

IBS PC ISA SC/I-T

Controller Board for PC Systems

Data Sheet 5211D

07/2002

Product Description

INTERBUS Generation 4 controller board for IBM-compatible PCs with integrated ISA bus (8/16-bit slot).

Features

- INTERBUS protocol (EN 50254)
- Complete Generation 4 functionality
- Firmware download via diagnostic interface
- User-defined addressing
- Parameter settings using CMD
- Permanent storage of the parameterization on the controller board
- Data preprocessing on the controller board
- PCP 2.x support
- Electrical isolation between remote bus connection and host PC
- Driver software for MS DOS, Windows 95/98, Windows NT 4.0 and Windows 2000

Applications

Connection of simple sensors/actuators up to intelligent field devices via INTERBUS direct to the PC.

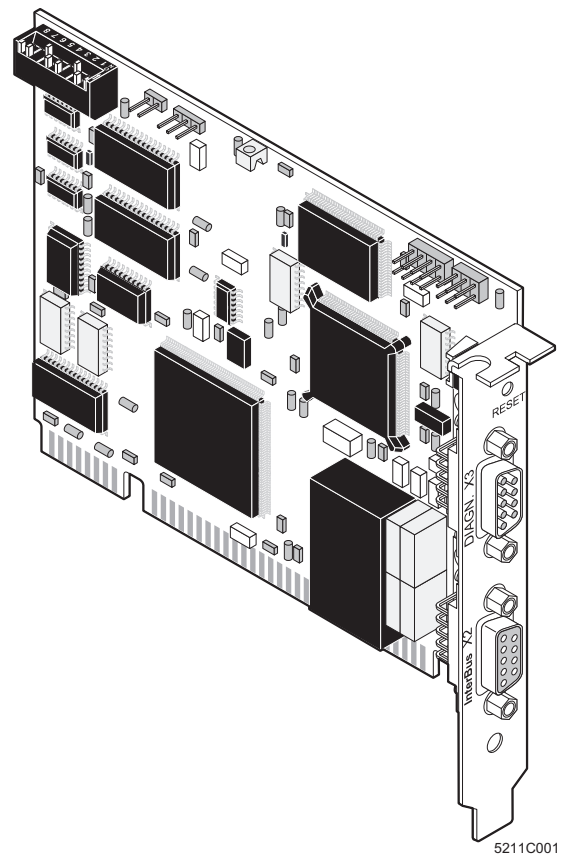


Figure 1 IBS PC ISA SC/I-T

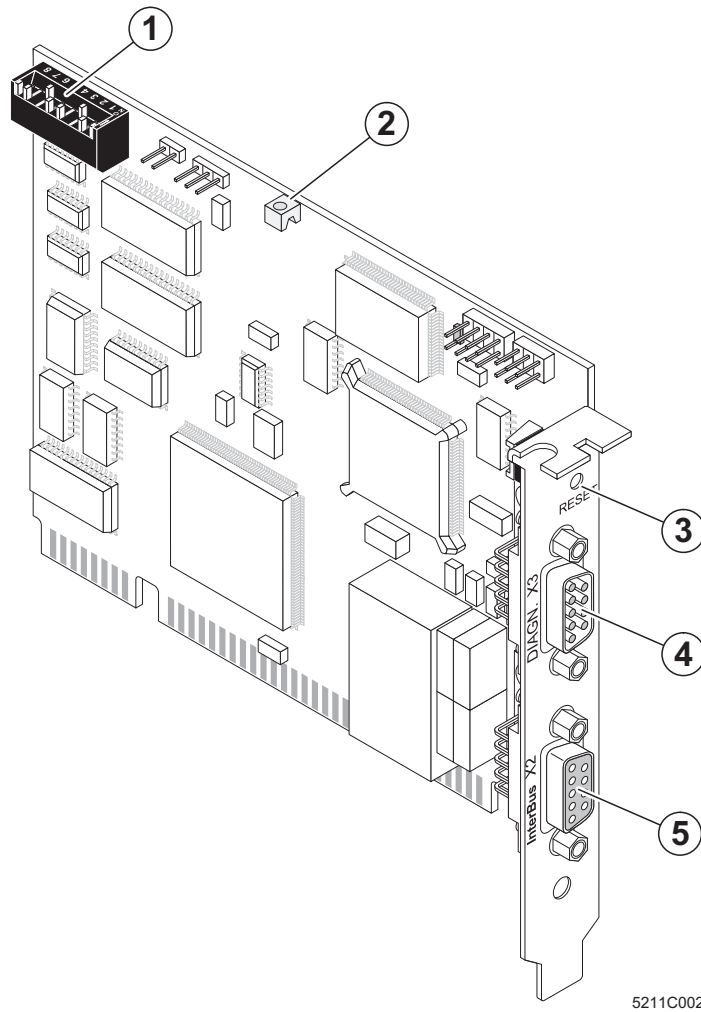


Figure 2 Structure of the IBS PC ISA SC/I-T controller board

The controller board has the following components:

