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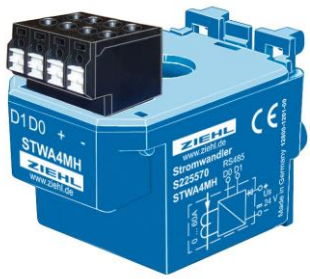
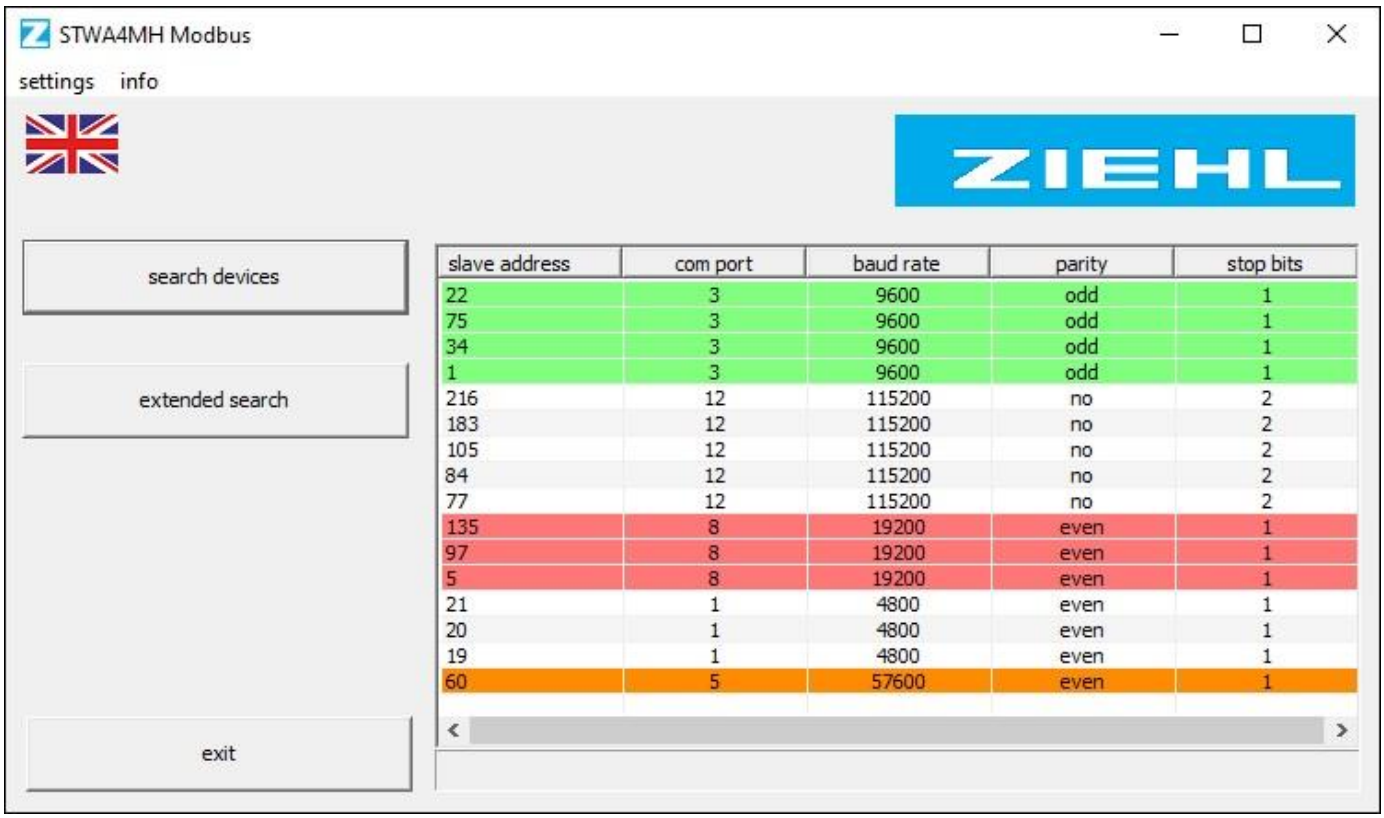
Operating Manual STWA4MH

