BRUKER

Monitoring System
for Windows 2000

BMS-2 User Manual

Version   003

BRUKER
BIOSPIN

The information in this manual may be altered without notice.

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Introduction 1

About this manual 1.1

This manual is included with the delivery of the BRUKER Monitoring System (BMS, BRUKER Part Number: H9359)

It provides instructions on how to :

- configure and use the software
- use the Monitoring System with the BMPC/setup the hardware

Disclaimer 1.2

The BMS unit should only be used for its intended purpose as described in this manual. Use of the unit for any purpose other than that for which it is intended is taken only at the users own risk and invalidates any and all manufacturer warranties.

Service or maintenance work on the unit must be carried out by qualified personnel.

Only those persons schooled in the operation of the BMS should operate the unit.

Read this manual before operating the unit. Pay particular attention to any safety related information.

Introduction

Warnings and Notes *1.3*

There are two types of information notices used in this manual. These notices highlight important information or warn the user of a potentially dangerous situation. The following notices will have the same level of importance throughout this manual.

Note: Indicates important information or helpful hints

WARNING: Indicates the possibility of severe personal injury, loss of life or equipment damage if the instructions are not followed.

Contact for Additional Technical Assistance *1.4*

For further technical assistance on the BMS unit, please do not hesitate to contact your nearest BRUKER dealer or contact us directly at:

BRUKER BioSpin GMBH
am Silberstreifen
D-76287 Rheinstetten
Germany

Phone: + 49 721 5161 0
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General Information

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The BRUKER MONITORING SYSTEM (for MS Windows 2000™) is a PC based unit used to supervise BRUKER units (i.e BMPC). The values being monitored are read from the supervised BRUKER unit using the SBS-bus.

The BRUKER MONITORING SYSTEM (BMS), part number H9359, contains the following features:

- When the BMS is started, it first reads the limit values which are necessary to control the supervised unit. It is possible to differentiate three limit value levels for every channel: alarm values, warning values, and normal values, and to define an upper and/or lower limit value for each.

- The BMS continuously reads the present data, compares it to the limit values, displays it on screen and annotates it in a data logbook. It is possible to configure both the frequency of writing and the first point (daily „Sync" point) in time that data will be written to the data logbook.

- When the present values are out of range (alarm, warning or normal), this is also annotated in the event logbook.

- In the event of an alarm being triggered the BMS tries to telephone users to inform them about the nature of the problem. The list of users to be telephoned is defined in a database priority list. The people that are called are given the actual system status, then prompted to confirm that they have received and understand this transmission by entering their confirm code.

- Furthermore, it is possible to transmit an alarm fax containing the most important present and limit values, point of time, and nature of the alarm to various receiving stations. It is also possible to transmit a fax (confirmation fax) when the alarm is reset at the BMS.

- You can telephone the BMS at any time to poll for a fax with the current and limit values for a definable period of time. This is carried out with the help of a voice system.

- There are many configuration options for the system. It is possible to configure the voice box system (for example menu structure), to redefine the SBS command sequences for reading the present and limit values, to configure the I/O-ports and to edit the telephone book entries for who receives notification.

- When there are enough serial com ports available (additional I/O cards), the system can monitor up to 5 devices

- The software runs under MS Windows 2000 using the MS TAPI 3 and MS SAPI 4.x.

- For the voice files used in the voice system, you can use normal *.WAV files. Wave files must be recorded in a PCM format compatible with the voice modem. The attributes are 8kHz sampling rate, 16 bit, mono.

- Different configuration setups can be used.

Because the BMS consists of Windows™ based software, most of the functions within the system can be controlled via mouse, trackball or hotkeys. Access to the various functions can be password-controlled (***"Login & Passwords" on page 37***).

The voice system utilizes a touch-tone telephone or a small touch-tone transmitter for communication and control.

Hardware   2.2

The BMS hardware consists of an industrial PC (IPC) with an integrated TFT LC-display, a build-in UPS and an analog modem for the connection to the telephone network.

Industrial-PC   2.2.1

The IPC itself is a 19" unit which is placed on a drawer for the keyboard and track-ball. The access door to the operating elements, the floppy-drive and CD-ROM drive is lockable.

Dimension (incl. drawer):

Height: 260mm

Width: 430mm

Depth: 480mm (excl. connectors)

The IPC consist of at least the following configuration:

- Intel Pentium Celeron processor, min. 800 MHz.

- 128MB memory.

- 20 GB harddisk (IDE).

- CD-ROM drive (for software installation).

- Floppy drive 3.5" / 1,44MByte.

- Display: LCD-TFT-SVGA, resolution 800x600 pixels (minimum),
  Screen size: 12"

- Keyboard with integrated trackball

- 1 serial I/O port (SBS-bus), 1 parallel port (printer), 1 PS/2 port for trackball / mouse.

- The IPC is capable of automatic rebooting after a power failure.

- Operating system: Microsoft Windows 2000 English.

- UPS, for approx. 15 minutes runtime.

The modem connects the IPC to the telephone network (standard analog 2-wire connection), and provides voice and fax functions.

The modem consist of the following configuration:

- Analog Voice/Fax modem.
- Windows driver which is capable of using the MS Windows TAPI 3 and SAPI 4.x.

A Windows software modem should not be used!

Figure 2.1. BRUKER Monitoring System

Power Switch
Floppy
CD-ROM

TFT Display

Keyboard

Trackball
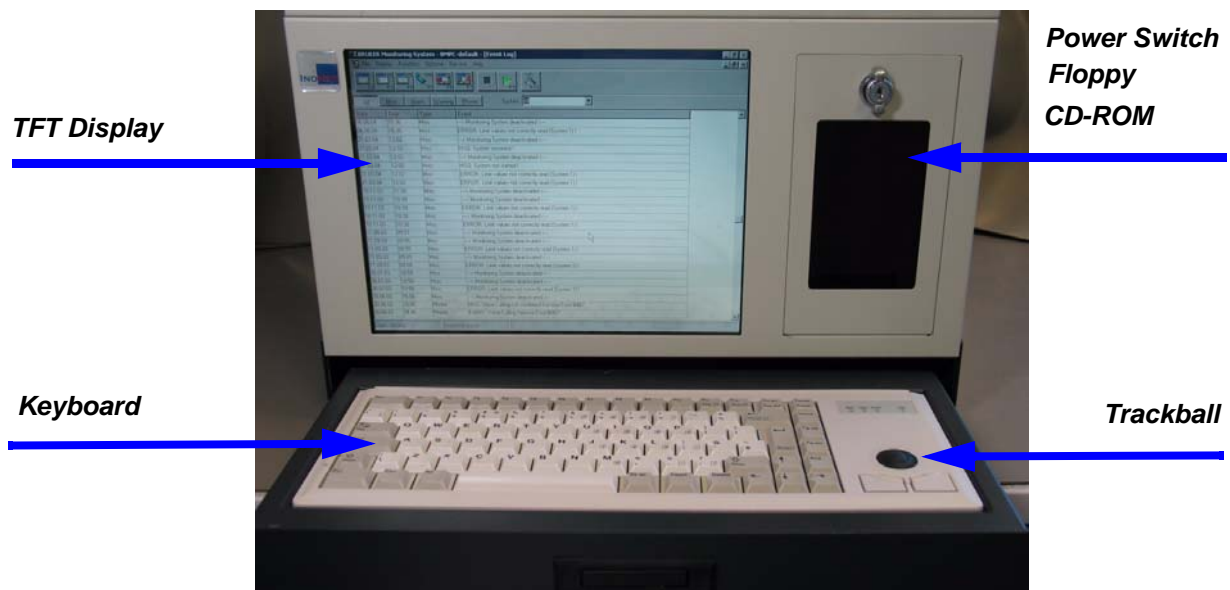
Operating Conditions *2.2.2*

Prepare the location

Place the IPC and the drawer on a sturdy, level surface in a well-ventilated area.

Electrical Requirements

Make sure that the location has an adequate power supply.

The electrical supply for the BMS must be 100-120 (4A) / 200-230V (2A), 47-63 Hz single phase, A.C.

For use with the BMPC please look for more information in chapter 5.

General Information

Do not place the IPC in direct sunlight or near chemicals. Make sure that the environment does not experience abrupt changes in temperature or humidity.

Temperature: 10°C to 40°C (50°F to 104°F)

Relative humidity: 50 to 80%

UPS *2.2.4*

The IPC has a build-in UPS to give the system the possibility of initiating alarm calls for approx. 15 minutes after a power failure.

Important: Over time rechargeable batteries become older and lose their capacity. Because of this it is recommended to test the UPS yearly (minimum).

Software *2.3*

Installation *2.3.1*

Normally, the BRUKER monitoring system will be delivered completely installed and configured. If an installation should be necessary, it can be accomplished with the included installation program.

To start the installation program, use the *Start*, *Run* buttons (Window Taskbar) to execute the "setup.exe" program from the first installation disk or CD-ROM.

After starting the installation program you will be requested to enter some data. Once the data has been entered, the installation program begins copying the relevant files to the harddisk. Following the installation procedure the IPC should be restarted. The BMS program can then be executed using the Windows: "START/ PROGRAMS/BRUKER MONITORING SYSTEM" sequence.

Because of the Autostart function of the BMS, two additional hotkeys are created in the Windows autostart folder ('Bruker Monitoring System' and 'BMS Watch Dog') by the installation program.

Important: A reinstallation of the BMS software could possibly erase all of the configuration data from the previous installation.

Starting the Program 2.3.2

After switching on the PC, the BMS program will automatically start and be initialized. The program can also be started manually using the Windows *Start* button in the Windows toolbar (START/PROGRAMS/BRUKER MONITORING SYSTEM). To work with the BMS, the user must first be authenticated by selecting a user (*Standard User, BMS Administrator, Service*) and a login password. The right to use the different functions of the program are dependant on the user type selected.

The successful execution of the program will be documented in the event logbook (Event Log); a successful initialization of the connection to the supervised unit following the reading of the limit values will be documented as „OK: Limit values correctly read".

Operating and Program Desktop 2.3.3

The program desktop can be divided into four parts:

- The menu bar
- The toolbar, which provides quick access to the most important functions.
- A Display Area in which different windows are displayed (i.e. a window to display limit and present values, log windows etc.).
- The Status Bar

For a detailed explanation of the program desktop refer to .

Software Watch Dog 2.3.4

In addition to the main BMS program a second program named 'BMS Watch Dog' is installed during the installation. When the BMS-program is in the monitoring mode, it will continuously trigger the 'BMS Watch Dog'. If this does not occur for any reason, the system will reboot after 30 minutes and will try to reenter a regular state (Monitoring).

