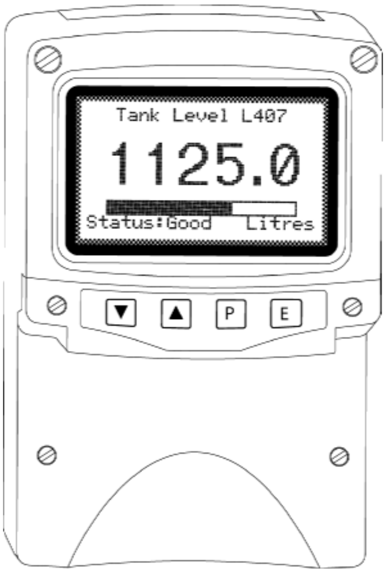
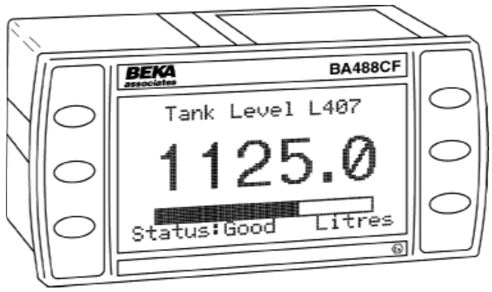
Profibus PA
Fieldbus Display
[Version 2 Firmware]

Fieldbus Interface Guide





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This guide applies to the following models:

BA488CF - *Panel mounted, Intrinsically Safe*
BA484DF - *Field mounted, Intrinsically Safe*
BA688CF - *Panel mounted, Safe Area*
BA684DF - *Field mounted, Safe Area*

Contents

Introduction

This guide gives all the necessary information to use our Fieldbus Displays on a Profibus PA installation.

Several other protocols are commonly used in industry which we may choose to support as market demand rises. This guide and others will periodically be updated, so please come back to our website regularly for the latest information.

For hardware installation information, please refer to the separate instruction manuals available for each model.

For information on customising the screen displays of the Fieldbus Display, please refer to the "Programming Guide".

What's in this Fieldbus Interface Guide

- An overview of each instrument
- A description of the parameters that are applicable to each instrument.
- Instructions on how to use the instrument in its standard non-programmed modes

What's in the Programming Guide

- A description of the Fieldbus Display
- An overview of the protocol
- Specific information on more advanced features
- A command summary, where the commands are grouped together by function and presented in a series of tables
- A command reference, where each command is listed in alphabetical order and covered in detail. The information is presented in a consistent layout and examples given to demonstrate the use of the command in context.

What's in the Instruction Manuals

- An overview of the instrument
- Intrinsic Safety Certification information
- System Design and Installation
- Configuration
- Maintenance

Other sources of information

Our website at ***www.beka.co.uk*** is kept up to date with the latest literature and information

After reading through this guide, if you still have a problem getting the results you need then email us at ***support@beka.co.uk*** and we will do our best to help you

Product Overview

A detailed overview of the instrument is given in the instruction manual for each product. This should be read before implementing any system using these instruments. However it is useful to summarise the main features of the product before attempting to design any controlling software application.

Display

The instrument display is organised as 120 pixels horizontally by 64 pixels vertically. Each pixel is approximately 0.7mm square which makes it ideal for displaying text and simple graphics. The size of the pixels improves the contrast and hence the readability at greater distances.

The display is also backlit by an ultra-efficient green LED module which enables the screen to be viewed in all conditions, from bright sunlight to total darkness.

Analogue Input Display

The primary purpose of this instrument is to display process variables that exist in a system. Nine pre-programmed screen layouts are available to display one, two, three or four variables simultaneously. A total of eight (8) variables can be accessed by using the front panel push buttons.

For applications that require a customised display, the unit can be programmed by following the instructions in the "Fieldbus Display Programming Guide" (available from BEKA associates). It is possible to map a number of AO values to a corresponding set of formatted text strings such that they are automatically updated without any further intervention. As this guide concentrates on the non-programmed modes of operation such advanced use is outside the scope of this document.

Switch Inputs

There are six switches on the front of the panel mounted instrument, and four on the field mounted instrument. Both models have the option of overriding these with up to six external switches which can be sized and labelled to suit the application.

