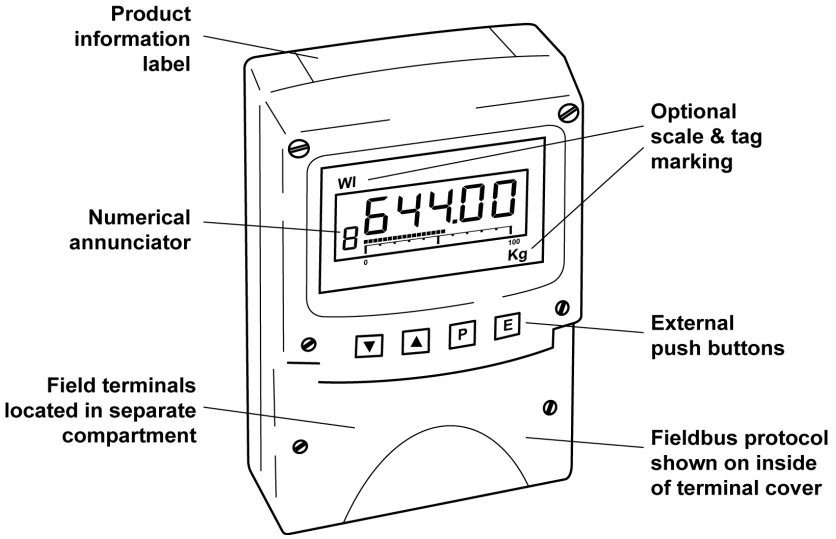
BA644DF-P
PROFIBUS PA
Field mounting
8 variable
Fieldbus Indicator

Issue 5



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CONTENTS

1. Description
- 1.1 Documentation

2. Operation
- 2.1 Error messages

3. System Design

4. Installation
- 4.1 Location
- 4.2 Installation procedure
- 4.3 EMC

5. Configuration
- 5.1 Configuration menus
- 5.2 Node configuration menu
  - 5.2.1 Enter fieldbus address
  - 5.2.2 Access code
  - 5.2.3 Change from node to listener
  - 5.2.4 Reset to node factory defaults
- 5.3 Listener configuration menu
  - 5.3.1 Access
  - 5.3.2 Summary of configuration functions.
- 5.4 Description of listener menu functions
  - 5.4.1 Scan fieldbus segment
  - 5.4.2 List configured input parameters.
  - 5.4.3 Enter address & display parameters.
  - 5.4.4 Enable selected input
  - 5.4.5 Enter source address
  - 5.4.6 Enter destination address
  - 5.4.7 Enter Index
  - 5.4.8 Decimal point position
  - 5.4.9 Configuration of bargraph
  - 5.4.10 Scale numeric display
  - 5.4.11 Access code for listener configuration menu.
  - 5.4.12 Change from fieldbus listener to fieldbus node.
  - 5.4.13 Reset to listener factory defaults.

6. Maintenance
- 6.1 Fault finding during commissioning
- 6.2 Fault finding after commissioning
- 6.3 Servicing
- 6.4 Routine maintenance
- 6.5 Guarantee
- 6.6 Customer comments

7. Accessories
- 7.1 Scale and Tag marking
- 7.2 Tag plate
- 7.3 Pipe mounting kits

The BA644DF-P is CE marked to show compliance with the European EMC Directive 2014/30/EU. It is also UKCA marked to show compliance with UK Electromagnetic Compatibility Regulations UKSI 2016:1091 (as amended)

1. DESCRIPTION

The BA644DF-P fieldbus indicator is a PROFIBUS PA instrument that may be configured as a fieldbus node or as a fieldbus listener. It can display up to eight fieldbus process variables on a five digit LCD and a 31 segment analogue bargraph. The instrument is bus powered so no additional power supply is required and has PROFIBUS PA User Organisation approval, certificate Z01505.

Fieldbus node configuration may be performed by either a User PRM data download or by a DPV1 configurator, and if required, the instrument address may be entered via the front panel push buttons.

When configured as a fieldbus listener, the BA644DF-P is not visible to the fieldbus host and can only be configured using the push buttons on the front of the instrument.

Housed in a robust IP66 glass reinforced polyester (GRP) enclosure with a toughened glass window, the BA644DF-P is surface mounting, or may be pipe mounted using one of the accessory kits.

The instrument's communication protocol is shown on a label inside the terminal cover. The '-P' order code suffix also indicates the protocol but is not shown on the instrument identification label. There is an alternative version of the fieldbus display, order code BA644DF-F for use on FOUNDATION™ fieldbus networks.

1.1 Documentation

This instruction manual describes installation, configuration and use of the BA644DF-P as a PROFIBUS PA listener and as a PROFIBUS PA node. For additional node configuration information please refer to the *BEKA PROFIBUS PA Display – Fieldbus Interface Guide* which is available from the BEKA sales office, or may be downloaded from www.beka.co.uk

2. OPERATION

The BA644DF-P indicator can display up to eight pre-configured PROFIBUS PA process variables designated in-1 to in-8. The operator can select which variable is displayed using the ▼and ▲ push buttons which scroll the display through the eight inputs. A numeric annunciator on the left hand side of the display shows which of the eight inputs is currently being displayed.

