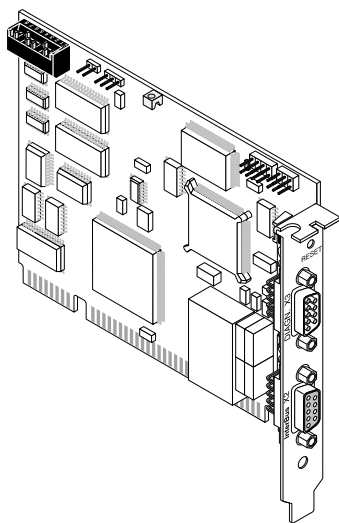


INTERBUS

Quick Start Guide



Designation: IBS PC ISA SC QS UM E

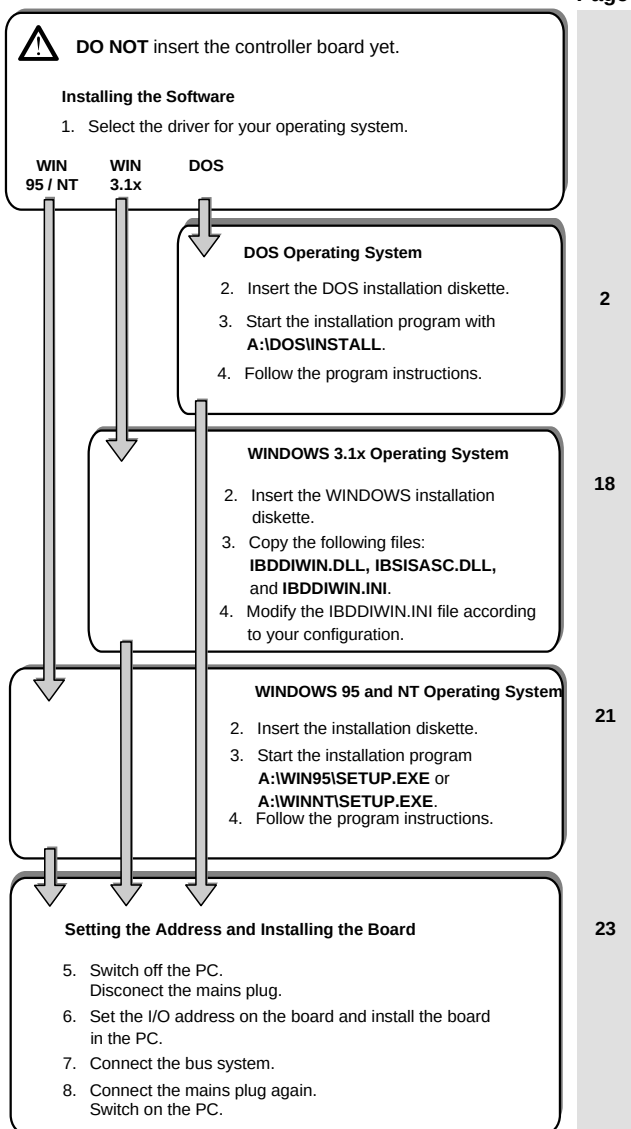
Revision: B

Order No.: 27 47 87 9

This guide is valid for:

IBS PC ISA SC/I-T Revision $\geq$ 10/402

Overview of How to Proceed



5268B011

General Information

Unless mentioned otherwise, all information in this guide refers to the IBS PC ISA SC/I-T controller board, Order No.: 27 19 23 4.

When using this guide, please observe the following notes:



The *attention* symbol refers to erroneous handling, which could lead to damage to the hardware or software, or in indirect connection with dangerous process peripherals, to personal injury. This symbol is always located to the left of the tagged text.



The *hand* symbol gives you tips and advice on the efficient use of hardware and on software optimization. In addition, text marked in this way informs you of system-related conditions that must absolutely be observed to achieve error-free operation. The hand is also found in front of clarifications of terms.



The *text* symbol refers to detailed sources of information (manuals, data sheets, literature, etc.) on the subject matter, product, etc. This text also provides helpful information for the orientation, reading order etc. in the manual.

Right and secure use of the product requires proper transport, storage, mounting, and assembly as well as careful operation and installation. The use of this product is only allowed to qualified personnel authorized to start up, to ground and to mark devices, systems and electric circuits according to the standards of safety technology. Phoenix Contact assumes no liability for damage or personal injury resulting from disregard of notes and safety guidelines contained in this manual.

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Table of Contents

Introduction

Application

This Quick Start Guide will accompany you when taking the first steps for the startup of your INTERBUS system connected to an IBS PC ISA SC/I-T controller board for PCs. You need to be experienced in working with PCs and the corresponding operating system.

Contents

This guide describes the startup of an INTERBUS system as follows:

1. Software installation
2. Hardware installation



Install controller boards only **after** having installed the driver software.

Hardware and Software Requirements

A commercial PC with ISA slot must be available. The driver software supports the following operating systems:

MS DOS Version 6.22 (or compatible)

Microsoft Windows 3.1

Microsoft Windows 95

Microsoft Windows NT Version 3.51 (or compatible)

The driver software is part of the IBS PC ISA SC UM E System Binder (Order No.: 27 47 52 3), which also includes this Quick Start Guide.

