

Counters

Counter and position indicator



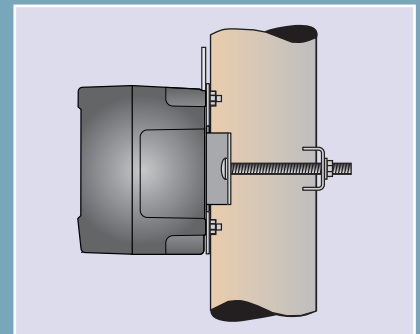
An extensive range of one and two input pulse counters which can display total and rate on separate displays in the same or different engineering units. The two input models can display the sum or differences of the inputs and can also decode a quadrature detector and display position.

- > **Large high contrast displays with wide viewing angle**
- > **General purpose and certified hazardous area models**
 - International Ex ia intrinsic safety
 - Ex nA non sparking
 - Dust certification
- > **Field mounting models have IP66 GRP enclosure**
 - Compact 'G' models
 - 'E' models with separate terminal compartment
 - Pipe and panel mounting accessories
- > **Panel mounting models**
 - Choice of sizes all with IP66 front panels.
 - Rugged stainless steel Ex ia model may be installed in certified Ex e, Ex p or Ex t panel enclosure without invalidating the enclosure's certification.
 - Rear IP66 sealing kit
- > **Isolated pulse output**
 - Synchronous with input for retransmission
- > **-40 to +70°C operating temperature range**
- > **Accessories**
 - Dual isolated alarms
 - Isolated 4/20mA output
 - Backlight
 - Scale cards - can be supplied printed with units of measurement and tag information for no additional charge.
 - Laser engraved stainless steel legend plates

Intrinsically safe

Ex nA

General purpose



BA393G Pipe mounting kit



Slide-in scale card can be supplied printed with customer specified information for no extra charge.



Easy scale card installation without the need to remove indicator from the panel.



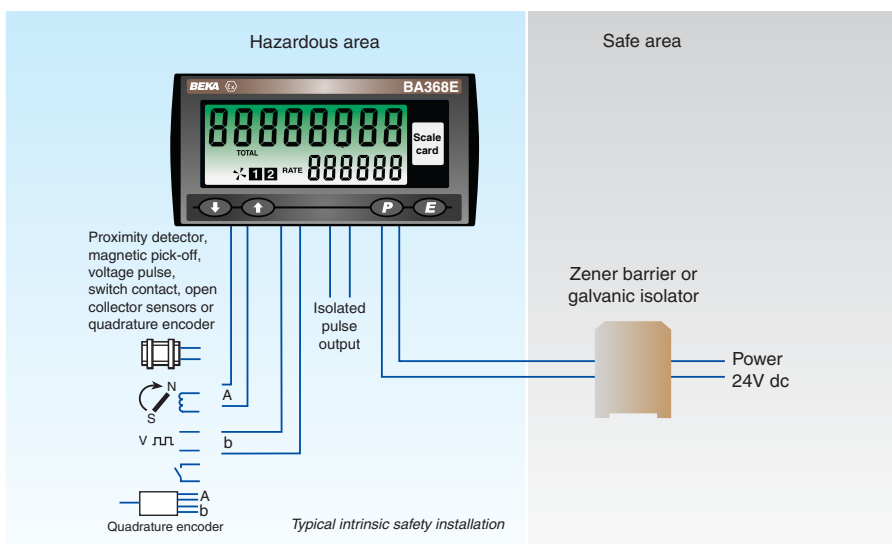
Counters available

| Model No. | Mounting | Input | Display digits | | Certification | | | | | |
|--|--------------------------------------|-----------|-----------------------|----------------------|----------------|------|------------------------|------|-----------------|------|
| | | | TOTAL No. x height | RATE No. x height | Europe ATEX | | International IECEX | | USA & Canada | |
| | | | | | Gas | Dust | Gas | Dust | Gas | Dust |
| Ex ia intrinsically safe - for use in Zones 0, 1 & 2 and 20, 21 & 22 where certified | | | | | | | | | | |
| BA364G | Field compact | 2 x Pulse | 8 x 18mm | 6 x 12mm | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BA364E | Field - separate tml. compartment | 2 x Pulse | 8 x 18mm | 6 x 12mm | ✓ | — | ✓ | — | ✓ | ✓ |
| BA367E | Panel 96 x 48 | Pulse | 8 x 9mm | 6 x 6mm | ✓ | — | ✓ | — | ✓ | ✓ |
| BA367E-SS* | Panel Rugged 105 x 60 | Pulse | 8 x 9mm | 6 x 6mm | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BA368E | Panel 144 x 72 | 2 x Pulse | 8 x 18mm | 6 x 12mm | ✓ | — | ✓ | — | ✓ | ✓ |

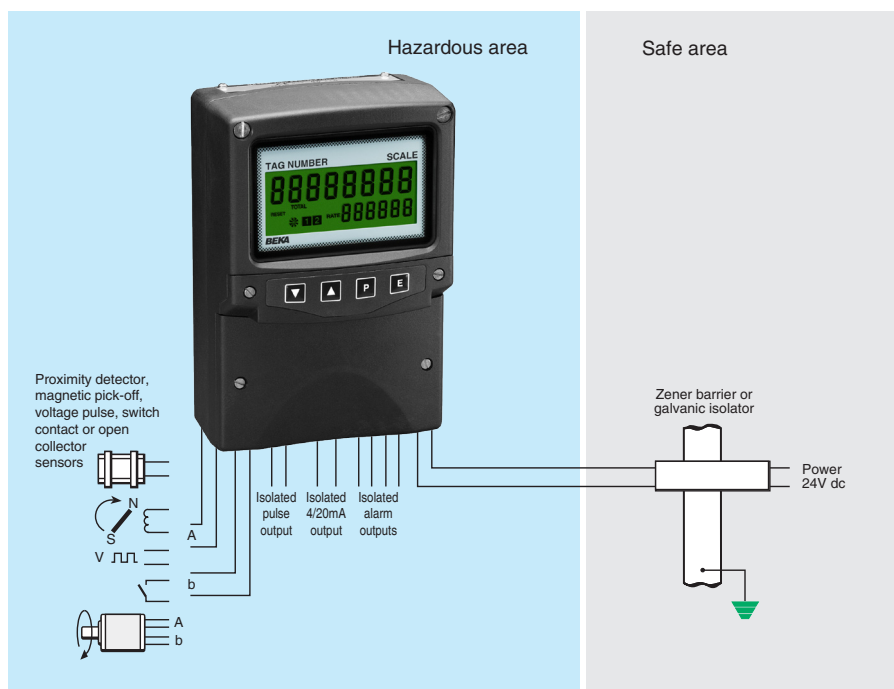
* Certification allows installation in an Ex e, Ex p or Ex t panel enclosure without invalidating enclosure certification

| | | | | | | | | | | |
|---|--------------------------|-----------|----------|----------|---|---|---|---|---|---|
| Ex nA & Ex tc - for use in Zones 2 and 22 without Zener barriers or galvanic isolators | | | | | | | | | | |
| BA364NG | Field compact | 2 x Pulse | 8 x 18mm | 6 x 12mm | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BA367NE | Panel Rugged 105 x 60 | Pulse | 8 x 9mm | 6 x 6mm | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| | | | | | | | | | | |
|--|--------------------------|-----------|----------|----------|--|--|--|--|--|--|
| General Purpose - for use in safe areas | | | | | | | | | | |
| BA564G | Field compact | 2 x Pulse | 8 x 18mm | 6 x 12mm | | | | | | |
| BA567E | Panel 96 x 48 | Pulse | 8 x 9mm | 6 x 6mm | | | | | | |
| BA567E-SS | Panel Rugged 105 x 60 | Pulse | 8 x 9mm | 6 x 6mm | | | | | | |
| BA568E | Panel 144 x 72 | 2 x Pulse | 8 x 18mm | 6 x 12mm | | | | | | |



A Counter for every application - delivered ready for installation



The **BA364E** is a two input, field mounting, intrinsically safe counter which can display the sum or difference of the two pulse inputs, or the count direction of Input A may be controlled by input b. The output from a quadrature encoder can also be decoded to show speed and direction of movement. The counter is easy to use and each input can be independently configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a sensor with a voltage pulse output. International intrinsic safety certification permits worldwide installation.

Any display application requiring the sum or difference of pulse outputs from two sensors can be performed by the BA364E, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume and rate of pumping in engineering units. The counter's quadrature decoder also enables the position of a shaft or a cable to be displayed together with its speed and direction of movement.

International intrinsic safety certification allows the BA364E counter to be installed in gas hazardous areas worldwide. When configured to operate with a sensor having a voltage or magnetic pick-off output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation.

The large display has high contrast and a wide viewing angle. Green backlighting enhances daylight viewing enabling the counter to be read at night or when installed in a poorly illuminated area. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

IP66 protection is provided by the robust GRP enclosure which has stainless steel fittings, silicone gaskets and a 4mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek. A separate terminal compartment allows connection of field wiring without exposing the instrument's electronics.

Isolated pulse and 4/20mA outputs which comply with the requirements for *simple apparatus* are included. The pulse output can synchronously retransmit either of the pulse inputs, or a scaled pulse when the least significant digit of the total display is incremented. The 4/20mA output may be configured to produce an output proportional to any part of the rate or total display.

An optional isolated 4/20mA current sink output, which has been certified as a separate intrinsically safe circuit complying with the requirements for *simple apparatus*, may be configured to produce an output proportional to any part of the rate or total display.

Dual alarms with galvanically isolated solid state outputs can switch hazardous area loads such as a sounder or solenoid valve, or safe area loads via a Zener barrier or isolator. Both may be independently configured as a rate or a total alarm monitoring either input, or the sum or difference of the two inputs. Annunciators on the BA364E display show the status of both alarm outputs.

The escutcheon which shows the counters units of measurement and tag information can be changed on-site. New instruments are fitted with a printed escutcheon showing customer specified marking. If this information is not supplied a blank escutcheon is fitted which can easily be marked on-site. An optional laser engraved stainless steel legend plate secured to the front of the instrument is also available.

The compact BA364G has the same functions as the BA364E without a separate terminal compartment.

BA364E

two input counter

Intrinsically safe for use in all gas hazardous areas

- ◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector, voltage pulse or quadrature decoder.
- ◆ **Separate displays with backlight**
- ◆ **Intrinsically safe**
- ◆ **IP66 GRP enclosure with separate terminal compartment**
- ◆ **Isolated dual alarms, pulse and 4/20mA outputs.**
- ◆ **3 year guarantee**

www.beka.co.uk/ba364e



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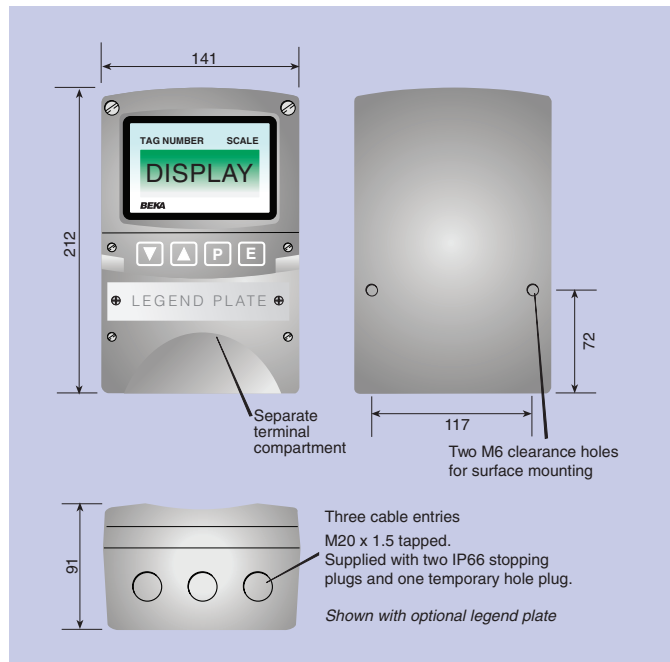
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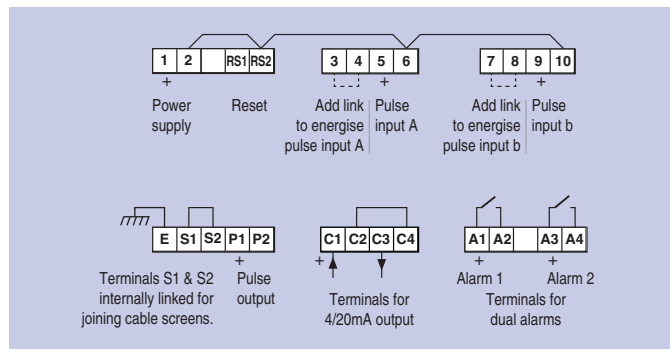
SPECIFICATION

| | |
|---|--|
| Power supply | |
| Voltage | 10 to 28V from a Zener barrier or galvanic isolator |
| Current | 32mA |
| Input | |
| Switch contact | Lower 100Ω Upper 1kΩ switching thresholds |
| Proximity detector (NAMUR) | 1.2mA 2.1mA |
| Open collector | 2kΩ 10kΩ |
| Magnetic pick-off | 0 +40mV |
| Voltage pulse (low) | 1V 3V 28V max |
| Voltage pulse (high) | 3V 10V 28V max |
| Frequency | |
| Switch contact | 150Hz typical |
| Other inputs | 100kHz max |
| All inputs | 0.01Hz min |
| Display | |
| Type | Liquid crystal |
| Backlight | Green LED internally powered |
| Zero blanking | Blanked apart from 0 in front of decimal point |
| Total # | 8 digits 18mm high |
| Decimal point | 1 of 5 positions or absent |
| Rate # | 6 digits 12mm high |
| Decimal point | 1 of 4 positions or absent |
| <i># Rate & Total can be shown on either 6 or 8 digit display</i> | |
| Grand total | Maximum count 10 ¹⁶ |
| Remote reset | |
| | Contact closure with resistance less than 10kΩ |
| Configurable functions | |
| Input function | Each input individually configurable Input A + b: Input A – b: Input A direction controlled by input b or quadrature encoder input (Inputs 90° out of phase). |
| Total scale factor | Adjustable between 0.0001 and 99999 |
| Rate scale factor | Adjustable between 0.0001 and 99999 |
| Rate timebase | Rate may be displayed per second, minute or hour |
| Rate display filter | Adjustable digital filter |
| Pulse output | |
| | Isolated open collector, certified as a separate intrinsically safe circuit complying with the requirements for <i>simple apparatus</i> . |
| Source and output | Either input can be synchronously retransmitted, 5kHz max. or Least significant digit of total display pulse output divisible by 1, 10, 100, 1000 or 10000 Pulse width definable as 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. 51Ω + 3V max 1MΩ min 10mA |
| 4/20mA output | |
| Voltage drop | Isolated current sink. Configurable to represent any part of the rate or total display. 5 to 28V |
| Dual alarms | |
| | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. |
| Outputs | Isolated single pole, voltage free solid state switch |
| Ron | 5Ω + 0.7V max |
| Roff | 1MΩ min |
| Intrinsic safety | |
| Europe ATEX | |
| Code | Group II Category 1G Ex ia IIC T5 Ga |
| | -40 ≤ Ta ≤ 70°C |
| Cert. No. | ITS16ATEX28408X |
| International IECEx | |
| Code | Ex ia IIC T5 Ga |
| | -40 ≤ Ta ≤ 70°C |
| Cert. No. | IECEx ITS 16.0004X |
| ETL & cETL | |
| Code | Class I Div 1 Gp A, B, C, D T5 Class II Div 1 Gp E, F, G Class III Class I Zone 0 AEx ia IIC T5 Ga Zone 20 AEx ia IIC T80°C Da Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C |
| | USA & Canada USA Canada |
| 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 Ex ia IIC T5 Ga -40 ≤ 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 | GRP |
| Material | IP66 |
| Ingress | Complies with 2014/30/EU |
| EMC | |

