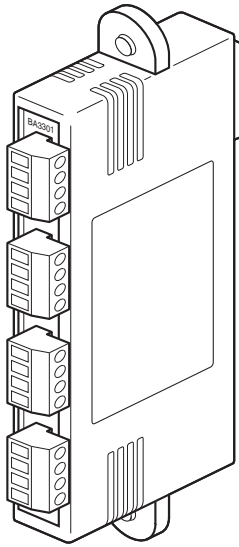


Instructions for BA3301 Pageant Analogue Input Module 4 x 4/20mA



Issue 1
18th August 2022

BEKA associates Ltd. Old Charlton Rd, Hitchin, Hertfordshire,
SG5 2DA, UK Tel: +44(0)1462 438301 e-mail: sales@beka.co.uk
web: www.beka.co.uk

1. INTRODUCTION

The BA3301 plug-in analogue input module has four galvanically isolated unpowered 4/20mA passive inputs. Separate IECEx, ATEX and UKCA intrinsic safety apparatus certification allows it to be safely plugged into any one of the seven slots on a Pageant BA3101 Operator Display.

The output safety parameters of each input are zero which, together with the low input voltage drop, allow connection in series with almost any intrinsically safe 4/20mA loop in any gas or dust atmosphere.

2. INTRINSIC SAFETY CERTIFICATION

Notified Body CML B.V. and UK Approved Body Eurofins CML have issued plug-in BA3301 Pageant Analogue Input modules with the following apparatus certificates:

IECEX IECEX CML 21.0101X
ATEX CML 21ATEX2830X
UKCA CML 21UKEX2831X

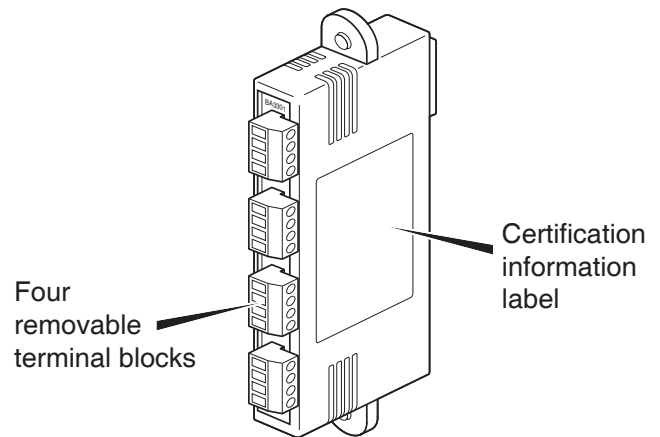


Fig 1 BA3301 Pageant Analogue Input module 4 x 4/20mA

The ATEX certificate has been used to confirm compliance with the European ATEX Directive for Group II, Category 1GD equipment, similarly the UKCA certificate has been used to confirm compliance with UK statutory requirements. All BA3301 modules carry both the CE and UKCA marks therefore, subject to local codes of practice, they may be installed in any of the European Economic Area (EEA) member countries and in the UK. ATEX certificates are also acceptable for installations in some non EU countries.

These instructions describe IECEx, UKCA and ATEX installations which conform with IEC / EN 60079-14 Electrical installations design, selection and erection. When designing systems the local code of practice should be consulted.

2.1 Zones, gas groups and T rating

All of the BA3301 certificates specify the same certification codes and safety parameters:

Ex ia IIC T4 Ga
Ex ia IIIC T135°C Da*
-40°C ≤ Ta ≤ 65°C

* Dust certification requires the Pageant Operator Display and the BA3301 module to have a minimum additional IP54 rear protection - see 2.2 ii below.

2.2 Special conditions for safe use

- 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.

Plug-in BA3301 Pageant Analogue Input Modules are CE marked to show compliance with the European Explosive Atmospheres Directive 2014/34/EU and the European EMC Directive 2014/30/EU.

The modules are also UKCA marked to show compliance with UK statutory requirements Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations UKSI 2016:1107 (as amended) and with the Electromagnetic Compatibility Regulations UKSI 2016:1091.

- ii. In installations requiring EPL Da, Db, or Dc, the equipment shall be mounted to an enclosure which provides a minimum degree of protection of IP5X and which meets the requirements of EN60079-0 Clause 8.4 (material composition requirements for metallic enclosures for Group III) and/or EN60079-0 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 provided a minimum degree of protection of IP5X.
- iii. The BA3301 shall only be used as part of a BEKA Pageant System.