Switch Outputs

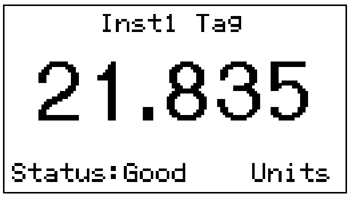
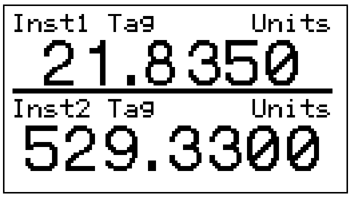
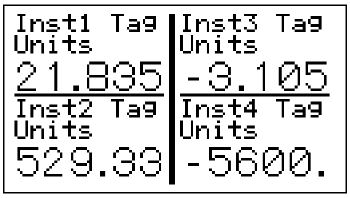
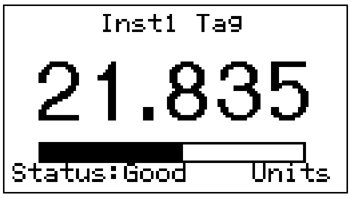
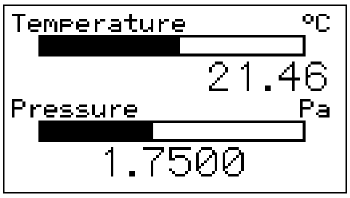
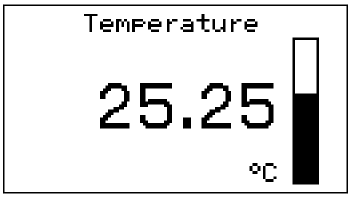
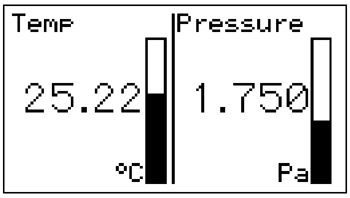
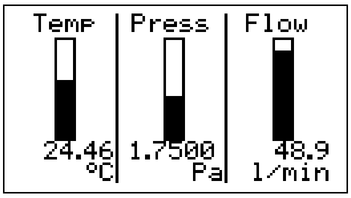
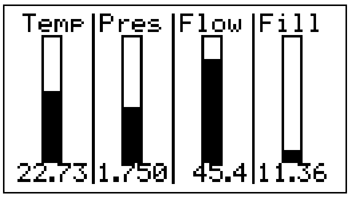
As an optional accessory (available only at the time of ordering), there can be six switch outputs available. These are totally isolated and can be energised or de-energised independently of each other. They can be driven either by direct commands from the fieldbus, or alarm set-point values can be assigned so that they operate automatically. Note that they are not intended to be used as conventional Profibus Alarms and should be used for indication only. They are under the control of the local application and are actioned on received values or stored setpoints. There is no communication of status across the fieldbus other than reading the appropriate parameters directly.

Standard Screens

There are nine standard screens available which require no application programming. They are capable of displaying a selection of up to eight process variables, together with their units of measure and tag description. Once a screen format has been chosen, each input variable can be brought into view by pressing the up and down arrow keys.

These standard screens are ideal for many simple applications and can be implemented very quickly. However, where a unique display format is required these can be built up using the commands that can be found in the “Fieldbus Display – Programming Guide”

The screen format is selected by either using the local menu (as described in the Instruction Manual) or by using the BEKA Protocol <SO> Screen Option command. One of nine standard display formats can be selected as shown in the following table:

Screen Option 1		Screen Option 2	
Screen Option 3		Screen Option 4	
Screen Option 5		Screen Option 6	
Screen Option 7		Screen Option 8	
Screen Option 9		Screen Option 0	Custom screens

Setting the Screen Option to a value of 0 will allow custom screens to be displayed by using BEKA protocol commands.

General Operation

The primary purpose of a BEKA fieldbus display is to enable local indication of up to 8 fieldbus process variables. This is normally achieved using cyclic data writes to the AO Function blocks.

The configuration of the display can be manually carried out using the local configuration menus, or acyclic data transfers can be sent to parameters in the custom transducer blocks.

Acyclic data transfers to parameters in the custom transducer blocks can also be used for:

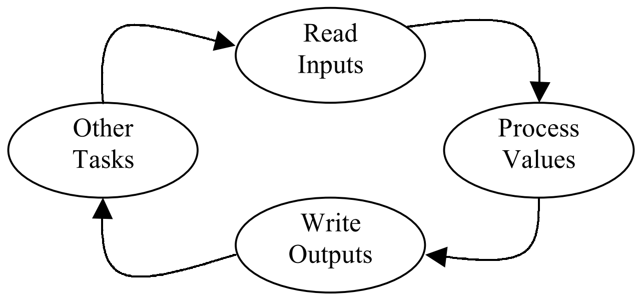
- Display of text and simple graphics. This permits the use of the display as a basic operator terminal. Keypad button presses are latched and can be read over the fieldbus.

- Design of custom screens that contain text, graphics and embedded fieldbus variables that are automatically updated from received cyclic data.

