

Bewegung durch Perfektion | Movement by Perfection

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ZAmom

Software for ZETADYN 3 / ZAdyn4C

Instruction manual

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1 General information

1.1 Validity

This instruction manual applies to:

Software: ZAMon
from software version 1.1.0.35

1.2 Target group

The instruction manual addresses persons which do measurements or backups at the elevator system. Persons entrusted with the software use must have the corresponding qualifications and skills for this job.

1.3 Exclusion of liability

Concurrence between the contents of this instruction manual and the described software in the device has been examined.

It is still possible that non-compliances exist; no guarantee is assumed for complete conformity. The contents of this manual are put through periodic reviews. Necessary modifications are incorporated into the next version.

1.4 Copyright

This instruction manual contains copyright protected information. The instruction manual may be neither completely nor partially photocopied, reproduced, translated or put on data medium without previous explicit consent from ZIEHL-ABEGG SE . Infringements are liable for damages. All rights reserved, including those that arise through patent issue or registration on a utility model.

2 Installation

2.1 System requirements

Requirements for ZAMon:

- Personalcomputer or Notebook: min. 850 MHz
- Main memory: min. 32 MB RAM
- Operating system: Windows 2000 / Windows XP / Windows Vista / Windows 7
- Monitor: 1024 x 600 pixel / min 256 colors
- Interface: USB 1.1 or 2.0
- ZApad control terminal



Information

To have all functions of ZAMon, the ZETADYN 3/ZAdyn4C has to have software version 3.30 or higher. At older software versions there are not all functions available.

2.1.1 Download of ZAMon

The software ZAMon is available as download at the homepage of Ziehl Abegg (www.ziehl-abegg.com), for free.

- Download the drivers according to your Operating System and save it to your local drive.
 - **Windows 2000 / Windows 2003 Server / Windows XP / Windows Vista:** ZETAPAD Driver Win_2K_XP_S2K3_Vista.zip
 - **Windows 7:** ZETAPAD Driver Win_7.zip
- Download software file "ZETAMON 2010 Setup.zip" and save it to your local drive
- Extracting the ZIP file to a local data medium

2.2 Installation

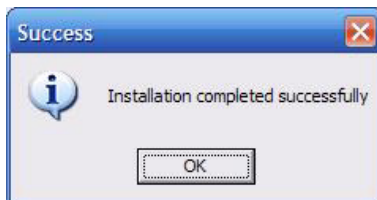
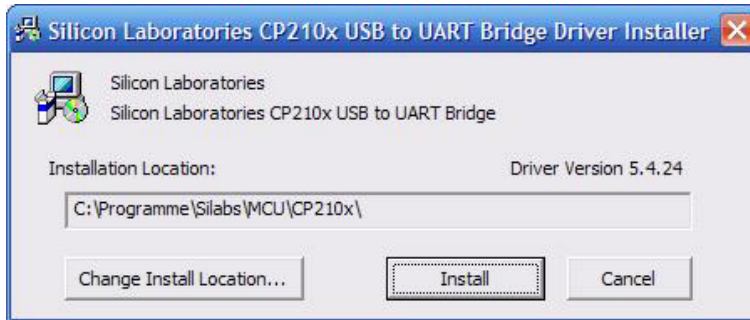
The Installation occurs in two steps:

1. Driver setup
2. Installation of ZAmon

2.2.1 Step 1 - Driver setup

1. Start setup with "CP210xVCPInstaller.exe".
2. choose a new installation path if necessary
3. Start setup with "Install"

The setup will be completedl automatically.



2.2.2 Step 2 - Installation of ZAmon

Start the ZAmon Setup-Assistant with "ZETAMON 2010 Setup.exe" and follow the instructions.

3 ZAMon

3.1 Main menu

The Mainmenu opens after the start of ZAMon.

The opening of the program modules takes place from the mainmenu. The following modules can be chosen:

- Display
- Recorder
- Parameter
- Oszi



Mainmenu ZAMon

1	Start the program modules
2	Information window: Serial number and software version of the ZETADYN 3/ZAdyn4C will be shown at faultless connection
3	Choice of the used interface
4	autom. serching for the interface by the ZAMon software
5	Selecting the desired operating language

3.2 Overview of the program modules

3.2.1 Modul "Display"

The display of the operation terminal is simulated by a virtual terminal. Frequency inverter can be remote controlled by PC / Notebook.

3.2.2 Modul "Recorder"

Recording of driving cycles for diagnosis.

3.2.3 Modul "Parameter"

Analysis, saving, printing as well as changing the parameters of the ZETADYN 3/ZAdyn4C.

3.2.4 Modul "Oszi"

Recording of driving cycles for diagnosis.

4 Modul "Display"

4.1 Modul "Display"

The module display simulates the ZApad. Therefore it is possible to remote control the frequency inverter by the PC / Notebook. The kind of operating and the functionality is same like the ZApad.



Start-window Modul "Display"



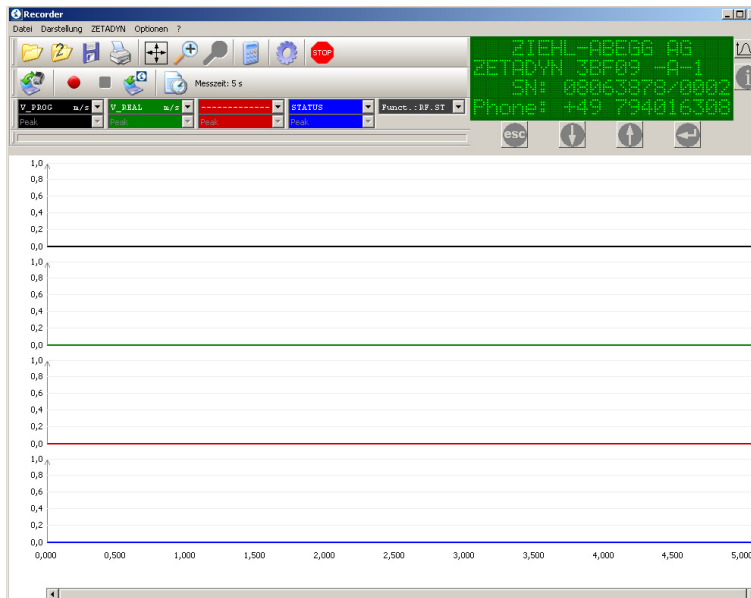
Information

You can operate the virtual display by cursor or the arrow keys.

5 Modul "Recorder"

5.1 Modul "Recorder"

With the module "Recorder"^{module} you can record and display analog and digital measuring channels. The recorded diagram can be used for diagnosis. A minimum time basis of 5ms is possible.



Start window module "Recorder"

5.2 Display function

Even at open recorder-module the ZETADYN 3/ZAdyn4C can be operated. Therefor you have the simulated operation terminal at the top right.



5.3 Take measurements

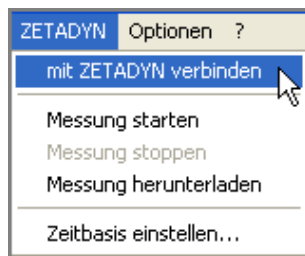
5.3.1 Connect ZETADYN 3/ZAdyn4C to PC/notebook

Connect the PC/Notebook before open the module "Recorder".

