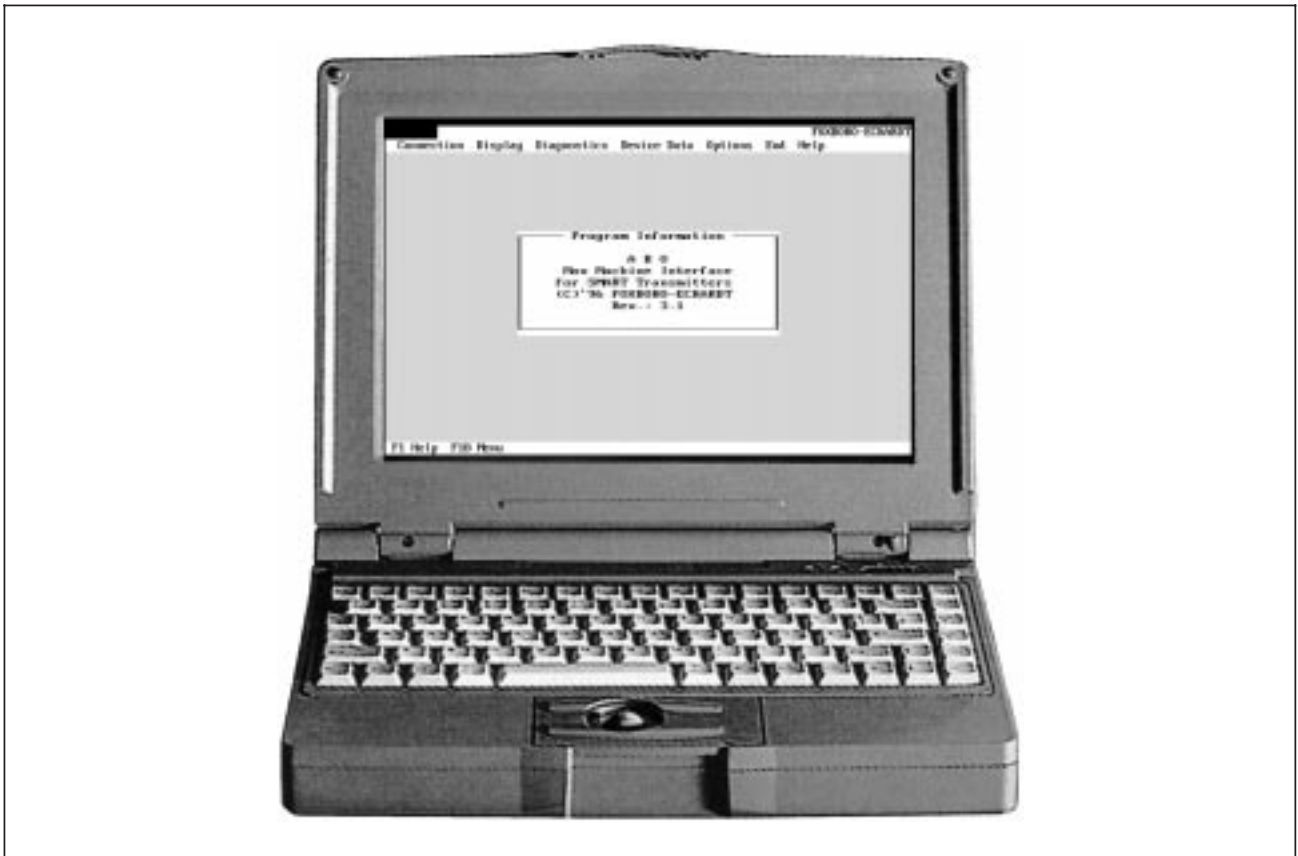


ABO991 Display and User Interface for HART devices

WPP991 Write Protection Program



FOXBORO ECKARDT offers a broad range of intelligent HART products. For the multitude of HART devices a uniform operating method is particularly important. The indication and operating surface ABO991 enables comfortable use of modern communication technique.