Full details of how to use these more advanced text and graphics capabilities of the display are contained in the "Fieldbus Display Programming Guide".

Profibus Introduction

Profibus is a fieldbus protocol designed for communicating between host and field devices. There are several layers to the Profibus standard: Profibus DP (Decentralised Periphery) is the high speed solution designed and optimised especially for communication between automation systems and decentralised field devices. Profibus DP exchanges input and output information in a cyclic manner. This cyclic data traffic is the basis of the system and is described as Version 0 or DPV0.



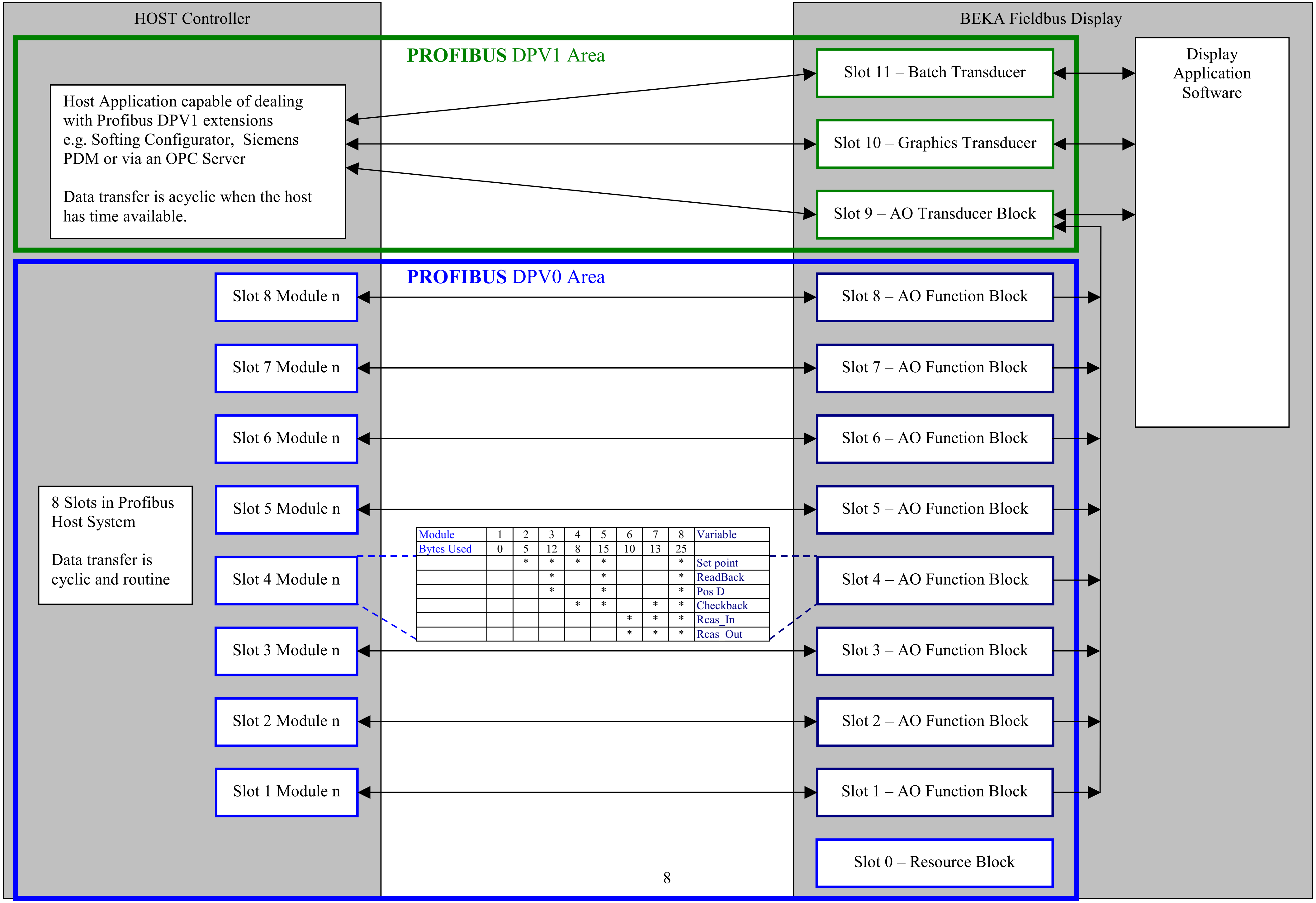
A typical automation system will read all the inputs and then use this data in conjunction with the process design parameters to calculate the new output values. These values will then be written to the output devices. The whole cycle will then start all over again. This sequence is described as Cyclic Data.

