Hazardous area

F138

⬇ ⬆ P E

m³/day

Safe area

*NEW*

Terminator — Fieldbus — Terminator — Power Supply & Segment Coupler ↔ Host

1 2

Field Device

Field Device

# BA444DF-P

## PROFIBUS PA Fieldbus Indicator 8 variables

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

◆ **Large 5 digit display with bargraph**

◆ **PROFIBUS PA protocol**

◆ **Displays up to 8 fieldbus variables**

◆ **Selectable Node or Listener modes**

◆ **Intrinsically safe ATEX gas or ATEX gas & dust or FM, cFM & ATEX gas**

**All versions have IECEx certification**

◆ **Entity parameters & FISCO compliant**

◆ **IP66 field mounting GRP enclosure**

◆ **3 year guarantee**

Ex        FM APPROVED   c   us

IEC  IECEx

# BEKA associates

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**The BA444DF-P PROFIBUS Indicator** is an intrinsically safe instrument that can display up to eight fieldbus process variables within a hazardous area. A numeric annunciator on the left hand side of the screen shows which variable is being displayed. This version of the indicator supports PROFIBUS PA protocol; for FOUNDATION™ fieldbus systems an alternative version is available – please see BA444DF-F FOUNDATION™ fieldbus datasheet.

**Configuration as a fieldbus Node or Listener** using the indicator's front panel push buttons allows the instrument to be tailored to suit local requirements. When configured as a Listener the BA444DF-P is not visible to the fieldbus host; may not be subject to a Node Licence Fee and is configured and controlled via the instrument's front panel push buttons.
As a fieldbus Node, the indicator is configured by the fieldbus host and the displayed variable is selected from the eight pre-configured fieldbus variables using the indicator's front panel up and down buttons.

**Powered by the fieldbus** the BA444DF-P only requires a 2-wire connection to the fieldbus segment, no additional power supply is required. Compatibility with most PROFIBUS hosts is assured by the use of eight Analogue Output and six Digital Input function blocks.

**The liquid crystal display** has large 20mm high digits providing maximum contrast and a wide viewing angle, allowing the BA444DF-P PROFIBUS indicator to be read easily in most lighting conditions. The five digits, with four decimal points and a negative sign, may be configured to display any variable between –99999 and 99999. The 31 segment bargraph, which provides a bold analogue indication of the fieldbus variable may be conditioned to any starting or 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. A separate terminal compartment allows the instrument to be installed and terminated without exposing the indicator electronics. To further simplify

wiring and subsequent inspection, the terminal cable entries and clamping screws are 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 BA444DF-P 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 BA444DF-P may therefore be connected to almost any intrinsically safe fieldbus segment that can supply an additional 13mA to power the instrument.

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

**Operator acknowledgements** may be returned to the fieldbus host when the BA444DF-P is configured as a fieldbus Node. Six digital Input function blocks in the indicator which are supported by most PROFIBUS hosts enable the status of the four front panel push buttons to be read.

**A Comprehensive PROFIBUS interface** guide contains commissioning information for the BA444DF-P. Copies may be requested from the BEKA sales office or downloaded from www.beka.co.uk

**Units of measurement** and the instrument's 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 BA448CF-P PROFIBUS datasheet. This instrument has a similar electrical specification but is housed in a 144 x 72 panel mounting enclosure.

## SPECIFICATION

**Display**

| | |
|---|---|
| Type | Liquid crystal |
| | 5 digit plus sign, 20mm high |
| | (-99999 to 99999) |
| | 31 segment bargraph |
| Variables | 8 |

**Controls**

| | |
|---|---|
| Front panel | Four push buttons for selecting displayed variable and configuration. May be used for returning operator acknowledgements when configured as a fieldbus node. |

**Fieldbus communication**

| | |
|---|---|
| Voltage | 9 to 32V (Limited by intrinsic safety input safety parameters) |
| Current | 13mA |
| Compliant with | IEC61158—2  Clauses 11 and 22 |
| Protocol | PROFIBUS PA |
| Profibus User Organisation. | Approval certificate Z01505 |
| Function | Fieldbus Node or Listener  selected via front panel push buttons. |

| | |
|---|---|
| Function blocks | |
| Profibus-PA node | 8 x AO;  6 x DI |
| Listener | Captures data in DS-33 format |

