

The **BA307C** is an intrinsically safe panel mounting indicator which displays the current flowing in a 4/20mA process loop in meaningful engineering units. The instrument is loop powered but only introduces a 1V drop allowing it to be installed in series with almost any 4/20mA loop.

Main application of the BA307C is to display a measured variable or control signal in a hazardous process area. The zero and span of the display are independently adjustable so that the indicator can be calibrated to display any linear variable represented by a 4/20mA signal, such as temperature, pressure, level or actuator position. For flow applications an optional square root extractor enables the output from a differential flow transmitter to be displayed in linear engineering units.

Two backlight options are available. The loop powered backlight produces green background illumination enabling the display to be read at night and in poor lighting conditions. No additional power supply, IS interface or field wiring are required, but the indicator voltage drop is increased. Alternatively, the separately powered backlight has a bright orange output which enhances daylight viewing, but an additional IS interface and field wiring are required.

An optional internal calibrator simulates 4 and 20mA input currents and enables the indicator to be calibrated without the need for test equipment or disconnection from the 4/20mA loop.

Although not providing independent verification, it is an effective way to quickly check performance or to recalibrate.

International intrinsic safety certification allows the BA307C to be installed throughout the world. The 4/20mA input terminals comply with the requirements for *simple apparatus* enabling the indicator to be connected in series with most certified intrinsically safe circuits which, together with the low voltage drop, make the instrument very easy to apply. ATEX, FM and cFM Approvals permit installation in Europe, USA & Canada and the IECEx certification allows installation in a growing number of countries including Australia and New Zealand. Selection of Zener barriers and galvanic isolators is described in Application Guide AG300.

The front panel is a robust, easy to clean Noryl moulding sealed with a non-reflective, scratch resistant polyester membrane. A captive neoprene gasket provides an IP65 seal between the enclosure and the panel.

Reliability is ensured by an ISO9001 approved quality control system supported by a three year guarantee. The indicator is protected from reverse connection and overrange input current, and incorporates extensive radio frequency filtering to comply with the European EMC Directive.

Complementary indicators for use in safe areas are available, see datasheet for BA507C.

BA307C

**2-wire 4/20mA
3½ digit indicator**

*Intrinsically safe for use
in all gas hazardous areas*

- ◆ **Loop powered only 1V drop**
- ◆ **Intrinsically safe ATEX, FM, cFM & IECEx certification**
- ◆ **±1999 display 12.7mm high**
- ◆ **Optional:**
 - Loop powered backlight**
 - Separately powered backlight**
 - Root extractor**
 - Calibrator**
- ◆ **IP65 front**
- ◆ **96 x 48mm DIN enclosure**
- ◆ **3 year guarantee**



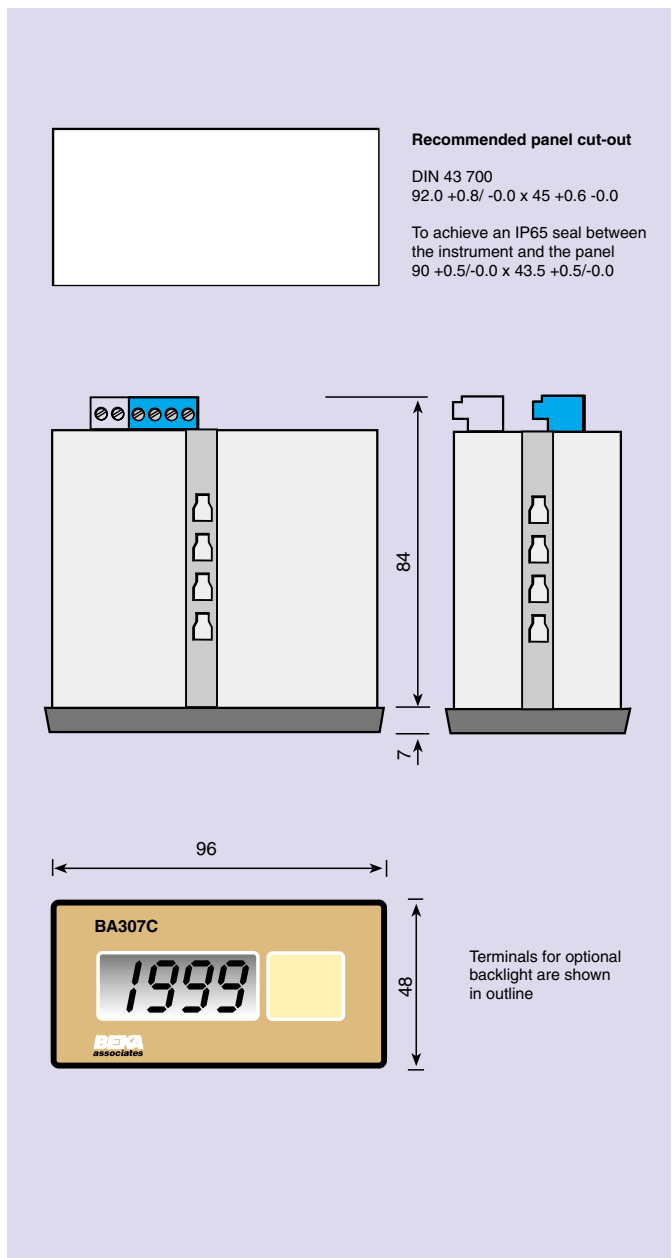
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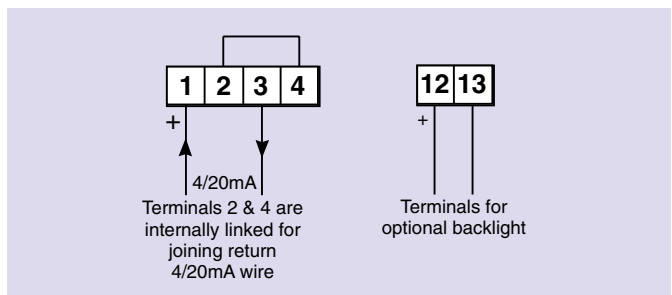
SPECIFICATION

