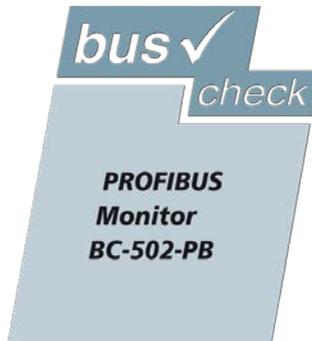


Manual

# PROFIBUS Monitor® BC-502-PB



*FW version 2.11*  
*2013-02-25*



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# 1 Introduction

## 1.1 General

The BC-502-PB PROFIBUS Monitor continuously monitors all traffic on the PROFIBUS DP network. When it detects critical changes that could cause unplanned system downtime, the tool automatically indicates that maintenance action is required.

Based on protocol analyses, the BC-502-PB determines the bus cycle times and monitors the following quality parameters:

- Error frames
- Retries
- Drop-outs / restarts
- Device errors (internal/external diagnostics)

One Monitor per bus line is all that is needed - no matter how many physical segments are to be monitored. The tool can be used on the live PROFIBUS without interfering with its operation. Using the BC-131-PB active PROFIBUS connection cable (optional accessory, not included in scope of delivery), it can be integrated into the fieldbus anytime, without undesirable side effects. No bus address or changes to the PLC program are required for setup and commissioning. In addition, the tool's open functionality allows use across all controller and bus device types.

## 1.2 Overview of Licenses

License	Description
Basic Line	Basic version with full monitoring, alarm and snapshot functionality as well as visualization via web interface
Comfort Line	Additional software option providing full featured frame analyzer (via USB interface)
Premium Line	Additional software option supporting SNMP requests for measurement data
Comfort Line Plus	Complete functionality of Comfort Line combined with Premium Line

## 2 Delivery Scope

Delivery includes:

- PROFIBUS Monitor® BC-502-PB
- 2 screw connectors for power supply and control signals
- Manual
- CD-ROM with protocol analysis software (as snapshot viewer) incl. PDF documentation

The protocol analyzer option additionally includes:

- USB connection cable, 2 m
- PROFIBUS protocol analyzer software manual

## 3 Optional Accessories

The active PROFIBUS connection cable offers a very easy way to connect the PROFIBUS Monitor to the fieldbus on a live PROFIBUS anytime – and without undesirable side effects – by using a 3 m spur.



Softing Order No.: BC-131-PB

## 4 Connectors and Status Displays

### 4.1 Connectors

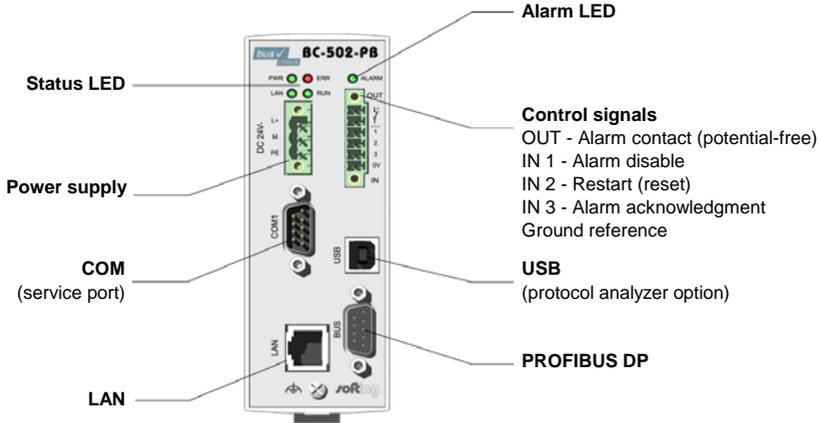


Fig. 1: Connectors

### 4.2 Status LEDs

LED	Color		Meaning
PWR	green	●	Power supply OK
LAN	green	●	Network connected
ERR	red	●	Device initialization or error
RUN	yellow	●	Baud rate detection
	flashing green	●	Measuring mode
ALARM	green	●	No unacknowledged alarms
	red	●	Alarms

## 5 Installation and Connection

### 5.1 Installation

The PROFIBUS Monitor is designed for top hat rail mounting (U-rail) in accordance with EN 50022 (35 x 7.5 mm or 35 x 15 mm).



Attention: To ensure proper cooling, please provide sufficient space to neighboring components:

- On the left and right: 20 mm
- On all other sides: 50 mm

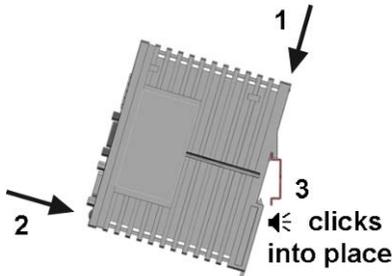


Fig. 2: Mounting on top hat rail

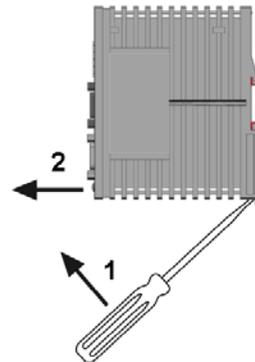


Fig. 3: Removal from top hat rail

### 5.2 Measuring Location

You can basically connect the PROFIBUS Monitor anywhere on a PROFIBUS DP network. The ideal measuring location is directly at the master or PLC. At this location, the tool can continue to analyze the bus communication even when lines are interrupted.

