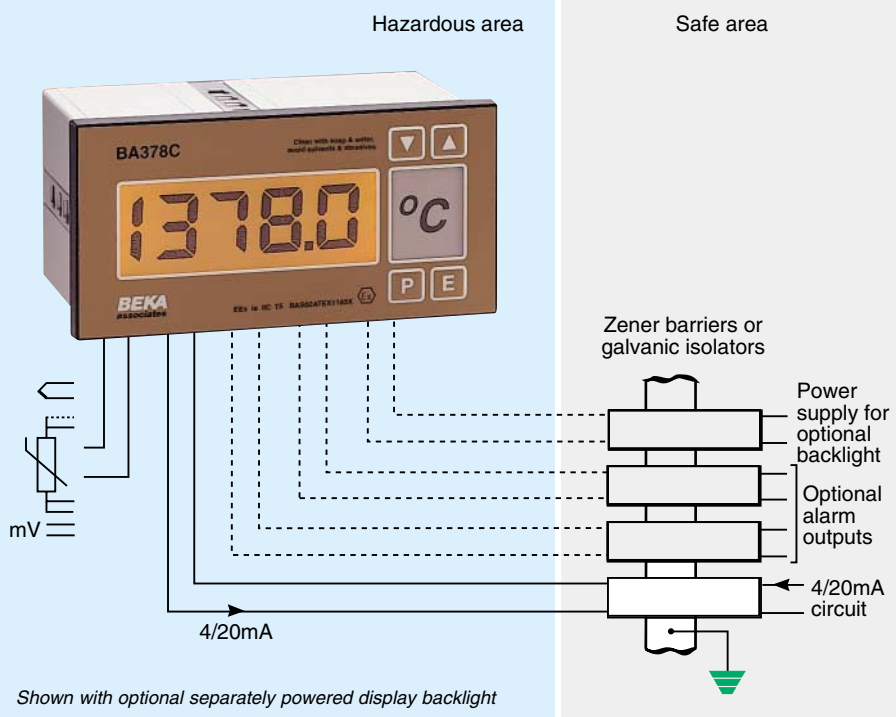

Shown with optional separately powered display backlight

BA378C

Indicating temperature transmitter

Intrinsically safe for use in all gas hazardous areas

- **Large display**
- **Loop powered**
- **Intrinsically safe ATEX certification**
- **THC, RTD or voltage input**
- **Optional: Display backlight Alarms**
- **144 x 72mm DIN enclosure with IP65 front**
- **3 year guarantee**

The BA378C is an ATEX certified intrinsically safe panel mounting indicating temperature transmitter which simplifies temperature measurement and display in hazardous areas. It provides an accurate local digital temperature display from most common thermocouples or resistance thermo-meters, plus a 4/20mA analogue output current which may be scaled to represent any temperature range. The transmitter incorporates a 20mm high easy to read liquid crystal display and may be supplied with an optional LED backlight. Two adjustable alarms can also be fitted to provide over and under temperature warnings.

Main application of the BA378C is to display temperature in a hazardous process area and to transmit a 4/20mA current to the safe area. Units of display may be ˚C or ˚F and the linearised 4/20mA output can be scaled to represent any temperature range. The transmitter may be programmed on-site to operate with most common thermocouples and resistance thermometers, and includes facilities for differential temperature measurement. Millivoltage outputs from pressure, weighing and position transducers can also be displayed in engineering units and transmitted as a 4/20mA current.

Calibration and programming is performed via the four front panel push-buttons which 'click' when operated. The programming functions are contained in easy to understand menus which are protected by a four digit user definable security code. All the instrument functions are programmable; including type of input, display units, and the range of the 4/20mA output. Calibration may be performed using the internal references, an external temperature calibrator or a voltage or resistive source. Loss of power does not affect calibration, as all settings are retained for at least five years after the instrument is switched off or disconnected.

ATEX intrinsic safety certification allows installation in all gas hazardous areas. The transmitter may be powered from a wide range of Zener barriers or galvanic isolators and internal isolation allows earthed, or floating, thermocouples and resistance thermometers to be directly connected to the BA378C in the hazardous area.

Display backlighting is available as an option to improve readability when the BA378C is installed in a poorly illuminated area. High efficiency LEDs provide an even glow to enhance the display contrast.

Optional alarms provide two galvanically isolated solid state outputs which may be independently programmed as high or low trips. Each 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 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 BA378C is protected from reverse connection and overrange inputs, and incorporates extensive radio frequency filtering to comply with the European EMC Directive.

Complementary transmitters for field mounting and use in safe areas are available, see BA374C, and BA578C datasheets respectively.

