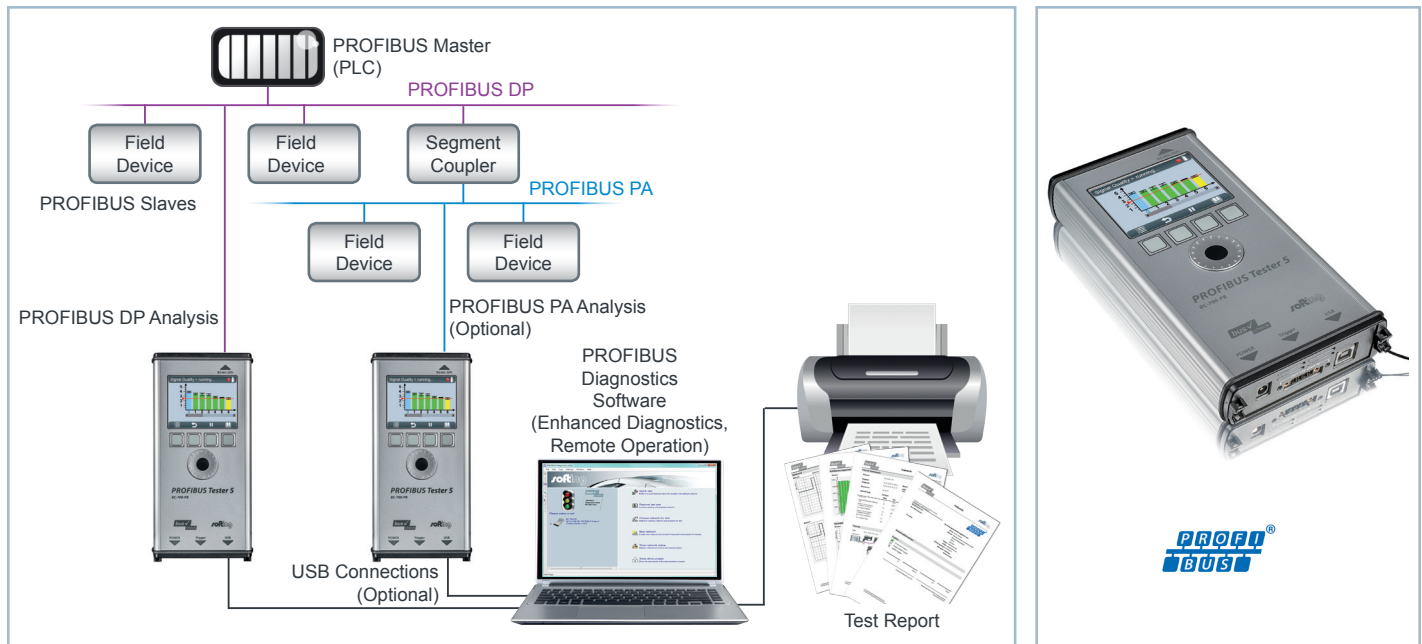


PROFIBUS Tester 5 BC-700-PB

Quick and Easy Testing of Bus Physics, Bus Communication and Cabling

The PROFIBUS Tester 5 BC-700-PB is a powerful diagnostic and troubleshooting tool for testing the cables, measuring the signals and analyzing the communication of PROFIBUS networks. It is battery-powered and provides a graphical display, allowing for quick results when working in stand-alone mode. Optionally, also PROFIBUS PA network can be analyzed. In addition, the BC-700-PB supports the export of test results for advanced analysis.



Testing Bus Cabling, Bus Physics and Bus Communication “All-In-One”

- > Combination of signal tester, storage oscilloscope, protocol analyzer, master simulator and cable tester functionality in a single diagnostics tool
- > Stand-alone mode plus extended PC-based diagnostics
- > Suited for installation, setup and commissioning, documentation, acceptance testing, network optimization, preventive maintenance, troubleshooting as well as laboratory tests

Highly Mobile Bus Tester for Testing Even Without a Notebook

- > Battery-powered operation without the need for additional power supply
- > Graphical display providing easy-to-understand presentation of test results
- > Comprehensive network tests in stand-alone mode without requiring a notebook

Enhanced Diagnostic Features Through Complementing PC-Based Software

- > Many additional features for executing, analyzing and managing bus tests in PC mode (Trend, Topology Scan, Master Simulator, Oscilloscope, Frame Analyzer)
- > Quick Test and User-Controlled Test for easy network status assessment at the push of a button
- > Generation of test reports describing the actual status of the PROFIBUS installation
- > Ideal for less experienced users as well as for fieldbus specialists

Optional Measuring Adapter for MBP (Manchester Coded Bus Powered) Physics

- > Specific signal analysis supporting MBP Physics (feeding voltage, signal deviation, signal polarity, bitrate divergence)
- > Complete protocol analysis directly at PROFIBUS PA segment

Technical Data

Diagnostics Functionality

Protocol and Frame Analysis	PROFIBUS DP-V0 and DP-V1, automatic baud rate detection in the range of 9.6 kbit/s ... 12 Mbit/s
Signal Analysis via EIA-485	PROFIBUS DP-V0, DP-V1, FMS and MPI Signal quality index: 0 ... 5,000, determined from signal level as well as signal/noise ratio and rise time; signal sampling with 8/16 samples per bit
... via MBP (requires optional adapter)	Fieldbus feeding voltage: 0 V ... 35 V at 0.1 V resolution, signal level: 100 mV ... 1,200 mV at 10 mV resolution, signal polarity, bitrate divergence: $\pm 1.2\%$ at 0.01 % resolution, signal sampling with 128 samples per bit
Oscilloscope Display (Not Available for MBP)	Test range: ± 5 V at 10 mV resolution (differential), 0 V ... 15 V at 15 mV resolution (A or B to DGND); sampling rate: up to 384 Msamples/s; sampled points: 2,400 (signal details), 8,192 (oscilloscope analysis)
Topology Scan (Not Available for MBP)	Active, maximum distance: 230 m, accuracy: ± 2 m
Cable Test (Not Available for MBP)	Active, supported cable segment length: 5 m ... 1,500 m, accuracy: 5 %

