9 Good Reasons For Choosing the Profibus Tester 4

Peter Jüngling
Channel Sales Manager
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The NEW Profibus Tester 4

Profibus troubleshooting has never been so easy!

Contents:

1 – Stand-Alone-Mode

rapid network analysis without a PC

Display and keyboard of Profibus Tester 4

DP Segment
R=0 Qmin = 4248
E=0 Qmax = 4942
Bus device(s) ->

Measured from Master (left end):
All signals are good from this end

DP Segment
R=3 Qmin = 217
E=0 Qmax = 4942
Bus device(s) ->

Measured from Slave (right end):
3 frame repetitions and a bad minimum signal from other end: Here you need to start analysing with your PC

This is unique:
You do not need a PC to prove whether your network is good or whether maintenance is required.

Use the ***Quick-Test*** with ***Stand-Alone-Mode*** to make a first and simple check on communication and signal quality from both ends of a network:

Communication:
R=3: there were 3 frame repititions during ***Quick-Test***
E=0: there were no error frames during ***Quick-Test***

Signal Quality:
Qmin: indicates the minimum signal quality in the network
Qmax: indicates the maximum signal quality in the network

Conclusion:
- If R=0 and E=0 and all signals are fine in both tests your segment is good. <u>There is no need for further tests</u>
- If there are repititions, error frames or bad signals while measured from one end this tells you that you will have to do further testing from there.
  <u>Now you know from where to trace the problem and you can connect your PC for troubleshooting</u>

2 – Disturbance-Free Measurement

Essential for all networks

BC-600-PB-CB-DSUB1:
Low Impact Adapter Cable

Consider the following „worst-case“ situation:
While checking a critical Profibus network during operation the network breaks down when connecting your analysing tool.
This is the „nightmare“ for all maintenance personal and might cause severe trouble.
To avoid this Profibus Tester 4 is especially designed for disturbance-free online monitoring of Profibus networks:

- Profibus Tester 4 is acting as a „sniffer“ and will not be detected as a device on the network
- Profibus Tester 4 features full galvanic isolation
- Profibus Tester 4 comes with an optional advanced adapter cable (BC-600-PB-CB-DSUB1) which minimizes any impact on the network

Quote from Fieldbus-Specialist Hans-Ludwig Göhringer:
My special focus is on EMC, so I highly appreciate that the unit features appropriate electrical isolation. Speaking from my own experience I cannot stress enough how important it is to use a bus tester with electrical isolation.