2.3 Certification label information

The certification information label is fitted to the side of the plug-in BA3301 module. It shows the model number, certification information, BEKA associates address and year of manufacture together with the serial number.



Certification Information Label

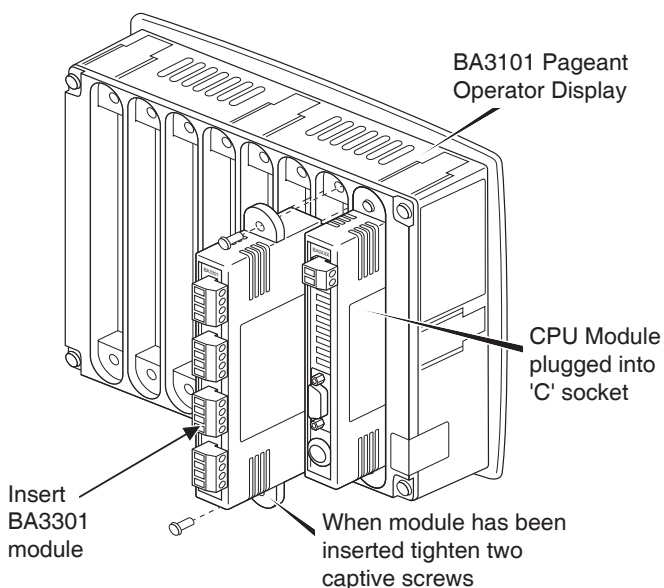


Fig 2 Inserting BA3301 AI module into one of seven sockets

3. INSTALLATION

The BA3301 plug-in module should be fitted into one of the seven sockets at the rear of a BA3101 Pageant Operator Panel as shown in Fig 2.

For a hazardous area installation the plug-in module must be manufactured by BEKA and have certification that specifies that it shall be used as part of a BEKA Pageant system.

3.1 Power consumption

The intrinsic safety certification of the BA3301 plug-in module permits any combination to be installed in a Pageant BA3101 display, but there are power limitations.

The percentage of the total available power that the BA3301 consumes is:

BA3301 4 x 4/2mA inputs 4%

The sum of the percentage power consumption's of all the plug-in modules installed in a BA3101 display must not exceed 100%.

3.2 Plug-in BA3301 module Installation

1. The module may be fitted before or after the Operator Display is installed. The Operator Display should not be powered while the module is being fitted or removed.
2. Carefully insert the module into the selected slot at the rear of the BA3101 Pageant Operator Display. When correctly positioned secure the module by tightening the two captive module fixing screws.
3. Connect field wiring to each of the four removable input terminal blocks. All the inputs are identical as shown in Fig 3. Each of the four inputs is a separate intrinsically safe circuit and field wiring should comply with segregation requirements specified in IEC/EN 60079-14. If a multicore cable is used for the inputs, it should have Type A or B construction as specified in Clause 16.2.2.7 of IEC/EN 60079-14. Wiring should be supported to avoid damaging the module's terminals.

4. INPUTS

The Pageant BA3301 module has four galvanically isolated unpowered 4/20mA passive inputs. Each input is certified as a separate intrinsically safe circuit with the following safety code and parameters.

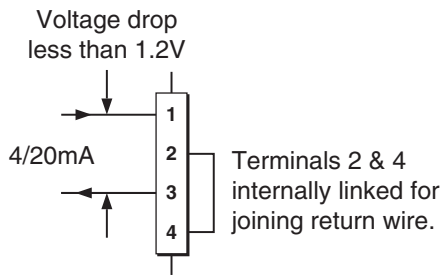
Ex ia IIC T4 Ga
Ex ia IIIC T135°C Da
-40°C ≤ Ta ≤ +65°C

Ui = 30V
li = 200mA
Pi = 0.84W

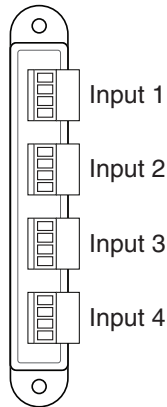
Uo = 0
lo = 0
Po = 0

Ci = 0
Li = 4µH

The output safety parameter of each input are zero which, together with the low input voltage drop, allow connection in series with almost any intrinsically safe 4/20mA loop in any gas or dust in Zone 0, 1, 2, 20, 21 or 22.



All four inputs have the same terminal connections.