Connection will be done automatically.

Connect the PC/Notebook after open the module "Recorder".

Connection has to be done manually by the button "connect to ZETADYN" in the drop-down-menu "ZETADYN/connect to ZETADYN"



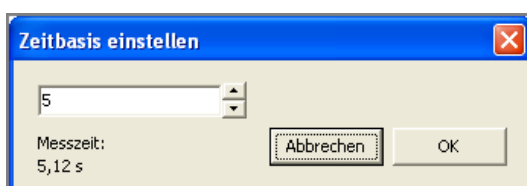
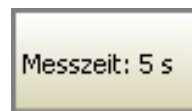
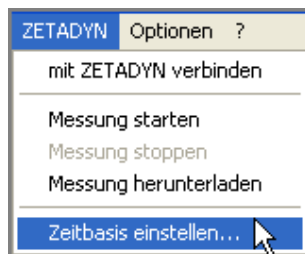
5.3.2 Adjust timebase

1024 measurements were written to the measured data storage per recording. When the measured data storage is full, the first measured value will be overwritten.

Accordant to the lifting height and the elevator speed the timebase (and therefore the recordingtime) has to be adjusted

The timebase can be set between **5ms** (5,12s recording time) and **65535ms** (18.6 hrs recording time) A timebase of 5ms means that a measured value is set every 5ms which gives a recording time of 5.12s for 1024 measured values.

The timebase can be changed either with the "Set timebase" buttons or with the "ZETADYN/Set timebase" drop-down menu.



Timebase input window

The timebase can be entered either with the arrow buttons or by direct input.

The measuring time for 1024 measuring points is displayed after entering the timebase.

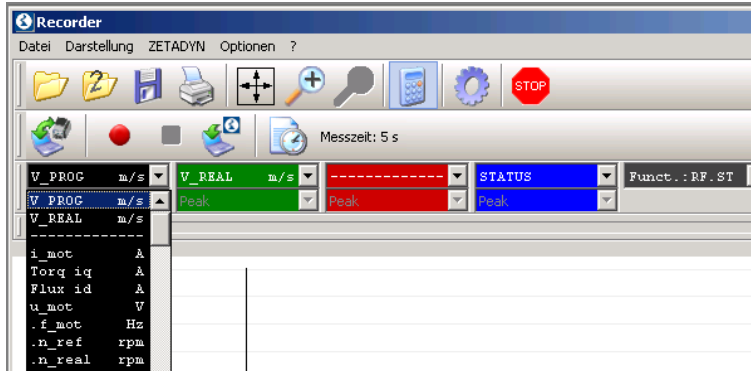
5.3.3 Assigning measuring channels

Four analogue measuring channels and 1 digital measuring channel are available.

If the ZETADYN 3/ZAdyn4C is connected to the PC/Notebook, the measuring functions set most recently on the ZETADYN 3/ZAdyn4C are loaded.

Different measuring functions can be assigned to the channels. On clicking a measuring channel, a drop-down menu opens from which the desired function can be selected.

The change in a measuring function is transmitted to the ZETADYN 3/ZAdyn4C immediately.



Assignment of measuring channels

5.3.3.1 Measuring method

The measuring method is defaulted to "Single" and is write-protected. However, it can be released in "Options/Settings" under "Measuring method" and set individually for every measuring channel.

Possible options are:

- Peak Maximum value within the sampling time (positive/negative)
- Single Current value at measuring time
- Average Average value within the sampling time
- Peak min. Minimum value within the sampling time
- Peak max. Maximum value within the sampling time



Information

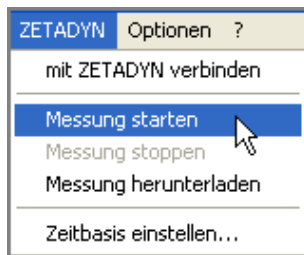
It only makes sense to change the measuring method at a timebase of 10 ms upwards (2 sampling steps).

5.3.3.2 Measuring functions

Measuring function	Description
Measuring channels 1-4 (analogue)	
V_PROG [m/s]	Set-value travel speed
V_REAL [m/s]	Actual value specification of the travel speed
Torq iq [A]	Torque generating motor current
Flux id[A]	Magnetisation current of the motor
STATUS	Condition of the frequency inverter
u mot [V]	Motor voltage
s_DCP [mm]	Remaining distance specification of the lift control to the ZETADYN 3/ZAdyn4C (only in DCP2 and DCP4)
.u_dc [V]	DC-link voltage
Measuring channel 5 (digital)	
Funct.:RF.ST	Display of the digital inputs: RF Controller enable RV1/RV2 Travel directions V1 - V4 Travel speeds CO1/CO2 Contactor control BR1/BR2 Brake monitoring VG1 Monitoring limit value 1
	Display of the digital outputs: RB Controller ready/switch motor contactors MB Motor brake ST Failure Opn Internal message "all brakes open" (incl. debounce time)
Brake Timing	Display of: KPO Gain of the speed control at start LR Position control at start OPN Internal message "all brakes open" (incl. debounce time) CLO Internal message "all brakes closed" (incl. debounce time) B_E Debounced inputs brake monitor BR_ Inputs brake monitor MB Output motor brake SOF Soft Switch Stop (Timer T5b) IO2 Double magnetisation (only in asynchronous motors) CO1/CO2 Inputs contactor monitor RB Controller ready/switch motor contactors
IO-Ports 3B	Display of: BR_ Inputs brake monitor CO1 Input CO1 of the contactor monitor I01...I08 Digital inputs I01...I08 O1...P4 Digital outputs O1...O4
Bits B7...S0	Display of: IB0...B7 Command bits B0...B7 S0...S7 Status bits S0...S7

5.3.4 Start measurement

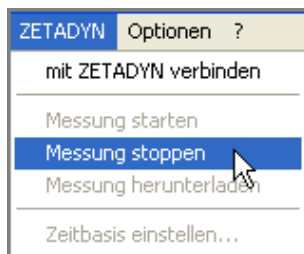
The measurement can be started with the "Start measurement" button or with "ZETADYN/Start measurement".



After starting, measured values are recorded until the measurement is stopped. If the measured value memory is full, the first in measured value is overwritten by the last measured value.

5.3.5 Stopping the measurement

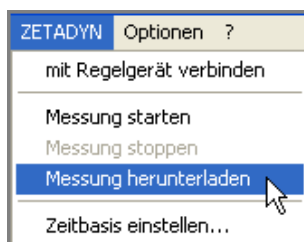
The measurement can be stopped with the "Stop measurement" button or with "ZETADYN/Stop measurement".



If an error occurs in the inverter, the measurement is stopped automatically.

5.3.6 Downloading the measurement

A measurement cannot be downloaded from the controller until it has finished. Transfer of the measurement from the ZETADYN 3/ZAdyn4C to ZAMon is started with the "Download measurement" button or with "ZETADYN/Download measurement".