DIMENSIONS (mm)



TERMINAL CONNECTIONS

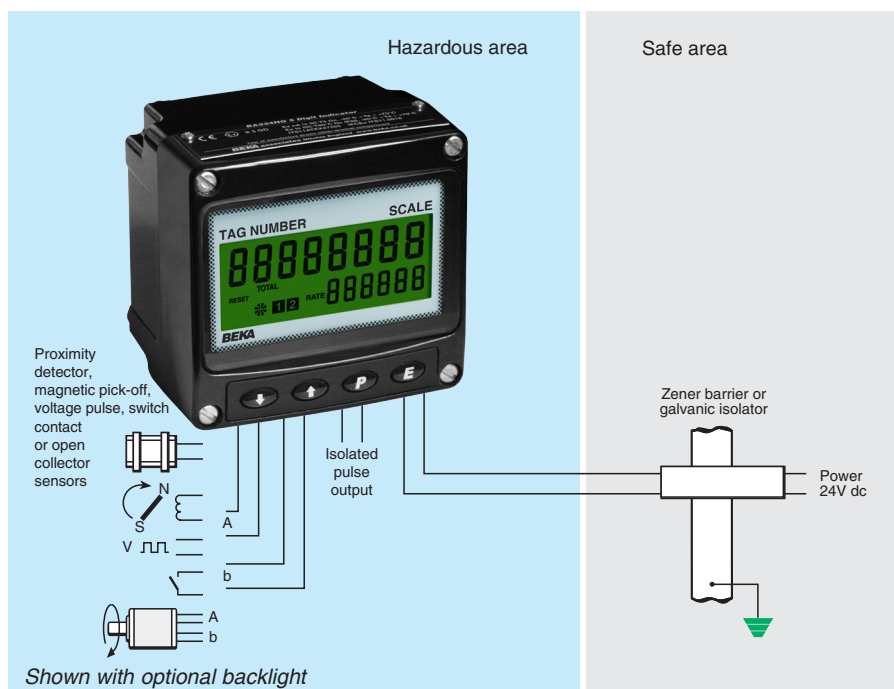


| | |
|---------------------------------------|--|
| Mechanical | |
| Terminals | Screw clamp for 0.5 to 1.5mm ² |
| Weight | 1.7kg |
| Accessories | |
| Escutcheon | Blank card fitted to all instruments. Can be supplied printed with specified units of measurement and tag information for no additional charge at time of purchase. # |
| Legend plate | 316 stainless steel plate secured to the front of the instrument, laser engraved with tag number or application information. # |
| Pipe mounting kit | BA392D or BA393 # |
| # See accessory datasheet for details | |

HOW TO ORDER

| | |
|------------------------|---|
| Model number | Please specify for each input BA364E |
| Input function | Input A + b: Input A – b: Input A direction controlled by input b or quadrature encoder input * |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | |
| Escutcheon marking | Please specify if required |
| Units | Legend required |
| Tag | Legend required |
| | No charge if ordered with counter |
| Stainless legend plate | Legend required |
| Pipe mounting kit | BA392D or BA393 |

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for Input A + b, open collector inputs with rate and total scaling factors of 1.0 and a timebase of seconds with direct pulse retransmission. Can easily be reconfigured on-site.



The **BA364G** is a two input, field mounting, intrinsically safe counter which can display the sum or difference of the two pulse inputs, or the count direction of input A may be controlled by input b. The output from a quadrature encoder can also be decoded to show speed and direction of movement. The counter is easy to use and each input can be independently configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a sensor with a voltage pulse output. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

Any display application requiring the sum or difference of pulse outputs from two sensors can be performed by the BA364G, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume and rate of pumping in engineering units. The counter's quadrature decoder also enables the position of a shaft or a cable to be displayed together with its speed and direction of movement.

The large display has high contrast and a wide viewing angle, enabling the counter to be read in most lighting conditions over a wide temperature range. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

Display backlighting which is internally powered from the counter 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.

The **isolated open collector pulse output** may be configured to synchronously retransmit either pulse input, or a scaled pulse when the least significant digit of the total display is incremented.

IP66 protection is provided by the robust GRP enclosure which has stainless steel fittings, a silicone gasket and an 8mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek.

International intrinsic safety certification allows the BA364G counter to be installed in gas and dust hazardous areas worldwide. When configured to operate with a sensor having a voltage or magnetic pick-off output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation.

An optional isolated 4/20mA current sink output, which has been certified as a separate intrinsically safe circuit complying with the requirements for *simple apparatus*, may be configured to produce an output proportional to any part of the rate or total display.

Optional dual alarms with galvanically isolated solid state outputs can switch hazardous area loads such as a sounder or solenoid valve, or safe area loads via a Zener barrier or isolator. Both may be independently configured as a rate or a total alarm monitoring either input, or the sum or difference of the two inputs. Annunciators on the BA364G display show the status of both alarm outputs.

Other field mounting counters include the BA364E which has the same functions as the BA364G, but incorporates a separate terminal compartment.

BA364G

two input counter

Intrinsically safe for use in all gas & dust hazardous areas

◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector, voltage pulse or quadrature decoder.

◆ **Separate displays**

◆ **Intrinsically safe**

◆ **IP66 GRP enclosure**

◆ **Isolated pulse output**

◆ **Simple on-site scale card installation.**

◆ **Optional:**
Backlight
Dual alarms
4/20mA output

◆ **3 year guarantee**

www.beka.co.uk/ba364g



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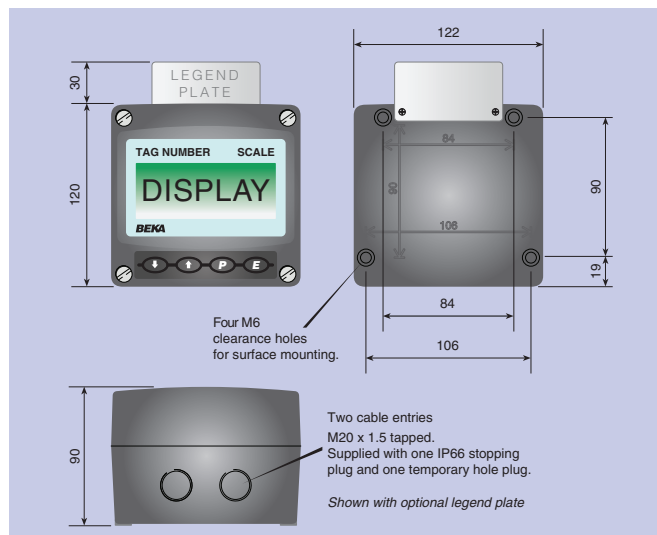
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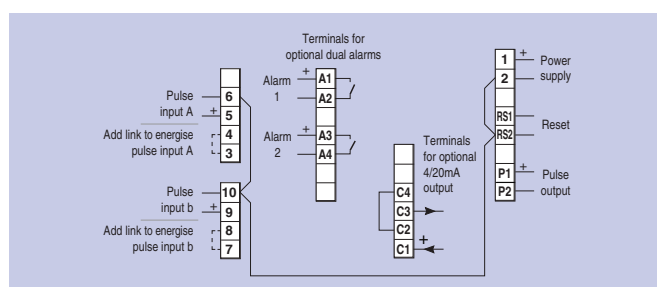
SPECIFICATION

| | |
|--|--|
| Power supply | 10 to 28V from a Zener barrier or galvanic isolator 16mA max plus 16mA for optional backlight |
| Voltage | |
| Current | |
| Input | Lower Upper switching thresholds |
| Switch contact | 100Ω 1kΩ |
| Proximity detector (NAMUR) | 1.2mA 2.1mA |
| Open collector | 2kΩ 10kΩ |
| Magnetic pick-off | 0 +40mV |
| Voltage pulse (low) | 1V 3V 28V max |
| Voltage pulse (high) | 3V 10V 28V max |
| Frequency | |
| Switch contact | 150Hz typical |
| Other inputs | 100kHz max |
| All inputs | 0.01Hz min |
| | <i>Depends upon pulse width and debounce setting.</i> |
| Display | |
| Type | Liquid crystal |
| Zero blanking | Blanked apart from 0 in front of decimal point |
| Total \pm | 8 digits 18mm high |
| Decimal point | 1 of 5 positions or absent |
| Rate \pm | 6 digits 12mm high |
| Decimal point | 1 of 4 positions or absent |
| \pm Rate & Total can be shown on either 6 or 8 digit display | |
| Grand total | Maximum count 10 ¹⁶ |
| Remote reset | Contact closure with resistance less than 10kΩ |
| Pulse output | Isolated open collector, certified as a separate intrinsically safe circuit complying with the requirements for <i>simple apparatus</i> . |
| Source and output | Either input, synchronous pulse output 5kHz max or Least significant digit of total display pulse output divisible by 1, 10, 100, 1000 or 10000 Pulse width definable as 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. |
| Ron | 51Ω + 3V max |
| Roff | 1MΩ min |
| I max | 10mA |
| Configurable functions | |
| Each input individually configurable | |
| Input function | Input A + b: Input A – b: Input A direction controlled by input b or quadrature encoder input (Inputs 90° out of phase). |
| Total scale factor | Adjustable between 0.0001 and 99999 |
| Rate scale factor | Adjustable between 0.0001 and 99999 |
| Rate timebase | Rate may be displayed per second, minute or hour |
| Rate display filter | Adjustable digital filter |
| Intrinsic safety | |
| Europe ATEX | |
| Code | Group II Category 1G Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C Group II Category 1D Ex ia IIIC T80°C Da -40 ≤ Ta ≤ 60°C |
| Cert. No. | ITS16ATEX28408X |
| International IECEx | |
| Code | Ex ia IIC T5 Ga -40 ≤ Ta ≤ 70°C Ex ia IIIC T80°C Da -40 ≤ Ta ≤ 60°C |
| Cert. No. | IECEx ITS 16.0004X |
| ETL & cETL | |
| Code | Class I Div 1 Gp A, B, C, D T5 Class II Div 1 Gp E, F, G Class III Class I Zone 0 AEx ia IIC T5 Ga Zone 20 AEx ia IIIC T80°C Da Ex ia IIC T5 Ga Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ 70°C |
| | USA & Canada USA Canada |
| 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 Ex ia IIC T5 Ga -40 ≤ 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 | |
| Material | GRP |
| Ingress | IP66 |
| EMC | Complies with 2014/30/EU |
| Mechanical | |
| Terminals | Screw clamp for 0.5 to 1.5mm ² |
| Weight | 1.1kg |
| Accessories | |
| Backlight | Green LED internally powered |
| 4/20mA output | Isolated current sink |
| Voltage drop | 5 to 28V |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



| | |
|---------------------|--|
| Dual alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. |
| Outputs | Isolated single pole, voltage free solid state switch |
| Ron | 5Ω + 0.7V max |
| Roff | IMΩ min |
| Scale card | Blank card fitted to all instruments. Can be supplied printed with specified units of measurement and tag information for no additional charge at time of purchase. # |
| Legend plate | 316 stainless steel plate laser engraved with tag number or application information attached to rear of the instrument, visible from the front. # |
| Pipe mounting kit | BA393G 316 stainless steel # |
| Panel mounting kits | BA394G 316 stainless steel not sealing # BA494G GRP sealing # |

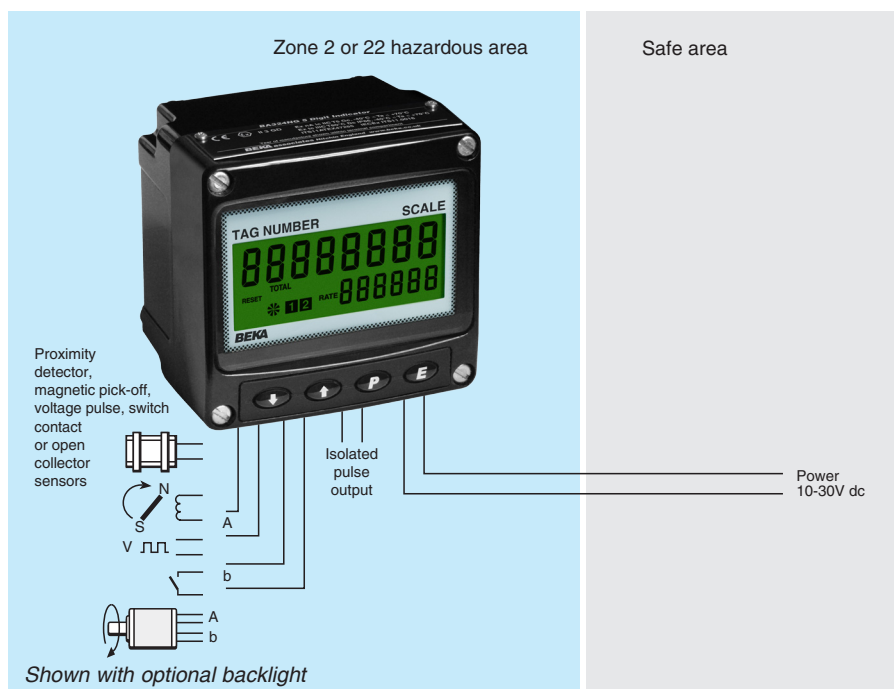
See accessory datasheet for details

See accessory datasheet for details

HOW TO ORDER

| | |
|------------------------|--|
| Model number | BA364G |
| Input function | Input A + b: Input A – b: Input A direction controlled by input b or quadrature encoder input (Inputs 90° out of phase). * |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | Please specify if required |
| Display backlight | Backlight |
| 4/20mA output | 4/20mA output |
| Dual alarms | Alarms |
| Scale card marking | |
| Units | Legend required |
| Tag | Legend required <i>No charge if ordered with counter</i> |
| Stainless legend plate | Legend required |
| Pipe mounting kit | BA393G |
| Panel mounting kit | BA394G or BA494G |

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for Input A + b, open collector inputs with rate and total scaling factors of 1.0 and a timebase of seconds with direct pulse retransmission. Can easily be reconfigured on-site.



The **BA364NG** is a third generation field mounting two input counter housed in a compact IP66 GRP enclosure. The counter is easy to use and each input can be individually configured on-site to operate with sensors having a magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse output. International Ex nA and Ex tc certification permits worldwide installation in Zones 2 or 22 without Zener barriers or galvanic isolators which significantly reduces installation cost.

