

The **BA414DF 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 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 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.

The **liquid crystal display** has large characters and is designed to provide maximum contrast and a wide viewing angle which enables the BA414DF 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 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 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 which already includes Australia and New Zealand. 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 indicator. A copy may be requested from the BEKA sales office or from the BEKA web site at 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 datasheet. This instrument has a similar electrical specification but is housed in a 144 x 72 panel mounting enclosure.

BA414DF

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

BEKA associates Ltd. Old Charlton Rd.
Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Display

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

Fieldbus communication

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

Intrinsic safety

Europe ATEX

Standard	EN50020:2002
Code	Group II Category 1G EEx ia IIC T4 Tamb = -40 to 70°C

or	Group II Category 1GD, T100°C IP66 EEx ia IIC T4 Tamb = -20 to 60°C] <i>Dust option, see How to order</i>
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Input parameters

Entity	Ui = 22V
	Ii = 250mA
	Pi = 1.2W

FISCO	Ui = 17.5V
	Ii = 380mA
	Pi = 5.32W

Location

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

Cert. No. ITS06ATEX25313

USA FM

Standard	3610 Entity
Code	CL I, II, III: Div 1 GP A, B, C, D, E, F & G T4 @ 70°C

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

File 3027031

Canada CFM

File 3027031C

International IECEx

Standard	IEC60079-11:1999
Code	Ex ia IIC T4 Ta = -40 to 70°C

or	Ex ia IIC T4 DIP A21 TA 100°C IP66 Ta = -20 to 60°C] <i>Dust option, see How to order</i>
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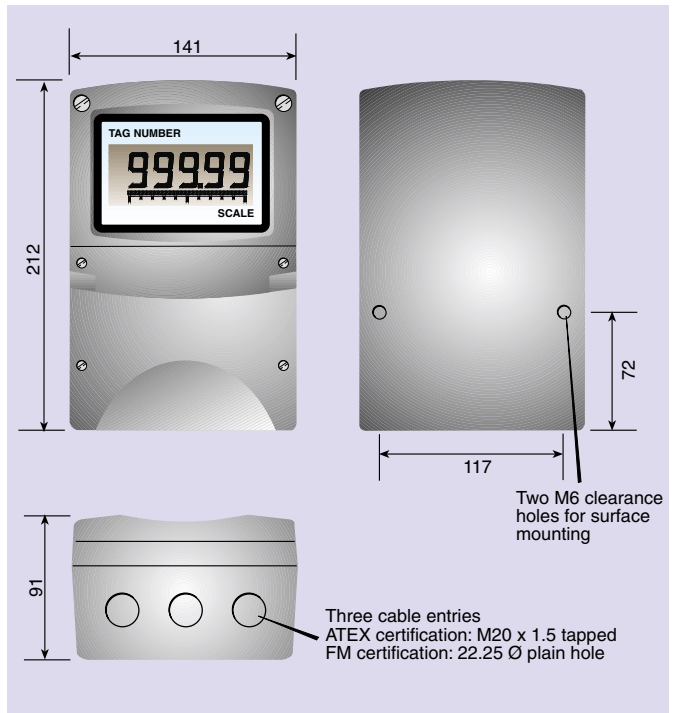
Cert. No. IECEx ITS 06.0012

Environmental

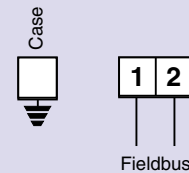
Operating temp	-20 to 70°C ATEX & IECEx certification gas -40°C to 70°C dust -20°C to 60°C
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Storage temp	-40 to 85°C
Humidity	To 95% @ 40°C
Enclosure	IP66
EMC	In accordance with EU Directive 89/336/EEC

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 ² 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

HOW TO ORDER

Model number	BA414DF] <i>All versions have IECEx certification. Note: Cable entries differ for FM & ATEX versions</i>
Certification	ATEX gas	
or	ATEX gas & dust	
or	FM, CFM & ATEX gas	

Accessories

Escutcheon markings	Please specify if required
Scale	Scale legend
Tag	Tag legend
Stainless legend plate	Legend
Pipe mounting kit	BA392D or BA393