updated: 2020-03-19/nm
from: Firmware: 0-01

- Parameterisation software STWA4MH





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1 General notes

Compliance with the following instructions is mandatory to ensure the functionality and safety of the product. If the following instructions given especially but not limited for general safety, transport, storage, mounting, operating conditions, commissioning and disposal / recycling are not observed, the product may not operate safely and may cause a hazard to the life and limb of users and third parties.

Deviations from the following requirements may therefore lead both to the loss of the statutory material defect liability rights and to the liability of the buyer for the product that has become unsafe due to the deviation from the specifications.

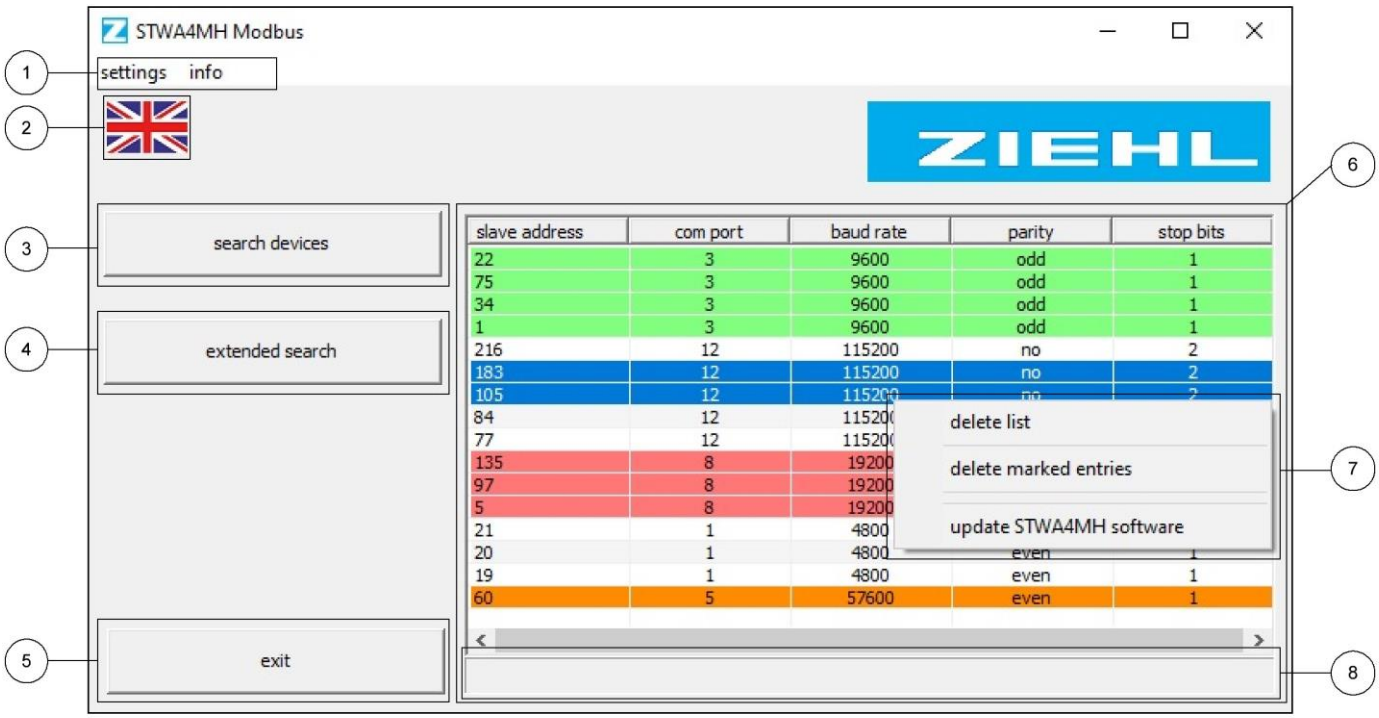
Please read the general operating manual as well and pay attention to the safety instructions listed there.

