Indu-Sol GmbH – Specialist in fieldbus technologies

ASi INspektor V2

User Manual

Diagnostic and service tools for AS-Interface

PROFIBUS PROFINET INDUSTRIAL ETHERNET CAN DeviceNet SafetyBUS p ASi INTERBUS EMC WIRELESS

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Our **technical support team can** be reached on +49 (0)34491 / 580 321, weekdays between 7:30 - 16:30 (CET). Or you can send us an e-mail to: support@indu-sol.com

Is your system down? You can reach our emergency service around the clock on: +49 (0)34491 / 580 0.

Revision overview

date	Revision	Change(s)
30.04.2024	0	First version

Subject to unannounced changes. We are constantly working on the further development of our products. We reserve the right to make changes to the scope of delivery in terms of form, equipment and technology. No claims can be derived from the information, illustrations and descriptions in this documentation. Any reproduction, further processing and translation of this document and extracts from it require the written authorisation of Indu-Sol GmbH. All rights under copyright law are expressly reserved by Indu-Sol GmbH.

W A R N I N G

This appliance may only be commissioned and operated by qualified personnel. Qualified personnel in the sense of the safety instructions in this manual are persons who are authorised to commission, ground and label devices, systems and circuits in accordance with safety engineering standards.

Improper use or configuration of the ***INBLOX system*** in the network can lead to serious personal injury as well as damage to property and material, also due to uncontrolled machine movements.

Table of contents

1 General information

Please read this document thoroughly from start to finish before you start installing and commissioning the appliance.

1.1 Intended use

The ***INBLOX*** in combination with the ***ASi Diag*** extension permanently monitors the entire data traffic of an ASi network. If critical changes are detected that could lead to unplanned system downtimes, a maintenance requirement is signalled to you.

Based on the telegram analysis (purely passive behaviour), the following quality parameters are permanently evaluated:

- Telegram repetitions
- Error telegrams
- Periphery error
- Device failures
- Device start-ups
- Cycle time
- ASi supply voltage

One ASi Diag extension is required for each ASi master system, whereby up to 5 extensions can be connected to one ***INBLOX Ethernet head module***.

No additional ASi address or adaptation of the PLC programme is required to integrate the ***ASi Diag extension.*** The functionality is completely manufacturer-neutral, i.e. the analysis works completely independently of the type of controller and bus devices.

For long-term analysis, the ***INBLOX system*** can remain in the bus system indefinitely. The telegram traffic is permanently analysed and evaluated in order to detect deviations from the standard status and use them for alerting.

1.2 Use of open source licences

Indu-Sol offers the provision of source code of software that is licensed under the GPL or LGPL or other open source licences that require the distribution of source code. The individual licences used for the ***INBLOX system*** are listed on the website in the "Support and contact" menu under "Use of open source licences".

1.3 Scope of delivery

Depending on the item purchased, the scope of delivery includes the following individual parts:

ASi-INspektor V2 (article number: 124040007)

- INBLOX - Ethernet head module (article number 124060000)
- INBLOX - ASi Diag - Extension (article number 124060014)

ASi-INspektor V2 StarterKIT (article number: 124040002)

- INBLOX - Ethernet head module (article number 124060000)
- INBLOX - ASi Diag - Extension (article number 124060014)
- ASi diagnostic case incl. accessories

ASi diagnostic case (article number: 120010002)

- INBLOX - Ethernet head module (article number 124060000)
- INBLOX - ASi Diag - Extension (article number 124060014)
- ASi View (article number 120010009)
- ASi diagnostic case incl. accessories

Please check the contents of your delivery for completeness before commissioning. If you have any questions, please contact our Technical Support team immediately before commissioning.

1.4 General safety instructions

1.4.1 General

Before using the appliance, check that it is in perfect external condition. In the event of suspected damage, return the appliances to your supplier immediately and do not put the appliance into operation. Our technical support team will be happy to answer any questions you may have.

1.4.2 Operating personnel

This appliance may only be commissioned and operated by qualified personnel. Qualified personnel in the sense of the safety instructions in this manual are persons who are authorised to commission, ground and label devices, systems and circuits in accordance with safety engineering standards.

1.4.3 Dealing with *INBLOX*

Never open the housing of the appliance. Opening the housing immediately voids the warranty. In the event of a suspected defect, return the device to the supplier. There are no user-serviceable components in the devices.

1.4.4 Intended use

Always observe the technical specification of the device to ensure safe and optimal use. The device was developed for protective environments in accordance with IP20. Take suitable measures in the event of a different operating environment to ensure proper operation of the device

