

Sinec H1 Plugin

Plugin for ibaDatCoordinator – Model AluNorf



Manual

Edition V 1.0

Measurement and Automation Systems



Sinec H1 Plugin Manual

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Edition V1.0, Sinec H1 Plugin

We have checked that the contents of this manual match the hardware and software described here. However, deviations cannot be fully ruled out, so that we cannot assume any warranty should any deviations actually exist. This manual is regularly updated. Necessary revisions are included in future editions, or can be downloaded from the Internet.

The latest version is always available for downloading at

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We would welcome any suggestions for improvements which you may have.

Version	Date	Revision	Chapter	Pages	Author	Version SW
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Table of contents

<u>This manual</u>	<u>4</u>
<u>1 Introduction</u>	<u>5</u>
1.1 What is the Sinec H1 Plugin?	5
1.2 System pre-requisites.....	5
<u>2 Installation</u>	<u>6</u>
2.1 Installing the plugin.....	6
2.2 Installing the SINEC-H1 protocol driver	6
<u>3 Configuring the Sinec-H1 plugin</u>	<u>11</u>
3.1 Extract job	11
3.2 Adding the Alunorf Sinec- H1 task.....	11
3.3 Configuring the Alunorf Sinec-H1 task.....	12
3.3.1 Protocol configuration	13
3.3.2 Telegram specifications.....	15
<u>4 Support and contact</u>	<u>18</u>

This manual

This manual describes in detail the configuration and use of Sinec H1 Plugin. It serves both as a tutorial and a reference document.

As this software product was developed for a special application at Aluminium Norf GmbH in Neuss, Germany, the description only refers to this particular application.

In this manual you may find several symbols which essentially have the following meanings:



Important hint or warning in order to avoid hazard against material or life.



A useful tip or clue to make your work easier.



This draws your attention to special features, such as exceptions to rules, etc.



A reference to additional documentation or more in-depth literature.



Software or file name

reference to associated software or sample applications on the CD-ROM.



iba training courses

Hint for training courses by iba concerning related products or subjects

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1 Introduction

1.1 What is the Sinec H1 Plugin?

The iba Sinec H1 Plugin is an extension for the ibaDatCoordinator that allows ibaDatCoordinator to extract data from an iba data file (".dat file") and send it to the Alunorf Quality Data Server using the Sinec H1 communication protocol and in the form of a telegram structure specified by Alunorf. The plugin is also responsible for establishing and maintaining the connection with the Data Server and sending and receiving additional telegrams to determine and act upon the health of the connection and the health of the Data Server; it is also responsible for communicating the process computers own status through similar telegrams. The structure of these telegrams and the protocol for sending them is again specified by Alunorf. The plugin can be configured to communicate with a second redundant Data Server which can take over on failure of the primary Data Server.

1.2 System pre-requisites

Software

- Windows XP Professional (SP2)
- .NET- framework 2.0
- ibaDatCoordinator 1.11 or higher

Hardware

- IBM-compatible PC, P4 1GHz, 256 MB RAM, 40GB HDD
- Network card provided by iba.
- iba licensing dongle that has the necessary licensing bits set to enable this plugin in ibaDatCoordinator

2 Installation

2.1 Installing the plugin

The plugin installer can be found on the install CD in the ibaSoftware tab by clicking on “Install ibaSinecH1Plugin” or unzip the file ibaSinecH1Installer.zip (located at <cdrom>:\ibaSoftware\ibaDatCoordinator\) into a folder on the hard disk and execute the file ibaSinecH1Installer.exe. Follow the instructions of the installation wizard.