- | | |
|--|--|
| 1. DIP switches for setting the I/O address | 4. RS-232 interface (9-pos. D-SUB male connector) |
| 2. Diagnostic LED <i>Board Ready</i> (green) | 5. INTERBUS remote bus interface (9-pos. D-SUB female connector) |
| 3. Reset button | |

RS-232 Interface

INTERBUS diagnostics can be used via the serial interface (RS-232) using IBS CMD SWT G4 E. In addition, the controller board firmware can be downloaded. In this way, it is possible to meet future system requirements by means of updates.

Programming

Individual applications are created with the support of the corresponding drivers. These drivers are available for commonly used operating systems and programming languages. The drivers execute the write and read operations to the MPM and the I/O addresses.

Operating System	Driver
DOS	TSR Program
Windows® 95 / 98	Virtual Device Driver (VxD)
Windows® NT 4.0	Kernel Mode Driver
Windows® 2000	WDM Driver



To set up drivers for other operating systems, use the Device Driver Development Kit (Designation: IBS PC DEV KIT G4, Order No. 28 36 17 5).

Watchdog for Host Monitoring

There is a watchdog circuit on the controller board that you can use for monitoring your PC program (PC system crash, program runtime error).

When the watchdog is triggered, the INTERBUS system is set to a defined state (reset of all outputs).

User Interfaces

User interfaces are available for the following operating systems:

Operating System	DDI	HLI	OPC
DOS	X	X	
Windows® 95 / 98	X	X	
Windows® NT 4.0	X	X	X
Windows® 2000	X	X	X

Device Driver Interface (DDI)

The Device Driver Interface (DDI) is already installed with the drivers, providing the user with the basic functions for accessing the controller board.

High-Level Language Interface (HLI)

The High-Level Language Interface (HLI) can be used to enable easy development of control programs in a high-level language. It is connected to the Device Driver Interface (DDI).

Advantages of the High-Level Language Interface:

- Direct configuration with CMD
- Operating system and hardware-independent access to INTERBUS
- Support of many programming languages
- Fast and easy data exchange using variable names
- Integrated bus and error management
- Identical access to all controller boards (IBS ... SC)
- Automatic PCP communication establishment and monitoring

The HLI supports the following programming languages:

	MS DOS	WIN 95/ 98	WIN NT 4.0	WIN 2000
Microsoft C/C++	X	X	X	X
Borland C/C++ (or compatible)	X	X	X	X
Microsoft VB 4.0 (or higher)		X	X	X
Borland Delphi 2.0 (or higher)		X	X	X

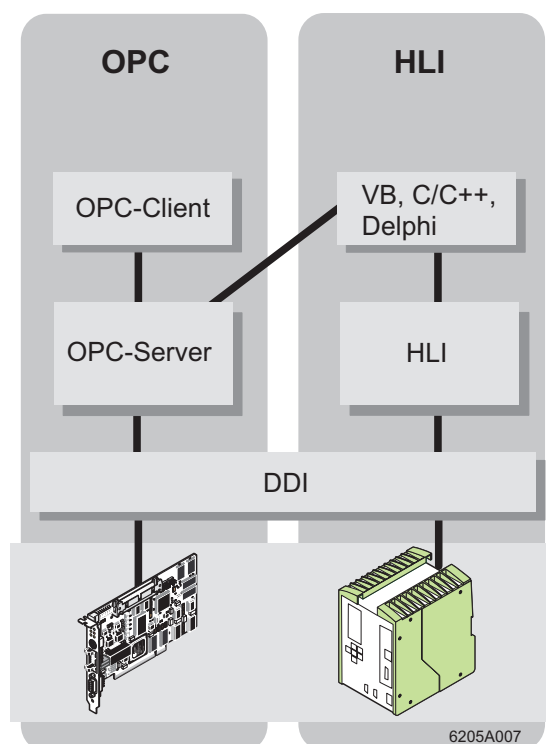
INTERBUS OPC Server

It is also possible to use an OPC server (Designation: IBS OPC SERVER, Order No. 27 29 12 7) as a High-Level Language Interface or as an interface to any visualization system. The OPC server can be used to access INTERBUS data under Windows NT/Windows 2000 via a standardized software interface.