General Information

The 'BMS Watch Dog' is normally automatically started after the system boots (Startup folder). You will see it in the Windows task bar at the right side near by the windows clock.

Automatic Restart after Power Failure, System Failure 2.3.5

When the active BMS program (monitoring active) is interrupted due to a power failure, upon power restoration the BMS attempts to restore the program to its previous condition before the failure (see **_"Save Backup of Setup DB [sw version > 20030213]" on page 28_**).

This can only be accomplished when the IPC or parts of the IPC (harddisk, operating system etc.) weren't damaged.

Quick Setup for Use with the BMPC

<div align="right">

3

</div>

Introduction

The BRUKER Monitoring System is delivered with the software preinstalled.

The BMS must only be connected to the BMPC unit, keyboard, mouse and phone line. The customer data must also be entered.

This chapter will guide you step by step in completing these tasks.

Hardware Setup

The first step in the hardware setup is to prepare the keyboard drawer unit. The keyboard with the trackball must be inserted into the drawer as shown below.

Figure 3.1.   Keyboard drawer unit with inserted keyboard

An opening on the bottom of the drawer is available for the keyboard cable.

Figure 3.2.   Opening for Keyboard Cable in Drawer

Opening
for cable
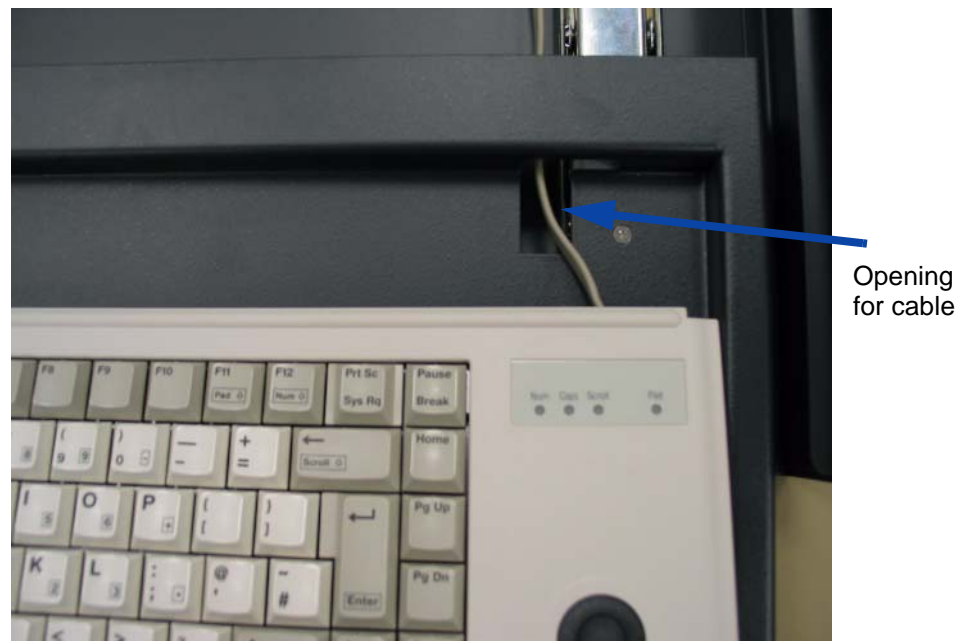
The next step is to place the Industrial PC (IPC) on top of the keyboard drawer and to make the appropriate cable connections. Refer to **_Figure 3.3._** for an illustration of these connections:

- Connect the keyboard (blue plug) and the trackball (green plug) to the rear of the IPC.

- Connect the black VGA-cable to the two VGA/TFT-display connectors (15pin.) at the rear side of the IPC. Likewise, connect the red cable (internal UPS<-->COM-1/SUB-D, 9pin) to the two serial (9pin.) connectors.

- Connect one end of the 15m long phone cable to the phone connector at the rear side of the IPC, and the other end to the phone wall socket.

- Connect serial cable („CABLE RD 9P3000 BU/BU RS232, P/N: HZ3700") from the BMPC Control Unit to the COM-2 serial port of the IPC (SUB-D, 9 pin).

- Connect the mains cable (normally cable P/N HZ04215) from the IPC to mains connection.

Figure 3.3.   BMS Rear Side with Connectors

COM-1/Serial
UPS (red cable)

VGA / TFT-Panel

Mains Connector

COM-2/Serial
to BMPC

Phone Line

Keyboard Drawer

Trackball
Keyboard

VGA / TFT-Panel

COM-1/Serial
UPS (red cable)
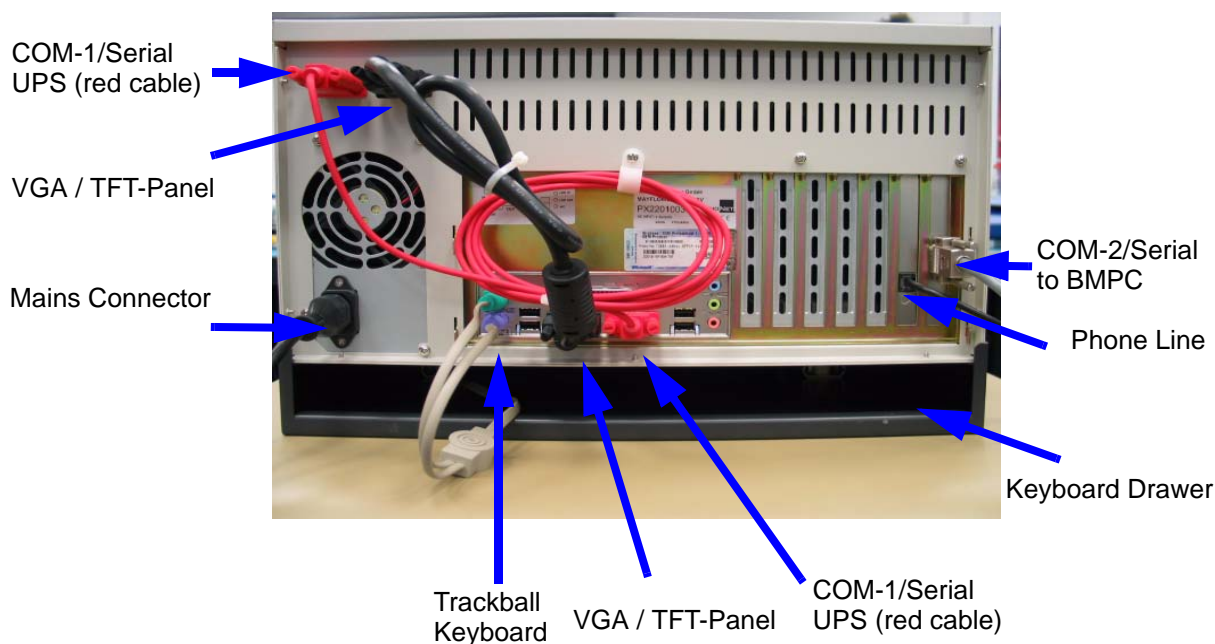
First Start 3.3

After the hardware installation you can start the IPC for the first time. The power switch is located behind the door at the front side of the IPC.

After Windows has booted, the BMS software will automatically be started. You are prompted to log in. Three possible user types are possible: *Standard User*, *BMS Administrator*, *Service* (please see ***"Login & Passwords" on page 37*** to see what rights the different users have).

To setup the system you must log in as *BMS Administrator* or *Service*. Only the *Service* user can use the service functions which help to test the modem and fax functions.

To setup the system it is recommended to login as *Service* user.

Software Setup 3.4

To setup the software you need:

- The telephone number of the line to which the Monitoring System will be connected (= telephone number of the Monitoring System).

- To know if you have a direct outside line or must go through a company switch. In the case of a switch you have to know what to dial to get an outside line (the outside line code in most cases is „0" or „9").

- The telephone code for international access (the international access code, in most cases is „00" or „011").

- The country/region code (i.e. „49" for Germany, „1" for USA, „33" for France)

Quick Setup for Use with the BMPC

- The city/area code (i.e. Karlsruhe/Germany: „(0) 721). You need to know if a „0" before the City/Area Code is required.

- To know if you must dial the city/area code, even if you want to dial a local number within the city/region you are in.

- Four (minimum) internal phone numbers (e.g. business) of users which are responsible for the system.

- Four (minimum) external phone numbers (private phone numbers) of users which are responsible for the system. Cell phone numbers may be used.

- Magnet system data (location, S/N, date of installation)

On the BMS software CD you will find a formula as a PDF document („BMS questionaire form") which helps you collect and record the neccessary data.

To setup the system you must start the software and login as *Service* or *BMS Administrator* (for passwords please see **_"Login & Passwords" on page 37_**).

After logging in you should see the main window of the BRUKER Monitoring Software. At the top part of the window you will see a bar with different icons. To enter the setup dialog either click with the mouse/trackball on the F9 symbol or press the F9 key on your keyboard.

Figure 3.4. BMS Setup Dialog

The Setup dialog consists of six different parts, each divided into its own individual tab sheet:

- Configuration
- System
- Voice & Fax System
- Phonebook
- Log Files
- Channels).

The settings required for each individual tab sheet are described in detail in the following sections.

Configuration Settings *3.4.1*

Please click on the tab sheet **Configuration** in the Options - Setup window*.*

1. Enter the phone number for the Monitoring System telephone connection in the **General System Settings** block of the Configuration tab sheet. It is recommended that you enter the phone number in the international format Country/Region Code + City/Area Code + phone number of the telephone connection (i.e. 49 721 5161333 or 1 847 935 1234), without the international access code.

2. Check the *Enabled* box under the **Modem and Box Settings** if you are using the software with the BMPC.

   It is recommended that you that you disable (uncheck) the *Phone Line Test* during the installation process for the BMPC/magnet, as the system needs approx. 30 seconds to proceed the test.

   There are two possible entries for the *Modem Device*, either the MicroLink 56k PCI HCF EU' or the 'MicroLink 56k PCI HCF US'. The entry will depend on the modem driver which is installed in the windows system. Refer to **_"Modem & Voice Box Settings" on page 38_** for more information.

   Enter the *Outside Line Code*, if required. This is normally used if you are connected to a company phone switch. Often a '0' or a '9' is used.

   The *Modem Init* field should be left empty, this is only used for testing.

   If required, enter the *International Access Code*, *Country/Region Code* and the *City/Area Code*. These entries will depend on your location and the number that is to be called. See **_"Modem & Voice Box Settings" on page 38_** for more information.