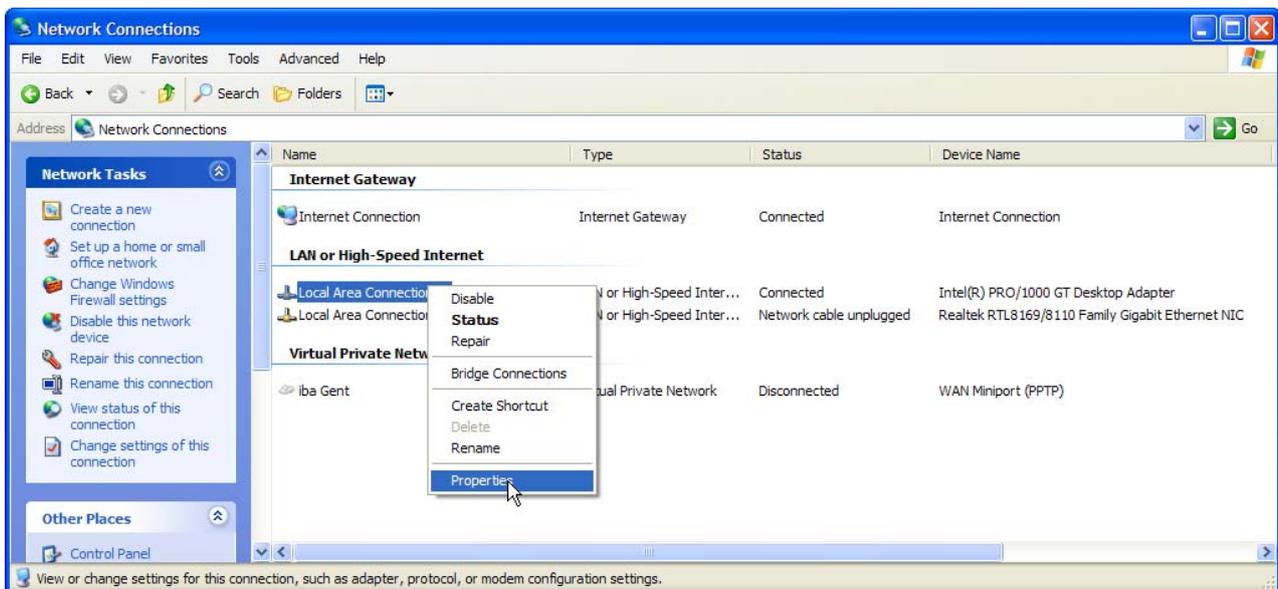


The ibaDatCoordinator needs to be stopped and closed before installing the plugin. If you haven't closed the ibaDatCoordinator yourself (and its service when installed as a service), the installer will close ibaDatCoordinator for you. Do not install the plugin at a time when shutting down the ibaDatCoordinator is inconvenient for you.

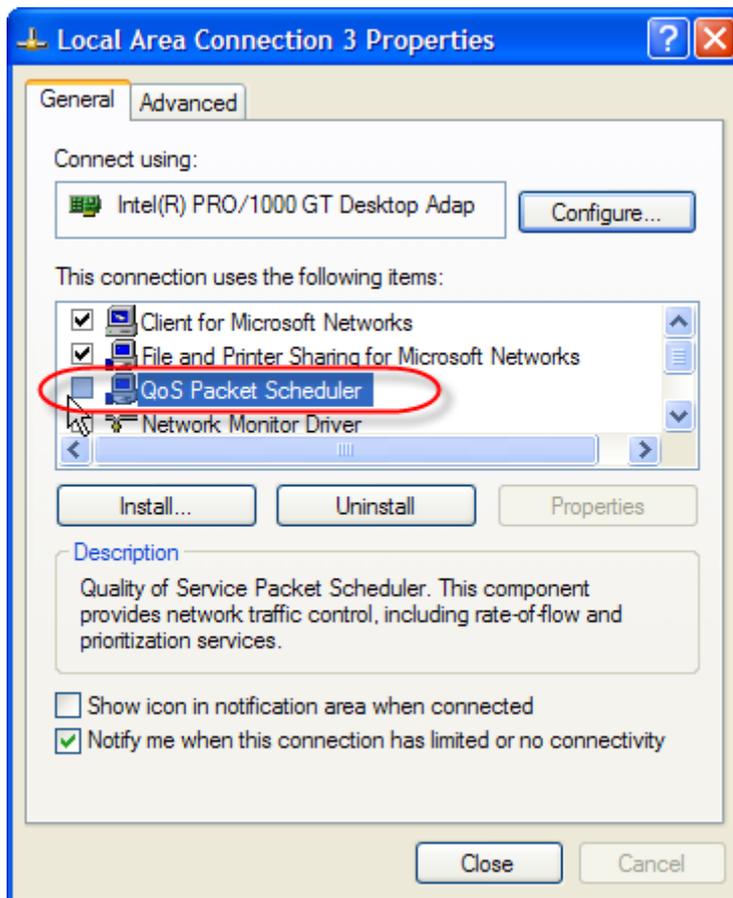
2.2 Installing the SINEC-H1 protocol driver

During the installation of the plugin, you will be prompted to install the INAT Sinec-H1 protocol driver; the “Network connections” configuration panel will appear along with a list of instructions on how to install the protocol driver. Here follow the steps you need to take to install the protocol in more detail:

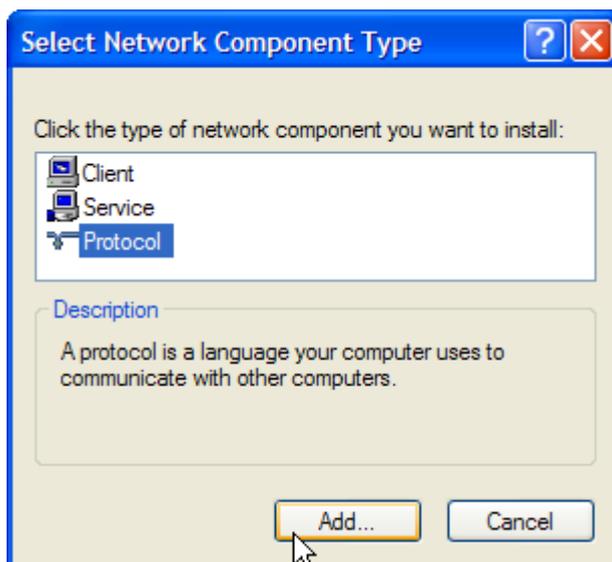
- ❑ Select the “Local area Connection” corresponding with the network card you've obtained from iba for the purposes of enabling the ibaSinecH1Plugin. Right click to open a context menu and select “Properties”.



