

The **BA414DF-F Fieldbus Indicator** is a new cost-effective intrinsically safe field mounting instrument that displays a single fieldbus process variable in a hazardous area. Housed in a robust IP66 GRP enclosure, the instrument has a large, high contrast five digit display, plus a horizontal bargraph. The BA414DF-F indicator uses the same technology and compliments the well established BEKA eight variable fieldbus displays that are now in worldwide use.

**Powered by the fieldbus** the BA414DF-F only requires a 2-wire connection to the intrinsically safe fieldbus segment, no additional power supply is required. Compatibility with most FOUNDATION™ fieldbus hosts is ensured by the use of a single *Input Selector* function block, which is supported by nearly all systems. Please contact the BEKA sales office for the latest compatibility information. The instrument has been registered by The Fieldbus Foundation and Device Description Files may be downloaded from their web site or from [www.beka.co.uk](http://www.beka.co.uk).

**The liquid crystal display** has large characters and is designed to provide maximum contrast and a wide viewing angle which enables the BA414DF-F indicator to be easily read in most lighting conditions. Five digits, with four decimal points and a negative sign, may be configured to display any value between -99999 and 99999. The 31 segment horizontal bargraph, which provides a bold analogue indication of the fieldbus variable, may be conditioned to any starting and finishing values within the fieldbus variable's range.

**The enclosure**, which is moulded in glass reinforced polyester (GRP), has stainless steel fittings, silicone gaskets and an armoured glass window. Its robust construction provides IP66 protection, which has been independently assessed by Intertek Testing Services – report available. A separate terminal compartment allows the instrument to be installed and terminated without

exposing the indicator electronics. To further simplify field wiring and subsequent inspection, the terminal cable entries and clamping screws are both forward facing. The indicator may also be mounted onto a vertical or horizontal pipe using one of the accessory kits.

**ATEX intrinsic safety certification** allows the BA414DF-F to be installed in all gas hazardous areas. The two fieldbus terminals comply with the Fieldbus Intrinsic Safety Concept (FISCO) simplifying system design and documentation. Separate entity input safety parameters also allow connection to most non-FISCO intrinsically safe systems. A BA414DF-F indicator may therefore be connected to almost any intrinsically safe fieldbus segment, provided the segment can supply 13mA to power the instrument. For applications in combustible dusts a separate version is available.

**FM, cFM and IECEx approvals** allow installation in the USA, Canada, plus the growing number of countries accepting IECEx certificates. All approvals incorporate FISCO certification. Details of the versions available are shown in the How to Order section on the reverse side of this datasheet.

**The FOUNDATION™ fieldbus Interface Guide** contains commissioning information for the BA414DF-F indicator. A copy may be requested from the BEKA sales office or from the BEKA web site at [www.beka.co.uk](http://www.beka.co.uk)

**Units of measurement** and the instrument application or tag number can be economically marked onto the display escutcheon prior to despatch or after installation on-site. Alternatively, for customers who prefer a stainless steel label, the indicator can be supplied with a removable blank or custom etched stainless steel plate mounted on the front of the enclosure.

**For panel mounting applications** see the BA418CF-F datasheet. This instrument has a similar electrical specification but is housed in a 144 x 72 panel mounting enclosure.

# BA414DF-F

## FOUNDATION™ fieldbus

### Fieldbus indicator

### Single variable

*Intrinsically safe for use in gas and dust hazardous areas*

- ◆ 20mm high easy to read 5 digit display
- ◆ 31 segment bargraph
- ◆ FOUNDATION™ fieldbus protocol
- ◆ Compatible with most system hosts
- ◆ Intrinsically safe
  - ATEX gas
  - or ATEX gas & dust
  - or FM, cFM & ATEX gas
- ◆ All models have IECEx certification
- ◆ Entity parameters & FISCO compliant
- ◆ IP66 field mounting GRP enclosure
- ◆ 3 year guarantee



# BEKA associates

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## SPECIFICATION

### Display

Type	Liquid crystal 5 digits plus sign, 20mm high (-99999 to 99999)
Variables	31 segment bargraph Single

### Fieldbus communication

Voltage	9 to 32V (Limited by intrinsic safety parameters)
Current	13mA
Compliant with	IEC61158—2 Clauses 11 and 22
Protocol	FOUNDATION™ fieldbus
Function block	1 x IS (input selector)

### Intrinsic safety

#### Europe ATEX

Code	Group II Category 1G Ga Ex ia IIC T4 FISCO Field Device Ex ia IIC T4 Tamb = -40 to 70°C
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or	Group II Category 1GD Ga Ex ia IIC T4 FISCO Field Device Ex ia IIC T4 Ex iaD 20 T100°C IP66 Tamb = -20 to 60°C	] <i>Dust option, see How to order</i>
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### Input parameters