The time cycle required to control the process on the plant often leaves the host with some spare time that can be used for background and other tasks. This, combined with the need of the instrument engineer to be able to configure and maintain the field devices without going out on to the plant, led to the development in 1997 of a revised standard, Profibus DPV1.

DPV1 provides the host with a mechanism to get data about the configuration and health of each field device. This only happens when specifically requested, and only when the host controller has the time to be able to do it. This kind of data transfer is known as Acyclic data.

It is important to note that Cyclic Data traffic has priority over the Acyclic Data traffic as it is used for the plant control.

The following diagram shows how the data flows from the host to the BEKA Fieldbus device:



Module	1	2	3	4	5	6	7	8	Variable
Bytes Used	0	5	12	8	15	10	13	25	
		*	*	*	*			*	Set point
			*		*			*	ReadBack
			*		*			*	Pos D
				*	*		*	*	Checkback
						*	*	*	Rcas_In
						*	*	*	Rcas_Out

The BEKA Fieldbus Display is shown on the right side of the diagram. It consists of 12 virtual blocks named Slot 0 to Slot 11. Data is transferred between the host and these slots by either routine cyclic data, or occasional acyclic data.

The resource block at Slot 0 gives the host a point of reference to find out about the facilities of the unit. This is only done occasionally, so an acyclic data transfer is used for this purpose. The 8 AO function blocks at slots 1 – 8 are where the host places the data to be displayed. As this is constantly being updated, routine cyclic data transfers are used. The remaining three transducer blocks at slot 9-11 are used to configure the display, again by using (occasional) acyclic data.

The 8 AO function blocks are standard Profibus blocks, the specifications of which are available from the Profibus organisation (As such the fine detail is not repeated in this manual). Each function block has 6 variables that can be made accessible to the host system. These are shown in the first column of this table:-

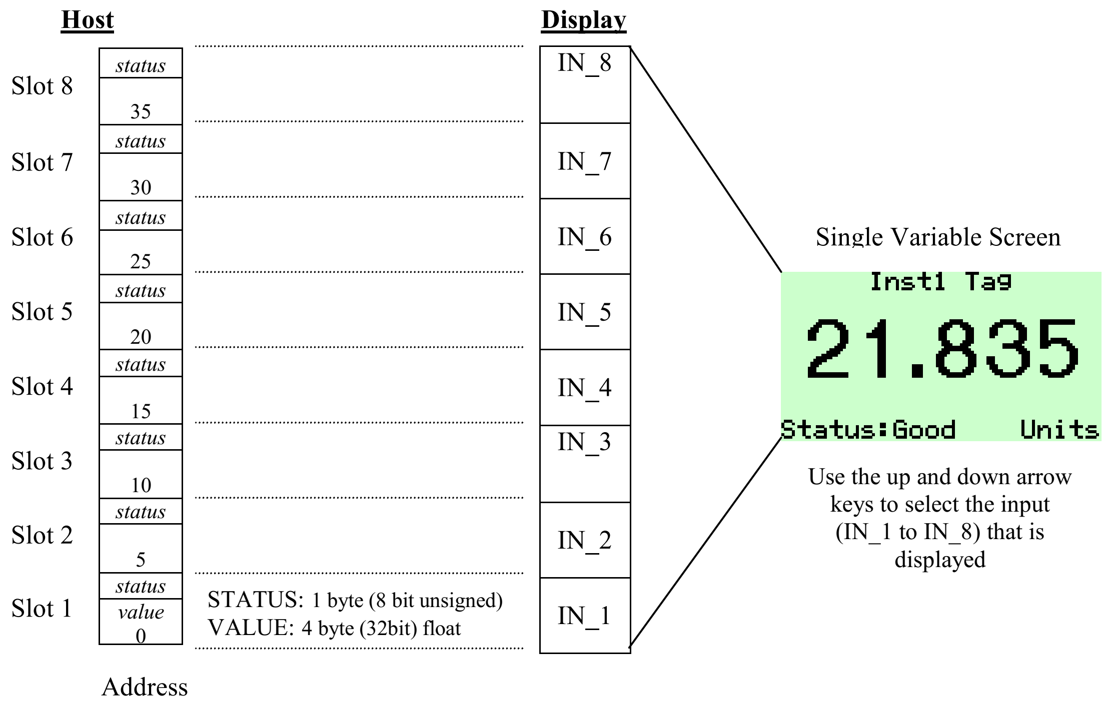
Variable	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7	Module 8
Set Point		√	√	√	√			√
Readback			√		√			√
POS D			√		√			√
Checkback				√	√		√	√
RCas_In						√	√	√
RCas_Out						√	√	√

Number of bytes used in memory map	0	5	12	8	15	10	13	25

There are defined combinations of these 6 variables available as modules which are defined in the GSD description of the BEKA device. These modules are used to selectively show or hide the variables that are relevant to the host application. The choice of which module to use will depend on the design of the process and is left to the user to decide, but for simple display applications the Set Point Module, Module 2 will be adequate.

