HIQUEL-MBUS-MODBUS Configurator

software - user manual

CE

Maurer Helmut, Manuel Niederl, Herbert Weiß

HIQUEL-MBUS-Configurator – Software - User Manual

Version: 2.00

History

	Editor	Description
25.07.06	O. Reisky	First version
27.09.06	O. Reisky	Add-on of the data sheet to the support chapter and the user manual of the converter.

 Caution!

You are handling dangerous
electrical current!

Disconnect the supply voltage before making any wiring modifications.

Ensure that the system cannot be switched on accidentally.

Ensure that the device and its surroundings are potential free.

Please refer to the specific installation and mounting instructions.

Qualified personal only should handle the device.

The device has to be mounted in such a way that no unintentional operation may occur.

All control and supply voltage wiring must be routed so that no inductive or capacitive interference or any other severe electrical noise disturbance may interfere with the device.

Supply voltage variation must not exceed the specifications in the technical details. If so, proper performance of the device cannot be guaranteed.

Emergency installations according to EN60204/IEC204 (VDE0113) must remain active in all modes of the automated installation. Activation of the emergency installation must not cause an uncontrolled or undefined start cycle.

The software engineer has to make sure, that no failure functions of the automated installation may occur when line faults or core faults arise.

Notwithstanding the above, local regulations must be observed in all installations.

Safety-related advice

Danger to life through electrical current!
Only skilled personal trained in electro-engineering should perform the described steps in the following chapters. Please observe the country specific rules and standards for the mini module installation. Do not perform any electrical work while the device is connected to power!

Please pay attention to the following rules:

✍Activate the automated installation

✍Disable any automatic restart system.

✍Electrically isolate the installation

✍Cover any non-isolated areas

Content

HIQUEL-MBUS-MODBUS

Introduction

The HIQUEL MBUS-MODBUS Configurator tool is used to parameter the MBUS to MODBUS converter modules and administer the corresponding configurations. Meaning that configurations can be either stored in files or can be read from or written into the converter module. Due to a program manager the counters can be easily and fast configured.

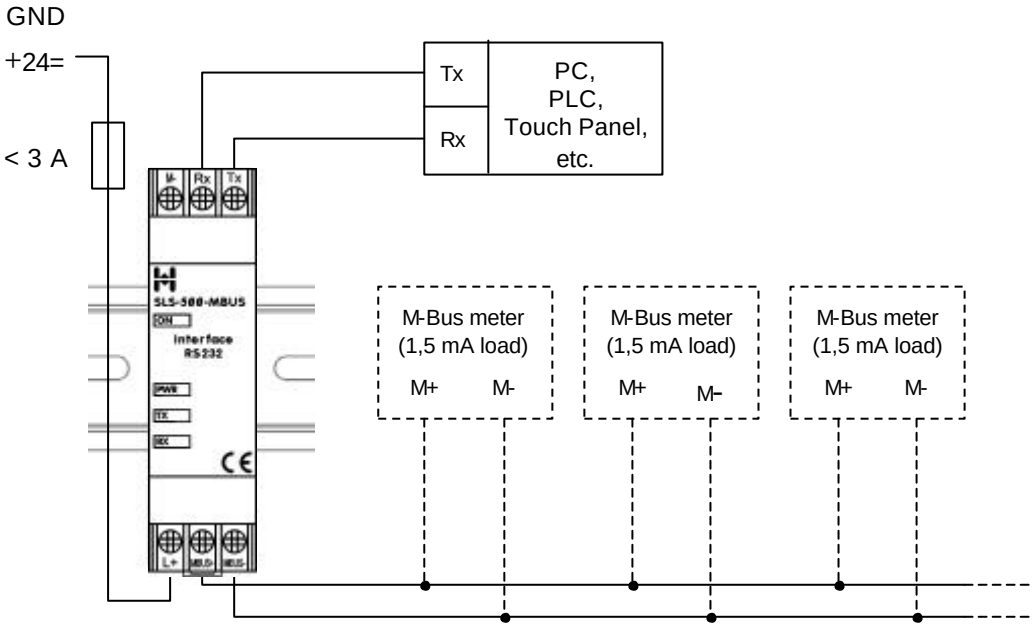
- Easy configuration of the HIQUEL-MBUS-MODBUS Converter
- Configurations can be saved as CSV files.
- Query of the parameterised data for easy functional tests
- Configuration manager for quick selection of the meter bus reader data
- Meter connected to the Configuration manager are automatically actualised via TCP/IP
- runs under Windows® Win 2000 / Win XP