BEKA associates

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SPECIFICATION

Supply

Voltage	10 to 30V

Output (loop power current)

Current	3.8 to 22mA
Resolution	1µA
Resistance	5MΩ minimum

Display

Type	Liquid crystal 20mm high
Reading rate	2 per second
Overrange	4 least significant digits are blanked

Input

	Type	Display range ˚C	Display resolution ˚C
Thermocouple	E	-205.0 to 1000.0	0.1
	J	-210.0 to 1200.0	0.2
	K	-205.0 to 1372.0	0.2
	N	0.0 to 1300.0	0.1
	R	0.0 to 1767.0	0.5
	T	-200.0 to 400.0	0.1
	Pallaplat	-100.0 to 490.0	0.2
Cold junction compensation.	Selectable ON or OFF		
Broken THC detection.	Selectable UP, DOWN or OFF		

Resistance thermometer

Type	Pt100 BS EN60751:1996 three or four wire connection, or differential.
Excitation current.	175µA
Resolution	0.1˚C

Voltage

Range	±75mV
Resolution	2.38µV

Isolation	250V rms between input and output

Performance

Effect of temperature on display

	Voltage input	THC input	RTD input
Zero drift	1µV/˚C	1µV/˚C + 0,02˚C/˚C	20ppm/˚C
Span drift	<30ppm/˚C	<30ppm/˚C	<80ppm/˚C

Effect of temperature on 4/20mA output (in addition to above)

Zero drift	20ppm/˚C
Span drift	50ppm/˚C

Linearity	<0.1% error for all types of input
Series mode ac rejection	<0.1% error for 150mV rms 50 or 60Hz
Common mode ac rejection	<0.1% error for 250V rms 50 or 60Hz

Intrinsic safety

Europe ATEX

Standard	EN50020:1994
Code	Group II, Category 1G EEx ia IIC T5
Cert No	BAS02ATEX1185X BAS Ex96D2505 System BAS Ex96D2506 System
Location	Zone 0, 1 or 2
Installation	The BA378C may be powered from any certified Zener barrier or galvanic isolator whose output parameters do not exceed: Uo 30V dc Io 280mA dc Po 0.85W

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 89/336/EEC, full report available.

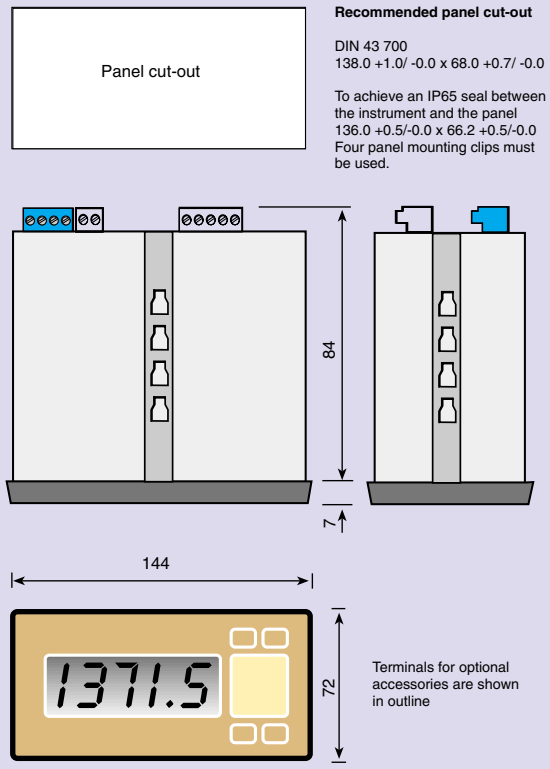
Mechanical

Terminals	Blue screw clamp for 0.5 to 1.5mm² cables
Weight	0.5kg

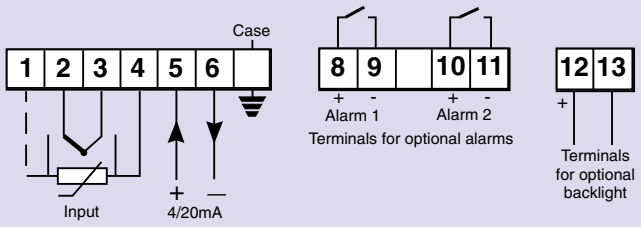
Accessories

Separately powered backlight	LED backlight powered from 28V 300Ω Zener barrier or galvanic isolator.

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Alarms	Two independent alarms each of which may be programmed as a high or low trip with a NC or NO output.
Typeset scale card	Blank scale card fitted to each instrument can be supplied typeset with units of measurement.*
Tag number	Thermally printed number on rear of the instrument. *

**See accessory datasheet for details*

HOW TO ORDER

	Please specify	
Model number	BA378C	
Input	THC & type, RTD & type or voltage*	
CJ compensation	On or OFF	For THC input
Broken THC drive	Up, Down or Off	
Input voltage range	mV zero and span and corresponding displays.	For voltage input
Display units	°C or °F	For THC & RTD inputs
Display resolution	High or low	
Display at which output is: 4mA	XXXX*	
20mA	XXXX*	

Accessories	Please specify if required
Display backlight	Separately powered backlight
Alarms	Alarms#
Scale card	Legend
Tag number	Legend

**If calibration information is not supplied, will be set for 3 wire RTD input with 4 to 20mA output corresponding to a display of 0.0 to 100.0°C .*
#Contact BEKA if calibration of accessories is required.