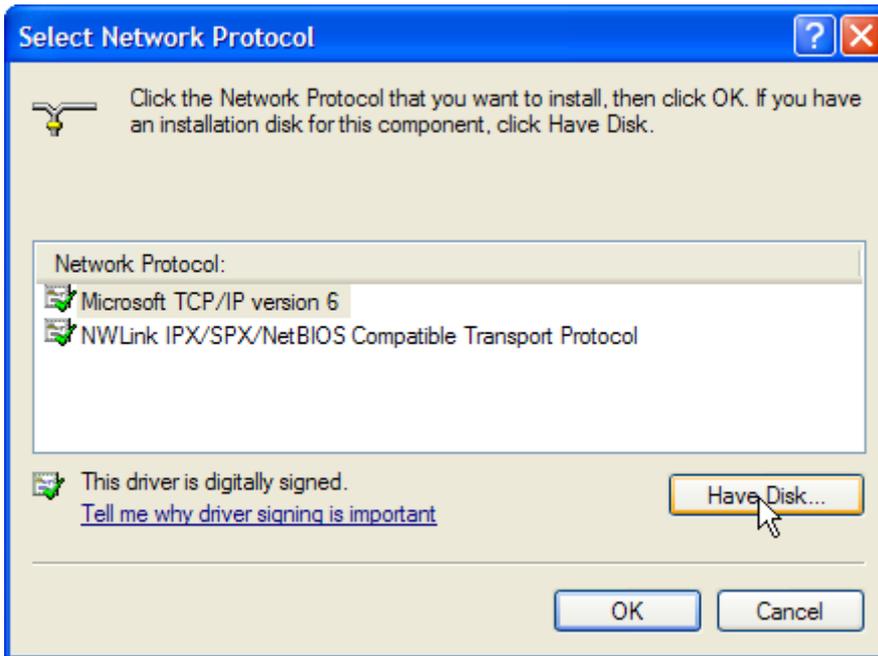
- ❑ When installed, disable the **“QoS Packet scheduler”** by unchecking the checkbox in front of that item.



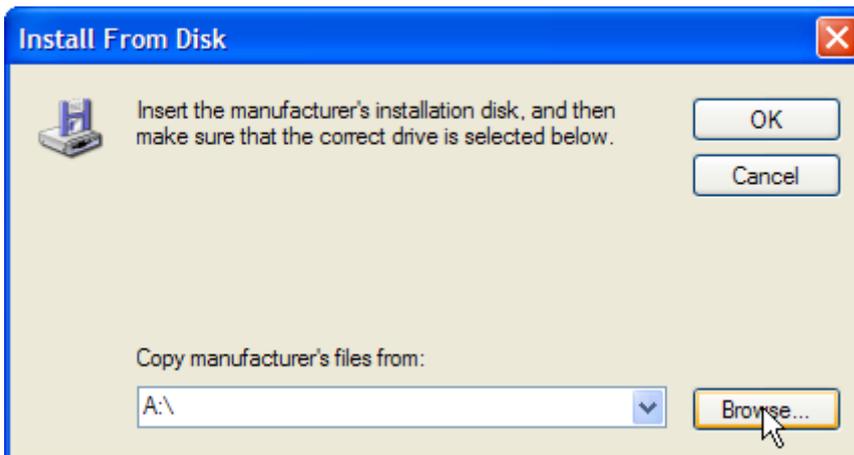
- ❑ Click the button **“Install”**
- ❑ Select **“Protocol”** and click the button **“Add”**



- ❑ Click the button “*Have Disk...*”