2 System requirements

- Windows 7 or superior
- No other requirements

3 Display and controls

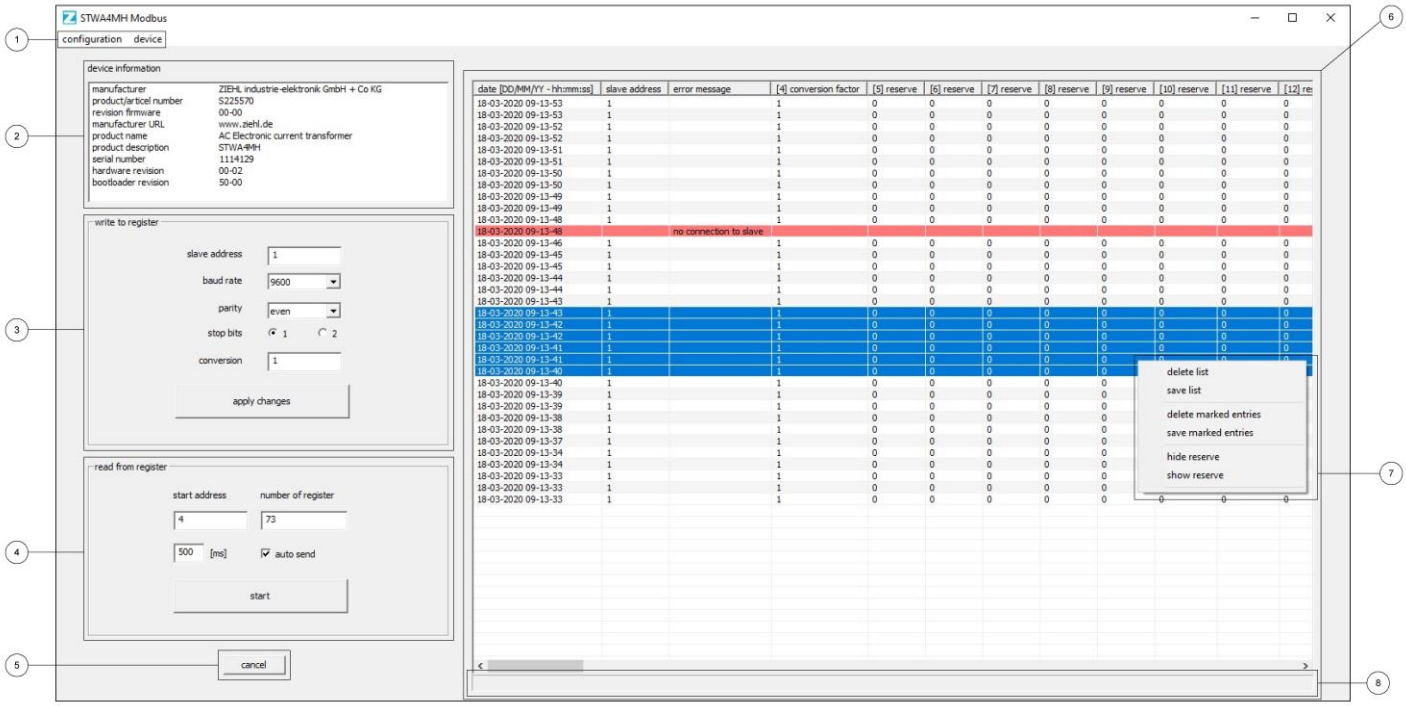
3.1 Main menu



No.		Purpose	
1	Menu bar	settings→update STWA4MH software: Starts a STWA4MH software update info→ about: Shows address, e-mail and a link to the website of ZIEHL industrie-elektronik	
2	Language selection	Double click at the flag to change the language between English and German	
3	Device search	Click to open the connection menu (see paragraph 3.3.1)	
4	Extended device search	Click to open the connection menu (see paragraph 3.3.2)	
5	Exit button	Click to close the program	
6	Search result list	Lists the devices found by the device search	
		colour	meaning
		green	Devices added by the latest device search
		blue	Current selection
		red	Failed connection attempt (see paragraph 6)
		orange	Failed update attempt (see paragraph 6)
		white/grey	Devices added by previous searches
7	Context menu		
8	Progress bar	Shows progress on time-consuming tasks	

3.2 Device menu

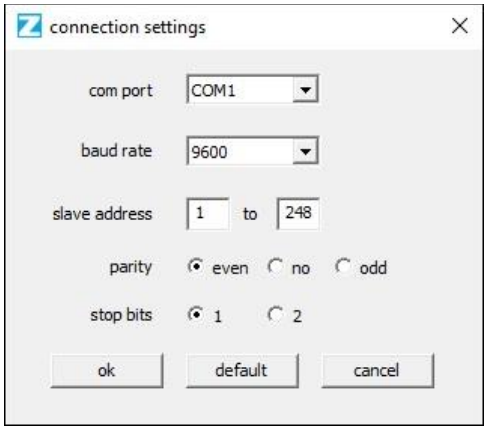