   The *Phone Number Test* can be used to test the phone number to see if the program calculates the phone number correctly. The **Result** field will display the results based on the data you entered in the Phone Number Test.

   Refer to the section **_"Modem & Voice Box Settings" on page 38_** for examples illustrating some common configuration settings.

Quick Setup for Use with the BMPC

The default settings for the System Settings tab sheet are sufficient for normal operation with the BMPC. The setting on this tab sheet are generally only used for special configurations.

The information that is entered in the *Voice & Fax System* tab sheet is used for the header of the alarm fax which is sent in the event of an alarm. The data which is entered here is for information purposes only, it has no affect on any function of the system.

To edit this data click on the tab sheet **Voice & Fax System** in the Options - Setup window.

On the tab sheet you will also find an *Advanced Setup.* Here you have the possibility of modifying parameters for the *Voice Box System*. However, the *Voice Box System* is completely pre-configured, thus for normal operation it is not necessary to change anything.

For more information refer to <u>**"Voice & Fax System" on page 41**</u>.

In case of an alarm, members of the phonebook are called. To add, edit or delete people/receivers and/or to assign them to a group in the Phonebook, click on the tab sheet **Phonebook**.

The order of the entries listed in the Internal, External-1, External-2 and fax group corresponds to the priority of calling (top entry = first).

Figure 3.5.   Setup - Phonebook
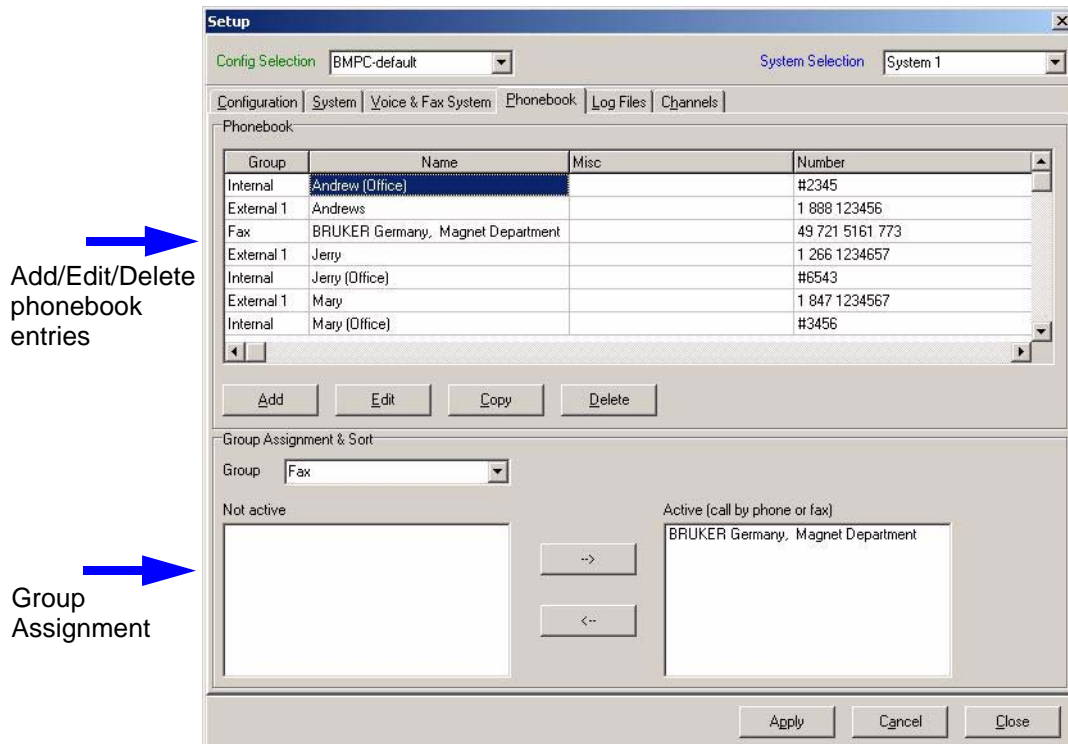
To add a person or fax receiver to the phonebook, click on **Add**. To edit an existing entry highlight the entry, then click on **Edit** or make a double click on the entry you want to edit. This will open the following Window where you can make any changes:

Figure 3.6.   Setup - Phonebook - Add/Edit entry
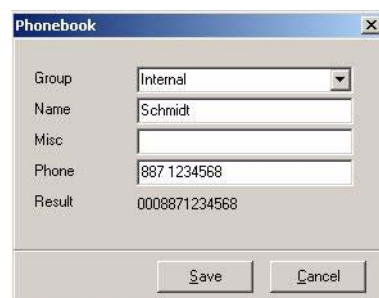
For a full explanation of the various fields, as well as examples of various configurations, refer to the section *"Adding/Editing/Deleting Phonebook Entries" on page 43*.

To assign a phonebook entry to a group, click on the arrow to the right of the **Group** field and select the proper group from the pull-down list.

It is also possible to assign entries by dragging and dropping an entry in the *Inactive* list box, into to the appropriate group. You can also change the order of the entries inside the *Active* list box using this method

For more information on assigning people or receivers to a group refer to *"Group Assignment" on page 45*.

Quick Setup for Use with the BMPC

Log File Settings   3.4.5

The default settings for the **Log Files** tab sheet are sufficient for normal operation with the BMPC. The setting on this tab sheet are generally only used for special configurations.

For more information on log files refer to the section **_"Log Files" on page 45_**.

Channel Settings   3.4.6

The default settings for the **Channels** tab sheet are sufficient for normal operation with the BMPC. The setting on this tab sheet are generally only used for special configurations.

For more information on channels refer to the section **_"Channels" on page 47_**.

Final Steps   3.5

Once all the settings have been completed it is a good idea to test the system to verify that your configuration is working properly. Before doing this be sure to read the information on the modem driver.

The Modem Driver   3.5.1

The build-in PCI modem should work in the most countries without problems. But it may be necessary to install different Windows modem drivers for use in the different countries ('MicroLink 56k PCI HCF EU' or 'MicroLink 56k PCI HCF US').

As default the 'MicroLink 56k PCI HCF EU' driver is pre-installed. With this driver the modem should work within the most European Union countries.

On the installation CD you will find a driver for the PCI modem (MicroLink 56k PCI HCF US), which can be used in North- and South America and Japan.

If the system doesn't accept incoming calls (to request a report fax), it is a good sign that you need to change from the 'MicroLink 56k PCI HCF EU' to the 'MicroLink 56k PCI HCF US' driver.

### Testing the Configuration   3.5.2

The test functions are located in the **Service** menu, which is only accessible when you are logged in as user „*Service*". These functions allow you to test outgoing calls without the necessity of initiating real alarm cases.

There are two relevant test functions available for testing outgoing calls:

- *Send Test Fax:*
- *Test Alarm Call*

Figure 3.7.   Main menu - Test functions
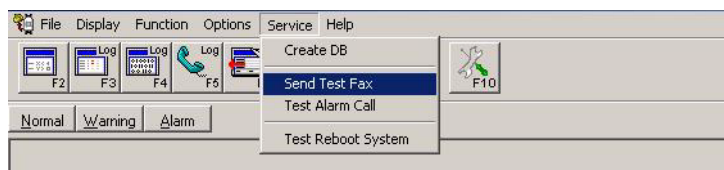
Testing the Fax

To test the fax select *Send Test Fax* and enter a phone number for a fax machine. When you press *OK* the system should start the fax transmission after a few seconds.

After the transmission a message window will appear letting you know if the transmission was successful or not.

Be sure to check the fax machine to verify that a fax was received.

Refer to section *"Send Test Fax" on page 48* for more information on the *Send Test Fax* function.

Testing the Alarm Call

To test an alarm call select *Test Alarm Call* and enter the phone number for a „Voice" receiver. When you press *OK* the system will begin calling the phone number after approximately 30 seconds and you should hear the telephone ringing that was called (be sure to select a phone number nearby).

Take the call and listen to the voice. You will be prompted to press the 'star' button on the touch-tone phone to interrupt the message. You will then be prompted to enter a confirm code (Default: 6789) and finish it with the 'star' button. You now have confirmed the (test) alarm call.

After a few seconds a message Window will appear with the result, that you have successfully confirmed the alarm call.

If you enter a wrong code or if you close the call without confirming the call, a message window will appear with the result, that the alarm call was not confirmed.

It is also recommended that you call the system to test if the system accepts incoming calls.

Refer to section *"Test Alarm Call" on page 49* for more information on the *Test Alarm Call* function.

Troubleshooting   *3.6*

No communication to the BMPC control unit (i.e. „Limit values not correctly read")

- Check the serial connection between the BMPC and the IPC. Make sure that you are using COM-2 at the IPC.

- For trouble free operation of the BMS and BMCP the BMPC requires firmware version V010523 or newer.

- Make sure the BMPC control unit is switched on.

Outgoing calls are possible, but incoming calls are not possible.

- Try a different modem driver (country specific) - see **_"Changing the Modem Driver" on page 59_**

- Please check your phone line. An standard analog telephone line needs only two wires. If there are more than two wires connected to your telephone wall socket, this can interfere with the modem.

Incoming calls are possible, but outgoing calls are not possible.

- Please check your phone line. An standard analog telephone line needs only two wires. If there are more than two wires connected to your telephone wall socket, this can interfere with the modem.

Functions

4

Introduction   *4.1*

The program desktop can be divided into four parts:

A *Menu Bar*, which provides access to the various program functions.

A *Toolbar*, which provides quick access to the most important functions.

A Display Area in which different windows are displayed (i.e. a window to display limit and present values, log windows etc.). Every window itself is divided in three parts: Toolbar, Display area and Status Bar.

A *Status Bar*, which shows the current status of the function being executed.