Further Documentation



System Binder

IBS PC ISA SC UM E
Configuration Manual

Order No: 27 47 52 3

IBS SYS PRO UM E
Installation Manual

Order No.: 27 51 00 1

IBS SYS INST UM E

Order No.: 27 54 80 4

Installing the Driver Software

The software installation is separately described for the following operating systems:

MS DOS	as of page 2
Windows 3.1	as of page 18
Windows 95	as of page 21
Windows NT	as of page 21

For every supported operating system, the "Software Example Programs" diskette enclosed in the IBS PC ISA SC UM E System Binder (Order No.: 27 47 52 3) includes examples for generating application programs. The program examples are generated with the programming languages *C*, *C++*, *Pascal*, *Delphi*, and *Visual Basic*.

Installation Under MS DOS

The "Software DOS Driver" diskette includes the driver software and auxiliary programs. As the files are packed, the installation program must be used to copy the diskette contents to your hard disk.

Afterwards, it is recommended to carry out the automatic configuration of the controller board with the ISACONF configuration program (see "The ISACONF Configuration Program" on Page 4). Section "IBSISA Driver Notes" on Page 16 describes the manual configuration.



Only if there is no controller board installed is the configuration program able to properly analyze the system environment of the PC.

The INSTALL Installation Program

Insert the "Software DOS Driver" diskette in the drive of your PC. Start the installation program with the following commands:

A:	+ Enter	Change to drive A:
CD DOS	+ Enter	Change to directory \DOS
INSTALL	+ Enter	Start the installation program

Follow the instructions of the installation program.

The installation program carries out the following steps:

1. Unpacking the diskette contents in a drive and directory which you determined in the program run.
2. Calling the ISACONF configuration program.

After successful installation, the files are located in the below directory structure generally starting with IBSPCISA. The following subdirectories are automatically created.

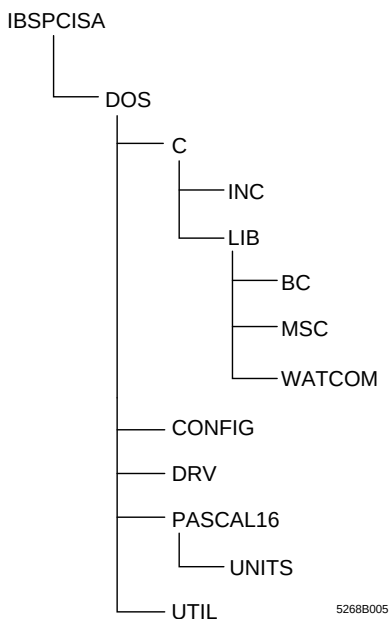


Figure 1 Directory structure

Name	Contents
DOS	README file
C	
INC	Header files
LIB	Libraries
BC	C libraries for Borland compilers
MSC	C libraries for Microsoft compilers
WATCOM	C libraries for Watcom compilers
CONFIG	ISACONF configuration program
DRV	Driver program and batch file
PASCAL16	
UNITS	Units for Borland Pascal
UTIL	Utilities: ISACHECK (test program) IBMONI (process data monitor)



Unless mentioned otherwise, all directory indications made in the following are based on this structure.

The ISACONF Configuration Program

The ISACONF configuration program - located in the CONFIG directory - analyzes the hardware environment of your PC and determines the controller board and driver settings.

This program allows to add or remove controller board drivers. The required adaptations of the CONFIG.SYS and AUTOEXEC.BAT system files can be carried out automatically.



If you would like to add a controller board, call the configuration program **before** installing the board.

Procedure

1. Change to the CONFIG directory and start the program by entering ISACONF + .



This step can be left out when executing the installation program immediately before. In this case, the ISACONF program is automatically started.

2. Enter the number of controller boards to be used during the first call. In the case of further program calls, this entry can be left out.
3. The program determines the existing resources of your computer system. Afterwards, it proposes a configuration for every controller board taking this data into account.
4. The settings of the DIP switches are illustrated for every controller board.
Set the DIP switches of the controller board in the way indicated by the configuration program.



In the CONFIG directory, these program outputs as well as other ones are stored in the ISACONF.LOG file.

5. If the program should automatically adapt the CONIG.SYS and AUTOEXEC.BAT system files, the corresponding questions are to be answered with "Yes". The original system files are stored under the names AUTOEXEC.BA~ and CONFIG.SY~.
If the files are to be adapted, read the following Section "Manual Adaptation of the System Files" on Page 6.
6. Terminate the configuration program.
7. Switch off the PC and disconnect the mains plug. Install the controller boards as described in the Section "Installing the Controller Board in the PC" on Page 26.
8. After switching on the PC, the controller boards are ready for operation. Check the proper installation and functionality of the controller board with the ISACHECK test program (see the Section "Installation Check" on Page 7).

Additional Configuration Notes

Every controller board needs the following PC resources:

- **8 bytes in the I/O area**
- **4 Kbytes in the upper memory area** ("memory window")
- **1 interrupt**

Set the I/O address via the DIP switches. According to its call parameters, the driver automatically sets the base address of the memory window and the interrupt number.



Note that each extension board must use only one interrupt in the PC.



The 4 Kbyte memory window must not be used by other extension boards or a memory manager (e.g. *EMM386.EXE*).

The configuration program creates or modifies the ISA_INIT.BAT file located in the DRV directory. For every controller board, this batch file includes the IBSISA.EXE driver call with all call parameters (see "IBSISA Driver Notes" on Page 16).

Manual Adaptation of the System Files

In some cases, the configuration program is not able to automatically adapt the CONFIG.SYS and AUTOEXEC.BAT files. This section describes the things to be observed when processing these files manually.

CONFIG.SYS

The CONFIG.SYS file must only be modified when using a memory manager (e.g. *EMM386*). The memory manager must be parameterized in such a way that it is not allowed to use the 4 Kbyte memory windows of the controller boards.