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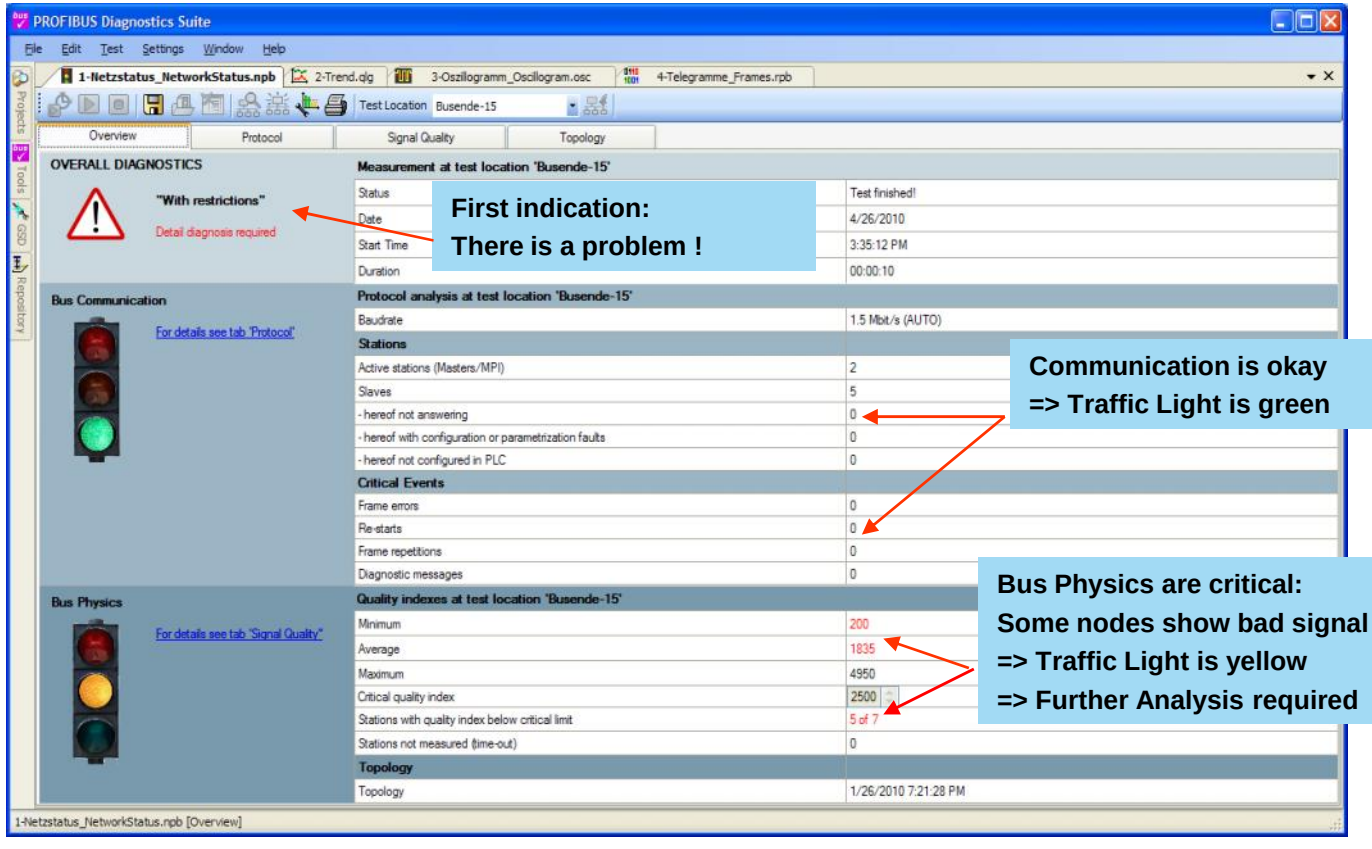
3 – Overview Window

The most important information is just one click away

See at a glance:

- is your network OK or do you need more detailed analysis ?
- in case of problems: are they related to communication or to bus physics ?



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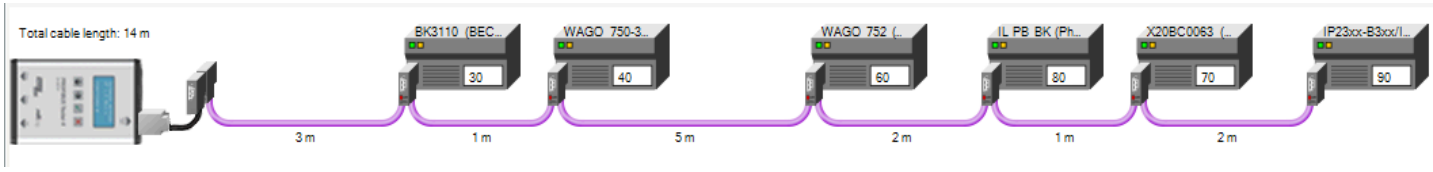
4 – Topology Scan

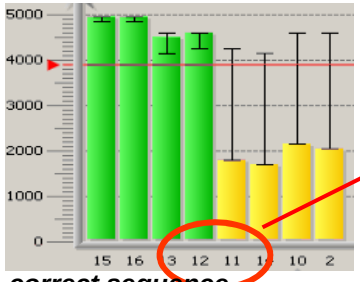
Why a correct topology scan is so important



In most Profibus networks the physical layout bears little or no relation to the Profibus addresses.

