

Indu-Sol GmbH - Specialist in fieldbus technologies

INBLOX[®] **User Manual**



Diagnostic and service tools for PROFIBUS



EDOOD IN INDUSTRIAL CAN DeviceNet SafetyBUS p'







List of revisions

Date	Revision	Change(s)
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Attention!

This device may only be started and operated by **qualified personnel.** Qualified personnel within the meaning of the safety information contained in this manual are persons who are authorized to start, ground and mark devices, systems and circuits in accordance with the safety standards

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1 Introduction

1.1 General

The Modular INspektor[®] combines for the first time field bus diagnosis and online parameterization of field devices. This device is both a passive data logger analysing and evaluating the logic parameters in the PROFIBUS DP and PROFIBUS PA and a PROFIBUS master through which parameterization can be done by FDT/DTM. It will thus be possible to monitor the field bus and the field devices by one single application.

Besides error telegrams and repeat telegrams the analysis includes diagnostic messages by the individual subscribers as well as subscriber failures relating to the recorded events. An integrated web server is sufficient to display the network condition on every PC in form of a subscriber-related matrix and no extra software is needed for this purpose. The Modular INspektor® consists of a head module used for connection to the existing Ethernet, and up to five extension modules.

This way of combining diagnosis and parameterization saves cost and time for commissioning and maintenance.

Based on the log analysis the bus cycle times and the following quality parameters are monitored:

- Error telegrams
- Repeat telegrams
- Device failures/restarts
- Device faults/internal/external diagnoses)

2 Scope of supply

The scope includes:

Head module / Ethernet gateway	061601
 Screwed plug connector f. power supply 	
Manual	
CD-ROM with PROFIBUS Diagnosis Suite	
 Matching resistor rear wall bus 	
i Matching recipier real wan bue	
PROFIBUS PA monitor module	061602
 Screwed plug connector PROFIBUS PA connection 	
PROFIBUS DP monitor module	061603
PROFIBILS DB master module /	061604
FDT/DTM parameterization	001004
Memory card 1GB	061608

3 Connections and status displays

3.1 Head module / Ethernet gateway

Power supply	
24V L+ 1 M 2 PE 3	Power, Run
Status LED	
Power - Display supply voltage	
Run - blinks green - 1 Hz measurement ON	4
LAN	
RJ 45 - network connection 4 LED - lights up green - network connected	5
5 LED - blinks orange - connection made	www.indu-sol.com Art-Nr:: 061601

Fig. 1: DP monitor module device connections

3.2 PROFIBUS DP monitor module



Fig. 2: Ethernet gateway device connections

3.3 PROFIBUS PA monitor module



Fig. 3: DP monitor module device connections

3.4 PROFIBUS master module



Fig. 4: PROFIBUS master module device connections

4 Installation and connection

4.1 Installation

The device is designed to be mounted on a U-shaped mounting rail according to EN 50022 ($35 \times 7,5 \text{ mm}$ or $35 \times 15 \text{ mm}$). Up to five extension modules can be connected to a head module. The last extension module must always be provided with a matching resistor.



ATTENTION: To ensure sufficient cooling, keep the following distances to the other assemblies:

- Left and right: 20 mm
- Up, down and above: 50 mm

4.2 Place of measurement DP monitor module

It is basically possible to connect the DP monitor module at any point of a PROFIBUS DP network. The ideal place, however, is at the master or SPC directly because the analysis of the bus communication is maintained even if a wire breakage occurs.

4.3 Place of measurement PA monitor module

It is basically possible to connect the PA monitor module at any point of a PROFIBUS PA network. The ideal place of measurement, however, is at the DP-PA coupler directly because the analysis of the bus communication is maintained even if a wire breakage occurs. But never use the PA monitor module in explosion-hazardous areas.



ATTENTION: The Modular INspektor $^{\tiny (\! 8)}$ and its extension modules have no approval for use in explosion-hazardous zones.

4.4 Connecting to PROFIBUS DP

The PROFIBUS DP monitor module and the PROFIBUS DP master module can be connected to the PROFIBUS DP in different ways. The three possible ways are described below.