2 Connections and status view on the device

2.1 Device connections *INBLOX - Ethernet head module*

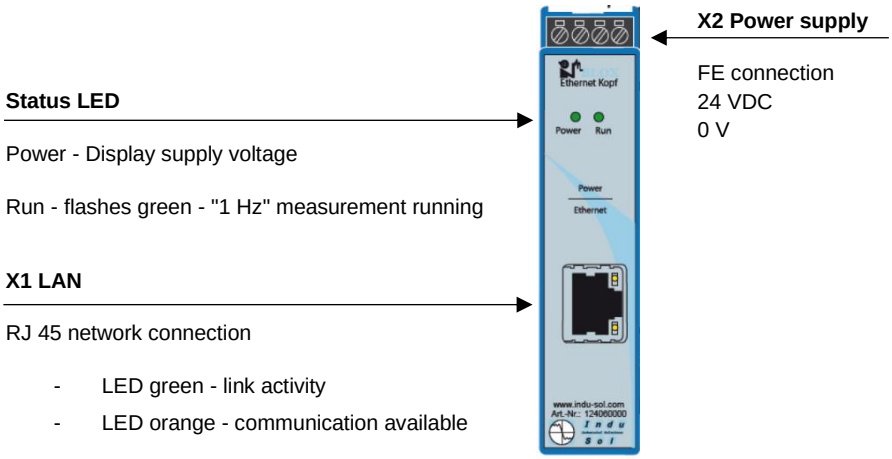


Figure 1: *INBLOX* device connections *- Ethernet head module*

2.2 Device connections *INBLOX - ASI Diag extension*

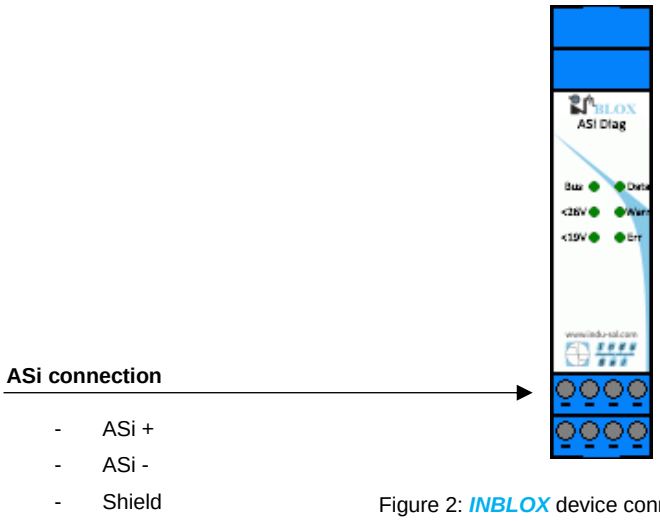


Figure 2: *INBLOX* device connections *- ASi Diag extension*

2.3 Installation

The ***INBLOX system*** is designed for individual use in control cabinets of various types and can be mounted on a standard 35 mm DIN top-hat rail.

Only use the existing top-hat rail mounting for fastening the device or, if necessary, purchase appropriate spare parts to ensure adequate electrical contacting and the mechanical load capacity of the device.

2.4 Mounting

The ***INBLOX system*** is mounted horizontally in the switch cabinet on a 35 mm top-hat rail in accordance with DIN EN 60715.

The following distances from other assemblies must be observed to ensure correct installation:

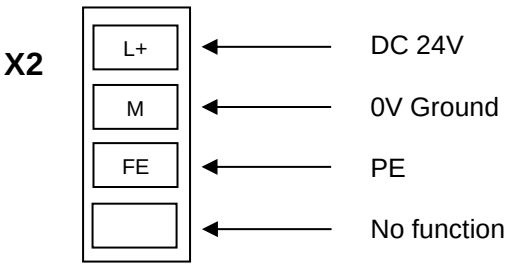
- To the left and right: 20 mm
- Upwards and downwards: 50 mm

Do not install the ***INBLOX system*** directly next to devices that generate strong electromagnetic interference fields, e.g. transformers, contactors, frequency converters, etc.

Do not install the INBLOX ***System*** directly next to appliances that generate a lot of heat and protect the device from direct sunlight to prevent unwanted heating. Protect the ***INBLOX System*** from additional heat radiation and observe the authorised storage and operating temperature range.

2.5 Power supply connection

A 24 V DC voltage is required for operation, which must be connected to the device via the supplied 4-pole plug-in terminal block (X2). The FE contact should be connected to the local FE system.



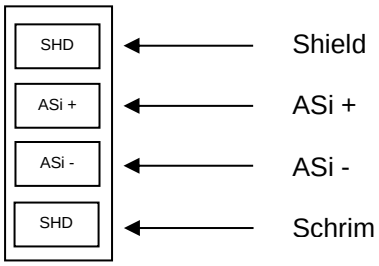
Attention: Ensure correct polarity when connecting.

2.6 Connection to the ASi network

The ***ASi Diag extension*** should always be installed as close as possible to the ASi Master, as in this case the bus communication can continue to be analysed even if the line is interrupted.

The connection to the ASi network, which is connected to the device via the supplied 4-pole plug-in terminal block, can be made in different ways. Two options are shown below.

local FE system.



2.6.1 ASi measuring adapter ASiMA

In conjunction with an ASi measuring adapter "ASiMA", the ***ASi Diag extension*** can be connected to the fieldbus in a particularly simple way via an M12 connection cable without interfering with ongoing system operation.

The prerequisite is the use of the yellow ASi flat cable in the existing system, preferably directly on the master. No further settings are required on the ASi network.

2.6.2 Terminal block

If cable types other than the yellow ASi flat cable and terminal blocks are used in the system via the ASi network, the ***ASi Diag extension*** can also be clamped in directly. The ideal installation location is close to the master.

No further settings are required on the ASi network.

3 Web application

The ***INBLOX systems*** are equipped with a modern web interface that can be conveniently configured from any web browser.

3.1 Preparations

Before using the web management, install the ***INBLOX systems*** in the network and make sure that the PC intended for configuring the system can access the ***INBLOX Ethernet head module*** via the web browser. The ***INBLOX Ethernet head module*** and the client PC to be connected must be in the same IP address range and IP subnet.

When the device is delivered, the following IP address, subnet mask, administrator user name and administrator password are set:

- IP address: **192.168.212.212**
- Subnet mask: **255.255.255.0**
- Gateway: **0.0.0.0**
- Username**:** **admin**
- Password: **admin**

When logging in for the first time, you must change the factory-set password. It is your responsibility
It is your responsibility to document this password and protect it from unauthorised access.
access.

You can easily set your intended user addresses using the **Indu-Sol ServiceTool**. This is included in the scope of delivery or can be downloaded free of charge via the following link:
https://sdx.indu-sol.com/s/qLZS8QgyqKNw9YL

Our software is updated regularly. Please make sure that you have the latest version.

After installing and opening the software, establish a network connection from your computer to the LAN port and scan the system with the *INBLOX Ethernet head* search setting. You can then make the corresponding entries in the input mask and save them.

As an alternative to administrator access, user access with lower authorisations and adapted menu navigation is available. The access data for this is as follows:

- User name: user
- Password: **user**

3.2 System Login

1. Start a web browser on your computer.
2. Enter the IP address of the ***INBLOX Ethernet head module you are*** using in the address line of the web browser and confirm your entry with the *Enter* key.
3. The login screen of the device now appears on the screen.