Profibus Tester 4 gives you:

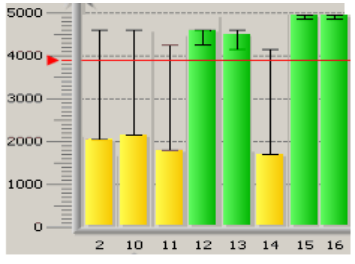
- the correct sequence of the Profibus nodes for easy location of failures
- the complete cable length: is your network too long for your baudrate?
- the distance between the nodes



correct sequence

Correct Sequence as shown by Profibus Tester 4:
Here you can see a significant drop between node 11 and 12 due to high transient resistance (e.g. corrosion in the Profibus cable).

This feature is a great help to localize problems!



wrong sequence acc. to node number

Wrong Sequence:

This view shows the same network sorted by node-No.

The sequence of the nodes is wrong!

Would you be able to localize the problem in this view?

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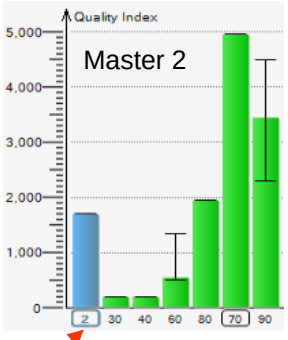
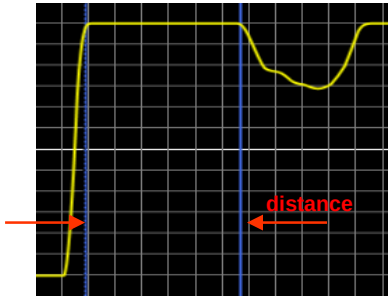
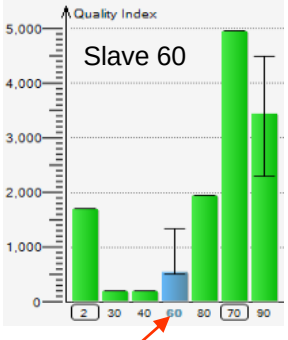
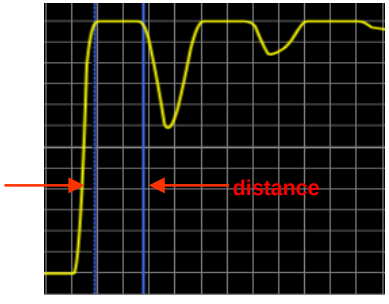
5 – Oscilloscope

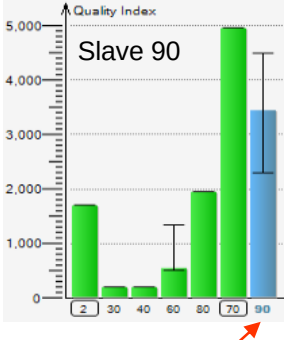
Identify and localise potential failures by wave form analysis

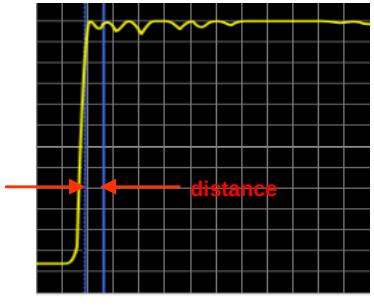












These graphs show the signal shape from 3 different stations:

- Master No. 2 at the left end of the network
- Slave No. 60 in the middle of the network
- Slave No. 90 at the right end of the network

In the oscilloscope view you can clearly see that the signals of the respective nodes are distorted by reflections.