Figure 4.1.   The Program Desktop
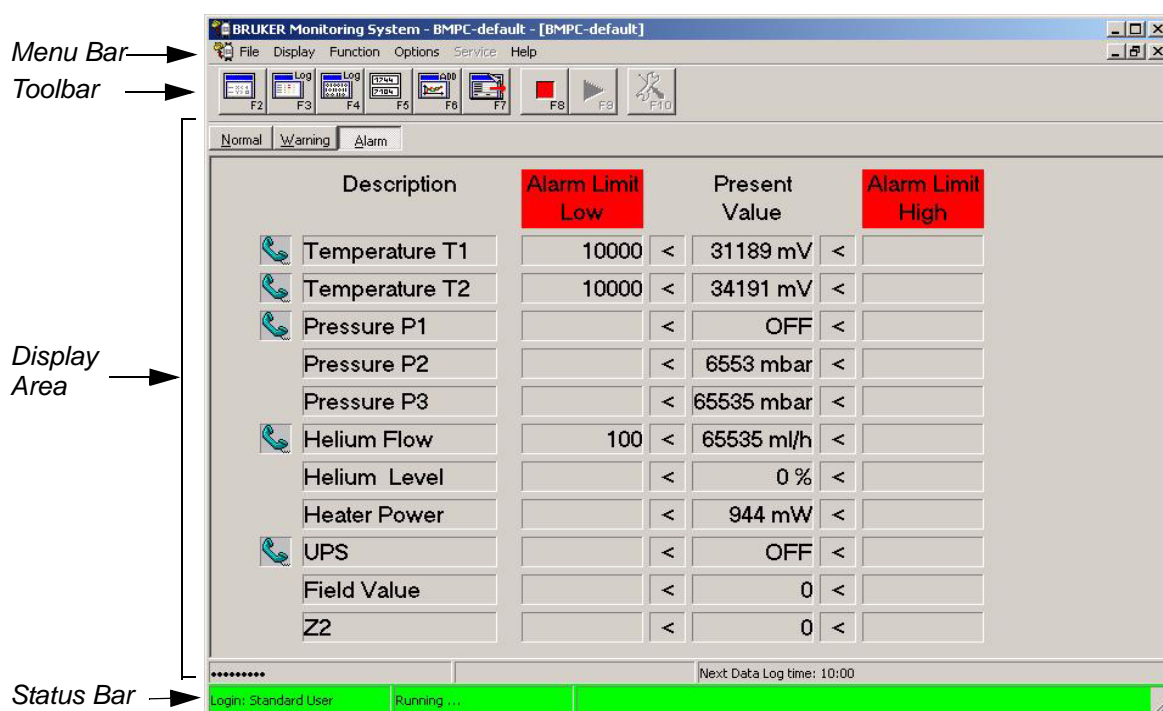
The Menu Bar

With the help of the menu bar nearly all of the functions of the system can be selected. From here it is possible to configure the system, to start and stop the monitoring, to export data and so on.

Alternatively, it is possible to select the most important functions using the function keys (F1 - F12) on the PC keyboard or to click on the equivalent icons on the tool-

bar. The function key that corresponds to a specific function is displayed to the right of the function in the menu selections and in the lower right corner of every icon of the toolbar.

The menu bar is divided into the following main selections:

File	For the exportation of the data logbook, to set a configuration, or to quit the BMS program.
Display	Used to switch between event logbook, data logbook, present data and phone logbook displays.
Function	Used to start and stop/confirm the monitoring.
Options	For the system configuration.
Service	Functions to test fax transmission, alarm calls and the reboot function.
Help	*For additional help or program information.*

Toolbar

With the icons on the toolbar it is possible to select the most important functions:

- Present Value Display (F2)
- Event Logbook Display (F3)
- Data Logbook Display (F4)
- Display Jumbo Display(s) (F5)
- Display/Add graph (F6)
- Display next display/window (F7)
- Stop Monitoring (F8)
- Start Monitoring (F9)
- Setup (F10)

Status bar

At the bottom of the screen, the present status (monitoring on/off = green/red [software version > 20030213]), login status and actions (e.g. reading of data) are displayed.

To set up the system to use with the BMPC, please see ***"Quick Setup for Use with the BMPC" on page 15***.

This chapter will describe the various functions in detail.

File Menu 4.2

The menu selection **File** consists of the following submenu selections:

- Login
- Set Configuration
- Export Data Log
- Save Backup of Setup DB
- Quit

Login 4.2.1

This function is called with:

- Menu FILE/Login

To use this function you must be logged in as a *Service* user or as a *BMS Administrator*.

Calling this function will open a window requiring you to enter a user and password. You can log in as *BMS Administrator*, *Standard User* or *Service*. The use of some functions are limited, based on which user is logged in (see **"Password Hierarchy" on page 57**).

Set Configuration 4.2.2

This function is called with:

- Menu FILE/Set Configuration

To use this function you must be logged in as a *Service* user or as a *BMS Administrator*.

If more than one default configuration exists (default: „BMPC-default"), you use this function to switch between the different configuration setups.

### Export Data Log [software version > 20030213] 4.2.3

This function is called with:

- Menu FILE/Export Data Log

The Data-log Export function allows you to export the data log (wholly or in parts, whereas the time period can be defined) into a simple text file (ASCII), which can be used by other programs. Two formats are possible: Comma separated (CSV) and Tab separated.

To export data, select a time period and the export file format, then click on *Export*. You will then be prompted to determine the file name and the location to which the file should be saved.

Figure 4.2.   Data Log Export Dialog
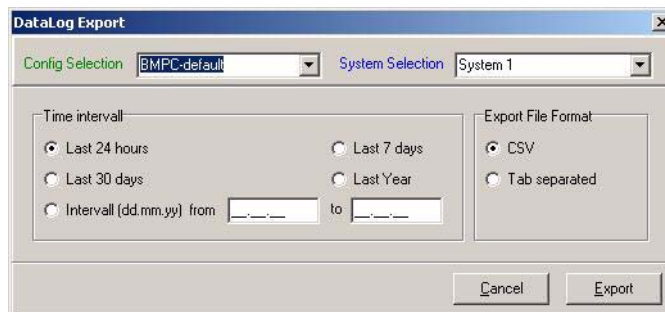
All channel values are written sequentially, in one row, separated by commas or tabs (selectable). The rows with the channels are sorted by date and time (increasing chronologically). The first row consists of the single Short-IDs of the configured channels and is used as a heading. The simple file format can be read by most programs.

Export File Format (CSV), example with 5 channels:

T1,T2,P1,P2,HL-FL	<-- heading
17000,17200,12,17,200	<-- 1. data row, values separated by commas
17000,17202,12,17,200	<-- 2. data row
17001,17202,12,17,199	<-- 3. data row
:	
17002,17202,12,17,199	<-- n. data row

Export File Format (tab separated), example with 5 channels:

T1	T2	P1	P2	HL-FL	
17000	17200	12	17	200	<-- 1. data row, values separated by tab (ASCII code = 09)
17000	17202	12	17	200	<-- 2. data row
17001	17202	12	17	199	<-- 3. data row
:					
17002	17202	12	17	199	<-- n. data row

Save Backup of Setup DB [sw version > 20030213] *4.2.4*

This function is called with:

- Menu FILE/Save Backup of Setup DB

To use this function you must be logged in as a *Service* user or as an *BMS Administrator.*

Calling this function will save the current setup data as a backup. The date of the last saved setup data is displayed beside the menu item. The backup is used by the auto setup recovery function in case the current setup files being used are damaged (i.e. after power failure during a write operation of the hard disk).

Quit   *4.2.5*

This function is called with:

- Menu FILE/Quit

To use this function you must be logged in as a *Service* user or as an *BMS Administrator*.

Calling this function will close the program, when the correct user/password is entered.

Display Menu   *4.3*

The menu selection **Display** consists of the following submenu selections:

- Present Values
- Event Log
- Data Log
- Show Jumbo Display(s)
- Add Graph
- Display Next Window
- Phone Log

Present Values Display   *4.3.1*

This function is called with:

- Menu DISPLAY/Present Values
- Function key: F2

- Icon:

To display the present data window you can either select *Display*, *Present Values*, press the F2 function key on the computer keyboard, or click on the icon you see above.

This window displays the present values and value limits for the channels (see ***Figure 4.1.***). When you start the monitoring (select *Function/Start Monitoring*,

press F9, or select the icon with the green arrow) the system will automatically switch to this display.

The present data window consists of five columns of operating and display elements.

In the first column (left), you see whether the alarm function is switched on or off [software version > 20030213]. An icon with a phone displays that the alarm function for a channel is switched on. When the alarm function is switched on for a channel, the system will display an alarm message when the limits are reached and initiate the alarm routine (telephone call, fax transmission). When the alarm function is switched off for a channel, the alarm message will be displayed, but the alarm routine will **NOT** be initiated. The alarm function for a channel can be changed in the *Setup* dialog.

The second column (*Channel*) displays the description of the configured channels. Configured, but inactive channels are highlighted.

The third column displays the lower limit values (alarm, warning, normal) for the supervised unit.

The last column (right) displays the upper limit values (alarm, warning, normal) for the supervised unit.

To switch between the three possible limit values (alarm, warning, normal), select one of the buttons *Alarm*, *Warning* or *Normal*.

Event Log Display *4.3.2*

This function is called with:

- Menu DISPLAY/Event Log

- Function key: F3

- Icon:

To display the event log window, you can either select *Display*, *Event Log*, press the F3 function key on the computer keyboard, or click on the icon you see above.

The following event messages will be displayed including their date and time:

- *ERROR* (error message, for example: modem initialization failure)

- *ALARM* (alarm limit failure)

- *WARNING* (warning limit failure)

- *NORMAL* (normal values after *ALARM*, *WARNING*)

- *MSG* (message, for example: fax successfully sent, alarm confirmed...)

- *EVENT* (action, for example: calling someone)

- *OK* (confirmation, for example: modem successfully initialized)

- Other messages (for example: program start, start monitoring...)

With the help of the scrollbar on the right side of the window it is possible to scroll through the entire event log file.

Click on one of the buttons at the top of the Event Log display to filter the view of the logged data:

- *ALL:* All data are displayed
- *ALARM:* Only alarm messages are displayed
- *WARNING:* Only warning messages are displayed
- *PHONE:* Only phone events are displayed
- *MISC:* All other messages are displayed

If more than one system is supervised with the Monitoring System, you can select the system you want to see in the event log from the *System* drop down list (default: *All*).

Data Log Display   4.3.3

This function is called with:

- Menu DISPLAY/Data Log
- Function key: F4

- Icon:

To display the data log window, you may either select *Display - Data Log*, press the F4 function key on the computer keyboard, or click on the icon you see above.

Here the current recorded values with the date and time of the activated channels are displayed. Limit failures are color coded for easy display recognition: red = alarm, blue = warning, black = normal.

With the help of the scrollbar on the right side of the window it is possible to scroll through the entire data log file.

Click on one of the buttons at the top of the Data Log display to filter the view of the logged data:

- *ALL:* All data are displayed
- *ALARM:* Only alarm values are displayed

If more than one system is supervised with the Monitoring System, you can select the system you want to see in the data log from the *System* drop down list (Default: *System 1*).