### 5.3 Connection to PROFIBUS DP

The PROFIBUS Monitor can be connected to the PROFIBUS DP network in three different ways, which are described below.

#### 5.3.1 Active PROFIBUS Cable

The BC-131-PB active PROFIBUS connection cable (optional accessory) offers a very simple way to connect the PROFIBUS Monitor to the fieldbus on a live PROFIBUS anytime – and without undesirable side effects – by using a spur. This method is also very useful if you want to connect the tool only temporarily. For this type of connection, you need a PROFIBUS connector with a free PG port in the existing system, directly at the PLC if possible. The settings for the terminating resistors of the existing connectors remain unchanged.

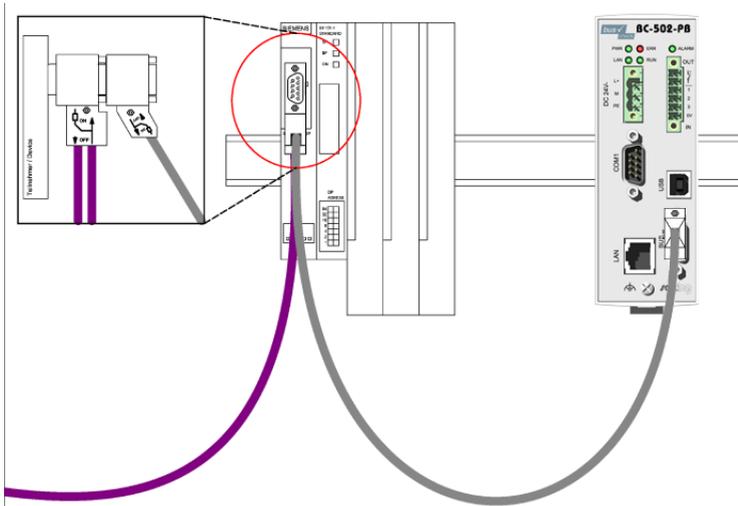


Fig. 4: PROFIBUS connection with active cable

If the existing PROFIBUS connector does not have a PG port, you can connect the BC-131-PB active PROFIBUS connection cable between the existing PROFIBUS connector and the PROFIBUS device (this method is not shown in the figure). In this case, you do not have to replace the connector with a PG connector.



**Attention:** The existing connection has to be interrupted temporarily, which in most cases will cause the plant to shut down.

### 5.3.2 At the Bus End

At the bus end, the bus is extended up to the Monitor, as shown in the illustration. To do this, use the free output of the PROFIBUS connector of the last device on the bus.



Attention: For this type of connection, you need to shut down the PLC and all the devices connected to the PROFIBUS, in other words, you need to shut down the whole plant.

Connect the Monitor with a piece of PROFIBUS DP cable (at least one meter long for 1.5 MBit/s or higher) fitted with a PROFIBUS connector (9-pin D-sub connector). Switch off the integrated terminating resistor (in most cases provided in the connector) in the last device on the bus. Set the terminating resistor in the Monitor to ON.

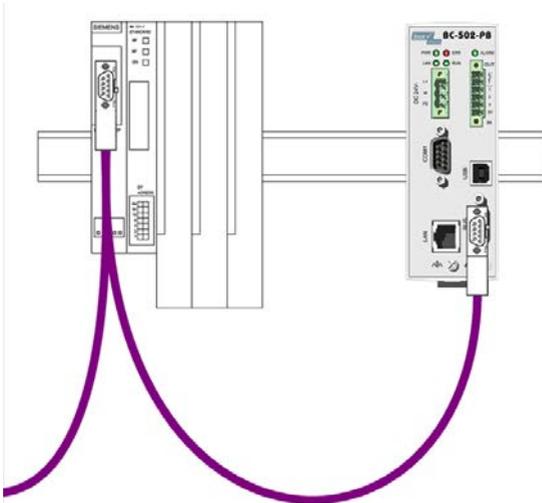


Fig. 5: PROFIBUS connection as last device

### 5.3.3 Loop-in

The Monitor is inserted between two existing devices on the bus. For this, you need to divide the bus.



Attention: For this type of connection, you need to shut down the PLC and all the devices connected to the PROFIBUS, in other words, you need to shut down the whole plant.

Connect the Monitor with a piece of PROFIBUS DP cable (at least one meter long for 1.5 MBit/s or higher) fitted with a PROFIBUS connector (9-pin D-sub connector). On the Monitor, set the terminating resistor integrated in the connector to OFF.