For the *EMM386* memory manager, this can be achieved by indicating *x=input address-end address*.

Example:

To disable a 4 Kbyte memory window to be assigned an EMM386 memory manager at the D0000_{hex} address, the following parameter (printed in bold) must be added during the call:

DEVICE=C:\DOS\EMM386.EXE **x=D0000-D0FF**

AUTOEXEC.BAT

If the driver should be started automatically after switching on the PC, the AUTOEXEC.BAT file must be modified. Enter the complete path referring to the ISA_INIT.BAT file. For this, use the CALL batch command.

Example:

CALL C:\IBSPCISA\DOS\DRV\ISA_INIT.BAT

Installation Check

The ISACHECK program checks the installation and operability of controller boards. The program is stored in the UTIL directory.

Procedure

1. Take care that the driver for the controller boards has been loaded before starting the ISACHECK program. This can be checked with the IBSISA /INFO call. If the driver has been installed improperly, the message *"No device driver installed"* will be output.
2. Start the program by entering ISACHECK.
The program analyzes the ISA_INIT.BAT file located in the DRV directory and indicates the parameters used for a controller board within a dialog window. Press the "OK" switch for starting the test.



If the ISA_INIT.BAT file cannot be opened, set the number of the controller board and the interrupt according to the call parameters of the driver.

3. The *Test* window allows to observe the test run. After terminating the test, there will be a window with a short version of the test results.
4. The *Test* window informs about the result of every test point. In the case of error, the error code will be entered as a four-digit hexadecimal value behind the test point. Otherwise, "OK" will be entered. The *Error Info* window provides additional error information.



If an error occurred at a test point, the following points are left out. In this way, it is possible to avoid sequence errors.

Troubleshooting

In the following, frequently occurring error messages, the error cause as well as removal will be described in more detail.



For a description of all driver error codes, please refer to the IBS PC SC SWD UM E Driver Reference Manual (Order No.: 27 45 17 2). This manual is part of the IBS PC ISA SC UM E System Binder (Order No.: 27 47 52 3).

Error Codes when Calling the Driver

Error code	Cause	Remedy
0080 _{hex}	Inadmissible or invalid board number	Check the <i>BN</i> =<Number> call parameter; admissible values range from 1 to 8
0081 _{hex}	Inadmissible I/O address	Check the <i>IO</i> =<Address> call parameter; admissible values range from 100 _{hex} to 3F8 _{hex}
0082 _{hex}	Inadmissible address for the memory window	Check the <i>MPM</i> =<Address> call parameter; admissible values range from 8000 _{hex} to FF00 _{hex}
0083 _{hex}	Inadmissible interrupt	Check the <i>IRQ</i> =<IRQ-Number> call parameter; admissible interrupts are: 3, 5, 7, 9, 10, 11, 12, 15

10 Error Messages of the Test Program

Error code	Cause	Remedy
0085 _{hex} 008B _{hex}	Driver not installed	Check if the IBSISA driver has been installed for the controller board. Use the IBSISA /INFO call.
0201 _{hex}	Controller board indicates a controller error	Hardware fault; please contact Phoenix Contact.
0202 _{hex}	READY bit not set	Hardware fault; please contact Phoenix Contact.
0304 _{hex} 0305 _{hex}	No interrupts detected	Check if the selected interrupt is used by another system component. Select another interrupt and start the test program again.

The IBMONI Monitor Program

The IBMONI monitor program allows the easy control of the bus configuration. Aside from the manipulation of process data, it is possible to retrieve diagnostic information. The program can be used for starting up the bus configuration.

The functionalities in detail:

- Starting up the INTERBUS system without much programming
- Controlling the connected configuration
- Representing process input data
- Setting process output data
- Representing diagnostic information (error analysis)
- Determining the firmware version

Program Start

The IBMONI program is located in the UTIL directory.

The program checks, if the IBSISA driver has already been loaded. If this is the case, the program first attempts to acquire the bus configuration. If the configuration can be operated, data transmission will be started and directly transferred to the window of the process data monitor ("Process Data"). When pressing the  key, the process data window will be closed and the main menu indicated. A menu item is selected via the  and  keys and the following operation of the  key.

In the following, the individual menu items will be described.

The *General* Menu Item

About	Indicates information on the monitor program version
Exit	Stops the data transmission on INTERBUS, resets the outputs and terminates the monitor program

The *Functions* Menu Item

Process Data	Indicates input data and changes output data
IB-Info	Provides information on the controller board (firmware version, serial number, etc.)
Diagnostic-Info	Indicates the diagnostic status register and additional error information
Configuration	Represents connected INTER-BUS devices

The *Process Data* Window

The following figure shows the window of the process data monitor.

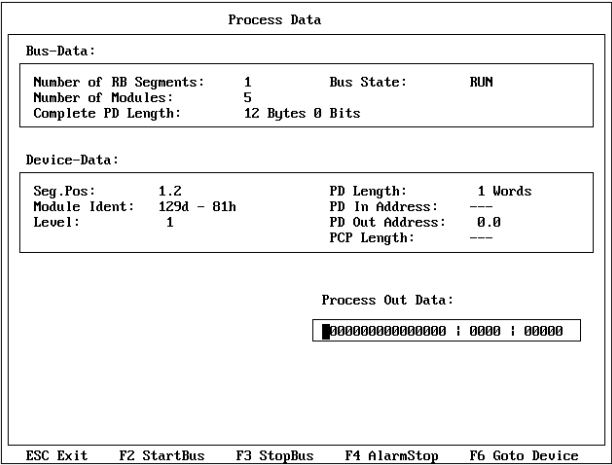


Figure 2 Window of the process data monitor

This window gives an overview of the connected bus configuration. Aside from the number of remote bus segments and devices, it is possible to read out the total number of I/O points.

