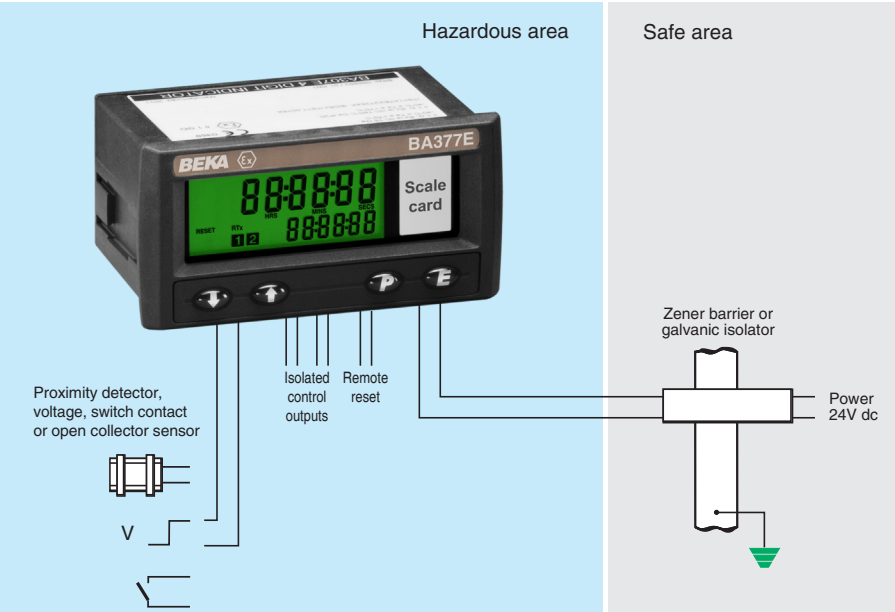

Shown with optional backlight

The BA377E is an intrinsically safe instrument with one input that may be configured as a Timer or as a Clock. As a Timer it is able to measure and display the elapsed time between external events, or control external events via two control outputs. When configured as a Clock the instrument can display time in a variety of formats. The BA377E is controlled by a single input which may be configured on-site to operate with a maintained input from a switch contact, proximity detector, open collector or a voltage output sensor. International intrinsic safety certification permits worldwide installation and a slide-in scale card simplifies identification.

Configuration may be performed on-site via the front panel push buttons using easy to use and well documented menus. The Timer employs a state and event structure to simplify configuration. The BA377E can be supplied configured to customer's requirements including a customer defined printed scalecard for no additional charge.

Applications as a Timer include simply displaying the time interval between two events detected by a hazardous area sensor such as a 2-wire proximity detector connected to the single input. The dual control outputs can perform control functions, for instance opening a hazardous area solenoid valve for a defined time. The Timer includes a powerful cycle function which can be configured to repeat a timing function up to 99 times or continuously, with up to 100 hours delay between timed periods.

As a Clock local time can be displayed in various twelve or twenty four hour formats and the display may be synchronised to a pre-set time via the external reset input. The control outputs may be configured to switch loads on or off at pre-set times twice during each twenty four hour period.

The display has high contrast and a wide viewing angle enabling the instrument to be read in most lighting conditions over a wide temperature range.

IP66 front panel protection with a neoprene gasket to seal the joint between the instrument and the instrument panel, allow the BA377E to be installed in areas that will be washed down.

International intrinsic safety certification permits the BA377E to be installed worldwide. When configured to operate with a sensor having a voltage output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation.

Display backlighting which is internally powered, is available as a factory fitted option. It provides green background illumination enhancing daylight viewing and allowing the display to be easily read at night or when installed in a poorly illuminated area.

Control outputs can switch hazardous area loads such as a sounder or solenoid valve, or safe area loads via a Zener barrier or isolator. The two galvanically isolated, solid state voltage free outputs may be independently conditioned with normally open or closed outputs. Annunciators on the BA377E display show the status of both control outputs.

Rugged versions and a two input instrument are available in other models within the range. The intrinsically safe BA377E-SS is identical to the BA377E except that it is housed in an impact resistant rugged stainless steel enclosure. If a larger display or momentary action inputs are required the BA378E is a two input intrinsically safe Timer or Clock housed in a 144 x 72mm Noryl DIN enclosure.

BA377E

One input timer or clock

Intrinsically safe for use in all gas hazardous areas

- **Configurable input: switch contact, proximity detector, open collector or voltage.**
- **Dual control outputs**
- **Separate displays**
- **Intrinsically safe**
- **96 x 48mm DIN enclosure with IP66 front protection.**
- **Optional: Backlight**
- **3 year guarantee**

www.beka.co.uk/ba377e

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Tel. (01462) 438301 e-mail sales@beka.co.uk
website: www.beka.co.uk

SPECIFICATION

Power supply

Voltage	10 to 28V from a Zener barrier or galvanic isolator.
Current	16mA max plus 22.5mA for optional backlight

Input (Maintained)

	Lower	**Upper** switching thresholds
Switch contact	100Ω	1kΩ
Proximity detector (NAMUR)	1.2mA	2.1mA
Open collector	2kΩ	10kΩ
Voltage (low)	1V	3V 28V max
Voltage (high)	3V	10V 28V max

Control outputs	Two outputs each of which may be independently configured as a NO or NC output.
Outputs	Isolated single pole, voltage free solid state switch.
Ron	5Ω + 0.7V max
Roff	IMΩ min

Display

Type	Liquid crystal
Primary	9mm high
Secondary	6mm high
Format	hh:mm:ss ; hh:mm ; mm:ss or s

Remote Timer reset & Clock sync.	Contact closure with resistance less than 10kΩ.