Type	Description	Supply	Weight
HIQUEL-MBUS-MODBUS-Configurator	Software to configure and parameter HIQUEL-MBUS-MODBUS Converter modules		

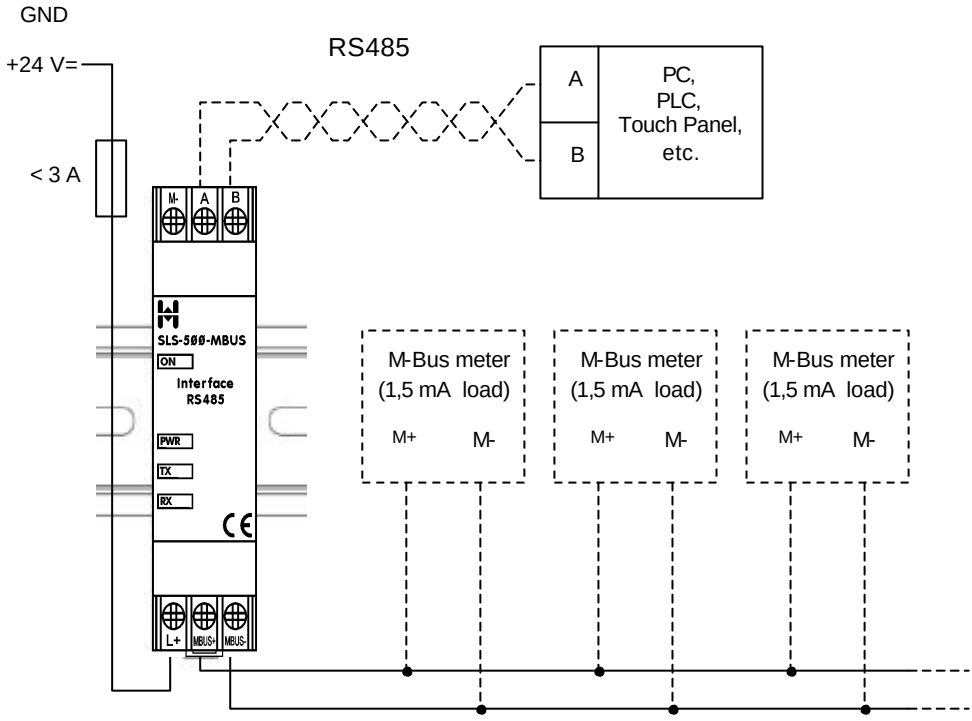
Connection block diagram

HIQUEL-MBUS-Converter

Figure 0-1 demonstrates how to wire both converter types.



Up to 8 separate M-Bus meters 1,5 mA each can be connected per HIQUEL-MBUS-MODBUS Converter