Show Jumbo Display(s) [sw version > 20030213]   4.3.4

This function is called with:

- Menu DISPLAY/Show Jumbo Display(s)
- Function key: F5

Functions

- Icon: F5

This function displays all selected Jumbo Displays in the main window. All other windows (i.e. Present Values, Event Log ...) will be minimized.

A Jumbo Display shows one channel (i.e. Temperature 1) in a large display. A maximum of five Jumbo Displays (= 5 different channels) can be displayed at the same time in the main window. To select a channel, switch to the Present Value Display (see **_"Present Values Display" on page 29_**) and double click on one of the channels (i.e. „Temperature T1"). A Jumbo display for this channel will then appear. You may double click on other channels to display more Jumbo Displays.

To remove a Jumbo Display click on the „X" in the upper right corner of the display window..

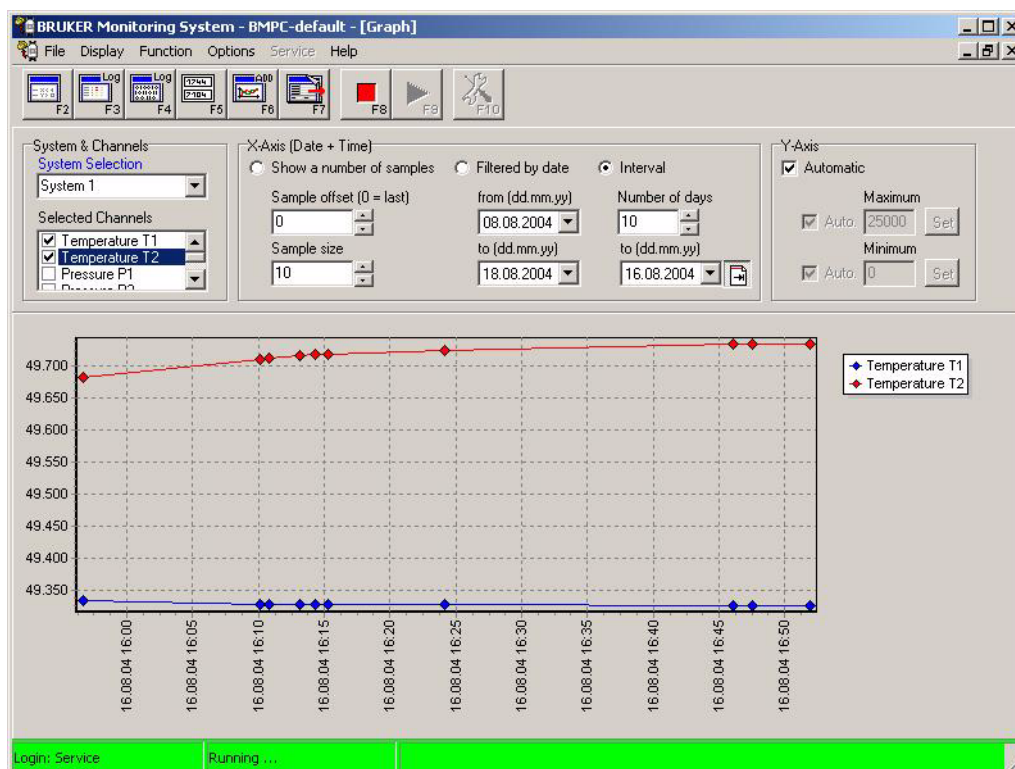### *Add Graph [sw version > 20030213]* *4.3.5*

This function is called with:

- Menu DISPLAY/Add Graph

- Function key: F6

- Icon: F6

Used to add one or more graph windows. After calling this function a Graph Window appears. In the upper part of the windows are three group boxes which can be used to setup the Graph Window.

Figure 4.3.   Graph Window

System & Channels

- *System Selection:* Select the system from which you want to display the channels (normally only one system, default: „System 1")

- *Selected Channels*: To display a channel in graphical form select a check box corresponding to the channel. The system may need a little bit of time to draw the graph. It is possible to select up to three channels. To delete a graph of a channel, deselect the corresponding check box.

X-Axis (Date and Time)

There are three possibilities:

- *Show a number of samples:*
  With *Sample Size* you can determine how many recorded data points are displayed. With *Sampe Offset* it is possible to adjust which range of data points are displayed.

  For example:
  When 100 recorded values are available in the data log (sample No. 100 = last recorded sample), and you want to display 50 samples excluding the last 10, you would enter:
  Sample Size = 50
  Sample Offset = -10

  Result: Samples from No. 41 to 90 are displayed.

- *Filtered by Date:*
  Data is displayed in a range which is determined by a *from* date and *to* date.

- *Interval:*
  Number of days are displayed. The last data to be displayed is determined by entering a date in the *to* field. With the small button (right arrow) near the *to* field it is possible to set the To-Date automatically to the last recorded date. This is helpful when the monitoring is activated and data is continiously recorded to the datalog. The graph is automatically updated and always shows the last recorded data. This automatic function is activated when the small button is displayed in a depressed position (on/off/on/off .... button).

If you have to enter a date in one of the date fields described above, it is also possible to click on the small triangle at the right side of a date field. A calendar appears in which you can comfortable select a date.

Y-Axis

Automatic check box: Select this box to set the Y-Range automatically with the program (*Auto/Maximum* and *Auto/Minimum* disabled). Deselect this box if you want to manually set the upper and lower limit of the Y-Range.

Auto/Maximum: Select this box to set the upper limit automatically. Deselect this box if you want to manually enter an upper limit value. To enter a new limit value click on the *Set* button.

Auto/Minimum: Select this box to set the lower limit automatically. Deselect this box if you want to manually enter a lower limit value. To enter a new limit value click on the *Set* button.

Display Next Window   4.3.6

This function is called with:

- Menu DISPLAY/Next
- Function key: F7

- Icon:

Used to switch between the different displays.

Phone Log Display   4.3.7

This function is called with:

- Menu DISPLAY/Phone Log

To display the phone log display, select *Display* - Phone Log.

Function Menu   4.4

The menu selection **Function** consists of the following submenu selections:

- Start Monitoring
- Stop Monitoring

Stop Monitoring *4.4.1*

This function is called with:

- Menu FUNCTION/Stop Monitoring
- Function key: F8

- Icon:

The *FUNCTION/Stop Monitoring* selection stops the system monitoring. It is necessary to confirm this function by entering a user and an authentication password.

When an alarm has been initiated it will also be necessary for the user to enter their name, as a confirmation to the system, that they have assumed responsibility for the system.

The system will then reset.

It is also possible to call this function by pressing the F8 function key or to click on the icon you see above.

Start Monitoring *4.4.2*

This function is called with:

- Menu FUNCTION/Start Monitoring
- Function key: F9

- Icon:

The *FUNCTION/Start Monitoring* selection starts the system monitoring. As the system starts, the limit values are read. If the phone line test function is enabled (see SETUP!!!!) the modem connection <-> phone line is tested.

It is necessary that all of the enabled *External Groups* have at least four entries and the *Internal Group* at least 2 entries (see GROUP ASSIGNMENT!!!!). When this condition has been met, the system will start operations.

It is also possible to call this function by pressing the F9 function key or by clicking on the icon shown above.

Options Menu - Setup *4.5*

The options menu consists of only one submenu option:

- Setup.

Functions

The **Setup** function is called with:

- Menu OPTIONS/Setup

- Function key: F10

- Icon:

To setup the system you must login as *Service* or *BMS Administrator* (refer to ***"Login & Passwords" on page 37***). To enter the setup dialog, you may either select *Options - Setup*, press the F10 key, or click with the mouse/trackball on the icon you see above.

The Setup dialog consists of six different parts, each divided into its own individual tab sheet:

- Configuration

- System

- Voice & Fax System

- Phonebook

- Log Files

- Channels).

These parts are described in detail in the following sections.

Figure 4.4.   Setup: Configuration Tab Sheet

Configuration Setup

It is possible to setup more than one configuration. If you click on the *Add* Button you have to enter a name for the new configuration. The new name will appear in the configuration list along with the default entries (BMPC-default).

Use the *Config Selection* pull-down list (green) to select the configuration you want to edit. You can use this function to switch between different configuration setups.

As described later in the File menu, you have the possibility of switching between different configuration setups (see ***"Set Configuration"***).

Login & Passwords

Here the different passwords and codes are defined. The different passwords/codes are used as follows:

- Windows Login/Password [alphanumerical]: Here the log in User/password should be defined. The program uses these entries to start Windows without a login (i.e. auto re-/boot function).

- BMS Administrator password [alphanumerical]: Used to log in the program as administrator.

- User password [alphanumerical]: Used to log in the program as standard user.

- Confirm Code/Call Out [numerical]: Used to confirm an alarm call.

- Fax Polling Code/Call In [numerical]: Used to request a report fax.

Please refer to the Appendix *"Password Hierarchy" on page 57* for more details.

General System Settings

Phone Number of the Monitoring System: Used to enter the phone number for the Monitoring System telephone connection. It is recommended to enter the phone number in the international format *Country/Region Code* + *City/Area Code* + Phone Number of the Telephone Connection (i.e. 49 721 5161333 or 1 847 935 1234), without the international Access code.

Modem & Voice Box Settings

Enabled [Default: selected]: Used to enable and disable the voice box functions. When you use the software with the BMPC, this function must be enabled.

Phone Line Test [Default: enabled]: When enabled the software will first test the phone line, when the monitoring function is started. To test the phone line, the system makes a call to itself. The test fails, if the modem does not detect a busy signal. In this case the monitoring function will not start (--> Event Log). During the installation process for the BMPC/magnet, it is recommended that you disable this function, because the system needs approx. 30 seconds to proceed the test.

Note: The test does not work properly with some phone systems. In this case disable the function permanently.

Modem Device: Two different entries are possible with the delivered PCI modem ('MicroLink 56k PCI HCF EU' or 'MicroLink 56k PCI HCF US'). The entry will depend on the modem driver which is installed in the windows system.

As default the 'MicroLink 56k PCI HCF EU' driver is pre-installed. With this driver the modem should work in most European Union countries.

On the installation CD you will find another driver for the PCI modem (MicroLink 56k PCI HCF US). Use this driver in North- and South America and Japan (see *"Installing the MicroLink 56k PCI HCF US Modem Driver" on page 59*).

For other countries you have to test which driver works properly. Normally nearly all functions work properly with both drivers. For example, if you have problems calling the system, try the other driver.

Outside Line Code: Used to enter the code you for reaching an outside line. This is normally used if you are connected to a company phone switch. Often a '0' or a '9' is used.

Normally this field remains empty, when you have a direct external phone line.

Modem Init: Please leave this field empty!