4.4.1 Active PROFIBUS cable

Together with the active program cable APKA II (optional accessory) the DP modules can be very easily connected to the field bus by a spur line without affecting the ongoing system operation. If need be, it can also be done temporarily. It requires a PROFIBUS plug connector with a free PG socket in the existing system and close to the SPC if possible. The settings of the matching resistors of the existing plugs remain unchanged.



Fig.5: PROFIBUS connection via an active cable

4.4.2 At bus end

At the bus end the bus is extended up to the DP modules as shown in the picture. The free outgoing feeder of the PROFIBUS plug connector of the last device at the bus is used for this purpose.



ATTENTION: This type of connection requires all devices connected to the PROFIBUS and SPC to be shut off, i.e. system shutdown.

One piece of the PROFIBUS DP cable (from 1.5 MBit/s minimum one meter long) and a PROFIBUS plug connector are required (miniature socket, 9-pole). The matching resistor of the previously last device that is frequently integrated in the plug must be disconnected and the one at the INspektor connected at the same time which will then be in ON position.



Fig. 6: PROFIBUS connection as the last device

4.4.3 Looping in

The DP modules can be looped in the bus between two existing devices as shown in the picture. For this purpose the bus is opened.



ATTENTION: This type of connection requires all devices connected to the PROFIBUS and SPC to be shut off, i.e. system shutdown.

One piece of the PROFIBUS DP cable (from 1.5 MBit/s minimum one meter long) and a PROFIBUS plug connector are required (miniature socket, 9 pole). The plug-integrated matching resistor at the INspektor must be disconnected and is in OFF position.



Fig. 7: "Looping in" between two devices

4.5 Connecting to PROFIBUS PA

The PROFIBUS PA monitor module can be connected to the PROFIBUS PA in different ways. The two possibilities are explained below:



ATTENTION: The Modular INspektor and its extension modules are not approved for use in explosion-hazards zones.

4.5.1 Looping in

The PA module can be looped in the bus between two existing devices as shown in the picture. For this purpose the bus is opened



ATTENTION: This type of connection requires all devices connected to the PROFIBUS and the segment coupler to be switched off, i.e. a system shutdown.



Fig. 8: "Looping in" between two devices

4.5.2 Spur line

Using a spur line makes it very easy to connect the PA modules to the field bus. If need be, it can also be done temporarily. The second outgoing feeder of the segment coupler or a PA distribution box can be used for this purpose.



Fig. 9: PROFIBUS connection via an active cable

4.6 Voltage supply

An external direct voltage of 24 V is required for operation. Connect the same to the device using the connector supplied. The PE contact is to be connected with the local switchgear cabinet earth.



ATTENTION: Observe the correct polarity for connection. The PE contact must not be connected with the protective conductor.



ATTENTION: If the voltage supply fails or is interrupted for a short time, the stored measured data will get lost. The snapshots on the memory card will be saved, however.

5 Start-up

5.1 Initial network connection

The head module comes with the following network configuration:

IP address INspektor	:	192.168.212.212
Subnet mask INspektor	:	255.255.255.0

In most cases this setting has to be changed. The procedure is described for Windows XP as an example.

For this purpose initially connect the head module with your PC or notebook using a commercially available crossover cable (not included in the scope of supply). Alternatively the module can be connected via a switch. In such case a standard patch cable will be sufficient.



Upon start-up after the power supply has been connected every INspektor checks whether the set IP in the network has been assigned already. If so, the INnspektor will not become active

Open the LAN connection on your Windows PC by clicking START -> Settings -> Network connections. It may be that your PC uses a designation that differs from that of LAN. Go to the "LAN Properties" window in the "General" tab amd select "Internet Protocol (TCP/IP)" and click "Properties" for this purpose. In the "Properties of (TCP/IP)" window go to the tab "Alternative IP configuration" and select "user-defined".



ATTENTION: If entries exist already, take them down for any later recovery.

Now enter as follows there:

Internet Protocol (TCP/IP) Propert	ies ? 🗙
General	
You can get IP settings assigned aut this capability. Otherwise, you need for the appropriate IP settings.	omatically if your network supports to ask your network administrator
O Obtain an IP address automatic	ally
\sim Use the following IP address:-	
IP address:	192 . 168 . 212 . 212
Sybnet mask:	255 . 255 . 255 . 0
Default gateway:	· · ·
${f C}$ Obtain DNS server address aut	omatically
☐ ● Use the following DNS server a	ddresses:
Preferred DNS server:	· · ·
<u>A</u> lternate DNS server:	· · ·
	Ad <u>v</u> anced
	OK Cancel

Fig. 10: Network configuration at PC (Windows XP)

Click OK twice in the open windows and your network configuration will be changed.