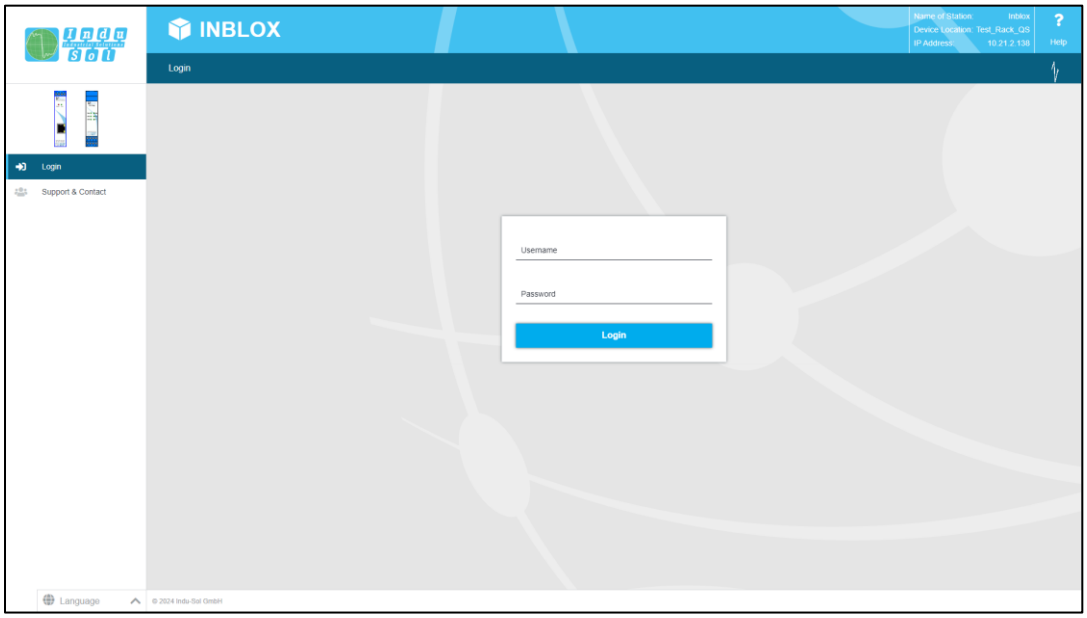


Figure 3: Login mask

4. Select the desired menu language (DE / EN). This can be changed at any time in any menu of the web interface.
5. Then enter the user name and password.
6. Press the *Enter* key and click on *Log in* to access the INBLOX system web interface.

3.3 Web interface

The following symbols are used in the web interface for a simple status display of the individual ports:

No error: The communication works flawlessly.

Warning: At least one communication error (telegram repetition, error telegram) has occurred which has not yet led to a failure. The cause of these events should be localised and rectified.

Error: A critical fault has occurred in the network or in a device, resulting in a system failure. Urgent action is required to rectify the fault.

The bus communication in the network has failed or cannot be recognised by the INBLOX (serious fault in the network) or the devices are no longer communicating or are not in the network.

3.4 Start

After successfully logging in, you will be taken to the main overview, which shows the structure of the INBLOX system. The following information is also included:

- Information bar, in which the device name, the installation location and the IP address can be recognised. The current user is displayed under the logout button at the right end of the bar. You can log out by clicking the button. The help button displays information and explanations for the individual pages.
- The number of messages that have occurred is displayed in the message window. The messages and the counter status of all extension modules can be deleted using the corresponding buttons.
- The selection in the menu bar allows you to call up the individual pages and make settings there. The menu items displayed are subdivided into further sub-items

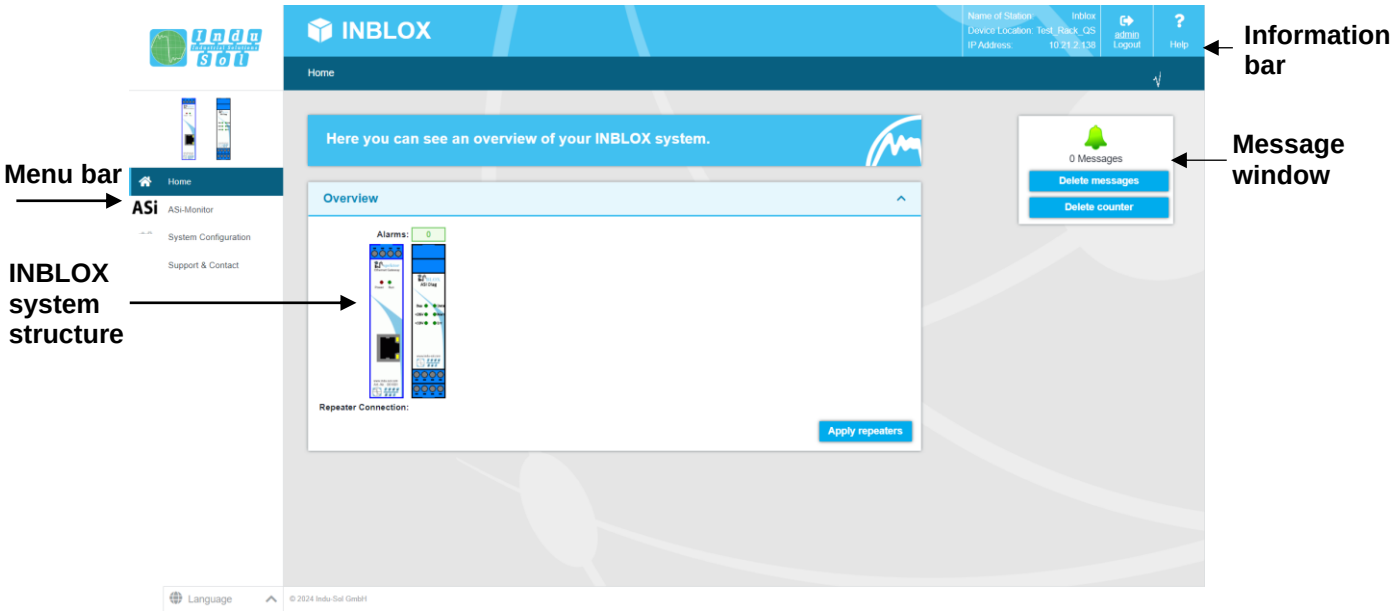


Figure 4: Start

3.5 ASi Diag extension

The ASi Monitor page provides you with an overview of the status of the connected ASi network since the start of the current measurement.