FEATURES

- Uniform indication and operating surface for intelligent field devices
- Applicable for configuration and service work
- Easy operation including password protection
- Also suited for HART devices of other manufacturers
- Data management with redocumentation
- Write protect program to prevent accidental configuration changes
- Can be used under Windows 3.x (not Windows 95)

1 Area of application

For the configuration and calibration of the intelligent HART devices FOXBORO ECKARDT offers two different program packages.

1.1 Display and User Interface ABO991

The devices may be configured and calibrated by means of the Display and User Interface ABO991. From Revision 3.1 the program includes the interfaces for temperature transmitters, transmitters for absolute pressure, differential pressure, level and flow as well as positioners.

In addition to FOXBORO ECKARDT devices also HART devices by other manufacturers may be serviced. For these units the operation is limited to the "Universal Commands" and "Common Commands" as defined by HART (such as measuring range, damping).

The software ABO991 may be used without connected device (Offline), whereby the data records are saved on the disk and later sent to a connected device.

The program structure is according to the regulations VDI/VDE 2187 "Uniform Indication and Operating Surface of Personal Computers for digital field devices".

1.2 Write Protection Program WPP991

With program WPP991 a write protection of the device may be set or reset. Hereby the unintentional access to the device data and the diagnostical functions shall be avoided. For instance, this is required for the overfill protection of tanks to eliminate the possibility of an erroneous change to the measuring range.

The Write Protection Program WPP991 is installed by simply copying it into the desired directory.

2 Hardware Requirements

To work with the ABO991 the following minimum hardware is required:

2.1 PC

Standard PC 386 or better running DOS 3.2 or later
min. 8 MB RAM

Windows 3.x

Serial interface

Floppy disk drive 3.5"

Hard disk with 12 MB free space

Note when using mouse: It is recommended to use a Logitech driver Version 6.49 or later. It could be that the operation is not possible with other drivers.

2.2 Modem

For the communication between a PC and a HART device as single unit a modem is required. It converts the signals of the serial interface RS232 into the HART protocol. FOXBORO ECKARDT provides the modem MOD991 with galvanic separation.

A modem with galvanic separation is recommended in order to avoid interlinking through potential connections when switching together other devices (e. g. DCS, recorders, alarm systems).

2.3 Cables

The necessary cables and accessories are part of the delivery of the modem MOD991.

Cables for communication by means of bus couplers are described in the data sheet and in the master instructions of the bus coupler.

2.4 Load

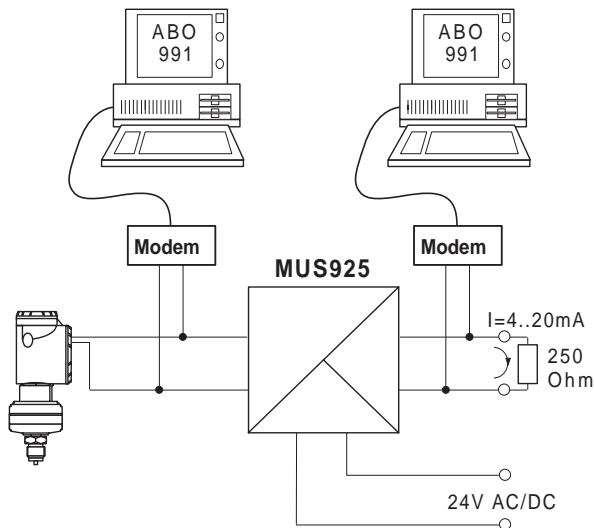
A load of 250 Ohms between supply unit and field device is required for the communication. Higher values up to 1000 Ohms are possible.

This load may be in the supply unit as in the MUS925 by FOXBORO ECKARDT. If the load in the supply circuit is too low an additional load has to be connected into the measuring circuit. References may be found in the data sheets of the devices.