Operation	Via graphical colour display, four function keys and scrollwheel including central push-button or via PC/notebook
Internal Memory Capacity	3 user-definable network directories (segment and test location) for storing quick tests, trend logs and cable test results Trend logging: max. 99 hours
Trigger	IN: L = 0 V .. 0.8 V; H = 2.4 V .. 24 V; pulse > 10 μ s, active high OUT: approximately 5 V, active low (connection to storage oscilloscope)
PC Operating Software	PROFIBUS Diagnostics Suite, see separate datasheet for details

Connectors

EIA-485 (PROFIBUS DP)	PROFIBUS D-sub connector, 9 pins, power supply for external bus termination
MBP (PROFIBUS PA)	Connector, 3 pins, for screw terminals at optimal measuring adapter, measuring cable set including 3 probes (adapter for MBP measurement is attached to D-sub connector)
USB	V 2.0, high speed 480 Mbit/s, galvanically isolated

Dimensions (H x W x D)	35 mm x 220 mm x 110 mm
Power Supply	Built-in three-cell lithium-ion battery supporting 11.1 VDC or external AC adapter 100 VAC ... 240 VAC, 50/60 Hz (galvanically isolated) The rechargeable battery has a runtime of up to 5 hours (runtime depends on the performed test functionality and rate of wear of the rechargeable battery), battery is charged via external AC adapter
Operating/Storage Temperature	Operating temperature: 0 °C ... 50 °C, storage temperature: -20 °C ... 70 °C
Relative Humidity	Air humidity: 10 % ... 90 % without condensation
Weight	Test tool, no cable: approximately 0.75 kg; complete carrying case: approximately 4.2 kg
Conformity	CE, FCC, VCCI

Scope of Delivery

Hardware	PROFIBUS Tester 5 BC-700-PB, power supply unit 100 VAC ... 240 VAC, 50/60 Hz with connecting cables for Europe and USA, adaptor cables, carrying case Measuring adapter BC-700-H1, measuring cable set (for PROFIBUS PA option)
Software	PROFIBUS Diagnostics Suite (PC software for Windows on CD-ROM) BC-700-PB upgrade license (on CD-ROM, for PROFIBUS PA option)
Documentation	Device manual, "Getting Started" manual

Order Numbers

DDA-NN-006014	PROFIBUS Tester 5 BC-700-PB
DDL-NL-006010	PROFIBUS PA option for BC-700-PB (BC-700-PB serial number required for order placement)

Additional Products and Services

BC-600-PB-CB-M12	D-Sub to M12 adapter set with T-piece and M12 bus termination for PROFIBUS DP
PB-LSZ-CHB3	Digital fieldbus leakage current clamp for locating EMC problems, 40 Hz ... 1,000 Hz, Min/Max, Data Hold, measuring cables, supplied in handy case (fits into empty compartment of carrying case)
BC-PBMB-PB-S	D-Sub service interface with active bus termination and 90° angled connector for PROFIBUS DP
BC-M12DP-PB	M12 service interface for PROFIBUS DP, comprising M12 T-piece, end cap, M12 connection cable (1 m)
TRA-PB-TECH	Training „PROFIBUS Technology“, 2 days
TRA-PB-TS	Training „PROFIBUS Troubleshooting“, 3 days



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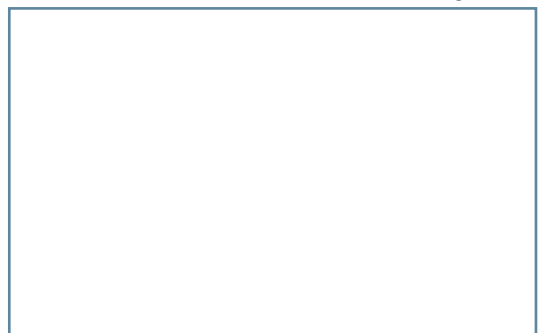
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PROFIBUS Tester 4

Quick and Easy Testing of Bus Physics and Bus Communication

The PROFIBUS Tester 4 is a powerful tool that allows extensive testing of PROFIBUS segments during operation. It can also test the bus - or individual devices of interest - even with no PLC running.

ALL IN ONE

The PROFIBUS Tester 4 combines a signal tester, a storage oscilloscope, a protocol analyzer, and a master simulator into a single tool. This tool is designed for use in a wide range of applications - from setup and commissioning, documentation, acceptance testing, and optimization to preventive maintenance, troubleshootings and laboratory tests. In addition, the PROFIBUS Tester 4 can be used without a notebook and is able to run comprehensive network tests in stand-alone mode.

ALSO SUITABLE FOR LESS EXPERIENCED USERS

With a single mouse click (PC mode) or a single push of a button (stand-alone mode) a user is able to initiate a full examination of a PROFIBUS network including automatic signal and protocol analysis. A summary of all results is displayed to the user in a very intuitive manner. In PC mode, the software package has been design to emphasize the all-important ease-of-use aspect while at the same time preserve the more in-depth diagnostic features required by networking experts. This makes the tool ideal for both less experienced users and fieldbus specialists.

INTUITIVE USE AND CLEAR READINGS

The PROFIBUS Tester 4 automatically detects the baud rate or open circuit voltage immediately after connection to the PROFIBUS. In stand-alone mode, the bus can be tested using the Live Status functionality. Up to ten quick tests and a trend recorded over maximum 41 days can be saved in the test tool and imported into the PC later.

The PC software provides many additional features for executing, analyzing, and managing bus tests. A status bar continually shows the current bus state. Using the Network Status function, the bus can be tested with a Quick Test or a User-Controlled Test. The Topology Scan feature determines the overall cable length and the cable length between slaves. The test results can be documented in a detailed test report. The Long-Term Trend view is used for detecting sporadic faults. In the Oscilloscope and Frame Analyzer views, experts can perform in-depth, detailed analysis. For bus and device tests with the integrated master simulator, only the baud rate needs to be specified - no configuration or parameterization is required.