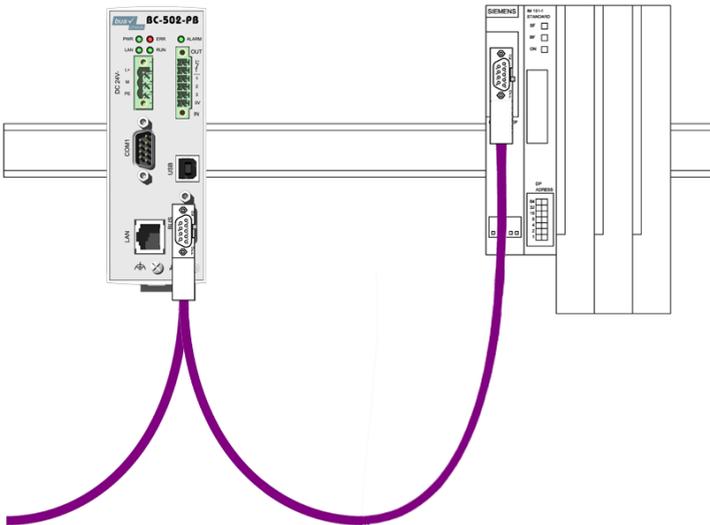


Fig. 6: “Looping in” the Monitor between two devices

## 5.4 Power Supply

An external 24 VDC power supply is required for operation. Use the supplied connector to connect the power supply to the PROFIBUS Monitor. Connect the PE contact to the local ground of the control cabinet (functional ground).



Attention: Observe the correct polarity when connecting the PE contact. Do not connect the PE contact to the protective ground conductor.



Attention: The stored measurement data will be lost in the case of power failure or temporary power interruption.

## 6 Commissioning

### 6.1 First Connection to the Network

The PROFIBUS Monitor is delivered with the following default network configuration:

Monitor's IP address	:	192.168.212.212
Monitor's subnet mask	:	255.255.255.0

In most cases you will have to change the default setting. How this is done is described below using Windows XP as an example.

Connect the PROFIBUS Monitor to your PC or notebook by using a standard crossover patch cable (not included in delivery).



When you switch on the power supply, every Monitor will check during startup whether the default IP has been assigned on the network. If it is, the Monitor will not be fully activated.

On your Windows PC, click START -> Settings -> Network Connection and open the Local Area Connection. Please note that the "LAN" connection might be named differently on your PC. In the "Local Area Connection Properties" dialog box, open the "General" tab, select "Internet Protocol (TCP/IP)" and click "Properties." The "Internet Protocol (TCP/IP) Properties" dialog box appears. Select the "Alternate Configuration" tab and click "User configured."



Attention: If this tab already contains entries, note them down in case you need to restore the settings later.

Now make the following entries:

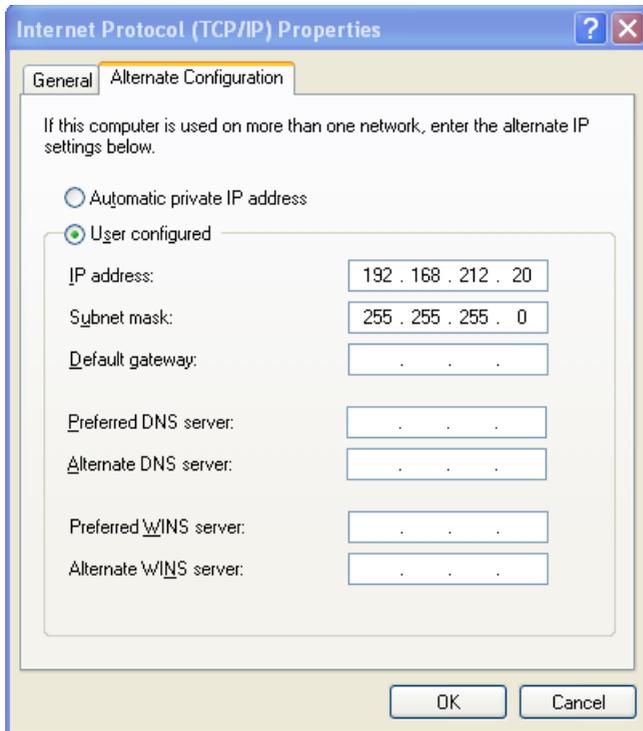


Fig. 7: Network configuration in the PC (Windows XP)

Click OK twice to confirm the open dialog boxes. Your network configuration is changed.

Start the web browser (Microsoft Internet Explorer Version 6 or above, or Mozilla Firefox Version 2 or above; Java Script must be enabled) and type in the following address: <http://192.168.212.212> . You can now access the PROFIBUS Monitor's web interface (see Web Interface chapter on page 22). Here, you can also change the Monitor's network configuration, if required. To do this, select Settings -> System -> Network. See also the Network Settings chapter on page 26. The user name and password for logon are factory preset to "config".