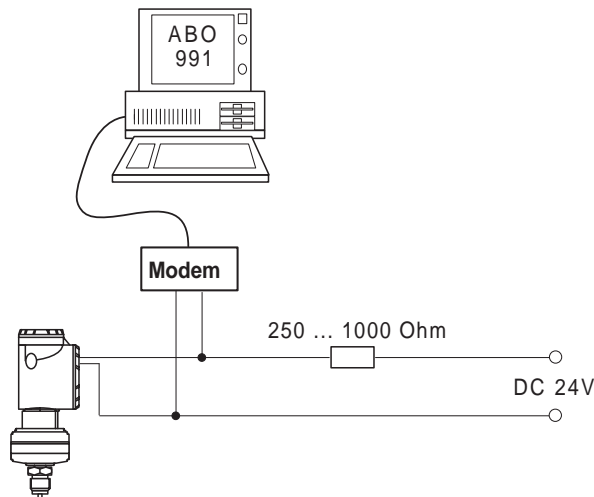
3 Interconnection of PC and Field Device

For communication the serial interface of the PC is connected to the field device (for example transmitter, positioner) by means of the modem. The program supports COM1 as well as COM2 of the PC. For application by means of bus coupler the connection is accomplished in the same manner.

Possible connections for the supply via MUS:



Connection for direct supply:



Note:

When connected to an intrinsically safe circuit and / or when operating in hazardous areas, the regulations on explosion protection and the certifications of the involved instruments must be observed. See also "Accessories for devices with HART Protocol" PSS EMO0100 A-(en).

4 Program Installation ABO991

4.1 Procedure

The diskettes supplied must be 'unpacked' and installed with the following steps:

- Start PC and Windows
- Open a DOS command line window
- Make directory into which the ABO991 is to be copied (e. g. `mkdir c:\abo991`)
- Insert first ABO991 program disk to drive a:
- Change to drive a:
- Type in `install <directory>`
(e. g. `install c:\abo991`)

Now follow the instructions of the installation program on the screen.

After completing installation, remove the program disk from the drive.

Return to Windows by entering `exit`.

Exit Windows and restart the PC to make the changes valid.

4.2 Program Start

After completing installation, the ABO program can be started:

- Switch over to a DOS command-line window
- Change to ABO991 directory
(e. g. `cd c:\abo991`)
- Type in `abo991` to start program

It is not always possible to start the program directly from the Windows File Manager, as this could cause problems depending on the PC configuration (e.g. LAN installation).

Note:

If Windows no longer starts properly after installing the program package, the last SYSTEM.INI file can be restored.

During each installation a backup copy of the SYSTEM.INI file (in the Windows directory) called SYSTEM.xxx is created, whereby xxx is a counting number. The SYSTEM.xxx with the highest number is the last backup version.

This file is reactivated by renaming it to SYSTEM.INI, and Windows can then be restarted.

5 Operational Concept

The information for the operation of the ABO991 is either illustrated on the basic window or in a window on top of it (e. g. window "indicate measuring value"). The operation is done by means of keyboard, mouse or track ball.

Operation of the write protect program WPP991 is confined to "set" or "reset" of the write protection (menu "write protection"). In the menu "Options" the interface 'COM1' or 'COM2' may be selected or the password may be changed. At the time of delivery, the password is 'eckardt'.

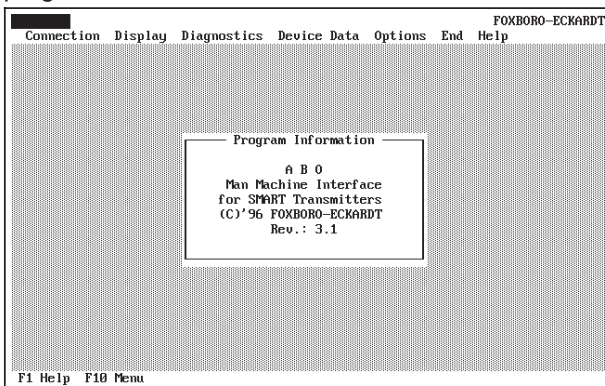
5.1 Printing of help texts

To support the operation the help texts may be printed out. The texts can be found in the file 'abohelp.en' and may be printed out by using a DOS command.