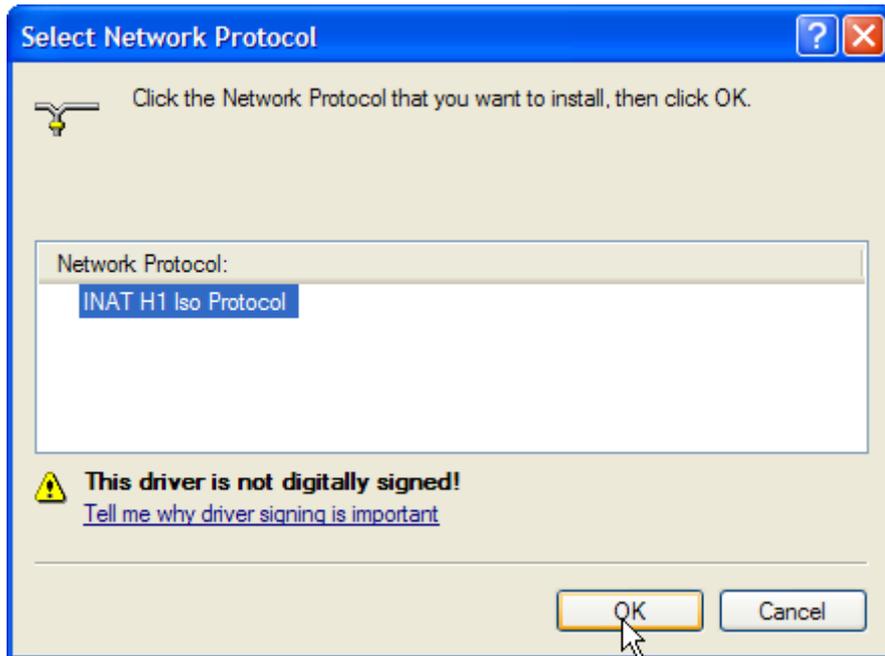
- ❑ Click the button “*Browse*”



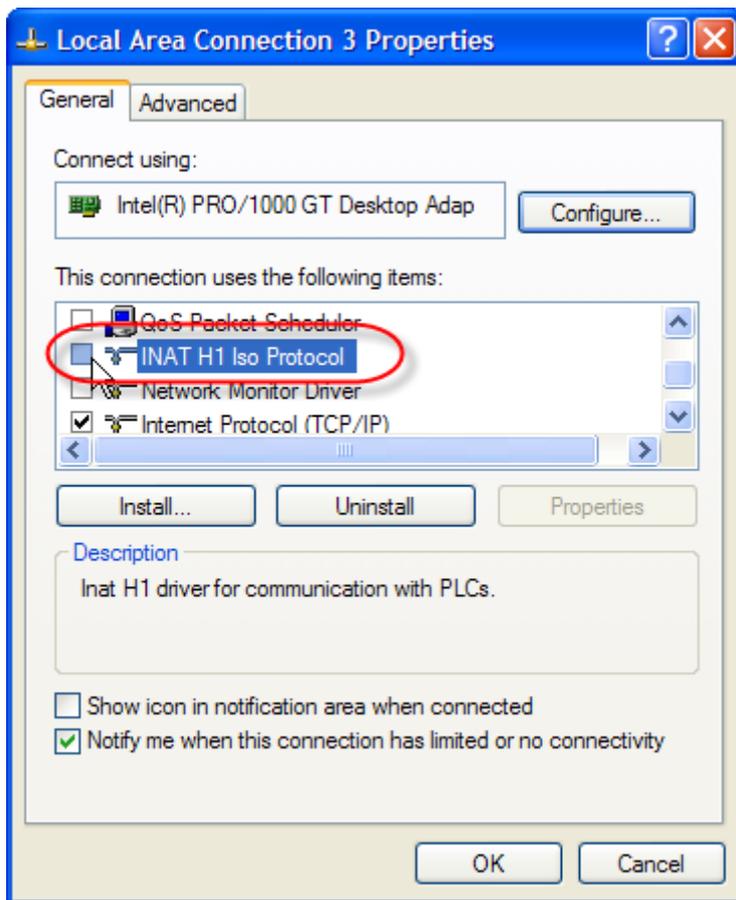
The ibaSinecH1Plugin installer has copied the driver to the installation folder of ibaDatCoordinator in the subdirectory `Plugins\H1Driver`. Browse to this folder. Assuming you have installed ibaDatCoordinator under `C:\Program Files\` this folder is `C:\Program Files\iba\ibaDatCoordinator\Plugins\H1Driver`

- ❑ Select the file “*H1Prot.inf*” file and click the button “*Open*”
- ❑ Confirm the “*Have Disk ...*” dialog with clicking the button “*OK*”

- ❑ Confirm the “*Select Network Protocol*” dialog with clicking the button “OK”



- ❑ You can close the “*Local area connection*” dialog.
- ❑ Unfortunately Windows will have installed and enabled the Sinec-H1 protocol for every network card in your computer. The plugin however expects only one network card to have the Sinec-H1 protocol enabled. So if you have more network cards than the one obtained from iba, you have to disable the protocol on those network cards. You do this by selecting in the “*Network configuration*” configuration panel the “*Local area connection*” corresponding with such a network card, right-clicking the context menu and selecting “*Properties*”. In the “*Properties*” dialog, you can disable the Sinec-H1 protocol by unchecking the item “**INAT H1 Iso Protocol**”. Confirm the “*Properties*” dialog with clicking the “OK” button. Repeat this for every network card except the one supplied by iba.



- You need to reboot your computer before the installation of the Sinec-H1 protocol will take effect.