To open the device menu, double click on an entry from the search result list (see paragraph 3.1 Main menu, menu area 6).

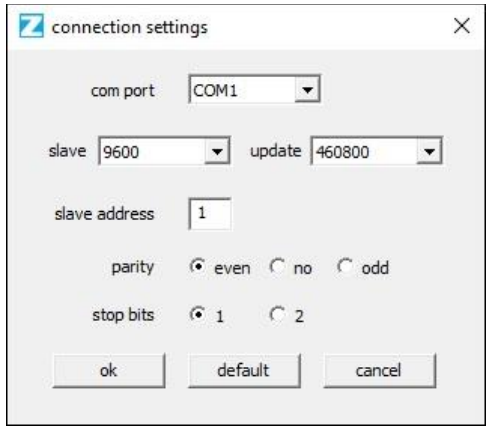


No.		Purpose	
1	Menu bar	configuration → save / load: Saves / loads the current window configuration (see paragraph 5.7) device → restart: Restarts the STWA4MH device → update STWA4MH software: Starts a STWA4MH software update	
2	Device information	Shows information about the currently opened device	
3	Write to register	Press “apply changes” to write the selected values to the register (see paragraph 5.4)	
4	Read from register	Press “start” to read the selected register, check “auto send” to read cyclical (see paragraph 5.5)	
5	Cancel button	Click to close the window	
6	Register table	Lists the read register values	
		colour	Meaning
		red	Failed transmission (see paragraph 6)
		blue	Current selection
		white/grey	Successful transmission
7	Context menu		
8	Progress bar	Shows progress on time-consuming tasks	

3.3 Connection menu

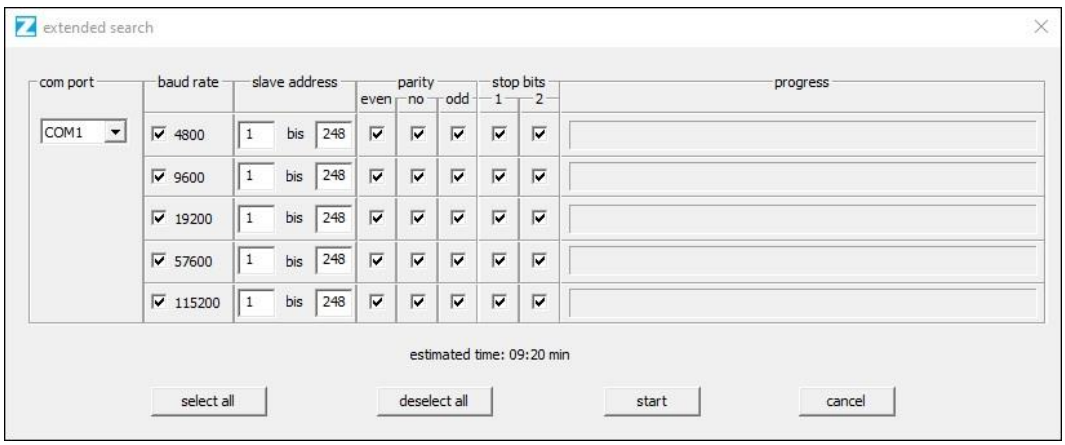
3.3.1 Device search and STWA4MH software update