Any display application requiring the sum or difference of pulse outputs from two sensors can be performed by the BA364NG, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume and rate of pumping in engineering units. The counter's quadrature decoder also enables the position of a shaft or a cable to be displayed together with its speed and direction of movement.

International Ex nA and Ex tc certification allows the BA364NG counter to be installed in gas and dust hazardous areas worldwide. BEKA Application Guide AG310 contains Ex nA installation recommendations.

The large display has high contrast and a wide viewing angle, enabling the counter to be read in most lighting conditions over a wide temperature range. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

Display backlighting which is internally powered from the counter 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.

The isolated open collector pulse output may be configured to synchronously retransmit either pulse input, or a scaled pulse when the least significant digit of the total display is incremented.

IP66 protection is provided by the robust GRP enclosure which has stainless steel fittings, a silicone gasket and an 8mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek.

An optional isolated 4/20mA current sink output may be configured to produce an output proportional to any part of the rate or total display.

Optional dual alarms with galvanically isolated solid state outputs can switch hazardous or safe area loads such as a sounder or solenoid valve. Both may be independently configured as a rate or a total alarm monitoring either input, or the sum or difference of the two inputs. Annunciators on the BA364NG display show the status of both alarm outputs.

Other field mounting counters include the intrinsically safe BA364E and BA364G which have the same functions as the BA364NG. The BA564G is a general purpose model for use in safe areas.

BA364NG

Ex nA two input counter

Can be installed in Zone 2 or 22 without Zener barriers or galvanic isolators

◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector, voltage pulse or quadrature decoder.

◆ **Separate displays**

◆ **Ex nA & Ex tc certified**

◆ **IP66 GRP enclosure**

◆ **Isolated pulse output**

◆ **Simple on-site scale card installation.**

◆ **Optional:**
Backlight
Dual alarms
4/20mA output

◆ **3 year guarantee**

www.beka.co.uk/ba364ng



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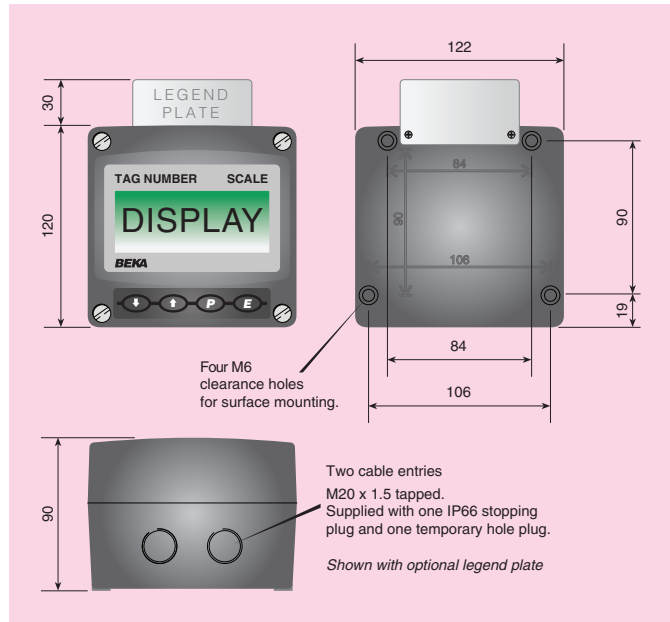
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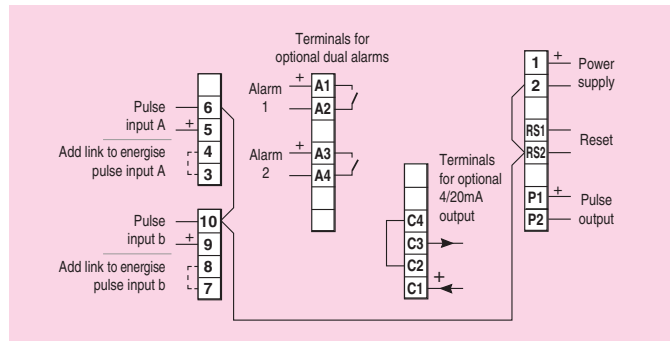
SPECIFICATION

| | |
|---|--|
| Power supply | |
| Voltage | 10 to 30Vdc |
| Current | 16mA max plus 16mA for optional backlight |
| Input | |
| Switch contact | Lower 100Ω Upper 1kΩ switching thresholds |
| Proximity detector (NAMUR) | 1.2mA 2.1mA |
| Open collector | 2kΩ 10kΩ |
| Magnetic pick-off | 0 +40mV |
| Voltage pulse (low) | 1V 3V 30V max |
| Voltage pulse (high) | 3V 10V 30V max |
| Frequency | |
| Switch contact | 150Hz typical |
| Other inputs | 100kHz max } <i>Depends upon pulse width and debounce setting.</i> |
| All inputs | 0.01Hz min |
| Display | |
| Type | Liquid crystal |
| Zero blanking | Blanked apart from 0 in front of decimal point. |
| Total # | 8 digits 18mm high |
| Decimal point | 1 of 5 positions or absent |
| Rate # | 6 digits 12mm high |
| Decimal point | 1 of 4 positions or absent |
| <i># Rate & Total can be shown on either 6 or 8 digit display</i> | |
| Grand total | Maximum count 10 ¹⁶ |
| Remote reset | |
| | Contact closure with resistance less than 10kΩ |
| Pulse output | |
| Source and output | Isolated open collector Either input synchronous pulse output 5kHz max or Least significant digit of total display pulse output divisible by 1, 10, 100, 1000 or 10000 Pulse width definable as 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. 51Ω + 3V max 1MΩ min 30Vdc 10mA |
| Ron | |
| Roff | |
| Ui | |
| I max | |
| Configurable functions | |
| Each input individually configurable | |
| Input function | Input A + b: Input A – b: Input A direction controlled by input b or quadrature input (Inputs 90° out of phase). |
| Total scale factor | Adjustable between 0.0001 and 99999 |
| Rate scale factor | Adjustable between 0.0001 and 99999 |
| Rate timebase | Rate may be displayed per second, minute or hour |
| Rate display filter | Adjustable digital filter |
| Certification | |
| Europe ATEX | |
| Code | Group II Category 3G Ex nA ic IIC T5 Gc Group II Category 3D Ex ic tc IIIC T80°C Dc -40 ≤ Ta ≤ 60°C ITS16ATEX48409X |
| Cert. No. | |
| International IECEx | |
| Code | Ex nA ic IIC T5 Gc Ex ic tc IIIC T80°C Dc -40 ≤ Ta ≤ 60°C IECEx ITS 16.0005X |
| Cert. No | |
| ETL & cETL | |
| Code | Class I Zone 2 AEx nA ic IIC T5 Gc Zone 22 AEx ic tc IIIC T80°C Dc Ex nA ic IIC T5 Gc Ex n IIC T5 Gc Ex ic tc IIIC T80°C Dc Class III Div 2, Class II Div 2, Gp F, G -40°C ≤ Ta ≤ 60°C 4008610 |
| ETL Control No. | |
| Environmental | |
| Operating temp | -40 to +70°C display -20 to +70°C |
| Certification temp | -40 to +60°C |
| Storage temp | -40 to +85°C |
| Humidity | to 95% at 40°C non condensing |
| Vibration | Report available |
| Enclosure | |
| Material | GRP |
| Ingress | IP66 |
| EMC | Complies with 2014/30/EU |
| Mechanical | |
| Terminals | Screw clamp for 0.5 to 1.5mm ² |
| Weight | 1.1kg |
| Accessories | |
| Backlight | Green LED internally powered |
| 4/20mA output | Isolated current sink |
| Voltage drop | 5 to 30V |
| Dual alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. |
| Outputs | Isolated single pole, voltage free solid state switch |
| Ron | 5Ω + 0.7V max |
| Roff | 1MΩ min |
| Ui | 30V dc |
| Ii | 200mA |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



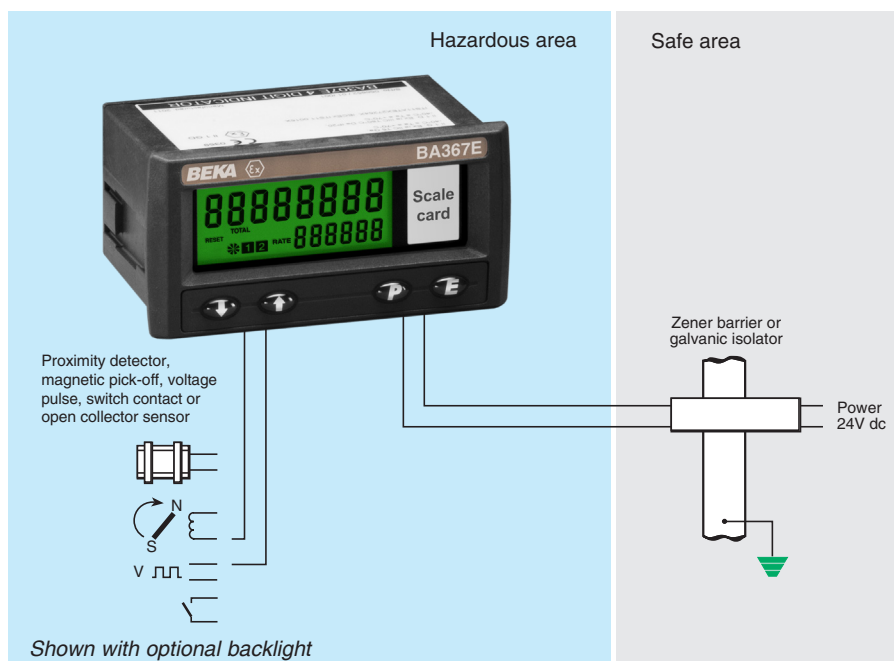
| | |
|---------------------|--|
| Scale card | Blank card fitted to all instruments. Can be supplied printed with specified units of measurement and tag information for no additional charge at time of purchase. # |
| Legend plate | 316 stainless steel plate laser engraved with tag number or application information attached to rear of the instrument, visible from the front. # |
| Pipe mounting kit | BA393G 316 stainless steel # |
| Panel mounting kits | BA394G 316 stainless steel not sealing # |

See accessory datasheet for details

HOW TO ORDER

| | |
|------------------------|--|
| Model number | BA364NG |
| Input function | Input A + b: Input A – b: Input A direction controlled by input b or quadrature input (Inputs 90° out of phase). * |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | |
| Display backlight | Please specify if required Backlight |
| 4/20mA output | 4/20mA output |
| Dual alarms | Alarms |
| Scale card marking | Legend required |
| Units | Legend required |
| Tag | No charge if ordered with counter |
| Stainless legend plate | Legend required |
| Pipe mounting kit | BA393G |
| Panel mounting kit | BA394G |

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for Input A + b, open collector inputs with rate and total scaling factors of 1.0 and a timebase of seconds with direct pulse retransmission. Can easily be reconfigured on-site.



The **BA367E** is a one input intrinsically safe counter with one input that has similar functions as the two input BA368E, but is housed in a smaller 96 x 48mm DIN enclosure. The counter is easy to use and can be configured on-site to operate with magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse sensor. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

Main application of the BA367E is to count the number of pulses received from a hazardous area sensor such as a 2-wire proximity detector and simultaneously display the rate and total number in engineering units within the hazardous area.

The display has high contrast and a wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total number of pulses may be scaled and displayed in almost any units to represent the engineering variable being counted. The total display may be reset using the front panel push buttons or an external contact closure. The pulse rate may be shown in the same or different units per second, minute or hour.

IP66 front panel protection with a neoprene gasket to seal the joint between the counter and the instrument panel, allows the BA367E to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks allowing panel wiring to be completed before the instrument is installed.

International intrinsic safety certification allows the BA367E counter to be installed worldwide. When configured to operate with a sensor having a voltage or magnetic pick-off output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation.

Display backlighting which is internally powered from the counter 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.

One of the following three optional outputs may be factory fitted to the BA367E counter. All are isolated and have been certified as separate intrinsically safe circuits complying with the requirements for *simple apparatus*.

Optional isolated pulse output will synchronously retransmit the counter input pulse, or a pulse when the least significant digit of the total display is incremented.

Optional isolated 4/20mA output may be configured to produce an analogue output proportional to any part of the total or rate display,

Optional dual alarms 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 as rate or total alarms with normally open or closed outputs. Annunciators on the BA367E display show the status of both alarm outputs.

Rugged versions and a two input counter are available in other models within the range. The BA367E-SS is identical to the BA367E except that it is housed in a rugged stainless steel enclosure with a 10mm thick window that may be installed in an Ex e, Ex n, Ex p or Ex t panel enclosure without invalidating the enclosure's certification. The BA367NE has Ex nA certification allowing installation in Zone 2 or 22 without Zener barriers or galvanic isolators.

The BA368E is a two input counter with a larger display in a 144 x 72mm DIN enclosure.