Please follow the above instructions carefully. The ibaSinecH1Plugin will not work properly if you have forgotten one of the following steps:

- Disable the QoS Packet scheduler for the network card you will be using for the ibaSinecH1Plugin (the network card you have obtained from iba for this purpose).*
- After having installed the Sinec H1 Protocol, disable it for the network cards that you will not be using for the ibaSinecH1Plugin.*
- Reboot your system after having configured your network cards.*

3 Configuring the Sinec-H1 plugin

3.1 Extract job

The Sinec-H1 task requires the .dat files it is processing to have a specific format in order to be able to send meaningful telegrams to the quality data server. Specifically certain info fields need to be present and the signals that will be included in the telegrams need to have exactly 400 samples. It might be necessary that some of the info fields are computed from other data in the .dat file or that they must be extracted from a technostring.

It is unwieldy to configure ibaPDA to automatically generate such .dat files. Therefore it is recommended to have a second separate job having an extract task that generates the files in the correct format. The job containing the Sinec-H1 task must then be configured to operate on the .dat files in the output directory of the extract job.

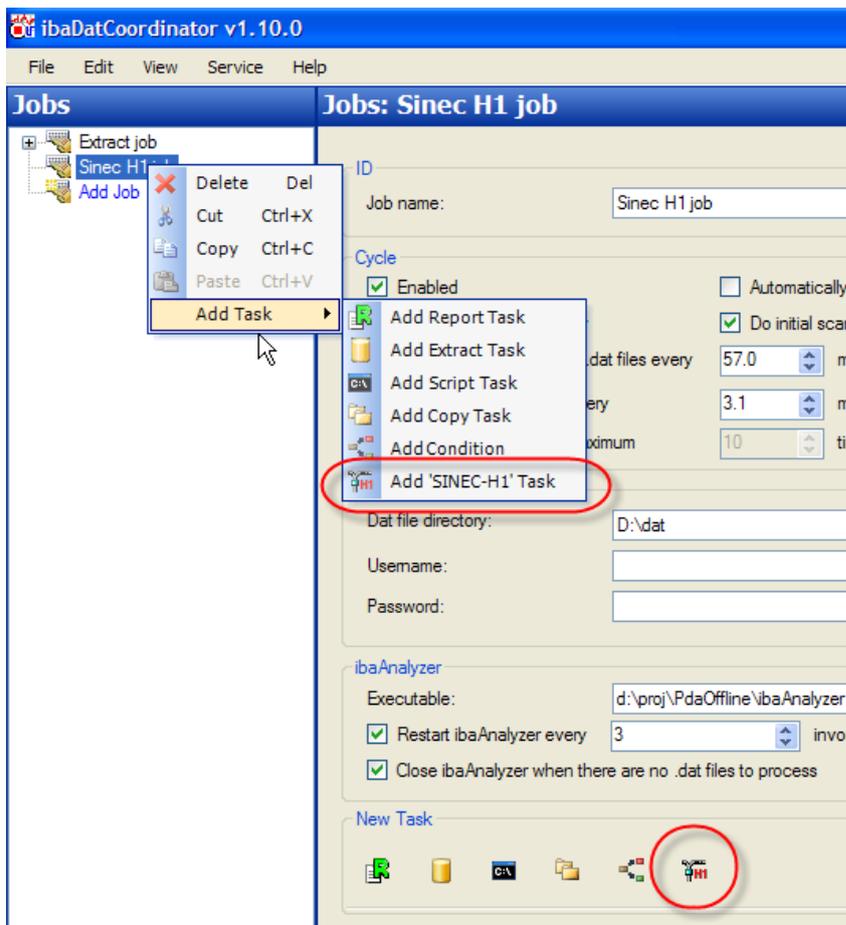


Refer to the ibaDatCoordinator manual on how to configure such an extract job.

Refer to the ibaAnalyzer manual on how to create an analysis that can extract from the original data the required signals resampled to 400 samples and can compute and generate the required info fields.

3.2 Adding the Alunorf Sinec- H1 task

If the ibaSinecH1Plugin is installed successfully; the next time you start ibaDatCoordinator you will be able to add a SINEC-H1 task to a job. You can do this in the job pane, either by clicking the button in the “New Task” button collection or by right clicking on the job in the job tree and selecting the task from the context menu under “Add task”.