Please note:
The distance between the rising edge of the signal and the position of the reflection indicates the distance between the respective node and the cause of the reflection

These three oscilloscope views show that the distance to the cause of the reflection is decreasing the closer you come to the right end of the network at slave No. 90.
In this case the reflections are caused by a missing terminator at slave No. 90

6 – Retries, Diagnostic Frames, Restarts

What they tell you for preventive maintenance

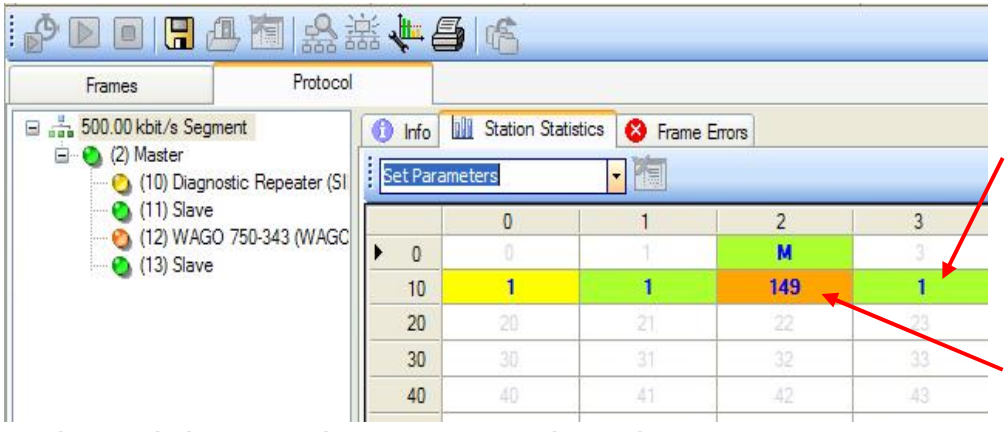
Provides an easy way to predict potential breakdown situations

Problems can build up even if the network appears to be functioning normally.

Breakdowns can be predicted by monitoring specific frames like

- Retries,
- Set Parameter (restarts),
- Get Diagnosis

Profibus Tester 4 offers you an overview of these specific frames at a glance!



Station Statistics on Retries, Set Param and Get Diag

Preventive Maintenance becomes easy!

- small number of events (Retries, Set Param, Get Diag) can be tolerated by the bus
- larger numbers indicate potential failures