Setting	Purpose
Com port	Com port which is scanned for devices Com port of the device which should be updated
Baud rate	Baud rate of the connected devices
Slave address	Range of addresses which is scanned for devices Slave address of the device which should be updated
Parity	Parity of the connected devices
Stop bits	Stop bits of the connected devices
OK button	Click to start a device search
Default button	Click to set the default ZIEHL parameters
Cancel button	Click to close the window

3.3.2 Extended device search



Setting	Purpose
Com Port	Com port which is scanned for devices
Baud rate	Baud rates which are scanned for devices
Slave address	Ranges of addresses which are scanned for devices
Parity	Parities which are scanned for devices
Stop Bits	Stop bits which are scanned for devices
Progress	Shows the progress of the search
Estimated time	Shows the estimated time the search will take
Select all button	Click to select all available options
Deselect all button	Click to deselect all available options
Start button	Click to start a device search
Cancel button	Click to close the window

4 Summary of functions

- Device search
- Writing to and reading from all STW4MH registers
- Cyclical reading in adjustable intervals
- .csv-file export
- Save / load user configuration
- STWA4MH software update over RS485

5 Commissioning

5.1 How to add a new device to the bus

After applying the supply voltage U_S address 247 is additionally active for 60s (LED flashes at 0,5s intervals). The device can be found by using a device search with a limited address range from 247 to 247 (see paragraph 5.2). A double click on the new item opens the device menu (see paragraph 3.2). By using menu area (3) a new unique slave address can be assigned to the device (see paragraph 5.4).

5.2 How to start a device search

A device search can be started by clicking at “search device” in the main menu (see paragraph 3.1). This opens a connection menu (see paragraph 3.3.1) where the necessary parameters must be set. To reduce the duration of the search it is possible to limit the slave addresses to a range where a device is expected. If a device is found a new item is added to the table (6) in the main menu. Right click to display the context menu (7) which offers options to delete a single or all table entries or update the STW4MH software.

5.3 How to start an extended device search

To find a device with unknown connection settings an extended device search can be used. An extended device search can be started by clicking at “extended search device” in the main menu (see paragraph 3.1). This opens a connection menu (see paragraph 3.3.2). An extended search checks every possible combination of baud rate, slave address, parity and stop bit for a device. If a device is found, a new item is added to the table (6) in the main menu. To reduce the duration of the search it is possible to exclude specific combinations by deactivating the appropriate check boxes.

5.4 How to write to the STWA4MH register

The following registers can be changed through menu area (3), 3.2 device menu.

Register	Value / value range
Slave address	1 … 246
Baud rate	4800Bd, 9600Bd, 19200Bd, 57600Bd, 115200Bd
Parity	no parity, even parity, odd parity
Stop bit	1 Stop bit, 2 Stop bits
Conversion factor	1 … 10

By clicking at “apply changes” the selected values are transmitted to the registers. Changes get discarded if any value is not valid or the transmission failed.

5.5 How to read from the STWA4MH register

The following registers can be read through menu area (4), 3.2 device menu.

