



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx ITS 11.0015X

Issue No: 2

Certificate history:

Status: **Current**

Issue No. 2 (2017-10-16)

Issue No. 1 (2014-04-02)

Date of Issue: **2017-10-16**

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Issue No. 0 (2011-04-19)

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

Equipment: **4 and 5 Digit Panel Mounting Indicator**

Optional accessory:

Type of Protection: **Ex ia**

Marking:

IECEX ITS 11.0015X
Ex ia IIC T5 Ga
- 40°C < Ta < +70°C
Ex ia III C T80°C Da IP20
- 40°C < Ta < +70°C

*Approved for issue on behalf of the IECEx
Certification Body:*

A M Smart

Position:

Certification Officer

*Signature:
(for printed version)*

2017.10.16


15:23:02
+01'00'

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

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





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

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*This Certificate **does not** indicate compliance with electrical 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 Report:

[GB/ITS/ExTR11.0017/00](#)

[GB/ITS/ExTR11.0017/01](#)

[GB/ITS/ExTR11.0017/02](#)

Quality Assessment Report:

[GB/ITS/QAR06.0002/05](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 4 and 5 Digit Panel Mounting Indicators and Rate Totaliser are panel mounted loop powered equipment designed to display a measured variable in meaningful engineering units within the hazardous area. The zero and span of the display are independently adjustable allowing the instruments to be calibrated to display a linear variable represented by the 4/20 mA signal.

A root extractor and an adjustable sixteen segment lineariser enable the indicator to display flow and non-linear variables such as tank level in engineering units.

The 4 and 5 Digit Panel Mounting Indicators and Rate Totaliser may be one of the following;
BA307E and BA308E 4 Digit Indicators
BA327E and BA328E 5 Digit Indicators
BA358E Rate Totaliser

The 4 and 5 Digit Panel Mounting Indicators and Rate Totaliser may optionally be fitted with Alarm board and may additionally be fitted with an optional Backlight board.

The 4 and 5 Digit Panel Mounting Indicator and Rate Totaliser comprise a main board, a display module, an optional Alarm board and an optional Backlight board, all housed within a plastic enclosure. 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 and inductance, and infallible segregation.

SPECIFIC CONDITIONS OF USE: YES as shown below:

For use in group III C conductive dust atmospheres, the Indicator or Rate Totaliser shall be mounted such that the instrument terminals have at least IP6X protection.



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EQUIPMENT (continued):

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

TB1 Terminals 1 and 3 (Loop Input); TB2 Terminal 12 and TB1 Terminal 3 (TB2 - 13 and TB1 - 1 connected in series)

$U_i = 30\text{ V}$ $U_o = 1.1\text{ V}$
 $I_i = 200\text{ mA}$ $I_o = 3\text{ mA}$
 $P_i = 0.84\text{ W}$ $P_o = 4.5\text{ mW}$
 $C_i = 13\text{ nF}$
 $L_i = 0.01\text{ mH}$
 $C_o = 53\text{ nF}$
 $L_o = 0.78\text{ mH}$

TB2 Terminals 12, 13 and 14 (Backlight Input)

$U_i = 30\text{ V}$
 $I_i = 200\text{ mA}$
 $P_i = 0.84\text{ W}$
 $C_i = 13\text{ nF}$
 $L_i = 0.01\text{ mH}$
 $C_o = 53\text{ nF}$
 $L_o = 0.79\text{ mH}$

TB3 Terminals RS1 and RS2

$U_i = 30\text{ V}$ $U_o = 6\text{ V}$
 $I_i = 200\text{ mA}$ $I_o = 2.5\text{ mA}$
 $P_i = 0.84\text{ W}$ $P_o = 3.75\text{ mW}$
 $C_i = 13\text{ nF}$
 $L_i = 0.01\text{ mH}$
 $C_o = 53\text{ nF}$
 $L_o = 0.79\text{ mH}$

TB4 Terminals 8 and 9; Terminals 10 and 11 (Alarm 1 and Alarm 2)

$U_i = 30\text{ V}$ $U_o = 1.47\text{ V}$
 $I_i = 200\text{ mA}$ $I_o = 1\text{ }\mu\text{A}$
 $P_i = 0.84\text{ W}$ $P_o = 2.2\text{ }\mu\text{W}$
 $C_i = 24\text{ nF}$
 $L_i = 0.01\text{ mH}$
 $C_o = 42\text{ nF}$
 $L_o = 0.79\text{ mH}$

For intrinsic safety considerations, under faults conditions, the voltage, current and power at the output terminals TB1 - 1 & 3, terminals TB2 -12 & TB1 - 3 and terminals TB4 - 8 & 9 and 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 input terminals.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

ISSUE 1 (GB/ITS/ExTR11.0017/01):

Addition of alternative track layout for Alarm Board (PC167) and for BA3x7E & BA3x8E Panel Unit Main Board (PC162)
Power rating of safety related components R2, R112 and R119 was changed from 0.5W to 0.25W at 70°C. This change does not compromise intrinsic safety of the equipment.

Alternative metallic enclosure for the equipment

Non-safety related changes to the circuit as follow:

- o Addition of rectifying diode D110
- o 4 pin header connector changed to 3 pin header for communication purposes
- o Track links LK102 and LK103 replaced with zero 0Ω resistors R120 and R121
- o Zener diodes D1, D4 – D8 replaced with bi-directional TVS diodes on input terminals
- o Addition of C102, C106 and IC101 power connections, all omitted in error
- o Zener diodes D4 and D5 changed from 6V max, 0.84W @ 70°C to 39.2V max, 2.6W @70°C and If = 1A max

ISSUE 2 (GB/ITS/ExTR11.0017/02):

- o Removal of reference to IEC60079-26 and IEC61241-11 standards
- o Update to latest editions of IEC60079-0 and IEC60079-11
- o CI300-61 Drawing updated to latest issue
- o Update to QAR number