Now; start the web browser (Microsoft Internet Explorer Version 6 or higher or Mozilla Firefox Version 2 or higher, Java Script must be activated) and enter in the address bar: "http://192.168.212.212". Now, you can access the web interface of the INspektors (see chapter Web Interface on page 23). From here it is possible to change the IP address of the head module if necessary. To this end, go via the Main module -> Network -> Network. Also see chapter Network settings on page <u>16</u>. The device comes with the default password "admin".



ATTENTION: Take down the new IP address. Without this address you will have no access to the device.

5.1.1 Case 1 – Local access only

In this case the Modular INspektor[®] is NOT to be incorporated in an existing network. You can use either the "Alternative network configuration" set in the PC for the LAN connection or change the INspektor[®] to any accessible and free IP address.

5.1.2 Case 2 – Network incorporation

In this case the Modular INspektor[®] is to be incorporated into an existing network. Use a crossover cable directly connected with the device, and follow the description of "Case 1" beforehand. The manual or automated (DHCP) setting of the network configuration has to be agreed with your network administrator. Then, the INspektor[®] can be connected to an existing switch or hub by a standard patch cable and thus to the corporate network.

5.1.3 Other basic settings

5.1.3.1 Internal device time and date

The internal device time is indicated together with the date on the start page "Network overview". If the time is not correct, it can be set by selecting Main module ->-> Time/Date. If voltage supply is interrupted, the time of the Modular INspektor[®] will get lost.

5.1.3.2 Module/channel name

A module name and one or two channel names can be assigned to every module. The names can be used to designate the system or master system. For name assignment go to Module name -> Settings. The naming facilitates the allocation to a system or master system.

5.1.3.3 Language

The INspektor[®] starts with a German web interface as standard. If you prefer the English version, click the Union Jack flag.

5.2 Measuring operation – Initial steps

5.2.1 Start of device and segment recognition

When the voltage supply has been connected to the head module all modules start automatically, the ERR LED is red. It is then tried to recognize an active bus segment. Finally the measuring operation starts. The RUN LED blinks green. The entire start procedure may take up to one minute.

5.2.2 Factory settings for alarm

The device comes with the alarms and snapshots activated. The quality parameters are preset to maximum sensitivity.

If no errors are detected with these settings over a longer period of time, it is an important indication that the measured bus segment is error-free.

A complete freedom of errors can only be confirmed after a complete initial measurement has been done, however. Such measurement can be done by the PROFI-TM Professional and PROFtest II for PROFIBUS DP or by the DM-AM Kit and the PROFI-TM for the PROFIBUS PA. All provide a detailed test record with respect to bus physics and bus communication.

5.2.3 Error signalling

If errors are detected by the default settings, they are signalled as follows:

- LED "ERR" lights up red
- The Start page/"Network overview" on the web interface shows:
 - o in Events in the table counts are greater than zero;
 - in Events top right the alarm number is greater than zero, red envelope
 - In Subscribers status colour other than green.

In addition entries are created in the alarm list and telegram recordings under "Snapshots". Snapshots can only be created and saved when a MMC card has been inserted.

5.2.4 Evaluation, threshold value adjustment and trouble shooting

All major information on error events and the status of individual bus subscribers are displayed on the module page/"Network overview" of the web interface.

Generally neither error telegrams nor subscriber failures should occur. They always suggest faults that have to be eliminated.

Depending on the segment length, baud rate and number and type of bus subscriber repeats may be admissible in exceptional cases. Whether and how many repeats are admissible must be decided for the affected subscriber on a case to cases basis. In the extended view of the alarm settings the threshold value for "Repeats" is then set greater than One for this specific subscriber only. Depending on the type of bus scriber and its configuration in the SPC program not all diagnoses are relevant for device faults of bus scribers. Here too, a decision must be taken for the affected subscriber on a case to case basis. In the extended view of the alarm settings the threshold values "Internal diagnosis" and/or "External diagnosis" are set greater than One for this subscriber only or deactivated by entering Zero.