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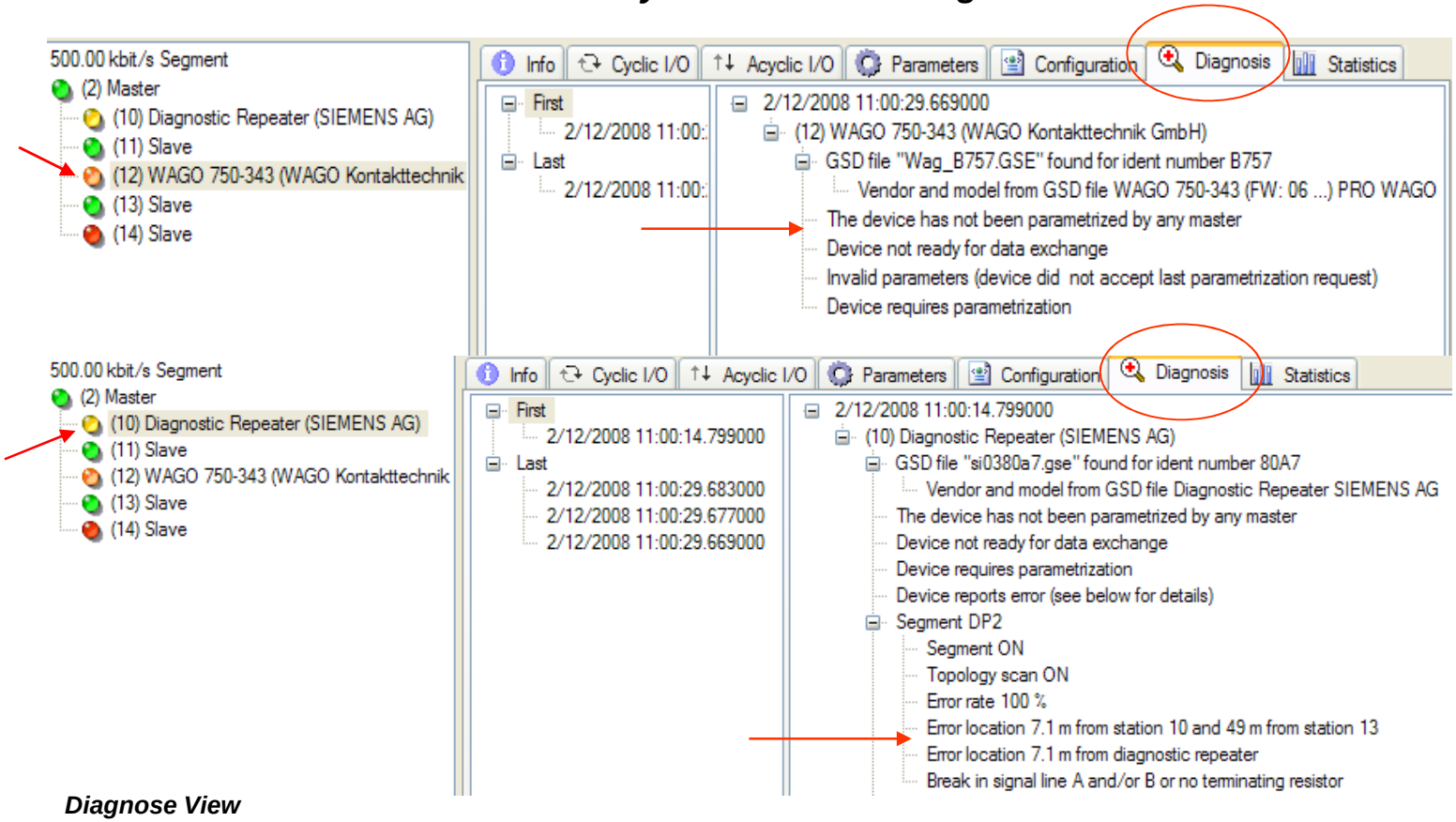
7 – Display of Diagnostic Messages

Displayed in plain text instead of HEX strings

Below are examples of diagnostic messages in plain text from a WAGO slave and from a Siemens Diagnose Repeater.

Reading the log gives a simple indication of the problem.

There never has been an easier way of troubleshooting!