For additional information please refer to the OPC server data sheet.

Comparison of HLI and OPC



High-Level Language Interface:

- Windows 32-bit
- Fast data exchange
- High-level language programming

OPC server:

- Windows NT 4.0/Windows 2000
- Network-wide data exchange
- Worldwide standard (High-Level Language Interface and interface to almost all visualization packages)

Figure 3 Comparison of HLI and OPC

Technical Data

Up-to-date information can be found on the Internet at www.phoenixcontact.com.

General Data	
Order Designation	IBS PC ISA SC/I-T
Order No.	27 19 23 4
Dimensions	135 mm x 107mm (5.315 in. x 4.213 in.)
Power Supply	
V _{S, controller} (PC supply)	5 V DC $\pm 5\%$
Current consumption	0.5 A, typical
Host Interface	
Connection method	ISA bus (8/16 bit slot)
Bus system	ISA according to IEEE P966
Data width	8 bits
Address area	8 addresses in the I/O channel; 4 KBytes in the memory address area
Interrupts	Selectable from IRQ 3, 5, 7, 9(2), 10, 11, 12, 15
Remote Bus Interface	
Connection method	9-pos. D-SUB female connector
Interface type	RS-422
Electrical isolation	Yes (test voltage 0.5 kV)
Diagnostic Interface	
Connection method	9-pos. D-SUB male connector
Interface type	RS-232
Transmission rate	9600 Baud
Electrical isolation	No

Ambient Conditions	
Temperature (according to EN 60204-1)	Operation: 0°C to 70°C (32°F to 158°F) Storage and transport: -25°C to 75°C (-13°F to 167°F)
Humidity (according to EN 60204-1)	Storage and operation: 75%, average, 85%, occasionally (DIN 40040); no condensation
Air pressure	Operation: 860 to 1080 hPa (up to 2000m [6561.679 ft] above sea level) Storage and transport: 660 hPa to 1080 hPa (up to 3500m [9842.519 ft] above sea level)

Conformance With EMC Directive 89/336/EEC		
Noise Immunity Test According to EN 50082-2		
Electrostatic discharge (ESD)	EN 61000-4-2 IEC 61000-4-2: 1995	Criterion B 4 kV contact discharge 8 kV air discharge
Electromagnetic fields	EN 61000-4-3 IEC 61000-4-3: 1996	Criterion A Field strength: 10 V/m
Fast transients (burst)	EN 61000-4-4/ IEC 61000-4-4: 1995	Criterion B Signal/data lines: 2 kV
Surge test	EN 61000-4-5 IEC 61000-4-5: 1995	Criterion B Signal/data lines: 1 kV (external protection required, e.g., Datatrab D-UFB-IB-S-RBO Order No. 27 48 36 0)
Conducted interference	EN 61000-4-6 IEC 61000-4-6: 1996	Criterion A Test voltage 10 V
Noise Emission Test According to EN 55011 (Industrial Area)		
Emitted interference	EN 55011	Class A

Ordering Data

Description	Order Designation	Order No.
Controller board	IBS PC ISA SC/I-T	27 19 23 4
System package with controller board including driver software, user manual and CMD operating software	IBS PC ISA SC SYSKIT E	27 21 91 8
RS-232 cable, 3 m (9.84 ft) in length	IBS PRG CAB	28 06 86 2
Controller Board User Manual including driver software for MS DOS, Windows 95/98, Windows NT 4.0 and Windows 2000	IBS PC ISA SC UM E	27 47 52 3
“Configuring and Installing INTERBUS” User Manual	IBS SYS PRO INST UM E	27 43 80 2
CMD software	IBS CMD SWT G4 E	27 21 44 2
INTERBUS OPC Server	IBS OPC SERVER	27 29 12 7

MS-DOS, Windows 95, Windows 98, Windows NT and Windows 2000 are trademarks of the Microsoft Corporation.

All drivers, HLI, INTERBUS OPC server (demo version), and all documentation can be downloaded free of charge at www.phoenixcontact.com

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