5.2.5 Trouble shooting

'The search for communication errors, such as error telegrams or repeats is easier when the diagnoses in the alarm settings are initially masked out by entering zero for all bus subscribers.

When it comes to detecting device faults, however, the diagnoses are relevant only.

If you feel uncertain concerning the assessment, have your network checked by a PROFIBUS specialist who can detect and eliminate errors and define system-related threshold values.

6 Quality parameters

6.1 Failures

Failures can be recognized in two different ways.

1. Recognizing parameterizing telegrams

A bus subscriber receives a parameterizing telegram from the bus master if it has to be newly incorporated (restart) in the bus, does not respond despite repeated inquiry (device failure) or the bus subscriber requested the parameterization beforehand by a diagnosis telegram. In all three cases the bus subscriber is no longer capable of participating in the payload data traffic and is thus considered failed.

2. No subscriber response

The bus subscribers are parameterized upon start or restart (after failures) only. Even if no parameterizing telegram is detected, it is possible to draw conclusions for a failure from the missing response.

6.2 Diagnosis

If a bus subscriber features an error or exceptional condition, they are reported to the master by the following three telegram types:

- Response DH, e.g. a wire breakage of an external sensor at an analogue 4-20 mA input is interpreted by the INspektor[®] as an "external diagnosis".
- Response RS, e.g. an internal fault of an I/O module through which no data or only incomplete data can be delivered, is interpreted by the INspektor as an "internal diagnosis"
- Response RR, if no resources are available for the processing of a specific master query, this phenomenon is interpreted as "internal diagnosis" by the INspektor[®].

Devices by different manufacturers display a different behaviour when it comes to diagnoses. There is no standardization unfortunately. Some devices make no difference between internal and external diagnoses and signal one type only.

It means that in case of doubt you have to check for every diagnosis whether it is in line with a normal process behaviour or is a real error of a bus subscriber.

6.3 Error telegrams

Although the PROFIBUS is protected against potential transmission errors, error telegrams may occur in data transmission, even regularly in rare cases. Telegram errors are, for example, character format errors, protocol errors, start and end delimiter errors, error frame check byte or wrong telegram length.

6.4 Repeat telegrams

If a bus subscriber fails to reply within a pre-defined time or the master receives a telegram that cannot be interpreted by it, the relevant subscriber will be repeatedly requested by the master to send data. How many requests will be sent per cycle depends on the retry limit set in the master.

In the analysis the INspektor[®] differentiates between

- Repeat telegrams per bus cycle, and
- Repeat telegrams total.

In repeats per bus cycle the maximum number of repeated queries to a bus subscriber per bus cycle is recorded. If a bus subscriber fails, the value shown is equivalent to the set retry limit.

In repeat telegrams total all repeats are counted.

6.5 Bus cycle time

In PROFIBUS DP V0 (cyclical operation) all bus subscribers are addressed at least once per bus cycle. The time needed by the master for one cycle is called bus cycle time. The bus cycle time of a healthy PROFIBUS network is almost constant. A faulty network displays more and more deviations. The latter can be detected by the INspektor[®] in the form of minimum, medium and maximum bus cycle times.

7 Web interface

7.1 Start page/Network overview



Fig. 11: Start page of web interface

The navigation field is arranged on the left-hand side where you can select between the main module and the connected modules. Top right you can switch between German and English language.

The working area proper appears when you click an extension module. A "Network overview" appears for every network. This overview is divided into the event list and the subscriber list (ref. Fig. 12).

