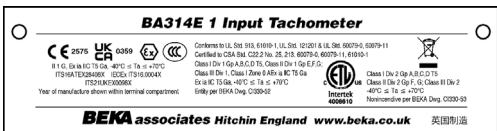


1. DESCRIPTION

The BA314E is a field mounting intrinsically safe Tachometer with a separate terminal compartment which will function with a wide variety of sensors. The instrument displays speed plus the run-time of the machinery being monitored.

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 BA314E Tachometer has IECEx, ATEX and UKEX intrinsic safety certification for use in flammable gas atmospheres, plus ETL and cETL gas and dust certification. The certification information label, which is located on the top of the instrument assembly, shows the certification numbers and codes. Other certifications may be shown. Copies of certificates may be downloaded from the BEKA website.

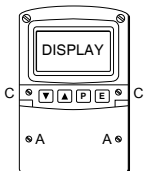


Typical certification information label

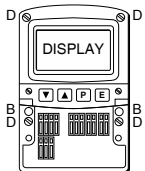
2. INSTALLATION

The BA314E Tachometer has a robust IP66 GRP enclosure with a separate terminal compartment incorporating an armoured glass window & stainless steel fittings. It is suitable for exterior surface mounting in most industrial environments, or pipe mounting using an accessory kit.

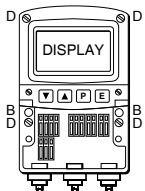
If the enclosure is not bolted to an earthed post or structure, the earth terminal should be connected to local earthed metalwork or to the plant's potential equalising conductor.



Step A
Remove the terminal cover by unscrewing the two 'A' screws



Step B
Secure the instrument to a flat surface with M6 screws through the two 'B' holes.
Alternatively use a pipe mounting kit.



Step C and D
Remove the temporary hole plug and install an appropriate IP rated cable gland or conduit fitting and terminate field wiring.
Finally replace the terminal cover and tighten the two 'A' screws.

Fig 1 BA314E installation procedure

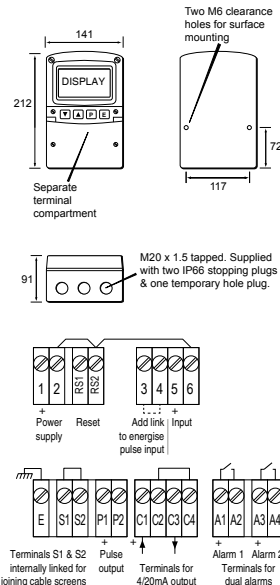


Fig 2 Dimensions and terminal connections

Units of measurement and tag number

The BA314E is fitted with a blank escutcheon around the liquid crystal display. This can be supplied printed with any units of measurement and tag information specified at the time of ordering. Alternatively, the information may be added on-site via an embossed strip, dry transfer or a permanent marker.

To gain access to the escutcheon remove the terminal cover by unscrewing the two 'A' screws which will reveal two concealed 'D' screws. Remove the push buttons by unscrewing the two 'C' screws and un-plug the five way connector. Finally, unscrew all four 'D' screws and carefully lift off the front of the instrument. The location of all the screws is shown in Fig 1.

Add the required legend to the display escutcheon, or stick a new pre-printed self-adhesive escutcheon, which is available from BEKA associates, on top of the existing escutcheon. Do not remove the original escutcheon.

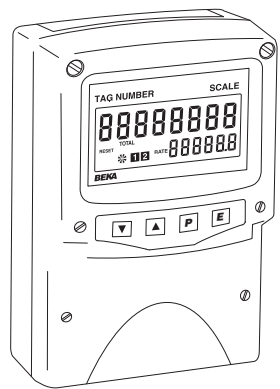
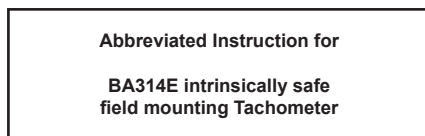
3. OPERATION

The BA314E is controlled and configured via four front panel push buttons. In the display mode i.e. when the instrument is displaying speed the push button functions are:

- ☑ + ☒ Resets run-time display to zero. This is a configurable function.
- ☒ + ☒ Run-time grand total. If buttons are pressed for ten seconds or longer grand total run-time is reset to zero. This is a configurable function.
- ☒ + ☑ Shows in succession, firmware version number, instrument function & RFL₀ and output accessories which are always fitted.
 - R Control outputs
 - P Pulse output
 - L 4/20mA output
- ☒ + ☒ Provides direct access to the alarm setpoints when the Tachometer is fitted with optional alarms and the RFL 5P setpoints function has been enabled.
- ☒ + ☒ Access to configuration menu

EMC

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



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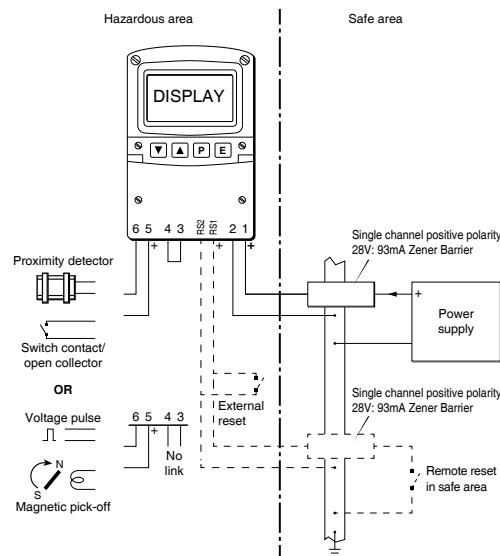
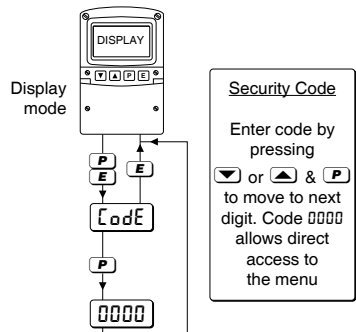