Attention: Enter the new IP address in the relevant field on the ID plate, which is provided on the right side of the housing. The PROFIBUS Monitor cannot be accessed without this address.

### 6.1.1 Case 1 - Local Access Only

In this case, the PROFIBUS Monitor is NOT integrated into an existing network. You can either continue by using the “Alternate Configuration” set for the LAN connection in your PC, or assign a different free and available IP address to the Monitor. The IP addresses of Monitor and PC must belong to the same subnet.

### 6.1.2 Case 2 - Network Integration

In this case, the PROFIBUS Monitor is integrated into an existing network. Ask your network administrator for the appropriate manual or automatic (DHCP) setting of the network configuration. You can then connect the Monitor via a standard patch cable to an existing switch or hub, and thus to the LAN.



Attention: When you select automatic address assignment via DHCP, the Monitor cannot be accessed as described in [6.1](#) any longer. Resetting this feature outside a network with a DHCP server is only possible using Softing's “Search & Configure” tool – see page [28](#).

### 6.1.3 Other Basic Settings

#### 6.1.3.1 Internal Date and Time

The date and time set in the PROFIBUS Monitor is displayed on the Overview startup page. If the time is not correct for your time zone or daylight saving time, you can adjust it under Settings -> System -> Time/Date.

#### 6.1.3.2 Measuring Location

The measuring location of the currently selected PROFIBUS Monitor is always shown at the top of the screen. To assign a location name, select Settings -> Designations and enter the name in the top line of the table. Assigning location names makes it easier to distinguish multiple Monitors on the network.

#### 6.1.3.3 Favorites/Bookmarks

Save the Monitor as a favorite or bookmark in your web browser and name the favorite/bookmark after the measuring location.

#### 6.1.3.4 Language

When you start the PROFIBUS Monitor, it opens with the German web interface by default. To start with the English web interface, click the national flag icon and then bookmark the Monitor or save it as a favorite.

## 6.2 Measuring Procedure – First Steps

### 6.2.1 Startup and Segment Detection

The PROFIBUS Monitor powers up automatically as soon as you connect it to the power supply; the ERR LED is red. The device then tries to detect a connected active bus segment. The RUN LED is yellow. When this process is complete, the device changes to measuring mode and starts measuring. The RUN LED flashes green. The entire startup process will take a minute, max.

If the bus communication is interrupted or the baud rate is changed, the Monitor automatically restarts the segment detection after approx. 2 minutes.

### 6.2.2 Factory Preset Alarm Defaults

The Alarm, Alarm Contact and Snapshot functions are enabled by default. The quality parameters are set to maximum sensibility. See also the Settings – Alarms/Snapshots section on page [25](#).

If no errors are detected with these settings over a prolonged period of time, you can say with some certainty that the tested bus segment is error-free.

However, to determine segment health with absolute certainty you need to carry out a complete baseline measurement first. You can run this measurement using the PROFIBUS Tester 3 and the BC-400-PB Protocol Analyzer, which also provide you with a comprehensive test report on bus physics and bus communication.

### 6.2.3 Error Indication

When you run the PROFIBUS Monitor with the default settings, detected errors are indicated in the following ways:

- The ERR LED turns red
- The potential-free contact closes, the relay clicks audibly
- The web interface shows the following details on the Overview startup page:
  - Counts greater than zero in the left-hand table under Events
  - Alarm count greater than zero in the right-hand table under Events, color changes to red
  - Status colors are no longer green under PROFIBUS Devices

In addition, the PROFIBUS Monitor enters the error in the Alarm List and displays a trace log under Snapshots.

### 6.2.4 Evaluation, Threshold Adjustment and Troubleshooting

All the information regarding error events and the status of each device on the bus is shown on the Overview startup page of the web interface.

Generally neither error frames nor device drop-outs should occur. If they do, this is always a sign that there are faults that have to be corrected.

Retries may well be permitted in special cases, which depend on the segment length, the baud rate, and the number and type of PROFIBUS devices. If – and how many – retries are permitted has to be decided on a case to case basis. In the Extended View of the Alarms/Snapshots settings, you can then set the Retries threshold to a value greater than “1” for a specific device only.

Not all diagnostics are relevant to PROFIBUS device faults. Which of them are depends on the device type and its configuration in the PLC program, so that this decision also has to be made on a case to case basis. In the Extended View of the Alarms/Snapshots settings, you can set the Internal Diagnostics and/or External Diagnostics threshold to a value greater than “1” for a specific device only, or disable it for that device by entering “0”.

### **6.2.5 Troubleshooting**

The best approach when looking for the cause of communication faults, such as error frames or retransmission, is to start by ignoring the diagnostics for all PROFIBUS devices. This is done by entering “0” for the threshold settings of each device.