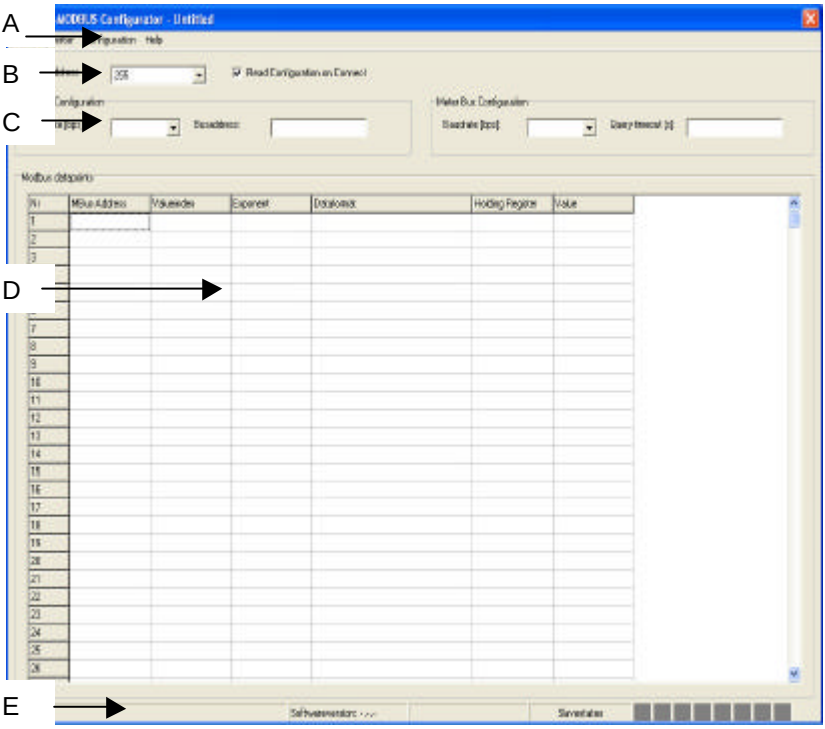


Up to 8 separate M-Bus meters 1,5 mA each can be connected per HIQUEL-MBUS-MODBUS Converter

Figure 0-1: Connection block diagram of the Converter modules

User interface

After starting the HIQUEL-MBUS-MODBUS Configurator tool software the following screen is displayed:



The software consists of the following parts:

Area	Description
Menu bar (A)	Accesses all functions
Options for the connection (B)	Settings for the connection to the Converter
General Configuration (C)	General settings of the Converter module
Configuration table (D)	Representation of the list of data points in table form
Status bar (E)	Messages and system states of the Converter are displayed

Quick entrance

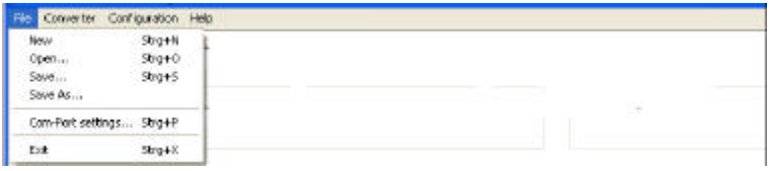
This software communicates with an M-Bus converter module connected over a serial port. Therefore select the menu item ‚File✍interface settings' to choose the right options for the serial port in the appearing screen.

Now all settings are made to be able to establish a connection to the converter. To do so, select the desired Modbus address from the connection's options and by selecting the menu item Converter ✍ connect the connection will be established. If no connection is established, check all settings again for correctness.

If a connection was successfully established the converter can be parametered. After all data points were entered these are transferred into the converter by selecting the 'converter✍write configuration' command. To activate this configuration the converter must be restarted via the ‚converter✍restart' command. Selecting this command disconnects the connection to the converter automatically. Now the converter is ready for use.

Menu Overview

File



New

All values and settings of the current configuration including the data points' list are deleted and a new configuration can be entered.

Open...

A dialogue is started that enables to read a configuration file in CSV-format, which has already been saved some time before. Both the general configuration and the data points' list are loaded

from the desired saved file. If another configuration is displayed at this time opening another configuration will overwrite it. Save it first to ensure that this configuration is not lost. The file name of the currently opened configuration is displayed in the top line of the screen.

Save...

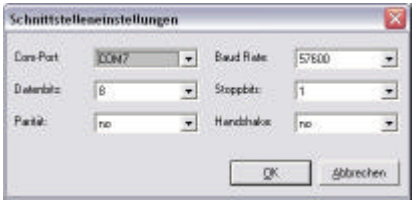
The current configuration is written into the currently opened file. If no file is opened, a dialogue box for choosing an existing file is displayed. This fact offers easy access to several settings for several projects. Again, the file name of the saved file is displayed in the top line of the screen.

Save as...

The current configuration is saved as a file with another name without changing the opened file.

Com-port settings...

Opens the following dialogue box for the com-port settings which build up the connection to the MBUS-MODBUS converter:

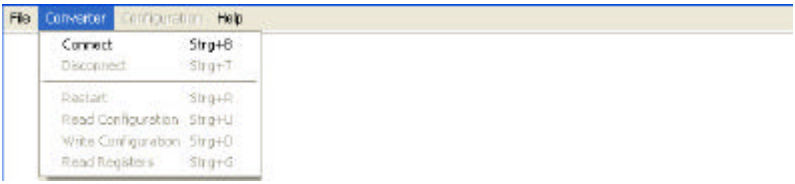


parameter	description
com-port	selects the com-port that is used to establish the connection to the converter (*COM1* to *COM10*).
data bits	Numbers of data bits send per character (fixed preset to 8 data bits).
parity	checksum of the send character (preset to ‚NO' meaning that no checksum is used)
baud rate	Communication speed (*9600* to *57600* bit per second)
stop bits	number of send stop bits (fixed preset to 1).
hand shake	type of the data flow control (fixed to ‚NO' meaning that no data flow control is used).

