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Find the *National Instruments PCI-FBUS/2* at our website: *Click HERE*

Technical Sales

(866) 531-6285
orders@ni.com

Requirements and Compatibility | Ordering Information | Detailed Specifications
For user manuals and dimensional drawings, visit the product page resources tab on ni.com.

Last Revised: 2014-11-06 07:15:12.0

Foundation Fieldbus Hardware and Software

NI USB-8486, NI PCI-FBUS/2, NI PCMCIA-FBUS Series





- H1 (31.25 kbits/s) interface
- 1 or 2 ports
- Embedded Foundation Fieldbus communications-stack software
- Transformer-isolated Fieldbus connection
- Plug-and-play feature (USB-8486 and PCI-FBUS/2)

Requirements and Compatibility

OS Information

- Windows 7
- Windows 7 64-bit
- Windows Server 2003 R2 32-bit
- Windows Server 2008 R2 64-bit
- Windows Vista x64/x86
- Windows XP (SP3) 32-bit

Driver Information

- NI-FBUS

Software Compatibility

- ANSI C/C++
- LabVIEW
- Lookout Development/Run-Time Systems
- NI-FBUS Configurator
- NI-FBUS Monitor
- Visual Basic

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Application and Technology

PC Host Interfaces

NI USB-8486, PCI-FBUS/2, and PCMCIA-FBUS devices are H1 (31.25 kbits/s) interfaces that connect Foundation Fieldbus devices to standard desktop, industrial, notebook PCs, and NI CompactRIO devices. The USB-8486 is available in a one-port configuration, the PCMCIA-FBUS is available in one- and two-port configurations, and the PCI-FBUS/2 is available in a two-port configuration. The USB-8486 has two variants: USB-8486 without screw retention and mounting options and USB-8486 with screw retention and mounting options. With the USB-FBUS or PCI-FBUS/2, a desktop industrial computer can act as the host in a Foundation Fieldbus system. Applications for the USB-8486 and PCMCIA-FBUS include portable data logging and in-the-field configuration and maintenance of devices and networks

The connection to the Fieldbus network is transformer isolated. The USB-8486 and PCI-FBUS/2 use a standard DB-9 male D-Sub connector to attach to the Fieldbus network. The PCMCIA-FBUS connects to the Fieldbus network using a cable that provides two connectors: DB-9 male D-Sub connector and COMBICON-style pluggable screw terminals.

National Instruments recommends using the USB-FBUS in your use cases.

NI-FBUS Software

The NI-FBUS VIs allow you to develop Foundation Fieldbus-related applications in LabVIEW. You can deploy applications to PCs and Real-Time targets. These VIs interact directly with NI-FBUS Communications Manager.

The NI-FBUS Communications Manager (CM) handles communication between the communication stack and the user application without requiring in-depth knowledge of lower-level Fieldbus protocols. You can use this interface-independent software in human machine interface (HMI) and distributed control system (DCS) applications for data collection and control on the Fieldbus, including multiple processes and multithreaded applications. The NI-FBUS CM works with NI LabVIEW graphical programming and Lookout application software, as well as programming environments such as Microsoft Visual C++ and Visual Basic. With the NI-FBUS OPC server, you can connect to a broad range of application software packages including LabVIEW and Lookout as well as other HMI/SCADA applications with OPC client interfaces. NI-FBUS CM, included with each NI Fieldbus interface, features EDDL improvements and DDS support.

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The NI-FBUS Configurator is a stand-alone application that provides complete configuration tools for Foundation Fieldbus segments. An easy-to-use, multiwindow interface guides you through all aspects of Fieldbus configuration, such as device tag configuration, function block linkages, loops, and execution schedules. The NI-FBUS Configurator dynamically detects devices connected to the Fieldbus, displays all its available function blocks, and automatically assigns tags. These function blocks are linked by graphically connecting the parameters of one block to another, with online error checking and device descriptions along the way. Plus, the Configurator generates the optimal execution schedule for function blocks and communication between function blocks, which you can then manually adjust to meet your specific control requirements.

The NI-FBUS Monitor is a stand-alone application used to monitor, debug, and analyze Fieldbus data packets. The NI-FBUS Monitor detects communication on the bus, capturing data packets that are passed between Fieldbus devices. These packets are timestamped and displayed in real time in active packet view of the NI-FBUS Monitor. The NI-FBUS Monitor can display data packets in decoded format or in hexadecimal format. It can also filter out unwanted data packets at three levels: the Fieldbus Data Link layer (FDL), the Fieldbus Messaging Specification layer (FMS), and Fieldbus addresses.

You can get answers to your technical questions by emailing to fieldbus.support@ni.com directly.

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Ordering Information

For a complete list of accessories, visit the product page on ni.com.