To find the cause of device faults, on the other hand, it is the diagnostics that are relevant.

If you are uncertain how to evaluate the measurement results, you should have your network tested by a PROFIBUS specialist. The specialist will find and correct any existing faults, and set the appropriate threshold values for your system.

## 7 Quality Parameters

### 7.1 Drop-outs

The PROFIBUS Monitor detects drop-outs in two different ways:

#### 1. Detection of parameter frames

A PROFIBUS device receives a parameter frame from the bus master when it needs to be newly added to the bus (restart) or when the device has transmitted a diagnostic frame requesting parameterization. In all three cases, the PROFIBUS device cannot exchange user data any longer and is thus considered dropped.

#### 2. No reply from PROFIBUS device

PROFIBUS devices are only parameterized when they are started or restarted (after drop-out). Even if no parameter frame occurs during monitoring, the PROFIBUS Monitor can still determine a device failure from the missing reply.

### 7.2 Diagnostics

If a fault or exception condition occurs in a PROFIBUS device, the master is informed by one of the following three frame types:

- DH response, regular diagnostic message that occurs when an error state has newly occurred, changed or gone away during cyclic data exchange; e.g. if a wire of an external sensor breaks at an analog 4-20 mA input – the Monitor interprets this frame as “External Diagnostics”
- RS response when a service request received previously from the master cannot be executed because of an error (in that case DP slaves are usually no longer in cyclic data exchange); e.g. in case of an internal fault in a remote I/O module, causing incomplete or no data to be supplied – the Monitor interprets this frame as “Internal Diagnostics”
- RR response in the case of a dynamic overload that prevents saving and processing the frame received previously from the master – the Monitor interprets this frame as “Internal Diagnostics”

The devices' responses regarding the diagnostics vary from manufacturer to manufacturer; there is no standardization in that respect. Some devices do not distinguish between external and internal diagnostics and only report one type. This means that, when in doubt, you need to check every diagnostic message in order to see if the message results from normal process behavior or from a fault in the device.

### 7.3 Error Frames

Even though the PROFIBUS is protected against possible transmission faults, frames can nevertheless be falsified during physical data transfer. Frame errors include, for example, character format errors, incorrect start and end delimiters, frame check byte errors or incorrect frame lengths.

There are three different reasons for error frames:

- Falsification through electromagnetic disturbances
- Defective RS485 driver in the sending device
- Interferences due to duplicate addresses

### 7.4 Retries

If a PROFIBUS device does not respond within a predefined time, or if the master receives a frame containing information it cannot interpret, the master requests the device concerned to retransmit the data. How often such a request is transmitted per cycle depends on the retry limit set in the master.

When analyzing the PROFIBUS, the Monitor distinguishes between two retry types:

- Max. Retries per Bus Cycle
- Total Retries

When determining the Max. Retries per Bus Cycle, the PROFIBUS Monitor counts the maximum number of requests retransmitted to a device during a bus cycle. When a device fails, the value displayed corresponds to the set retry limit.

Under Total Retries, the Monitor determines the total count of all retransmissions that have occurred.

## 7.5 Bus Cycle Time

In a PROFIBUS DP V0 network (cyclic operation), all PROFIBUS devices are addressed once per bus cycle. The time it takes the master to complete a cycle is called the bus cycle time. When the PROFIBUS network is operating properly, the bus cycle time is nearly always constant. If faults occur on the network, the cycle time will vary increasingly. The PROFIBUS Monitor measures these deviations and indicates the results under Bus Cycle Time Min/Mean/Max. This helps you to detect faults on the network at an early stage.

## 8 Web Interface

### 8.1 Startup Page/Overview

**Measuring Location: Demo DP+PA #1**

**bus check BC-502-PB PROFIBUS Monitor**

**Events**

Event / Time Period	Last Minute	Last Period 24h	History 27ms
Restart	0	5	5
Internal Diagnostics	0	1	1
External Diagnostics	0	13	13
Error Frames	0	0	0
Max. Retries per Bus Cycle	0	2	2
Total Retries	0	3	3
Condition in %	100	0	0
Bus Cycle Time Min/Mean/Max [ms]	1.43/1.58/1.68	1.29/1.58/1.7	1.29/1.58/1.7
Last SNMP Request	-	-	-