If no entries can be seen here, the system is working stably and there is no acute need for action.

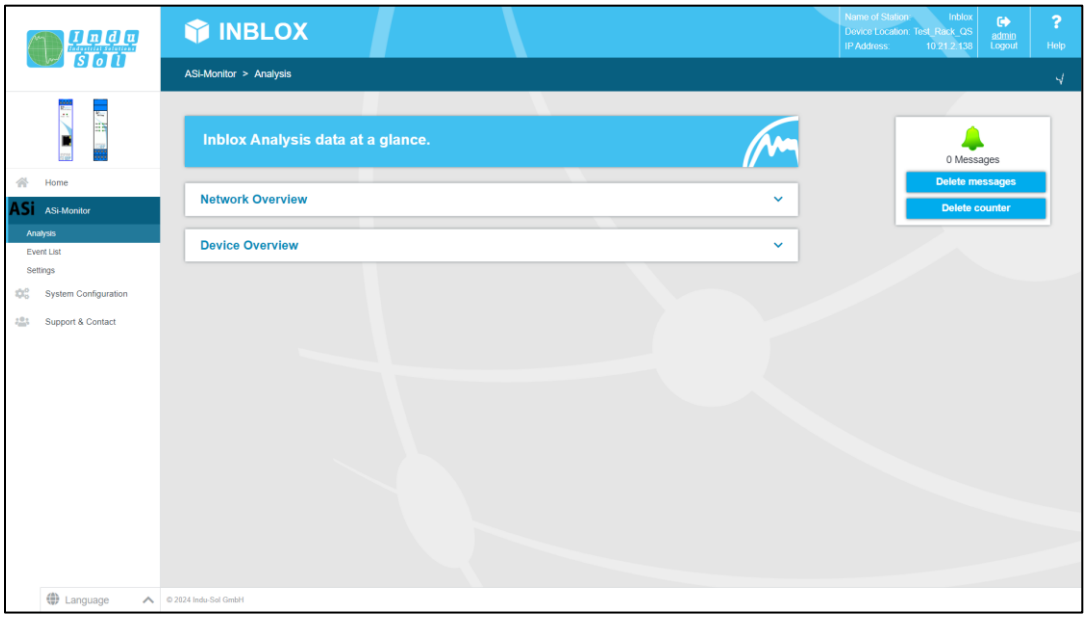


Figure 5: ASi Monitor - Network overview

To obtain more detailed information on the network status, there are other helpful functions that can be accessed via drop-down menus or the alarm overview.

In the submenus of this page, different observation periods can be used for the evaluation of ASi communication. The corresponding evaluation period is selected by switching the time window between "Last minute", "Last cycle" and "History". The "Last minute" setting displays the device information for the period of the last minute. The "History" pre-selection displays all data since the start of recording or the last time the "Clear counter" function was called up. This different time reference allows you to recognise whether the ASi faults occur permanently or occasionally.

If faulty events occur within the monitoring period, this triggers the relevant fault trigger. This leads to entries in the alarm overview and the Event list.

3.5.1 Network overview

By activating the "Network overview" selection window, the determined status variables for all important quality parameters of the connected ASi network are displayed. These form the basis for stable, fault-free communication.

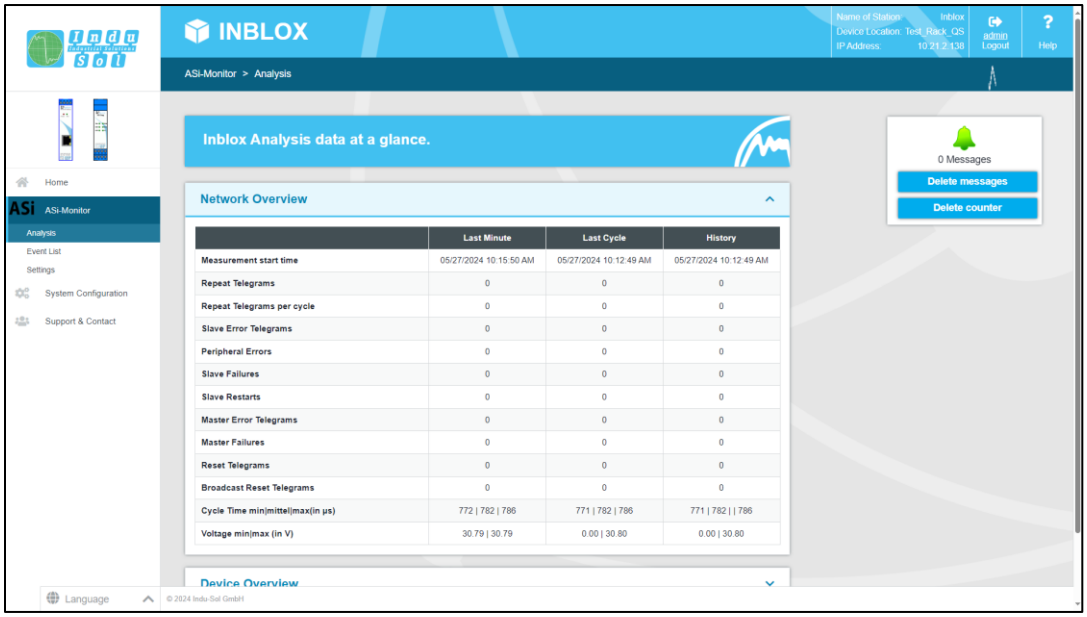


Figure 6: ASi Monitor - Network overview

3.5.2 Participant overview

This menu item gives you a complete overview of all devices communicating in the ASi network. The individual devices are marked in different colours depending on their status. The meaning of the re statuses is explained in the legend.

To increase clarity, you can select the display for the individual evaluation criteria.