5.3.7 Long-term measurement

A65535 measurement can be recorded for up to 18 hours when the greatest timebase (65535 ms) is set. If such a measurement is started with ZAMon, the PC/Notebook can be disconnected from ZETADYN 3/ZAdyn4C for the duration of the measurement.

Proceed as follows for this:

1. After starting the measurement, end the USB connection between ZETADYN 3/ZAdyn4C and PC/Notebook by clicking on the "Stop USB Transfer" button.



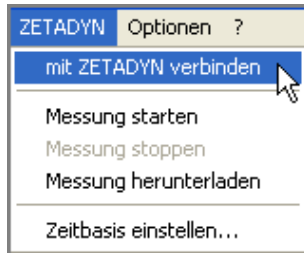
2. Remove USB line between PC/Notebook and ZETADYN 3/ZAdyn4C

The ZETADYN 3/ZAdyn4C must be reconnected with the PC/Notebook to end and download the measurement:

- If the "Recorder" module is reopened, ZAMon automatically establishes the connection with the controller.
- If the "Recorder" module was not closed in the meantime, the USB connection must be re-established with the "Start USB Transfer" button.

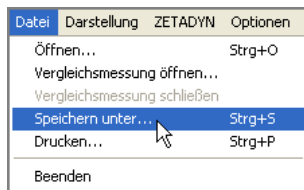


- Then make the connection manually by the "connect to ZETADYN" button or with the drop-down-menu "ZETADYN/connect to ZETADYN".



5.3.8 Saving the measurement

Downloaded measurements can be saved with the "Save as" button or "File/Save as...".



Information

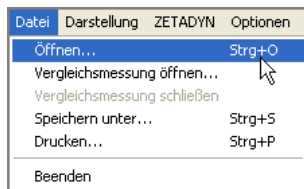
The data of the recorded measurement can be saved additionally as a csv file for further processing in other programs.

5.4 Evaluating a measurement

5.4.1 Opening saved measurements

Measurements which were recorded with a memory card or measurements saved with ZAMon (file extension ".zr3") can be opened in ZAMon.

The measurement can be opened with the "Open" button or by "File/Open".



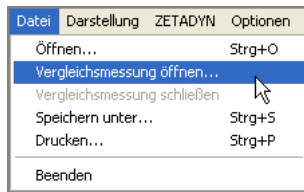
Information

With ZAMon, measurements which were made with old ZAMon versions (file extension ".zrc") can also be evaluated.

5.4.2 Comparing measurements

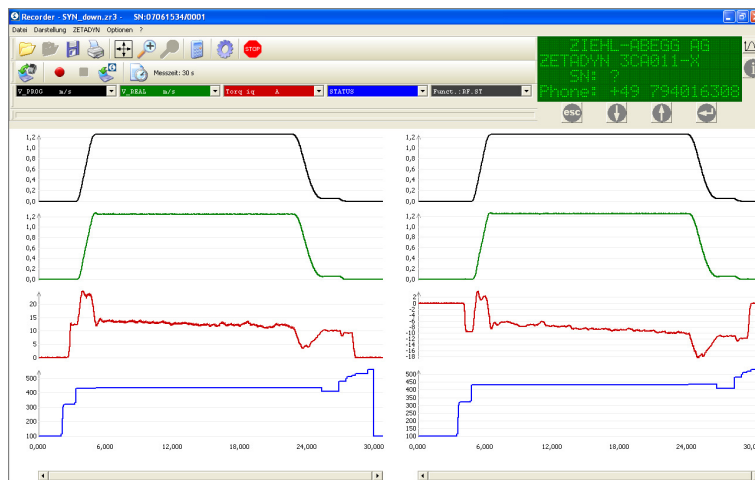
ZAMon offers the possibility of comparing a recorded measurement with an already saved measurement.

The reference measurement is opened with the "Open reference measurement" button or with "File/Open reference measurement".



Information

The reference measurement can only be opened if a measurement is already open.



Comparing measurements

The reference measurement is closed with the "Close reference" button. The original measurement is still displayed.

5.4.3 Displaying the measuring channels

The display of the measuring channels can be changed with the "Display" drop-down menu.

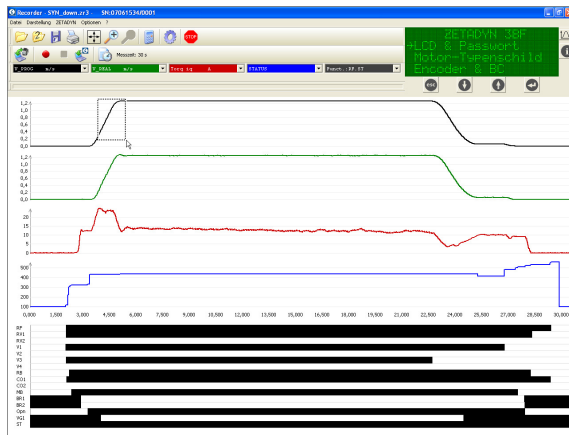


Separate + digital	Analogue measuring channels and the digital measuring channel are displayed. Every analogue measuring channel has its own Y-axis.
Separate	Analogue measuring channels are displayed. Every analogue measuring channel has its own Y-axis.
Group diagram + digital	Analogue measuring channels and the digital measuring channel are displayed. The analogue measuring channels are displayed in a common diagram; the height of the Y-axis depends on the maximum value of all measuring channels.
Group diagram	Analogue measuring channels are displayed. The analogue measuring channels are displayed in a common diagram; the height of the Y-axis depends on the maximum value of all measuring channels.

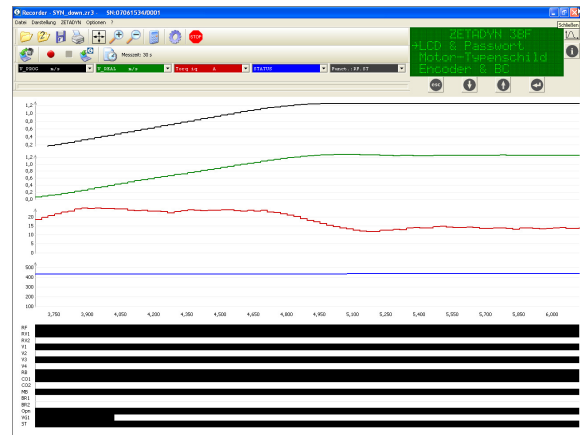
5.4.4 Zoom function

Magnifying the measurement

The measurement can be magnified by dragging a frame over the desired area with the cursor.