CUSTOMER BENEFITS

- > Combines the diagnostic functions of previously separate tools in one product
- > Full bus testing even without a notebook
- > Very easy to use, delivering fast and reproducible test results



TECHNICAL DATA

Power Supply	Via External AC Adapter 100VAC...240VAC 50/60Hz (Galvanically Isolated) or Direct Connection to 24VDC \pm 20%, Approximately 0.5A (Without Galvanic Isolation)
RS485 (DP)	PROFIBUS D-Sub Connector, 9 Pins, Power Supply for External Bus Termination Protocol and Frame Analysis: PROFIBUS DP and DPV1, Automatic Baud Rate Detection 9.6Kbit/s...12Mbit/s Signal Analysis: PROFIBUS DP, DPV1, FMS, and MPI; Signal Quality Index 0...5000, Determined From Signal Waveform As Well As Signal/Noise Ratio and Rise Time; Signal Sampling With 8/16 Samples Per Bit Oscilloscope Display: Test Range: \pm 5V at 10mV Resolution (Differential), 0V...15V at 15mV Resolution (A or B to DGND); Sampling Rate: Up to 384MSamples/s; Sampled Points: 2,400 (Signal Details), 8,192 (Oscilloscope Analysis) Topology Scan: Active, Maximum Distance 230m, Accuracy \pm 2m
USB	V 2.0, High Speed 480 Mbit/s, Galvanically Isolated
Trigger	IN: $>$ 2.4V for $>$ 10 μ s, Active High OUT: Approximately 5V, Active Low, Connection to Storage Oscilloscope
Internal Memory Capacity	10 Memory Locations for Quick Tests, 1 Trend Log for 41 Days Maximum
Dimensions (HxWxD)	35mm x 170mm x 110 mm
Weight	Test Tool, No Cable: Approximately 0.45kg; Complete Carrying Case: Approximately 3.9kg
Ambient Conditions	$>$ Operating Temperature: 0 $^{\circ}$ C...50 $^{\circ}$ C, Storage Temperature: -20 $^{\circ}$ C...70 $^{\circ}$ C $>$ Air Humidity: 10%...90% Without Condensation
Conformity	CE, FCC, VCCI
Operation	Via Four-Line Display and Four Function Keys or Via PC/Notebook Display Localization: DE, EN, FR, IT, PL, ES (without National Language Specific Characters)
PC Operating Software	PROFIBUS Diagnostic Suite, See Separate Manual

ORDER NUMBER

BC-600-PB	PROFIBUS Tester 4, "All-In-One" Test Tool for PROFIBUS DP Bus Physics and Communication, Carrying Case, Wide-Range Power Supply with European and U.S. Power Cables, Connection Cable for 24VDC Direct Power Supply, "Standard" D-Sub PROFIBUS Adapter Cable, USB Cable, Terminal Block for Trigger Input/Output, User Manual, PB-DIAG-SUITE PC Software on CD-ROM With Getting Started Manual
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ADDITIONAL PRODUCTS AND SERVICES

BC-600-PB-CB-DSUB1	RS485 D-Sub Adapter Cable for Testing Live PROFIBUS Segments With Reduced Influence on Their Operation
BC-600-PB-CB-M12	D-Sub to M12 Adapter Set with T-Piece and M12 Bus Termination for PROFIBUS DP
BC-MOST-PB	External Power Supply Kit, including 24VDC/1.5Ah AC Adapter, 230VAC Battery Charger, Carrying Case
PB-LSZ-CHB3	Digital Fieldbus Leakage Current Clamp for Locating EMC problems, 40Hz...1,000Hz, Min/Max, Data Hold, Measuring Cables, Supplied in Handy Case (Fits into Empty Compartment of Carrying Case)
BC-PBMB-PB-S	D-Sub Service Interface with Active Bus Termination and 90 $^{\circ}$ Angled Connector for PROFIBUS DP
BC-M12DP-PB	M12 Service Interface for PROFIBUS DP, Comprising M12 T-Piece, End Cap, M12 Connection Cable (1m)
TRA-PB-TECH	PROFIBUS Technology Training, 2 Days
TRA-PB-TS	PROFIBUS Troubleshooting Training, 3 Days

Softing Industrial Automation is a world leading provider of industrial communication products and technologies for manufacturing and process automation. Our products are tailored to the requirements of system integrators, device vendors, machine and equipment manufacturers or end users and are known for its ease of use and functional advantages.

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Protocol Analyzer for PROFIBUS DP and PA

Detailed Analysis of Bus Communication

The PROFIBUS Protocol Analyzers are efficient tools for testing the bus communication on PROFIBUS DP and PA segments during operation.

AN EAR TO PROFIBUS

The BC-400-PB PROFIBUS Protocol Analyzer is a tool for analyzing PROFIBUS DP communication. The BC-450-PB allows analyzing the communication on PROFIBUS DP and PA simultaneously, e.g. before and after a link or coupler. Both tools can be used for setup and commissioning, acceptance testing, optimization, troubleshooting and laboratory tests relating to fieldbus communication.

ALL BUS DEVICE STATES AT A GLANCE

The PC software is very simple to use. One mouse click starts the protocol analysis. The test results are clearly structured. The status of each bus device is color coded in a live list for easy readability. Classical frame analysis functions that only experts need are accessed separately from the standard functionality. This makes the tool ideal for both, users with a basic knowledge of the PROFIBUS protocol and fieldbus specialists.

INTUITIVE USE AND CLEAR READINGS

The PC software provides many features for performing, analyzing and managing bus tests. In the Network Status view, the bus communication can be analyzed with a Quick Test or a User-Controlled Test. The test results include a live list with the color coded state of each bus device, an event log, counters for retries, restarts and diagnostics, the input/output/parameter and configuration data of the slaves, and decoded diagnostic messages in plain text based on the GSD files.

In Expert mode, the Frame view allows tracing and displaying all bus traffic according to user-defined trigger and filter settings for PROFIBUS services, addresses and data.

The baud rate is detected automatically when a test is started. As soon as the test is completed, a detailed test report can be generated. The protocol analyzer also provides a special long-term trend function that helps detecting sporadic faults.