Products	Part Number	Recommended Accessories	Part Number
Additional Accessories			
Fieldbus Benchtop Power Supply Kit	777335-01	No accessories required.	
Fieldbus Interfaces			
USB-8486 with Mounting Requires: 1 Cable	781160-02	**Cable:** Shielded - Cable for USB-8486	199566-02
NI USB-8486 Requires: 1 Cable	781160-01	**Cable:** Shielded - Cable for USB-8486	199566-02
NI PCMCIA-FBUS Requires: 1 Cable	777282-01	**Cable:** Shielded - Cable for PCMCIA-FBUS	183809-01
NI PCMCIA-FBUS/2 Requires: 1 Cable	777282-02	**Cable:** Shielded - Cable for PCMCIA-FBUS/2	183904-01
NI PCI-FBUS/2	778573-01	No accessories required.	

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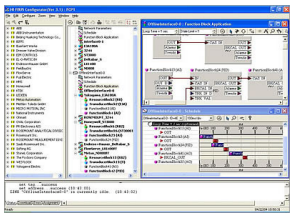
Software Recommendations

NI LabVIEW Full Development System for Windows



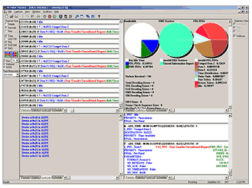
- Fully integrated graphical system design software
- Support for a wide range of measurement hardware, I/O, and buses
- Custom, event-driven user interfaces for measurement and control
- Extensive signal processing, analysis, and math functionality
- Advanced compiler to ensure high-performance execution and code optimization
- Includes SSP for professional technical support, online training, and software upgrades

NI-FBUS Configurator



- Offline configuration with DD and Capability files
- Download/upload configurations and schedules; works with all National Instruments H1 interfaces
- Configuration of function block linkages and execution schedules
- Support for EDDL extension; assignment of device tags and addresses
- See the Fieldbus Starter Kits for discounted hardware and software bundles

NI-FBUS Monitor



- Fully configurable multiwindow display
- Works with all National Instruments H1 interface boards
- Flexible Fieldbus packet filtering
- Live list display and bus statistics, flexible Fieldbus packet filtering
- Display live and logged data
- See the Fieldbus Starter Kits for discounted hardware and software bundles

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Support and Services

System Assurance Programs

NI system assurance programs are designed to make it even easier for you to own an NI system. These programs include configuration and deployment services for your NI PXI, CompactRIO, or Compact FieldPoint system. The NI Basic System Assurance Program provides a simple integration test and ensures that your system is delivered completely assembled in one box. When you configure your system with the NI Standard System Assurance Program, you can select from available NI system driver sets and application development environments to create customized, reorderable software configurations. Your system arrives fully assembled and tested in one box with your software preinstalled. When you order your system with the standard program, you also receive system-specific documentation including a bill of materials, an integration test report, a recommended maintenance plan, and frequently asked question documents. Finally, the standard program reduces the total cost of owning an NI system by providing three years of warranty coverage and calibration service. Use the online product advisors at ni.com/advisor to find a system assurance program to meet your needs.

Calibration

NI measurement hardware is calibrated to ensure measurement accuracy and verify that the device meets its published specifications. To ensure the ongoing accuracy of your measurement hardware, NI offers basic or detailed recalibration service that provides ongoing ISO 9001 audit compliance and confidence in your measurements. To learn more about NI calibration services or to locate a qualified service center near you, contact your local sales office or visit ni.com/calibration.

Technical Support

Get answers to your technical questions using the following National Instruments resources.

- **Support** - Visit ni.com/support to access the NI KnowledgeBase, example programs, and tutorials or to contact our applications engineers who are located in NI sales offices around the world and speak the local language.
- **Discussion Forums** - Visit forums.ni.com for a diverse set of discussion boards on topics you care about.
- **Online Community** - Visit community.ni.com to find, contribute, or collaborate on customer-contributed technical content with users like you.

Repair

While you may never need your hardware repaired, NI understands that unexpected events may lead to necessary repairs. NI offers repair services performed by highly trained technicians who quickly return your device with the guarantee that it will perform to factory specifications. For more information, visit ni.com/repair.

Training and Certifications

The NI training and certification program delivers the fastest, most certain route to increased proficiency and productivity using NI software and hardware. Training builds the skills to more efficiently develop robust, maintainable applications, while certification validates your knowledge and ability.

- **Classroom training in cities worldwide** - the most comprehensive hands-on training taught by engineers.
- **On-site training at your facility** - an excellent option to train multiple employees at the same time.
- **Online instructor-led training** - lower-cost, remote training if classroom or on-site courses are not possible.
- **Course kits** - lowest-cost, self-paced training that you can use as reference guides.
- **Training memberships** and training credits - to buy now and schedule training later.

Visit ni.com/training for more information.

Extended Warranty

NI offers options for extending the standard product warranty to meet the life-cycle requirements of your project. In addition, because NI understands that your requirements may change, the extended warranty is flexible in length and easily renewed. For more information, visit ni.com/warranty.

OEM

NI offers design-in consulting and product integration assistance if you need NI products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Alliance

Our Professional Services Team is comprised of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 700 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit ni.com/alliance.