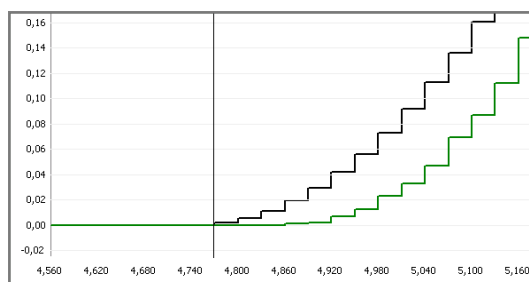
Original measurement



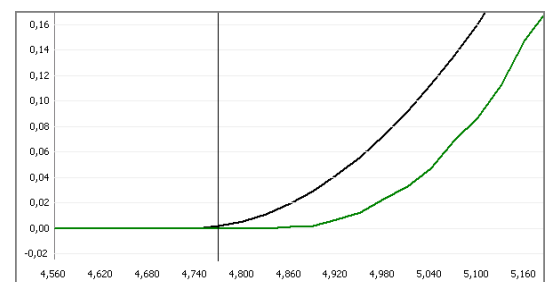
Zoomed measurement

Interpolation

The display of the measuring curve can be adapted individually by activating the Interpolation. The function can be found under "Settings/Interpolation"



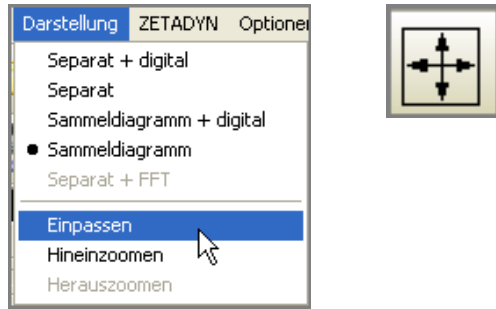
without interpolation



with interpolation

Resetting zoom

The zoom function can be cancelled with the "Fit" button or by "Display/Fit".



The original measurement is displayed again after resetting the zoom function.

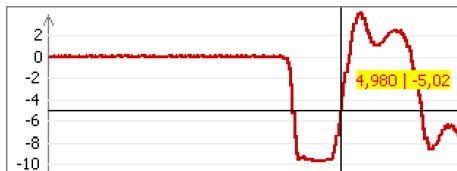


Information

It can be set which axes are zoomable under "Options/Settings/Zoom".

5.4.5 Reading co-ordinates

If the measuring channels are displayed separately, a cursor can be activated by pressing the "Ctrl" key on the keyboard. By positioning the cursor on the measuring curve, the exact measured values can be read for the X and Y-axis.



5.4.6 Moving the measuring curve

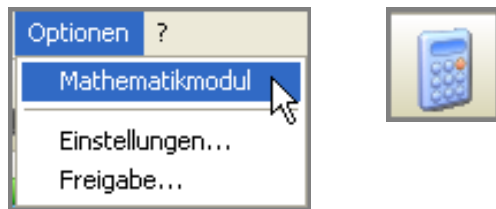
The measuring curve can be moved by pressing the "Alt" key on the keyboard.

Resetting moving

The move measuring curve function can be cancelled with the "Fit" button or by "Display/Fit".

5.4.7 Mathematics modules

The mathematics module enables an extended analysis of the measuring curves by the "Measured values" and "Analysis" tools. The mathematics module can be opened with the "Mathematics module" button or by "Options/Mathematics module".



Information

The display mode of the mathematics module can be set under "Options/Settings/Mathematics module" when opening a measurement.

5.4.7.1 The measured value tool

Two cursors are available in the measured value tool. These can be moved either with the cursor or with the "Arrow left" and "Arrow right" keys on the keyboard after clicking. The cursor position and the corresponding measured values are displayed in the window of the mathematics module.



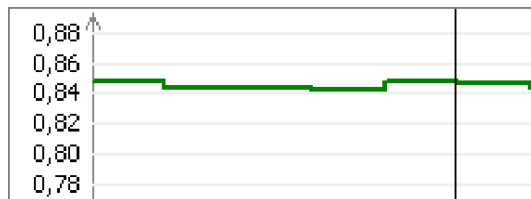
Measured values module

- 1 Measured values cursor 1/channel 1-4
- 2 Measured values cursor 2/channel 1-4
- 3 Difference cursor 1 - cursor 2
- 4 Minimum, maximum and average measured value between the two cursors.

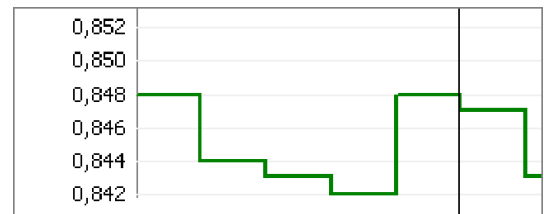
If the measuring channels are displayed in a group diagram, the analogue measuring channels can be shown or hidden individually.

"Stretch" function

With the "Stretch" button the travel curve is stretched to the total range of the Y-axis. This can be helpful especially for zoomed sections when the measured values only show slight differences.



without stretching



with stretching



Information

The two cursors normally stay unmoved when zooming. However, if these are always to be in the visible area, this can be set under "Options/Settings/Drag cursor when zooming".

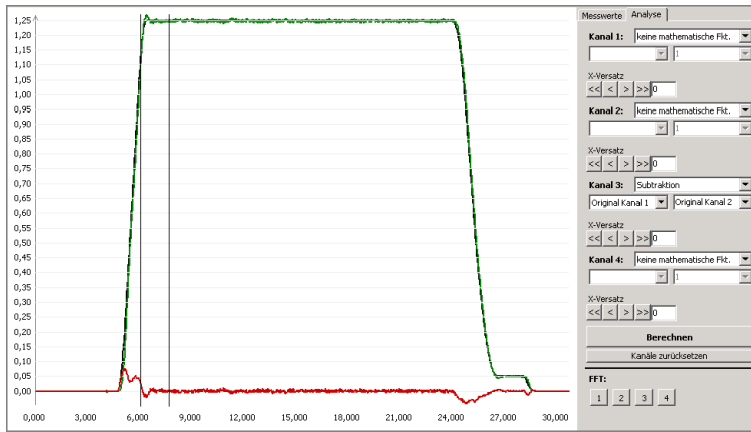
5.4.7.2 The analysis tool

Different mathematical functions can be applied to the travel curves with the analysis tool which can be very useful for analysis purposes.

Example 1:

The nominal speed is on channel 1, the actual speed is on channel 2. On channel 3 the difference between the actual and nominal speed can be shown graphically by subtracting the two channels (red in the example).

It must be noted that "no mathematical function" must be set in channel 1 and 2..

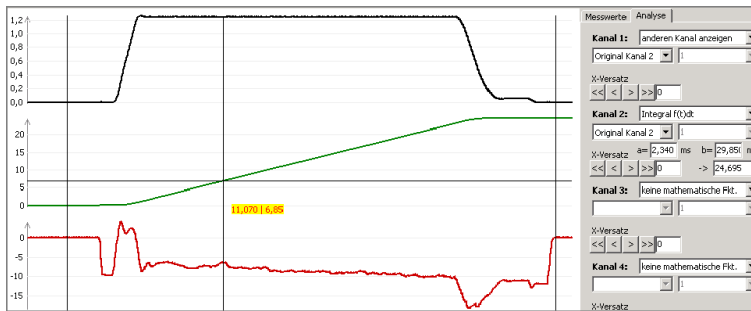


Information

A distinction must be made between the original channel and the current channel after a calculation because the original channel always stays hidden in the background and is still available for calculations.

Example 1:

The integral of the speed indicates the travelled distance.