3.3 Configuring the Alunorf Sinec-H1 task

After adding an Alunorf Sinec-H1 task, you can select it in the job tree to open the corresponding task pane where you can configure the task. The task has three groups of options in common with any other task:

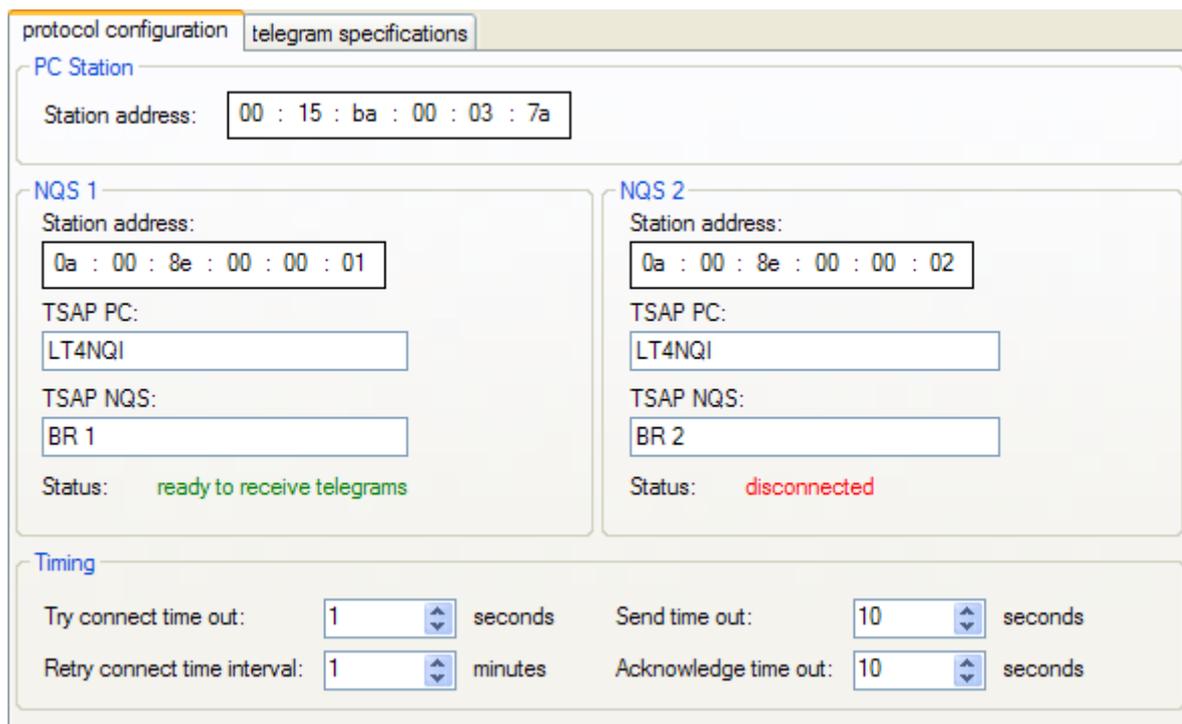
- "ID"*: Here you can specify another name for the task then the default "SINEC-H1".
- "Execute"*: Here you can specify when to execute the task.
- "Notify"*: Here you can specify when ibaDatCoordinator should send notifications about the status of the task.

These options are entirely identical to the same options in any other task; refer to the ibaDatCoordinator manual on how to configure them.

After the common options the specific Sinec-H1 task options are presented in a tab window consisting out of two tabs:

- "protocol configuration"*: Here you can specify the parameters necessary to setup and maintain the connection with the quality data server.
- "telegram specifications"*: Here you can specify the quality data telegrams (QDT telegrams) that the Alunorf Sinec-H1 task needs to send for each .dat file it processes.

3.3.1 Protocol configuration



The following parameters are available for the protocol configuration:

- ❑ Grouped under the header “PC Station” the following parameter can be specified:
 - “Station address”: MAC Address (unique identifier of 6 bytes) the Sinec-H1 protocol uses to identify the PC (i.e. the computer running ibaDatCoordinator). The station address is entered in hexadecimal notation. It must be the same as the one the protocol on the quality data servers uses to identify the PC.
- ❑ Grouped under the header “NQS 1” the parameters to setup the connection with the primary quality data server can be specified:
 - “Station address”: MAC Address (unique identifier of 6 bytes) the Sinec-H1 protocol uses to identify the quality data server. The station address is entered in hexadecimal notation. It must be the same as the one the protocol on the quality data server uses to identify the server itself.
 - “TSAP PC”: Transport Service Access Point of the PC. This is an additional identifier used in the Sinec-H1 protocol addressing scheme to identify the application running on the PC that uses the connection (ibaDatCoordinator). This is a variable length ASCII string with maximum 16 characters. It must be the same as the TSAP the quality data server application uses to identify the PC application.
 - “TSAP NQS”: Similar as TSAP PC but to identify the application on the quality data server. It must be the same as the TSAP the quality data server application uses to identify itself.
 - “Status”: This is not actually a parameter, but an information field where you can monitor the status of the connection with the quality data server while the job is running. It can have the following values:
 - “disconnected”: There is no connection established with the quality data server.
 - “connected”: A connection is established on the Sinec-H1 level, but no telegrams have yet been received to indicate the status of the server.

- “**initialized**”: A connection has been established and the necessary telegrams have been received and sent to determine that the connection is healthy and the server is correctly responding.
- “**ready to receive telegrams**”: There is a final “GO” telegram that needs to be received from the quality data server before quality data telegrams can be sent to it. When the status reports “ready to receive telegrams” this means that this telegram has been received.