Alternately, the help texts may be loaded into any text editor and printed out through the print command. Control codes are to be ignored.

5.2 Menu line

The menu line is always visible. The contents of the menu line depend upon the type of device and the program situation.



Activating the menu line by means of the mouse:

The mouse cursor is guided to the name of the desired menu, and the left mouse button is briefly pressed. The menu will be opened at once.

Activating the menu line by means of the keyboard:

The menu line is activated by means of key [F10]. The last menu used will be marked in color. After that all keys refer to the menu line. The desired menu may be selected by means of the arrow keys and then called up by [Enter]. Alternately, the key with the colored symbol [Symbol] of the desired menu may be activated.

The desired menu will open instantly.

It is possible to operate without key [F10] by using the key combination [Alt]+[Symbol]. The desired menu will be opened immediately.

5.3 Operation of the Menu

After a menu has opened the function may be selected.

Operation by means of the keyboard:

The function may be selected by means of the arrow keys and activated with key [Enter]. In order to directly activate the function, alternately, the key with the colored symbol may be used.

Operation by means of mouse:

The mouse cursor is directed into the field containing the name of the function, and the left mouse button is briefly pressed.

There is a second possibility for the operation by means of the mouse. The mouse cursor is directed to any position, the left button is being pressed and held. The menu to which the pointer shows at that instant, will be opened. The mouse cursor is moved to the desired function by means of the still pressed left button. The function will be activated as soon as the left mouse button is released.

In the event an arrow of a function points right, a sub-menu is concealed. It opens upon selection. The selection of the functions contained herein is as described above.

5.4 Dialog Window

A dialog window contains different operational elements:

- Switch fields
- Input lines
- Lists
- Marking fields
- Selection fields

There is always one of the operational elements ready for input which is shown by means of a characteristic mark. All key actuations pertain to this operational element. Another element is selected by means of the mouse (select and press left button) or by passing on the input readiness by means of the tab key [Tab].

The individual operational elements may have markers (= marking of a symbol). The operational element may be selected directly by means of the key combination [Alt]+[Symbol].

5.5 Control Fields

Control fields are symbolic keys. The significance derives from the inscription. By means of the mouse the control fields are operated like keys.

Via the keyboard the desired control field is selected by means of the [Tab] key and then confirmed with [Enter]. A control field may also be selected by means of the key combination [Alt]+[Symbol].

In a dialog window a control field may be preferred. This control field is marked.

If no other control field is selected, the [Enter] key activates the preferred control field.

5.6 Input Lines

Input lines serve for the input of texts and numbers via the keyboard. For the direction of the cursor the arrow keys may be used. If the text does not fit into the input field, the line shifts automatically when reaching the end of the field until the maximum input length is obtained. An arrow at the right and/or left side of the input fields signifies that the text surpasses the input field.

The cursor may be directed to any position by means of the mouse. Adjusted texts may be moved by means of the mouse at the indicated arrows to the right or left. With the mouse portions of the text may be marked.

For this purpose, the cursor is positioned at the beginning or end of the text to be marked, the left mouse button is being pressed and held. Then the indicator is positioned either at the beginning or the end of the desired area and the mouse button is released. If, hereby, the cursor touches the shown arrow and the text has been adjusted to that side, the concealed portion of the text will be retracted.

Marked texts are deleted when entering a key.

5.7 Lists

Lists are connected to input lines. These offer a selection of completed text lines which can be entered in total into the input line. They may be handled as usual after entering the input line. The selection is accomplished by double clicking the mouse at the desired text line or by selection of the list via the [Tab] key, selection of the text via the arrow keys and confirmation via [Enter].

If more texts are offered than can be shown, the rolling bar at the right edge of the list field will become active. The list may be adjusted by means of the mouse on the rolling bar, the arrow keys, the keys [Picture Up], [Picture Down], [Pos 1] and [End]. The contents of the list is sorted per logical criteria (such as alphabetical or numerical) in order to aid the search for certain entries.