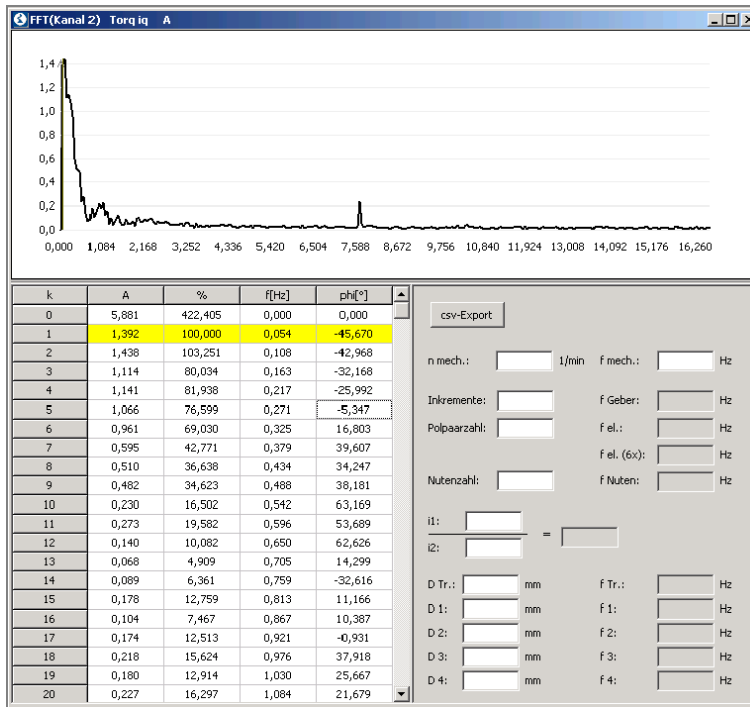
Information

The integral is always calculated for the area within the two cursors!

FFT analysis

FFT stands for Fast Fourier Transformation and is a frequency analysis. The frequency spectrum is divided between the individual frequencies. An irregular deflection in the frequency spectrum may indicate an interference frequency for example.

By entering the mechanical system data, system-specific frequencies are calculated which can provide information about the possible source of the error.

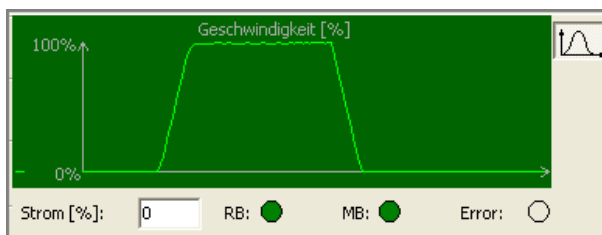


Information

The data of the FFT analysis can be saved with the "csv-Export" function and opened in other programs for further processing.

5.5 Real time travel curve

The actual speed of the system can be projected in real time in the virtual simulation of the ZApad. This function is helpful for measurements on a system in which neither the motor nor the cabin are visible. The actual speed display shows in which section of the travel curve the system is. The display can be started and ended with the "Travel curve" button.



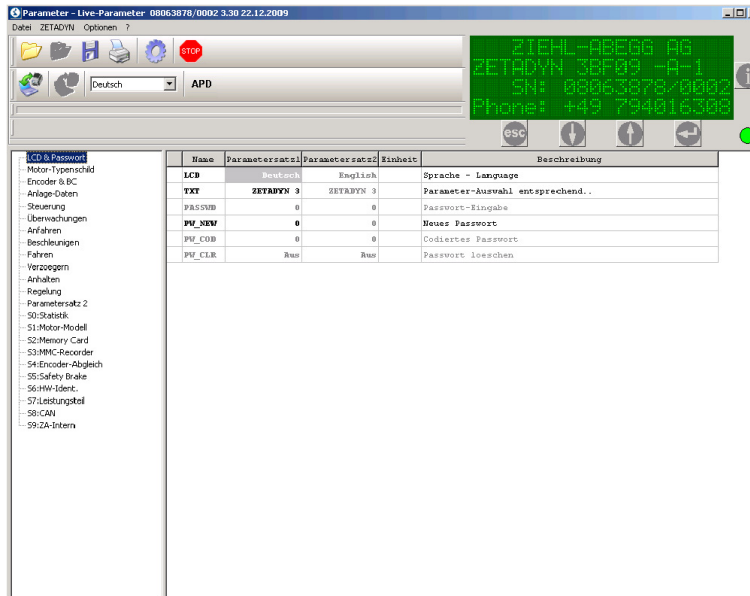
Current [%]	Current consumption of the motor The display is made as a percentage of the nominal current of the ZETADYN 3/ZAdyn4C.
Speed [%]	Actual speed of the system Display as percentage of the parameterised travel speed V3
RB	grey: Output with the "RB" function is not active green: Output with the "RB" function is active
MB	grey: Output with the "MB" function is not active green: Output with the "MB" function is active
Error	grey: There is no error on the ZETADYN 3/ZAdyn4C red: Error on the ZETAYDN 3

6 Modul "Parameter"

6.1 Modul "Parameter"

With the "Parameter" module, the parameters of the ZETADYN 3/ZAdyn4C can be changed, saved and printed.

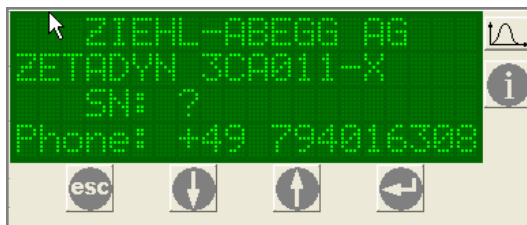
The printer and error list can be downloaded additionally.



Start window "Parameter" module

6.2 Display function

Even at open recorder-module the ZETADYN 3/ZAdyn4C can be operated. Therefor you have the simulated operation terminal at the top right.



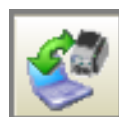
6.3 Connect ZETADYN 3/ZAdyn4C to PC/notebook

Connection is made before opening the "Recorder" module:

The connection is made automatically and the parameters are downloaded.

Connection is made before opening the "Parameter" module:

Connection has to be done manually by the button "connect to ZETADYN" in the drop-down-menu "ZETADYN/connect to ZETADYN". The parameters are downloaded automatically after making the manual connection.



When querying "Known firmware versions" see chapter 6.12!

When the connection is established, the menus of the ZETADYN 3/ZAdyn4C are listed in a tree structure in the "Live-Parameters" module on the left of the screen. The appropriate parameters are displayed in a table by selecting the individual menus.

6.4 Changing parameter values

Only enabled parameters can be changed. The enabled parameters are displayed in bold black letters. The parameters are selected by double clicking.



Information

The ZETADYN 3/ZAdyn4C must be in "Live mode" to make a change. The active "Live mode" is displayed by the flashing green LED below the virtual display.