International Access Code: Used to enter the code used to phone an international receiver. Often a '00' (Germany, France, Italy etc.) or '011' (in parts of the USA) is used.

Country/Region code: Used to enter the phone code for the region or country you are. For example: 1 = USA & Canada, 49 = Germany, 33 = France, 7 = Russia, 43 = Austria etc.

City/Area Code: Used to enter the code of you city or region. For more details please see the examples at the end of this chapter.

Phone Number Test: Used to test phone numbers to check if the program calculates the phone number correctly (--> Result) out of the data you entered above.

The following examples illustrate some common settings:

Example 1:

Location of the Monitoring System: BRUKER, City of Rheinstetten, Germany

International Access Code: '00'

- Used to phone internationally from Germany we first have to dial a '00'.

Country/Region Code: '49'

- '49' is the international country code for Germany

City/Area Code: '(0) 721'

- To dial from another German city to Rheinstetten, you need a '0721' before the phone number (i.e. from Hamburg to Bruker Rheinstetten: 0721 5161 333)
- To dial locally from Rheinstetten: 5161 333 (the '0721' is not necessary)
- To dial from France to Bruker Rheinstetten, Germany: 00 49 721 5161 333

Example 2:

Location of the Monitoring System: Florence, Italy

International Access Code: '00'

- To phone internationally from Italy we first have to dial a '00'.

Country/Region Code: '39'

- '39' is the international country code for Italy

City/Area Code: '(0) 999'

- To dial from another Italian city to Florence, you need a '055' before the phone number (i.e. from Rome to Florence: 055 12345 6789)
- To dial locally from Florence: 055 12345 6789 (the '055' is necessary in Italy to phone within a city/area! Because of that, we use a „Dummy" City/Area Code like (0) 999)
- To dial from France to Florence, Italy: 00 39 55 12345 6789

Example 3:

Location of the Monitoring System: Bruker, Billerica, USA

International Access Code: '011

- To phone internationally from USA we first must dial a '011'.

Country/Region Code: '1'

- '1' is the international country code for USA/Canada

City/Area Code: '( ) 978'

- To dial from another city in the USA to Bruker Billerica, you need a '978' before the phone number (i.e. from New York to Billerica: 978 667 1234). A leading '0' is not necessary.

- To dial locally Billerica to Billerica: 667 1234 (in some parts of the USA you must dial the City/Area Code within the City/Area you are. In this case you would enter a 'Dummy' code like '( ) 999' instead of the '( ) 978')

- To dial from Germany to Billerica, USA: 00 1 978 678 1234

System   *4.5.2*

It is possible to supervise more than one system (Default: 'System 1'). With a click on the *Add* Button you have to enter a name for the new system. The new system will appear in the *System* listbox.

Use the *System Selection* pull-down list box (blue) to select the system you want to configure. Now you can edit all the necessary SBS-communication parameters. The SBS parameters you must enter are described in the manual of the unit you want to survive.

Note: If you want to supervise more than one system, you must add serial ports (i.e. PCI-card) to the IPC. As a standard only one unit can be connected to the Monitoring System.

Figure 4.5.   Setup: System Tab Sheet

If the system detects an alarm, it is possible that the system transmits an alarm fax. Likewise it is possible to request a report fax per remote control over the voice box system. The information displayed in the header of the fax can be edited in the *Voice & Fax Settings* (click on Tab Sheet *Voice & Fax Settings*). The data which is entered here, has no affect to any function of the system. The data is only used for information purposes on a fax. As shown in **_Figure 4.6._**, the data is divided in three parts:

- System Data & Fax ID
- Customer Data
- Bruker Data

Figure 4.6.   Setup: Voice & Fax Setting Tab Sheet

Note: In most countries it is not allowed to transmit a fax without a fax-id (first line of a fax with sender information). This corresponds to the fields *Fax ID Name* and *Fax ID Number* on the tab sheet *System Data & Fax ID.*

Advanced Setup

On the tab sheet *Voice & Fax System* you will also find an *Advanced Setup.* Here
you have the possibility of setting up parameters for the *Voice Box System*. How-
ever, the *Voice Box System* is completely pre-configured, thus normally it is not
necessary to change anything.

Figure 4.7.   Example for a Fax with Header and Data

Phonebook Settings   *4.5.4*

In case of an alarm, members of the phonebook are called. A member could be a
person or a fax machine. Please click on the tab sheet *Phonebook* to add, edit or
delete persons/receiver in the phonebook and to assign them to a group.

The phonebook dialog is divided into two parts. In the upper part you can insert/
edit/delete phonebook entries (persons, fax receiver). In the lower part you must
assign the entries of the phonebook to their group. This assignment allows you to
select which people/receiver will be called in the event of an alarm. The order of
the entries listed in the Internal, External-1, External-2 and fax group corresponds
to the priority of calling (top entry = first).

Figure 4.8.   Setup: Phonebook Tab Sheet

Add/Edit/Delete
phonebook
entries

Group
Assignment
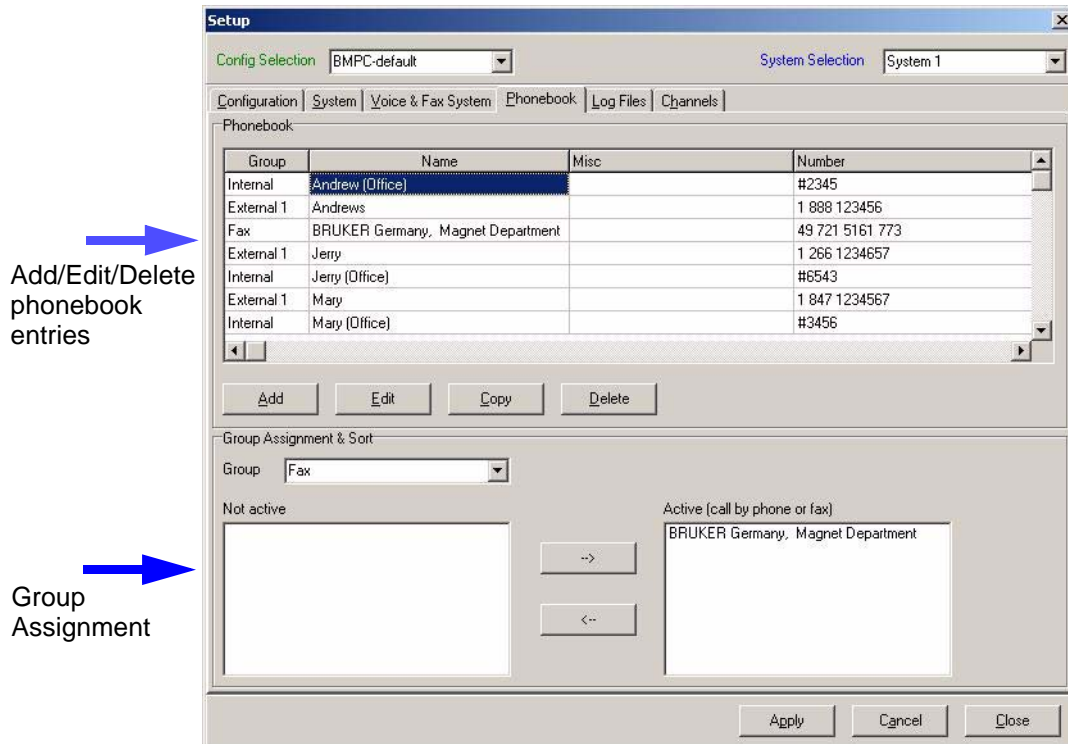
Adding/Editing/Deleting Phonebook Entries

To add a person or fax receiver to the phonebook, please click on *Add.* To edit an existing entry highlight the entry, and then click on *Edit.* The following Window appears:

Figure 4.9.   Setup - Phonebook - Add/Edit entry
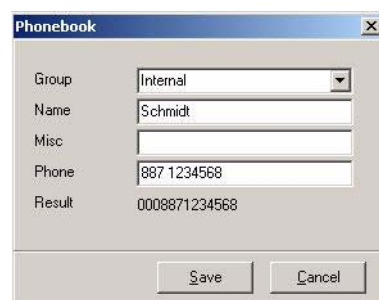
The Phonebook entry windows consists of the following fields:

Group: Four groups are possible (Internal, External-1, External-2, Fax). If you select Internal, External-1 or External-2 the system will call the receiver with its voice functionality; if you select Fax, a fax will be transmitted to this receiver.

Name: Name or Description of the receiver. The phonebook entries will be sorted using this field.

Misc: For additional data about the receiver (i.e. function or title)

Phone: Used to insert the phone number of the receiver. It is recommended that you insert all phone numbers in the international format (*Country/Region code* + *City/Areal code* + Phone Number), but without a leading „+" or „++".

Example:

49 721 5161 333 or 49 721 5161-333

1 978 667 1234 or 1-978-667-1234

(„Spaces" or „-" are allowed to separate the digits)

With the help of the configuration data you entered in the *Modem & Voicebox Settings* the system will try, if there is an alarm, to call the optimized and shortest possible number. For example, if the system location is Bruker Rheinstetten and the receiver of the alarm call is also in Rheinstetten, the system will call only the local number „5161 333".

It is possible that you can not set up the automatic system due the limitations of the local telephone switch. In this case it is possible to use the „#" to overwrite the automatic function.

Example:

#0721 5161 333

The system will now dial exactly the digits behind the „#". If you are connected to a local phone switch and need a leading „0" (or another digit) to get an outside line, you must manually enter an additional „0"!

Example:

#0 0721 5161 333

If your phone system allows you to use short phone codes to call a receiver inside your company or organization, you can use the „#" as well.

Example:

#333

Note: You must have at least two entries in the internal group and four entries in one of the external groups in order for the monitoring function to work.

Result: The Result field is a read-only field. It displays the phone number which is actually dialed and it is useful for controlling the phone number. This phone number is constructed from of the data *International Access Code, Country/Region code* and *City/Area Code.*

Group Assignment

To assign a phonebook entry to a group, click on the arrow to the right of the *Group* field and select the proper group from the pull-down list.

The *Inactive* list box (left) contains the entries which are currently unassigned to a group. These entries can be assigned to a group by first highlighting the entry in the *Inactive* list box and then clicking on the corresponding „-->" button (right arrow). The entry will then be moved from the *Inactive* list box to the *Active* list box. To return an entry to the Inactive list box, use the corresponding „<--" button.

It is also possible to assign entries by dragging and dropping an entry in the *Inactive* list box, into the appropriate group. You can also change the order of the entries inside the *Active* list box using this method.

