

The **BA326C** is an intrinsically safe loop powered indicator that displays the 4/20mA input current on both a 100 segment analogue bargraph and in accurate engineering units on a digital display.

**Main application** of the BA326C is to display a measured variable or control signal in a hazardous process area. For level and similar measurements the combination of an analogue and digital display provides magnitude and trend information from the bargraph, plus accurate readings in engineering units from the digital display. The relative magnitude of variables can be effectively presented by mounting BA326C indicators side by side. An optional 16 point lineariser enables the BA326C to display non linear variables in linear engineering units.

**Control and calibration** of the combined indicator is performed via the front panel tactile push buttons. Using these buttons the operator can temporarily display the measured variable as a percentage of span, the input current in mA and the numerical display at 4 and 20mA input. All the calibration functions are contained in easy to understand menus which may be protected by a four digit user selectable security code.

**Intrinsic safety** certification to the ATEX Directive allows installation throughout Europe. The 4/20mA input terminals comply with the requirements for *simple apparatus* allowing the BA326C to be connected in series with most certified intrinsically safe circuits without the need for an additional system certificate. This, together with the low voltage drop, makes the BA326C very easy to apply. The optional backlight is electrically segregated from the indicator and has

been certified as a separate intrinsically safe circuit which may be powered from a Zener barrier or galvanic isolator. Similarly, the two optional alarms are galvanically isolated and each is certified as a separate intrinsically safe circuit complying with the requirements for *simple apparatus*. IECEx certification permits international installation.

**The analogue bargraph** which contains 100 segments, provides a rapid indication of the input current, enabling an operator to quickly assess the magnitude and trend of a process variable. The bargraph displays zero to full scale for a 4 to 20mA input, but may be calibrated to show deviation from any input current. Either a column or a single segment display may be selected and if only the analogue display is required, the digital display may be disabled.

**Separately powered backlighting** is available as an option. The orange output enhances daylight contrast and enables the display to be read when the instrument is installed in a poorly illuminated area.

**Optional alarms** provide two galvanically isolated solid state outputs which may be independently programmed. For easy comparison with the 4/20mA input, both setpoints are displayed on a second bargraph with annunciators showing the alarm status. Each alarm can control a certified hazardous area load or the output may be transferred to the safe area via a Zener barrier or galvanic isolator.

**The IP65 front panel** is a robust, easy to clean Noryl moulding surrounding an armoured glass window. A captive neoprene gasket provides a seal between the instrument enclosure and the panel.

# BA326C

## 2-wire 4/20mA analogue & digital indicator

*Intrinsically safe for use in all gas hazardous areas*

- ◆ Loop powered only  
1.2V drop.
- ◆ Optimum visibility
- ◆ Intrinsically safe  
ATEX & IECEx certification.
- ◆ 100 segment bargraph plus digital display.
- ◆ Optional:  
Display backlight  
Alarms  
Lineariser
- ◆ 144 x 48mm DIN enclosure with IP65 front.
- ◆ 3 year guarantee



**BEKA**  
associates

## SPECIFICATION

|                     |   |
|---------------------|---|
| <b>Input</b>        |   |
| Current             | 4 to 20mA   |
| Voltage             | Less than 1.2V at 20°C<br>Less than 1.3V at -20°C   |
| Overrange           | ±200mA will not cause damage  |
| <b>Display</b>      |   |
| Type                | Liquid crystal  |
| Reading rate        |   |
| Analogue            | 4 per second  |
| Digital             | 2 per second  |
| Analogue            | 95mm long 100 segment column or single segment.   |
| Range               | 0 to 100% for 4 to 20mA input   |
| Digital             | 4½ digit (-19999 to 19999) 5.5mm high; selectable dummy trailing zero extends display range to (-19990 to 99990). |
| Span                | Adjustable between 0 & ±19999   |
| Zero                | Adjustable between ±19999 with 4mA input  |
| Decimal point       | 1 of 5 positions or absent  |
| Polarity            | Automatic minus sign  |
| Direction           | Display may increase or decrease with increasing current.   |
| Over & underrange   | 4 least significant digits are blanked  |
| <b>Push-buttons</b> |   |
|                     | (Function in operating mode)  |
| ▲ button            | Shows display with 4mA input  |
| ▼ button            | Shows display with 20mA input   |
| P button            | Displays input current in mA, or as a percentage of span.   |

|                         |  |
|-------------------------|--|
| <b>Accuracy at 20°C</b> |  |
| Analogue                | ±0.5%  |
| Digital                 | Linear ±0.02% ±1 digit<br>Root extracting 16µA at input ±1 digit |
| Temp. effect            |  |
| Analogue                | ±0.5% between -20 & 60°C   |
| Digital                 |  |
| Zero                    | Less than 25ppm/°C   |
| Span                    | Less than 50ppm/°C   |
| Series mode             | Less than 0.5% error for 1mA pk to pk 50Hz or 60Hz signal.       |