6.4.1 Parameter with function

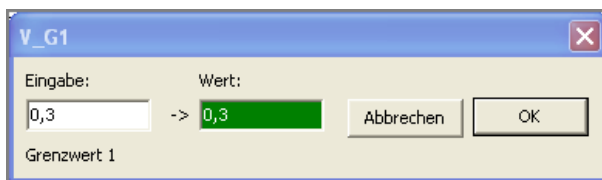
The parameter functions available for selection can be chosen from a drop-down menu. The changed function is transferred automatically to the ZETADYN 3/ZAdyn4C.

Name	Parametersatz1	Parametersatz2	Einheit
CONFIG	00: Frei	01: ZA_IO	
MO_DR	Links	Links	
CTRL	Standard	Standard	
f_I01	01: RF	01: RF	
f_I02	01: RF	04: V1	
f_I03	02: RV1-UP	05: V2	
f_I04	03: RV2-DOWN	06: V3	
f_I05	04: V1	07: VZ	
f_I06	05: V2	02: RV1-UP	
f_I07	06: V3	03: RV2-DOWN	
	07: V2		
	08: V4		

6.4.2 Parameters with numeric values

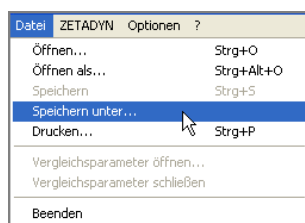
The desired parameter value can be entered in the open input window. The plausibility of the value is checked during input. Incorrect values are displayed in red and corrected automatically. Confirm the input with "OK".

The changed function is transferred automatically to the ZETADYN 3/ZAdyn4C.



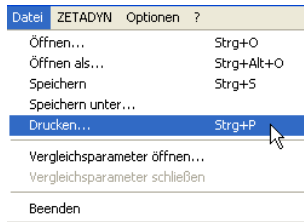
6.5 Store parameter

Downloaded parameters can be saved on the PC or notebook with the "Save as" button or "File/Save as...".



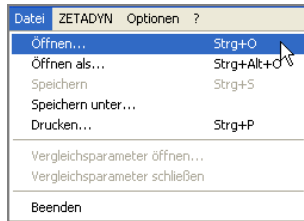
6.6 Print parameter

Saved parameters can be printed with the "Print" button or with "File/Print".



6.7 Opening saved parameters

Saved parameters can be opened with the "Open" button or with "File/Open".

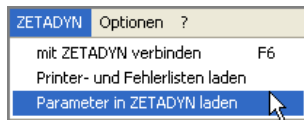


Information

With ZAMon, parameters which were saved with old ZAMon versions (file extension ".par") can also be opened.

6.8 Transferring saved parameters

Saved parameters can be transmitted to the ZETADYN 3/ZAdyn4C with the "Load parameters in ZETADYN" button or with "ZETADYN/Load parameters in ZETADYN" after opening.



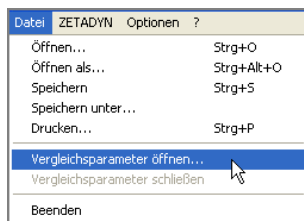
6.9 Comparing parameters

ZAMon offers the possibility:

- of comparing two saved parameter records
- of comparing downloaded parameters with a saved parameter record

Procedure:

of downloading parameters from the ZETADYN 3/ZAdyn4C or opening a saved parameter record
Open the parameters to be compared with the "Open reference parameters" button or with "File/Open reference parameters".



Information

The loaded reference parameters are not visible!

After selecting a menu, the non-identical parameters are highlighted yellow in the table.

	Name	Parametersatz1	Parametersatz2	Einheit	Beschreibung
	V_1	0,05	0,05	m/s	Positioniergeschw.
	V_2	1,5	1,5	m/s	Zwischengeschw.
	V_3	0,74	0,74	m/s	Hohe Fahrgeschw.
	V_4	0,05	0,05	m/s	Nachregulierung
	V_4	0,3	0,3	m/s	Zusatzgeschw. V_4
	V_5	0,3	0,3	m/s	Zusatzgeschw. V_5
	V_n	0,05	0,05	m/s	Nachregulierung
	V_i	0,5	0,5	m/s	
	V_6	0,05	0,05	m/s	Zusatzgeschw. V_6
	V_7	0,05	0,05	m/s	Zusatzgeschw. V_7

Comparing parameters

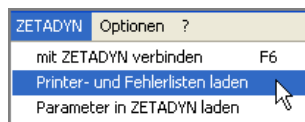
If the cursor is located on one of the yellow highlighted parameters, the value or the function of the reference parameter is displayed in a red window.

	Name	Parametersatz1	Parametersatz2	Einheit	Beschreibung
	V_1	0,05	0,05	m/s	Positioniergeschw.
	V_2	1,5	1,5	m/s	Zwischengeschw.
	V_3	0,74	0,74	m/s	Hohe Fahrgeschw.
	V_2	0,05	0,05	m/s	Nachregulierung
	V_4	0,3	0,3	m/s	Zusatzgeschw. V_4
	V_5	0,3	0,3	m/s	Zusatzgeschw. V_5
	V_n	0,05	0,05	m/s	Nachregulierung
	V_i	0,5	0,5	m/s	
	V_6	0,05	0,05	m/s	Zusatzgeschw. V_6
	V_7	0,05	0,05	m/s	Zusatzgeschw. V_7

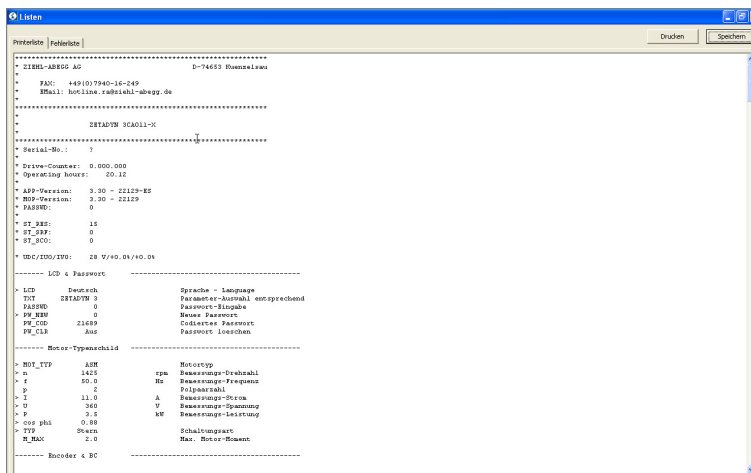
Display reference parameters

6.10 Printer and error list

The printer and error lists are text files with information on parameters and errors. The printer list and the error list are loaded from the ZETADYN 3/ZAdyn4C with "ZETADYN/Load printer and error lists".



The lists are opened automatically in the "Lists" window after downloading.



6.10.1 Printer list

The printer list contains:

- Serial number
- Software version
- Password
- list of all menus
- list of all parameters
- list of all parameter values
- result of the automatic parameter diagnosis APD
- calculated delay paths
- information on internal modules of the ZETADYN 3/ZAdyn4C
- measuring results of internal voltage monitors

6.10.2 Error list

The error list contains:

- Serial number
- Software version
- Password
- list of the last 64 errors with specification of:
 - Operating hours
 - Travel number
 - position of the cabin in the shaft (measured from the top)
 - status of the ZETADYN 3/ZAdyn4c
 - Error no.
 - Error text
 - temperature on the power unit
 - Motor current
- result of the automatic parameter diagnosis APD
- calculated delay paths
- information on internal modules of the ZETADYN 3/ZAdyn4C
- measuring results of internal voltage monitors

6.10.3 Saving lists

The printer and error list can be saved on the PC or notebook with the "Save" button. During the save process, the printer list (file extension .prt) is saved first and then the error list (file extension .flt).