Log Files   *4.5.5*

The system is able to record all events, data and all phone actions. The following chapters describes how you can change the behavior of the logging.

Figure 4.10. Setup: Log Files Tab Sheet

Event Log

The settings entered in the Event Log group box (see ***Figure 4.10.***) determine how the event data will be recorded.

The following settings are possible:

- *Event Log Off* --> Event logging is disabled

- *Log only the last x days* --> Logging is enabled. Records which are older than x days, are erased

- *Log without limit* --> Data logging is enabled. The user must manually control the available hard disk space.

To delete all of the data in the *Event Log* file for the selected Configuration (*Config Selected)*, click on *Clear All (config + system)* button*.

To delete only the data in the *Event Log* file for the selected system (*System Selection*), click on *Clear Buffer (system)* button*.

Data Log

The settings entered in the *Data Log* group box (see ***Figure 4.10.***) determine how the data will be recorded.

The following settings are possible:

- *Data Log - Log Off* --> Logging is disabled

- *Log only the last x days* --> Logging is enabled. Records which are older than x days, are erased

- *Log without limit* --> Logging is enabled. The user must manually control the available hard disk space.

To delete all records in the *Data Log* file for the selected Configuration (*Config Selected)* and system (*System Selection*), click on the *Clear Buffer* button*.

With *Normally record data every...* you can determine in which interval the data is recorded, when there is no alarm situation. The range is from 1 minute to 24 hours.

With *In alarm case record data every...* you can determine in which interval the data is recorded, when there is an alarm situation. The range is from 1 minute to 24 hours.

With *Synchronize data recording to...* you can determine the first log time for a day. That can be useful to get every day the same log times (i.e. 2:00, 8:00, 14:00, 20:00), independently from the time point the logging was started.

Voice Box / Fax Log

The settings entered in the *Voice Box / Fax Log* group box (see ***Figure 4.10.***) determine how the data will be recorded.

The following settings are possible:

- *Voice Box / Fax Log Off* --> Logging is disabled

- *Log only the last x days* --> Logging is enabled. Records which are older than x days, are erased

- *Log without limit* --> Logging is enabled. The user must manually control the available hard disk space.

To delete all records in the *Voice Box / Fax Log* file for the selected Configuration (*Config Selected) and* system (*System Selection*), click on the *Clear Buffer* button*.

Channels *4.5.6*

With this dialog it is possible to configure the various channels which are continuously read from the connected device (i.e. BMPC). The channels are all preconfigured and should not be changed.

You need to have detailed knowledge about the BRUKER devices and the BRUKER SBS-protocol before making changes here.

Sometimes (i.e. during the installation of a magnet system) it can be useful to temporary disable a channel or the alarm function of a channel. To do this, click on the channel name on the left of the dialog. Then you can select/deselect the *switches:*

- *Enable:* If the check box is selected, the channel will be read from the connected device.
  If the box is deselected, the channel is not read from the device. On the Present Value display an „Off" appears instead of a numeric value.

- *Alarm Call:* If the check box is selected and an alarm condition is detected for the channel, an alarm call will be triggered. On the Present Value display a telephone icon appears on the left side of the channel description, if this function in enabled.
  If the check box is deselected and an alarm condition is detected for the channel, no alarm call will be triggered, however, other channels with *Alarm Call* = selected can trigger an alarm call.
  For normal operation it can be unnecessary for some channels to enable the Alarm Call function (i.e. channel value is read from the device only for information, without limit values).

- *Displayed on fax:* If the check box is selected, the channel appears on an alarm-, confirm- or report fax. Please note that only a limited number of channels (columns) can be printed on a fax (this depends on the size of the channel values).

⚠️

If you have disabled one or more of the switches described above, please do not forget to enable them again for normal operation.

Figure 4.11. Setup: Channels Tab Sheet
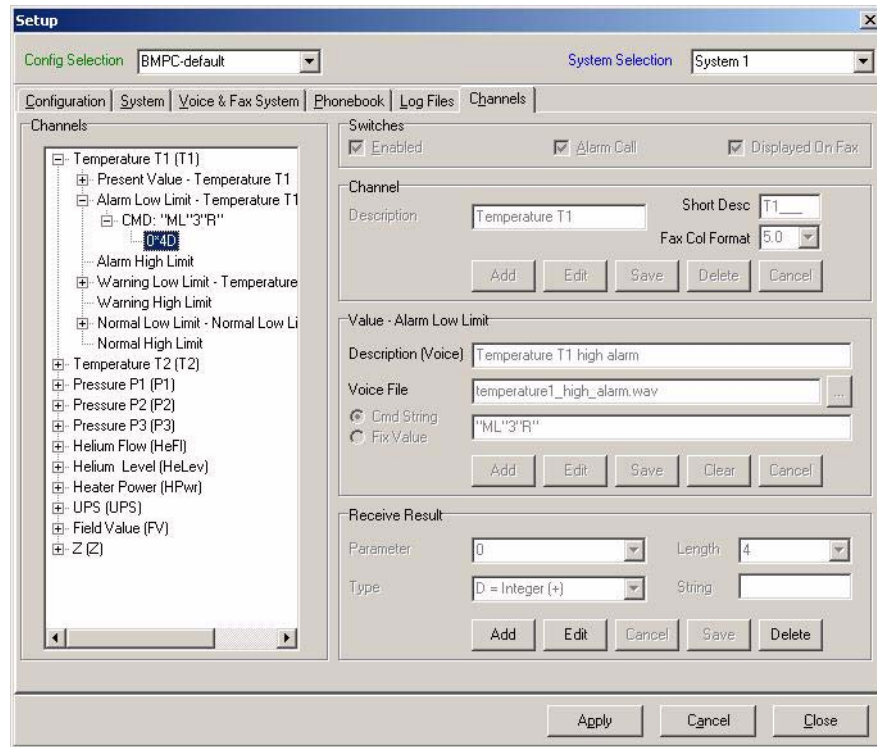
Service Menu   4.6

The **Service** menu option contains functions which allow you to test outgoing calls
or the automatic reboot function without the necessity of initiating real alarm cas-
es. The **Service** menu option is only accessible when you are logged in as user
„*Service*".

The menu selection **Service** consists of the following submenu selections:

- Send Test Fax

- Test Alarm Call

- Test Reboot System

Figure 4.12. Service Menu Option - Test functions
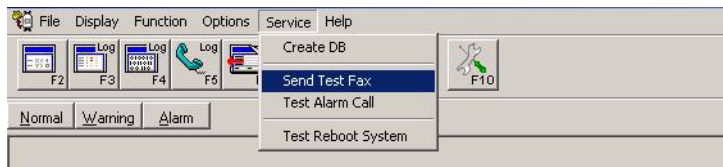
Send Test Fax   4.6.1

This function is called with:

- Menu SERVICE/Send Test Fax

To use this function you must be logged in as a *Service* user.

If you select *Send Test Fax* an input windows appears in which you have to enter a phone number for a fax machine.

Figure 4.13. Send Test Fax - Ask for phone number

To start the fax transmission enter the phone number for the fax machine and click on *OK*. After a few seconds the system should begin the fax transmission. After the transmission a message window will appear letting you know if the transmission was successful or not.

Test Alarm Call   *4.6.2*

This function is called with:

- Menu SERVICE/Test Alarm Call

To use this function you must be logged in as a *Service* user.

If you select *Test Alarm Call* you have to enter the phone number for a „Voice" receiver. When testing the system, it is a good idea to choose a phone number near the system.

Figure 4.14. Test Alarm Call - Ask for phone number

To test an alarm call select *Test Alarm Call* and enter the phone number for a „Voice" receiver. When you press *OK* the system will begin calling the phone number after approximately 30 seconds and you should hear the telephone ringing that was called (be sure to select a phone number nearby).

Take the call and listen to the voice. You will be prompted to press the 'star' button on the touch-tone phone to interrupt the message. You will then be prompted to enter a confirm code (Default: 6789) and finish it with the 'star' button. You now have confirmed the (test) alarm call.

Functions

After a few seconds a message Window will appear with the result, that you have successfully confirmed the alarm call.

If you enter a wrong code or if you close the call without confirming the call, a message window will appear with the result, that the alarm call was not confirmed.

You can use the *Test Alarm Call* function to train people how to use the Monitoring System and how to respond in the case of an alarm situation.

It is also recommended that you call the system to test if the system accepts incoming calls.

Test Reboot System *4.6.3*

This function is called with:

- Menu SERVICE/Test Reboot System

To use this function you must be logged in as a *Service* user.

Help Menu *4.7*

The menu selection **Help** consists of only one submenu selection:

- About

About BMS... *4.7.1*

This function is called with:

- Menu HELP/About

When you click on *About*, a windows appears with information about the present program version.

Using the Voice Box System

5

General *5.1*

With the help of the voice box system it is possible to obtain status information from the system being supervised. In the event of an alarm the BMS system calls the people on the *Phonebook* list. These people are informed, via a voice file, about the current status of the BMS system. It is also possible to call the system and poll a fax containing the most recent values (*Data Log).*

To operate the voice box system it is necessary to enter the proper authorization codes. There are two different authorization codes: One to confirm receipt of an alarm call and a second for fax polling (see **_"Login & Passwords" on page 37_**).

To enter the codes and to use other functions of the voice box system, you will need a touch-tone phone (DTMF). To confirm that the system has recognized an input, the system acknowledges each entry of the data input with a 'beep'.

Note: This chapter only describes the default „BMPC/BMS" configuration as it was delivered. In *Setup/Voice & Fax System* - **_"Advanced Setup"_** you have the possibility of changing the structure of the Voice Box System.

Functions *5.2*

In the event of an alarm the BMS system begins calling the people on the *Phonebook* list until one internal, or two external confirmation(s) have been received. When a designated person on the list answers the call they will first hear a greeting message, then the current status of the system (e.g. 'Temperature T1 high alarm'). These messages are repeated up to five times. If the user does not interrupt this process by pressing the 'star' button on the touch-tone phone, the system will move on to the next person on the list after the fifth attempt.

After pressing the 'star' button on the touch-tone phone, the user has to enter an authorization code (confirm code), then press the „star" button to confirm the receipt of the alarm message. After the correct authorization code has been entered, the system will automatically activate the voice box menu.

Using the Voice Box System

If a user calls the system they will first hear a greeting message, whereas the user will be prompted to interrupt the transmission by pressing the 'star' button on the touch-tone phone. The user will then be prompted to enter the authorization code (for polling), and then press the 'star' button again. The system will then state the current system status and activate the voice box main menu. If not interrupted, the greeting message is repeated up to five times, whereas after the fifth attempt the line will be automatically disconnected.