2.1 Error messages

'no ConF'	No inputs have been configured or are enabled.
'no dAtA'	No data is being received with the current configuration.

3. SYSTEM DESIGN

The BA644DF-P PROFIBUS PA indicator is powered and communicates via the fieldbus which is connected to non-polarised terminals 1 and 2 as shown in Fig 1. The indicator may be connected to any PROFIBUS PA segment that can supply an additional 13mA at between 9 and 32V required to power the instrument.

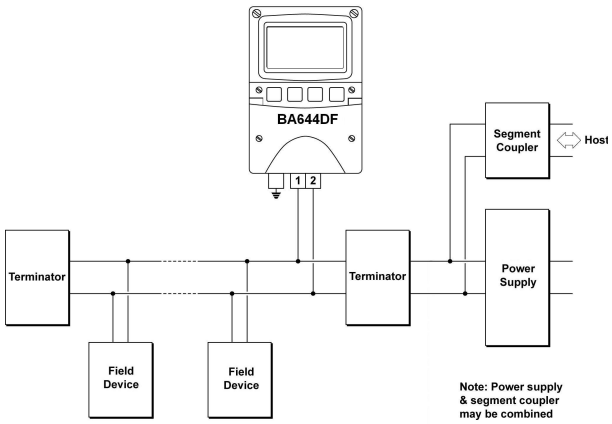


Fig 1 Typical PROFIBUS PA segment

4. INSTALLATION

4.1 Location

The BA644DF-P PROFIBUS PA indicator is housed in a robust IP66 glass reinforced polyester (GRP) enclosure incorporating an armoured glass window and stainless steel fittings. It is suitable for exterior mounting in most industrial environments, including offshore and wastewater treatment installations. Please consult BEKA associates if high vibration is anticipated.

The BA644DF-P enclosure is surface mounting. Accessory kits described in sections 7.3 of this manual enable the instrument to be mounted onto a vertical or horizontal pipe.

The field terminals and the two mounting holes are located in a separate compartment with a sealed cover allowing the instrument to be installed without exposing the display assembly.

The BA644DF-P earth terminal is connected to the carbon loaded GRP enclosure. If this enclosure is not bolted to a post or structure connected to the plant potential equalising network, the instrument's earth terminal should be connected to the potential equalising network.

The BA644DF-P enclosure is supplied with a bonding plate to ensure electrical continuity between the three conduit / cable entries.

4.2 Installation Procedure

Fig 2 illustrates the instrument installation procedure.

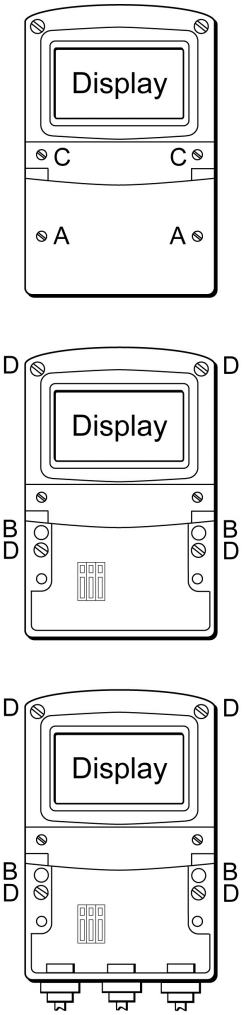
a. Remove the instrument terminal cover by unscrewing the two captive 'A' screws.

b. Mount the instrument on a flat surface and secure with two M6 screws through the 'B' holes. Alternatively use one of the mounting kits described in section 7.3

c. Remove the temporary hole plug and install a cable gland or conduit entry with required ingress protection. If more than one entry is required, replace one or both IP66 stopping plugs with a cable gland or conduit entry having the required ingress protection.

d. Connect the field wiring to the terminals as shown in Fig 3.

e. Replace the instrument terminal cover and evenly tighten the two 'A' screws.



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

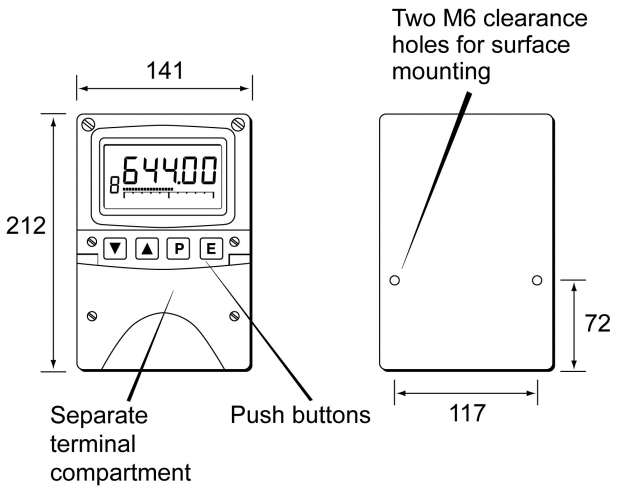
Step B
Secure the instrument to a flat surface with M6 screws through the two 'B' holes. Alternatively use a pipe mounting kit.

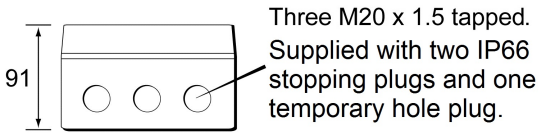
Step C and D
Remove the temporary hole plug and install an appropriate IP rated cable gland or conduit fitting. If more than one entry is required, one or both of the IP66 stopping plugs may be replaced with an appropriate IP rated gland or conduit fitting.