-	010	La la sa	d stades a								Count		
 http://192.166.212. 	212(mod_)	sba_ap.cgimo									bearth		10
arbeiten Ansicht Eavonti	en Egtra	6 <u>/</u>	100										
en 🥁 😰 web side-Kada	300 • 🗶	vorgeschlage	ine skes •							A. 8. 8	Cate - Crtv	what - Extrac -	
BUS INSPERIOR - Indu-Sor Gillo											din noise nin	anex - Exgras -	
Indu	Modu	ul 4 - DP	Overview										
Sol	Noc	le Ove	rview										
	PB IN	spektor date	a/time 03:55:09 AM	Curr	ent State	Last Cycle 1 h	History	0 Alarm	1S				
la la 🕴 🍙	Lost N	lodes			0	0	0						
2.007	Interna	al node diag	nosis		0	0	0	Clear da	ita				
	Extern	nal node dia	gnosis		0	0	0	Cical da					
	Error t	elegrams			0	0	0						
	Telegr	am retries p	er bus cycle		0	0	0	Update rate i	(10\$):				
	Total t	elegram reti	ries		0	0	0	Baud rate	e:				
	Bus c [ms]	ycle time m	in/average/max	1.00 /	1.00 / 1.00	1.00 / 1.00 / 1.00	1.00 / 1.00 / 1.00	1.5 MBit	/s				
	Start o	of measuren	nent	01/01/19	70 03:55:03 AM	01/01/1970 03:55:03 AM	01/01/1970 03:55:03 AM	Device tempe 40 °C	rature:				
	Last S	SNMP reque	st		C	1/01/1970 01:00:22 A	vi						
	Node	Overview	Events/Para	meter		N	ode state						
	Histor	y 💌	Overview	~	Not Existent	the Muter Active Stave	Event / Diagnosis Failure	Rear and Mid. protocols					
		0			2	3	4	5	6	7	8	9	
	0	Device	0 Dev 10 Loos	oe 1 ion 1		Device 3 Location 3	Device 4 Location 4	Device 5 Location 6	Device 8 Location 8	Device 7 Location 7	Device 8 Location 8	Device 9 Location 9	
	1	Device	10 Devi	ce 11	Device 12	Device 13	Device 14	Device 15	Device 18	Device 17	Device 18	Device 19	
	2	Device :	20 Devi	20.21	Device 22	Device 23	Device 24	Device 25	Device 26	Device 27	Device 28	Device 29	-
	-	Location Device	20 Locat	on 21	Location 25 Desire 32	Location 23	Location 24	Location 25 Davine 35	Location 26	Location 27 Device 37	Location 28 Device 38	Location 29 Depice 39	_
	3	Location	30 Locat	on 31	Location 32	E Location 33	Location 34	Location 35	Location 30	Location 37	Location 38	Location 39	_
	4	Device - Location	40 Devi 40 Locat	e 41 on 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 40 Location 48	Device 49 Location 49	

Fig. 12: Network overview

7.2 Event list (network overview)

"Events" show related to the three time intervals of

- Last minute
- Most recent cycle (time window that can be parameterized by user)
- History (since the last start)

all added-up fault events and the bus cycle times and the time of the latest SNMP query.

To the right you can see the number of alarms (mouse click navigates to alarm list), the baud rate and the internal temperature as well as the time of the day in the INspektor[®].

7.2.1 Subscriber list

The subscriber list shows all recognized bus subscribers in form of a matrix including addresses. The most critical conditions of the bus subscribers in a certain evaluation period are shown as colour status.

In the basic setting the matrix displays the designations of devices and places of installation that can be parameterized by the user.

By selecting "Events" it is possible to display the errors for the individual bus subscriber Alternatively a table opens showing all error events of the specific bus subscriber when you move the cursor over a matrix field.

7.3 Alarm list

The alarm list shows the most recent 100 alarms including date/time, the error event, the subscriber address and the threshold values reached.

7.4 Snapshots

You will find the snapshots under Alarms/Snapshots according to the settings. Depending on the size of the memory card a large number of snapshots can be stored. 1 GB cards can store about 40,000 snapshots. A snapshot is an extract of max.500 telegrams of the entire bus communication shortly before and shortly after an error event. By clicking the floppy symbol in the last column the snapshots can be downloaded on a notebook or a PC.

7.5 Settings

7.5.1 Alarms / Threshold values

Alarms can be activated, actions selected and the threshold values parameterized. It can be done for all bus subscribers together or for each individual subscriber by selecting "Extended view"

Snapshots

On/Off	Failure Node	Internal diagnosis	External diagnosis	Error telegrams	Retries per bus cycle			
V		V		V				
Save snapshot triggers								

Thresholds/Alerts

On/Off	Node	Failure Node	Internal diagnosis	External diagnosis	Error telegrams	Retries per bus cycle	
	All	1	1	1	1	1	
Save Thresholds Switch to basic view & save Switch to extended view (do not save)							

fig. 13: Default settings for alarms (max. sensitivity)

A maximum of 500 telegrams can be recorded around an error event. A threshold value can be deactivated by entering 0.

