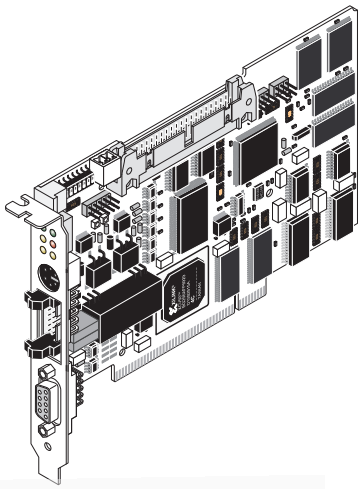
# IBS PCI SC/I-T

## Controller Board for PC Systems With PCI Bus



Data sheet
6039_en_C



## 1 Product Description

INTERBUS Generation 4 controller board with a host interface for the PCI bus.

### 1.1 Features

- INTERBUS protocol (IEC 6 11 58)
- Permanent storage of the parameterization data on the controller board
- Data preprocessing on the controller board
- User-defined addressing
- PCP 4.x support
- Firmware download via diagnostic interface
- Parameter settings via CMD
- Connection for direct inputs and outputs (in preparation)
- Driver software for Windows NT 4.0 and Windows 2000
- High-Level Language Interface HLI
- INTERBUS OPC server

### 1.2 Applications

Connecting simple sensors/actuators and intelligent field devices directly to a control system with PCI interface via INTERBUS.

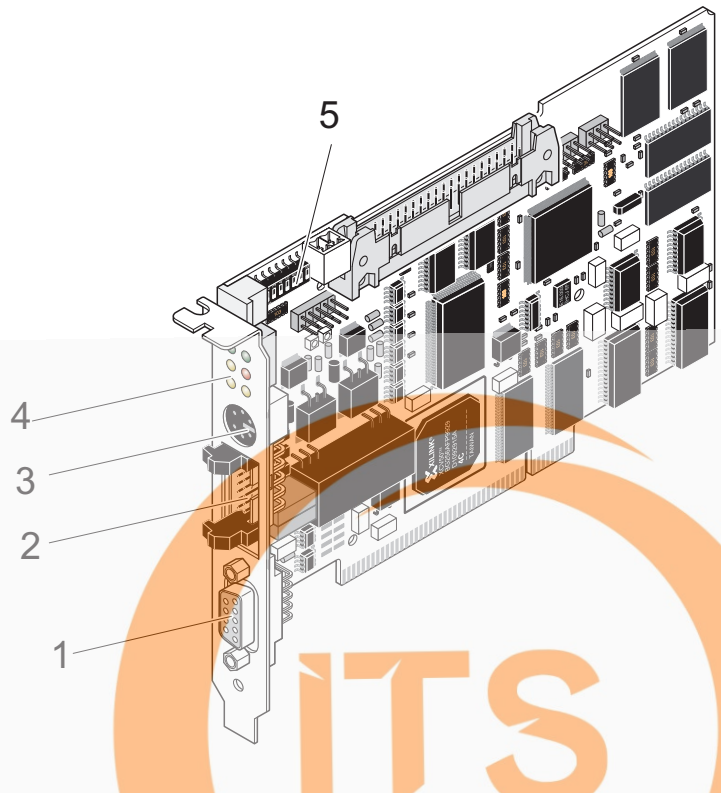



Figure 1 Structure of the IBS PCI SC/I-T controller board

The controller board has the following components:

**1** INTERBUS remote bus interface

**2** Connection for direct inputs and outputs (in preparation)

**3** RS-232 interface

**4** Diagnostic LEDs

**5** DIP switches for setting the board number

### 1.3 RS-232 Interface (Mini-DIN Female Connector)

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.

# 2 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 | Installation |
|---|---|---|
| Windows® NT | Kernel mode driver | Setting of the board parameters using the SETUP program. |
| Windows® 2000 | WDM driver | Setting of the board parameters using the SETUP program. |

To create drivers for other operating systems, use the Device Driver Development Kit, Order Designation IBS PCI DDK, Order. No. 27 30 27 1.

## 2.1 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).

# 3 User Interfaces

User interfaces are available for the following operating systems.

| Operating System | DDI | HLI | OPC |
|---|---|---|---|
| Windows® NT 4 | X | X | X |
| Windows® 2000 | X | X | X |

## 3.1 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.

## 3.2 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 connects 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
- Supports many programming languages
- Faster and easier 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:

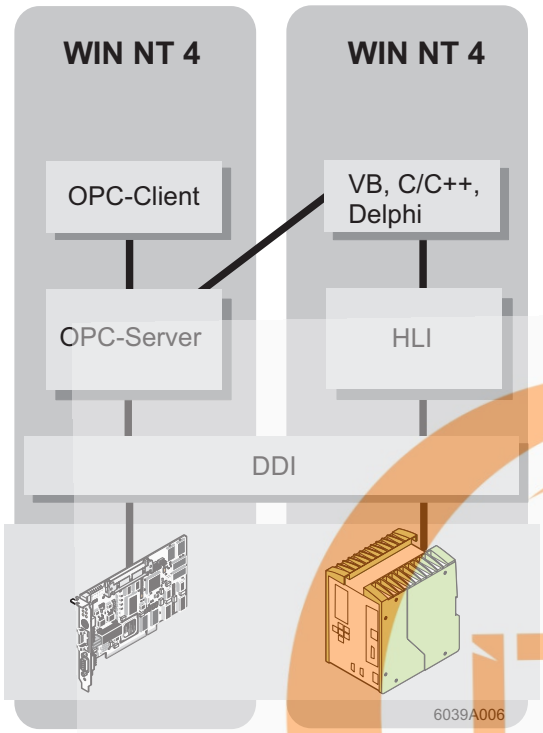
| | WIN NT |
|---|---|
| Microsoft C/C++ | X |
| Borland C/C++ (or compatible) | X |
| Microsoft VB 4.0 (or later) | X |
| Borland Delphi 2.0 (or later) | X |

## 3.3 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 makes it possible 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.

### 3.4 Comparison of HLI and OPC




High-Level Language Interface:

– Windows 16/32-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 2 Comparison of HLI and OPC

# 4 Technical Data

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

| General Data | |
|---|---|
| Order Designation | IBS PCI SC/I-T |
| Order No. | 27 25 26 0 |
| Dimensions | 168 mm x 107mm (6.614 in. x 4.213 in.) |

| Voltage Supply | |
|---|---|
| $V_{S,\ controller}$ (PC supply) | 5 V DC ±5% |
| Power consumption | Approximately 3.5 W, typical |

| Host Interface | |
|---|---|
| Connection method | Direct edge connection |
| Bus system | PCI 32 bits/33 MHz/5 V |
| Data width | 8, 16 or 32 bits |
| Address area | 256-kbyte memory window |

| 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 | 6-pos. Mini-DIN female connector (PS/2) |
| Interface type | RS-232 |
| Transmission rate | 9600 baud |

| Ambient Conditions | |
|---|---|
| Temperature (according to EN 60204-1) | Operation: 0°C to 55°C (32°F to 131°F), storage and transport: -25°C to 75°C (-13°F to 167°F) |
| Humidity (according to EN 60204-1) | Storage and operation: 75% on average, 85% occasionally (DIN 40040); no condensation |
| Air pressure | Operation: 860 hPa to 1080 hPa (up to 1500 m [4921 ft.] above sea level)<br>Storage and transport: 660 hPa to 1080 hPa (up to 3500 m [11483 ft.] above sea level) |
| Vibration | 2g, criterion 1 according to IEC 68-2-6 |

| Conformance With EMC Directive 2014/30/EU | | |
|---|---|---|
| **Noise Immunity Test According to EN 61000-6-2** | | |
| Electrostatic discharge (ESD) | EN 61000-4-2<br>IEC 61000-4-2 | Criterion B<br>6 kV contact discharge<br>8 kV air discharge |
| Electromagnetic fields | EN 61000-4-3<br>IEC 61000-4-3 | Criterion A<br>Field strength: 10 V/m |
| Fast transients (burst) | EN 61000-4-4/<br>IEC 61000-4-4 | Criterion B<br>Signal/data lines: 2 kV |

| Conformance With EMC Directive 2014/30/EU | | |
|---|---|---|
| Surge test | EN 61000-4-5<br>IEC 61000-4-5 | Criterion B<br>Signal/data lines: 1 kV |
| Conducted interference | EN 61000-4-6<br>IEC 61000-4-6 | Criterion A<br>Test voltage 10 V |
| **Noise emission test according to EN 61000-6-4** | | Class A |

**NOTE: Radio interference**

This is a Class A item of equipment. When using the equipment in residential areas, it may cause radio interference. In this case, the operator may be required to implement appropriate measures and to pay the resulting costs.

## 4.1 Ordering Data

| Description | Order Designation | Order No. |
|---|---|---|
| Controller board | IBS PCI SC/I-T | 27 25 26 0 |
| CD-ROM with documentation in German and English and drivers for Windows NT 4 | CD IBS PCI SC | 27 33 00 3 |
| RS-232 cable | PRG CAB MINI DIN | 27 30 61 1 |
| User manual for the controller board including driver software for Windows NT 4 and Windows 2000 | IBS PCI SC UM E | 27 25 25 7 |
| System package with controller board, mounting set, user manual including driver software and CMD operating software | IBS PCI SC SYSKIT E | 27 32 99 4 |
| Configuring and Installing the INTERBUS Product Range User Manual | IBS SYS PRO INST UM E | 27 43 80 2 |
| CMD operating software | IBS CMD SWT G4 E | 27 21 44 2 |
| INTERBUS OPC server | IBS OPC SERVER | 27 29 12 7 |
| Device Driver Development Kit including VxWorks driver source code | IBS PCI DDK | 27 30 27 1 |

Windows NT 4 is a trademark of the Microsoft Corporation.

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