CUSTOMER BENEFITS

- > All Bus Device States at a Glance
- > Complete Event Log
- > Diagnostic Messages in Plain Text



TECHNICAL DATA

RS485 Interface (PROFIBUS DP)	9-Pin D-Sub Connector with Power Supply for Pptional BC-131-PB Active Cable, Galvanic Isolation Baud Rates: 9.6, 19.2, 45.45, 93.75, 187.5, 500, 750 Kbit/s, 1.5, 3, 6, 12Mbit/s
MBP Interface (BC-450-PB only)	3-Pin Screw Terminal, Galvanic Isolation, Bus Powered Medium Attachment Unit Baud Rate 31.25Kbit/s
USB Interface	USB Version 2.0, High Ppeed (480Mbit/s) and Full Speed (12Mbit/s) with Automatic Detection Connector: USB Type B with USB Cable A-B to PC
External Trigger Interface	Not Active
Status LEDs	RS485 Status, USB Status, MBP Bus Power (BC-450-PB only)
Power Supply	5V (from USB), < 300mA
Permissible Ambient Conditions	Operation: 0°C ... +55°C (Without Condensation) Storage: -20°C ... +70°C
Housing	Aluminum
Dimensions (WxHxD)	69mm x 24mm x 124mm
Weight	Approximately 200g
Conformity	CE, FCC, VCCI
Protection Class	IP20
Operation	Via PROFIBUS Diagnostics Suite PC Software, See Separate Data Sheet

ORDER NUMBER

BC-400-PB	PROFIBUS DP Protocol Analyzer in Carrying Case, Including USB Power Supply, RS485 D-Sub Adapter Cable, USB Connection Cable, User Manual, and PB-DIAG-SUITE
BC-450-PB	PROFIBUS DP+PA Protocol Analyzer in Carrying Case, Including USB Power Supply, RS485 D-Sub Adapter Cable, MBP Terminal Block, USB Connection Cable, User Manual, and PB-DIAG-SUITE



ADDITIONAL PRODUCTS AND SERVICES

BC-131-PB	Optional Active Connecting Cable for Remote Connection and for Analyzing Live PROFIBUS Segments With Reduced Influence on Their Operation, Spur Cable (3m), Bus-powered Internal Repeater
BC-PBMB-PB-S	D-Sub Service Interface with Active Bus Termination and 90° Angled Connector for PROFIBUS DP
TRA-PB-TECH	PROFIBUS Technology Training, 2 Days
TRA-PB-TS	PROFIBUS Troubleshooting Training, 3 Days

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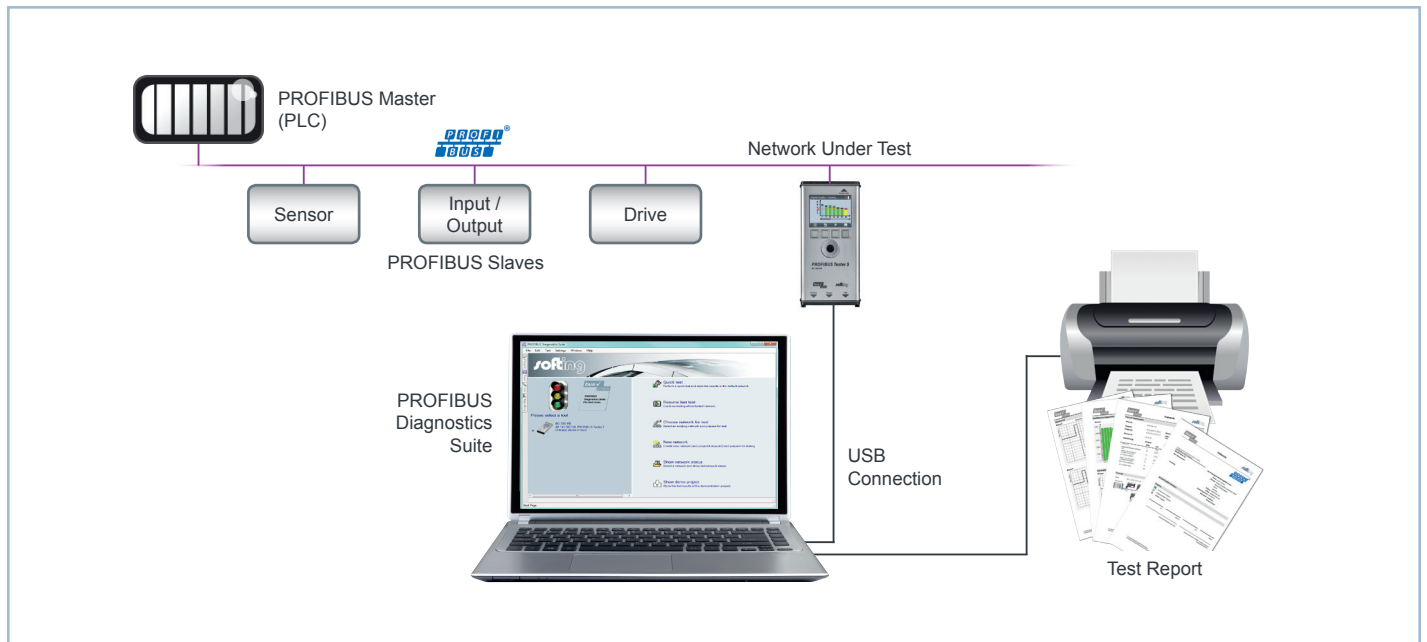
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PROFIBUS Diagnostics Suite

Universal Software for All Diagnostic Tools of the bus check Family

PC software for performing, evaluating and managing tests of bus physics, bus communication and cabling in PROFIBUS networks. The application is extremely easy to use, with a quick test available at a click of the mouse.



