

## 1. DESCRIPTION

The BA377NE is an Ex nA & Ex tc, one input instrument in a rugged 316 stainless steel enclosure that can be configured as a Timer or as a Clock. As a Timer the BA377NE is able to measure and display the elapsed time between external events, or control external events via two optional factory fitted control outputs. When configured as a Clock the BA377NE displays local time and the optional control outputs can turn *on* and *off* twice in each twenty four hour period.

This abbreviated instruction sheet is intended to assist with installation, a comprehensive instruction manual describing safety certification, system design and configuration may be downloaded from the BEKA website or may be requested from the BEKA sales office.

The BA377NE has IECEx (IECEx ITS 16.0005X) and ATEX (ITS16ATEX48409X) Ex nA & Ex tc certification for installation in Zone 2 and Zone 22 without the need for Zener barriers or galvanic isolators. ETL and cETL approval permits installation in the USA and Canada. The certification information label, which is located on the top of the instrument enclosure, shows the certification number and codes. Other certifications may be shown. Copies of certificates may be downloaded from the BEKA website.



Typical certification information label

### Special conditions for Ex nA safe use

The ATEX and IECEx certificate numbers have an 'X' suffix indicating that special conditions apply for safe use. These state that the BA377NE Timer or Clock should be:

- Mounted such that the instrument terminals are protected by at least an IP54 enclosure certified to IEC 60079-0 or IEC 60079-15 as appropriate.
- Be supplied from limited energy circuits with output parameters in normal operation equal to, or less than the instrument's input parameters.

These special conditions for safe use can be satisfied by mounting the BA377NE in an Ex n, Ex e or Ex p panel enclosure. For ATEX Category 3 installations in Zone 2, self or third party certified Ex n, Ex e or Ex p panel enclosures may be used. Additional requirements apply for non-metallic panel enclosures.

### Ex tc applications in dust atmospheres

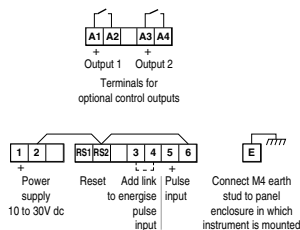
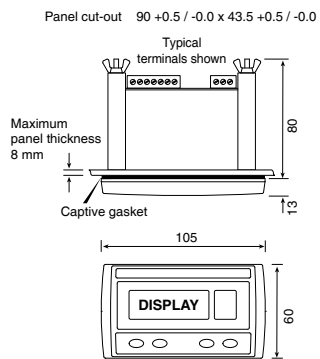
See full instruction manual for installation information requirements and special conditions for safe use in combustible dust atmospheres.

## 2. INSTALLATION

Although the BA377NE has IP66 front of panel protection it should be shielded from continuous direct sunlight and severe weather conditions. The rear of the instrument has IP20 protection.

### Cut-out dimensions

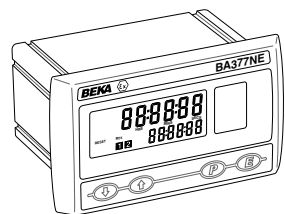
Mandatory for Ex nA and Ex tc installations and to achieve an IP66 seal between the instrument and the panel.



Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals

**Abbreviated instructions for  
BA377NE Rugged one input  
Ex nA & Ex tc Timer or Clock**



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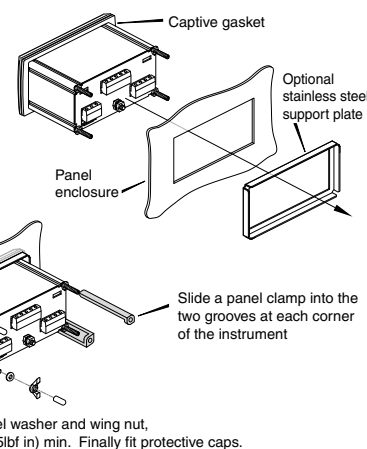


Fig 2 Installation procedure

### EMC

For specified immunity all wiring should be in screened twisted pairs with screens earthed at one point within the safe area.