6.10.4 Printing lists

The printer and error list can be printed with the "Print" button. The list currently displayed in the "Lists" window is printed.

6.11 Automatic parameter diagnostics (APD)

During automatic parameter diagnostics, the following are checked:

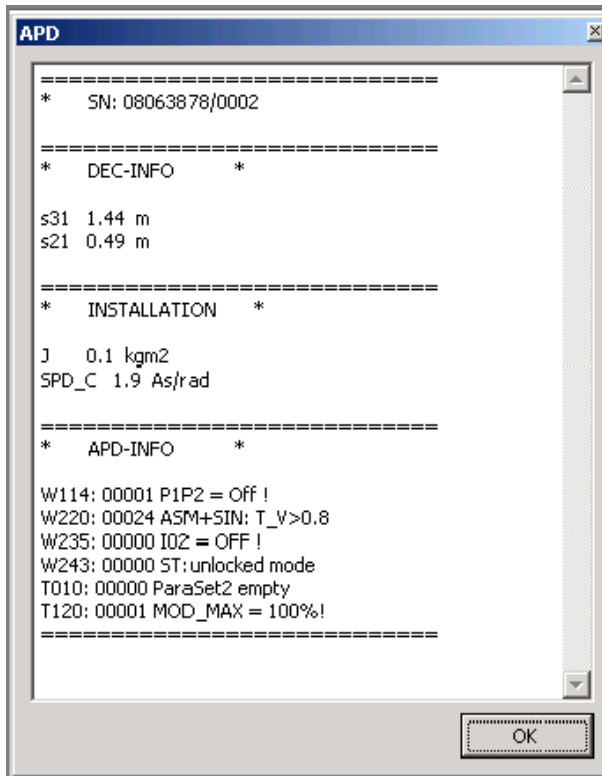
- the calculated delay paths
- The parameters for plausibility and tolerances
- Device functions for functional errors
- unusual or potentially dangerous parameterisations

The automatic parameter diagnostics are started with the "APD" button.



Information

The automatic parameter diagnostics can only be executed with an existing connection to the ZETADYN 3/ZAdyn4C!



6.12 Known firmware versions

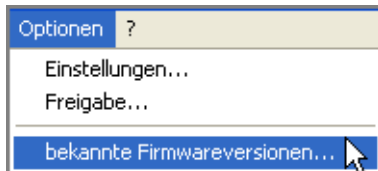
Display of the supported firmware versions of the ZETADYN 3/ZAdyn4C. To read parameters from other firmware versions, these must be assigned to a firmware version known to ZAMon.

WARNING! This can lead to individual parameters not being displayed or the ZETADYN 3/ZAdyn4C not knowing new parameters.



Information

Known firmware versions can be queried by "Options/Known firmware versions".

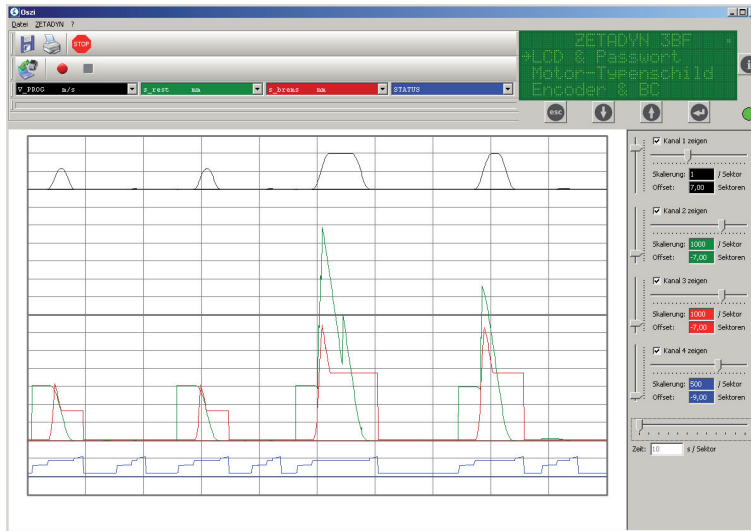


7 Modul "Oszi"

7.1 Modul "Oszi"

With the module "Oszi", you can record and display analog and digital measuring channels in the "live mode".

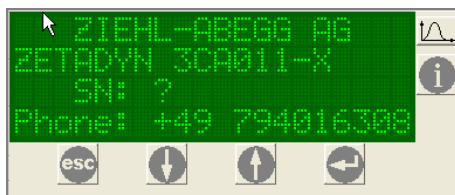
The recorded diagram can be used for diagnosis. A minimum time basis of 5ms is possible



Module "Oszi" in the "live mode"

7.2 Display function

Even at open recorder-module the ZETADYN 3/ZAdyn4C can be operated. Therefor you have the simulated operation terminal at the top right.



7.3 Take measurements

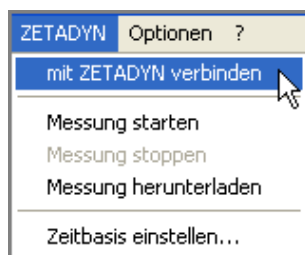
7.3.1 Connect ZETADYN 3/ZAdyn4C to PC/notebook

Connect the PC/Notebook before open the module "Oszi".

Connection wil be done automatically.

Connect the PC/Notebook after open the module "Oszi".

Connection has to be done manually by the button "connect to ZETADYN" in the drop-down-menu "ZETADYN/connect to ZETADYN"

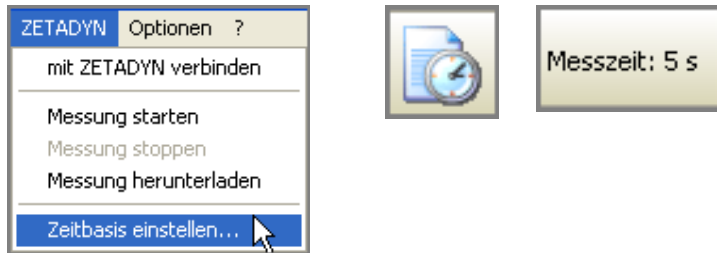


7.3.2 Adjust timebase

1024 measurements were written to the measured data storage per recording. When the measured data storage is full, the first measured value will be overwritten.
 Accordant to the lifting height and the elevator speed the timebase (and therefore the recordingtime) has to be adjusted

The timebase can be set between **5ms** (5,12s recording time) and **65535ms** (18.6 hrs recording time)
 A timebase of 5ms means that a measured value is set every 5ms which gives a recording time of 5.12s for 1024 measured values.

The timebase can be changed either with the "Set timebase" buttons or with the "ZETADYN/Set timebase" drop-down menu.