In the case of a redundant server setup, only the last server that has sent the “GO” telegram can receive quality data telegrams, this means that only one of the two servers can have “ready to receive telegrams” as status, the other server will revert to either “initialized” (if the task still keeps receiving telegrams about the servers status), “connected” (if the server stops responding but the Sinec-H1 connection is not yet broken) or “disconnected”.

- Grouped under the header “*NQS 2*” the same parameters as under NQS 1 can be found but these are used to setup the connection with the second redundant quality data server. If no such server is present you can leave these parameters unaltered. When the job is running, ibaDatCoordinator will complain one time only through its logging that it cannot connect to the second server, but this is a warning you can safely ignore if there is no actual second data server present.
- Grouped under the header “*Timing*” some time interval parameters can be specified:
 - “*Try connect time out*”: When trying to establish a connection, this is the amount of time in seconds that the job will wait before doing anything else. It is not really a timeout since if a connection is established after the timeout but before the task actually tries to send or receive data, this will not be perceived as an error.
 - “*Retry connect time interval*”: Here you specify the amount of time in minutes before the task tries again to connect to the quality data server after having failed the previous time to connect.
 - “*Send time out*”: Here you can specify the amount of time sending a telegram can take before the sending is aborted and an error is reported.
 - “*Acknowledge time out*.” For each telegram sent, the Alunorf protocol demands that an “Acknowledge” telegram is sent back by the receiver. If the task does not receive such a telegram from the quality data server in response to a sent telegram before the time specified here (in seconds), an error is reported.

3.3.2 Telegram specifications

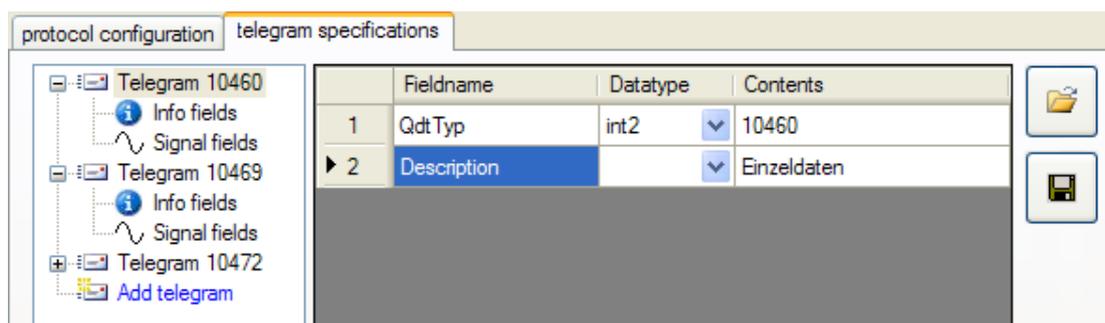
The telegram specifications tab consists out of three parts: To the left is the telegram tree, in the middle is a data grid and to the right are two buttons.

With the buttons on the right one can load and save the telegram specifications to an XML file. Although when saving the ibaDatCoordinators entire configuration to an XML file the telegram specifications are also stored in the XML file, one can save the telegram specifications separately with the save button. Likewise one can load the telegram specifications separately with the load button.

The telegram tree initially only contains a blue colored node labeled “Add telegram”. By clicking this node a new telegram specification can be added and it will be listed in the tree; it will initially be labeled “Telegram 0”. After one or more telegram specifications have been added this way, one can select the telegram specification listed in the tree and press the Delete button, or right click on it and select “Delete” to have the telegram removed. Each telegram specification listed in the telegram tree will have two subnodes labeled “Info fields” and “Signal fields”.

The data grid contains three columns with headers “*Fieldname*”, “*Datatype*” and “*Contents*”. The data shown in the grid depends on which node is selected in the telegram tree:

- ❑ If the node in the telegram tree is the main node of a telegram specification, only two rows are depicted in the data grid:



- The first row shows the “*QdtTyp*” information. The “*QdtTyp*” is a 16-bit integer (ranging from 0 to 65535) uniquely identifying this telegram specification. You can edit its value in the third column (the other columns are immutable). This integer must match a known *QdtTyp* specified by Alunorf, it will be sent in the header data of the quality data telegrams so the quality data server can identify and process the telegram correctly. After having specified the *QdtTyp* in the “*Contents*” column of the first row, the name of the telegram specification listed in the telegram tree will change accordingly.
- The second row allows you to specify a description for this telegram specification in the third column (the other columns are immutable). This is optionally and only serves to help the user remember what this telegram specification stands for; no data typed here will be sent to the quality data server.