Fig 2 BA644DF-P installation procedure

4.3 EMC

The BA644DF-P complies with the requirements of the European EMC Directive 2014/30/EU and UK Electromagnetic Compatibility Regulations UKSI 2016:1091 (as amended). For specified immunity, all wiring should be in screened twisted pairs with the screens earthed at one point in the safe area.





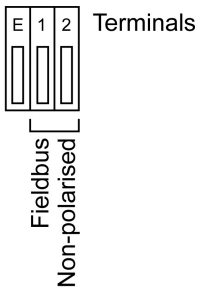


Fig 3 Dimensions and terminal connections

5. CONFIGURATION

The BA644DF-P 8 variable PROFIBUS PA indicator may be configured as a fieldbus node or as a fieldbus listener. When used as a fieldbus node the indicator is configured via the fieldbus host although the instrument address may be entered via the front panel push buttons using the menu shown in Fig 4. For detailed node conditioning information please refer to the *BEKA PROFIBUS PA Display – Fieldbus Interface Guide* which may be downloaded from the BEKA website www.beka.co.uk

As a fieldbus listener, the BA644DF-P is not visible to the fieldbus host and can only be configured via the front panel push buttons using the menu shown in Fig 6.

Throughout this manual the four BA644DF-P push buttons are identified ***P*** ***E*** ▼ ▲ and legends displayed by the instrument are shown within inverted commas e.g. 'CodE' and 'Enb'.

5.1 Configuration menus

The configuration menus are separated into two sections, fieldbus node and fieldbus listener. Both contain the 'tYPE' function that enables transfer between the two. Unless otherwise requested when ordered, all PROFIBUS PA BA644DF-P instruments are supplied as a fieldbus node with default configuration but can easily be reconfigured on-site.

5.2 Node configuration menu

The node configuration menu is shown in Fig 4. Access to the menu is obtained by operating the ***P*** and ***E*** buttons simultaneously. If the BA644DF-P is not protected by an access code the first parameter 'Addr' will be displayed. If the instrument is protected by an access code, 'CodE' will be displayed first. Pressing ***P*** will allow the four digit security code to be entered digit by digit using the ▼ or ▲ button to adjust the flashing digit and ***P*** to move control to the next digit. When the correct code has been entered, pressing ***E*** will cause the first parameter 'Addr' to be displayed. If an incorrect code is entered, or no button is pressed for ten seconds, the BA644DF-P will automatically return to the display mode.

5.2.1 Enter fieldbus address 'Addr'

This function enables the fieldbus address of the BA644DF-P to be entered via the push buttons. Select 'Addr' in the node menu using the ▼ or ▲ button and press ***P*** to enter the function. This will reveal the existing three digit decimal address with the left hand digit flashing which may be changed by operating the ▼ or ▲ button. When set as required operating the ***P*** button will transfer control to the next digit that may be adjusted in the same way.

When all digits are set as required operating the ***E*** button will enter the new address and the indicator will restart in the display mode after completing the initialisation sequence. If the address is not changed, operating the ***E*** button will return the display to the 'Addr' prompt in the node configuration menu.

5.2.2 Access code for configuration menu 'CodE'

Access to the node configuration menu may be protected by a four digit security code which must be entered to gain access. New instruments are supplied configured with the default code 0000 which disables this protection and allows unrestricted access to the configuration menu.

To enter a new access code select 'CodE' in the node configuration menu by operating the ▼ or ▲ button. To enter the function press ***P*** which will reveal the current access code with one digit flashing. The code may be changed using the ▼ or ▲ button to adjust the flashing digit and the ***P*** button to move control to the next digit. When the required code has been selected, press ***E*** to enter the selection and return to the 'CodE' prompt in the configuration menu. The revised access code will be activated when the transmitter is returned to the display mode.
If the access code is lost please contact BEKA associates.

5.2.3 Change from node to listener 'tYPE'

This function enables the instrument to be changed from a fieldbus node to a fieldbus listener. Select 'tYPE' in the node configuration menu using the ▼ or ▲ button. To enter the function press ***P*** which will show that the instrument is configured as a fieldbus node, to change to a fieldbus listener press the ▼ or ▲ button which will toggle the display to 'LStnr' To prevent accidental changes this request must be confirmed by operating the ***P*** button and entering '5urE'. The instrument will display '0000' with the first digit flashing, using the ▼ or ▲ button set the flashing digit to '5' and press the ***P*** button to move control to the next digit which should be set to 'u'. When the four letters of '5urE' have been entered, operating the ***E*** button will cause the instrument to restart as a fieldbus listener in the display mode.

CAUTION

All the instrument's node configuration information will be lost when it is changed from a fieldbus node to a fieldbus listener.

Please refer to the quick set-up procedure in the *BEKA PROFIBUS PA Display – Fieldbus Interface Guide*.