Here, input data of the connected devices is indicated and output data can be modified. The  and  keys allow to jump to the next device.

For output modification, entries can be made bit by bit, in hexadecimal or decimal form. Only after operating the  key is the data transferred to the corresponding device. When pressing the  key, individual outputs can be switched in the editing field for bit-by-bit input. The modifications become effective immediately.

If an error occurs in the bus system causing the stop of the data transmission, an information window will appear. The *General* and *Diagnostic-Info* menu items allow to inquire the error location and cause.

Other key functions:

Key	Description
	The window will be closed and the main menu shown.
	Data transmission will be started on INTER-BUS. If the bus system is already in the RUN state, this key has no effect.
	Data transmission will be stopped on INTER-BUS. The output data will <i>not</i> be reset. The bus system occupies the ACTIVE state and will still be monitored. Errors will be indicated.
	Data transmission will be stopped on INTER-BUS. The output data will be reset. The bus system occupies the READY state. The system will not be monitored. Configuration errors will not be indicated.
	After pressing this key, you can indicate the number of the device to be indicated or edited.

The *IB-Info* Window

This window represents all information concerning the controller board. Aside from the firmware version, it is possible to read out the hardware version ("HW Rev.") and serial number.

The *Diagnostic-Info* Window

This window represents the diagnostic status register. A set bit is characterized by a colored field. Detailed error information can be found in the lower part of the window.

The following keys are supported:  ,  ,  , and  . They are described in more detail in the Section "The Process Data Window" on Page 12.



Please refer to the IBS SYS FW G4 UM E Manual for the exact meaning of the individual bits of the diagnostic status register.

The *Configuration* Window

This window shows a table of the connected devices. The *Seg.Pos* column indicates the remote bus segment number and the position of the device. The *ID-Code* column shows the ID code of the device in decimal or hexadecimal form. The *Level* column informs about the remote bus level of the device. The *PD Length* indicates the number of process data items.

The *Options* Menu Item

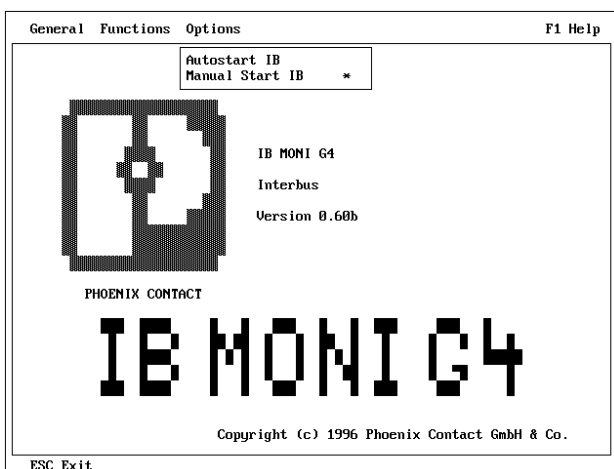


Figure 3 The *Options* pull-down menu

This menu item allows to determine the program behavior in the case of a bus error. There are two operating modes:

Autostart IB	Automatic restart of data transmission in the case of error
Manual Start IB	Data transmission is not started in the case of error

An asterisk "*" characterizes which operating mode is set.

IBSISA Driver Notes

The driver for the controller board is realized as a TSR program (**T**erminate and **S**tay **R**esident) under MS DOS, i.e. as a resident program running in the background.

The TSR program is located in the DRV directory with the name *IBSISA.EXE*.

The driver is started by calling *IBSISA*. Different parameters can be transferred during the call. When indicating *IBSISA /?* or *IBSISA /HELP*, a list of all possible parameters will be available.

The following table shows the possible call parameters:

Parameter	Function	Value range
BN	Number of the controller board	1 to 8
IO	I/O address	100 _{hex} to 3F8 _{hex}
IRQ	Interrupt number	3, 5, 7, 9, 10, 11, 12, 15
MPM	Base address of the memory window	8000 _{hex} to FF00 _{hex}
/UNINSTALL	Uninstall the driver	
/INFO	Output status information	
/HELP /?	Indicate help text	

If the driver is started without call parameters, the following standard values apply:

Controller board (BN)	1
I/O address (IO)	120 _{hex}
Interrupt number (IRQ)	15
Base address (MPM)	D000 _{hex}

When calling the driver, only indicate the parameters to be changed. The sequence of the parameter indications is of no importance here.

Examples for Calling the Driver:

Example 1: Install the driver for the first controller board with the interrupt number 12. The standard values should not be changed.

```
IBSISA IRQ=12
```

The same result is obtained when calling:

```
IBSISA BN=1 IO=120 IRQ=12 MPM=D000
```

Example 2: Install the driver for the first controller board. The I/O address of the controller board is 200_{hex} (DIP switches!). The interrupt number is 7.

```
IBSISA IO=200 IRQ=7
```

Example 3: Install the driver for two controller boards.

```
IBSISA BN=1 IO=120 IRQ=12 MPM=C800
```

```
IBSISA BN=2 IO=128 IRQ=7 MPM=CC00
```

Example 4: Install the driver for one controller board with standard values and indicate status information afterwards.

```
IBSISA
```

```
IBSISA /INFO
```

```
Device Driver V1.01 for IBS PC ISA SC
(c) Copyright PHOENIX CONTACT GmbH & Co. 1996

Device driver|State IO-address MPM-address IRQ
-----+-----
IBSISA1      |ready 120          D000          15
```

Figure 4 Monitor reading of the driver in the case of an installed controller board

Installation Under Windows 3.1

The "Software Windows Driver" diskette contains the driver software for Microsoft Windows 3.1 in the WIN31 subdirectory.