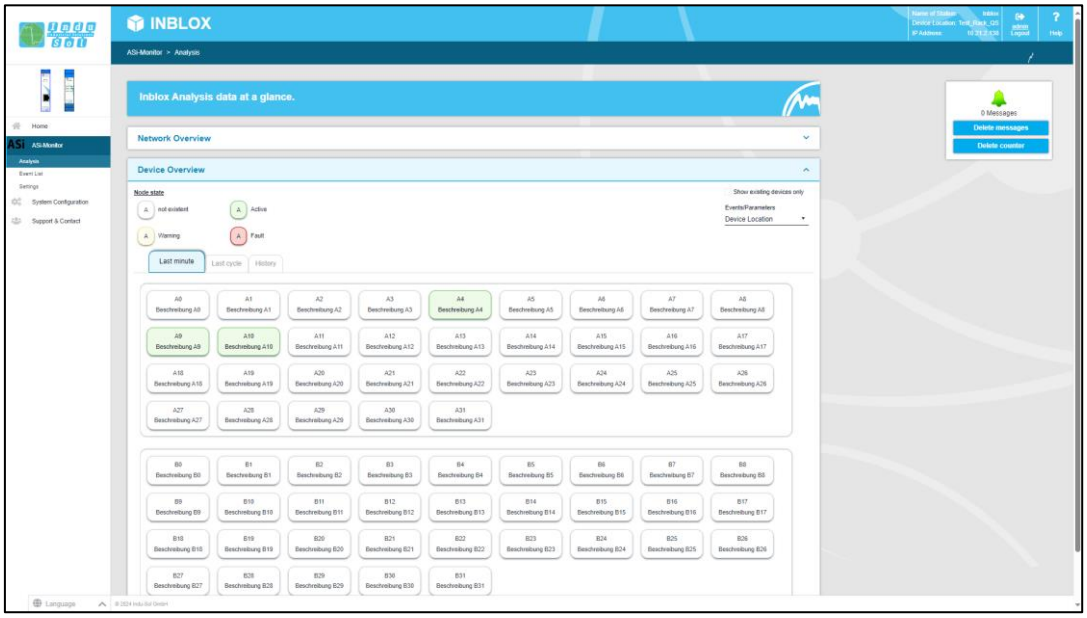


Figure 7: ASi Monitor - Participant overview

3.6 Event list

The overview on this page shows a list of all alarm entries since the restart or resetting of the alarms using the "Delete messages" actions.

An entry in the Event list is made automatically when a trigger event is triggered and contains all important information, such as device address, error event and time.

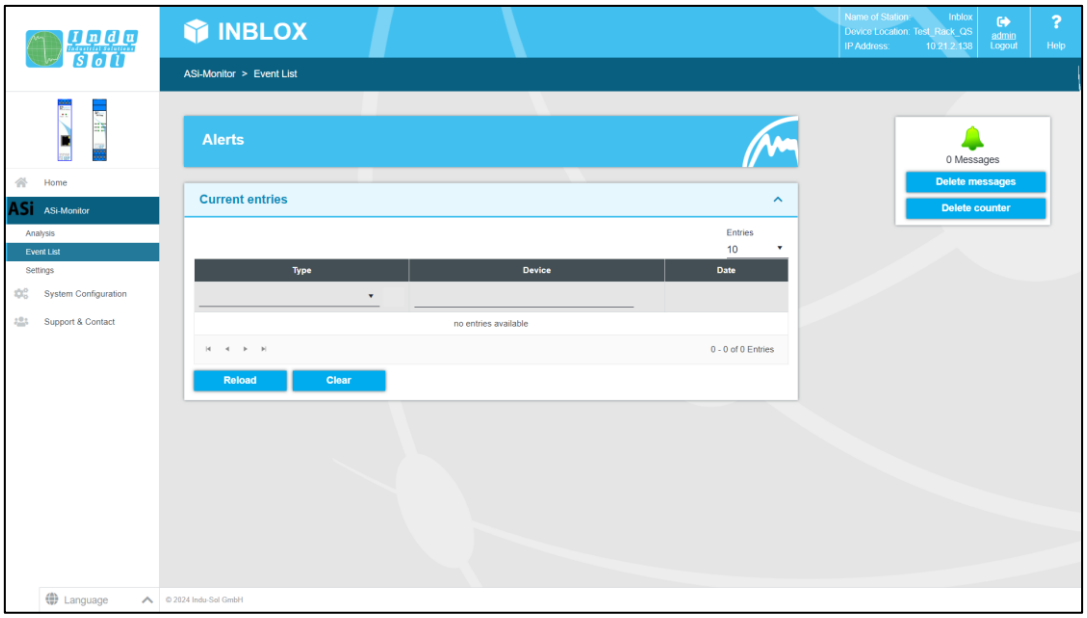


Figure 8: ASi Monitor - Event list

3.7 Settings

The settings in these menu items allow you to adapt the monitoring function of the ASi-Diag extension specifically to the system to be analysed and to define individual trigger and alarm thresholds.