7.5.2 Last cycle

On the "Network overview" start page there are three overlapping time periods in which the error events can be shown separately. The middle one is the "Last Cycle" that can be selected by the user in the range between 1 and 120 h. The factory setting is 24 hours.

7.5.3 Subscriber names

When necessary, user-specific names can be assigned to the bus subscribers and their places of installation. The relevant names are then displayed on the start page/Network overview.

7.5.4 Main module

7.5.4.1 Network settings

The network configuration can be changed here. Also refer to the Start-up chapter on page $17\underline{16}$. The configuration password is "config".

7.5.4.2 Time/Date

The time and date have to be set manually.

7.5.4.3 Password

The password can be changed. Default setting is "config"

7.5.4.4 Firmware

A firmware update can be carried out if necessary.

7.5.4.5 Restart

You define how long the device waits in the event of an error before it starts initializing again.

7.5.4.6 System information

You will find general information on the versions of the Modular ${\rm INspektor}^{\rm @}$ and its extension modules.

This information includes:

- **Network** settings and statistics
- Firmware and hardware versions, serial numbers, licence

8 Snapshot analysis

The telegram monitor PROFIBUS Diagnose Suite supplied is used to display the snapshots.

To asses a snapshot, proceed as follows:



It necessary, it is possible to do a more detailed analysis of the PROFIBUS event detected.



Fig. 14: Plain text in diagnosis mode

neus pragnostic	is suite				e e e e e e e e e e e e e e e e e e e
idit Test Setti	ings Window Help				
15_00004.rpb					
- Ka 🖓 🖓 🗞	8 8 8 🖫 🖨 🕅 ff K	< > > 1	🗗 🜔 FDL 🖳	•	
Frames	Protocol				
No	Time Stamp Address	Protocol	Primitive	Service	Data
680	04:04:40.067235 2 -> 5	DP	Request	DATA EXCHANGE	00 00 00 00 00 00 00 00
681	04:04:40.067368 2 <- 5	FDL	Response	SC	
682	04:04:40.067404 2 -> 123	DP	Request	DATA EXCHANGE	00 00 00 00
683	04:04:40.067507 2 - 123	DP	Response	DATA EXCHANGE	00 FD 58 57
684	04:04:40.067632 2 -> 40	FDL	Request	FDL STATUS	
585	04:04:40.067882 2 -> 2	FDL	Request	TOKEN	
686	04:04:40.067929 2 -> 3	DP	Request	DATA EXCHANCE	00
587	04:04:40.068012 2 <- 3	FDL	Response	sc	
688	04:04:40.068046 2 -> 4	DP	Request	DATA BACHANGE	01
690	04-04-40 069226 2 -> 5	DR	Bachact	DATA EXCHANCE	
591	04:04:40.068369 2 4- 5	FDL	Response	SC	
592	04:04:40.068405 2 -> 123	DP	Request	DATA EXCHANGE	00 00 00 00
593	04:04:40.068508 2 <- 123	DP	Response	DATA EXCHANCE	00 FD 58 57
594	04:04:40.068633 2 -> 41	FDL	Request	FDL STATUS	
595	04:04:40.068883 2 -> 2	FDL	Request	TOKEN	
596	04:04:40.068930 2 -> 3	DP	Request	DATA EXCHANGE	00
597	04:04:40.069013 2 - 3	DP	Response	DATA EXCHANGE	00
598	04:04:40.069113 2 -> 4	DP	Request	DATA EXCHANGE	01
599	04:04:40.069196 2 <- 4	DP	Response	DATA EXCHANGE	00 00
700	04:04:40.069303 2.62 -> 3.60	DP	Request	DIAGNOSIS	
701	04:04:40.069393 2.62 <- 3.60	0.0	Desponse	DIAGNOSIS	08 00 00 02 80 47 42 00 13 40 00 00 20 40 FF 00 00 00
702	04-04-40 070249 2 4= 5	FDL	Remoner	SC.	
704	04:04:40 070285 2 -> 123	DP	Permest	DATA EXCHANGE	00.00.00
705	04:04:40.070388 2 <- 123	DP	Response	DATA EXCHANGE	00 FD 58 57
706	04:04:40.070513 2 -> 42	FDL	Request	FDL STATUS	
707	04:04:40.070763 2 -> 2	FDL	Request	TOKEN	
708	04:04:40.070810 2 -> 3	DP	Request	DATA EXCHANGE	00
709	04:04:40.070893 2 - 3	FDL	Response	sc	
710	04:04:40.070927 2 -> 4	DP	Request	DATA EXCHANGE	01
711	04:04:40.071010 2 <- 4	DP	Response	DATA EXCHANGE	00 00
	04-04-X0 001110 10 -> F	IN B	B	NAME BUOITEBOD	00 00 00 00 00 00 00
DP Service					0000 00 00 00 00 00 00 10 10 00 00 00 00
GSD Re ⁺ ^{si} Vendor Address of Watch dog Device rep Segment D Segment D Segment D Segment C Segment D Segment	2020 μ2 gard "Cound's ciden in market BNP" and model hand the Disparation Response market market and the Disparation Response market market between the details) reg even to the market between the details) reg even to the table of the details gar scan DN details (123(12 m.)) costion at station (123 m.) Response market between the desponse of the desponse market between the desponse of the desponse of the desponse market between the desponse of the desponse of the desponse market between the desponse of the desponse of the desponse market between the desponse of the desponse of the desponse of the desponse market between the desponse of the despo	SIEMENS AG			Loos: YF O 0 0 0 0 0 0 1 J A O 0 1 J A O 2001: 40 0 1 70 77 9 0 0 0 7 0 0 J A O 0 J A O 4000: 00 J A A O 0 0 0 0 0 0 0 0 0 0 4 0 77 77 77 77 77 77 77 77 77 77 77 77 7

