_o = 3 \text{ mH}$

As an associated electrical apparatus, the input and output parameters are:

**Terminals TB2 - 5 & 6; TB3 - 8 & 9; 10 & 11**

$U_m = 250 \text{ V}$

**Terminals TB1 - 1, 2, 3 & 4**

$U_i = 6 \text{ V}$   
 $I_i = 100 \text{ mA}$   
 $P_i = 194 \text{ mW}$   
 $U_o = 6 \text{ V}$   
 $I_o = 30.3 \text{ mA}$   
 $P_o = 46 \text{ mW}$

The equivalent parameters are:

$C_i = 16.16 \mu\text{F}$   
 $L_i = 0$   
 $C_o = 23.84 \mu\text{F}$   
 $L_o = 3 \text{ mH}$

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For intrinsic safety considerations, under faults conditions, the voltage, current and power at the output terminals TB3 - 8 & 9, and 10 & 11 do not exceed those specified in clause 5.7 of EN 60079-11. The equivalent capacitance and inductance are the result of r.f. suppression components directly connected across the apparatus input terminals.

16. Report Number:

Intertek Report Ref 08036506A Issue 1 dated May 2009

17. CONDITIONS OF CERTIFICATION:

- (a). Special Conditions for safe use

There are no special conditions for safe use.

- (b). Conditions For Use (Routine Tests)

The voltages applied to infallible transformers shall conform to the values given in Table 9 as per the requirements of EN 60079-11:2007 clause 11.2, Routine tests for infallible transformers.

18. Essential Health and Safety Requirements (EHSR's)

The relevant EHSR's have been identified and assessed in Intertek Report Ref 08036506A Issue 1 dated May 2009.

19. Drawings and Documents

Number	Title	Issue	Date
CI470-01, sheets 1 – 12, 15 – 24, 26, 27	Certification Information for BA474D Indicating Temperature transmitter	1	August 2008

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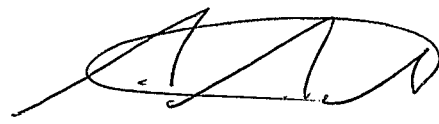
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1. **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**
2. **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**
3. Supplementary EC-Type Examination Certificate Number: **ITS09ATEX26155/1**
4. Equipment or Protective System: **BA474D Indicating Temperature Transmitter**
5. Manufacturer: **BEKA ASSOCIATES LIMITED**
6. Address: **Old Charlton Road, Hitchin, Herts, SG5 2DA**
7. This supplementary certificate extends EC-Type Examination Certificate Number ITS09ATEX26155 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 9043367, dated November 2009

This Supplementary Certificate shall be held with the original Certificate



**A T Austin**  
**Certification Officer**  
**17 November 2009**

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The Intertek logo consists of the word "Intertek" in a bold, white, sans-serif font, centered within a solid black rounded rectangular background.

## Schedule

**SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER  
ITS09ATEX26155/1**

### VARIATION ONE

#### Description of the Variation to the Equipment or Protective System.

To permit the following changes:

- 1.1 Addition of ferrite absorbers in series with sensor inputs 1, 2, 3 and 4 on TB1. Due to very low inductance value (1  $\mu$ H each), the inductance at the terminals may be disregarded.
- 1.2 Option to replace diodes D601 and D602 with wire links.
- 1.3 Minor changes to the Field Terminal Board artwork.

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

#### Report No.

Intertek Report Ref 09043367, dated November 2009

#### SPECIAL CONDITIONS FOR SAFE USE

None

#### Essential Health and Safety Requirements

See original certificate

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## Schedule

SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE NUMBER  
ITS09ATEX26155/1

### DRAWINGS

Number	Sheets	Issue	Date	Description
CI470-01	2, 6, 8-10,15-17 & 21	2	Sept 09	BA474D & BA478C Certification Information

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