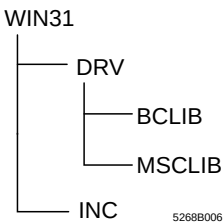


Figure 5 Directory structure

Directory contents:

Name	Contents
WIN31	README file
DRV	DLLs of the driver and the IBDDIW.INI file
BCLIB	IBDDIW.LIB import library for Borland C/C++ compilers
MSCLIB	IBDDIW.LIB import library for Microsoft C/C++ compilers
INC	Header files

The driver for the IBS PC ISA SC /I-T controller board consists of two components: The device driver interface (IBDDIW.DLL) and the MPM driver (IBSISASC.DLL). Both DLLs (**D**ynamic **L**ink **L**ibrary) are required for operation. However, the device driver interface that is the IBDDIW.DLL is exclusively used as the programming interface for the user.

Procedure

1. First, read the README.TXT file including important installation notes.
2. Copy the IBDDIWIN.DLL and IBSISASC.DLL files from the DRV subdirectory on the diskette to the Windows system directory on your hard disk.
3. Copy the IBDDIWIN.INI file from the DRV subdirectory on the diskette to the Windows root directory on your hard disk.
4. Check if the IBDDIWIN.INI file contains the correct entries. Modify this file, if required (see the following section).
5. Terminate Windows, switch off the PC and disconnect the mains plug. Install the controller board, as described in the Section "Installing the Controller Board in the PC" on Page 26.

Additional Configuration Notes

Every controller board needs the following PC resources:

- **8 bytes in the I/O area**
- **4 Kbytes in the upper memory area** ("memory window")
- **1 interrupt**

The DIP switches allow to set the I/O address. The driver automatically sets the base address of the memory window and the interrupt number according to the entries made in the IBDDIWIN.INI initialization file.



Note that each extension board must use only one interrupt in the PC.



The 4 Kbyte memory window must not be used by other extension boards or a memory manager (e.g. *EMM386.EXE*).

Entries in the IBDDIWIN.INI Initialization File

This section describes entries that might be adapted. Do not make other changes.

The *Location* entry in the *IBSISASC* section must contain the complete path of the IBSISASC.DLL driver DLL. The *NumberOfDevices* entry indicates the number of controller boards to be used. If only one controller board should be operated, set the value to 1.

Every controller board to be operated has a *IBSISASC_BOARDx* section ("x" represents the number of the controller board). If the controller board should be used, the *BoardInUseFlag* entry must have the value *TRUE*. If *FALSE* is entered, the corresponding controller board will not be initialized and cannot be used in the application program.

The *BusWidth=8Bit* entry must not be changed.

The *IOAddress* entry contains the I/O address of the controller board in hexadecimal notation. This address must be set on the DIP switches of the controller board (see "Address Setting" on Page 23).

The *MPMAddress* assigns the start address of the 4 Kbyte window to the upper memory area of the PC. The segment address is indicated as a four-digit hexadecimal value.

The *IRQ* entry determines the interrupt of the controller board.



For every supported application program, the "Software Example Programs" diskette enclosed in the IBS PC ISA SC UM E System Binder (Order No.: 27 47 52 3) includes examples for the creation of application programs. The program examples are generated with the programming languages *C*, *C++*, *Pascal*, *Delphi*, and *Visual Basic*.

Installation Under Windows 95 and Windows NT

The "Software Windows Driver" diskette includes the driver software for Windows 95 or NT in the WIN95 or WINNT sub-directory.

Procedure

1. First, read the README.TXT file including important installation notes.
2. Start the SETUP.EXE installation program and follow the program instructions.
3. Terminate Windows, switch off the PC and disconnect the mains plug. Install the controller board, as described in the Section "Installing the Controller Board in the PC" on Page 26.



For every supported operating system, the "Software Example Programs" diskette enclosed in the IBS PC ISA SC UM E System Binder (Order No.: 27 47 52 3) includes examples for the creation of application programs. The program examples are generated with the programming languages *C*, *C++*, *Pascal*, *Delphi*, and *Visual Basic*.

Hardware Installation

Unpacking the Controller Board

The controller board is supplied in an ESD bag together with a package slip which contains installation instructions.



Only qualified personnel is allowed to pack and unpack as well as to handle the controller board in compliance with respective regulations.

ESD Regulations



When using the controller board, the operating personnel is required to discharge itself before packing and unpacking, opening switch boxes and cabinets, and touching the board in order to protect the board against electrostatic discharge.

Design of the Controller Board

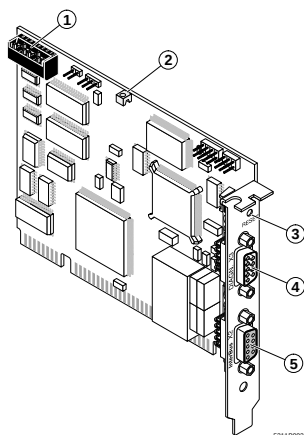


Figure 6 Design of the controller board

- 1 DIP switches for setting the I/O address
- 2 *Board Ready* diagnostic LED (green)
- 3 Reset button
- 4 Diagnostic interface (9-pos. D-SUB male connector)
- 5 INTERBUS remote bus interface (9-pos. D-SUB female connector)

Address Setting

The DIP switches allow to set the base address of the controller board in the I/O area of the PC. Every controller board occupies 8 bytes as of this address.