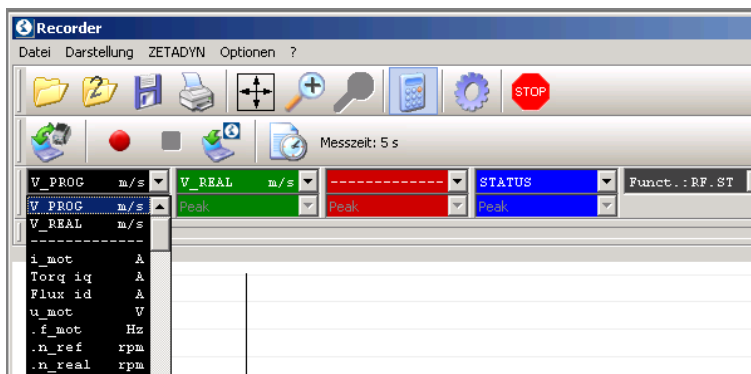


Timebase input window

The timebase can be entered either with the arrow buttons or by direct input.
 The measuring time for 1024 measuring points is displayed after entering the timebase.

7.3.3 Assigning measuring channels

Four analogue measuring channels and 1 digital measuring channel are available.
 If the ZETADYN 3/ZAdyn4C is connected to the PC/Notebook, the measuring functions set most recently on the ZETADYN 3/ZAdyn4C are loaded.
 Different measuring functions can be assigned to the channels. On clicking a measuring channel, a drop-down menu opens from which the desired function can be selected.
 The change in a measuring function is transmitted to the ZETADYN 3/ZAdyn4C immediately.



Assignment of measuring channels

7.3.3.1 Measuring method

The measuring method is defaulted to "Single" and is write-protected. However, it can be released in "Options/Settings" under "Measuring method" and set individually for every measuring channel.

Possible options are:

Peak	Maximum value within the sampling time (positive/negative)
Single	Current value at measuring time
Average	Average value within the sampling time
Peak min.	Minimum value within the sampling time
Peak max.	Maximum value within the sampling time



Information

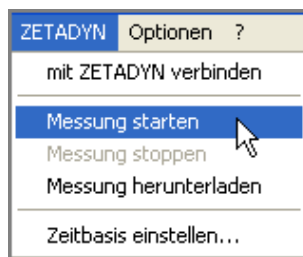
It only makes sense to change the measuring method at a timebase of 10 ms upwards (2 sampling steps).

7.3.3.2 Measuring functions

Measuring function	Description
Measuring channels 1-4 (analogue)	
V_PROG [m/s]	Set-value travel speed
V_REAL [m/s]	Actual value specification of the travel speed
Torq iq [A]	Torque generating motor current
Flux id[A]	Magnetisation current of the motor
STATUS	Condition of the frequency inverter
u mot [V]	Motor voltage
s_DCP [mm]	Remaining distance specification of the lift control to the ZETADYN 3/ZAdyn4C (only in DCP2 and DCP4)
.u_dc [V]	DC-link voltage
Measuring channel 5 (digital)	
Funct.:RF.ST	Display of the digital inputs: RF Controller enable RV1/RV2 Travel directions V1 - V4 Travel speeds CO1/CO2 Contactor control BR1/BR2 Brake monitoring VG1 Monitoring limit value 1
	Display of the digital outputs: RB Controller ready/switch motor contactors MB Motor brake ST Failure Opn Internal message "all brakes open" (incl. debounce time)
Brake Timing	Display of: KPO Gain of the speed control at start LR Position control at start OPN Internal message "all brakes open" (incl. debounce time) CLO Internal message "all brakes closed" (incl. debounce time) B_E Debounced inputs brake monitor BR_ Inputs brake monitor MB Output motor brake SOF Soft Switch Stop (Timer T5b) IO2 Double magnetisation (only in asynchronous motors) CO1/CO2 Inputs contactor monitor RB Controller ready/switch motor contactors
IO-Ports 3B	Display of: BR_ Inputs brake monitor CO1 Input CO1 of the contactor monitor I01...I08 Digital inputs I01...I08 O1...P4 Digital outputs O1...O4
Bits B7...S0	Display of: IB0...B7 Command bits B0...B7 S0...S7 Status bits S0...S7

7.3.4 Start measurement

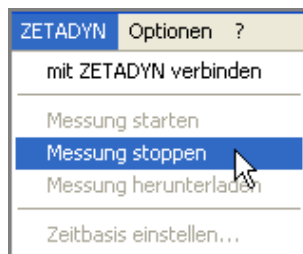
The measurement can be started with the "Start measurement" button or with "ZETADYN/Start measurement".



After starting, measured values are recorded until the measurement is stopped. If the measured value memory is full, the first in measured value is overwritten by the last measured value.

7.3.5 Stopping the measurement

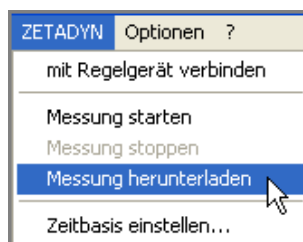
The measurement can be stopped with the "Stop measurement" button or with "ZETADYN/Stop measurement".



If an error occurs in the inverter, the measurement is stopped automatically.

7.3.6 Downloading the measurement

A measurement cannot be downloaded from the controller until it has finished. Transfer of the measurement from the ZETADYN 3/ZAdyn4C to ZAMon is started with the "Download measurement" button or with "ZETADYN/Download measurement".



7.3.7 Long-term measurement

A65535 measurement can be recorded for up to 18 hours when the greatest timebase (65535 ms) is set. If such a measurement is started with ZAMon, the PC/Notebook can be disconnected from ZETADYN 3/ZAdyn4C for the duration of the measurement.

Proceed as follows for this:

1. After starting the measurement, end the USB connection between ZETADYN 3/ZAdyn4C and PC/Notebook by clicking on the "Stop USB Transfer" button.



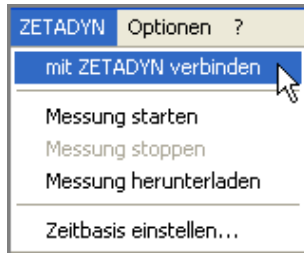
2. Remove USB line between PC/Notebook and ZETADYN 3/ZAdyn4C

The ZETADYN 3/ZAdyn4C must be reconnected with the PC/Notebook to end and download the measurement:

- If the "Recorder" module is reopened, ZAmon automatically establishes the connection with the controller.
- If the "Recorder" module was not closed in the meantime, the USB connection must be re-established with the "Start USB Transfer" button.

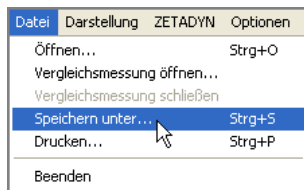


- Then make the connection manually by the "connect to ZETADYN" button or with the drop-down-menu "ZETADYN/connect to ZETADYN".



7.3.8 Saving the measurement

Downloaded measurements can be saved with the "Save as" button or "File/Save as...".



Information

The data of the recorded measurement can be saved additionally as a csv file for further processing in other programs.

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