Fig. 15: Telegram analysis in telegram mode

This supplementary software comes with integrated help information and a pdf manual.

9 Problem solving

Problem	Potential causes & Remedy
All LEDs of device are	Potential cause:
off, the web interface is	 Power supply interrupted
not accessible.	Remedy :
	 Provide/Restore power supply DC 24 V
IP address is not	Potential cause:
known	 IP address changed and then forgotten -
	Remedy:
	 Use IP scanner or send back to manufacturer.
Web interface of device	Potential cause:
is no longer accessible	 Use of wrong or damaged patch cable
	Remedy :
	 For direct connection to PC/notebook use cross-
	over cable and a standard patch cable for con-
	nection to switch; replace cable if defective

10 Technical data

Voltage supply	DC 24 V +/–20 %, typ. 0.3 A, max. 1 A
PROFIBUS	PROFIBUS protocols DP, DPV1, FMS, MPI
	Connection: 9-pole sub-miniature
	Baud rate: 9.6 kBit/s – 12 MBit/s
Ethernet	100BASE-TX, 10BASE-T
	connection: RJ45
Mounting	35 mm DIN mounting rail
Protective system	IP20
Working temperature	5 °Cto 55 °C
Storage	–20 ℃ to 70 ℃
Approvals	CE, FCC, VCCI

11 CE information

This assembly meets the requirements of the EC Directive 2004/108/EC "Electromagnetic Compatibility" (EMC Directive).

Interference emission:	EN 61000-6-2: 2006-03 (generic standard Industry) EN 55022: 2007-04 Class A (product standard ITE) EN 55011: 2007-11 Group 1 class A (prod.stand. ISM)
Interference immunity:	EN 61000-6-2: 2007-09 (generic standard Industry)

A declaration of conformity in compliance with the above standards has been issued and is available for inspection at Indu-Sol GmbH.



Note:

For compliance of the statutory EMC requirements the other components (power pack, PROFIBUS subscriber, ...) must also meet said requirements. To meet the EMC requirements the device must be installed and connected as set forth in the installation instructions.

ATTENTION! This is a device of Class A. It can cause radio interferences in residential environs. In such case the end user can be requested to take adequate measures.

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We are certified according to DIN ES ISO 9001:2008