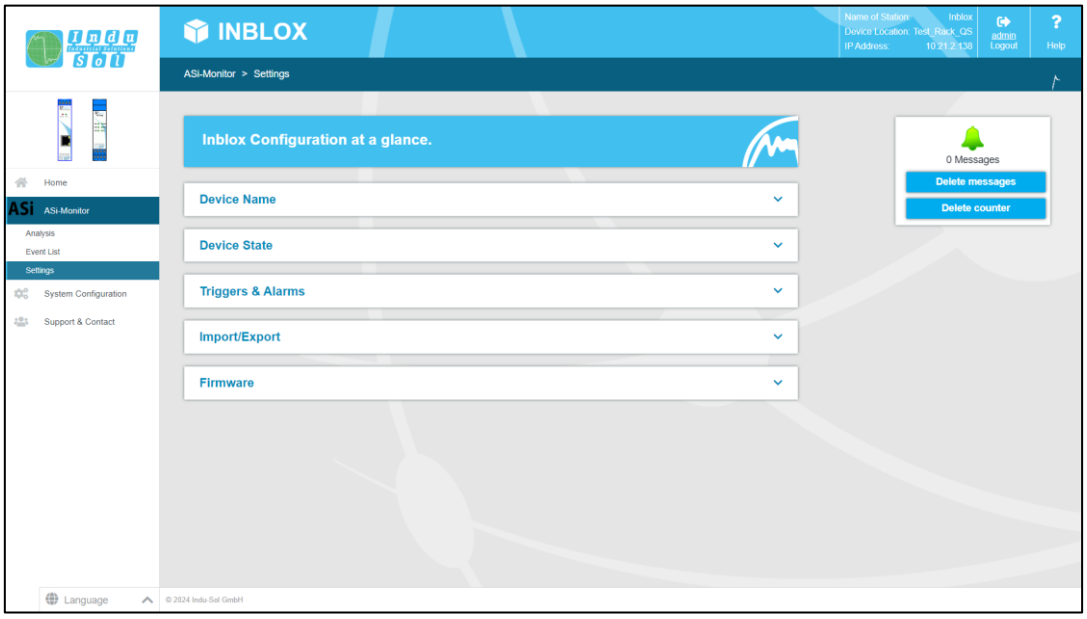


Figure 9: ASi Monitor - Settings

3.7.1 Participant names

An individual name and description can be assigned for each device under "Device name". This makes it possible, for example, to transfer and store the device type, the equipment identifier or the installation location from the electrical diagrams. All entries are then effective system-wide.

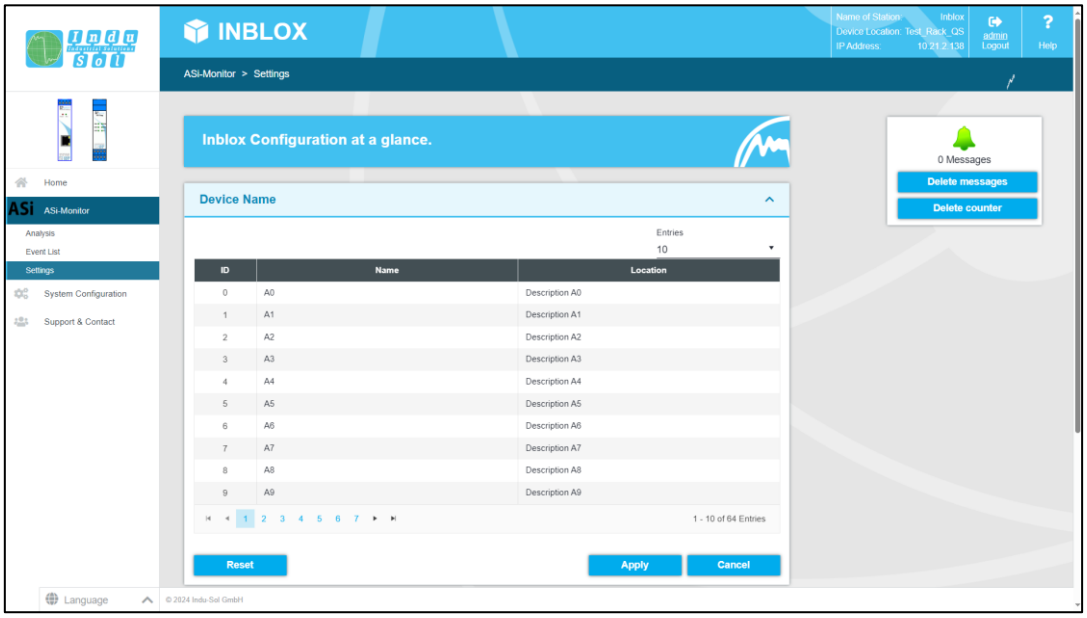


Figure 10: ASi Monitor - subscriber name

3.7.2 Subscriber status

The settings in this submenu allow the subscriber display in the INBLOX system to be customised according to the conditions of the ASi system. Depending on the error event and setting, a subscriber can assume the following states:

- No error
- Warning
- Error

In the default setting, the ***ASi Diag extension is*** programmed so that error telegrams and telegram repetitions from any subscriber lead to the "Warning" status, while failures and peripherals lead to the "Error" status.

By adding and editing further rules, the display of the participant statuses can be customised, e.g. due to special production conditions. In this case, the subscriber-specific settings overwrite the global values. This makes it possible to hide faulty events caused by normal system operation on a subscriber-specific basis.

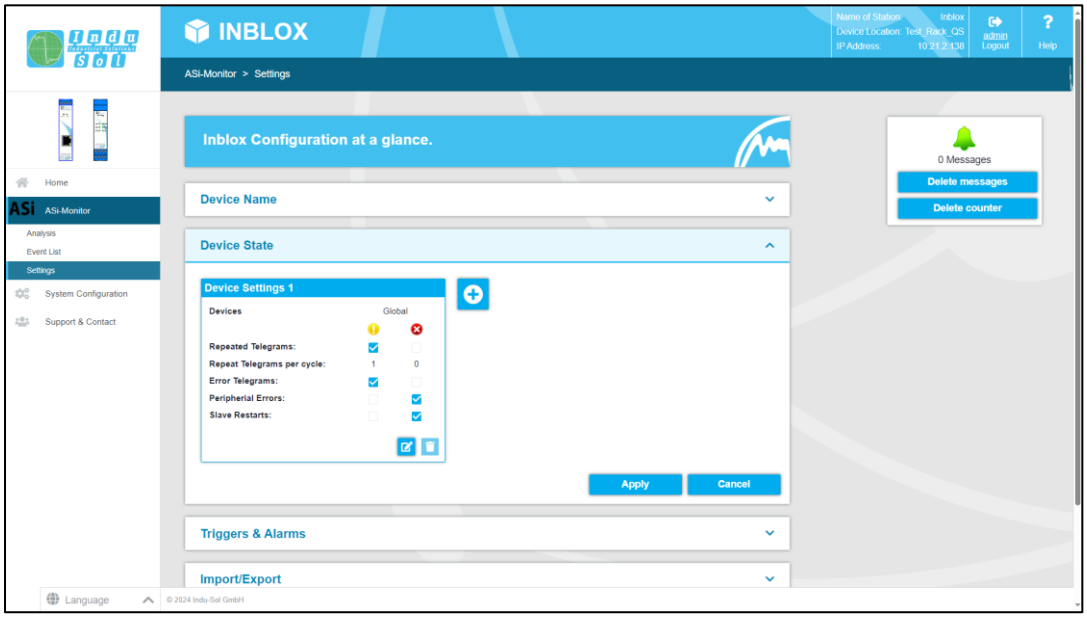


Figure 11: ASi Monitor - subscriber status

3.7.3 Triggers & alarms

To customise the generation of entries in the alarm site, the corresponding parameters are set under "Triggers and alarms".