Common software for all diagnostic products

- > Comprehensive analysis of PROFIBUS DP and PROFIBUS PA networks
- > Diagnostic functionality available depending on connected test tool
- > License-free use on any number of PCs – no activation required

Suitable for the Fieldbus Novice

- > Bus test initiated with a single mouse click
- > Clear, easy-to-read display of test results
- > Separate expert mode providing in-depth diagnostic features for network specialists

Functionality for All Diagnostic Tasks

- > Continuous display of current bus status in status bar
- > Overall bus health indicated by traffic light symbols for bus physics and bus communication
- > Detail views with additional diagnostic information, also for advanced analyses by experts
- > Testing of bus and connected devices via integrated master simulator without configuration or parameterization
- > Generation of test reports for acceptance testing of PROFIBUS installations

Functionality of the Test Tools

Test Functions	Operation					Standard Tests										Expert Tests				
	Battery Powered	Graphical Color Display	Galvanic Isolation	Stand-alone Operation	Permanent Bus Status	Cable Test	Network Status						Trend		Test Report	Oscilloscope Analysis	Frame Analysis	Trigger		
							Quick / User-controlled Test	Overview Bus Physics and Communication	Protocol Analysis	Signal Analysis (EIA-485)	Signal Analysis (MBP)	Topology	Master Simulator	Signal Quality				Critical Events	Input	Output
PROFIBUS Tester 5 BC-700-PB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	optional	✓	✓	✓	✓	✓	✓	✓	✓	
PROFIBUS Tester 4 BC-600-PB			✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
PROFIBUS Monitor BC-502-PB							✓		✓					✓	✓		✓			

Technical Data

System Requirements	PC Hardware*	RAM	> 500 MB for Windows XP > 1 GB for Windows 7, Windows 8
		Processor	> 1 GHz for recording at baud rates up to 1.5 Mbit/s > 2 GHz for recording at baud rates over 1.5 Mbit/s
		Screen Resolution	> 1024 x 768 pixels (XGA)
		USB Interface 2.0	

Supported Operating Systems: Windows XP, Windows 7, Windows 8

* The above minimum requirements are only general guidelines. Requirements may vary depending on the PC/notebook used.

Scope of Delivery

Software	PROFIBUS Diagnostics Suite, PC software on CD-ROM for PROFIBUS Tester 5 BC-700-PB, PROFIBUS Tester 4 BC-600-PB and PROFIBUS Monitor BC-502-PB
Documentation	Manual "Getting Started"

Order Numbers

PB-DIAG-SUITE	PROFIBUS Diagnostics Suite
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Additional Products and Services

TRA-PB-TECH	PROFIBUS Technology Training, 2 Days
TRA-PB-TS	PROFIBUS Troubleshooting Training, 3 Days

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Diagnostic Monitor for PROFIBUS PA

Quick and Easy Bus Testing

The Diagnostic Monitor is a versatile tool for testing PROFIBUS PA during operation. It is powered by the fieldbus so that no battery or external power source is required. The monitor is also suitable for use in hazardous areas.

UNIVERSAL APPLICATION

The PROFIBUS PA Diagnostic Monitor allows testing of the bus physics. In addition, it verifies that the communication between the bus devices is stable. This makes it a universal tool for setup and commissioning, documentation, acceptance testing, preventive maintenance, and troubleshooting.

VERY SIMPLE TO USE

A display and two function buttons provide outstanding ease of use. The bus test starts automatically when the tool is connected to a PROFIBUS PA network.

The test results are clearly classified as either OK or BAD. This tool is an ideal choice even for less experienced users.

FULLY AUTOMATIC BUS TEST

After attaching the tool to the PROFIBUS PA network, the Diagnostic Monitor is powered by the fieldbus and automatically starts testing the segment without operator intervention. If the measured data exceeds the tolerance limits, the operator is informed in plain text.

At the segment level, the tool determines the segment voltage as well as average noise and peak noise for three frequency ranges. Short circuits between the individual signal wires and the cable shield are reliably detected.

At the field device level, the Diagnostic Monitor reports all frame retransmissions and all devices added or dropped during bus operation. The current and the lowest signal levels of all devices are also determined.

No PC or notebook is needed for testing the bus.

If required, the PROFIBUS PA Diagnostic Monitor stores the test data for later transfer to a PC via USB. The detailed test reports can be imported to Microsoft® Excel or exported as text files.

CUSTOMER BENEFITS

- > No Battery or External Power Source Required
- > No PC or Notebook Needed for Testing the Bus
- > Clear OK/BAD Classification of Test Results



TECHNICAL DATA

Input Voltage:	Fieldbus Mode: 8VDC..32VDC, USB Mode: 4.1VDC..5.5VDC
Maximum Input Current:	Fieldbus Mode: 10mA *, USB Mode: 30mA
Power Dissipation:	Fieldbus Mode: Maximum 320mW (at 32VDC), USB Mode: Maximum 165mW (at 5.5VDC)
Operating Temperature:	-20 °C..+50°C **
Dimensions:	146mm x 88mm x 28mm
Weight:	378g
Case Material:	ABS
DC Voltage Measurement Range:	8VDC..32VDC, ±0.5VDC
Signal Level Measurement Range:	0.12Vpp..2Vpp, ±10%, ±0.025 Vpp
LF Noise Measurement Range:	50Hz..4KHz, 0mVpp..1000mVpp, ±15%, ±25 mVpp ***
FF Noise Measurement Range:	9KHz..40KHz, 0mVpp..1000mVpp, ±10%, ±25mVpp ***
HF Noise Measurement Range:	90kHz..350KHz, 0mVpp..250mVpp, ±20%, ±25mVpp ***
Conformity	CE, FCC
Hazardous Area Approvals	FM USA and Canada: – Class I Division 2 Groups A, B, C and D T4 – Class I Zone 2 Group IIC T4 – Class I Division 1 Groups A, B, C and D T4 – Class I Zone 0 and 1 Ex/AEx ia IIC T4 ATEX Ex ia IIC T4 ATEX Ex nL IIC T4 ATEX Ex ic IIC T4
Data Transfer to PC	Via Supplied PC Software for Windows 2000, Windows XP, Windows VISTA, and Windows 7 (32Bit and 64Bit) and USB Interface, Version 1.1 or 2.0

* In Fieldbus Mode, the BC-230-PB is Powered by the Fieldbus and Draws Approximately 9.4mA of Current from the Segment (Depending on Bus Voltage and Ambient Temperature).
** Display Update Speed is Impaired Below -10°C.
*** Vpp = Volts Peak-to-peak; Excessive Noise Adjacent to the Fieldbus Frequency (FF) Band Will Prevent the BC-230-PB from Reading the Fieldbus Data and Thus Reduce Functionality.