If currently an active connection to a converter exists, this menu item cannot be selected!

Exit
Exits the HIQUEL-MBUS-MODBUS Configurator software and disconnects an existing connection to the converter.

Converter



Connect
Initialises the establishment of a connection to the Converter with the Modbus address defined in the connection options via the serial port defined in the com-port settings. As long as no connection is established, all other menu items are inactive. While building-up a connection to the converter the software reads the information about the software version in the background. If this task fails the connection establishment is interrupted.
As soon as a connection is built-up all other menu items turn active but the item 'Connect' turns inactive. The failure code and the current status of the meter bus devices are read. Additionally the configuration and the data from the meter bus are read.
To avoid an overwriting of the current settings, the option 'read configuration on connect' must be deactivated. Another advantage is that the speed of the connection establishment is increased, especially when low transfer speeds are available.

Disconnect
This command disconnects the current connection to the converter. The menu item ‚connect' is activated while all other items of this menu are inactivated. Further the serial port is closed and now changes of the COM port parameters can be made. The current settings are deleted by default. To avoid an overwriting the option 'read configuration on connect' must be deactivated.

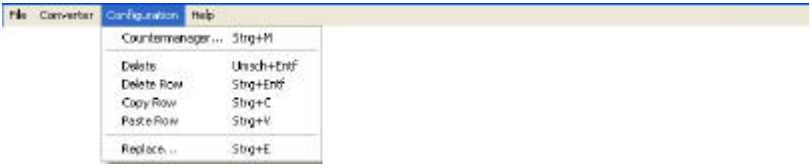
Restart
Activating this command restarts the connected converter. Newly saved settings if available are assumed. After restating the software disconnects the connection to the converter in the same way as described under the menu item ‘connect’.

Read configuration
The currently stored settings are read from the converter and the values are displayed. The values displayed before are overwritten. To avoid this, save these values before.

Write configuration
The currently displayed configuration is send to the converter and regularly saved. To activate these settings in the converter, it must be either restarted or disconnected from the supply voltage for some time.

Read register
To test this function of the converter, the set readings of the counter can be read. This function is helpful for starting up and maintenance work as well.
The read values are displayed in the configuration table in the column ‘values’.

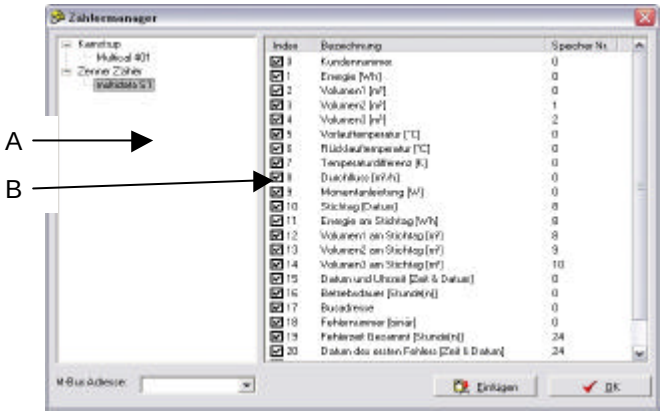
Configuration



The menu *Configuration* is only active when the configuration table is edited!

Counter manager...

The counter manager offers easy and quick configuration of distinct counter types. Every time when starting the counter manager the application tries to connect to the homepage www.hiquel.com to download and install the newest counter types.



Selection of the counter (A)

Here all installed counter types are displayed and ordered by manufacturer. By selecting one counter type the value list (B) with all available values for this counter are displayed.

Value list (B)

Values which can be read via the meter bus port of the counter selected are displayed here. In the first column the index number and a selection box can be found. The index number defines the position of the distinct value in the replay massage of the M-Bus meter. The selection box offers the choice if a distinct value is overtaken into the configuration or not.

The second column contents a description of the value and its physical unit (if possible).

The third column displays the storage number in the Meter Bus device.

M-Bus Address

Defines the primary address of the device from which the selected values are read.

Insert

Pressing this push button copies the selected values into the configuration table under the selected M-Bus address. The values are copied beginning with the marked row. Existing values will be

replaced in this row! The next line under the inserted row will be the new actual line. This feature enables the user to insert many counters one after the other very easily..