BA367E

One input counter

Intrinsically safe for use in all gas hazardous areas

- ◆ **Configurable input:** magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Intrinsically safe**
- ◆ **96 x 48mm DIN enclosure with IP66 front protection.**
- ◆ **Optional:**
Backlight
dual alarms
or 4/20mA output
or pulse output
- ◆ **3 year guarantee**

www.beka.co.uk/ba367e



BEKA associates

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Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk 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

| | Lower | Upper | switching thresholds |
|----------------------------|-------|-------|----------------------|
| Switch contact | 100Ω | 1kΩ | |
| Proximity detector (NAMUR) | 1.2mA | 2.1mA | |
| Open collector | 2kΩ | 10kΩ | |
| Magnetic pick-off | 0 | +40mV | |
| Voltage pulse (low) | 1V | 3V | 28V max |
| Voltage pulse (high) | 3V | 10V | 28V max |

Frequency

| | | |
|----------------|---------------|--|
| Switch contact | 150Hz typical | Depends upon pulse width and debounce setting. |
| Other inputs | 100kHz max | |
| All inputs | 0.01Hz min | |

Display

| | |
|---------------|--|
| Type | Liquid crystal |
| Zero blanking | Blanked apart from 0 in front of decimal point |
| Total # | 8 digits 9mm high |
| Decimal point | 1 of 7 positions or absent |
| Rate # | 6 digits 6mm high |
| Decimal point | 1 of 4 positions or absent |

Rate & Total can be shown on either 6 or 8 digit display

| | |
|-------------|--------------------------------|
| Grand total | Maximum count 10 ¹⁶ |
|-------------|--------------------------------|

Remote reset

Contact closure with resistance less than 10kΩ

Configurable functions

| | |
|---------------------|--|
| Total scale factor | Adjustable between 0.0001 and 99999 |
| Rate scale factor | Adjustable between 0.0001 and 99999 |
| Rate timebase | Rate may be displayed per second, minute or hour |
| Rate display filter | Adjustable digital filter |

Intrinsic safety

| | |
|---------------------|--|
| Europe ATEX | Group II Category 1G Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C ITS16ATEX28408X |
| Code | |
| Cert. No. | |
| International IECEx | Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C IECEx ITS 16.0004X |
| Code | |
| Cert. No. | |
| ETL & cETL | 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 |
| Code | |

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 EMC Directive 2014/30/EU |

Mechanical

| | |
|-----------|---|
| Terminals | Screw clamp for 0.5 to 1.5mm ² cable, removable terminal blocks. |
| Weight | 0.15kg |

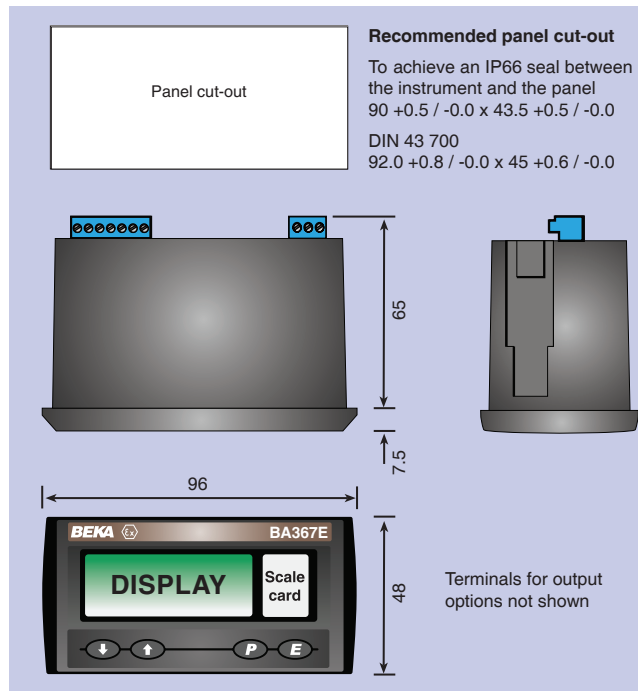
Accessories

| | |
|----------------------------------|--|
| Backlight | Green LED internally powered |
| 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. # |

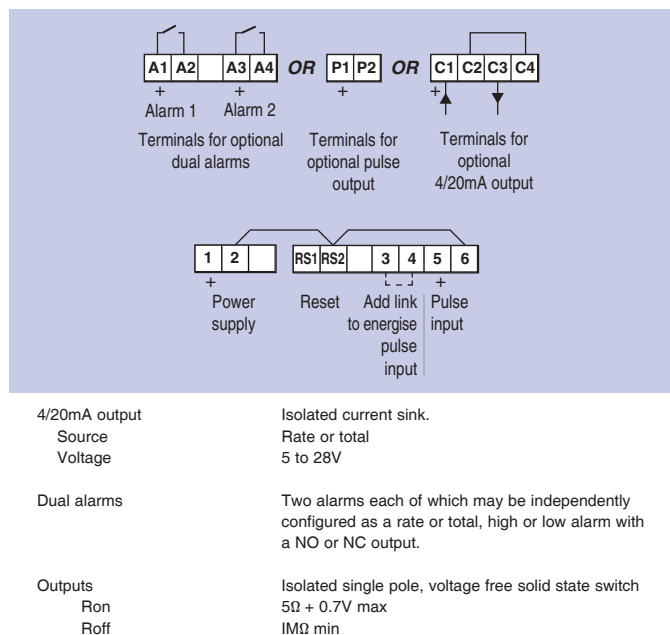
One of the following three output accessories may be factory fitted to each counter. All have isolated outputs which have been certified as separate intrinsically safe circuits and comply with the requirements for *simple apparatus*.

| | |
|-----------------|--|
| Pulse output | Isolated open collector |
| Source & output | Counter input: synchronous pulse output, 5kHz max or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000. Pulse width definable as: 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. |
| Ron | 51Ω + 3V max |
| Roff | 1MΩ min |
| I max | 10mA |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



See accessory datasheet for details

HOW TO ORDER

| | |
|--------------------|----------------------------|
| Model number | BA367E |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |

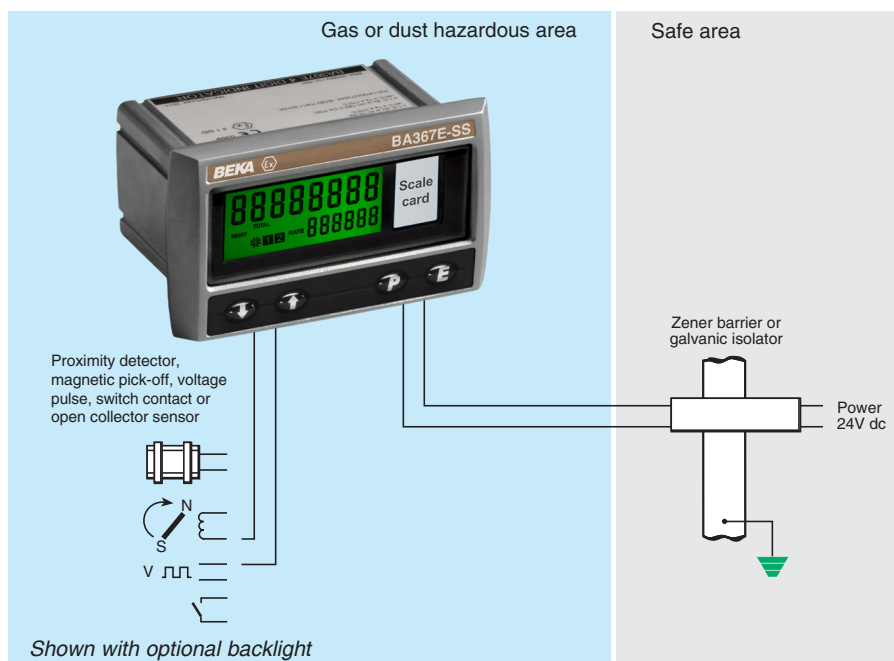
Accessories

| | |
|----------------------------|------------------------------------|
| Display backlight | Backlight |
| Scale card | Legend required |
| Tag | No charge if ordered with counter. |
| Rear cover and sealing kit | Legend required |
| | BA495 |

One of following three output options:

| | |
|------------------|---------------|
| Pulse output | Pulse output |
| or 4/20mA output | 4/20mA output |
| or Dual alarms | Alarms |

* counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for open collector input with total and rate scaling factors of 1.0 and a timebase of seconds. Can easily be reconfigured on-site.



The **BA367E-SS** is an intrinsically safe counter housed in a rugged stainless steel enclosure. The intrinsic safety certification and the rugged enclosure allow the BA367E-SS to be safely installed in an Ex e, Ex n, Ex p or Ex t panel enclosure without invalidating the panel enclosure's certification. The intrinsically safe counter may also be installed in any uncertified panel enclosure located in Zones 0, 1 or 2 and is particularly suitable for marine environments or where the front of the instrument is likely to be impacted. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

Main application of the BA367E-SS is to count the number of pulses received from a hazardous area sensor such as a 2-wire proximity detector and simultaneously display the rate and total in engineering units within the hazardous area.

The display has high contrast and a wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total number of pulses may be scaled and displayed in almost any units to represent the engineering variable being counted. The total display may be reset using the front panel push buttons or an external contact closure. The pulse rate may be shown in the same or different units per second, minute or hour.

IP66 front panel protection with a silicone gasket to seal the joint between the counter and the instrument panel, allows the BA367E-SS to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks enabling panel wiring to be completed before the instrument is installed.

International intrinsic safety certification allows the BA367E-SS counter to be installed worldwide. When configured to operate with a sensor having a voltage or magnetic pick-off output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation.

Display backlighting which is internally powered from the counter 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.

One of the following three optional outputs may be factory fitted to the BA367E-SS counter. All are isolated and have been certified as separate intrinsically safe circuits complying with the requirements for *simple apparatus*.

Optional isolated pulse output synchronously retransmits the counter input pulse to other instruments or a pulse when the least significant digit of the total display is incremented. When transmitting a pulse representing the total count the output pulse frequency may be divided and the output pulse width may be defined.

Optional isolated 4/20mA output may be configured to produce an analogue output proportional to any part of the total or rate display.

Optional dual alarms 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 as rate or total alarms with normally open or closed outputs. Annunciators on the BA367E-SS display show the status of both alarm outputs.

Zone 2 certification and a larger display are available in other models within the range. The BA367E which is identical to the BA367E-SS but is housed in a Noryl enclosure. The BA367NE is also identical to the BA367E-SS but has Ex nA and Ex tC certification allowing installation in Zone 2 or Zone 22 without Zener barriers or galvanic isolators.

For a larger display the BA368E is a two input counter in a 144 x 72mm DIN enclosure.

BA367E-SS

Rugged one input counter

Intrinsically safe gas & dust certified for use in an Ex e, Ex n, Ex p or Ex t panel enclosure or in harsh hazardous area

- ◆ **Configurable input:**
magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Intrinsically safe**
- ◆ **105 x 60mm rugged 316 stainless steel enclosure with IP66 front protection.**
- ◆ **Optional:**
Backlight
dual alarms
or 4/20mA output
or pulse output
- ◆ **3 year guarantee**

www.beka.co.uk/ba367e-ss



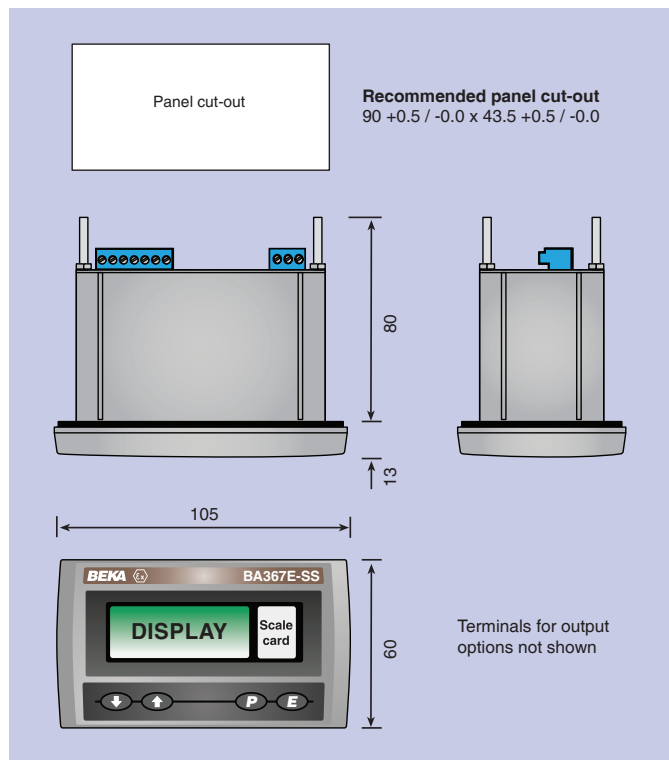
BEKA
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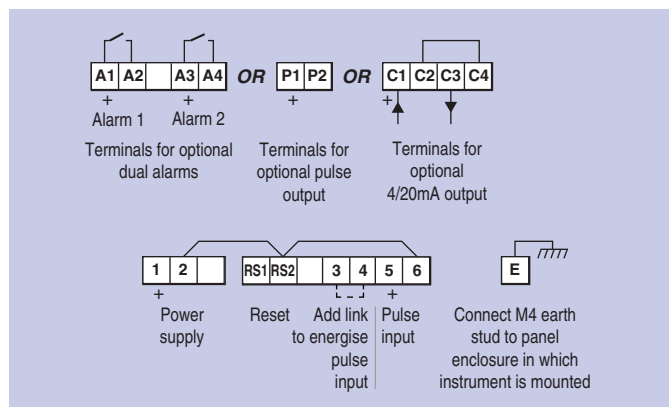
SPECIFICATION

| | | |
|---|--|---|
| Power supply | | 10 to 28V from a Zener barrier or galvanic isolator 16mA max plus 22.5mA for optional backlight. |
| Voltage | | |
| Current | | |
| Input | | |
| Switch contact | Lower 100Ω | Upper switching thresholds 1kΩ |
| Proximity detector (NAMUR) | 1.2mA | 2.1mA |
| Open collector | 2kΩ | 10kΩ |
| Magnetic pick-off | 0 | +40mV |
| Voltage pulse (low) | 1V | 3V 28V max |
| Voltage pulse (high) | 3V | 10V 28V max |
| Frequency | | |
| Switch contact | 150Hz typical |] Depends upon pulse width and debounce setting. |
| Other inputs | 100kHz max | |
| All inputs | 0.01Hz min | |
| Display | | |
| Type | Liquid crystal | |
| Zero blanking | Blanked apart from 0 in front of decimal point | |
| Total # | 8 digits 9mm high | |
| Decimal point | 1 of 7 positions or absent | |
| Rate # | 6 digits 6mm high | |
| Decimal point | 1 of 4 positions or absent | |
| ≠ Rate & Total can be shown on either 6 or 8 digit display | | |
| Grand total | Maximum count 10 ¹⁶ | |
| Remote reset | | Contact closure with resistance less than 10kΩ |
| Configurable functions | | |
| Total scale factor | Adjustable between 0.0001 and 99999 | |
| Rate scale factor | Adjustable between 0.0001 and 99999 | |
| Rate timebase | Rate may be displayed per second, minute or hour | |
| Rate display filter | Adjustable digital filter | |
| Intrinsic safety | | |
| Europe ATEX | | |
| Code | Group II Category 1G Ex ia IIC T5 Ga Group II Category 1D Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ +60°C ≠ ITS16ATEX28408X | |
| Cert. No. | | |
| International IECEx | | |
| Code | Ex ia IIC T5 Ga Ex ia IIIC T80°C Da -40°C ≤ Ta ≤ +60°C ≠ IECEx ITS 16.0004X | |
| Cert. No. | | |
| 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) Zone 20 AEx ia IIIC T80°C Da (USA) Ex ia IIC T5 Ga (Canada) Ex ia IIIC T80°C Da (Canada) -40°C ≤ Ta ≤ 60°C ≠ | |
| 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 | |
| ≠ +70°C when not relying upon the certified impact and ingress protection provided by the front of the BA367E-SS enclosure to maintain the certification of the panel enclosure in which the BA367E-SS is mounted. | | |
| 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 | | |
| Ingress | Front IP66, rear IP20 | |
| Material | BS 3146-2:1977 ANC4B (316) | |
| EMC | Complies with 2014/30/EU | |
| Mechanical | | |
| Terminals | Screw clamp for 0.5 to 1.5mm² cable, removable terminal blocks. | |
| Weight | 0.85kg | |
| Accessories | | |
| Backlight | Green LED internally powered | |
| 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 laser etched onto rear of instrument. # | |
| BA495 rear cover and sealing kit | Provides impact and IP66 protection for rear of instrument. # | |
| One of the following three output accessories may be factory fitted to each counter. All have isolated outputs which have been certified as separate intrinsically safe circuits and comply with the requirements for simple apparatus. | | |
| Pulse output | | Isolated open collector |
| Source & output | Counter input: synchronous pulse output, 5kHz max or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000. Pulse width definable as: 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. 51Ω + 3V max 1MΩ min 10mA | |
| Ron | | |
| Roff | | |
| I max | | |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



4/20mA output

Source
Voltage

Isolated current sink.
Rate or total
5 to 28V

Dual alarms

Outputs
Ron
Roff

Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output.