5.8 Marking and Selection Fields

Marking and Selection fields are individual elements which are combined to respective groups. These are shown as follows:

<i>Marking fields:</i>	<input type="checkbox"/> Marker1
	<input type="checkbox"/> Marker2
	.
	.

Any numbers of individual elements may be selected in a group. The selection is shown by "x" in brackets [x].

The selection may be accomplished by marking with the mouse or by choosing the group with [Tab], selecting the desired element with the arrow keys and confirming with the [Blank Key].

<i>Selection fields:</i>	<input type="radio"/> Marker1
	<input type="radio"/> Marker2
	.
	.

In a group of selection fields only one individual element may be selected. The selection is indicated by a "•" in parentheses (•).

The selection is performed as at marking fields. Hereby the previously selected element is automatically deleted.

6 Configuration and Operation of Devices

6.1 Connecting Structure

In order to communicate with a device after starting the program, the connection has to be build. Without connection the menu items 'indication', 'diagnostic' and other menu items are blocked.

If a connection was build via the selection individual device, multi-drop or bus coupler, the main window containing the head line, the menu line and the device data is shown. The head line shows the signal "external" i.e. a device is connected (contrary to "internal" = connection to disk). Additionally, the head line shows the TAG number, the measuring point description, the input date and the device type.

6.2 Indications

The measuring value is shown as digital value and as analog value (with scaling) and is cyclically refreshed. Additional to the analog output, the device status and the limit values, if necessary, are shown.

6.3 Diagnostics

In diagnostics the device condition is called up and the test routines are started. The simulation of outputs (e. g. for loop checks) and the alignment of the measuring chain are further actions under this menu item.

6.4 Device Data

In device data all configuration data and parameters of the devices may be changed. If no connection has been made, files for the respective device are loaded 'offline' from the data carrier. Configuration examples are stored in the sub-directory \devices for each device for this purpose. If a configuration has been loaded, the menu items below are accessible.

The Display and User Interface ABO991 knows three different access authorities for the user which are protected by passwords:

<i>Maintenance</i>	Limited configuration of a device without password (TAG, measuring range)
<i>Specialist</i>	Complete configuration of device
<i>Factory</i>	Service work at the factory

In Device Data work with the disk and the printout of the device sheet are possible.

6.5 Options

In this menu the printer driver for the device sheet may be selected, and the serial interface (COM1, COM2) and the screen may be configurated. These configuration data are stored together with the password in file `abo.cfg`.

Passwords

The access authorities are differentiated through different passwords for the Specialist and the Factory. The passwords are to prevent the erroneous access to certain device data and diagnostic functions. They are built-up hierarchically i.e. the Specialist also has access to the Maintenance and the workshop to the Specialist and to the Maintenance.

For the input of the passwords the following has to be observed:-

- Delivery condition for Specialist is "eckardt" and for workshop is "ECKARDT"
- 4 characters minimum per password
- All letters between "A" and "Z" as well as numbers and special characters are permitted
- Capital and small letters are differentiated

6.6 End

This menu item finalizes the program.

6.7 Help

In addition to the online help further information may be called up here.

7 Factory Setting

The user group "Factory" has access to calibration and manufacturing data. The access is protected by a respective password.

8 Trouble-Shooting

Disturbance	Possible Cause	Elimination
Program cannot be copied to hard disk	Disk space insufficient	Start from floppy disk Make free space on hard disk
No connection to device	Configuration of serial interface incorrect Modem defect Load insufficient	Check configuration of interface COM1 or COM2 Check connection to modem Increase load to 250 Ohm
No connection via bus coupler	Wrong cable Bus coupler defect Error in configuration of interface	Observe master instructions of devices Check connection to cable Check configuration of interface
No operation via mouse, but with keyboard	No Logitech compatible mouse driver	Use Logitech compatible mouse driver
Password unknown		Copy file "abo.cfg" from original floppy disk to working directory Password = eckardt rsp. ECKARDT

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