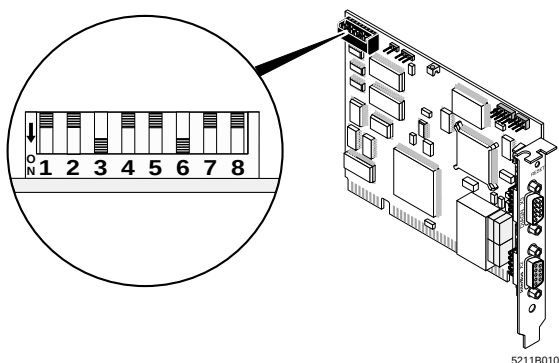
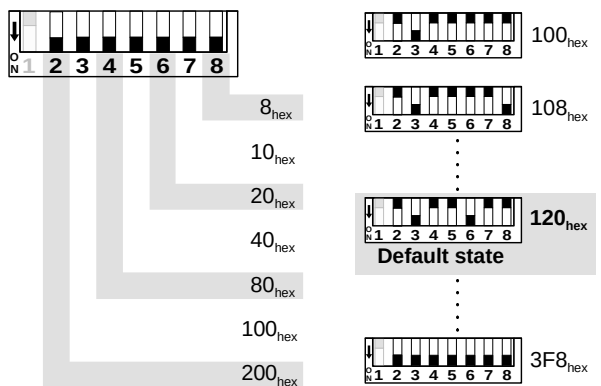


Figure 7 Setting the base address in the I/O area of the PC

The values apply to the **ON** switch position. The **OFF** position corresponds to the value 0. Switch 1 is not used for address setting. It is reserved and must be in **OFF** position.



5268B003

Figure 8 Examples for setting the base address

Diagnostic LED

After switching on the PC or after a reset, the controller board carries out a self-test. If no errors occur, the diagnostic LED will light up (green) after approx. 5 seconds.

Reset Button

The front plate covers a reset button that can only be operated with a pen. Thus, the button is protected against misuse. The reset button causes the controller board to be reset completely. The reset does not affect the PC.

Installing the Controller Board in the PC



Before opening the PC casing, switch off the PC and disconnect the mains plug.

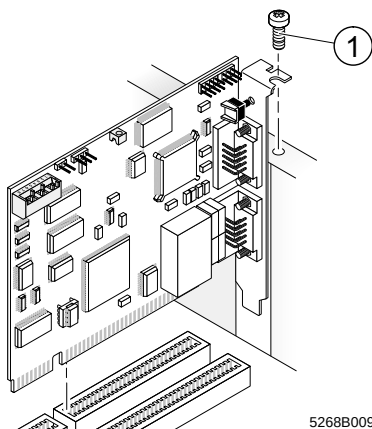


Figure 9 Installing the controller board

The controller board needs an ISA bus slot in the PC. It can be operated in an 8 bit- or 16 bit-slot. When using an 8 bit-slot, the interrupts 10, 11, 12, and 15 must not be used.

The current consumption of the controller board is 0.5 A at 5 V.

1. Disconnect the mains plug of your PC from the socket.
2. Open the PC.
3. Insert the controller board in the PC. Take care that the system switch is well-contacted and the controller board securely placed.
4. Fix the controller board with a fixing screw (1) (see Figure 9).



To ensure trouble-free operation, the front plate of the controller board must be screwed with the PC casing. The PC casing must be grounded in compliance with the regulations.

5. Close the PC.
6. Connect the mains plug to the socket and switch on the PC again.

7. After approx. 5 seconds, the diagnostic LED on the controller board will light up (green), thus indicating the *Board Ready* state of the controller board.

Now, the controller board is completely installed in your PC.



If the LED is not on, there is a serious error on the controller board. Please contact Phoenix Contact.

Connecting the Bus System

Connect the INTERBUS modules according to the specifications made in the corresponding package slip. Connect the remote bus line to the remote bus output of the controller board (see Figure 10). After switching on the power supply, the bus system is ready for operation. Address settings on the modules are not required.

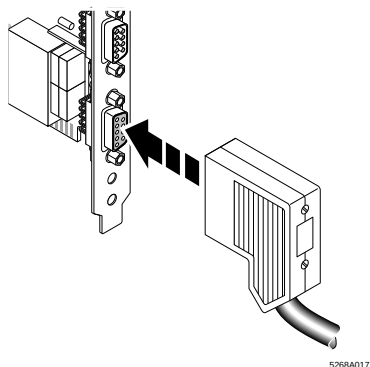


Figure 10 Connection of the INTERBUS remote bus line to the controller board.



The Section "Assembly Notes for Remote Bus Cables" on Page 31 provides information on assembling INTERBUS remote bus cables (soldered or screw-type connection as well as optical fiber connection).



For detailed information, please refer to the IBS SYS INST UM E Installation Manual (Order No.: 27 54 80 4).

Replacing the Controller Board



Only qualified personnel is allowed to pack and unpack as well as to handle the controller board in compliance with the ESD regulations.



Workings on the PC are only allowed with a disconnected power supply. Disconnect the mains plug.