5.2.4 Reset the instrument to node factory defaults 'rESEt'

The BA644DF-P may be reset to the factory defaults that are shown below:

Security Code	0000 (disabled)
Device address	126

For each of the eight inputs:

Decimal point	XXX.XX
Bar Type	Left
Bar lower limit	0.0
Bar Upper limit	100.0
Gain	1.0
Offset	0.0

To reset the BA644DF-P select 'rESEt' in the configuration menu by operating the ▼ or ▲ button. To enter the function press ***P*** which will reveal '0000' with the left hand digit flashing. To prevent accidental use of this function, '5urE' must be entered to confirm that the instrument is to be reset.

Using the ▼ or ▲ button set the flashing digit to '5' and press the ***P*** button to move control to the next digit which should be set to 'u'. When the four letters of '5urE' have been entered operating the ***E*** button will reset the BA644DF-P to the factory defaults. Any existing configuration and addresses will be lost when the instrument is reset.

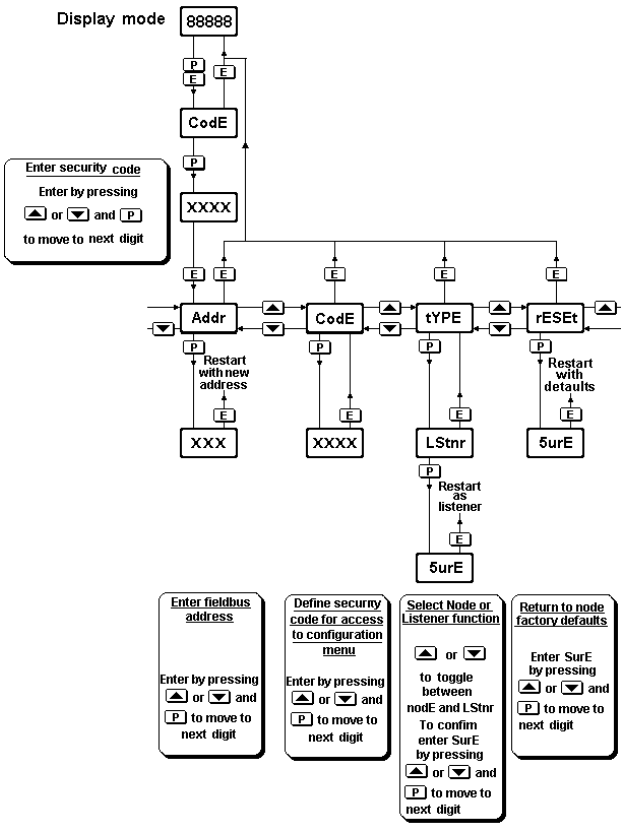


FIG 4 Node configuration menu

5.3 Listener configuration menu

When used as a fieldbus listener the BA644DF-P is not visible to the fieldbus host and can only be configured using the front panel push buttons shown in Fig 3.

The listener configuration menu is separated into three sections, 'SCAn', 'LISt' and 'Edit', plus three housekeeping functions 'CodE', 'tYPE' and 'rESEt' as shown in Fig 6.

'SCAn' is the simplest method of configuration if the addresses of the data sources to be displayed by the BA644DF-P listener are not known.

In the 'SCAn' function pressing the ***P*** button causes the BA644DF-P listener to search the fieldbus segment to which it is connected for all data sources. The hexadecimal device addresses for each data source are displayed as shown in Fig 5.

The ▼ and ▲ push buttons scroll the display through all the data sources on the segment showing the source and destination address for each one. To aid identification, operating the ***P*** button will preview the value of the data at the selected addresses with a zero index i.e. the first five bytes in the data string. If the format of the data is not DS-33 (status + float) 'no dAt' will be displayed. The selected source and destination addresses may be allocated to one of the eight BA644DF-P listener inputs in-1, to in-8. Operating the ***P*** button will reveal the current listener input which may be changed using the ▼ or ▲ push button, when set as required, operating the ***E*** push button will enter the allocation. If the process variable to be displayed is located further along the data stream i.e. has an index greater than 5, the required index must be entered via the index 'ind' function in the edit sub-menu.

A worked configuration example illustrating this procedure is contained in the Quick Set-up section of the *BEKA PROFIBUS PA Display – Fieldbus Interface Guide*.



Fig 5 Device Addresses

If the source and destination addresses and index of the process variable to be displayed by the BA644DF-P listener are known, they may be directly entered via the edit sub-menu. This sub-menu also provides full control of both the numeric and bargraph display parameters.