When the Fieldbus Display is first loaded on the host system, the user will find 8 slots that can be configured with the 8 different types of module. If the user configures each slot with Module 2 then the host will only be able to access the Setpoint on each function block. Each slot on the host will then take up 5 bytes of space thus defining the memory map that the host is able to access. Writing to the Setpoint value will cause that value to be display on the field device.

From the memory map perspective, write a 32 bit float to the first four bytes of the slot, and write a **GOOD** status value (128) to the status byte. The number will then appear on the screen.



However if the user needs the more complex functions of the AO Function block, other modules can be chosen, the choice of which will affect the memory map of the instrument seen by the host.

The following sections describes how to use the features of the display. The relevant instruction manual for the instrument being used must be read in conjunction with these notes, as the operation and description of the menu structure is not detailed here.

Setting the Fieldbus Address

Each unit is supplied from the factory at the special address 126. This address ***MUST*** be changed to one between 1 and 125 before the display can be put into service.

The address is set via the host software's configuration package: There are no hardware links or menu items on the display that need to be altered.

The exact method varies between packages, but as an example the Siemen's SIMATIC PDM package adopts the following approach:

1. Open the PDM with a double-click on a PA device which supports assigning addresses via network, but do not open the newly inserted device.
2. Assign the new address with "Device > Assign address" (e.g. from old:126 to new:51).
   Note:
   The function "Assign address" can change the addresses of all available PA devices. This function works independently from currently open PA devices.

Configuring the values to be displayed

The unit can be configured to display up to eight values. The screen format is selected via the local configuration menu or by issuing programming commands. For full details of each method refer to the Instruction Manual or Programming Guide respectively.

The AO Function Blocks ***AO_1*** to ***AO_8*** should be assigned to the variables that need to be displayed. The data structure used is DS-33 Floating Point Value + Status.

If the data has a status of BAD, or a status of GOOD but with a quality sub-status of "INITIATE FAULT STATE" or "FAULT STATE ACTIVE" then the appearance of the value will be in inverse video i.e. clear pixels on a dark background.

If local setpoints have been defined, then the displayed value will flash when that point has been reached. The appropriate output will also be activated .

Configuring Units display and Tag information

The "Tag" and "Units" displayed on each of the "standard" screens can be entered remotely by writing to the ***IDENTITY_IN1*** to ***IDENTITY_IN8*** parameters in the AO Transducer Block. The DS-BEKA-3 data structure (Index 69) has a 16 byte Visible String ***DESCRIPTOR*** parameter which corresponds to the Tag value, and a 8 byte Visible String ***UNITS*** parameter. Each input can therefore be given its own unique data.

Information written in this way is saved to non-volatile memory and is retained if the power is cycled.

To simplify temperature display, the ` character (alt+096) is mapped to the degrees symbol.
For example, the string **`Temp  `C`** is displayed as **`Temp °C`**

Reading the keypress status

The ***KEY_STATUS*** parameter in the GRAPHIC Transducer Block returns information on the keys pressed since the parameter was last read

Bit	Description
0 (LSB)	Key 1 pressed (at least once since last read)
1	Key 2 pressed (at least once since last read)
2	Key 3 pressed (at least once since last read)
3	Key 4 pressed (at least once since last read)
4	Key 5 pressed (at least once since last read)
5	Key 6 pressed (at least once since last read)
6	Always set to 0
7(MSB)	Always set to 0

Each time the parameter is read it will be reset to all zeros (0x00). Care must be taken in the configuration of the host application such that keypresses are not missed by polling at inappropriate times.

The unit has the facility to connect external switches in addition to the front panel buttons. By selecting the appropriate "Keys" configuration in the local menu these external switches can be simple normally open or closed contacts that can be used for a variety of basic signalling tasks.

Controlling the (optional) alarm outputs

The ***OUTPUT_STATUS*** parameter in the GRAPHIC Transducer Block is used to directly control the local alarm output circuits.

Bit	Description
0 (LSB)	Alarm Output 1
1	Alarm Output 2
2	Alarm Output 3
3	Alarm Output 4
4	Alarm Output 5
5	Alarm Output 6
6	Always set to 0
7(MSB)	Always set to 0

The outputs can only be controlled if NO setpoints have been configured for ANY of the six outputs. Attempting to write to this parameter when a setpoint is active will cause the command to be rejected. However if the application requires such a combination, it is possible to address each output individually by sending text display commands. Refer to the "Programming Guide" for further details.