For replacing the controller board, please note the following:

1. Switch off the PC and disconnect the mains plug.
2. Unplug the remote bus cable.

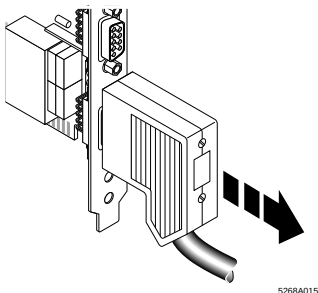


Figure 11 Unplugging the remote bus cable

3. Unplug the remote bus cable, if inserted.

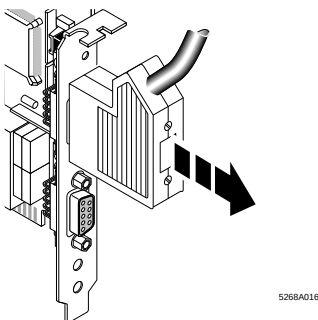
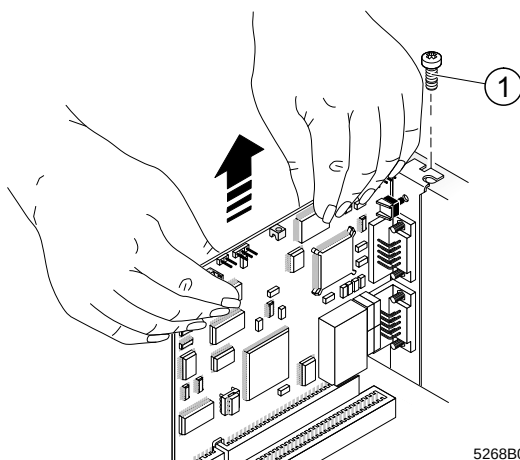


Figure 12 Unplugging the connecting cable



5268B014

Figure 13 Removing the controller board

4. Open the PC casing.
5. Unscrew the fixing screw (1) carefully, as shown in Figure 13.
6. Remove the controller board from the PC.
7. Remove the new board from the package. Note the ESD regulations!
8. Set the DIP switches of the new controller board according to the positions of the removed board.
9. Insert the controller board in the PC. Take care that the system switch is well-contacted as well as the controller board securely placed.
10. Fix the board with the fixing screw (1) (see Figure 13).



To ensure trouble-free operation, the front plate of the controller board must be screwed with the PC casing. The PC casing must be grounded in compliance with the regulations.

11. Close the PC casing.

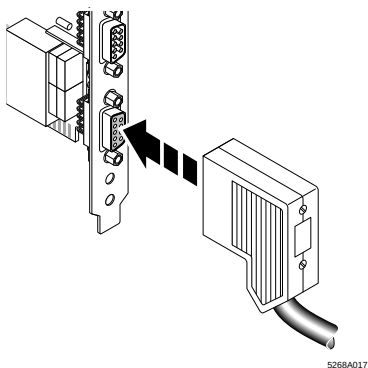


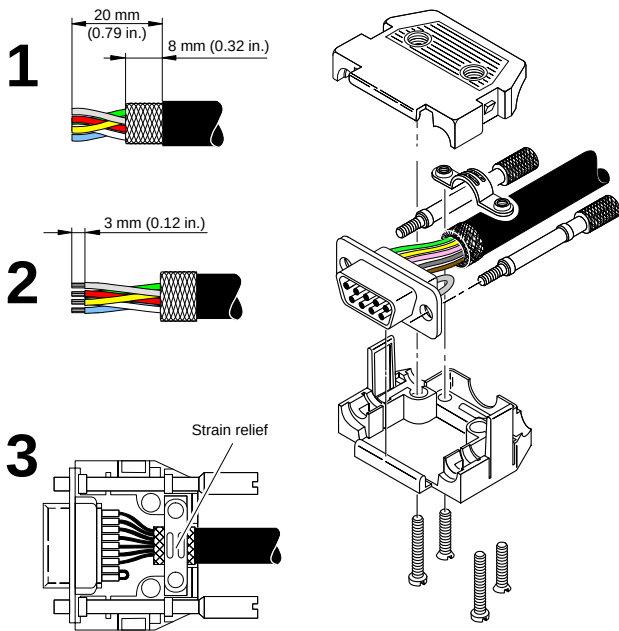
Figure 14 Connecting the controller board with the remote bus

12. Plug in and lock the remote bus connector.
13. Lock the connecting cable (if available).
14. Plug the PC to the mains supply and switch it on.

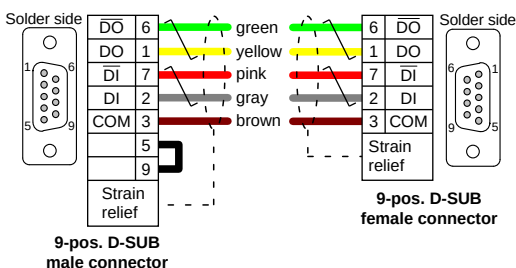
Assembly Notes for Remote Bus Cables

Assembly: soldered 9-pos. D-SUB male and female connectors

Designation: IBS DSUB 9/L, Order No.: 27 58 47 3



Remote bus cable (D9/D9)