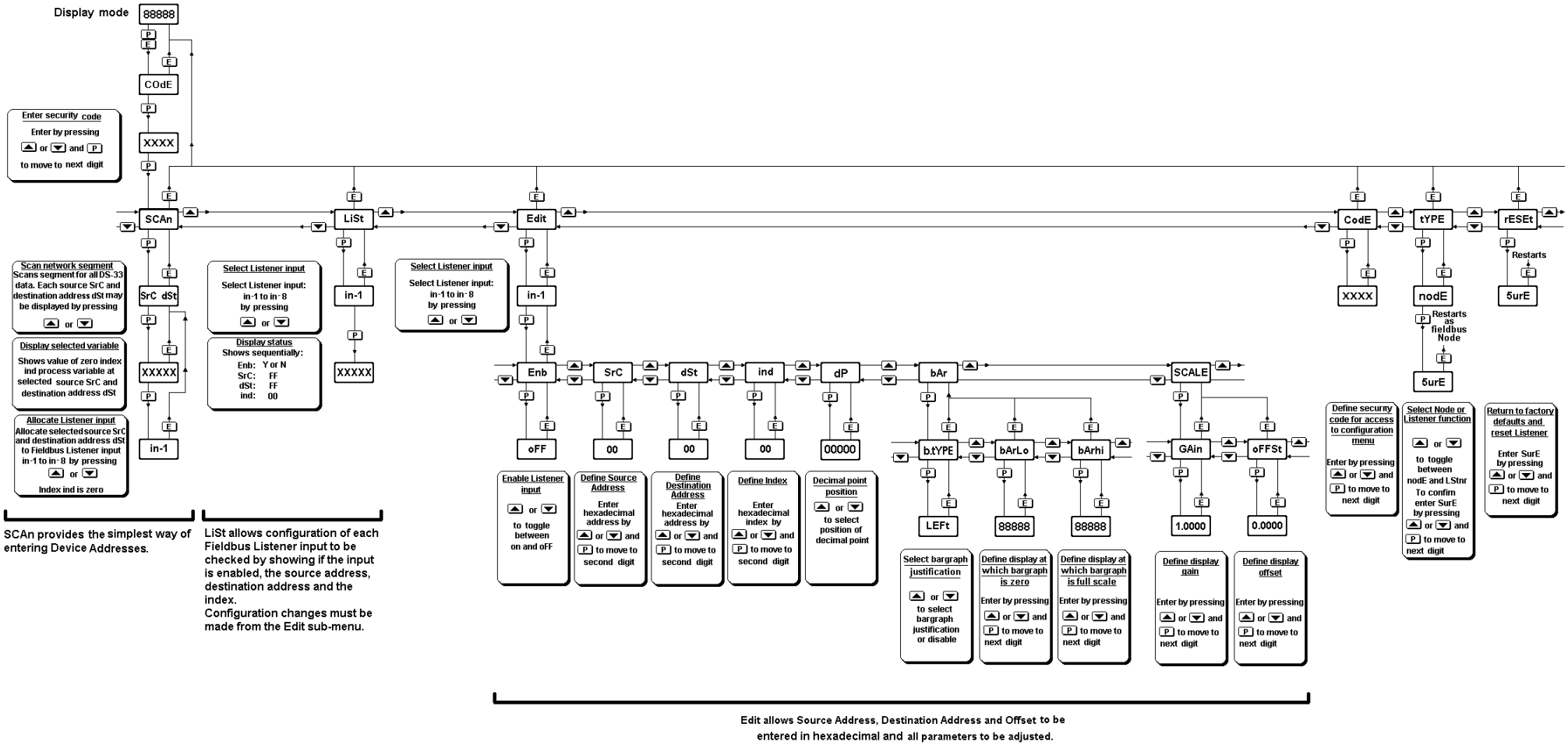


Fig 6 Listener configuration menu

5.3.1 Access

Access to the listener configuration menu is obtained by operating the ***P*** and ***E*** buttons simultaneously. If the BA644DF-P listener configuration menu is not protected by an access code the first parameter 'SCAn' will be displayed. If the BA644DF-P is protected by an access code, 'CodE' will be displayed first. Pressing ***P*** will allow the four digit security code to be entered digit by digit using the ▼ or ▲ button to adjust the flashing digit and ***P*** to move control to the next digit. When the correct code has been entered, pressing ***E*** will cause the first parameter 'SCAn' to be displayed. If an incorrect code is entered, or no button is pressed for ten seconds, the indicator will automatically return to the display mode.

Section 5.3.2 contains a summary of each configuration function including a cross reference to a more detailed description.

5.3.2 Summary of listener configuration functions

Instrument display — **Summary of function**

'SCAn' Scan fieldbus segment
Identifies all data sources on the fieldbus segment to which the listener is connected and enables selected data to be allocated to one of the eight listener inputs in-1 to in-8.
See section 5.4.1

'LiSt' List configured input parameters
For each of the eight BA644DF-P listener inputs, in-1 to in-8 shows if the input is enabled, Source Address, Destination Address and the Index which have been allocated. Parameters can not be changed from within this function.
See section 5.4.2

'Edit' Enter addresses and display parameters
Sub-menu which allows known fieldbus device addresses to be entered and all display parameters adjusted for each of the eight fieldbus listener inputs.
See section 5.4.3

'Enb' Enable selected input
Enables each of the eight listener inputs in-1 to in-8 to be enabled or disabled without affecting any parameters.
See section 5.4.4

'SrC' Enter Source Address
Allows hexadecimal fieldbus device source address for each of the eight listener inputs in-1 to in-8 to be entered.
See section 5.4.5

'dSt' Enter Destination Address
Allows hexadecimal fieldbus device destination address for each listener input in-1 to in-8 to be entered.
See section 5.4.6

'ind' Enter Index
Allows hexadecimal index for specified fieldbus source address to be entered for each listener input in-1 to in-8.
See section 5.4.7

'dP' Decimal point position
Defines position of displayed decimal point for each listener input in-1 to in-8.
See section 5.4.8

'bAr' Configuration of bargraph
Defines the bargraphs justification and the digital display at which the bargraph is zero and full scale for each listener input in-1 to in-8.
See section 5.4.9

'SCALE' Scale numeric display
Applies zero offset and scale factor to the numeric display for each listener input in-1 to in-8.
See section 5.4.10

'CodE' Access code for listener configuration menu
Enters a four digit security access code for configuration menu. Default code 0000 disables this function.
See section 5.4.11

'tYPE' Change from listener to node
Enables the instrument to be conditioned as a fieldbus listener or a fieldbus node.
See section 5.4.12

'rESEt' Reset to listener factory defaults
Returns the BA644DF-P listener to factory defaults.
See section 5.4.13

5.4 Description of listener menu functions

This section contains a detailed description of each function in the listener configuration menu. It should be read in conjunction with Fig 6.