Input	
Current	4 to 20mA
Voltage	Less than 1V at 20°C Less than 1.1V at -20°C Less than 5V when loop-powered backlight is fitted
Overrange	±200mA will not cause damage
Display	
Type	3½ digit (-1999 to 1999) Liquid crystal 12.7mm high
Span	Adjustable between 000 & 1999 for a 4 to 20mA input.
Zero	Adjustable between ±1000 with 4mA input.
Decimal point	1 of 3 positions or absent
Polarity	Automatic minus sign
Direction	Display may increase or decrease with increasing current. Factory set option.
Reading rate	2.5 per second
Overrange	3 least significant digits are blanked
Accuracy	
At 20°C	±1 digit
Temperature effect on: Zero	Typ ±0.05 digit ±100ppm/°C Max ±0.1 digit ±200ppm/°C
Span	Typ ±50ppm; max ±100ppm/°C
Series mode rejection	Typ 1 digit error for 1mA pk to pk 50Hz signal
Intrinsic safety	
Europe ATEX	
Code	Group II, Category 1G Ex ia IIC T5 ITS02ATEX2027
Certificate No.	
Output parameters	
Uo	1.1V dc
Io	70mA dc
Wo	23mW
Ceq	20nF
Leq	10µH
Location	Zone 0, 1 or 2
Installation	The BA307C may be connected to any certified intrinsically safe circuit whose output parameters do not exceed: Uo 30V dc Io 200mA dc Wo 0.85W
USA FM	
Standard	3610 Entity
Code	CL I: Div 1: GP A, B, C, D
Temperature code	T4 at 60°C
File No	4B3A7.AX
Standard	3611 Nonincendive
Code	CL I: Div 2: GP A, B, C & D
File No	4B3A7.AX
Canada cFM	
File No.	3032632
International IECEx	
Standard	IEC60079-11:1999
Code	Ex ia IIC T5 Ta = -40 to 60°C
Cert. No	IECEx ITS 05.0002
Environmental	
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.
Immunity	Less than 1% of span error for 10V/m field strength between 27MHz & 1GHz.
Emissions	Undetectable above background noise. Class B equipment.
Mechanical	
Terminals	Screw clamp for 0.5 to 1.5mm² cables in blue removable terminal block.
Weight	0.3kg
Accessories	
Loop powered backlight	Green; powered from 4/20mA current. Voltage drop of indicator plus backlight less than 5V.
Separately powered backlight	Orange; powered from 28V 300Ω Zener barrier or galvanic isolator. <i>Not available with calibrator</i>
Root extractor	<i>Not available with calibrator</i>
Accuracy	±16µA at input ±1 digit for inputs between 4.16 and 20mA (10 to 100% of flow)
Clip-off	Selectable by internal plug-in link, operates at 4.04mA input (5% of flow)
Calibrator	Simulates 4 and 20mA input, selected by plug-in link accessible through rear panel. <i>Not available with root extractor</i>
Typeset scale card	Blank scale card fitted to each indicator can be supplied typeset with units of measurement.
Tag number	Thermally printed number on rear of the instrument.

DIMENSIONS (mm)



TERMINAL CONNECTIONS



HOW TO ORDER

Model number
Display at 4mA
at 20mA

Accessories
Backlight

Root extractor
Calibrator
Scale card
Tag number

Please specify:

BA307C
XXXX] Include position of decimal
XXXX] point & sign if negative*

Please specify if required:

Loop powered backlight or
Separately powered backlight.
Root extractor
Calibrator] only one
Legend
Legend] can be fitted

*Will be set to display 00.0 at 4mA and 100.0 at 20mA with linear display if calibration information is not supplied.