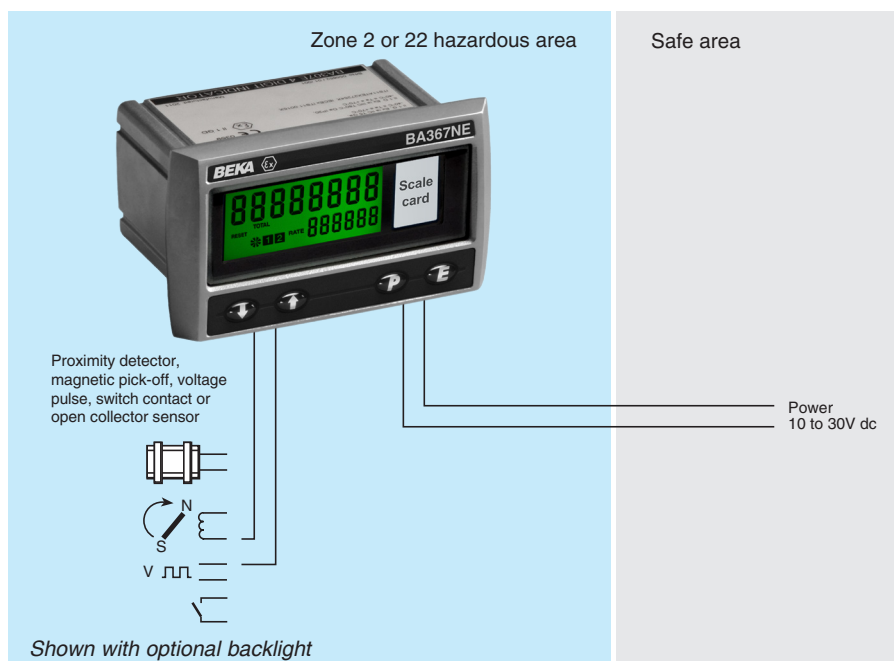
Isolated single pole, voltage free solid state switch
5Ω + 0.7V max
1MΩ min

See accessory datasheet for details

HOW TO ORDER

| | |
|--|--|
| Model number | Please specify BA367E-SS |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | |
| Display backlight | Please specify if required Backlight |
| Scale card | Legend required |
| | No charge if ordered with counter. |
| | Legend required |
| | BA495 |
| Tag | |
| Rear cover and sealing kit | |
| One of following three output options: | |
| Pulse output | Pulse output |
| or 4/20mA output | 4/20mA output |
| or Dual alarms | Alarms |

* counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for open collector input with total and rate scaling factors of 1.0 and a timebase of seconds. Can easily be reconfigured on-site.



The **BA367NE** has a rugged stainless steel enclosure with Ex nA and Ex tc certification allowing it to be safely installed in an Ex n or Ex tc panel enclosure located in Zones 2 and 22, without the need for Zener barriers or galvanic isolators. The counter is easy to use and can be configured on-site to operate with a wide variety of sensors. A slide-in scale card simplifies identification.

Main application of the BA367NE is to count the number of pulses received from a hazardous area sensor such as a 2-wire proximity detector and simultaneously display the total number and their rate in engineering units within a Zone 2 or 22 hazardous area.

The display has high contrast and a wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total number of pulses may be scaled and displayed in almost any units to represent the engineering variable being counted. The total display may be reset using the front panel push buttons or an external contact closure. The pulse rate may be shown in the same or different units per second, minute or hour.

IP66 front panel protection with a silicone gasket to seal the joint between the counter and the instrument panel, allows the BA367NE to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks allowing panel wiring to be completed before the instrument is installed.

International Ex nA certification permits the BA367NE counter to be installed worldwide. When mounted in a panel enclosure complying with Ex n (non sparking) impact and ingress requirements, the enclosure and counter may be installed in a Zone 2 hazardous area without barriers or isolators. Certified Ex n or Ex e enclosures are often used. Similarly the BA367NE can be mounted in an Ex tc enclosure located in Zone 22. BEKA Application Guide AG310 provides Ex nA installation recommendations.

Display backlighting which is internally powered from the counter 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.

One of the following three optional outputs may be factory fitted to the BA367NE counter. All are isolated and have defined output parameters.

Optional isolated pulse output synchronously retransmits the counter input pulse to other instruments or a pulse when the least significant digit of the total display is incremented. When transmitting a pulse representing the total count the output pulse frequency may be divided and the output pulse width may be defined.

Optional isolated 4/20mA output may be configured to produce an analogue output proportional to any part of the total or rate display.

Optional dual alarms can switch suitably protected hazardous area loads such as an Ex e sounder or solenoid valve, or safe area loads. The two galvanically isolated, solid state voltage free outputs may be independently conditioned as rate or total alarms with normally open or closed outputs. Annunciators on the BA367NE display show the status of both alarm outputs.

Intrinsically safety models and instruments with larger displays are available within the range. The BA367E-SS has the same features as the BA367NE including a rugged stainless steel enclosure, but is intrinsically safe certified Ex ia.

The intrinsically safe BA367E offers similar features in a Noryl enclosure and the BA368E is a two input intrinsically safe counter in a 144 x 72mm Noryl enclosure with a larger display.

BA367NE

Rugged Ex nA & Ex tc one input counter

Can be installed in Zones 2 or 22 without Zener barriers or galvanic isolators.

- ◆ **Configurable input:**
magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Ex nA & Ex tc certified**
- ◆ **105 x 60mm rugged 316 stainless steel enclosure with IP66 front protection.**
- ◆ **Optional:**
Backlight
dual alarms
or 4/20mA output
or pulse output
- ◆ **3 year guarantee**

www.beka.co.uk/ba367ne



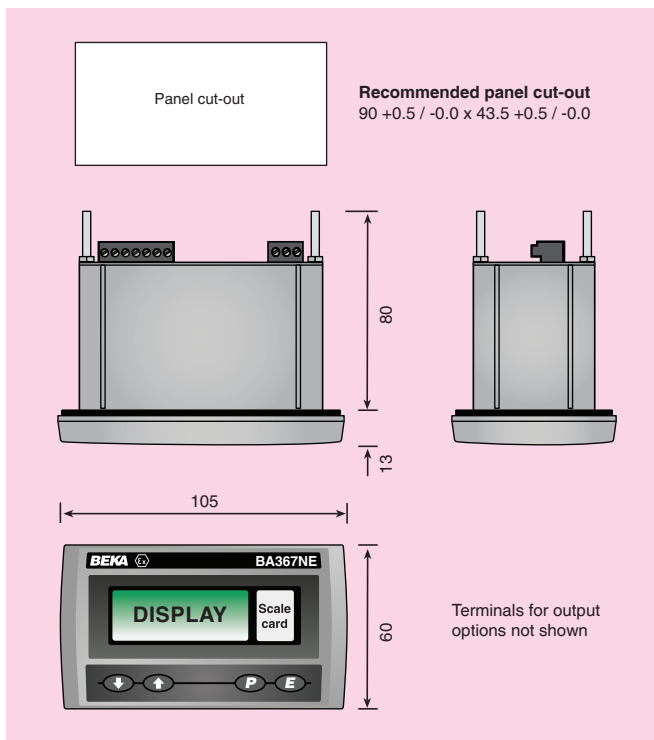
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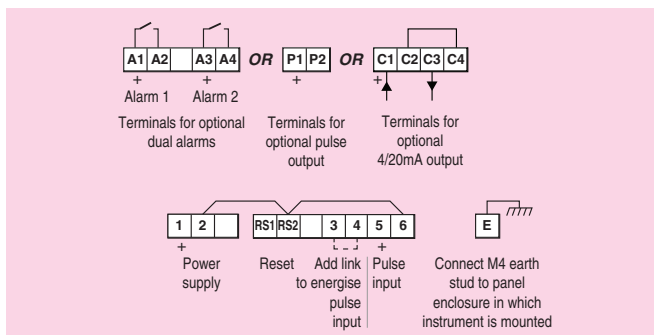
SPECIFICATION

| | |
|--|---|
| Power supply | |
| Voltage | 10 to 30V dc |
| Current | 16mA max plus 22.5mA for optional backlight |
| Input | Lower Upper switching thresholds |
| Switch contact | 100Ω 1kΩ |
| Proximity detector (NAMUR) | 1.2mA 2.1mA |
| Open collector | 2kΩ 10kΩ |
| Magnetic pick-off | 0 +40mV |
| Voltage pulse (low) | 1V 3V 30V max |
| Voltage pulse (high) | 3V 10V 30V max |
| Frequency | |
| Switch contact | 150Hz typical |
| Other inputs | 100kHz max |
| All inputs | 0.01Hz min |
| Display | |
| Type | Liquid crystal |
| Zero blanking | Blanked apart from 0 in front of decimal point |
| Total # | 8 digits 9mm high |
| Decimal point | 1 of 7 positions or absent |
| Rate # | 6 digits 6mm high |
| Decimal point | 1 of 4 positions or absent |
| * Rate & Total can be shown on either 6 or 8 digit display | |
| Grand total | Maximum count 10 ¹⁶ |
| Remote reset | Contact closure with resistance less than 10kΩ |
| Configurable functions | |
| Total scale factor | Adjustable between 0.0001 and 99999 |
| Rate scale factor | Adjustable between 0.0001 and 99999 |
| Rate timebase | Rate may be displayed per second, minute or hour |
| Rate display filter | Adjustable digital filter |
| Certification | Note: Ex ic in codes refers to instrument push button contacts which are nonincendive |
| Europe ATEX Code | Group II Category 3G Ex nA ic IIC T5 Gc Group II Category 3D Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ +60°C ITS16ATEX48409X |
| Cert. No. | |
| International IECEx Code | Ex nA ic IIC T5 Gc Ex ic tc IIIC T80°C Dc -40°C ≤ Ta ≤ +60°C IECEx ITS 16.0005X |
| Cert. No. | |
| ETL & cETL Code | Class I Zone 2 AEx nA ic IIC T5 Gc (USA) Zone 22 AEx ic tc IIIC T80°C Dc (USA) Ex nA ic IIC T5 Gc (Canada) Ex n IIC T5 Gc (Canada) Ex ic tc IIIC T80°C Dc (Canada) -40°C ≤ Ta ≤ 60°C 4008610 |
| ETL Control No. | |
| Environmental | |
| Operating temp | -40 to +60°C display -20 to +60°C |
| Storage temp | -40 to +85°C |
| Humidity | to 95% at 40°C non condensing |
| Vibration | Report available |
| Enclosure | |
| Ingress | Front IP66, rear IP20 |
| Material | BS 3146-2:1977 ANC4B (316) |
| EMC | Complies with 2014/30/EU |
| Mechanical | |
| Terminals | Screw clamp for 0.5 to 1.5mm ² cable, removable terminal blocks. |
| Weight | 0.85kg |
| Accessories | |
| Backlight | Green LED internally powered |
| 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 laser etched onto rear of instrument. # |
| BA495 rear cover and sealing kit | Provides impact and IP66 protection for rear of instrument. # |
| One of the following three output accessories may be factory fitted to each counter. | |
| Pulse output | Isolated open collector |
| Source & output | Counter input: synchronous pulse output, 5kHz max or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000. Pulse width definable as: 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms |
| Ron | 51Ω + 3V max |
| Roff | 1MΩ min |
| I max | 10mA |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



4/20mA output

Source
Voltage

Isolated current sink.

Rate or total
5 to 30V

Dual alarms

Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output.

Outputs

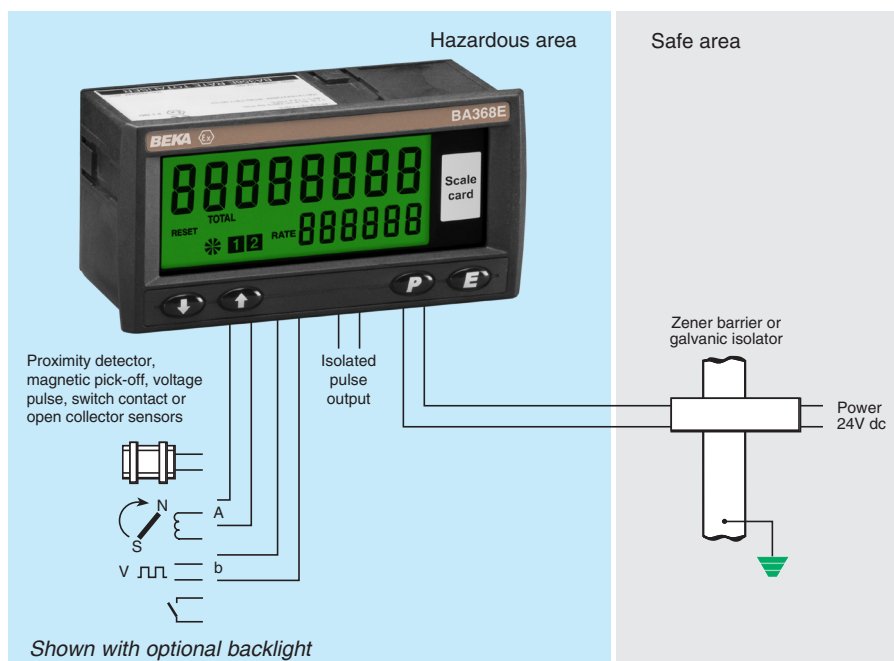
Ron
Roff

Isolated single pole, voltage free solid state switch
5Ω + 0.7V max
1MΩ min

See accessory datasheet for details

HOW TO ORDER

| | |
|---|------------------------------------|
| Model number | Please specify BA367NE |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | Please specify if required |
| Display backlight | Backlight |
| Scale card | Legend required |
| | No charge if ordered with counter. |
| Tag | Legend required |
| Rear cover and sealing kit | BA495 |
| One of following three output options: | |
| Pulse output | Direct retransmission or scaled |
| or 4/20mA output | 4/20mA output |
| or Dual alarms | Alarms |
| * counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for open collector input with total and rate scaling factors of 1.0 and a timebase of seconds. Can easily be reconfigured on-site. | |



The **BA368E** is a two input intrinsically safe counter which can display the sum or difference between the two pulse inputs, or the count direction of Input A may be controlled by input b. The output from a quadrature sensor can also be counted. The BA368E is electrically compatible with the earlier BA368C but has a larger display and an isolated pulse output. The counter is easy to use and each input can be independently configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a sensor with a voltage pulse output. A slide-in scale card simplifies identification and international intrinsic safety certification permits worldwide installation.

Any application requiring the sum or difference of pulse outputs from two sensors, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume pumped in engineering units, can be performed by the BA368E. The counter's quadrature input also enables the position of a shaft or cable to be displayed together with its speed and direction of movement.

The large display has high contrast and a very wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

IP66 front panel protection with a neoprene gasket to seal the joint between the counter and the instrument panel allow the BA368E to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks enabling panel wiring to be completed before the instrument is installed.