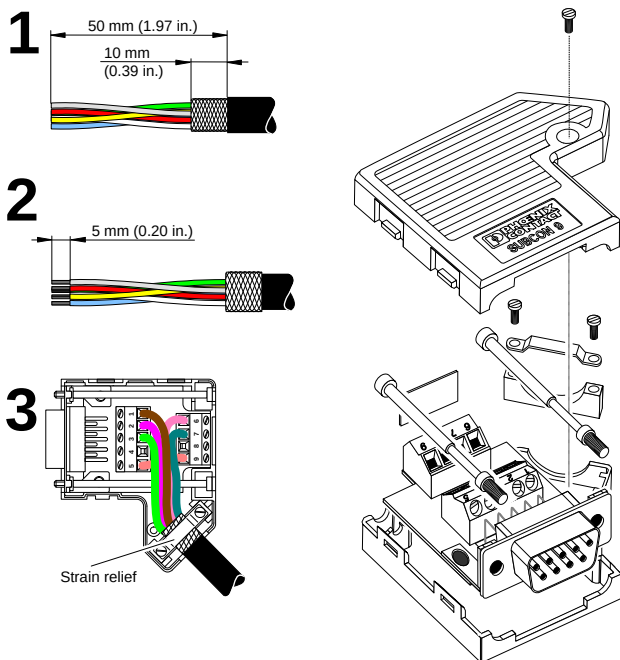
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Figure 15 Remote bus cable with soldered connection

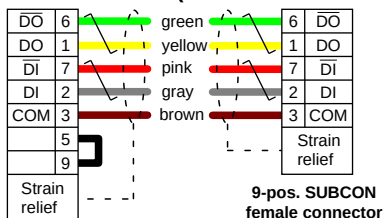
1. Strip 20 mm off the cable sheath and shorten the braided shield to 8 mm.
Strip 3 mm of the wire ends and solder the signal lines according to Figure 15.
2. Fold the braided shield back over the cable sheath.
3. Clamp the shield under the strain relief (conductive connection with the housing).

Assembly: screw-clamp 9-pos. D-SUB male and female connectors

Designation: SUBCON 9/M-SH, Order No.: 27 61 50 9



Remote bus cable (SUBCON 9/SUBCON 9)



9-pos. SUBCON
male connector

9-pos. SUBCON
female connector

5268B018

Figure 16 Remote bus cable with screw-clamp connection

1. Strip 50 mm off the cable sheath and shorten the braided shield to 10 mm.
Strip 5 mm off the wire ends and lay the signal lines according to Figure 16.
2. Fold the braided shield back over the cable sheath.
3. Clamp the shield under the strain relief (conductive connection with the housing).

Alternatively, optical fibers can be used for remote bus cabling.

Assembly: optical fiber connector for plastic/polymer fibers

Designation: IBS OPTOSUB-MA/M/L-LK

A special adapter for the conversion from RS-485 to optical fiber is available. It is located in a 9-pos. D-SUB connector. The adapter is supplied via the power supply. Therefore, an external power supply is not required.

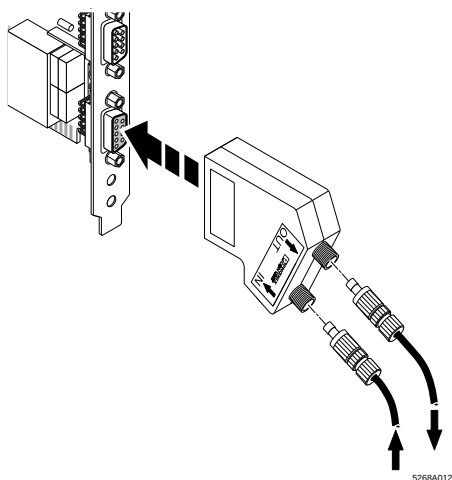


Figure 17 Remote bus cabling with IBS OPTOSUB



Ordering data:

IBS OPTOSUB-MA/M/L-LK	Order No.: 27 50 11 2
Interface converter	
PSMA-SET-FSMA/4	Order No.: 27 99 30 6
F-SMA connector set (with 4 connectors)	
PSMA-SET-FSMA-POLISH	Order No.: 27 99 34 8
F-SMA polishing set	



For the assembly of optical fibers, please refer to the package slip or order the preassembled cable from Phoenix Contact.

Technical Support

The Phoenix Contact support mailbox allows to inquire current drivers. Call one of the following phone numbers with the transmission rates indicated:

- | | |
|--------------------------|------------------------|
| +49 - (0)5235 - 96 72 97 | 14 400 bits/s (analog) |
| +49 - (0)5235 - 96 72 98 | 28 800 bits/s (analog) |
| +49 - (0)5235 - 96 72 99 | 64 000 bits/s (ISDN) |

Parameters: 8 data bits, no parity bit, 1 stop bit

Mailbox Access

1. Start the terminal program.
2. Dial the desired phone number, wait for the connection setup.
3. Select the language: **A** = German or **B** = English.
4. Enter the user name: **Interbus Software sc**.
5. Enter the password: **ibssc01**
(use small letters).
6. In the main menu, first select the **Customer Service** menu item, afterwards the **INTERBUS Software** menu item.
7. Select the **Software for PC SC Cards** menu item.

In general, files are transmitted via the Z-modem protocol.

If you have any technical problem, send an e-mail to:

interbus-support@phoenix-contact.de

Notes:

We Are Interested in Your Opinion!

We would like to hear your suggestions, wishes and criticisms concerning this guide.

No matter how small you think your contribution we will deal with any hint or comment and add it to the documentation if possible.

Therefore, please send your comments, suggestions for improvement, etc. to the following address:

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Produktmarketing INTERBUS/ME-DOK
Flachsmarktstraße 8-28
32825 Blomberg
Germany

 + 49 - (0) 52 35 - 3-00

or fill out form overleaf and fax to:

Fax + 49 - (0) 52 35 - 3-3 11 99

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Revision: Order No.:

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