|                         |  |
|-------------------------|--|
| <b>Intrinsic safety</b> |  |
| <b>Europe ATEX</b>      |  |
| Code                    | Group II Category 1 G Ex ia IIC T5 Ga Ta = -40 to 60°C   |
| Cert. No.               | ITS99ATEX2009X   |
| Output parameters       |  |
| U <sub>o</sub>          | 1.1V dc  |
| I <sub>o</sub>          | 70mA dc  |
| P <sub>o</sub>          | 23mW   |
|                         | Complies with requirements for <i>simple apparatus</i>   |
| Location                | Zone 0, 1 or 2   |
| Installation            | The BA326C may be connected to any certified intrinsically safe circuit whose output parameters do not exceed: |
|                         | U <sub>o</sub> 28V   |
|                         | I <sub>o</sub> 200mA   |
|                         | P <sub>o</sub> 0.84W   |

|                            |                                  |
|----------------------------|----------------------------------|
| <b>International IECEx</b> |                                  |
| Standard                   | IEC 60079-0:2004                 |
| Code                       | Ex ia IIC T5 Ga Ta = -40 to 60°C |
| Cert. No.                  | IECEx ITS 08.0003X               |

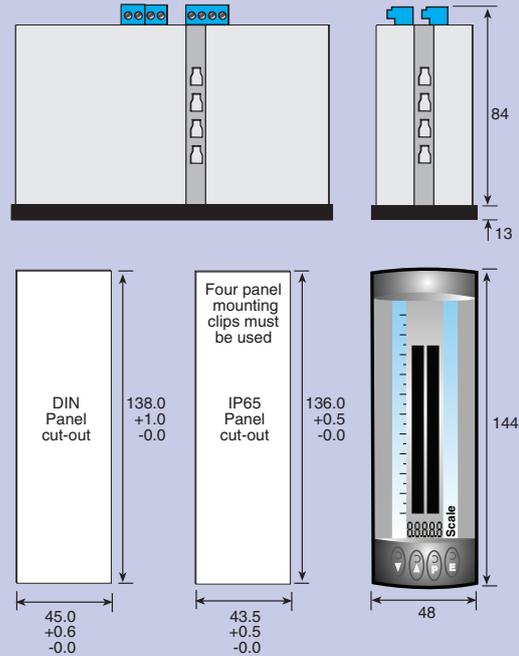
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|----------------------|---|
| <b>Environmental</b> |   |
| Operating temp       | -20 to 60°C (Certified for use at -40°C)                            |
| Storage temp         | -40 to 85°C   |
| Humidity             | To 95% at 40°C non-condensing                                       |
| Enclosure            | Front IP65 rear IP20  |
| EMC                  | In accordance with EU Directive 2004/108/EC, full report available. |

|                   |  |
|-------------------|--|
| <b>Mechanical</b> |  |
| Terminals         | Blue removable terminal block for 0.5 to 1.5mm <sup>2</sup> cables |
| Weight            | 0.5kg  |

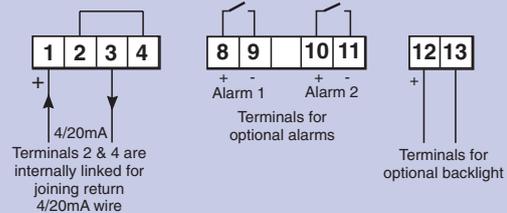
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|------------------------------|---|
| <b>Accessories</b>           |   |
| Separately powered backlight | LED backlight powered from 28V 300Ω Zener barrier or galvanic isolator. |

|        |  |
|--------|--|
| Alarms | Two independent alarms each of which may be programmed for high or low operation with a NC or NO output. |
|--------|--|

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



|                    |   |
|--------------------|---|
| Outputs            | Isolated single pole solid state switch:<br>Ron less than 5Ω +0.6V<br>Roff greater than 180k                          |
| Certification      | Both outputs comply with the requirements for <i>simple apparatus</i> .   |
| Lineariser         | Provides 16 fully adjustable straight lines which may be positioned to compensate for almost any non-linear variable. |
| Typeset scale card | Blank scale card fitted to each indicator can be supplied typeset with units of measurement.                          |
| Bargraph scale     | Blank scale fitted to each indicator can be supplied typeset with analogue scale.                                     |
| Tag number         | Thermally printed number on rear of the instrument.   |

## HOW TO ORDER

|                 |                            |  |
|-----------------|----------------------------|--|
| Model number    | BA326C                     | <b>Please specify:</b>   |
| Display mode    | Linear or root extracting* |  |
| Digital display |                            |  |
|                 | at 4mA XXXX*               | ] Include position of decimal point, dummy zero if required & sign if negative |
|                 | at 20mA XXXX*              |  |

|                    |                                   |
|--------------------|-----------------------------------|
| <b>Accessories</b> | <b>Please specify if required</b> |
| Display backlight  | Separately powered backlight      |
| Alarms             | Alarms#                           |
| Lineariser         | Lineariser#                       |
| Scale card         | Legend                            |
| Bargraph scale     | Required scale graduations        |
| Tag number         | Legend                            |

\* Will be set to display 0.00 at 4mA and 100.00 at 20mA with a linear display if calibration information is not supplied.

# Contact BEKA if calibration of accessories is required.