The **isolated open collector pulse output** can be configured to synchronously retransmit either pulse input, or a pulse each time the least significant digit of the total display is incremented.

International intrinsic safety certification allows the BA368E counter to be installed worldwide. When configured to operate with a sensor having a voltage or magnetic pick-off output, the input terminals comply with the requirements for *simple apparatus* reducing system design and documentation. All input safety parameters are the same or greater than those for the preceding BA368C, thus allowing the BA368E to safely replace the earlier model.

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

An optional isolated 4/20mA output may be configured to produce an analogue output proportional to any part of the rate or total display. The output is galvanically isolated and has been certified as a separate intrinsically safe circuit complying with the requirements for *simple apparatus* thus simplifying connection to other instruments.

Optional dual alarms 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 as total or rate alarms with normally open or closed outputs. Annunciators on the BA368E display show the status of both alarm outputs.

When panel space is limited the BA367E provides similar one input counting features in a smaller 94 x 48mm enclosure.

BA368E

Two input counter

Intrinsically safe for use in all gas hazardous areas

- ◆ **Configurable inputs:** magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Intrinsically safe**
- ◆ **144 x 72mm DIN enclosure with IP66 front protection.**
- ◆ **Isolated pulse output**
- ◆ **Optional:**
Backlight
Dual alarms
4/20mA output
- ◆ **3 year guarantee**

www.beka.co.uk/ba368e



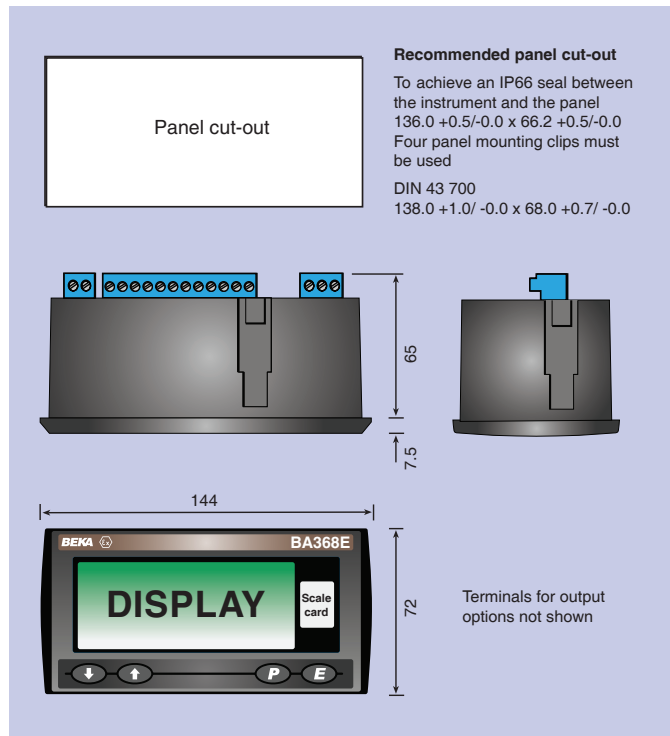
BEKA associates

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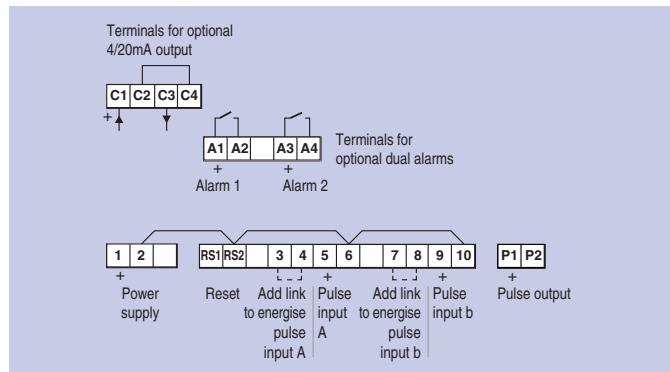
SPECIFICATION

| | |
|--|---|
| Power supply | |
| Voltage | 10 to 28V from a Zener barrier or galvanic isolator |
| Current | 16mA max plus 16mA for optional backlight |
| Input | |
| Switch contact | Lower 100Ω Upper 1kΩ switching thresholds |
| Proximity detector (NAMUR) | 1.2mA 2.1mA |
| Open collector | 2kΩ 10kΩ |
| Magnetic pick-off | 0 +40mV |
| Voltage pulse (low) | 1V 3V 28V max |
| Voltage pulse (high) | 3V 10V 28V max |
| Frequency | |
| Switch contact | 150Hz typical |
| Other inputs | 100kHz max |
| All inputs | 0.01Hz min |
| Display | |
| Type | Liquid crystal |
| Zero blanking | Blanked apart from 0 in front of decimal point |
| Total # | 8 digits 18mm high |
| Decimal point | 1 of 7 positions or absent |
| Rate # | 6 digits 12mm high |
| Decimal point | 1 of 4 positions or absent |
| ‡ Rate & Total can be shown on either 6 or 8 digit display | |
| Grand total | Maximum count 10 ¹⁶ |
| Remote reset | |
| | Contact closure with resistance less than 10kΩ |
| Pulse output | |
| | Isolated open collector, certified as a separate intrinsically safe circuit complying with the requirements for <i>simple apparatus</i> . |
| Source & output | Either input: synchronous pulse output, 5kHz max. or Least significant digit of total display: pulse output divisible by 1, 10, 100, 1000 or 10000; pulse width definable as 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. |
| Ron | 51Ω + 3V max |
| Roff | 1MΩ min |
| I max | 10mA |
| Configurable functions | |
| Input function | Input A + Input b: Input A - Input b: Input A direction controlled by Input b. Quadrature sensor (90° out of phase). Adjustable between 0.0001 and 99999 Adjustable between 0.0001 and 99999 Rate may be displayed per second, minute or hour Adjustable digital filter |
| Total scale factor | |
| Rate scale factor | |
| Rate timebase | |
| Rate display filter | |
| Intrinsic safety | |
| Europe ATEX Code | Group II Category 1G Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C ITS16ATEX28408X |
| Cert. No. International IECEx Code | Ex ia IIC T5 Ga -40°C ≤ Ta ≤ 70°C IECEx ITS 16.0004X |
| Cert. No. | |
| 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 |
| 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 EMC Directive 2014/30/EU |
| Mechanical | |
| Terminals | Screw clamp for 0.5 to 1.5mm ² cable, removable terminal blocks. |
| Weight | 0.35kg |
| Accessories | |
| Backlight | Green LED internally powered |
| 4/20mA output | Isolated current sink, certified as a separate intrinsically safe circuit complying with requirements for <i>simple apparatus</i> . |
| Voltage | 5 to 28V |
| Alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. |
| Outputs | Isolated single pole, voltage free solid state switch, each certified as a separate intrinsically safe circuit complying with the requirements for <i>simple apparatus</i> . |
| Ron | 5Ω + 0.7V max |
| Roff | 1MΩ min |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Scale card

Blank card fitted, can be supplied typeset with specified units of measurement for no additional charge if ordered with counter. ~

Tag legend

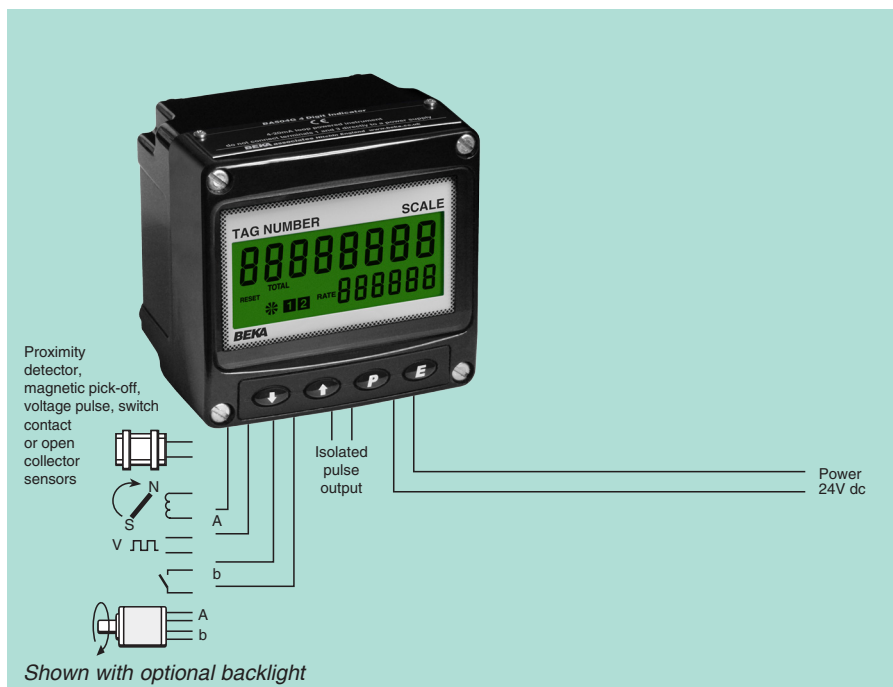
Specified tag number or application printed onto rear of instrument. ~

~ See accessory datasheet for details

HOW TO ORDER

| | |
|--------------------|--|
| Model number | Please specify BA368E |
| Inputs | Type * |
| Function | Input A + Input b: Input A - Input b: Input A direction controlled by Input b. Quadrature sensor (90° out of phase).* |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Pulse output | Direct retransmission or derived from least significant digit of total display: pulse output divided by 1, 10, 100, 1000 or 10000; pulse width defined as 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms.* |
| Accessories | Please specify if required |
| Display backlight | Backlight |
| 4/20mA output | 4/20mA output |
| Dual alarms | Alarms |
| Scale card | Legend required |
| Tag | No charge if ordered with counter. Legend required |

* counter can be supplied configured as required for no additional charge.
If configuration information is not supplied, instrument will be configured for open collector inputs, Input A + Input b with total and rate scaling factors of 1.0 and a timebase of seconds with direct pulse retransmission.
Can easily be reconfigured on-site.



The **BA564G** is a third generation, field mounting two input counter housed in a compact IP66 GRP enclosure. The counter is easy to use and each input can be individually configured on-site to operate with sensors having a magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse output. Alternatively, the two counter inputs can be used for decoding the output from a quadrature position encoder.

Any display application requiring the sum or difference of pulse outputs from two sensors can be performed by the BA564G, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume and rate of pumping in engineering units. The counter's quadrature decoder also enables the position of a shaft or a cable to be displayed together with its speed and direction of movement.

The large display has high contrast and a wide viewing angle, enabling the counter to be read in most lighting conditions over a wide temperature range. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

Display backlighting which is internally powered from the counter 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.

The isolated open collector pulse output may be configured to synchronously retransmit either pulse input, or a scaled pulse when the least significant digit of the total display is incremented.

IP66 protection is provided by the robust GRP enclosure which has stainless steel fittings, a silicone gasket and an 8mm thick armoured glass window. Ingress and impact protection have been independently assessed by Intertek.

An optional isolated 4/20mA current sink output may be configured to produce an output proportional to any part of the rate or total display.

Optional dual alarms with galvanically isolated solid state outputs can switch loads such as a sounder or solenoid valve. Both alarms may be independently configured as a rate or a total alarm monitoring either input, or the sum or difference of the two inputs. Annunciators on the BA564G display show the status of both alarm outputs.

Panel mounting counters with one and two inputs and a variety of display and enclosure sizes are also available, see BA567E, BA567E-SS and BA568E. Field and panel mounting models with similar specifications are available for hazardous area applications.

BA564G

two input counter

General purpose

- ◆ **Configurable input:**
magnetic pick-off, switch contact, proximity detector, open collector, voltage pulse or quadrature decoder.
- ◆ **Separate rate and total displays.**
- ◆ **IP66 GRP enclosure**
- ◆ **Isolated pulse output**
- ◆ **Simple on-site scale card installation.**
- ◆ **Optional:**
Backlight
Dual alarms
4/20mA output
- ◆ **3 year guarantee**

www.beka.co.uk/ba564g

BEKA
associates

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e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Power supply

| | |
|---------|---|
| Voltage | 10 to 30V dc |
| Current | 16mA max plus 16mA for optional backlight |

Input

| | Lower | Upper | switching thresholds |
|----------------------------|-------|-------|----------------------|
| Switch contact | 100Ω | 1kΩ | |
| Proximity detector (NAMUR) | 1.2mA | 2.1mA | |
| Open collector | 2kΩ | 10kΩ | |
| Magnetic pick-off | 0 | +40mV | |
| Voltage pulse (low) | 1V | 3V | 30V max |
| Voltage pulse (high) | 3V | 10V | 30V max |

Frequency

| | | |
|----------------|---------------|--|
| Switch contact | 150Hz typical | Depends upon pulse width and debounce setting. |
| Other inputs | 100kHz max | |
| All inputs | 0.01Hz min | |

Display

| | |
|---------------|--|
| Type | Liquid crystal |
| Zero blanking | Blanked apart from 0 in front of decimal point |

| | |
|---------------|----------------------------|
| Total # | 8 digits 18mm high |
| Decimal point | 1 of 5 positions or absent |

| | |
|---------------|----------------------------|
| Rate # | 6 digits 12mm high |
| Decimal point | 1 of 4 positions or absent |

Rate & Total can be shown on either 6 or 8 digit display

| | |
|-------------|--------------------------------|
| Grand total | Maximum count 10 ¹⁶ |
|-------------|--------------------------------|

Remote reset

Contact closure with resistance less than 10kΩ

Pulse output

| | |
|-------------------|--|
| Source and output | Isolated open collector |
| | Either input, synchronous pulse output 5kHz max. |
| | or |
| | Least significant digit of total display output divisible by 1, 10, 100, 1000 or 10000 |
| | Pulse width definable as 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. |
| Ron | 51Ω + 3V max |
| Roff | 1MΩ min |
| Vmax | 30V dc |
| I max | 10mA |

Configurable functions

Each input individually configurable

| | |
|----------------|--|
| Input function | Input A + b: Input A – b: Input A direction controlled by input b or quadrature input (Inputs 90° out of phase). |
|----------------|--|

| | |
|---------------------|---|
| Total scale factor | Adjustable between 0.0001 and 99999 |
| Rate scale factor | Adjustable between 0.0001 and 99999 |
| Rate timebase | Rate may be displayed per second, minute or hour. |
| Rate display filter | Adjustable digital filter |

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 | |
| Material | GRP |
| Ingress | IP66 |
| EMC | Complies with 2014/30/EU |