BA3301

Fig 3 4/20mA input terminals

4.1 Loop powered 4/20mA transmitters

Loop powered transmitters should be powered from a galvanic isolator or Zener barrier with output safety parameters compatible with the transmitter's and the BA3301's intrinsic safety input parameters. The output parameters of each BA3301 4/20mA loop are zero and the internal inductance is very small and can be ignored when determining the loops safety.

Terminals 2 and 4 of each BA3301 input are internally linked for joining the return 4/20mA wire as shown in Fig 4.

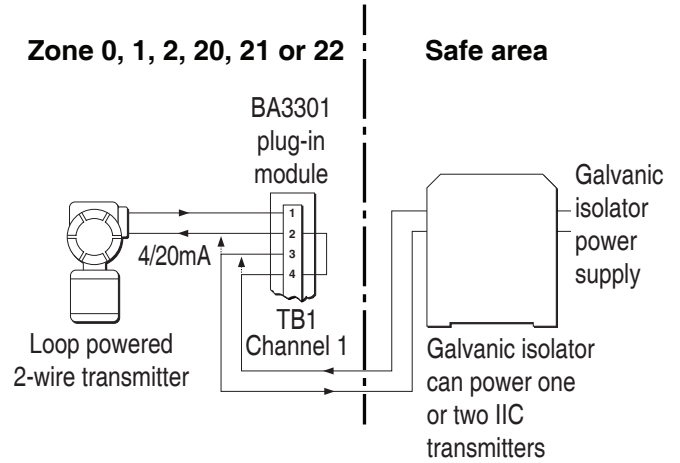


Fig 4 Connection of a loop powered 4/20mA transmitter

4.2 Separately and self powered 4/20mA transmitters

Separately powered transmitters and instruments with a 4/20mA output can be directly connected to a BA3301 input as shown in Fig 5.

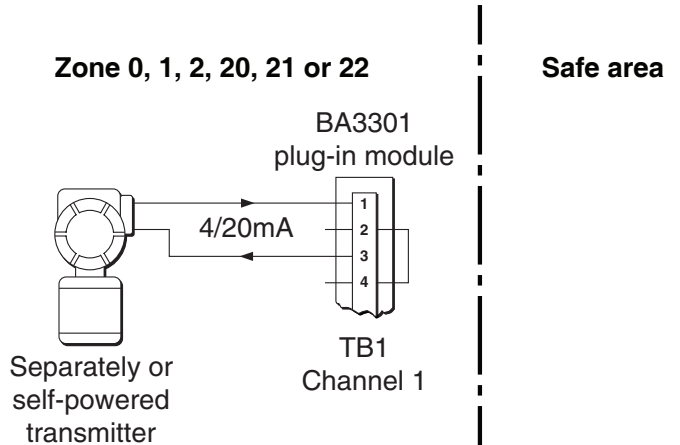


Fig 5 Connection of self powered transmitter

5. MAINTENANCE

A BA3301 4/20mA input module should be regularly inspected to ensure that it has not been damaged. The frequency of inspection depends upon environmental conditions.

No attempt should be made to repair a faulty plug-in module. Suspect modules should be returned to BEKA associates or your local BEKA agent.

6. GUARANTEE

Modules which fail within the guarantee period should be returned to BEKA associates or your local BEKA agent. It is helpful if a brief description of the fault symptoms is provided.

7. CUSTOMER COMMENTS

BEKA associates are always pleased to receive comments from customers about our products and services. All communications are acknowledged and whenever possible, suggestions are implemented.



All associated manuals, certificates, and datasheets can be downloaded from https://www.beka.co.uk/qr-ba3301_1

BEKA associates

Old Charlton Rd, Hitchin, Hertfordshire, SG5 2DA, UK
Tel: +44(0)1462 438301 e-mail: sales@beka.co.uk
web: www.beka.co.uk



**SCATTERGOOD
& JOHNSON LTD**
ELECTRICAL ENGINEERING & FLUID CONTROL DISTRIBUTORS

Est.1899

At Scattergood & Johnson Ltd, we pride ourselves on being a technical distributor to specialist industries.

Working with a range of quality product manufacturers across a number of specialist markets, we are not your average 'box shifter' - we are your technical and supply chain partner.

We fully support every product we sell - for free! Our internal team and external sales engineers can answer any product or application question, no matter the complexity.

Backing up this technical ability is a range of 50,000+ products available from stock for nationwide next day delivery (same day if required!), or you can collect what you need from any of our trade counters around the UK.

Select your specialist interest below to learn more about how we can help.



Online, In Branch and On the Road - Scattergood & Johnson Ltd, there when you need us.

www.scatts.co.uk