

The **BA374NC** is a Type n field mounting indicating temperature transmitter which simplifies temperature measurement and display in Zone 2 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 BA374NC is to display temperature in a Zone 2 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.

A Type nL Declaration of Conformity confirms that the BA374NC complies with the

requirements for Group II Category 3G equipment defined in the ATEX Directive 94/9/EC. It is based on BASEEFA certification to BS6941 and allows the BA374NC transmitter to be installed in Zone 2 hazardous areas without Zener barriers or galvanic isolators. For Zone 2 installations this provides a significantly less expensive alternative to intrinsically safe or flameproof instrumentation.

Display backlighting is available as an option to improve readability when the BA374NC 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 Type n hazardous area load, or the outputs may be transferred to the safe area, again without the need for Zener barriers or galvanic isolators.

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 BA374NC 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 all Zones and safe areas are available, see BA374C, and BA574C datasheets respectively.

BA374NC

Indicating temperature transmitter

Type nL certified for use in Zone 2 without barriers or isolators

- ◆ Large display
- ◆ Loop powered
- ◆ Group II, Category 3G ATEX certified
- ◆ THC, RTD or voltage input
- ◆ Optional: Display backlight Alarms
- ◆ IP66 GRP or aluminium enclosure
- ◆ 3 year guarantee



BEKA

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SPECIFICATION

Supply			
Voltage	10 to 30V		
Output			
Current	(loop power 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

Type nL certification

ATEX	
EC Declaration of Conformity	
Standard	BS EN 50021:1999
Code	Group II, Category 3G
	EEx nL IIC T5
Location	Zone 2
Cert. No.	N0014

Certificate of Assurance	
Standard	BS6941:1988
Code	Ex N IIC T5
Cert. No.	BAS Ex96Y4522

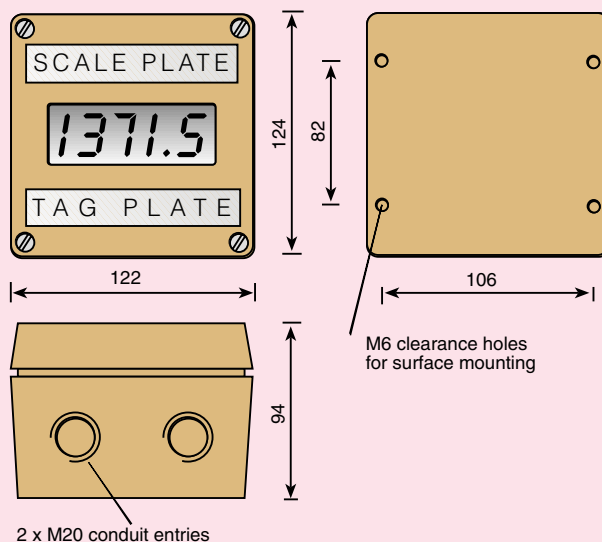
Environmental	
Operating temp	-20 to +60°C (Certified for use at -40°C)
Storage temp	-40 to +85°C
Humidity	To 95% at 40°C
Enclosure	IP66 see ERA test report 5046/228
EMC	In accordance with EU Directive 89/336/EEC, full report available.

Mechanical	
Terminals	Screw clamp for 0.5 to 2.5mm ² cables
Weight	GRP enclosure 1kg Aluminium enclosure 1.4kg

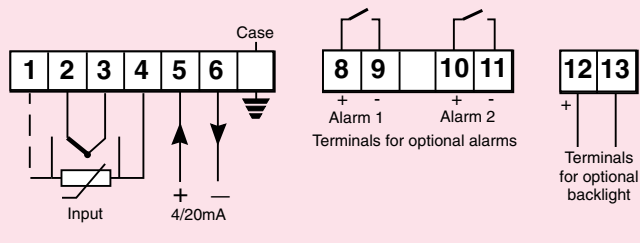
Accessories	
Separately powered backlight	LED backlight powered from 18 to 30V dc supply.

Alarms Two independent alarms each of which may be programmed as a high or low trip with a NC or NO output.

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Outputs	Isolated solid state switch
Ron	Less than 5Ω + 0.6V
Roff	Greater than 180k
Certification	
Vmax in	30Vdc
I max in	100mA

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 BA374NC into a panel aperture.*

*See accessory datasheet for details

HOW TO ORDER

Model number	BA374NC	Please specify
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
	°C or °F	
Display units	High or low] For THC & RTD inputs
Display resolution		
Display at which output is:	4mA	
	20mA	
	XXXX*	
	XXXX*	
Accessories		
Display backlight	Separately powered backlight	Please specify if required
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.