**PROFIBUS Devices (Most Critical State is Displayed)**

Time Period: Events  
History: Please Select

Master: OK, Warning, Error  
Slave: OK, Warning, Error

0	1	2	3	4	5	6	7	8	9
Device 0 Location 0	Device 1 Location 1	Device 2 Location 2	Device 3 Location 3	Device 4 Location 4	Device 5 Location 5	Device 6 Location 6	Device 7 Location 7	Device 8 Location 8	Device 9 Location 9
Device 10 Location 10	Device 11 Location 11	Device 12 Location 12	Device 13 Location 13	Device 14 Location 14	Device 15 Location 15	Device 16 Location 16	Device 17 Location 17	Device 18 Location 18	Device 19 Location 19
Device 20 Location 20	Device 21 Location 21	Device 22 Location 22	Device 23 Location 23	Device 24 Location 24	Device 25 Location 25	Device 26 Location 26	Device 27 Location 27	Device 28 Location 28	Device 29 Location 29
Device 30 Location 30	Device 31 Location 31	Device 32 Location 32	Device 33 Location 33	Device 34 Location 34	Device 35 Location 35	Device 36 Location 36	Device 37 Location 37	Device 38 Location 38	Device 39 Location 39
Device 40 Location 40	Device 41 Location 41	Device 42 Location 42	Device 43 Location 43	Device 44 Location 44	Device 45 Location 45	Device 46 Location 46	Device 47 Location 47	Device 48 Location 48	Device 49 Location 49
Device 50 Location 50	Device 51 Location 51	Device 52 Location 52	Device 53 Location 53	Device 54 Location 54	Device 55 Location 55	Device 56 Location 56	Device 57 Location 57	Device 58 Location 58	Device 59 Location 59
Device 60 Location 60	Device 61 Location 61	Device 62 Location 62	Device 63 Location 63	Device 64 Location 64	Device 65 Location 65	Device 66 Location 66	Device 67 Location 67	Device 68 Location 68	Device 69 Location 69
Device 70 Location 70	Device 71 Location 71	Device 72 Location 72	Device 73 Location 73	Device 74 Location 74	Device 75 Location 75	Device 76 Location 76	Device 77 Location 77	Device 78 Location 78	Device 79 Location 79
Device 80 Location 80	Device 81 Location 81	Device 82 Location 82	Device 83 Location 83	Device 84 Location 84	Device 85 Location 85	Device 86 Location 86	Device 87 Location 87	Device 88 Location 88	Device 89 Location 89
Device 90 Location 90	Device 91 Location 91	Device 92 Location 92	Device 93 Location 93	Device 94 Location 94	Device 95 Location 95	Device 96 Location 96	Device 97 Location 97	Device 98 Location 98	Device 99 Location 99
Device 100 Location 100	Device 101 Location 101	Device 102 Location 102	Device 103 Location 103	Device 104 Location 104	Device 105 Location 105	Device 106 Location 106	Device 107 Location 107	Device 108 Location 108	Device 109 Location 109
Device 110 Location 110	Device 111 Location 111	Device 112 Location 112	Device 113 Location 113	Device 114 Location 114	Device 115 Location 115	Device 116 Location 116	Device 117 Location 117	Device 118 Location 118	Device 119 Location 119
Device 120 Location 120	Device 121 Location 121	Device 122 Location 122	Device 123 Location 123	Device 124 Location 124	Device 125 Location 125	Device 126 Location 126	Device 127 Location 127	Device 128 Location 128	Device 129 Location 129

Fig. 8: Startup page of the web interface

On the left, you see the navigation area. With the two icons below it, you can toggle between the English and German interface languages.

The measuring location is given at the top of the screen. This is particularly useful when you are using multiple Monitors to monitor the network.

The actual workspace is provided under Overview. It is divided into the Events and PROFIBUS Devices boxes.

### 8.1.1 Events

The Events box displays the following three time periods:

- Last Minute
- Last Period (user-definable time frame)
- History (since last power-up)

For each time period, the PROFIBUS Monitor indicates the total count of all error events, the bus cycle times, and the time of the last SNMP request (only with SNMP software option).

In the table on the right, you will find the number of alarms (click to open the alarm list) as well as the baud rate and the Monitor's internal temperature and time of day.

### 8.1.2 PROFIBUS Devices

Here, all the PROFIBUS devices detected by the Monitor are sorted by address and displayed in a matrix. The most critical device states that occurred during the selected time period are shown in color.

When you are using the default settings, the matrix indicates the user-defined designations of the devices and their locations.

In the selection box, you can choose under "Events" for which bus device you want to display the error events. Alternatively, hover the mouse over a matrix field to show a table of all the error events that have occurred for this device.

## 8.2 Alarm List

The Alarm List displays the last 100 alarms with the date and time of their occurrence, the respective error event, the device address concerned, and the threshold value that was exceeded.

### 8.3 Snapshots

A snapshot is a trace log containing max. 500 frames. There are three different types of snapshots:

- Up to eight threshold-controlled snapshots containing captures of the entire bus communication (the trace starts shortly before and ends shortly after an error event, parameterization see page 25)
- A snapshot containing the last 500 diagnostic frames
- A snapshot containing the last approx. 500 diagnostic messages in advance of a complete bus breakdown

You can download snapshots to a notebook or PC by clicking the disk icon in the last column. They can be analyzed using the Frames function of the supplied PC software “PROFIBUS Diagnostics Suite”.