Diagnose View

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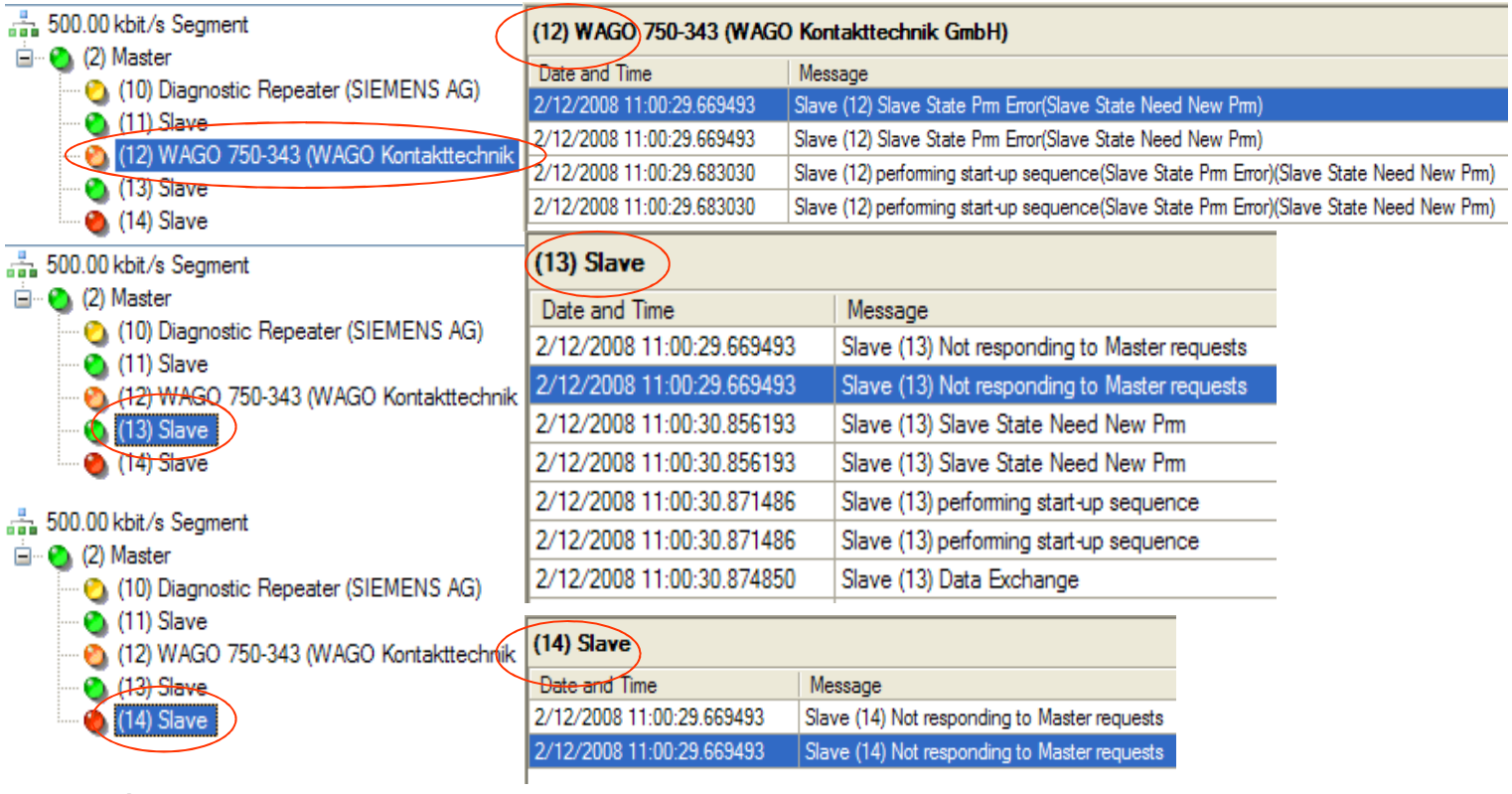
8 – The Communication Log View

Records all significant events

Profibus Tester 4 features the unique Log-View

It provides you with an easy overview of significant messages between the master and the slaves