OK

Exits the counter manager.

Delete

This command deletes the content of the active cell in the counter manager.

Delete row

The activated row will be deleted from the configuration table, all rows below move upwards.

Copy row

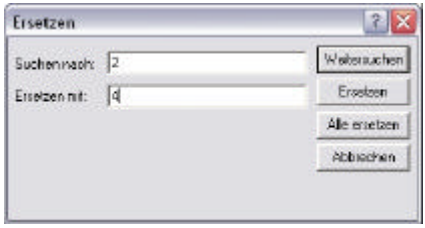
The content of the marked row is copied into the cache. This data can be pasted again by using the ‚paste row' command.

Paste row

A cell that has been copied before can be pasted into the marked cell by using this command. Possibly existing values in the marked cell are overwritten!

Replace...

With the function 'replace' distinct values in the activated column can be found and overwritten with another value.



Help

Help...

Displays the document as PDF file.

Data sheet of the converter...

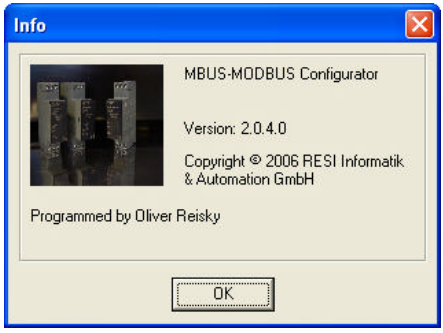
By selecting this command the data sheet of the converter is displayed as PDF file.

User manual of the converter...

By selecting this command the user manual of the converter is displayed as PDF file.

Info...

Activating this command displays software information such as version number, product name etc.



Connection options

Modbus address

From this drop down list the bus number of the converter to which the connection should be established can be chosen. The Modbus address can only be selected when no connection is active at the same time. As long as any connection is established, the list is represented in grey colour.

After starting the software for the first time the number 255 is preselected for the Modbus address, as our converters are delivered with this address by default.

Read configuration when connecting

If the option ‚read configuration on connect' is activated the configuration of the converter is entirely read and displayed. The currently displayed configuration is overwritten. To avoid this the option 'read configuration on connect' must be deactivated.

General Configuration

Modbus Configuration

These settings effect the communication of the Modbus interface.

Baud rate

This parameter defines the communication speed of the Modbus interface. Communication speeds from 9600 to 57600 bit per second can be chosen.

Bus address

The bus address of the converter is defined with this parameter. If several converters are connected via RS485 bus, every single converter must have its own bus address. Only addresses in the range 1 and 255 are accepted!

Meter Bus Configuration

These settings effect the communication of the meter bus interface.

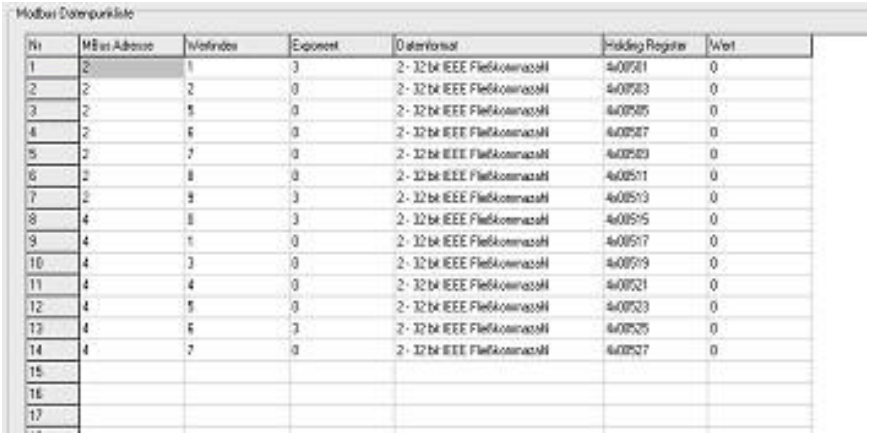
Baud rate

This parameter defines the communication speed of the meter bus interface. Communication speeds from 300 to 38400 bits per second can be chosen.

Query pause

This parameter defines the duration of the pause time (in seconds) between two duty cycles. Values in the range of 0 to 65535 are valid.