ORDER NUMBER

BC-230-PB	PROFIBUS PA Diagnostic Monitor, Bus Powered, Ex Approvals, PC Software on CD-ROM, Manual, Certificates, Connection Cables, and Carrying Case Note: User Manual, PC Software and Certificates in English
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ADDITIONAL PRODUCTS AND SERVICES

PB-LSZ-CHB3	Digital Fieldbus Leakage Current Clamp for Locating EMC Problems, 40Hz..1000Hz, MIN/MAX, Data Hold, Measuring Cables, Supplied in a Handy Case
TRA-PB-TECH	PROFIBUS Technology Training, 2 Days
TRA-PB-TS	PROFIBUS Troubleshooting Training, 3 Days

Softing Industrial Automation is a world leading provider of industrial communication products and technologies for manufacturing and process automation. Our products are tailored to the requirements of system integrators, device vendors, machine and equipment manufacturers or end users and are known for its ease of use and functional advantages.

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PROFIBUS Monitor

Maximum Plant Availability Through Continuous Bus Monitoring

The PROFIBUS Monitor is a powerful tool for the continuous monitoring of the data communication on PROFIBUS DP. In case the tool detects critical changes that could result in a future network failure it automatically generates a notification that maintenance action is required.

EARLY DETECTION OF BUS PROBLEMS

The PROFIBUS Monitor is designed for fixed installation in control cabinets. One PROFIBUS Monitor per bus line is all that is needed – no matter how many physical segments are to be monitored. In addition, the tool's open functionality allows use across all controller and PROFIBUS device types. The PROFIBUS Monitor reliably detects deteriorations in the bus communication and reports them to the operational staff. This allows implementing a condition-based maintenance strategy that reduces operator intervention to when it is needed. In this way, routine system downtimes can be used for planned maintenance action, making best use of the often scarce maintenance resources.

EASY USE AND CLEAR READINGS

No bus address or program changes to the PLC program are needed when installing the PROFIBUS Monitor. Configuration and visualization are performed over the network via an easy-to-use, integrated web interface. Setup, commissioning, and problem analysis require a basic knowledge of PROFIBUS.

ADVANCE WARNING OF IMPENDING FAILURE

On connection to a PROFIBUS segment, the PROFIBUS Monitor automatically detects the baud rate and immediately starts monitoring. It determines the bus cycle times and counts critical events. Critical events on the PROFIBUS are error frames, retries, restarts, and diagnostic messages. In this way, even slow deteriorations on “aging” installations can be reliably detected. When the number of error events exceeds the specified maximum limit per time unit, the PROFIBUS Monitor sends an alarm to the PLC via a signaling contact, or optionally to a server over the Ethernet network.

The last 100 errors are stored in an alarm list. In the case of an alarm, the tool offers the possibility to create a frame traffic trace for the period of interest. The trace file can then be analyzed later using the PROFIBUS Diagnostics Suite.

CUSTOMER BENEFITS

- > Prevents Production Loss from Bus Problems
- > Allows Planned Maintenance of the Fieldbus
- > Easy to Use via Integrated Web Interface, All Bus Device States at a Glance



TECHNICAL DATA

Power Supply	24VDC +/-20%, Typically 0.3A, max. 1A
PROFIBUS	PROFIBUS Protocols: DP, DPV1, FMS, MPI; Connection: 9-Pin D-Sub, Baud Rates: 9.6Kbit/s .. 12Mbit/s
Ethernet	100BASE-TX, 10BASE-T, Connection: RJ45, IP Address: Manually or via DHCP
RS232	Reserved
USB	Only Available With BC-502-PB/CL Option
Control Signals	Potential-free Contact, 3 inputs 24VDC, Active High
Dimensions (HxWxD)	131mm x 47mm x 111 mm
Weight	Approximately 0.4kg
Mounting	35mm DIN Rail
Protection Class	IP20
Operating Temperature	5°C..55°C
Storage Temperature	-20°C..70°C
Conformity	CE, FCC, VCCI
Display & Parameterization	Via Integrated Web Interface
Snapshot Analysis	Via PROFIBUS Diagnostics Suite PC Software, See Separate Data Sheet

ORDER NUMBERS

BC-502-PB	PROFIBUS Monitor for Continuous Bus Monitoring and Condition-based Maintenance of DP/DPV1/FMS/MPI, DIN Rail Mounted, External 24VDC Power Supply Required, Signaling Contact, Control Inputs, Ethernet 10/100BASE-T(X),RJ45, Integrated Web Server, User Manual, PB-DIAG-SUITE
BC-502-PB-START	PROFIBUS Monitor Start Package, Consisting of BC-502-PB, BC-131-PB (See Figure on Right), AC Adapter/Cable, Patch/Crossover Cable and Carrying Case



ADDITIONAL PRODUCTS AND SERVICES

BC-131-PB	Optional Active Connection Cable for Hassle-free Integration into Existing or Running Installations Without Recabling or the Disturbances Caused by a Spur Cable, 3m Length, Bus-powered Internal Repeater
BC-502-PB/CL	"Comfort Line" Option, Allows Full-Featured Protocol Analysis via USB, Supplied as Activation Code
BC-502-PB/SNMP	"Premium Line" Option, Provides SNMP Network Interface for Measurement Data, Supplied as Activation Code
BC-502-PB/CLP	"Comfort Line Plus" Option, Allows Full-featured Protocol Analysis via USB and Provides SNMP Network Interface for Measurement Data, Supplied as Activation Code
TRA-PB-TECH	PROFIBUS Technology Training, 2-Day
TRA-PB-TS	PROFIBUS Troubleshooting Training, 3-Day

Softing Industrial Automation is a world leading provider of industrial communication products and technologies for manufacturing and process automation. Our products are tailored to the requirements of system integrators, device vendors, machine and equipment manufacturers or end users and are known for their ease of use and functional advantages.

