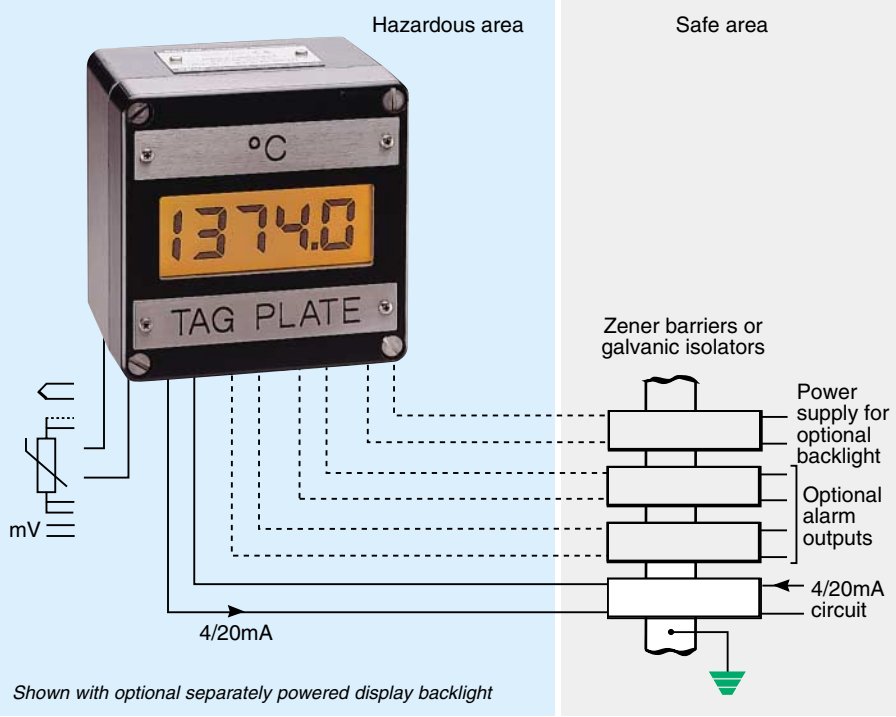

Shown with optional separately powered display backlight

BA374C

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
- **IP66 GRP or aluminium enclosure**
- **3 year guarantee**

The BA374C is an ATEX certified intrinsically safe field 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 thermometers, 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 BA374C 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 four sealed push-buttons located behind the instrument front cover where they are protected from damage and tampering. 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 BA374C in the hazardous area.

Display backlighting is available as an option to improve readability when the BA374C 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.

Two types of enclosure are available, each has stainless steel fittings and a toughened glass window and is sealed with a neoprene gasket. The sturdy glass reinforced polyester (GRP) enclosure is suitable for most industrial applications including off-shore and water treatment. For installation where solvents may be encountered, the epoxy painted aluminium enclosure provides maximum protection. Both the GRP and aluminium enclosures, which have been tested by ERA, provide IP66 protection as specified in BS5490. To simplify installation and maintenance, the transmitter assembly can be removed from the enclosure without disconnecting the field wiring.

Reliability is ensured by an ISO9001 approved quality control system supported by a three year guarantee. The BA374C is protected from reverse connection and overrange inputs, and incorporates extensive radio frequency filtering to comply with the European EMC Directive.

Complementary transmitters for use in Zone 2 and safe areas are available, see BA374NC, and BA574C 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

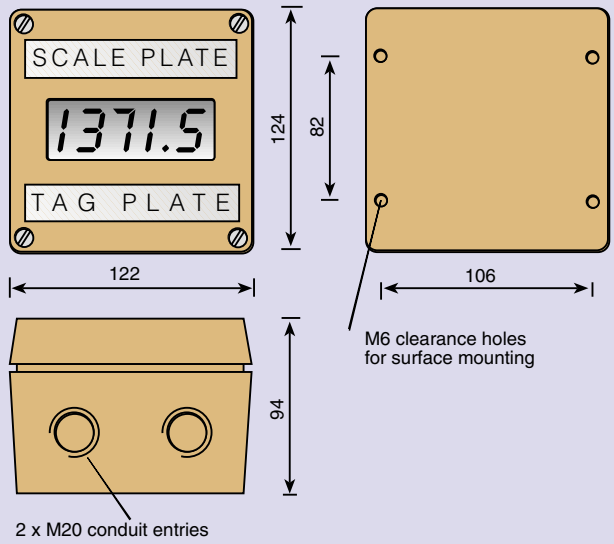
Intrinsic safety
Europe ATEX
Standard EN50020:1994
Code Group II, Category 1G EEx ia IIC T5
Cert No BAS02ATEX1185X
BAS Ex96D2505 System
BAS Ex96D2506 System
Location Zone 0, 1 or 2

Installation The BA374C 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

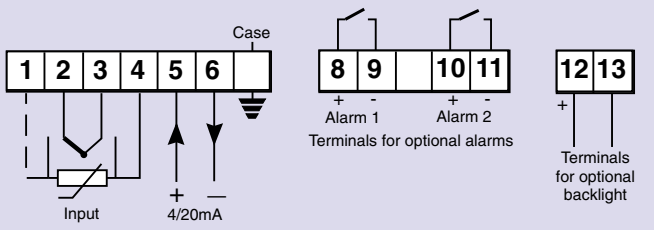
Environmental
Operating temp -20 to +60˚C (Certified for use at -40˚C)
Storage temp -40 to +85˚C
Humidity To 95% at 40˚C
Enclosure IP66 see ERA test report 5046/228
EMC In accordance with EU Directive 89/336/EEC, full report available.

Mechanical
Terminals Screw clamp for 0.5 to 2.5mm² cables
Weight GRP enclosure 1kg
Aluminium enclosure 1.4kg

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Accessories

Separately powered backlight	LED backlight powered from 28V 300Ω Zener barrier or galvanic isolator.
Alarms	Two independent single pole alarms each of which may be programmed as a high or low trip with a NC or NO output.
Engraved scale plate	Removable blank stainless steel plate fitted to each indicator, can be supplied engraved with units of measurement. *
Engraved tag plate	Removable blank stainless steel plate fitted to each indicator, can be supplied engraved with tagging information.*
Pipe mounting	2 kits are available, BA392C and BA393*
Panel mounting kit	BA394 mounts BA374C into a panel aperture.*

**See accessory datasheet for details*

HOW TO ORDER

	Please specify	
Model number	BA374C	
Enclosure	GRP or aluminium	
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 plate	Legend
Tag plate	Legend
Pipe mounting kit	BA392C or BA393
Panel mounting kit	BA394

**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.