In the default setting of the device, all faulty events of any ASi subscriber automatically lead to an entry in the Event list.

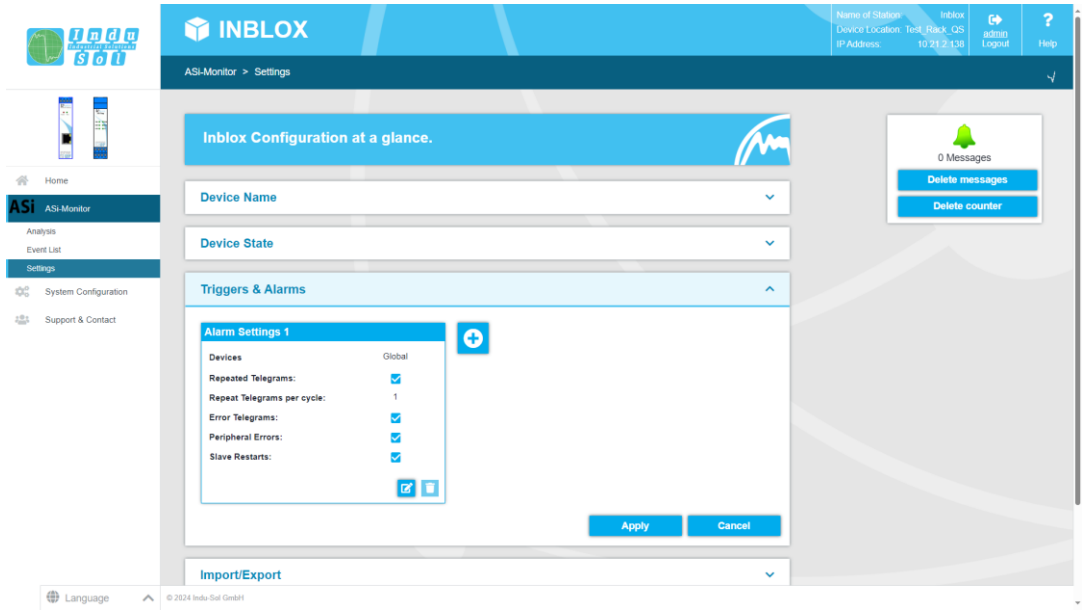


Figure 12: ASi Monitor - Triggers & Alarms

3.7.4 Import/Export

With the import/export function, all stored entries for the ASi Diag extension, such as subscriber names, subscriber statuses and alarms & triggers, can be saved (export) and loaded back into an ***ASi Diag extension*** if required (import).

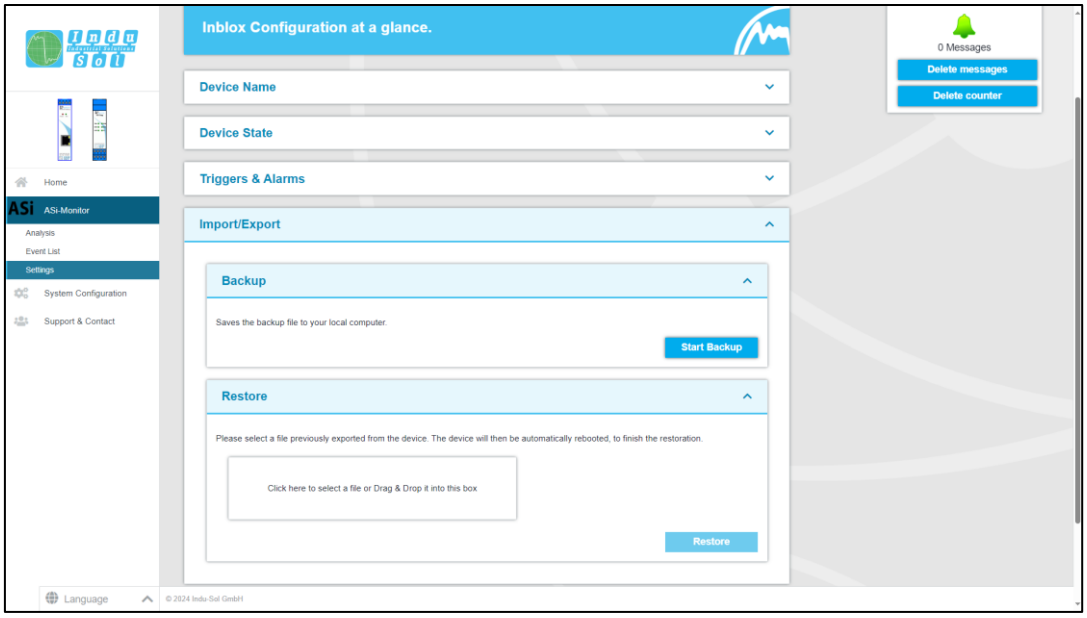


Figure 13: ASi Monitor - Import/Export

3.7.5 Firmware

As part of the continuous development of the ***ASi Diag extension,*** new firmware versions are occasionally released. These can be installed via a firmware update from this menu item. To do this, the new firmware file is selected via the button and uploaded or dragged directly into this field. After successful installation, it is necessary to restart the device using the "Restart" button.