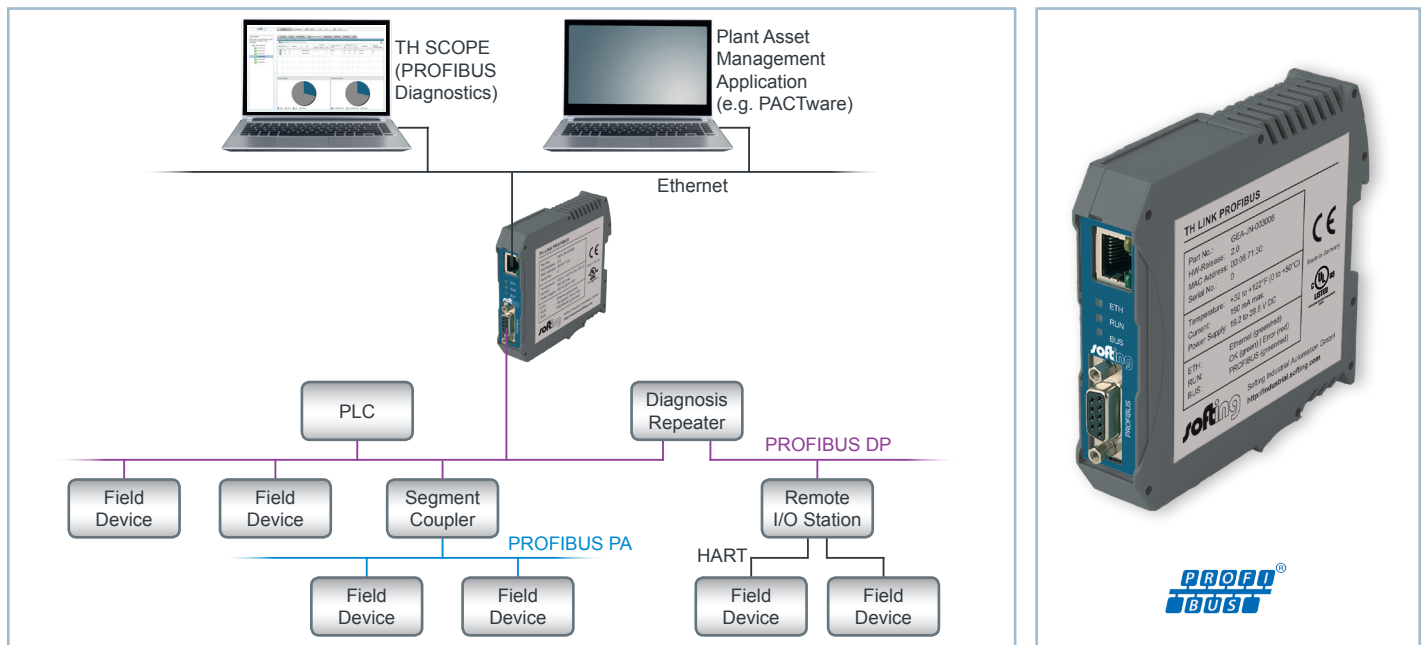
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TH LINK PROFIBUS

PROFIBUS Diagnostics and PROFIBUS Access for Plant Asset Management Applications

TH LINK PROFIBUS provides controller-independent access to PROFIBUS networks for plant operation and maintenance staff. The tool supports both network diagnostics applications and plant asset management applications. TH LINK PROFIBUS is easy to use and can be integrated without interfering with the operation of existing installations.



Independent Access to PROFIBUS Network

- > Controller-independent
- > Independent of configuration tools
- > Access for plant asset management applications to configure field devices based on FDT/DTM and EDDL standards (acyclic master)

Designed for Installation without Interference with Plant Operation

- > Connection to PROFIBUS network also possible during operation of the plant
- > Easy integration into existing plants thanks to compact design
- > Browser access for administration and configuration purposes

Powerful Data Collection Capabilities Optimized for PROFIBUS

- > Passive listening to PROFIBUS DP protocol
- > Threshold monitoring for frame retries
- > Statistics for optimization of the network configuration
- > Easy detection of missing terminating resistors

Optimized for Use by Maintenance Engineers

- > Central and time-saving parameterization of PROFIBUS and HART field devices directly from the control room
- > Continuous monitoring and troubleshooting for PROFIBUS networks
- > Fault identification with intelligent troubleshooting assistance
- > Seamless integration with TH SCOPE diagnostics software

Technical Data

Functionality	<ul style="list-style-type: none">• Network detection and data collection (PROFIBUS DP)• Acyclic master (PROFIBUS DP-V1)• Alarm notification in case of fault• Basic monitoring, configuration• Integrated web server
Supported Plant Asset Management Applications	e.g. Endress+Hauser FieldCare, Emerson AMS Suite, Yokogawa Fieldmate, PACTware
PROFIBUS Transmission Rate	<ul style="list-style-type: none">• max. 12 MBit/s (AMS Device Manager, FDT)• max. 1.5 MBit/s (TH SCOPE)
Input Voltage	24 VDC (19.2 VDC ... 28.8 VDC)
Current Consumption	max. 190 mA
Operating Temperature	0 °C ... 50 °C
Ethernet Port	RJ45 (10 Base-T / 100 Base-TX)
PROFIBUS Port	EIA-485 (formerly RS-485)
Mounting	35 mm DIN rail
Dimensions (H x W x D)	22.5 mm x 99 mm x 114.5 mm
Weight	120 g
Certifications	CE

Scope of Delivery

Hardware	TH LINK PROFIBUS
Documentation	Installation Manual, Release Notes (by download)

Order Numbers

GEA-JN-003006	TH LINK PROFIBUS
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Additional Products and Services

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)
LRA-NN-021980	DTM Library
VAA-YY-023000	PACTware
VAA-NM-023001	TACC
TRA-PB-TECH	Training "PROFIBUS Technology"
TRA-PB-TS	Training "PROFIBUS Troubleshooting"

