

**Intrinsically safe Pageant Operator Displays** are internationally certified for installation in Zone 1, 2, 21 or 22. Exclusive use of intrinsic safety, results in a low cost and weight instrument that can display process information, and enable process adjustments to be made from within any hazardous area. The recently introduced BA3102 which is electrically identical to the original BA3101, further extends applications. It has a certified impact resistant front, allowing installation in an Ex e or Ex t enclosure without invalidating the enclosure's certification.

**Pageant systems comprise** a BA3101 or BA3102 Operator Display into which can be plugged a CPU and up to seven I/O modules to form the required function, from a remote hazardous area display, to an IEC 61131 compliant CODESYS PLC. Up to seven plug-in analogue or digital input and output interface modules can be accommodated, plus a CPU module with optional external communications. Operator adjustments are made via eight touch buttons, each with a programmable tricolour annunciator, alternatively adjustments can be made via external push buttons.

**Intrinsic safety provides** users with the safest hazardous area protection which is usable worldwide. Together with BEKA low power technology, this eliminates the need for heavy protective enclosures, and allows these backlit Operator Displays and plug-in modules to be powered by a single BEKA Power Isolator.

The Operator Displays, and all of the plug-in modules, have individual intrinsic safety apparatus certificates permitting any combination of modules to be fitted to the Operator Display. This flexibility allows Pageant systems to be constructed without the need for any additional third party certification. Only the required modules have to be purchased, and if requirements change, additional modules can be added on-site.

As Pageant Operator Displays consume very little power, unlike displays with other

types of explosion protection, they do not significantly raise the temperature of the enclosure in which they are mounted.

**Communication** with the Pageant operator panel is via an isolated RS485-IS port which can be connected to other equipment in the hazardous area, or to the safe area via a proprietary isolator. The operator panel can be configured as a Modbus RTU master or as a slave.

**Both models** have a flat easy to clean IP66 front panel. The BA3101 has a toughened glass display window, and the BA3102 an impact resistant polycarbonate window with a hard, scratch resistant outer surface. The BA3102 has been certified for installation in an Ex e or Ex t enclosure without invalidating the enclosure's component certification.

**Documentation and support** are extensive including instruction manuals for the display, CODESYS software and each of the plug-in modules, plus videos and application guides. CODESYS runtime is a well known industry standard software package. Demonstration systems can be viewed at the BEKA sales office and at some BEKA agents. Loan systems are available for evaluation and programme development.



Up to 7 plug-in input and output interface modules      Plug-in CPU module

Rear of BA3101 or BA3102

# BA3101 BA3102

## Intrinsically Safe Operator Displays

*Remote display, PLC,  
modular I/O for installation  
in Zones 1, 2, 21 & 22.*

- ◆ International Ex ia intrinsic safety certification
- ◆ IP66 stainless steel front panel
  - BA3101 Toughened glass window.
  - BA3102 Impact resistant window, for installation in Ex e or Ex t enclosure.
- ◆ 7 inch backlit screen
- ◆ IEC 61131 compliant PLC
- ◆ Up to 7 plug-in input or output modules.
- ◆ 8 Touch buttons with tricolour annunciators.
- ◆ 3 year guarantee

[www.beka.co.uk/ba3100](http://www.beka.co.uk/ba3100)



# BEKA

## associates

BEKA associates Ltd. Old Charlton Rd.  
Hitchin, Hertfordshire, SG5 2DA, U.K.  
Tel. (01462) 438301 e-mail [sales@beka.co.uk](mailto:sales@beka.co.uk)  
website: [www.beka.co.uk](http://www.beka.co.uk)

## SPECIFICATION

### Power supply

Via plug-in CPU module from BEKA power isolator.  
See datasheets for specifications.  
Dissipation Less than 4.4W in the hazardous area

### Display

Type FSTN Liquid crystal transreflective  
Size diagonal 178mm (7inch)  
Resolution 320 x 240 pixels ¼VGA  
Greyscale 4 levels  
Backlight White - brilliance adjustable

### Touch buttons

Type Projected capacitance  
Number 8  
Backlight annunciator Programmable red, amber or green

*Button operation can be transferred to remote industrial push buttons using a BA3401 plug-in module. Recommended if buttons are exposed to salt water.*

### Firmware

CODESYS V3 complies with IEC 61131 PLC programming specification.  
Resident in plug-in CPU module.  
Includes life-time licence.