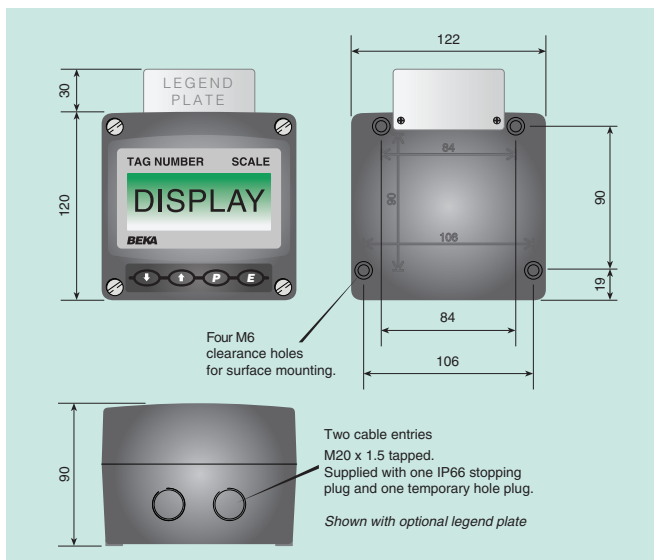
Mechanical

| | |
|-----------|---|
| Terminals | Screw clamp for 0.5 to 1.5mm ² |
| Weight | 1.1kg |

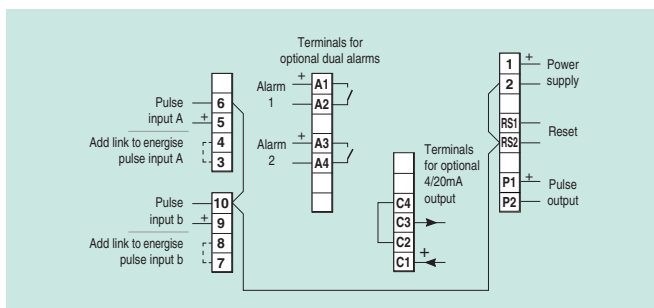
Accessories

| | |
|---------------|--|
| Backlight | Green LED internally powered |
| 4/20mA output | Isolated current sink. |
| Voltage drop | 5 to 30V |
| Dual alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. |
| Outputs | Isolated single pole, voltage free solid state switch. |
| Ron | 5Ω + 0.7V max |
| Roff | 1MΩ min |
| Vmax | 30V dc |
| I max | 200mA |
| Scale card | Blank card fitted to all instruments. Can be supplied printed with specified units of measurement and tag information for no additional charge at time of purchase. # |

DIMENSIONS (mm)



TERMINAL CONNECTIONS



Legend plate

316 stainless steel plate laser engraved with tag number or application information attached to rear of the instrument, visible from the front. #

Pipe mounting kit

BA393G 316 stainless steel #

Panel mounting kits

BA394G 316 stainless steel not sealing #
BA494G GRP sealing #

See accessory datasheet for details

HOW TO ORDER

Model number

Input function

Input

Total scale factor

Rate scale factor

Rate timebase

Accessories

Display backlight

4/20mA output

Dual alarms

Scale card marking

Units

Tag

Stainless legend plate

Pipe mounting kit

Panel mounting kit

Please specify for each input

BA564G

Input A + b: Input A – b: Input A direction controlled by input b or quadrature input (Inputs 90° out of phase). *

Type *

XXXXX *

XXXXX *

Seconds, minutes or hours*

Please specify if required

Backlight

4/20mA output

Alarms

Legend required

Legend required

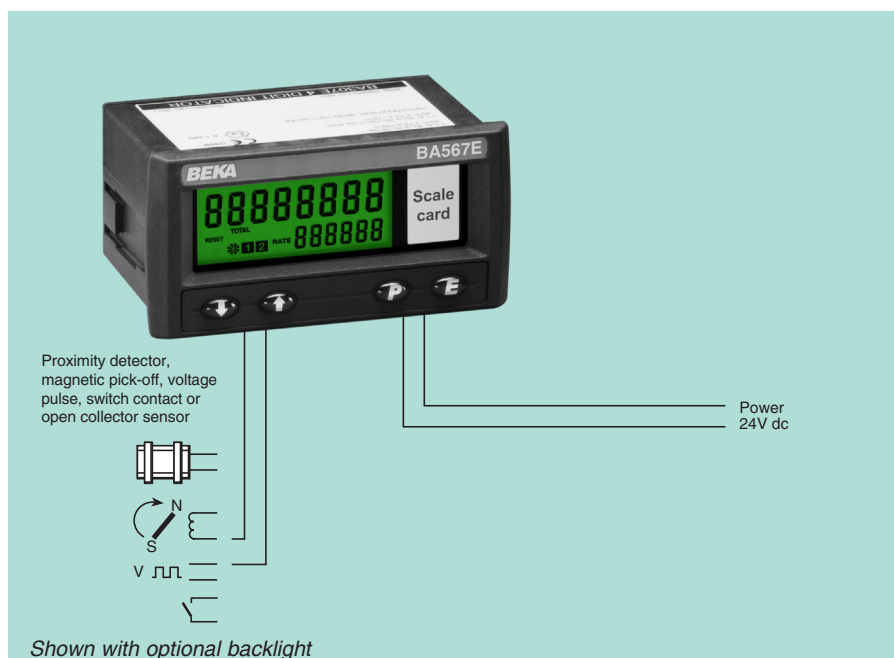
No charge if ordered with counter

Legend required

BA393G

BA394G or BA494G

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for Input A + b, open collector inputs with rate and total scaling factors of 1.0 and a timebase of seconds with direct pulse retransmission. Can easily be reconfigured on-site.



The **BA567E** is a general purpose counter with one input housed in a 96 x 48mm DIN enclosure. The counter is easy to use and can be configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse sensor. A slide-in scale card shows the units of measurement.

Main application of the BA567E is to count the number of pulses received from a process area sensor such as a 2-wire proximity detector and simultaneously display the rate and total number in engineering units within the process area or control room.

The display has high contrast and a wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total number of pulses may be scaled and displayed in almost any units to represent the engineering variable being counted. The total display may be reset using the front panel push buttons or an external contact closure. The pulse rate may be shown in the same or different units per second, minute or hour.

Display backlighting which is internally powered from the counter 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.

IP66 front panel protection with a neoprene gasket to seal the joint between the counter and the instrument panel, allows the BA567E to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks allowing panel wiring to be completed before the instrument is installed.

One of the following three isolated outputs may be fitted to a BA567E counter. All are factory fitted options.

Optional open collector pulse output will synchronously retransmit the counter input pulse, or a pulse when the least significant digit of the total display is incremented.

Optional 4/20mA current sink output may be configured to produce an analogue output proportional to any part of the total or rate display.

Optional dual alarms can switch loads such as a sounder or solenoid valve. The two galvanically isolated, solid state, voltage free outputs may be independently conditioned as rate or total alarms with normally open or closed outputs. Annunciators on the BA567E display show the status of both alarm outputs.

A rugged version and a two input counter with a larger display are available in other models within the range. The BA567E-SS is identical to the BA567E except that it is housed in a rugged stainless steel enclosure with a 10mm thick window which is ideal for applications in marine or hostile environments where the front of the instrument may be impacted.

The BA368E is a two input counter with a larger display in a 144 x 72mm DIN enclosure. Both inputs can be displayed separately and, depending upon the configuration, their sum or difference.

For applications in flammable atmospheres the BA367E, which is identical to the BA567E, has international intrinsic safety certification. The BA367NE has Ex nA and Ex tc approval allowing use in Zone 2 or 22 without Zener barriers or galvanic isolators.

BA567E

One input counter

General purpose

- ◆ **Configurable input:**
magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **96 x 48mm DIN enclosure with IP66 front protection.**
- ◆ **Simple on-site scale card installation.**
- ◆ **Optional:**
Backlight
dual alarms
or 4/20mA output
or pulse output
- ◆ **3 year guarantee**

www.beka.co.uk/ba567e

BEKA
associates

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SPECIFICATION

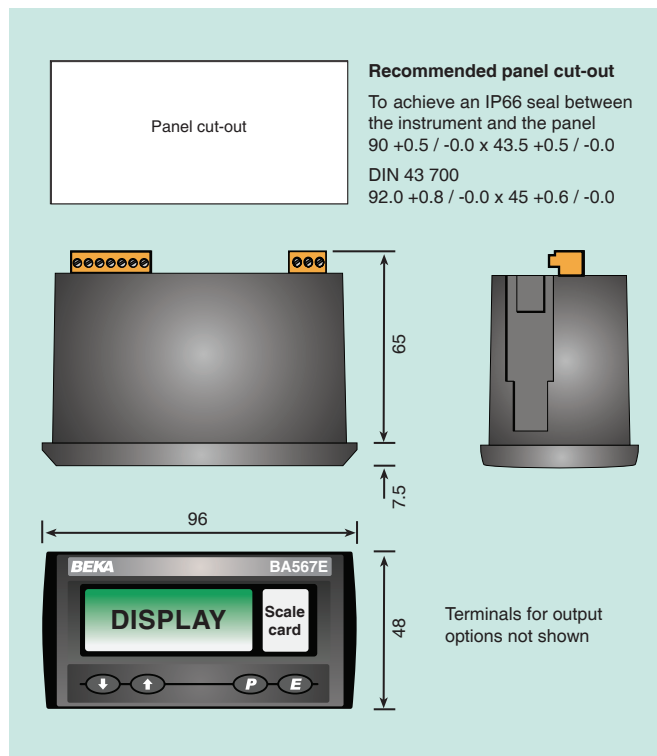
| | | | |
|---|--|---|----------------------|
| Power supply | | | |
| Voltage | 10 to 30V dc | | |
| Current | 16mA max plus 22.5mA for optional backlight | | |
| Input | Lower | Upper | switching thresholds |
| Switch contact | 100Ω | 1kΩ | |
| Proximity detector (NAMUR) | 1.2mA | 2.1mA | |
| Open collector | 2kΩ | 10kΩ | |
| Magnetic pick-off | 0 | +40mV | |
| Voltage pulse (low) | 1V | 3V | 30V max |
| Voltage pulse (high) | 3V | 10V | 30V max |
| Frequency | | | |
| Switch contact | 150Hz typical |] <i>Depends upon pulse width and debounce setting.</i> | |
| Other inputs | 100kHz max | | |
| All inputs | 0.01Hz min | | |
| Display | | | |
| Type | Liquid crystal | | |
| Zero blanking | Blanked apart from 0 in front of decimal point | | |
| Total # | 8 digits 9mm high | | |
| Decimal point | 1 of 7 positions or absent | | |
| Rate # | 6 digits 6mm high | | |
| Decimal point | 1 of 4 positions or absent | | |
| # Rate & Total can be shown on either 6 or 8 digit display | | | |
| Grand total | Maximum count 10 ¹⁶ | | |
| Remote reset | | | |
| Contact closure with resistance less than 10kΩ | | | |
| Configurable functions | | | |
| Total scale factor | Adjustable between 0.0001 and 99999 | | |
| Rate scale factor | Adjustable between 0.0001 and 99999 | | |
| Rate timebase | Rate may be displayed per second, minute or hour. | | |
| Rate display filter | Adjustable digital filter | | |
| 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 | | | |
| Material | Noryl SE1GFN3 | | |
| Protection | Front IP66, rear IP20 | | |
| EMC | Complies with EMC Directive 2014/30/EU | | |
| Mechanical | | | |
| Terminals | Screw clamp for 0.5 to 1.5mm ² cable, removable | | |
| Weight | 0.15kg | | |
| Accessories | | | |
| Backlight | Green LED internally powered | | |
| Scale card | Blank card fitted to all instruments. Can be supplied printed 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. # | | |
| One of the following three output accessories may be factory fitted to each counter. All have isolated outputs. | | | |
| Pulse output | Isolated open collector | | |
| Source & output | Counter input: synchronous pulse output, 5kHz max. or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000 Pulse width definable as: 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. | | |
| Ron | 51Ω + 3V max | | |
| Roff | 1MΩ min | | |
| I max | 10mA | | |
| 4/20mA output | Isolated current sink | | |
| Source | Rate or total | | |
| Voltage | 5 to 30V | | |
| Dual alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. | | |
| Outputs | Isolated single pole, voltage free solid state switch. | | |
| Ron | 5Ω + 0.7V max | | |
| Roff | 1MΩ min | | |
| V max | 30V dc | | |
| I max | 200mA | | |

One of the following three output accessories may be factory fitted to each counter. All have isolated outputs.

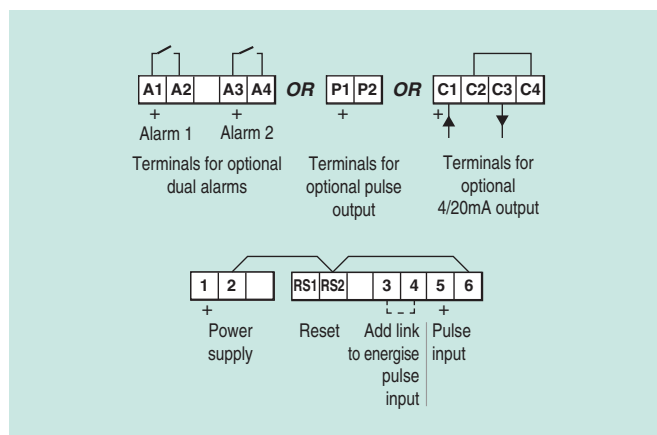
| | |
|-----------------|---|
| Pulse output | Isolated open collector Counter input: synchronous pulse output, 5kHz max. or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000 Pulse width definable as: 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. |
| Source & output | |
| | |
| Ron | 51Ω + 3V max |
| Roff | |
| I max | |
| 4/20mA output | Isolated current sink Rate or total 5 to 30V |
| Source | |
| Voltage | |
| Dual alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. |
| | |
| | |
| Outputs | Isolated single pole, voltage free solid state switch. |
| Ron | |
| Roff | |
| V max | |
| I max | |

See accessory datasheet for details

DIMENSIONS (mm)



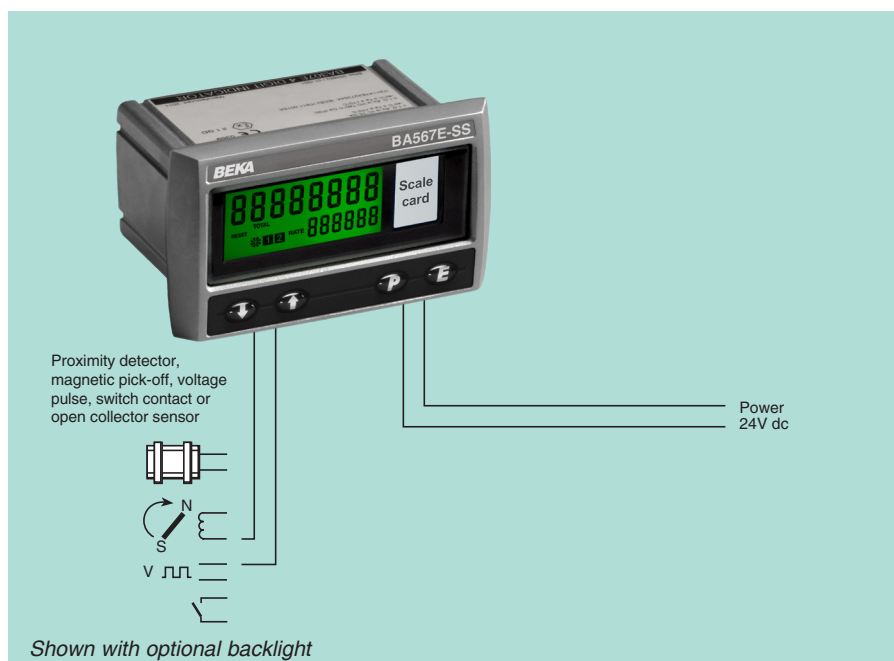
TERMINAL CONNECTIONS



HOW TO ORDER

| | |
|--|--|
| Model number | Please specify BA567E |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | |
| Display backlight | Please specify if required Backlight |
| Scale card | Legend required No charge if ordered with counter |
| Tag | Legend required |
| Rear cover and sealing kit | BA495 |
| One of following three output options: | |
| Pulse output | Pulse output |
| or 4/20mA output | 4/20mA output |
| or Dual alarms | Alarms |

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for open collector input with total and rate scaling factors of 1.0 and a timebase of seconds. Can easily be reconfigured on-site.