No.	Time Stamp	Address	Protocol	Primitive	Service	Data
40561	11:06:00.392728	2 -> 92	FDL	Request	FDL STATUS	
40562	11:06:00.393272	2 -> 2	FDL	Request	TOKEN	
40563	11:06:00.393418	2 -> 10	DP	Request	DATA EXCHANGE	01
40564	11:06:00.393663	2 <- 10	FDL	Response	SC	
40565	11:06:00.393764	2 -> 11	DP	Request	DATA EXCHANGE	00 00 00 00 00
40566	11:06:00.394100	2 <- 11	DP	Response	DATA EXCHANGE	01 51 41 B6 73 10 47
40567	11:06:00.394532	2 -> 13	DP	Request	DATA EXCHANGE	00
40568	11:06:00.394786	2 <- 13	DP	Response	DATA EXCHANGE	00
40569	11:06:00.395086	2.62 -> 12.60	DP	Request	DIAGNOSIS	
40570	11:06:00.395740	2.62 -> 14.60	DP	Request	DIAGNOSIS	
40571	11:06:00.396396	2 -> 93	FDL	Request	FDL STATUS	
40572	11:06:00.396940	2 -> 2	FDL	Request	TOKEN	
40573	11:06:00.397086	2 -> 10	DP	Request	DATA EXCHANGE	01
40574	11:06:00.397331	2 <- 10	FDL	Response	SC	
40575	11:06:00.397434	2 -> 11	DP	Request	DATA EXCHANGE	00 00 00 00 00
40576	11:06:00.397769	2 <- 11	DP	Response	DATA EXCHANGE	01 51 41 B6 73 10 47
40577	11:06:00.398202	2 -> 13	DP	Request	DATA EXCHANGE	00
40578	11:06:00.398456	2 <- 13	DP	Response	DATA EXCHANGE	00

PROFIBUS Frame

- Time:00:00:29.670100
- Frame Type
  - Type:SD2
  - Source address:11
  - Destination address:2
- FDL Service
  - Service:DL
  - Primitive:Response
  - Type:Slave
  - Status
- DP Service
  - Data Exchange - Diag. Flag: 01 - No
  - Data Exchange - Input Data: 01 51 41 B6 73 10

00H: 01 51 41 B6 73 10 47

Fig. 9: Frames view of the PC software

Attention: As the snapshots contain only a very short recording of the bus traffic a proper display of the Live List in the tab Protocol will not always be possible reliably.

## 8.4 System Information

This option provides the following information that is not relevant to the measuring mode:

- Internal device status
- Network settings and statistics
- Running time of the system; CPU and memory utilization
- Firmware and hardware versions, serial numbers, license
- Usage log

## 8.5 Settings

### 8.5.1 Alarms/Snapshots

Here you can activate alerting, select the action to be taken and set the threshold parameters. The settings can either be made for all PROFIBUS devices in one go or separately for each device by opening the Extended View.

*Thresholds, Alerts and Snapshot Settings*

Alerting On/Off	Device	Threshold				Action		
		Per 5 Seconds				Per Bus Cycle	Alarm LED, Switch, SNMP Trap	Snapshot
		Drop-Out	Internal Diagnostics	External Diagnostics	Error Frames	Retries		
<input checked="" type="checkbox"/>	All	<input type="text" value="1"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
							Frames before event:	<input type="text" value="250"/>
							Frames after event:	<input type="text" value="250"/>

Save Thresholds Extended View

Fig. 10: Factory defaults for alerting (highest sensitivity level)

The PROFIBUS Monitor can record up to 500 frames in the period surrounding an error event.

### 8.5.2 Time Period

The Overview startup page provides three overlapping time periods for which the error events are shown separately. The one in the middle is named “Last Period” and can be set by the user in a range from 1 to 120 hours. The default is 24 hours.

### 8.5.3 Device Designations

Choose this option to assign freely selectable names to the Monitor's measuring location and to the PROFIBUS devices and their locations. These names are displayed in the Overview startup page.

### 8.5.4 Drop-Out Detection

Here you can select three profiles which determine how drop-outs of bus devices are detected

1. Standard: A drop-out is detected not until at a restart (new parameterization by the master).
2. Live List: Drop-outs are detected due to changes in the PROFIBUS devices table. This profile is factory setting. Attention: At networks with heavy physical issues too many bus devices can be found.
3. Presets: Comparison against a table which is filled manually with all existing bus devices.

### 8.5.5 State Calculation

Here you can define how the characteristic value of the network condition on the start page/"Overview" in the "Events" section is calculated.

### 8.5.6 System

#### 8.5.6.1 Default Language

Here you can select German or English as the default language.

#### 8.5.6.2 Network

Here the network configuration can be changed. The IP address can be assigned manually or automatically via DHCP. See also the Commissioning chapter on page [13](#). The "Maintenance IP Address" setting must not be changed!

#### 8.5.6.3 SNMP/LLDP

Here you can change the SNMP/LLDP configuration. These settings are only relevant when you are using the software option for SNMP network requests.