### PLC Cycle time

Less than 100ms irrespective of the number of plug-in modules fitted.

### Safety certification

#### International IECEx

Code Ex ia IIC T4 Ga  
Ex ia IIIC T135°C Da  
-40°C ≤ Ta ≤ 65°C  
Cert. No. [IECEx CML 20.0150X](#)

#### Europe ATEX and UKEX

Code II 1G Ex ia IIC T4 Ga  
II 1D Ex ia IIIC T135°C Da  
-40°C ≤ Ta ≤ 65°C  
Cert. Nos. [CML 20ATEX2252X](#)  
[CML 21UKEX2003X](#)

#### North American

Pending

### Plug-in modules

#### CPU

BA3201 1 CPU module must be installed  
BA3202 CPU without external communication  
CPU with isolated RS485-IS port  
Modbus RTU master or slave protocol.

### Input and output

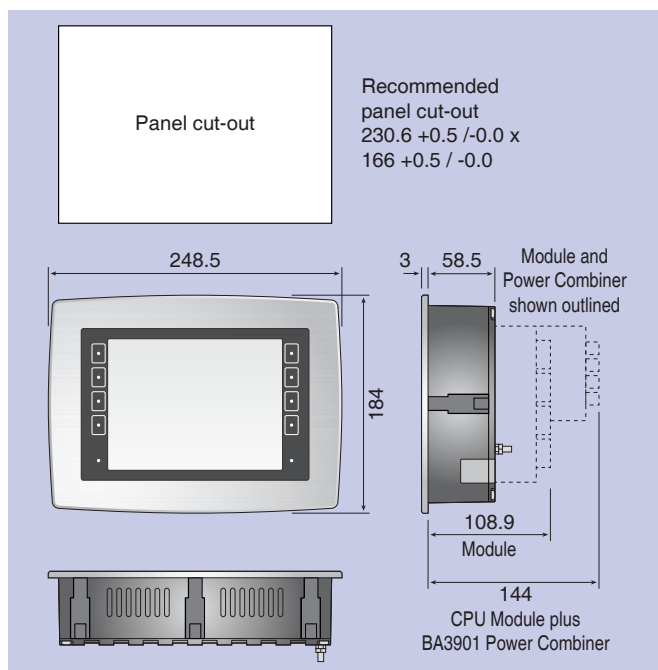
Up to 7 plug-in I/O modules can be accommodated. All are separately certified and any combination may be fitted providing that their total power consumption is not greater than 100% of available power.  
All field inputs and outputs are certified Ex ia IIC T4.

### Environmental

Operating temp Electronics and Modules.  
Display  
Storage temp  
Humidity  
EMC

-40 to +65°C  
-20 to +65°C  
-40 to +85°C  
to 95% at 40°C non-condensing  
Complies with UK & European EMC Directives.

## DIMENSIONS (mm)



### Mechanical

#### Enclosure

Front bezel 316 stainless steel  
BA3101 window Toughened glass  
BA3102 window Polycarbonate with scratch resistant coating Certified impact resistant.  
Sides & rear Noryl UL94V-1 flame class rating  
Ingress protection  
Front IP66  
Rear IP20  
Weight BA3101: 1.8kg without plug-in modules  
BA3102: 1.7kg without plug-in modules

## HOW TO ORDER

### Please specify

#### Pageant Operator Display

BA3101 With toughened glass window  
or BA3102 With impact resistant window, for installation in an Ex e or Ex t enclosure.

### Minimum system components

Display plus a plug-in CPU module  
BA3201 CPU without external communication  
or BA3202 CPU with Modbus RTU via RS485-IS port

### Plug-in I/O modules

Up to 7 plug-in input or output modules can be accommodated. All are separately certified allowing any combination to be fitted providing that the total power consumption of all the modules does not exceed 100% of the available power.

Model	Module consumption	Function
BA3301	4%	Analogue Input Module 4 x 4/20mA
BA3401	4%	Digital Input Module 8 x Contact
BA3402	40%	Digital Input Module 8 x Proximity Detector
BA3501	4%	Analogue Output Module 4 x 4/20mA
BA3601	4%	Digital Output Module 4 x Contact
BA3701	24%	Digital Input Module 2 x Totaliser or Counter.
	8%	When the inputs are not energised i.e. for voltage pulse inputs.

Popular Pageant modules - others are being certified, please contact BEKA sales office for availability.