Input of the authorization codes can be repeated up to three times. If the correct code isn't entered after the third attempt, the system will disconnect.

Main Menu

There are three possible functions in the *Voice Box Menu* that the user can activate by pressing the corresponding button on the touch tone telephone:

- '0': Exits the voice box system,
- '1': Enter the fax menu,
- '2': Repeat the system status.

Fax Menu

There are four functions which can be activated in the *Fax Menu* by pressing the corresponding button on the touch tone telephone:

- '0': Return to the main menu.
- '1': Request a report fax (data log) of the last 24 hours.
- '2': Request a report fax (data log) of the last 7 days.
- '3': Request a report fax (data log) for a defined period of time.

After pressing the '1', '2' or '3' buttons, the user has to enter the phone number of the fax device to which the fax should be sent. It is recommended that you enter the complete number including the international access code (e.g. 49 721 9515149, BRUKER Rheinstetten, Germany). To indicate the end of the fax number to the system, the user must press the 'star' button after the last number. To verify the number that was entered, the system will repeat it. The user must then press '1' to confirm. You may enter '0' to repeat this procedure.

When menu function '3' is selected, the user has to enter a defined period of time. This is done by entering a start and stop date as a 6 digit number in the form: day, month, year (dd/mm/yy) e.g. for June 10, 1998: 100698.

Once the start and stop date have been entered, the system will disconnect and send the fax.

Figure 5.1. Example of a Report Fax (Fax Polling)

```
BRUKER MONITORING SYSTEM: ->█████        31.08.04  11:15        Page: 1

┌──────────────────────────────────────────────────────────────────┐
│ Poll Fax             BRUKER MONITORING SYSTEM      Version 20040820B│
│                                                                    │
│ SYSTEM Type/SN: BR.123.080.071        Date of Installation: 10.08.2004│
│                                                                    │
│ CUSTOMER  Name-1  : BRUKER Demolabor                               │
│ CUSTOMER  Name-2  :                                                │
│            Location : Silberstreifen                               │
│                       76287 Rheinstetten                           │
│                       Germany                                      │
│                                                                    │
│                                                                    │
│            Phone 1  : +49 721 5161-0        Fax  1:                │
│            Phone 2  :                        Fax  2:               │
│                                                                    │
│ SYSTEM LOCATION    : Demolabor                                     │
│            Phone    : +49 721 5161-361      Fax  :                 │
│                                                                    │
│ MONITORING SYS. No.:                    --> fax polling, status query│
│                                                                    │
│ LOCAL BRUKER OFFICE: Bruker BioSpin GmbH                           │
│            Phone    : +49 721 5161-151     Fax  : +49 721 5161-297 │
│                                                                    │
│ INSTALLED BY       : Ruin, Ralf                                    │
│            Phone    : +49 721 5161-147     Fax  : +49 721 5161-297 │
└──────────────────────────────────────────────────────────────────┘
Active channels and limit values:

1.Temperature T1:  10000 < x          2.Temperature T2:  10000 < x
3.Pressure P1 P1:      4 < x < 60     4.Pressure P2 P2:          x
5.Pressure P3 P3:           x         6.Helium Flow He:    170 < x
7.Helium  Level :           x         8.Heater Power H:          x
9.UPS UPS       :      1 < x          10.Field Value FV:         x
11.Z2 Z2        :           x

Data Log: 30.08.04 - 31.08.04

   Date  Time    T1     T2    P1    P2   HeFl  HeL   HPwr    UPS     FV     Z2

31.08.04 11:15 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 11:00 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 10:45 21367  42879   20  1005  500   69     0    14400   -6871  11721
31.08.04 10:30 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 10:15 21367  42879   20  1005  500   69     0    14400   -6871  11721
31.08.04 10:00 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 09:45 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 09:30 21367  42879   20  1005  500   69     0    14400   -6871  11721
31.08.04 09:15 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 09:00 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 08:45 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 08:30 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 08:15 21367  42879   20  1006  500   69     0    14400   -6871  11721
31.08.04 08:00 21367  42879   20  1005  500   69     0    14400   -6871  11721
31.08.04 07:45 21367  42879   19  1005  500   69     0    14400   -6871  11721
31.08.04 07:30 21367  42879   19  1005  500   69     0    14400   -6871  11721
31.08.04 07:15 21367  42879   15  1017  500   69     0    14400   -6871  11721
31.08.04 07:00 21367  42879   15  1017  500   69     0    14400   -6871  11721
31.08.04 06:45 21367  42879   15  1016  500   69     0    14400   -6871  11721

End of fax           a/A = low/high alarm, w/W = low/high warning (i.e. 130.0w)
```

FAX-ID [1]

FAX-Header [1]

Limit values

Data log

1   see **"Voice & Fax System" on page 41**

Notes:

- Due to the varying quality of phone lines, it is possible that the system will need various amounts of time to recognize the DTMF. ***Do not enter the DTMF codes too quickly***. A DTMF code that has been successfully recognized is indicated by a short tone signal from the system.

- Most messages from the voice box system can be interrupted by the user, to speed up the operation of the system. For example, it is possible to enter the '1' in the main menu before the message, 'You are now in the main menu. Press '1' to....', ends. The system will interrupt this message and immediately activate the fax menu.

Using the Voice Box System

Alarm Flow Chart

A

Figure A.1. Alarm Block Diagram (Default BMPC/BMS configuration)

```
┌─────────────────────┐
│        Alarm        │
└─────────────────────┘

┌─────────────────────┐
│   Internal group    │
│ not                 │
│ confirmed  confirmed│
└─────────────────────┘

          next internal
          group entry

          next ext.-1
          group entry              no more
                                   intern group entries

┌─────────────────────┐        ┌─────────────────────┐
│  External-1 group   │        │      Confirm        │
│ not                 │        │   Counter:= 2       │
│ confirmed  confirmed│        └─────────────────────┘
└─────────────────────┘

          no more                 fax group          Fax group
          external-1              enabled
          group
          entries                                    no more
                                                     fax group
          Confirm                                    entries
          Counter:= Counter+1
                                  fax group
          Counter<2?  Counter=2?  disabled

          next ext.-2
          group entry             Counter<2?   Counter=2?

┌─────────────────────┐        ┌─────────────────────┐
│  External-2 group   │        │        Stop         │
│ not                 │        │   alarm sequence    │
│ confirmed  confirmed│        └─────────────────────┘
└─────────────────────┘

          no more                ┌─────────────────────┐
          external-2             │       Repeat        │
          group                  │   alarm sequence    │
          entries                └─────────────────────┘

          Confirm
          Counter:= Counter+1

          Counter<2?  Counter=2?
```

BRUKER BIOSPIN **User Manual Version 003**

Password Hierarchy B

You need several passwords to operate the BRUKER MONITORING SYSTEM. The passwords and their specific use are explained below.

User password:
- Default: 1234
- Used for BMS program, desktop (see table ***"Hierarchy of Passwords" on page 58***).
- Type: alphanumeric, length: 10

BMS Administrator password:
- Default: 2345
- Used for BMS program, desktop (see table ***"Hierarchy of Passwords" on page 58***).
- type: alphanumeric, length: 10

Service password:
- Default: _____
- Used for BMS program, desktop (see table ***"Hierarchy of Passwords" on page 58***).
- Type: alphanumeric, length: 10

Polling password (to request a report fax):
- Default: 1234
- Used for voice box system (to call the system)
- Type: only numeric (3 . .6 digits)

Confirm password (to confirm an alarm call):
- Default: 6789
- Used for voice box system (to confirm an alarm)
- Type: only numeric (3 .. 6 digits)

Windows 2000 Administrator password:
- Default: magnet

Table B.1.   Hierarchy of Passwords

Menu - function	Standard User	BMS Administrator	Service
FILE - Login	x	x	x
FILE - Export Data-log	x	x	x
FILE - Save Backup of Setup DB	-	x	x
FILE - Quit	-	x	x
DISPLAY	x	x	x
FUNCTION	x	x	x
SERVICE	-	-	x
OPTIONS - Setup	-	x	x
HELP - About BMS	x	x	x

Changing the Modem Driver C

Introduction *C.1*

The BMS is delivered with the standard MicroLink 56k PCI HCF EU modem driver preinstalled. This driver should work in most European Union (EU) countries.

On the installation CD you will find another driver for the PCI modem (MicroLink 56k PCI HCF US). Use this driver in North- and South America and Japan

For other countries you have to test which driver works properly. Normally nearly all functions work properly with both drivers. For example, if you have problems calling the system, try the other driver.

The following section decribes how to update the modem to the MicroLink 56k PCI HCF US driver.

Installing the MicroLink 56k PCI HCF US Modem Driver *C.1.1*

To upgrade the modem driver to the MicroLink 56k PCI HCF US driver you must carefully complete the following steps:

1. With your right mouse button click on „My Computer" and selecte MANAGE.

2. Click on DEVICE MANAGER

3. Double-click MODEMS

4. Double-click MICROLINK 56k PCI HCF EU

5. Click on the tab sheet DRIVER

6. Click on the UPDATE DRIVER button, then the NEXT button.

7. Select DISPLAY A LIST OF KNOWN, click on the NEXT button.

8. Click on HAVE DISK

9. Click on BROWSE and go to the directory where the driver files are. Two files should be displayed: EL15102.inf and EL15112.inf. Normally the EL15102.inf file will be displayed in the FILE NAME as soon as you arrive at the directory. Click on the OPEN button, then the OK button.

10. A list with just two entries should now be displayed, MICROLINK 56k PCI HCF EU und US. Select the US entry and click on NEXT.

11. Eventually a message window will appear: „Installing this device driver ...". Confirm that you want to precede with the installation by selecting YES and pressing the NEXT button.

12. A warning message „Digital Signature not found..." will appear, press YES to continue.

13. A message window will appear asking you to „Insert Disk", press OK.

14. Eventually a warning message „Files needed" will appear. Now for a Microsoft idiosyncrasy: The selected path is correct, however Windows will not let you continue by pressing OK. Instead press BROWSE and select the file „WINACPCI.sys". Press OPEN, OK, and FINISH. This will allow the installation to continue.

15. Afterwards check to see if the new driver is found in the device list (DEVICE MANAGER).

16. When you start the Monitoring System, a window will appear where you can select the US driver.

Important: Login as user „Service" and select the US MODEM from SETUP/CON-FIGURATION/MODEM DEVICE. Press APPLY to save the new setup!

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