



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEX Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX ITS 09.0005X</b>	Page 1 of 5	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 3	Issue 2 (2022-01-13)
Date of Issue:	2022-07-05		Issue 1 (2009-11-11)
Applicant:	<b>BEKA associates Limited</b> Old Charlton Road Hitchin Herts SG5 2DA <b>United Kingdom</b>		Issue 0 (2009-06-05)
Equipment:	<b>BA474D Indicating Temperature Transmitter</b>		
Optional accessory:			
Type of Protection:	<b>Intrinsic Safety Ex ia</b>		
Marking:	IECEX ITS 09.0005X, Ex ia IIC T5 Ga [Ex ia Ga] IIC Ex ia IIIC T80°C Da [Ex ia Da] IIIC -40°C ≤ Ta ≤ +70°C (Gas) -20°C ≤ Ta ≤ +60°C (Dust)		

Approved for issue on behalf of the IECEX  
Certification Body:

**Mark Newman**

Position:

**Certificate Officer**

Signature:  
(for printed version)

Date:  
2022.07.05  
09:54:33  
+01'00'

Date:  
(for printed version)



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Certificate issued by:

**Intertek Testing & Certification Limited**  
ITS House, Cleeve Road  
Leatherhead  
Surrey, KT22 7SA  
United Kingdom

**intertek**



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Manufacturer: **BEKA associates Limited**  
Old Charlton Road  
Hitchin  
Herts  
SG5 2DA  
**United Kingdom**

Manufacturing locations: **BEKA associates Limited**  
Old Charlton Road  
Hitchin  
Herts  
SG5 2DA  
**United Kingdom**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

#### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

#### TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

#### Test Reports:

[GB/ITS/ExTR09.0005/00](#)  
[GB/ITS/ExTR09.0005/03](#)

[GB/ITS/ExTR09.0005/01](#)

[GB/ITS/ExTR09.0005/02](#)

#### Quality Assessment Report:

[GB/ITS/QAR06.0002/08](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

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

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

The BA474D may optionally be fitted with an Alarm board.

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

The BA474D Indicating Temperature Transmitter comprises a field terminal board PC159, a main display board, PC157 and optional Alarm board, PC62, and/or Back Light board, PC161 all housed within a plastic, glass reinforced polyester enclosure.

The BA474D utilizes the following terminals:

- 4/20 mA loop powered input terminals, TB2, which will also power the optional backlight circuit. A link is provided if the backlight circuit is not used.
- The sensor input terminals, TB1.
- The optional Alarm Interface input terminals, TB3.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

The BA474D Indicating Temperature Transmitter when installed in Zone 0 potentially explosive atmosphere shall be installed such that even in the event of rare incidents, an ignition source due to impact or friction between aluminium marking label and iron/steel is excluded.



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## Equipment (continued):

The maximum intrinsically safe input and output parameters at the terminals for external connections are:

Terminals TB2- 5 & 6

Terminals TB3 8 & 9; 10 & 11

The equivalent parameters are:

The equivalent parameters are:

$U_i = 28\text{ V}$

$C_i = 46.42\text{ nF}$

$U_i = 30\text{ V}$

$C_i = 0.02\text{ nF}$

$i_i = 200\text{ mA}$

$L_i = 0.01\text{ mH}$

$i_i = 200\text{ mA}$

$L_i = 0.01\text{ mH}$

$P_i = 0.85\text{ W}$

$C_o = 36.58\text{ nF}$

$P_i = 0.85\text{ W}$

$C_o = 46\text{ nF}$

$L_o = 0.69\text{ mH}$

$U_o = 0.7\text{ V}$

$L_o = 0.69\text{ mH}$

$i_o = 1.3\text{ uA}$

$P_o = 4.0\text{ uW}$

Terminals TB1- 1, 2, 3 & 4

The equivalent parameters are:

$U_i = 6\text{ V}$

$C_i = 16.16\text{ uF}$

$i_i = 100\text{ mA}$

$L_i = 0$

$P_i = 194\text{ mW}$

$C_o = 23.84\text{ uF}$

$U_o = 6\text{ V}$

$L_o = 3\text{ mH}$

$i_o = 30.3\text{ mA}$

$P_o = 46\text{ mW}$

BA474D, as an associated electrical apparatus, the input and output parameters are:

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

Terminals TB1- 1, 2, 3 & 4

$U_m = 250\text{ V}$

The equivalent parameters are:

$U_i = 6\text{ V}$

$C_i = 16.16\text{ uF}$

$i_i = 100\text{ mA}$

$L_i = 0$

$P_i = 194\text{ mW}$

$C_o = 23.84\text{ uF}$

$U_o = 6\text{ V}$

$L_o = 3\text{ mH}$

$i_o = 30.3\text{ mA}$

$P_o = 46\text{ mW}$

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



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

### Issue 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.
2. Option to replace diodes D601 and D602 with wire links.
3. Minor changes to the Field Terminal Board artwork.

### Issue 2:

1. Update product standards IEC 60079-0 & IEC 60079-11 to latest revision.
2. Introduction of alternative components for obsolete optocouplers.
3. IEC 60079-26, Ed.2, IEC 61241-0, Ed.1 and IEC 61241-11, Ed.1 removed from the certificate listing. All requirements of these standards are considered to be covered by latest editions of IEC 60079-0 & IEC 60079-11.

### Issue 3:

1. Revision to opto-isolator module.

### **Annex:**

[Annex for IECEx Certificate.pdf](#)



# Annex to IECEx Certificate of Conformity

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Annex No. 1		

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
*ATEX & IECEx Certification Information for BA474D & BA478C Indicating Temperature Transmitters Sheets 1-24 & 26-28	CI470-01 (27 Sheets)	4	April 2022

*Note: An \* is included before the title of documents that are new or revised.*

Required Manufacturer Routine Testing		
Test	Title/Description of Test	Standard and Clause
1	The voltages applied to infallible transformers shall conform to the values given in Table 10 of IEC 60079-11:2011, Clause 11.2, Routine tests for infallible transformers.	IEC 60079-11, Clause 11.2