#### 8.5.6.4 Time/Date

With these parameters you can manually set the date and time. Alternatively, you can enter the IP address of a time server to have the date and time updated automatically.

#### 8.5.6.5 Password

Here you can change the user name and password for logon. The default setting for both fields is "config".

#### 8.5.6.6 License

When you add software options later on, you can enable the relevant licenses here.

#### 8.5.6.7 Firmware

Here you can update the firmware, when required. The Monitor will automatically restart when the update is complete. To ensure correct representation, you need to restart the web browser.

If problems occur after initialization of the Monitor (red ERR LED goes on and then off again) following a firmware update, e.g. when opening the web interface or scanning for PROFIBUS communication, briefly disconnect the Monitor from the power supply.

You can optionally also restore the factory defaults. In this case, all the settings you made are deleted except for the network configuration.

#### 8.5.6.8 Restart

Choose how long the PROFIBUS Monitor should wait before reinitialization if an internal error has occurred.

A restart (software reset) can be initiated if required.

## 9 Troubleshooting

Problem	Causes and remedies
All the Monitor's LEDs are off, the web interface is not available	Possible cause: <ul style="list-style-type: none"> <li>• Power supply interrupted</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• (Re-)Connect 24 VDC power supply</li> </ul>
ERR LED is permanently lit red	Possible cause: <ul style="list-style-type: none"> <li>• Internal device error</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Return the unit for servicing</li> </ul>
RUN LED is permanently lit yellow	Possible cause: <ul style="list-style-type: none"> <li>• No communication on the PROFIBUS</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Check cabling and PLC communication</li> <li>• If the problem persists, briefly disconnect the Monitor from the power supply</li> </ul>
RUN LED and ERR LED are both not lit	Possible cause: <ul style="list-style-type: none"> <li>• IP address conflict with a device on the connected network</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Remove the Monitor from the network and reconfigure the Monitor's IP address (direct connection to PC/notebook using crossover patch cable)</li> </ul>
Monitor's web interface is not (or no longer) available, or IP address is unknown	Possible causes: <ul style="list-style-type: none"> <li>• IP address was changed and stored either incorrectly in the Monitor or not at all</li> <li>• Monitor was configured for automatic IP address assignment via DHCP, but is no longer connected to a network with a DHCP server</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Use Softing's "Search &amp; Configure" tool, see FAQs on the web</li> </ul> Alternative cause: <ul style="list-style-type: none"> <li>• Use of the wrong patch cable or patch cable damaged</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Use a crossover cable for direct connection to a PC/notebook and a standard patch cable for connection to a switch; replace defective cabling</li> </ul>

Problem	Causes and remedies
Web interface is not displayed properly	Possible cause: <ul style="list-style-type: none"> <li>• Java Script has been disabled</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Enable Java Script in your web browser settings</li> </ul>
Internal temperature is displayed with 0° C	Possible cause: <ul style="list-style-type: none"> <li>• Initialisation not complete, e.g. after firmware update</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Disconnection from power supply for a short moment – attention: all measuring data will be lost</li> </ul>
Display of user-specific designations is not correct	Possible cause: <ul style="list-style-type: none"> <li>• Update problem of web browser, depending of typ and version of web browser</li> </ul> Remedy: <ul style="list-style-type: none"> <li>• Reload view in the web browsers tool bar</li> </ul>

FAQ on the web:

<http://industrial.softing.com/en/support/profibus.html>

## 10 Specifications

Power supply	DC 24 V +/-20 %, typ. 0,3 A, max. 1 A
PROFIBUS	Protocols: DP, DPV1, FMS, MPI Connection: 9-pin D-sub Baud rates: 9.6 kbps – 12 Mbps
Ethernet	100BASE-TX, 10BASE-T Connection: RJ45 IP address: manual or automatic (DHCP)
RS232	Reserved
USB	Only available with optional Comfort Line licens
Control signals	Potential-free contact 3 inputs DC 24 V, active-high
Dimensions	H x W x D: 131 x 47 x 111 mm
Weight	approx. 0,4 kg
Mounting	35 mm DIN top hat rail
Degree of protection	IP 20
Operating temperature	5 °C to 55 °C
Storage temperature	-20 °C to 70 °C
Certifications	CE, FCC, VCCI

## 11 GPL Information

The PROFIBUS Monitor uses the following components under GNU General Public License:

- Linux
- RTAI
- Busybox
- PPCBoot
- OpenLLDP

Information on the GNU GPL is available on the Internet at: <http://www.gnu.org/licenses/gpl.html>

These components are used in the PROFIBUS Monitor's operating system component. The PROFIBUS Analyzer application does not use any code under the GPL license.

The source code of these components is available for download from: [ftp://ftp.softing.com/pub/outgoing/GPL/INspektor\\_GPL.zip](ftp://ftp.softing.com/pub/outgoing/GPL/INspektor_GPL.zip)



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