5.4.1 Scan fieldbus segment 'SCAn'

If the Device Addresses of a data source are not known, the 'SCAn' function provides a simple way to identify them. This function scans the fieldbus segment to which the BA644DF-P listener is connected and identifies all the data sources. To aid identification the value of the process variable with a zero index i.e. the first five bytes in the data string at the address may be pre-viewed.

The BA644DF-P listener only supports DS-33 formatted data (status+float) which is the usual format for analogue process variables. The 'SCAn' function will identify, irrespective of format, all data sources on the segment whose destination address is five bytes long. When pre-viewed, non DS-33 formatted data will produce a 'no dAt' error message.

'SCAn' is the first function displayed when entering the configuration menu, or it may be selected from within the menu by operating the ▼ or ▲ button. To scan the fieldbus segment to which the listener is connected for all data sources press ***P*** which will reveal the hexadecimal source address and destination address of the first data source found as shown in Fig 5. If there is more than one data source, operating the ▼ or ▲ button will scroll though all of them.

If there are no data sources on the fieldbus segment the BA644DF-P listener will display 'noSrC'.

When the source and destination addresses of a data source are displayed, to aid identification the value of the process variable with a zero index i.e. the first five bytes in the data string may be pre-viewed by operating the ***P*** button. If this confirms that it is the required address, it may be allocated to one of the eight BA644DF-P listener inputs in-1 to in-8. To select the required listener input, press ***P*** which will display the first input in-1. Operating the ▼ or ▲ button will scroll the display through the other inputs. When the required input is displayed pressing ***E*** will allocate the selected data source address to the selected input and return the display to the source and destination addresses from which another data source address may be selected. When a data source address is allocated to a listener input any previous allocation will be overwritten.

If the required process variable has an index above 5 i.e. it is not the first five bytes in the data string, the required index should be entered via the 'ind' function in the Edit sub-menu which is described in section5.4.7

5.4.2 List configured input parameters 'LiSt'

The 'LiSt' function enables the Source Address, Destination Address and Index allocated to each listener input to be viewed without danger of it being accidentally changed.

The 'LiSt' function may be selected from within the menu by operating ▼ or ▲ button. To enter the function press ***P*** which will display the listener input currently selected in the display mode, other inputs may be selected using the ▼ or ▲ button. Operating the ***P*** button will cause the following parameters for the selected input to be displayed sequentially:

Display	Explanation
'Enb :Y or N'	Input Enabled yes or no
'SrC :00'	Source Address
'dSt :00'	Destination Address
'ind :00'	Index

The display then automatically returns to the selected BA644DF-P listener input from where another input may be selected.

If one of the eight BA644DF-P Listener's inputs in-1 to in-8 has not had a Source Address, Destination Address and Index allocated to it, 'LiSt' will show both addresses as 'FF' and the index 'ind' as '00'.

5.4.3 Enter address & display parameters 'Edit'

The 'Edit' sub-menu may be selected from within the menu by operating ▼ or ▲ button. To enter the function press ***P*** which will display the listener input currently selected in the display mode, other listener inputs may be selected using the ▼ or ▲ button. When the required input has been selected operating the ***P*** button will enter the edit sub-menu at 'Enb' for the selected input.

5.4.4 Enable selected input 'Enb'

'Enb' turns the listener input selected in the Edit function on or off without affecting the conditioning. To enter the function press ***P*** which will reveal whether the selected input is 'on' or 'oFF'. Operating the ▼ or ▲ buttons will toggle between the two conditions. When set as required operating the ***E*** button will enter the selection and return to the 'Enb' prompt in the edit sub-menu.

5.4.5 Enter source address 'SrC'
This function allows a known fieldbus device source address to be entered and allocated to the listener input selected in the edit function. To enter the function press ***P*** which will reveal the existing two digit hexadecimal address with one digit flashing which may be changed by operating the ▼ or ▲ button. When set as required operating the ***P*** button will transfer control to the second digit that may be adjusted in the same way. When both digits are set as required operating the ***E*** button will enter the selection and return to the 'SrC' prompt in the edit sub-menu.

5.4.6 Enter destination address 'dSt'
This function allows a known fieldbus device destination address to be entered and allocated to the listener input selected in the Edit function. To enter the function press ***P*** which will reveal the existing two digit hexadecimal address with one digit flashing which may be changed by operating the ▼ or ▲ button. When set as required operating the ***P*** button will transfer control to the second digit that may be adjusted in the same way. When both digits are set as required operating the ***E*** button will enter the selection and return to the 'dSt' prompt in the edit sub-menu.