**Intrinsic safety**

**Europe ATEX**

| | |
|---|---|
| Code | Group II Category 1G |
| | Ga Ex ia IIC T4 |
| | FISCO Field Device Ex ia IIC T4 |
| | Ta = -40 to +70˚C |
| **or** | Group II Category 1GD |
| | Ga Ex ia IIC T4 |
| | FISCO Field Device Ex ia IIC T4 |
| | Ex iaD 20 T100˚C IP66 |
| | Ta = -20 to +60˚C |
| 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 at 70˚C |
| Standard | 3611 Nonincendive |
| Code | CL I, II, III: Div 2 |
| | GP A, B, C, D, E, F & G |
| | T4 at 70˚C |
| 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 |
| **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 |
| Cert. No. | IECEx ITS 06.0012 |

**Environmental**

| | |
|---|---|
| Operating temp | -20 to +60˚C |
| | ATEX & IECEx certification |
| | Gas  -40 to +70˚C |
| | Dust –20 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)



141

212

91

117

72

Two M6 clearance holes for surface mounting

Three cable entries
ATEX certification: M20 x 1.5 tapped
FM certification: 22.25 Ø plain hole

TAG NUMBER

SCALE

## TERMINAL CONNECTIONS



Case

1 | 2

Fieldbus

Non polarised
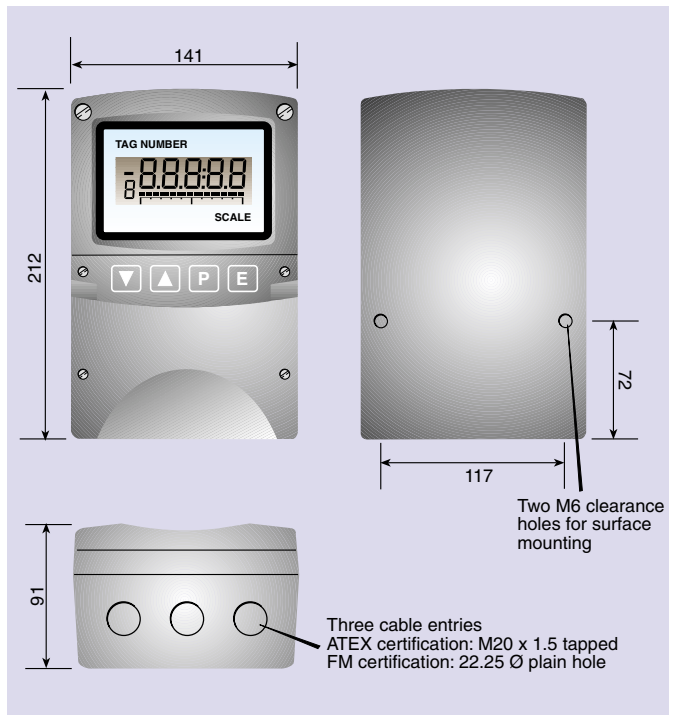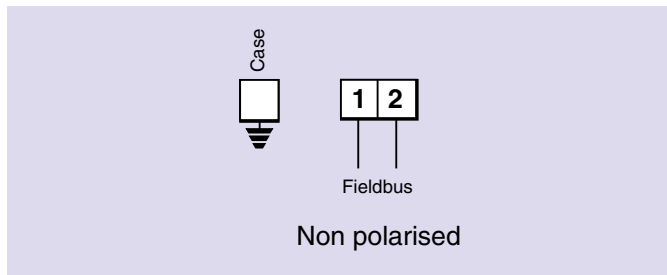
**Mechanical**

| | |
|---|---|
| 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 application marked onto display escutcheon. |
| Stainless legend Plate | Stainless steel plate etched with tag number or application attached to front of the instrument. |
| Pipe mounting kit | BA392D or BA393 |
| Profibus interface guide. | May be downloaded from www.beka.co.uk |

## HOW TO ORDER

| | **Please specify** |
|---|---|
| Model number | BA444DF-P PROFIBUS |
| Certification | ATEX gas |
| | **or** ATEX gas and dust |
| | **or** FM, cFM and ATEX gas |

*All versions have IECEx certification.*

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

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