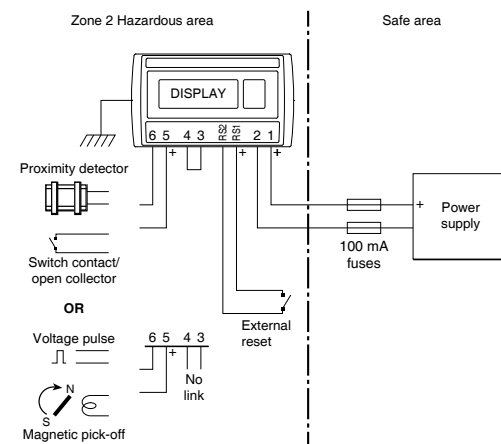


Fig 3 Typical Zone 2 application

### Scale card

The Timer or Clocks units of measurement are shown on a printed scale card visible through a window at the right hand side of the display. The scale card is mounted on a flexible strip that is inserted into a slot at the rear of the instrument as shown below

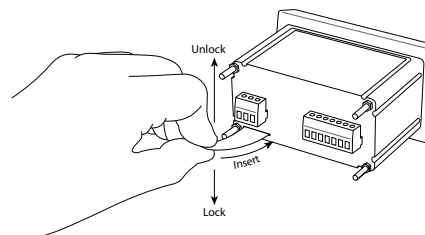


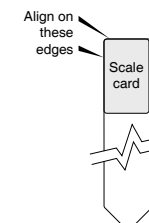
Fig 4 Inserting flexible strip carrying scale card into slot at the rear of Timer or Clock.

Thus the scale card can easily be changed without removing the Timer or Clock from the panel or opening the instrument enclosure.

New Timer or Clocks are supplied with a printed scale card showing the requested units of measurement, if this information is not supplied when the Timer or Clock is ordered a blank card will be fitted.

A pack of self-adhesive scale cards printed with common units of measurement is available as an accessory from BEKA associates. Custom printed scale cards can also be supplied.

To change a scale card, unclip the protruding end of the flexible strip by gently pushing it upwards and pulling it out of the enclosure. Peel the existing scale card from the flexible strip and replace it with a new printed card, which should be aligned as shown below. Do not fit a new scale card on top of an existing card.



Align the self-adhesive printed scale card onto the flexible strip and insert the strip into the Timer or Clock as shown.

Fig 5 Fitting scale card to flexible strip

## 3. OPERATION

The Timer or Clock is controlled by four front panel push buttons. When in the operating mode they have the following functions:

- [P] + [E] Access to configuration menu.
- [V] When local control is enabled starts the Timer
- [A] When local control is enabled stops the Timer.
- [E] + [A] Shows the grand total (run time) in hours and tenths of an hour irrespective of Timer configuration. If buttons are held for longer than ten seconds the grand total may be reset to zero if the grand total reset sub-function [Lr] [Gt] [E] is enabled in the [Lc] [r] [5E] configuration function.

To reset the grand total to zero from the display mode press the [E] + [A] buttons for ten seconds until [Lr] [Gt] is displayed, using the [V] or [A] button change the display to [Lr] [Y] [E] and press [E].

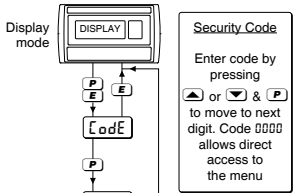
- [V] + [A] Resets the Timer to zero or to the set time 5Et depending on whether the Timer is configured to *time-up* or *time-down* when the two buttons are operated simultaneously for more than three seconds. This is a configurable function.

- [P] + [A] When enabled in the configuration menu, operating these two buttons simultaneously provides direct access to the set time 5Et and allows adjustment when the timer is in the display mode.

- [P] + [V] Shows in succession, firmware version number, instrument function ELRP5E and any output accessories that are fitted:  
- R Dual Control Outputs

See full instruction manual for description of use when configured as a Clock

The BA377NE is CE marked to show compliance with the ATEX Directive 2014/34/EU and the EMC Directive 2014/30/EU.



#### 4. CONFIGURATION

Timer or Clocks are supplied configured as requested at time of ordering, if not specified default Timer configuration will be supplied but can easily be changed on-site.

Fig 6 shows the location of each function within the menu when configured as a Timer with a brief summary of the function. Please refer to the full instruction manual for detailed configuration information, description of the optional outputs and the menu when configured as a Clock.