- If the selected node in the telegrams tree is the “Info fields” sub node of a telegram specification main node, you can specify in the data grid the fields that will be generated from infofields in the .dat file and included in the quality data telegram. These fields must correspond with the description specified by Alunorf for a telegram of the type identified by the QdtTyp number this telegram specification has. The order of the fields is important; the order in which the fields will be included in the telegrams is the same as their row orders in the grid. The fields are specified as follows:

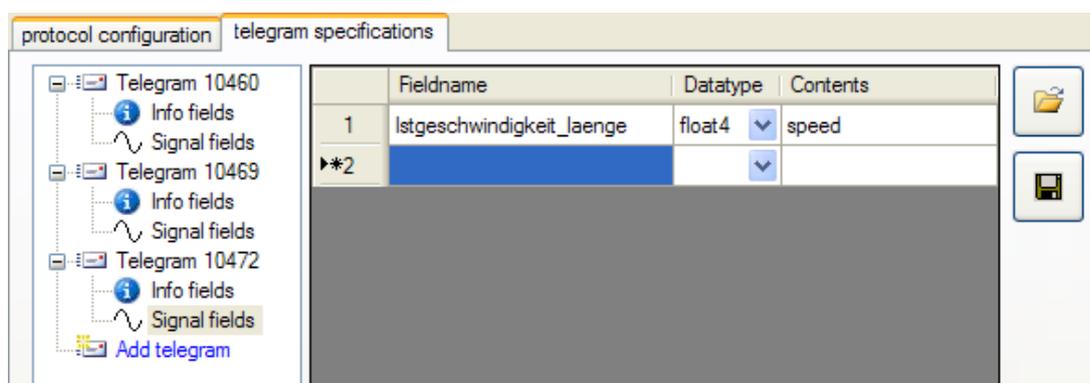
	Fieldname	Datatype	Contents
001	\$DE_MNR	char12	
002	\$DE_FILLER_4C...	char4	
003	\$DE_MNRAS	char12	
004	\$DE_FILLER_4C...	char4	
005	\$DE_MNRBS	char12	
006	\$DE_FILLER_4C...	char4	
007	\$DE_FA_KD_POS	int2	
008	\$DE_FERTIGUN...	int2	
009	\$DE_LFD_NR_A...	int2	
010	\$DE_AVO_NR	char4	
011	\$DE_Zeitstempel...	char14	
012	\$DE_FILLER_2C...	char2	
013	\$DE_Zeitstempel...	char14	
014	\$DE_FILLER_2C...	char2	
015	\$DE_GEWICHT_...	int4	
016	\$DE_GEWICHT_...	int4	
017	\$DE_GEWICHT_...	int4	
018	\$DE_SCHOPF_S...	int2	

- In the “Fieldname” column you specify the name of the infofield in the .dat file to generate the field from. If the info field is missing in the .dat file or cannot be parsed to the data type specified in the next column, -1 will be stored in the telegram for integral types, Nan for the float type and a string of chars containing all zeros for the char types.
- In the “Datatype” column you can select the data type from a dropdown list. This data type is either “int” (signed integer), “u. int” (unsigned integer), “float” or “char” (string of ASCII chars) followed by the number of bytes the field will take when included in the telegram (which for the numeric types will imply its precision and for the char string type the length of the string).
- In the “Contents” column you can optionally specify a description for the field. This only serves to help the user remember what the field stands for; no data typed here will be sent to the quality data server.

- If the selected node in the telegrams tree is the “Signals fields” sub node of a telegram specification main node you can specify the signals in the .dat file that will be included in the quality data telegrams.



The Alunorf description of the QDT telegrams specifies that for each array of 400 samples corresponding to the values of the signal, an array containing 400 distances corresponding to the measurement locations must follow. The Sinec-H1 plugin automatically generates this array of distances from the signal and includes it in the telegram, no separate signal for these distances must be specified in the signal part of the telegram specifications



In the “Fieldname” column, you specify the name of the signal that needs to be included in the telegrams. The “Datatype” column cannot be edited, as all QDT telegrams currently specify that the signal data must be 4 byte floats. Optionally you can specify a description of the signal in the “Contents” column; again this only serves to help the user to remember what the signal stands for, no data typed here will be sent to the quality data server.



Data typed in the data grid can be copied and pasted in Microsoft Excel or a table in Microsoft Word. Likewise data from Excel or a table in Microsoft Word can be copied and pasted in the data grid. Copying from the data grid is done by selecting a range of cells and pressing Ctrl+C, while pasting is done by selecting a cell and pressing Ctrl+V, existing cells will be overwritten, new rows will be created as necessary.

4 Support and contact

For technical support or sales information, please call the following numbers:

Telephone: +49 911 97282-14

Fax: +49 911 97282-33

email: support@iba-ag.com

For downloads of the latest software versions as well as hardware and software manuals, please use our web-site at: <http://www.iba-ag.com>

Any feedback, comments or tips on errata in this documentation or suggestions for improvement will be appreciated. Simply send an e-mail or fax to us, thank you for your support.

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