Log View

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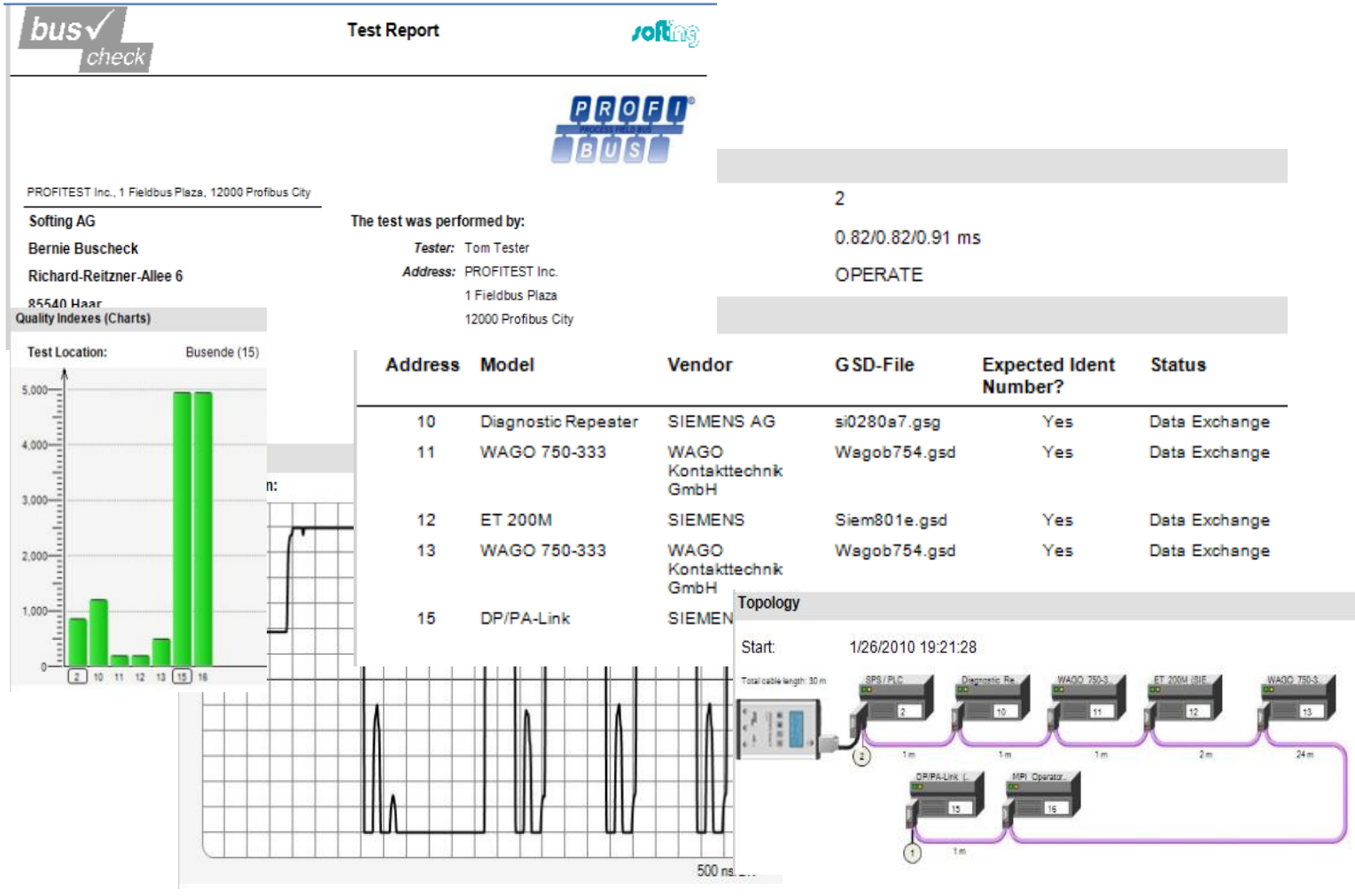
9 – Automatical Report Generator

Generates a detailed report with only a few clicks



bus check

Test Report

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PROFIBUS

PROFITEST Inc., 1 Fieldbus Plaza, 12000 Profibus City

Softing AG
Bernie Buscheck
Richard-Reitzner-Allee 6
85540 Haar

The test was performed by:
Tester: Tom Tester
Address: PROFITEST Inc.
1 Fieldbus Plaza
12000 Profibus City

2
0.82/0.82/0.91 ms
OPERATE

Quality Indexes (Charts)

Test Location: Busende (15)

Address	Model	Vendor	GSD-File	Expected Ident Number?	Status
10	Diagnostic Repeater	SIEMENS AG	si0280a7.gsg	Yes	Data Exchange
11	WAGO 750-333	WAGO Kontakttechnik GmbH	Wagob754.gsd	Yes	Data Exchange
12	ET 200M	SIEMENS	Siem801e.gsd	Yes	Data Exchange
13	WAGO 750-333	WAGO Kontakttechnik GmbH	Wagob754.gsd	Yes	Data Exchange
15	DP/PA-Link	SIEMEN			

Topology

Start: 1/26/2010 19:21:28

500 ns

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