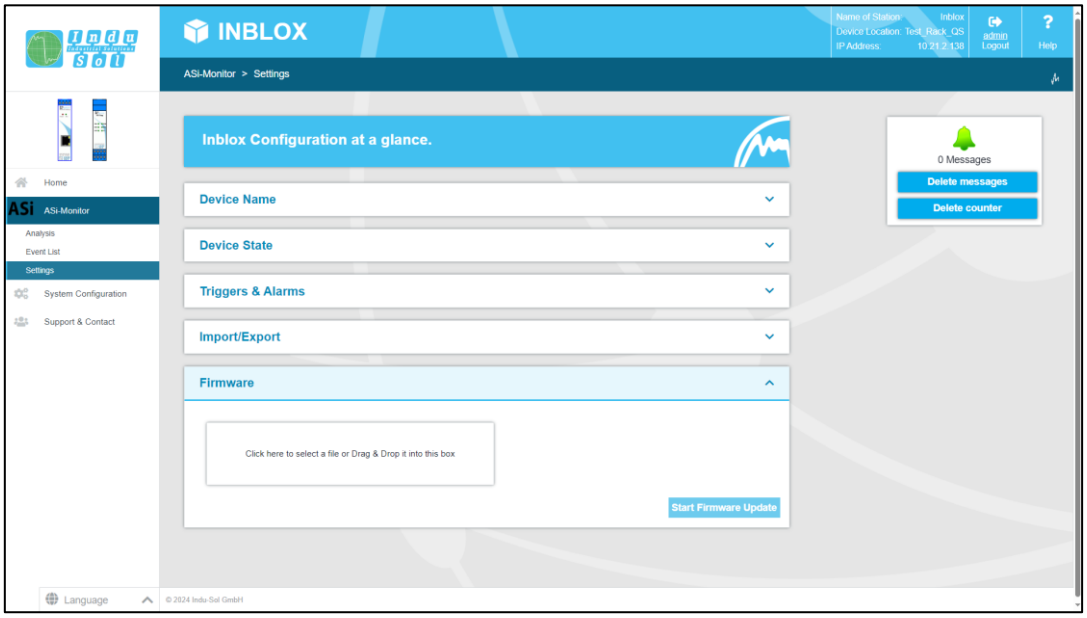


Figure 14: ASi Monitor - Firmware

If you would like to be informed automatically about the latest firmware changes, you can register for this via our download area (https://www.indu-sol.com/support/downloads/update-service) by selecting the relevant software.

3.8 System configuration

The System configuration page displays the IP address settings, the time setting, access options to the device and general device information.

This page is intended to provide you with a compact view of the system configuration menu to help you understand how the device works.

3.8.1 Device information

The Device information page allows you to assign a unique device name, an installation location and a contact person to the device.

- Device name: This name corresponds to the PROFINET name and is assigned via DCP.
- Installation location: Enter the installation location of the device to simplify localisation.
- Contact person: Enter a contact person for the device.

The SNMP trap receiver is also configured at this point.

3.8.2 Network

The IP configuration can either be carried out automatically using the Dynamic Host Configuration Protocol (DHCP) or manually. If the address is assigned automatically, the IP may change after a device restart depending on the settings of the DHCP server.

Automatic

To obtain a configuration of the IP address, the subnet mask and the default gateway from a server operating in the network with corresponding functionality, select the "Automatic (DHCP)" checkbox.

After you have saved the settings by clicking on the Apply button, the device sends a request to the server and accepts the configuration received from the DHCP server. As the device has now been assigned a new IP address, it can no longer be reached via the default IP. Please contact your network administrator or use an appropriate tool (Indu-Sol ServiceTool) to obtain the new IP address.

Manual

If your network does not have a DHCP server or you want to make the settings manually, deactivate the "Automatic (DHCP)" button and enter the following data:

- IP address: Please note that the IP address you have set must be accessible from your PC so that you can reconnect to the device to make further settings.
- Subnet mask: Enter the subnet mask of the IP address; this separates the IP address into a network part and a device part. This determines which IP addresses can be reached directly by the device and which addresses must be addressed via a gateway.
- Gateway: Enter a default gateway. The gateway is used to communicate with devices outside your subnet.

Please check exactly which settings you make to avoid problems with duplicate IP addresses. The format of the IP address, the subnet mask and the gateway must be entered in decimal notation.

3.8.3 password

The preset default password for the Admin and User users can be changed on this page. The user names and rights of the administrator and the user are fixed and cannot be changed.

Form fields

- Current password: Please enter the current password used to date here to ensure that you are authorised to change the password.

- New password: Please enter the password you have set for the previously selected user in this field. Please also note the information on assigning passwords in the section below.
- Confirm password: To make sure that you have entered your password correctly, repeat the entry in this field.

Notes on passwords

The security of your system essentially depends on the security of your passwords. It is therefore generally recommended for passwords:

- not to use dictionary entries
- use passwords that are as complex as possible
- Use combinations of letters, numbers and special characters
- use small and capital letters
- use a password of at least eight characters
- Do not write down passwords

3.8.4 e-mail

If the INBLOX system is to send an e-mail when a vulnerability is detected in the monitoring system, the e-mail recipient and all necessary information about the e-mail server can be entered in this menu.

3.8.5 Date/Time

In this menu, you can store the device time of the INBLOX system. You have the options Time:

- Automatic (SNTP)
- Manual

to be deposited.

Automatic (SNTP)

- SNTP server: Enter the IP address of the time server.
- Time zone: Then select your valid time zone

Manual

In this setting, you have the option of manually entering the current date and time by clicking on the calendar icon.

You can also select your valid time zone under "Time zone".

3.8.6 Access time

The time until automatic logout defines how long a session in web management remains without activity before an automatic logout takes place. You can specify a period of between 3 and 30 minutes. The default setting is 10 minutes.

3.8.7 Backup and restore

This menu item allows you to save the current configuration of the device in a file.

The device creates and saves a backup file with all settings, which can be loaded at a later time using the Restore function.

3.8.8 Firmware update

New firmware versions are occasionally released as part of the ongoing development of the INBLOX Ethernet head module. These can be installed via a firmware update from this menu item. To do this, the new firmware file is selected via the button and uploaded or dragged directly into this field. After successful installation, it is necessary to restart the device using the "Restart" button.

If you would like to be informed automatically about the latest firmware changes, you can register for this via our download area (https://www.indu-sol.com/support/downloads/update-service) by selecting the relevant software.

3.8.9 Restart

The device can be restarted here to perform a software reset. Pressing the restart button terminates the device software and the device reboots.

Alternatively, you can switch the power supply to the device off and on again to perform a hardware reset.

3.8.10 System information

All relevant information, such as the firmware versions and the current operating parameters such as operating time and device temperature, can be read out in this menu.

3.9 Support

In the Support section you will find all relevant contact information for Indu-Sol

Licence information

The linked licence.txt file contains information about the "Open Source Software" used.

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We are certified according to DIN EN ISO 9001:2015