5.4.7 Enter Index 'ind'
Index defines the location of the required process variable in the data string. The 'ind' function allows a known Index for the selected fieldbus Source Address to be entered and allocated to the BA644DF-P listener input selected in the Edit function. The data location is manufacturer specific and can not be automatically determined; the device documentation should therefore be consulted. To enter the function press ***P*** which will reveal the existing two digit hexadecimal address with one digit flashing which may be changed by operating the ▼ or ▲ button. When set as required operating the ***P*** button will transfer control to the second digit that may be adjusted in the same way. When both digits are set as required operating the ***E*** button will enter the selection and return to the 'ind' prompt in the edit sub-menu.

5.4.8 Decimal point position 'dP'
This defines the position the decimal point in the numeric display. To enter the function press ***P*** which will reveal the existing decimal point position. Operating the ▼ or ▲ button will move the decimal point to the required position, omit it, or activate all the decimal points which automatically provides maximum resolution in the display mode irrespective of the numeric value.
When positioned as required, operating the ***E*** button will enter the selection and return to the 'dP' prompt in the edit sub-menu.

5.4.9 Configuration of bargraph display 'bAr'
This function contains three sub-functions that enable the bargraph, justify its position and define the relationship between the bargraph and the instrument's numeric display.

Sub-function 'b.tYPE' enables the bargraph to be left, centre or right justified, or to be turned off. Sub-functions 'bArLo' and 'bArhi' define the listener's numeric display at which the bargraph starts and is at full scale.
The 'bAr' function may be selected from within the edit sub-menu by operating the ▼ or ▲ button. To enter the function press ***P*** which will display the 'b.tYPE' sub-function, pressing ***P*** again will reveal the existing bargraph justification. The ▼ or ▲ button will scroll through the four options, when the required justification is displayed, pressing ***E*** will enter the selection and return the display to the 'b.tYPE' prompt in the edit sub-menu from which 'bArLo' may be selected using the ▼ or ▲ button.

'bArLo' defines the listener's numeric display at which the bargraph starts, to enter the function press ***P*** which will reveal the existing setting. The display may be changed using the ▼ or ▲ button to adjust the flashing digit and the ***P*** button to move control to the next digit. When the required starting display has been selected, press ***E*** to return to the 'bArLo' prompt in the edit sub-menu from which the 'bArHi' function may be selected.

'bArHi' defines the listener's numeric display at which the bargraph is full scale, to enter the function press ***P*** which will reveal the existing setting. The display may be changed using the ▼ or ▲ button to adjust the flashing digit and the ***P*** button to move control to the next digit. When the required display has been selected, press ***E*** twice to enter the new values and return to the 'bAr' prompt in the edit sub-menu.

Note: If the 'dP' function has been set to provide automatic maximum resolution irrespective of the displayed value, it may be necessary to manually position the decimal point before adjusting 'bArLo' or 'bArHi'. This can be achieved by repeatedly operating the ***P*** button until the activated decimal point flashes, the decimal point can then be positioned using either the ▼ or ▲ button. Pressing the ***P*** button again will return control to one of the digits.

5.4.10 Scale numeric display 'SCALE'
A scaling factor 'Gain' and an offset 'oFFSt' may be applied to the fieldbus process variable using this function, thus allowing the listener to display the fieldbus process variable in alternative units.

The ‘SCALE’ function may be selected from within the edit sub-menu by operating the ▼ or ▲ button. To enter the function press ***P*** which will display the ‘GAin’ sub-function, pressing ***P*** again will reveal the existing gain with one digit flashing. This flashing digit may be changed by operating the ▼ or ▲ button; when adjusted the ***P*** button will move control to the next digit or to the decimal point which can be positioned using the ▼ or ▲ button. When ‘GAin’ has been set to the required value operating the ***E*** button will enter the selection and return to the ‘GAin’ prompt in the sub-menu from where the ‘oFFSt’ function can be selected using the ▼ or ▲ button.

To enter the ‘oFFSt’ function press ***P*** which will reveal the existing offset with one digit flashing. Again the flashing digit may be changed by operating the ▼ or ▲ button and the ***P*** button will move control to the next digit or to the decimal point. When ‘oFFSt’ has been set to the required value operating the ***E*** button will enter the selection and return to the ‘oFFSt’ prompt in the sub-menu. Three operations of the ***E*** button will return to the ‘Edit’ function in the main configuration menu.

5.4.11 Access code for listener configuration menu ‘CodE’

Access to the listener configuration menu may be protected by a four digit security code which must be entered to gain access. New instruments are supplied configured with the default code 0000 which disables this protection and allows unrestricted access to the configuration menu.

To enter a new access code select ‘CodE’ in the configuration menu by operating the ▼ or ▲ button. To enter the function press ***P,*** this will reveal the current access code with one digit flashing. The code may be changed using the ▼ or ▲ button to adjust the flashing digit and the ***P*** button to move control to the next digit. When the required code has been selected, press ***E*** to enter the selection and return to the ‘CodE’ prompt in the configuration menu. The revised access code will be activated when the transmitter is returned to the display mode.

If the access code is lost please contact BEKA associates.