Configuration table


Modbus Datenpunktliste

Nr	MBus Adresse	Wertindex	Exponent	Datenformat	Holding Register	Wert
1	2	1	3	2 - 32 bit IEEE Fließkommazahl	4x00501	0
2	2	2	0	2 - 32 bit IEEE Fließkommazahl	4x00503	0
3	2	5	0	2 - 32 bit IEEE Fließkommazahl	4x00505	0
4	2	6	0	2 - 32 bit IEEE Fließkommazahl	4x00507	0
5	2	7	0	2 - 32 bit IEEE Fließkommazahl	4x00509	0
6	2	8	0	2 - 32 bit IEEE Fließkommazahl	4x00511	0
7	2	9	3	2 - 32 bit IEEE Fließkommazahl	4x00513	0
8	4	0	3	2 - 32 bit IEEE Fließkommazahl	4x00515	0
9	4	1	0	2 - 32 bit IEEE Fließkommazahl	4x00517	0
10	4	3	0	2 - 32 bit IEEE Fließkommazahl	4x00519	0
11	4	4	0	2 - 32 bit IEEE Fließkommazahl	4x00521	0
12	4	5	0	2 - 32 bit IEEE Fließkommazahl	4x00523	0
13	4	6	3	2 - 32 bit IEEE Fließkommazahl	4x00525	0
14	4	7	0	2 - 32 bit IEEE Fließkommazahl	4x00527	0
15						
16						
17						

In this table up to 100 data points that can be read from up to 8 different Meter bus devices and then are available in registers for the Modbus can be configured. The columns of this table are described in detail below.

Nr

Consecutive number of the data points (fixed column).

MBus address

Here the primary address of the meter bus device from which the value is read is defined. This value must be within the range 0 and 255.

Value index

Defines the position of the value to be read in the answer of the meter bus device. The number 0 represents the first value, 1 represents the second value etc. It should be mentioned here that for every MBUS meter the values that are returned could be configured.

If some values are not returned from the meter, data that are entered with the counter manager must be worked over!

Exponent

With this function a value can be changed in terms of the exponentiation with base 10. For instance if a value represents an energy value such as Wh, 0 in the exponent defines that the value is displayed in Wh, an exponent of 3 means that the value is displayed in kWh and -3 as exponent means that the value is displayed in mWh.

Data format

Every read value can be displayed on the Modbus in four different formats. To select one of these formats one of the four numbers 0, 1, 2 or 3 that are described in the table below must be entered to generate automatically the data format when exiting the cell.

Entry	Data format
0	16 bit binary number presigned
1	32 bit binary number presigned

2	32 bit IEEE real number
3	32 bit IEEE real number inverted number representation

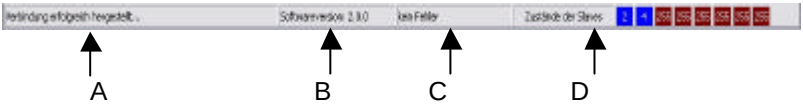
Holding Register

Here the start address of the value on the Modbus is displayed. A 16-bit data type needs 1 and a 23-bit data type 2 register.

Value

With the command ‚read Converter Register' the current data of the MBUS devices are read and entered in this column of the table.

Status bar



Messages (A)

Different messages which inform the user about success or failure of the lastly performed action.

Software version (B)

When establishing a connection first the software version of the converter is read and displayed here.

Status indication (C)

The current status of the converter is displayed here. The following table gives an overview of the states that a converter can take up.

status	description
no error	Normal operating condition, the converter is configured and the values are read from the meters.
no configuration	This status occurs if the converter is not configured when started.
configuration error	A false value is present in the data points' list. Please check that list for any wrong entries or values.
system error	A substantial mistake in the converter occurred.

States of the slaves

As every device connected to the meter bus (slave) must be initialised, there are different states that a slave can take up. This status is for every single of the maximal 8 slaves displayed in the status bar. The number in the box represents the primary address of the slave over that the converter communicates with the device. Values those are bigger than 250 define that no device is defined for that position.

The colour of the box represents the current status of the slave:

status	description
	There is no connection to a converter.
	No participant is configured fort hat position.
	This device is configured but could not be initialised yet.
	This slave has been initialised successfully and values are read.

Contact

HIQUEL GmbH
Bairisch Koelldorf, Gewerbepark 266
A-8344 Bad Gleichenberg
Tel: +43-(0) 3159-3001
Fax: +43-(0) 3159-3001-4
www.hiquel.com
e-mail: hiquel@hiquel.com