Address	Register	Value / value range
0	Modbus address	1 … 246
1	Baud rate	4800Bd, 9600Bd, 19200Bd, 57600Bd, 115200Bd
2	Parity	no Parity, even Parity, odd Parity
3	Stop bit	1 Stop bit, 2 Stop bits
4	Conversion factor	1 … 10
5 - 15	-	-
16	Status	0 = RMS measurement, 1 = average measurement (approx. < 0,5A), 2 = out of range (> 65A)
17	Reading I (Reading I / conversion factor)	0 … 60000 [mA]
18	Reading I, moving average 200ms	0 … 60000 [mA]
19	Reading I, moving average 1s	0 … 60000 [mA]

20	-	-
21	-	-
22	Frequency	0 … 5000 [0,01 Hz]
23	Cycle counter (continuous)	0 … 65535
24	Buffer overflow	0 = no buffer overflow 1 = buffer overflow
25	Circular buffer index	0 … 49 (last buffer reading...)
26	Last read buffer index	0 … 49 (last requested index)
27 - 76	Circular buffer [0] - circular buffer [49]	0 … 60000 [mA]

Reading any register from 0 to 4 refreshes the values in menu area (3), reading any register from 4 to 76 adds a new line to the table in menu area (6). The order of the columns of table (6) can be rearranged using drag and drop and adjusted in width. Right click to display the context menu (7) which offers options to delete or export a single or all table entries and hide or show the unused register (5-15, 20, 21).

5.6 How to export data as a ".csv" file

All read register values are exportable as a ".csv" file by right clicking at table (6) in the device menu (see paragraph 3.2) to open the context menu (7) and choosing "save marked entries" or "save list". A semicolon is used as delimiter, file name and storage path are freely selectable. The export may take a while depending on the number of items in table (6). The progress bar (8) shows when the program is finished.

5.7 How to save/load the current user configuration

A user configuration can be saved by clicking at "configuration" → "save" at the menu bar (1) in the device menu (see paragraph 3.2). It contains all settings of menu area (3) "write to register, menu area (4) "read from register" as well as width and order of table (6). File name and storage path are freely selectable. By clicking at "configuration" → "load" a configuration can be loaded. Changes to menu area (3) "write to register" are applied after clicking at button "apply changes".

5.8 How to update the STWA4MH software

To update the STWA4MH software the update tool "ezbl_comm.exe" and a valid ".bl2" software are needed. There are three ways to start a STWA4MH software update:

1. By clicking at "settings" → "STWA4MH software update", menu bar (1) in the main menu (see paragraph 3.1).
2. By clicking at "STWA4MH software update", context menu (7) in the main menu (see paragraph 3.1).
3. By clicking at "device" → "STWA4MH software update", menu bar (1) in the device menu (see paragraph 3.2).

Step 1: The necessary parameters must be set in the connection menu (see paragraph 3.3.1).
Step 2: Select the path to the new STWA4MH software.
Step 3: Select the update tool (not necessary if software and update tool are in the same folder)
Step 4: Wait until the Update is finished.

During the update process a log file is created and automatically opened when the update is finished. The log file is saved at the same folder as the software.

6 Troubleshooting and measures

Error	Cause	Measure
“no connection to slave”	Received no message from slave Slave is in update mode (fast flashing LED)	Check connection settings Check physical connection Restart Update
“The system cannot find the file specified.”	Com port / file does not exist	Use a valid/available com port/file
“Access is denied”	Com port already used	Close all programs which use this com port
“slave address/function mismatch, error code: 0x02”	Invalid register address	Valid range: 0-76 Register count >
“slave address/function mismatch, error code: 0x03”	Invalid data	Use only valid values (see paragraph 5.4)
“CRC mismatch”	Transmission failure, calculated CRC doesn’t match received CRC	Use proper termination and wires Reduce baud rate
“Com port invalid”	Com port not opened	Reopen the device menu
“Configuration #[] has no values”	Invalid configuration file	Resave the configuration file
“Configuration #[] not found”	Invalid configuration file	Resave the configuration file