PROFIBUS Tester 5 (BC-700-PB)

Mobile diagnosis of bus physics, communication and cabling

- Powerful mobile tool for diagnostics and troubleshooting in PROFIBUS networks
- High flexibility through stand-alone operation (without PC)
- Enhanced diagnostic features through PC-based software (Included)
- Protocol analysis of the PROFIBUS PA segments

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

Bus tester for mobile use, 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 (no computer required): bus status, signal quality, cable test, station localization, oscilloscope

Many additional features

- Executing, analyzing and managing tests (Trend, Topology Scan, Master Simulator, Oscilloscope, Frame Analyzer)
- Quick Test and User-Controlled Test for easy network status at the push of a button
- Generation of test reports describing status of the PROFIBUS installation
- Suitable for range of user types: novice to 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
# PROFIBUS Diagnostic Functionality

<table>
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<tr>
<th>Measurement Methods</th>
<th>Stand-alone Operation</th>
<th>PC-based Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable test</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Bus status (measurement of important parameters)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Signal quality</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quick test (network status)</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>User-controlled test (network status)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Trend (long-term recording of quality index and errors)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Topology (sequence of stations and distances)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Oscilloscope</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Frame recording and displaying</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Master Simulator</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

## Cable Test
- Cable Length | ✓ |
- Check of bus termination | ✓ |
- Detection wire break, shield break, short circuit | ✓ |
- Report of cable test results | ✓ |

## Bus and Network Status
- Idle voltage/baudrate, plugged to station | ✓ | ✓ |
- Number of masters/slaves/commissioned but not active | ✓ | ✓ |
- Network evaluation (protocol, signal quality, errors) | ✓ | ✓ |
- Network statistics (repetitions, diagnostic messages, TTR) | ✓ | ✓ |
- Station scan (Live List) including changes | ✓ | ✓ |
- Station evaluation (protocol, signal quality) | ✓ | ✓ |
- Station statistics (repetitions, diagnostic messages, quality index) | ✓ | ✓ |
- Comprehensive evaluation of network health | ✓ |
- Comprehensive protocol analysis including Live List and statistics | ✓ |
- GSD-based decoding of diagnostic messages | ✓ |

## Signal Quality
- Quality Index as bar graph | ✓ | ✓ |
- Signal-to-noise ratio and rise times | ✓ |

## Trending
- Long-term recording of quality index and errors | 1 | ✓ |

## Topology
- Active TDR measurement with graphical representation | ✓ |
- Passive station localization (non-interacting) | ✓ |

## Oszilloscope
- Signal representation A–B up to 384 MHz scan rate | ✓ | ✓ |
- Signal representation A-GND and B-GND up to 192 MHz scan rate | ✓ |
- Zoom/shift | ✓ | ✓ |
- Trigger: no trigger/level/address/error frames | ✓ | ✓ |
- Saving oscilloscope recordings | ✓ |

## Frame Recording
- Instant recording (ring buffer) | ✓ |
- Long-term recording (to files) | ✓ |
- Frame-controlled recording (trigger) | ✓ |
- Recording filter and display filter | ✓ |
- Comprehensive frame decoding | ✓ |

1 Test can be conducted and stored in stand-alone operation, evaluation of test results in PC mode only
# PROFIBUS Tester 5 (BC-700-PB)

## Technical Data

### DIAGNOSTICS FUNCTIONALITY

<table>
<thead>
<tr>
<th>Protocol and Frame Analysis</th>
<th>PROFIBUS DP-V0 and DP-V1, automatic baud rate detection in the range of 9.6 kbit/s ... 12 Mbit/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Analysis:</td>
<td>...via EIA-485, ...via MBP (requires optional adapter)</td>
</tr>
<tr>
<td>Fieldbus feeding voltage</td>
<td>0 V ... 35 V at 0.1 V resolution, signal level: 100 mV ... 1.200 mV at 10 mV resolution, signal polarity, bitrate divergence: ±1.2 % at 0.01 % resolution, signal sampling with 128 samples per bit</td>
</tr>
<tr>
<td>Test range:</td>
<td>±5 V at 10 mV resolution (differential), resolution (A or B to DGND); sampling rate: up to 384 Msamples/s; sampled points: 2,400 (signal details), 8,192 (oscilloscope analysis)</td>
</tr>
<tr>
<td>Topology Scan (N/A for MBP)</td>
<td>Test range: ±5 V at 10 mV resolution (differential), resolution (A or B to DGND); sampling rate: up to 384 Msamples/s; sampled points: 2,400 (signal details), 8,192 (oscilloscope analysis)</td>
</tr>
<tr>
<td>Oscilloscope Display (N/A for MBP)</td>
<td>Test range: ±5 V at 10 mV resolution (differential), resolution (A or B to DGND); sampling rate: up to 384 Msamples/s; sampled points: 2,400 (signal details), 8,192 (oscilloscope analysis)</td>
</tr>
<tr>
<td>Cable Test (N/A for MBP)</td>
<td>Test range: ±5 V at 10 mV resolution (differential), resolution (A or B to DGND); sampling rate: up to 384 Msamples/s; sampled points: 2,400 (signal details), 8,192 (oscilloscope analysis)</td>
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</tbody>
</table>

### Operation

- **Operation:** Via graphical colour display, four function keys and scrollwheel including central push-button or via PC/notebook.
- **Display Localization:** EN, DE, ES, FR, IT, PL, PTT
- **Power Supply:** Built-in three-cell lithium-ion battery. Used battery type: PA-L27.K02 (UN 38.3 certified).
- **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, adapter cables, carrying case, operating adapter BC-700-H1, measuring cable set for PROFIBUS PA option.
- **Software:** PROFIBUS Diagnostics Suite (PC software for Windows on CD-ROM), PROFIBUS Tester 5 (BC-700-PB) upgrade license on CD-ROM, for PROFIBUS PA option.
- **Documentation:** Device manual, “Getting Started” manual.

### Order Number

DDA-NN-006014 PROFIBUS Tester 5 (BC-700-PB)

### Additional Products and Licenses

- **LRA-NN-006011** License Oscilloscope Option
- **DDL-NL-006010** License PA-Option (+ cable set)
- **ACA-NN-006033** D-Sub to M12 adapter set with T-piece and M12 bus termination for PROFIBUS DP
- **DDA-ZZ-004010** Digital Fieldbus Leakage Current Clamp for Locating EMC Problems, 40 ... 1000 Hz, MIN/MAX, Data Hold, Measuring Cables, supplied in a Handy Case (fits in Empty Compartment of Carrying Case)
- **ACL-NL-006037** D-Sub Service Interface with Active Bus Termination and 90° Angled Connector for PROFIBUS DP
- **ACA-NN-006034** M12 Service Interface for PROFIBUS DP, Comprising M12 T-Piece, End Cap and M12 Connection Cable (1 m)
- **ACA-NN-006031** EIA-485 D-Sub adapter cable for testing operational networks with reduced influence on segment operation

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**Your local Softing contact:**

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