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Detailed Specifications

USB-8486 without Screw Retention and Mounting Options	
Bus Interface	
USB	USB 2.0 High-Speed or Full-Speed[1]
FOUNDATION™ Fieldbus	Standard H1 interface[2]
Power Requirement	
USB High-power Bus-powered Device	
Working Mode Current	300 mA maximum (full temperature range) 180 mA typical (at 25°C)
Suspend Current	2.5 mA maximum (full temperature range)
Physical	
Dimensions	7.87 × 6.35 × 2.54 cm (3.1 × 2.5 × 1.0 in.)

Weight	165 g (5.82 oz)
Captive USB cable length	2m
I/O connector	
USB	Standard series A plug
FOUNDATION™ Fieldbus H1 Interface	9-pin male D-SUB
Altitude	2,000 m
Pollution Degree	2
Indoor use only.	
Environment	
Operating Environment	
Ambient temperature	0 to 55 °C
Relative humidity	10 to 90%, noncondensing (tested in accordance with IEC-60068-2-1, IEC-60068-2-2, EC-60068-2-56)
Storage Environment	
Ambient temperature	–20 to 70 °C
Relative humidity	5 to 95%, noncondensing (tested in accordance with IEC-60068-2-1, IEC-60068-2-2, EC-60068-2-56)

USB-8486 with Screw Retention and Mounting Options

Bus Interface	
USB	USB 2.0 High-Speed or Full-Speed[1]
FOUNDATION™ Fieldbus	Standard H1 interface[2]
Power Requirement	
USB High-power Bus-powered Device	
Working Mode Current	300 mA maximum (full temperature range) 180 mA typical (at 25°C)
Suspend Current	2.5 mA maximum (full temperature range)
Physical	
Dimensions	8.61 × 6.35 × 2.54 cm (3.1 × 2.5 × 1.0 in.)
Weight	175 g (6.17 oz)
Captive USB cable length	2m
I/O connector	
USB	Standard series A plug
FOUNDATION™ Fieldbus H1 Interface	9-pin male D-SUB
Altitude	2,000 m
Pollution Degree	2
Indoor use only.	
Environment	
Operating Environment	
Ambient temperature	0 to 55 °C
Relative humidity	10 to 90%, noncondensing (tested in accordance with IEC-60068-2-1, IEC-60068-2-2, EC-60068-2-56)
Storage Environment	
Ambient temperature	–20 to 70 °C
Relative humidity	5 to 95%, noncondensing (tested in accordance with IEC-60068-2-1, IEC-60068-2-2, EC-60068-2-56)

PCI-FBUS/2

Power Requirement	
PCI-FBUS/2	820 mA Typical
Physical	
Dimensions	10.67 × 17.46 cm (4.2 × 6.88 in.)
I/O connector	9-pin male D-SUB (1 per Fieldbus link)
Altitude	2,000 m
Pollution Degree	2
Indoor use only.	
Environment	
Operating Environment	
Ambient temperature	0 to 55 °C
Relative humidity	10 to 90%, noncondensing
Storage Environment	
Ambient temperature	–20 to 70 °C
Relative humidity	5 to 95%, noncondensing

PCMCIA-FBUS

Note The PCMCIA-FBUS here stands for PCMCIA-FBUS Series 2 card, and the PCMCIA-FBUS/2 below stands for PCMCIA-FBUS/2 Series 2 card.

Power Requirement	
+5 VDC (±5%)	
PCMCIA-FBUS	350 mA typical; active
PCMCIA-FBUS/2	350 mA typical; active
Physical	
Dimensions	8.56 × 5.40 × 0.5 cm (3.4 × 2.1 × 0.2 in.)
I/O connector	PCMCIA-FBUS cable with 9-pin male D-SUB and pluggable screw terminal for each port
Altitude	2,000 m
Pollution Degree	2
Indoor use only.	
Environment	
Operating Environment	
Ambient temperature	0 to 55 °C
Relative humidity	10 to 90%, noncondensing (tested in accordance with IEC-60068-2-1, IEC-60068-2-2, EC-60068-2-56)
Storage Environment	
Ambient temperature	–20 to 70 °C
Relative humidity	5 to 95%, noncondensing (tested in accordance with IEC-60068-2-1, IEC-60068-2-2, EC-60068-2-56)

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 60950-1, EN 60950-1
- UL 60950-1, CSA 60950-1

Note For UL and other safety certifications, refer to the product label or the *Online Product Certification* section.

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Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note For EMC declarations and certifications, refer to the *Online Product Certification* section.

Note For EMC compliance, operate this device with shielded cables and accessories.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

To obtain product certifications and the DoC for this product, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial not only to the environment but also to NI customers.

For additional environmental information, refer to the *NI and the Environment* Web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste Electrical and Electronic Equipment, visit ni.com/environment/weee.htm.

电子信息产品污染控制管理办法 （中国 RoHS）

中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。
关于 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。
(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

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