Access to the configuration menu is obtained by pressing the ▲ and ▼ buttons simultaneously. If the Timer or Clock's security code is set to default 0000 the first parameter FunctioN will be displayed. If the instrument is protected by a security code, Code 0000 will be displayed. The four digit code must be entered to gain access to the menu.

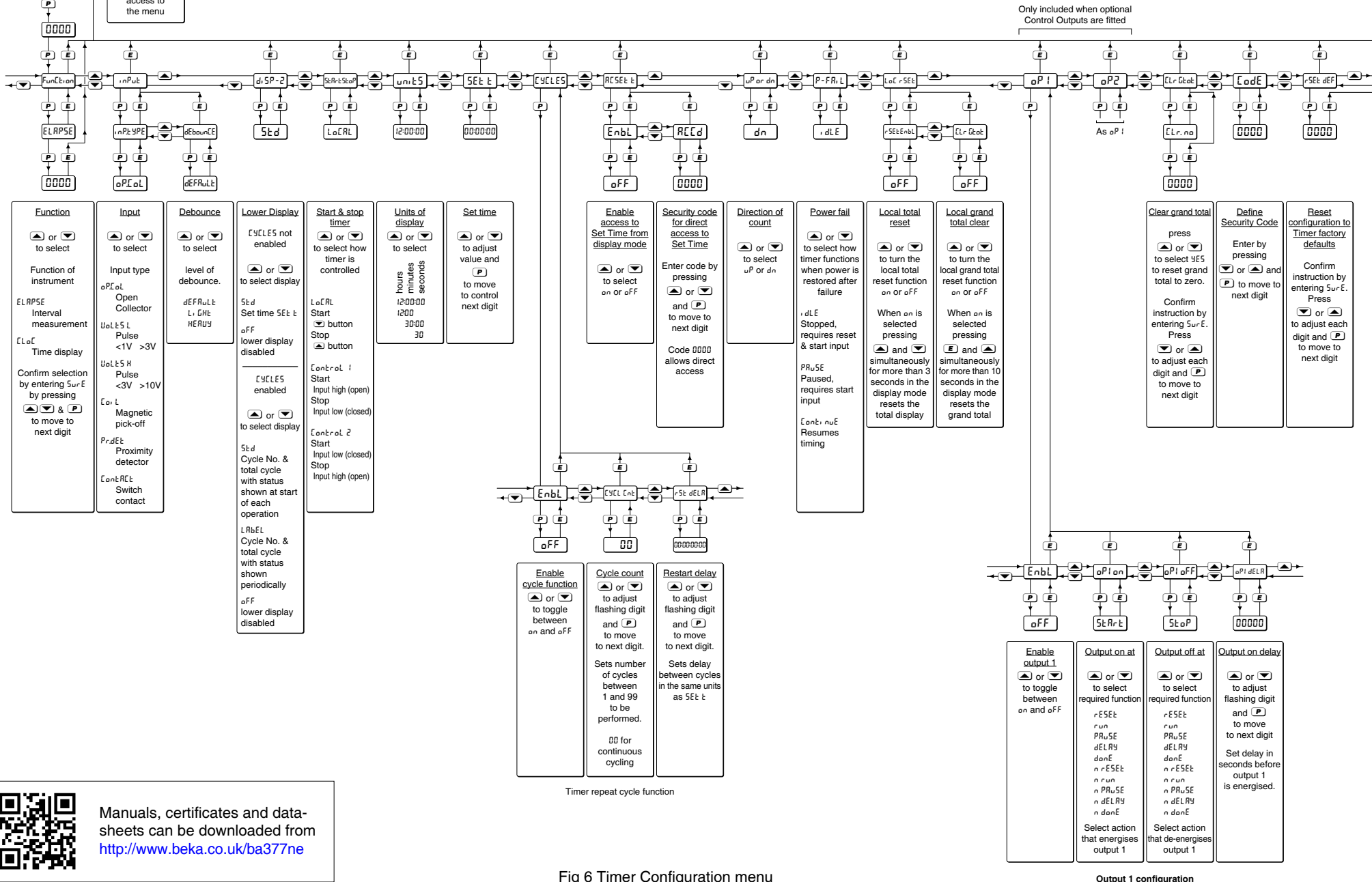


Fig 6 Timer Configuration menu



Manuals, certificates and data-sheets can be downloaded from <http://www.beka.co.uk/ba377ne>