Timer

Maximum duration	99h 59m and 59s or equivalent in any display format.
Maximum delay between cycles.	99h 59m and 59s or equivalent in any display format.
Grand total runtime	5 x 10^6 hours maximum

Clock

Timekeeping accuracy	Less than ±0.43s error per day over operating temperature range.

Intrinsic safety

International IECEx

Code	Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
Cert. No.	IECEx ITS 16.0004X

Europe ATEX and UKEX

Code	Group II Category 1G Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C
Cert. No.s	ITS16ATEX28408X & ITS21UKEX0098X

ETL & cETL

Code	Class I Div 1 Gp A, B, C, D T5 (USA & Canada) Class II Div 1 Gp E, F, G. Class III Div 1 (USA & Canada) Class I Zone 0 AEx ia IIC T5 Ga (USA) Ex ia IIC T5 Ga (Canada) -40°C ≤ Ta ≤ 70°C
ETL Control No.	4008610

China CCC	As IECEx - see certificate
India CCOE/PESO	As ATEX - see certificate

Nonincendive USA & Canada ETL & cETL

Code	Class I Div 2 Gp A, B, C, D T5 Class II Div 2 Gp F, G. Class III Div 2 -40°C ≤ Ta ≤ 70°C
ETL Control No.	4008610

Environmental

Operating temp	-40 to +70°C display -20 to +70°C
Storage temp	-40 to +85°C
Humidity	to 95% at 40°C non condensing
Vibration	Report available
Enclosure	Noryl SE1GFN3. Front IP66, rear IP20
EMC	Complies with EU and UK Directives

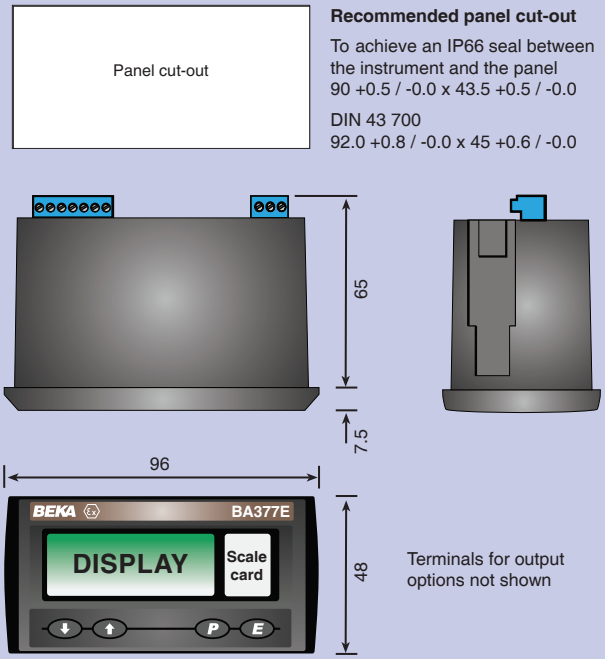
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm² cable, removable terminal blocks.
Weight	0.15kg

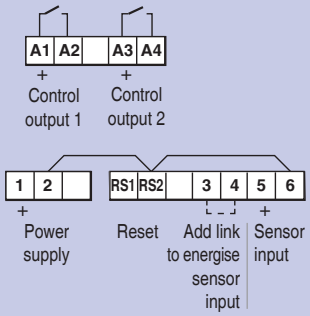
Accessories

Backlight	Green LED internally powered

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Scale card	Blank card fitted to all instruments. Can be supplied typeset with specified units of measurement for no additional charge at time of purchase. #
Tag legend	Specified tag number or application printed onto rear of instrument. #
BA495 rear cover and sealing kit	Provides impact and IP66 protection for rear of instrument. #

 # See accessory datasheet for details

HOW TO ORDER

	Please specify
Model number	BA377E
Function	Timer or Clock
Input	Type *

Accessories	**Please specify if required**
Display backlight	Backlight
Scale card	Legend required *No charge if ordered with instrument.*
Tag	Legend required
Rear cover and sealing kit	BA495

* *BA377E can be supplied configured as required for no additional charge, see instruction manual, which can be downloaded from www.beka.co.uk/ba377e for details. If configuration information is not supplied, instrument will be configured as a Timer with an open collector input. Can easily be reconfigured on-site.*