5.4.12 Change from fieldbus listener to fieldbus node ‘tYPE’

This function enables the BA644DF-P to be conditioned as a fieldbus node or as a fieldbus listener. To change the function of the instrument select ‘tYPE’ in the listener configuration menu using the ▼ or ▲ button and press ***P*** to enter which will show that the instrument is configured as a fieldbus listener.

To change to a fieldbus node press the ▼ or ▲ button which will toggle the display to ‘nodE’. To prevent accidental changes this request must be confirmed by operating the ***P*** button and entering ‘5urE’. The instrument will display ‘0000’ with the first digit flashing, using the ▼ or ▲ button set the flashing digit to ‘5’ and press the ***P*** button to move control to the next digit which should be set to ‘u’. When the four letters of ‘5urE’ have been entered, operating the ***E*** button will result in the instrument restarting in the display mode as a fieldbus node.

CAUTION

All the instrument’s listener configuration information will be lost when it is changed from a fieldbus listener to a fieldbus node.

5.4.13 Reset the listener to factory defaults ‘rESEt’

The BA644DF-P listener may be reset to the factory defaults that are shown below:

Security Code	0000 (disabled)

For each of the eight inputs:

Decimal point	XXX.XX
Bar Type	Left
Bar lower limit	0.0
Bar Upper limit	100.0
Gain	1.0
Offset	0.0

To reset the BA644DF-P listener select ‘rESEt’ in the configuration menu by operating the ▼ or ▲ button. To enter the function press ***P,*** this will reveal ‘0000’ with the left hand digit flashing. To prevent accidental use of this function, ‘5urE’ must be entered to confirm that the instrument is to be reset.

Using the ▼ or ▲ button set the flashing digit to ‘5’ and press the ***P*** button to move control to the next digit which should be set to ‘u’. When the four letters of ‘5urE’ have been entered operating the ***E*** button will reset the BA644DF-P to the factory defaults. Any existing configuration and addresses will be lost when the listener is reset.

6. MAINTENANCE

6.1 Fault finding during commissioning

If a BA644DF-P fails to function during commissioning the following procedure should be followed:

Symptom	Cause	Check:
No Display	Instrument not correctly connected or powered.	9 to 32V between terminals 1 & 2.
Displays 'no ConF'	No inputs are enabled.	Configuration of each input.
Displays 'no dAtA'	No data being received with the current configuration.	Addresses and Index are correct. That data has DS-33 format.
Display shows a static value of 99999 or -99999	Value over-range / under-range	Configuration. and decimal point position.
Display stays static with the word bad.	Status of fieldbus variable has a quality of 'bad' or a fault state is active	Fieldbus configuration.
Bargraph scale stays OFF	Bargraph over-range / under-range	Bargraph configuration.
All display segments activated.	Display is initialising.	This is normal operation, after a few seconds the model number followed by the firmware version will be displayed prior to entering the display mode.

6.2 Fault finding after commissioning

ENSURE PLANT SAFETY BEFORE STARTING MAINTENANCE

If a BA644DF-P fails after it has been functioning correctly, the table shown in section 6.1 may help to identify the cause of the failure.

If this procedure does not reveal the cause of the fault, it is recommended that the instrument is replaced.

6.3 Servicing

We recommend that faulty BA644DF-P PROFIBUS PA Indicators are returned to BEKA associates or to our local agent for repair.

6.4 Routine maintenance

The mechanical and electrical condition of the instrument should be regularly checked. Initially annual inspections are recommended, but the inspection frequency should be adjusted to suit the environmental conditions.

6.5 Guarantee

Instruments which fail within the guarantee period should be returned to BEKA associates or our local agent. It is helpful if a brief description of the fault symptoms is provided.

6.6 Customer comments

BEKA associates is always pleased to receive comments from customers about our products and services. All communications are acknowledged and whenever possible, suggestions are implemented.

7. ACCESSORIES

7.1 Scale and tag marking

BA644DF-P PROFIBUS PA Indicators are fitted with a blank escutcheon around the liquid crystal display. If specified when the instrument is ordered, this can be supplied printed with units of measurement and tag information, plus a scale for the horizontal bargraph. Alternatively, information may be added on-site via an embossed strip, dry transfer or a permanent marker.

To gain access to the display escutcheon remove the terminal cover by unscrewing the two 'A' screws which will reveal two concealed 'D' screws. Unscrew all four 'D' screws and carefully lift off the front of the instrument. The location of these screws is shown in Fig 2.

After adding the required legends, or fitting a new pre-printed self-adhesive escutcheon, ensure that the gasket is correctly positioned before reassembling the instrument enclosure.

7.2 Tag plate

The BA644DF-P can be supplied with a blank or custom laser marked stainless steel plate secured by two screws to the front of the instrument enclosure. This plate can accommodate:

1 row of 9 alphanumeric characters 10mm high

or 1 row of 11 alphanumeric characters 7mm high

or 2 rows of 18 alphanumeric characters 5mm high.

or 8 cells each containing units of measurement or identification for one of the 8 inputs.

7.3 Pipe mounting kits

Two pipe mounting kits are available for securing the BA644DF-P to a horizontal or vertical pipe.

BA392D Stainless steel bracket secured by two worm drive hose clips for 60 to 80mm outside diameter pipes.

BA393 Heavy-duty stainless steel bracket secured by a single 'V' bolt. Will clamp to any pipe with an outside diameter between 40 and 80mm.