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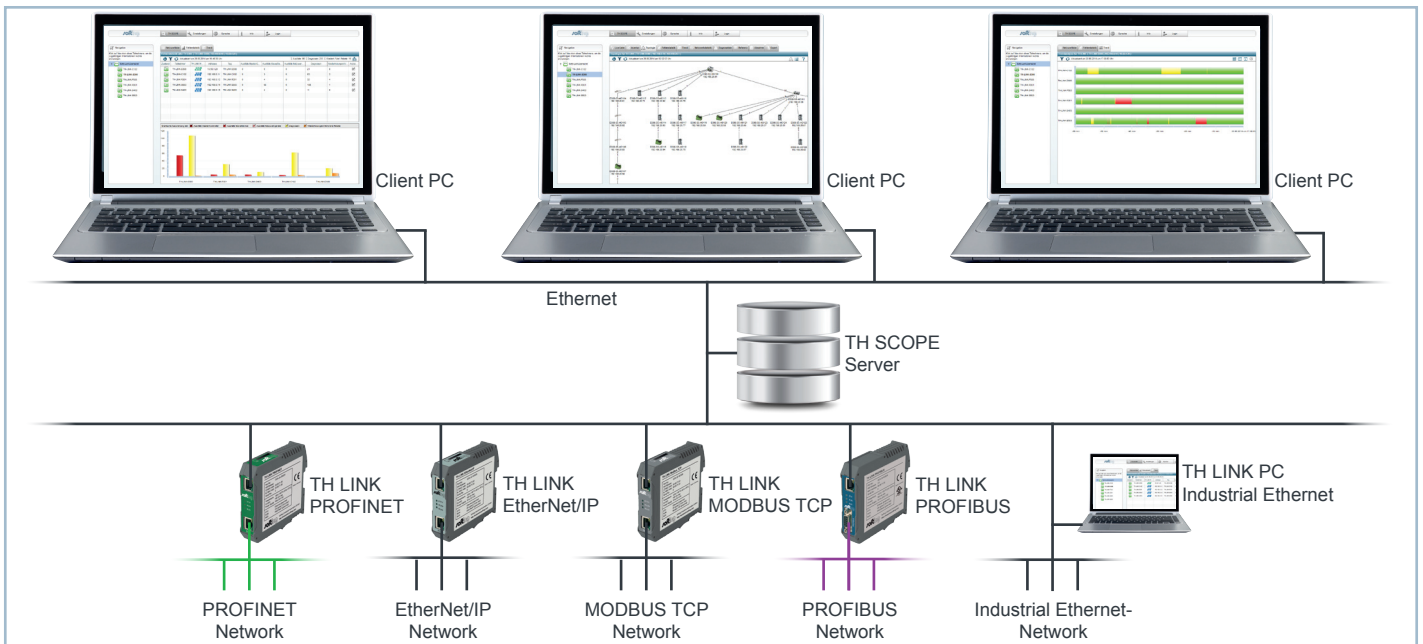
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TH SCOPE

Powerful, Efficient Diagnostics for Industrial Networks

The TH SCOPE software product provides powerful industrial network diagnostics for plant operators and maintenance engineers. TH SCOPE is an all-in-one, easy-to-use solution for continuous monitoring, acceptance testing and troubleshooting. Designed for use with TH LINK components, the product supports the PROFIBUS, PROFINET, EtherNet/IP and Modbus TCP protocols.



Versatile Solution for a Wide Variety of Diagnostics Applications

- > Network commissioning, acceptance testing
- > Stationary operation for continuous monitoring
- > Fault localization and identification in case of failure

Comprehensive Representation and Analysis of Diagnostic Data

- > Data on network communication (e.g. load, error statistics)
- > Data from network configuration (e.g. device names, firmware versions, topology)
- > Diagnostic messages (network and device diagnostics)
- > Data collection also from standard Ethernet devices (e.g. PCs or camera systems)

Optimized for Maintenance Users

- > Easy and intuitive handling and operation
- > No expert knowledge of IT or networks required
- > Support of various network protocols (PROFIBUS, PROFINET, EtherNet/IP, Modbus TCP)

Flexible Integration into Existing Systems and Processes

- > Integration of network data into monitoring tools and supervisory control systems via SNMP or OPC
- > Export of all diagnostic data, support of further processing in applications such as Excel
- > Web-based access, local or remote

Technical Data

Functionality	<ul style="list-style-type: none">• Network overview with network and device status plus diagnostic messages with troubleshooting recommendations• Analysis of device logs• Live list, statistics, inventory• Topology and trend analysis• Automatic e-mail notification in case of fault• Reference comparison• Acceptance measurements and acceptance reports• Data export via Excel
Supported Protocols	PROFIBUS, PROFINET, EtherNet/IP, Modbus TCP
Interfaces	<ul style="list-style-type: none">• SNMP Agent• OPC Classic DA Server
System Requirements	<ul style="list-style-type: none">• Web browser with Adobe Flash Player 10.0 or higher• Adobe Reader 8 or higher for reading the documentation and for printing the topology
Supported Operating Systems	Windows 7 (32 Bit and 64 Bit), Windows 8, Windows Server 2008, Windows Server 2012
Network Access	Data collection through TH LINK (PROFIBUS, PROFINET, EtherNet/IP, Modbus TCP and Industrial Ethernet)
Demo Version	Full TH SCOPE functionality can be used for free for 30 days after installation
Licensing	Via software or hardware key

Scope of Delivery

Software	TH SCOPE (by download from Softing's website http://industrial.softing.com)
License	Software or hardware key
Documentation	Installation Manual, User Manual, Release Note

Order Numbers

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)

Additional Products and Services

GEA-JN-003006	TH LINK PROFIBUS
GDA-JA-003034	TH LINK PROFINET
GDA-JC-003035	TH LINK EtherNet/IP
GDA-JE-003036	TH LINK Modbus TCP
GDA-JY-003037	TH LINK Industrial Ethernet
LRA-JY-003028	TH LINK PC Industrial Ethernet
TRA-PB-TECH	Training "PROFIBUS – Technology"
TRA-PB-TS	Training "PROFIBUS Troubleshooting"
TRA-PN-TECH	Training "PROFINET Technology"
TRA-PN-CERTENG	Training "PROFINET Commissioning and Troubleshooting"

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