Entity	U <sub>i</sub> = 22V
	I <sub>i</sub> = 250mA
	P <sub>i</sub> = 1.2W

FISCO	U <sub>i</sub> = 17.5V
	I <sub>i</sub> = 380mA
	P <sub>i</sub> = 5.32W

### Location

Gas	Zone 0, 1 or 2
Dust	Zone 20, 21 or 22

### Cert. No.

ITS06ATEX25313

### USA FM

Code	CL I, II, III: Div 1 GP A, B, C, D, E, F & G T4 @ 70°C
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Standard Code	3611 Nonincendive CL I, II, III: Div 2 GP A, B, C, D, E, F & G T4 @ 70°C
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File 3027031

### Canada cFM

File 3027031C

### International IECEx

Code	Ex ia IIC T4 Ga FISCO Field Device Ex ia IIC T4 Ta = -40 to 70°C
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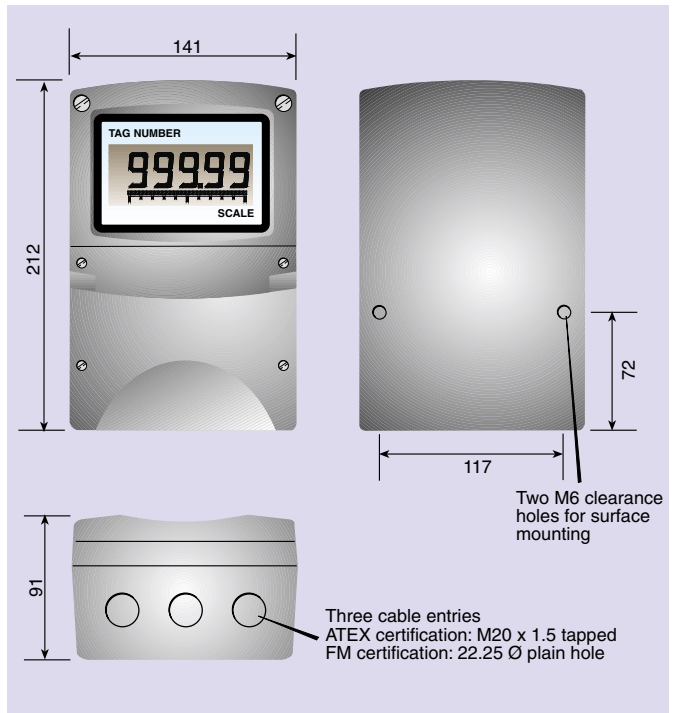
or	Ex ia IIC T4 Ga FISCO Field Device Ex ia IIC T4 Ex ia IIIC T100°C Da IP66 Ta = -20 to 60°C	] <i>Dust option, see How to order</i>
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Cert. No IECEx ITS 06.0012

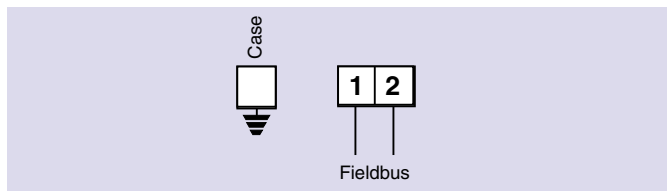
### Environmental

Operating temp	-20 to 70°C ATEX & IECEx certification gas -40°C to 70°C dust -20°C to 60°C
Storage temp	-40 to 85°C
Humidity	To 95% @ 40°C
Enclosure	IP66
EMC	In accordance with EU Directive 2004/108/EC

## DIMENSIONS (mm)



## TERMINAL CONNECTIONS



### Immunity

BS EN 61326:1998

Operates normally with conducted 3Vrms between 0.15kHz and 80MHz radiated 10V/m between 80MHz and 1GHz.

### Emissions

CISPR16-1/2 Class A

### Mechanical

#### Terminals

Screw clamp for 0.5 to 1.5mm<sup>2</sup> cable.

#### Weight

1.6kg

### Accessories

#### Scale legend

Units of measurement marked onto display escutcheon.

#### Tag legend

Tag number or applicational information marked onto display escutcheon.

#### Stainless legend plate

Stainless steel plate etched with tagging or applicational information secured to the front of the instrument.

#### Pipe mounting kit

BA392D or BA393

#### Fieldbus interface guide

May be downloaded from [www.beka.co.uk](http://www.beka.co.uk)

## HOW TO ORDER

### Model number

#### Please specify

BA414DF-F

### Certification

ATEX gas

or ATEX gas & dust

or FM, CFM & ATEX gas

] *All versions have IECEx certification.*

] *Note: Cable entries differ for FM & ATEX versions*

### Accessories

#### Escutcheon markings

#### Please specify if required

##### Scale

Scale legend

##### Tag

Tag legend

#### Stainless legend plate

Legend

#### Pipe mounting kit

BA392D or BA393