EU Type Examination Certificate CML 21ATEX2110X Issue 1

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **BA340x DI Module**

3 Manufacturer **BEKA associates Ltd.**

4 Address **Old Charlton Road, Hitchin, Herts. SG5 2DA, UK**

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 6738671, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012

10 The equipment shall be marked with the following:

BA3401:	BA3402:
Ex II 1 G D	Ex II 1 G D
Ex ia IIC T4 Ga	Ex ia IIC T4 Ga
Ex ia IIIC T135°C Da	Ex ia IIIC T195°C Da
-40°C ≤ Ta ≤ +65°C	-40°C ≤ Ta ≤ +65°C

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A Snowdon
Certification Manager

11 Description

The BA340x DI Module is an intrinsically safe module intended for use with the Pageant system. The module comprises circuit boards mounted within a non-metallic enclosure with a single card edge connector for plugging into separately certified equipment (e.g. the Pageant Display unit).

The equipment also carries terminal blocks for the connection to external digital inputs.

The following model types are available:

Model number	Description
BA3401	Standard switch inputs
BA3402	NAMUR compatible switch inputs

Intrinsic safety is achieved by limiting energy storage and discharge, and by connecting to other equipment via intrinsically safe interface devices. The equipment has the following parameters:

<table>
<tr><th>Barrier Power in
PL3 Terminals 1 - 4</th><th>3V3 supply and data
PL3 Terminals 21 - 40</th><th>BA3401 Digital Inputs
TB1 – TB8
(values are for each input)</th><th>BA3402 Digital Inputs
TB1 – TB8
(values are for each input)</th></tr>
<tr><td>Ui = 12.4V</td><td>Ui = 4.1V</td><td>Ui = 0</td><td>Ui = 0</td></tr>
<tr><td>Ii = 2.68A</td><td></td><td></td><td></td></tr>
<tr><td>Pi = 5.44W</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Uo = 0</td><td>Uo = 4.94V</td><td>Uo = 8.8V</td></tr>
<tr><td></td><td>Io = 0</td><td>Io = 0</td><td>Io = 7.4mA</td></tr>
<tr><td></td><td>Po = 0</td><td>Po = 0</td><td>Po = 16mW</td></tr>
<tr><td>Ci = 0</td><td>Ci = 0</td><td>Ci = 1.1nF</td><td>Ci = 1.1nF</td></tr>
<tr><td>Li = 0</td><td>Li = 0</td><td>Li = 4µH</td><td>Li = 4µH</td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th></th><th>Co =</th></tr>
<tr><td>IIA</td><td>1000µF</td></tr>
<tr><td>IIB</td><td>1000µF</td></tr>
<tr><td>IIC</td><td>100µF</td></tr>
<tr><td>III</td><td>1000µF</td></tr>
</table>
</td><td>
<table>
<tr><th>See Note 1</th><th>Co =</th><th>Lo =</th></tr>
<tr><td>IIA</td><td>730µF</td><td>4.4H</td></tr>
<tr><td>IIB</td><td>46µF</td><td>2.2H</td></tr>
<tr><td>IIC</td><td>5.5µF</td><td>556mH</td></tr>
<tr><td>III</td><td>46µF</td><td>2.2H</td></tr>
</table>
</td></tr>
</table>

NOTE 1 - The above load parameters apply when one of the two conditions below is met:

- the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

If neither of the above conditions are met, the load parameters are both reduced by 50%. Additionally, the reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIA, IIB, and III, and 600nF for Group IIC.

Variation 1

This variation introduces the following modification:

i. Minor documentation updates.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	28 Jun 2021	R13778A/00	Issue of prime certificate
1	22 Mar 2023	R16296B/00	The introduction of variation 1

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. The manufacturer shall ensure that sufficient documentation is provided with the equipment pertaining to the architecture and design of the BEKA Pageant System, to permit the user to make the necessary intrinsically safe system calculations and documentation.

14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

i. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.

ii. In installations requiring EPL Da, Db, or Dc, the equipment shall be mounted within an enclosure which provides a minimum degree of protection of IP5X and which meets the requirements of EN 60079-0 Clause 8.4 (material composition requirements for metallic enclosures for Group III) and/or EN 60079-0 Clause 7.4.3 (Avoidance of a build-up of electrostatic charge for Group III) as appropriate.

    All cable entries into the equipment shall be made via cable glands which provide a minimum degree of protection of IP5X.

iii. This equipment shall only be used as part of a BEKA Pageant System.

Certificate Annex

Certificate Number	**CML 21ATEX2110X**
Equipment	**BA340x DI Module**
Manufacturer	**BEKA associates Ltd.**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
CI3401-01	1 to 26	1	28 Jun 2021	ATEX & IECEx Certification Information for BEKA BA340x Digital Input Module

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
CI3401-01	1 to 26	2	22 Mar 2023	ATEX & IECEx Certification Information for BEKA BA340x Digital Input Module