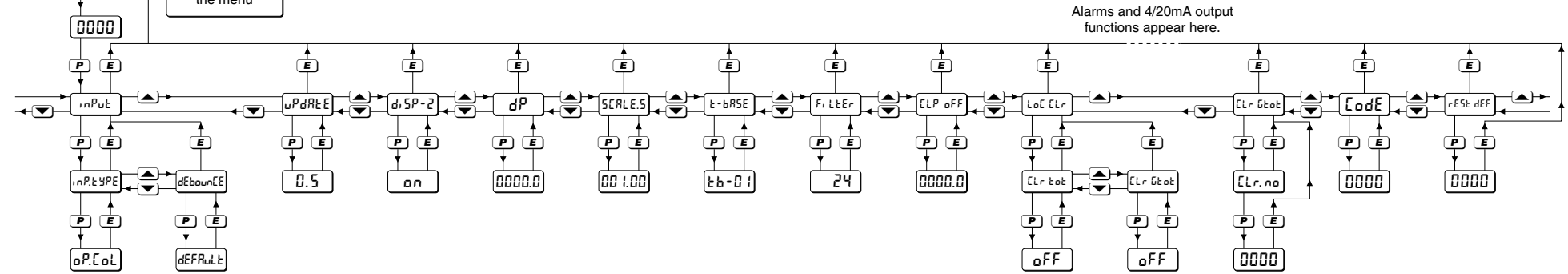
Fig 3 Typical speed measurement loop



4. CONFIGURATION

Tachometers are supplied configured as requested at time of ordering, if not specified default configuration will be supplied but can easily be changed on-site. Fig 4 shows the location of each function within the configuration menu with a brief summary of the function. Please refer to the full instruction manual for detailed configuration information. Access to the configuration menu is obtained by pressing the **P** and **E** buttons simultaneously. If the Tachometers security code is set to default 0000 the first parameter, **Input** will be displayed. If the instrument is protected by a security code, **CodE** will be displayed. The four digit code must be entered to gain access to the menu.

Unless otherwise specified menu functions are shown on the upper display



Alarms and 4/20mA output functions appear here.

<p>Input</p> <p>[down] or [up] to select input type</p> <p>oP.CoL Open Collector</p> <p>HoL.L5L Pulse <1V >3V</p> <p>HoL.L5H Pulse <3V >10V</p> <p>Co.L Magnetic pick-off</p> <p>Pr.dEt Proximity detector</p> <p>CoNtRLEt Switch contact</p>	<p>Debounce</p> <p>[down] or [up] to select level of debounce.</p> <p>dEFRuLt HERU L, GHt</p>	<p>Update</p> <p>[down] or [up] to select interval between display updates, may be set to 0.5, 1, 2, 3, 4 or 5 seconds</p>	<p>Run-time Display</p> <p>[down] or [up] to turn run-time display on or off</p>	<p>Decimal point</p> <p>[down] or [up] to select position of decimal point in the speed display</p>	<p>Speed scale factor</p> <p>[down] or [up] to select value of each digit and P to transfer control to next digit or decimal point</p>	<p>Timebase</p> <p>[down] or [up] to select speed display timebase</p> <p>t-b-01 for speed/sec</p> <p>t-b-60 for speed/min</p> <p>t-b-3600 for speed/hour</p>	<p>Filter</p> <p>[down] or [up] to adjust value of each digit and P to transfer control to other digit</p> <p>First digit: filter magnitude</p> <p>second digit: step response</p> <p>Note: While making adjustments the filtered rate display is shown on lower display so stability can be assured</p>	<p>Clip off</p> <p>Tachometer display below which run-time timer is inhibited</p> <p>[down] or [up] to adjust value and P to move to next digit</p>	<p>Local run-time reset</p> <p>[down] or [up] to turn the local run-time reset function on or off. When on, run-time display is reset to zero when [down] and [up] are operated simultaneously in display mode for more than 3 seconds</p>	<p>Local run-time grand total reset</p> <p>[down] or [up] to turn the local grand total run-time reset function on or off. When on, grand total run-time may be reset to zero when [down] and [up] are operated simultaneously in display mode for more than 10 seconds</p>	<p>Reset run-time grand total</p> <p>Press [down] or [up] to select 4E5 to reset grand total to zero</p> <p>Confirm instruction by entering 5urE. Press [down] or [up] to adjust each digit and P to move to next digit</p>	<p>Define Security Code</p> <p>Enter by pressing [down] or [up] and P to move to next digit</p>	<p>Reset configuration to factory defaults</p> <p>Confirm instruction by entering 5urE. Press [down] or [up] to adjust each digit and P to move to next digit</p>
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Fig 4 Configuration menu



Manuals and datasheets can be downloaded from <http://www.beka.co.uk/ba314e>

The BA314E is CE marked to show compliance with the *European Explosive Atmospheres Directive 2014/34/EU* and the *European EMC Directive 2014/30/EU*. It is also UKCA marked to show compliance with UK statutory requirements Equipment and Protective Systems Intended for Use in *Potentially Explosive Atmospheres Regulations UKSI 2016:1107 (as amended)* and with the *Electromagnetic Compatibility Regulations UKSI 2016:1091 (as amended)*.