The ***OUTPUT_STATUS*** parameter can also be read to determine the status of the outputs at any time. This applies even if setpoints have been configured.

Configuring setpoints

The setpoints are primarily intended for local indication uses, and the normal method of setting these up is to use the local configuration menu. However it is possible to set the setpoint values via the fieldbus by sending text display commands. Refer to the "Programming Guide" for further details.

Reading the approximate ambient temparture

The Batch Transducer Block is not used in this product except that the approximate temperature (+/- 5°C) of the display in degrees Celcius is returned in the ***RATE*** parameter as a read-only 4-byte float.

Transmitting Text Display Commands

Please refer to the "Programming Guide" which describes the commands in detail and gives practical examples of their use. A summary of the basic procedures are shown below:

The command format is: <AB[param1],[param2]…,[paramN]>

where:

AB is the command.
[ ] indicates optional parameters separated by comas

example:

<CS>	Clear Screen
<CM4,90>	Cursor Move to Row 4 Column 90
<CI>	Command Implement

The commands are written to the ***COMMAND_STRING*** parameter in the GRAPHICS Transducer Block. They may be written either singly, or several may be grouped together into one long string. The maximum length of a command string is 118 bytes.

N.B. Every command (or group of combined commands) has to be followed with the <CI> Command Implement command. The reception of this command causes the unit to process the contents of its input buffer. No action will be taken if the <CI> is omitted.

The Result format is: 0,1,2,4,8 or 128
where:

0x00 indicates that the previous command/command set has been accepted.
0x01 indicates a parameter or communications error has been detected in the previous command string.
0x02 indicates the command is unrecognised.
0x04 indicates that a message has been received but NOT actioned because the unit is in programming mode
0x08 indicates that no BEKA command has yet been actioned.
0x80 indicates that a previous command is still being processed.

The result is obtained by reading the ***RESULT*** parameter in the GRAPHICS Transducer Block

As many commands may be passed and actioned during a screen update, a mechanism has been provided to ensure the host knows which command the result refers to. Two parameters in the GRAPHICS Transducer Block have been added to provide a method of matching commands to their results. The sequence of events should be as follows

1. Write a numeric value 'n' into the ***COMMAND_ID*** parameter.
2. Write the command string (including the terminating <CI> command) to the ***COMMAND_STRING*** parameter
3. Continually read the ***RESULT_ID*** parameter until it equals the value 'n' set in the ***COMMAND_ID*** parameter
4. Read the ***RESULT*** parameter: This is the result given by the command string

Transmitting and Receiving Graphic Data

Please refer to the "Programming Guide" which describes the commands in detail and gives practical examples of their use. A summary of the basic procedures are shown below:

A graphics file to be download must first be loaded into the ***GRAPHIC_DATA*** parameter in the GRAPHICS Transducer Block. The size of this block is only 118 bytes, which is the maximum allowed by the fieldbus protocols. Therefore, files must be split and loaded in segments of 118 bytes.

The <GB*n*> command is used to specify the segment that a subsequent write to the ***GRAPHIC_DATA*** parameter goes into. The value *n* can be in the range of 0 to 9. The file to be downloaded must start at the beginning of segment 0 and fill as many segments as necessary to download all of the .BMP file. Once the desired number of segments are filled with data, the <DS>, <DG> or <DF> command is then issued; The downloaded object is then processed and displayed.

Note that any data at the end of the file and in higher numbered segments is ignored.

The <US> command works in a similar way, but graphics data is made available by the display in 118 byte segments.

Appendix

Profibus PA

Reference Information

Block Identifiers

PA blocks	Block ID
Physical block	0
AO_1 function block	1
AO_2 function block	2
AO_3 function block	3
AO_4 function block	4
AO_5 function block	5
AO_6 function block	6
AO_7 function block	7
AO_8 function block	8
AO transducer block	9
GRAPHIC transducer block	10
BATCH transducer block	11

Data Types and Structures

Data Types

The data types (1-Boolean to 10-OctetString) are used as defined in the underlying PROFIBUS specification.

