1. DESCRIPTION

The BA377E is an intrinsically safe, panel mounting instrument with a single input that can be configured as a Timer or as a Clock. As a Timer the BA377E 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 BA377E 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 BA377E has IECEx, ATEX and UKEX intrinsic safety certification for use in flammable gas atmospheres. 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 down loaded from the BEKA website.



Typical certification information label

Special conditions for safe use

The IECEx, ATEX and UKEX certificates have an 'X' suffix indicating that special conditions apply for safe use.

WARNING

To avoid an electrostatic charge being generated instrument enclosure should only be cleaned with a damp cloth.

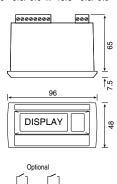
2. INSTALLATION

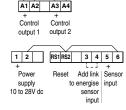
The BA377E has IP66 front of panel protection but it should be shielded from direct sunlight and severe weather conditions. The rear of the instrument has IP20 protection.

Cut-out dimensions

Recommended for all installations. Mandatory to achieve IP66 seal between instrument and panel.

90 +0.5/-0.0 x 43.5 +0.5/-0.0





Support panel wiring to prevent vibration damage

Fig 1 Cut-out dimensions and terminals

Abbreviated instructions for

BA377E One input Intrinsically safe Timer or Clock



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1. Align foot and body of panel mounting clamp by turning screw anticlockwise



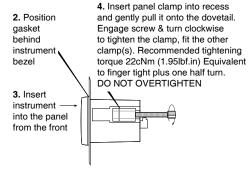


Fig 2 Installation procedure

EMC

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

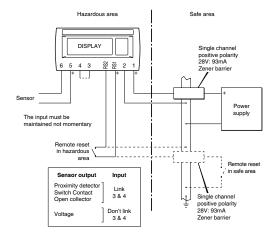


Fig 3 Use with Zener barriers

Scale card

The Timer or Clock's 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

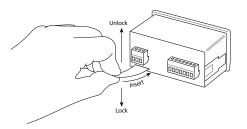


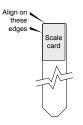
Fig 4 Inserting flexible strip carrying scale card into slot at the rear of Timer or Clock.

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 configured as a Timer they have the following functions in the operating mode:

- P + E Access to configuration menu.
- When local control is enabled starts the Timer
- When local control is enabled stops the Timer.
- E + 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 Gab is enabled in the LoC rSEL configuration function.

To reset the grand total to zero from the display mode press the E + A buttons for ten seconds until $\complement Lr. no$ is displayed, using the T or A button change the display to $\complement Lr. \$E5$ and press E.

- Resets the Timer to zero or to the set time 5EL be 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.
- When enabled in the configuration menu, operating these two buttons simultaneously provides direct access to the set time 5EŁ Ł and allows adjustment when the timer is in the display mode.
- P + ▼ 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



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. Security Code Display DISPLAY Fig 6 shows the location of each function within the Timer configuration menu with a brief summary of the function. Please refer to the full instruction manual for detailed configuration information, description of Enter code by optional outputs and Clock configuration menu. pressing ▲ or ▼ & ₽ Access to the configuration menu is obtained by pressing the P and E buttons simultaneously. If the Timer or Clock's security code is set to default 0000 the first parameter FuncEx on will be displayed. If the to move to next [odE digit. Code IIIIII instrument is protected by a security code. Lode will be displayed. The four digit code must be entered to gain access to the menu. allows direct access to Only included when optional the menu Control Outputs are fitted 0000 Ē Ē. Ē. đ. SERVESTOP SEŁ Ł CACFEZ P-FR.L LoE rSEE oP t 965 CodE CSEL dEE inPut 14.50-21 CLr Ghot FunEtion uP or do 中中 ¢ ELr. no 0000 0000 ELAPSE INPLE SPE dFbount F 259 LoEAL 15:00:00 00:00:00 L BEER , dLE rSEEEnbL As of EnbL ďη CLr Gtot 0000 0000 oP.CoL dEFRult oFF oFF oFF 0000 Function Debounce Lower Display Start & stop Security code Direction of Clear grand total Define Reset Input Units of Set time Enable Power fail Local total Local grand display access to for direct reset total clear Security Code configuration to EYELES not Timer factory ▲ or ▼ ▲ or ▼ Set Time fron or ▲ or ▼ ▲ or ▼ 📤 or 💌 access to or press display mode Enter by or ▼ to select how or or or to select to select to select to select how to select to adjust pressing timer is value and to select timer functions to turn the to turn the to select YES Enter code by Confirm or ▼ ▲ or ▼ or 📤 and Function of level of controlled local total ocal grand total to reset grand Input type when power is instruction by pressing o select display to select restored after reset function total to zero. instrument debounce reset function P to move to to move PEoL ntering 5uc ▲ or ▼ on or oFF failure on or oFF on Or off next digit control to Press 12:00:00 ELRPSE **dEFRult** oERL Confirm SEd and 🕑 next digit Collector L. GHE Set time 5EŁ Ł or 🛋 Interval Start When on is When on is instruction by to move to HERUY ■ button 30:00 to adjust each oLES L Stopped, selected selected entering Sur E. oFF next digit Stop requires reset pressing pressing Press digit and P Voltage ower display <1V >3V & start input Code 0000 and 💌 ■ and ■ or 🛋 to move to Time display disabled allows direct simultaneously to adjust each next digit LES H imultaneoush PRUSE or more than 1 digit and P Confirm selection access or more than Voltage Paused, seconds in the seconds in the by entering 5ur E <3V >10V to move to enabled Input high (open requires start display mode display mode by pressing next digit input or 0 < >40m▲ or ▼ total display grand total and P to move ContinuE to select display Control 2 Resumes to next digit Start timing 568 Input low (close Cycle No. & ontREt Ē Ē total cycle Switch with status contact shown at star ___EnbL T EAET EVE rSt dELR of each operation LAPET Cycle No. & Ē, oFF 00 00:00:00:00 total cycle with status **▼** EnbL oP! on oP! oFF oPI dELR shown Cycle count Restart delay periodically cycle function 📤 and 💌 and 7 and 💌 to adjust to adjust flashing digit lower display to toggle flashing digit oFF SEREE Stop 00000 disabled and P and P on and oFF to move to move to next digit to next digit Enable Output on at Output off at Output on dela output 1 The BA377E is CE marked to show compliance with the European Explosive Sets delay ▲ and ▼ and 🔻 A and ▼ A and ▼ Atmospheres Directive 2014/34/EU and the European EMC Directive 2014/30/EU. of cycles between the same units to toggle to select to select to adjust equired function equired function flashing digit It is also UKCA marked to show compliance with UK statutory requirements Equipment and 1 and 99 as SEt t hetween on and of to be and P CESEL CESEL Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations performed to move UKSI 2016:1107 (as amended) and with the Electromagnetic Compatibility Regulations PRUSE PRUSE to next digit UKSI 2016:1091 (as amended). OO for dEL BY dEL BY Set delay in continuous donE econds before cvclina nrESEŁ n rESEŁ output 1 n run s energised n PRuSE n PRuSE Timer repeat cycle function n dELRY n dELRY Manuals, certificates and datan donE n donE sheets can be downloaded from Select action Select action that energises hat de-energise http://www.beka.co.uk/ba377e output 1 output 1