The **BA567E-SS** is a one input general purpose counter housed in a 316 stainless steel enclosure with a 10mm thick toughened glass window. The instrument has IP66 front of panel protection and is suitable for use in hostile and marine environments, or where the front of the instrument is likely to be impacted. The counter is easy to use and can be configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a voltage pulse sensor. A slide-in scale card shows the units of measurement.

Main application of the BA567E-SS is to count the number of pulses received from a process area sensor such as a 2-wire proximity detector and simultaneously display the rate and total number in engineering units within the process area.

The display has high contrast and a wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total number of pulses may be scaled and displayed in almost any units to represent the engineering variable being counted. The total display may be reset using the front panel push buttons or an external contact closure. The pulse rate may be shown in the same or different units per second, minute or hour.

Display backlighting which is internally powered from the counter 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.

One of the following three isolated **outputs** may be fitted to a BA567E-SS counter. All are factory fitted options.

Optional open collector pulse output will synchronously retransmit the counter input pulse, or a pulse when the least significant digit of the total display is incremented.

Optional 4/20mA current sink output may be configured to produce an analogue output proportional to any part of the total or rate display,

Optional dual alarms can switch loads such as a sounder or solenoid valve. The two galvanically isolated, solid state, voltage free outputs may be independently conditioned as rate or total alarms with normally open or closed outputs. Annunciators on the BA567E-SS display show the status of both alarm outputs.

For less hostile environments the BA567E is identical to the BA567E-SS except that it is housed in a Noryl enclosure also providing IP66 front of panel protection.

The BA568E is a two input counter with a larger display in a 144 x 72mm DIN enclosure. Both inputs can be displayed separately and, depending upon the configuration, their sum or difference can also be shown.

For applications in flammable atmospheres the BA367E-SS, which is identical to the BA567E-SS, has international intrinsic safety certification. The BA367NE has Ex nA and Ex tc approval allowing use in Zone 2 or 22 without Zener barriers or galvanic isolators.

BA567E-SS

Rugged one input counter

General purpose

- ◆ 105 x 60mm rugged 316 stainless steel enclosure with IP66 front protection.
- ◆ Configurable input: magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ Separate rate and total displays.
- ◆ Simple on-site scale card installation.
- ◆ Optional:
Backlight
dual alarms
or 4/20mA output
or pulse output
- ◆ 3 year guarantee

www.beka.co.uk/ba567e-ss

BEKA
associates

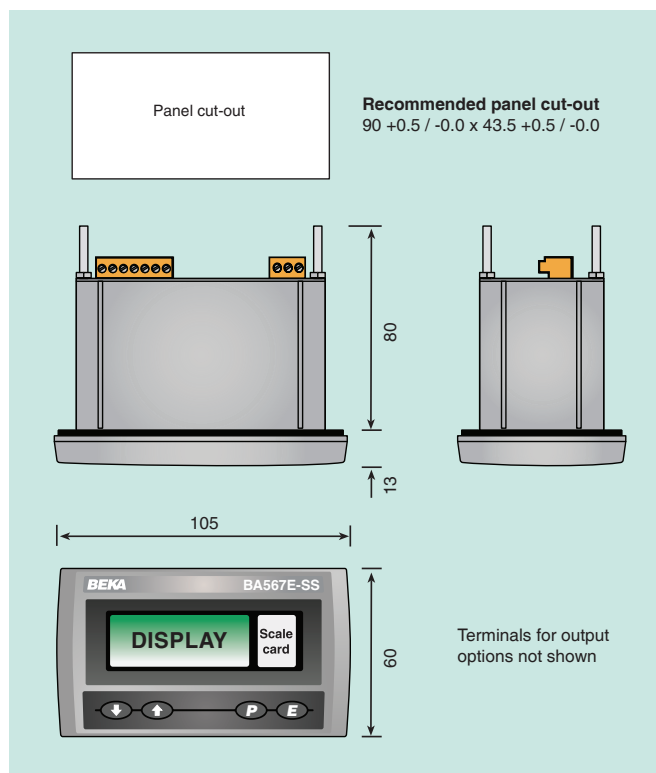
BEKA associates Ltd. Old Charlton Rd.
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SPECIFICATION

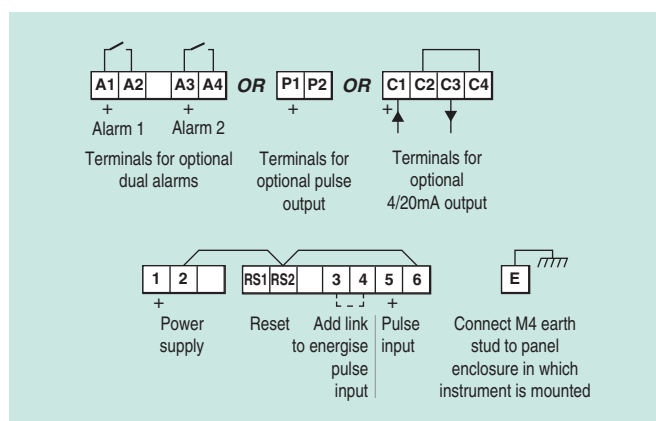
| | | | |
|---|---|---|----------------------|
| Power supply | | | |
| Voltage | 10 to 30V dc | | |
| Current | 16mA max plus 22.5mA for optional backlight | | |
| Input | Lower | Upper | switching thresholds |
| Switch contact | 100Ω | 1kΩ | |
| Proximity detector (NAMUR) | 1.2mA | 2.1mA | |
| Open collector | 2kΩ | 10kΩ | |
| Magnetic pick-off | 0 | +40mV | |
| Voltage pulse (low) | 1V | 3V | 30V max |
| Voltage pulse (high) | 3V | 10V | 30V max |
| Frequency | | | |
| Switch contact | 150Hz typical |] <i>Depends upon pulse width and debounce setting.</i> | |
| Other inputs | 100kHz max | | |
| All inputs | 0.01Hz min | | |
| Display | | | |
| Type | Liquid crystal | | |
| Zero blanking | Blanked apart from 0 in front of decimal point | | |
| Total # | 8 digits 9mm high | | |
| Decimal point | 1 of 7 positions or absent | | |
| Rate # | 6 digits 6mm high | | |
| Decimal point | 1 of 4 positions or absent | | |
| # <i>Rate & Total can be shown on either 6 or 8 digit display</i> | | | |
| Grand total | Maximum count 10 ¹⁶ | | |
| Remote reset | | | |
| Contact closure with resistance less than 10kΩ | | | |
| Configurable functions | | | |
| Total scale factor | Adjustable between 0.0001 and 99999 | | |
| Rate scale factor | Adjustable between 0.0001 and 99999 | | |
| Rate timebase | Rate may be displayed per second, minute or hour. | | |
| Rate display filter | Adjustable digital filter | | |
| 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 | | | |
| Material | BS 3146-2:1977 ANC4B (316) | | |
| Ingress | Front IP66, rear IP20 | | |
| EMC | Complies with 2014/30/EU | | |
| Mechanical | | | |
| Terminals | Screw clamp for 0.5 to 1.5mm² cable, removable | | |
| Weight | 0.85kg | | |
| Accessories | | | |
| Backlight | Green LED internally powered | | |
| Scale card | Blank card fitted to all instruments. Can be supplied printed with specified units of measurement for no additional charge at time of purchase. # | | |
| Tag legend | Specified tag number or application laser etched onto rear of instrument. # | | |
| BA495 rear cover and sealing kit | Provides impact and IP66 protection for rear of instrument. # | | |
| One of the following three output accessories may be factory fitted to each counter. All have isolated outputs. | | | |
| Pulse output | Isolated open collector | | |
| Source & output | Counter input: synchronous pulse output, 5kHz max. or Least significant digit of total display divisible by: 1, 10, 100, 1000 or 10000 Pulse width definable as: 0.1, 0.5, 1, 2.5, 5, 10, 25, 50, 100, 250 or 500ms. | | |
| Ron | 51Ω + 3V max | | |
| Roff | 1MΩ min | | |
| I max | 10mA | | |
| 4/20mA output | Isolated current sink | | |
| Source | Rate or total | | |
| Voltage | 5 to 30V | | |
| Dual alarms | Two alarms each of which may be independently configured as a rate or total, high or low alarm with a NO or NC output. | | |
| Outputs | Isolated single pole, voltage free solid state switch | | |
| Ron | 5Ω + 0.7V max | | |
| Roff | 1MΩ min | | |
| V max | 30V dc | | |
| I max | 200mA | | |

See accessory datasheet for details

DIMENSIONS (mm)



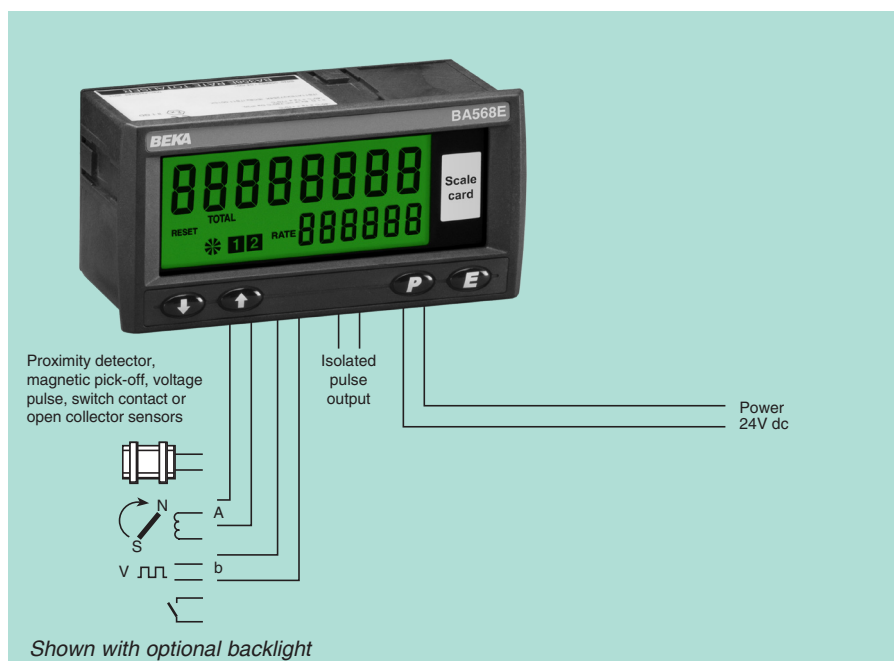
TERMINAL CONNECTIONS



HOW TO ORDER

| | |
|--|--|
| Model number | Please specify BA567E-SS |
| Input | Type * |
| Total scale factor | XXXXX * |
| Rate scale factor | XXXXX * |
| Rate timebase | Seconds, minutes or hours* |
| Accessories | |
| Display backlight | Please specify if required Backlight |
| Scale card | Legend required No charge if ordered with counter |
| Tag | Legend required |
| Rear cover and sealing kit | BA495 |
| One of following three output options: | |
| Pulse output | Pulse output |
| or 4/20mA output | 4/20mA output |
| or Dual alarms | Alarms |
| Rear cover and sealing kit | BA495 |

* Counter can be supplied configured as required for no additional charge. If configuration information is not supplied, instrument will be configured for open collector input with total and rate scaling factors of 1.0 and a timebase of seconds. Can easily be reconfigured on-site.



The **BA568E** is a two input general purpose counter which can display the sum or difference between the two pulse inputs, or the count direction of Input A may be controlled by input b. The output from a quadrature sensor can also be decoded to calculate and display position. The counter is easy to use and each input can be independently configured on-site to operate with a magnetic pick-off, switch contact, proximity detector, open collector or a sensor with a voltage pulse output. A slide-in scale card can be supplied printed with units of measurement, or can easily be marked on-site.

Any application requiring the sum or difference of pulse outputs from two sensors, such as counting the number of strokes performed by two reciprocating pumps and displaying total volume pumped in engineering units, can be performed by the BA568E. The counter's quadrature input also enables the position of a shaft or cable to be displayed together with its speed and direction of movement.

The large display has high contrast and a very wide viewing angle enabling the counter to be read in most lighting conditions over a wide temperature range. The total display may be shown in almost any engineering units and may be reset using the front panel push buttons or an external contact closure. Rate may be displayed in the same or different units of measurement per second, minute or hour.

IP66 front panel protection with a neoprene gasket to seal the joint between the counter and the instrument panel allow the BA568E to be installed in areas that will be washed down. To simplify installation and maintenance, the counter has removable terminal blocks allowing panel wiring to be completed before the instrument is installed.

The **isolated open collector pulse output** can be configured to synchronously retransmit either pulse input, or a pulse each time the least significant digit of the total display is incremented.

Display backlighting, which is internally powered from the counter, 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 the counter is installed in a poorly illuminated area.

An optional isolated 4/20mA current sink output may be configured to produce an analogue output proportional to any part of the rate or total display.

Optional dual alarms can switch loads such as a sounder or solenoid valve. The two galvanically isolated, solid state voltage free outputs may be independently configured as total or rate alarms with normally open or closed outputs. Annunciators on the BA568E display show the status of both alarm outputs.

If panel space is limited the BA567E is a one input counter housed in a 96 x 48mm enclosure which has similar single input features as the BA568E. Alternatively for applications in severe environments, or where the front of the instrument may be impacted, the BA567E-SS is housed in a rugged 316 stainless steel enclosure.

For applications in flammable atmospheres the BA368E, which is identical to the BA568E, has international intrinsic safety certification. For Zone 2 or 22 applications the rugged stainless steel BA367NE has Ex nA and Ex tc certification allowing installation without Zener barriers or galvanic isolator.

BA568E

Two input counter

General purpose

- ◆ **Configurable inputs:**
magnetic pick-off, switch contact, proximity detector, open collector or voltage pulse.
- ◆ **Separate rate and total displays.**
- ◆ **Can display position from quadrature sensor output.**
- ◆ **144 x 72mm DIN enclosure with IP66 front protection.**
- ◆ **Simple on-site scale card installation.**
- ◆ **Isolated pulse output**
- ◆ **Optional:**
Backlight
Dual alarms
4/20mA output
- ◆ **3 year guarantee**

www.beka.co.uk/ba568e

BEKA
associates

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