	Data Type	Size	Comments
1	Boolean	1	True or false
2	Integer8	1	
3	Integer16	2	
4	Integer32	4	
5	Unsigned8	1	
6	Unsigned16	2	
7	Unsigned32	4	
8	FloatingPoint	4	
9	VisibleString	1,2,3..	they are one byte per character, and include the 7 bit ASCII character set.
10	OctetString	1,2,3..	Octet strings are binary

All structures use Profibus standard definitions apart from the two special structures given below:

Data Structure Identifier	Index in Virtual Field Device (VFD) Object Dictionary (OD)
DS-BEKA-2	68
DS-BEKA-3	69

DS-BEKA-2 - Batcher-State structure

	Parameter	Data Type	Size
1	STATUS	Unsigned8	1
2	DESCRIPTION	VisibleString	20

DS-BEKA-3 - Identity structure

	Parameter	Data Type	Size
1	DESCRIPTOR	VisibleString	16
2	UNITS	VisibleString	8

The standard Profibus data structures used in BEKA products are given below:

DS-32 – Block Structure

	Element Name	Data Type (Index)	Size
1	Reserved	Unsigned8 (5)	1
2	Block Object	Unsigned8 (5)	1
3	Parent Class	Unsigned8 (5)	1
4	Class	Unsigned8 (5)	1
5	DD Reference	Unsigned32 (7)	4
6	DD Revision	Unsigned16 (6)	2
7	Profile	OctetString (10)	2
8	Profile Revision	Unsigned16 (6)	2
9	Execution Time	Unsigned8 (5)	1
10	Number of Parameters	Unsigned16 (6)	2
11	Address of VIEW_1	Unsigned16 (6)	2
12	Number of Views	Unsigned8 (5)	1

DS-33 – Value & Status – Floating Point Structure

This data structure consists of the values and the state of the Floating Point parameters. These parameters can be inputs or outputs.

	Element Name	Data Type (Index)	Size
1	Value	Float (8)	4
2	Status	Unsigned8 (5)	1

DS-37 – Mode Structure

This data structure consists of bit strings for actual, permitted, and normal modes.

	Element Name	Data Type (Index)	Size
1	Actual	OctetString (10)	1
2	Permitted	OctetString (10)	1
3	Normal	OctetString (10)	1

DS-42 – Alarm Summary Structure

This data structure consists of data that summarize 16 alarms.

	Element Name	Data Type (Index)	Size
1	Current	OctetString (10)	2
2	Unacknowledged	OctetString (10)	2
	Unreported	OctetString (10)	2
3	Disabled	OctetString (10)	2

Floating Point Format

Many values are given as 4 byte floating point numbers. This is defined in IEEE 754 as the Single-Precision format.

Visible String Format

It is very important that no non-printing characters are used in variables defined with the VisibleString format. Specifically, only ASCII values between 0x20 and 0x7E may be used.

AO Function block

Index	Parameter	Type	Size	Store	Read / Write	
0	TB Block Characteristics RESERVED BLOCK_OBJECT PARENT_CLASS CLASS DD_REFERENCE DD_REVISION PROFILE PROFILE_REVISION EXECUTION_TIME NUMBER_OF_PARAMETERS ADDRESS_OF_VIEW_1 NUMBER_OF_VIEWS	DS-32			RO	
1	ST_REV	Unsigned16	2	N	RO	
2	TAG_DESC	Octet String	32	S	R/W	
3	STRATAGY	Unsigned16	2	S	R/W	
4	ALERT_KEY	Unsigned8	1	S	R/W	
5	TARGET_MODE	Unsigned8	1	S	R/W	
6	MODE_BLK	DS-37	3	D	R/W	
7	ALARM_SUM	DS-42	8	D	RO	
9	SP	DS-33	5	D	R/W	
11	PV_SCALE	DS-36	11	S	R/W	
12	READBACK	DS-33	5	D	RO	
14	RCAS_IN	DS-33	5	D	R/W	
21	IN_CHANNEL	Unsigned16	2	S	R/W	
22	OUT_CHANNEL	Unsigned16	2	S	R/W	
23	FSAVE_TIME	Float	4	S	R/W	
24	FSAVE_TYPE	Unsigned8	1	S	R/W	
25	FSAVE_VALUE	Float	4	S	R/W	
27	RCAS_OUT	DS-33	5	D	RO	
31	POS_D	DS-34	2	D	RO	
32	SETP_DEVIATION	Float	4	D	RO	
33	CHECK_BACK	OctetString	3	D	RO	
34	CHECK_BACK_MASK	OctetString	3	Cst	RO	
35	SIMULATE	DS-50	6	N	R/W	
36	INCREASE_CLOSE	Unsigned8	1	S	R/W	
37	OUT	DS-33	5	D	R/W	
38	OUT_SCALE	DS-36	11	S	R/W	

AO Transducer block

Index	Parameter	Type	Size	Store	Read / Write	
0	TB Block Characteristics RESERVED BLOCK_OBJECT PARENT_CLASS CLASS DD_REFERENCE DD_REVISION PROFILE PROFILE_REVISION EXECUTION_TIME NUMBER_OF_PARAMETERS ADDRESS_OF_VIEW_1 NUMBER_OF_VIEWS	DS-32			RO	
1	ST_REV	Unsigned16	2	N	RO	
2	TAG_DESC	Octet String	32	S	R/W	
3	STRATAGY	Unsigned16	2	S	R/W	
4	ALERT_KEY	Unsigned8	1	S	R/W	
5	TARGET_MODE	Unsigned8	1	S	R/W	
6	MODE_BLK	DS-37	3	D	R/W	
7	ALARM_SUM	DS-42	8	D	RO	
8	FINAL_VALUE_1	DS-33	5	D	RO	
9	FINAL_VALUE_2	DS-33	5	D	RO	
10	FINAL_VALUE_3	DS-33	5	D	RO	
11	FINAL_VALUE_4	DS-33	5	D	RO	
12	FINAL_VALUE_5	DS-33	5	D	RO	
13	FINAL_VALUE_6	DS-33	5	D	RO	
14	FINAL_VALUE_7	DS-33	5	D	RO	
15	FINAL_VALUE_8	DS-33	5	D	RO	
16	IDENTITY_IN_1	DS-BEKA-3	24	D	R/W	
17	IDENTITY_IN_2	DS-BEKA-3	24	D	R/W	
18	IDENTITY_IN_3	DS-BEKA-3	24	D	R/W	
19	IDENTITY_IN_4	DS-BEKA-3	24	D	R/W	
20	IDENTITY_IN_5	DS-BEKA-3	24	D	R/W	
21	IDENTITY_IN_6	DS-BEKA-3	24	D	R/W	
22	IDENTITY_IN_7	DS-BEKA-3	24	D	R/W	
23	IDENTITY_IN_8	DS-BEKA-3	24	D	R/W	

GRAPHIC Transducer Block parameters

Index	Parameter	Type	Size	Store	Read / Write	
0	TB Block Characteristics RESERVED BLOCK_OBJECT PARENT_CLASS CLASS DD_REFERENCE DD_REVISION PROFILE PROFILE_REVISION EXECUTION_TIME NUMBER_OF_PARAMETERS ADDRESS_OF_VIEW_1 NUMBER_OF_VIEWS	DS-32			RO	
1	ST_REV	Unsigned16	2	N	RO	
2	TAG_DESC	Octet String	32	S	R/W	
3	STRATAGY	Unsigned16	2	S	R/W	
4	ALERT_KEY	Unsigned8	1	S	R/W	
5	TARGET_MODE	Unsigned8	1	S	R/W	
6	MODE_BLK	DS-37	3	D	R/W	
7	ALARM_SUM	DS-42	8	D	RO	
8	COMAND_STRING	VisibleString	118	D	R/W	
9	GRAPHIC_DATA	Octet String	118	D	R/W	
10	COMMAND_ID	Unsigned16	2	D	R/W	
11	RESULT_ID	Unsigned16	2	D	RO	
12	RESULT	Unsigned8	1	D	RO	
13	KEY_STATUS	Unsigned8	1	D	RO	
14	OUTPUT_STATUS	Unsigned8	1	D	RO	

BATCH Transducer block parameters

Index	Parameter	Type	Size	Store	Read / Write	
0	TB Block Characteristics RESERVED BLOCK_OBJECT PARENT_CLASS CLASS DD_REFERENCE DD_REVISION PROFILE PROFILE_REVISION EXECUTION_TIME NUMBER_OF_PARAMETERS ADDRESS_OF_VIEW_1 NUMBER_OF_VIEWS	DS-32			RO	
1	ST_REV	Unsigned16	2	N	RO	
2	TAG_DESC	Octet String	32	S	R/W	
3	STRATAGY	Unsigned16	2	S	R/W	
4	ALERT_KEY	Unsigned8	1	S	R/W	
5	TARGET_MODE	Unsigned8	1	S	R/W	
6	MODE_BLK	DS-37	3	D	R/W	
7	ALARM_SUM	DS-42	8	D	RO	
8	STOP	Boolean	1	D	R/W	
9	START	Boolean	1	D	R/W	
10	RESET	Boolean	1	D	R/W	
11	BATCHER_STATE	DS-BEKA-2	21	D	RO	
12	SETPOINT	Float	4	D	R/W	
13	BATCHED_QUANTITY	Float	4	D	RO	
14	LAST_BATCH	Float	4	D	RO	
15	BATCH_NAME	VisibleString	16	D	R/W	
16	START_PERMISSIVE	Boolean	1	D	R/W	
17	RATE	Float	4	D	RO	Returns unit temperature in the Fieldbus Display
18	RATE_TIMEBASE	Unsigned16	2	D	RO	

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