

Movement by Perfection



ZAsset

Software

Installation and diagnostic tool for different fan types and control devices

Index 2024/38

Operating Instructions
Keep for future use!

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1 Introduction

1.1 Liability

Compliance with the following specifications serves to ensure product safety. Should the information specified especially regarding general safety, transport, storage, assembly, operating conditions, start-up, service, maintenance, cleaning and disposal/recycling not be observed, safe operation of the product may not be guaranteed posing a possible danger to life and limb of users and third parties. Thus, deviations from the specifications below can lead to the loss of legal materials defect liability as well as to the buyer's liability for the product rendered unsafe by deviation from the specifications.

Exclusion from liability

ZIEHL-ABEGG is not liable for damage which may result from operation with ZAsset.

1.2 Applicable documents

All instructions for the products to be controlled

Download: [Operating and assembly instructions of ZIEHL-ABEGG SE](#)

2 Safety instructions

2.1 Intended use

The software is used to control electrical devices remotely.
The product is intended for commercial use.

2.2 Remote control of products

The software is used to operate electrical devices that may not be within sight.

- ▷ While using the software, make sure that nobody is located within the product's danger area.

2.3 Requirements placed on the personnel

The operator must be able to assess the risks and hazards arising from controlling individual devices or the entire system. The operator of the software must be familiar with the entire system.

- ▷ Observe the instructions for the device being controlled.
- ▷ Make sure that only people who are familiar with the controlled device operate the software.

3 Product overview

ZAsset is an installation and diagnostic tool for different types of fan and control devices from ZIEHL-ABEGG. ZAsset enables easy and fast access to all the parameters and functions of ECblue motors, intelligent UNIcon controllers and Fcontrol, Icontrol and PMcontrol frequency inverters.

3.1 Software capabilities

- Connection to MODBUS-compatible devices via MODBUS TCP/IP or MODBUS RTU.
- Various network structures and connections can be established and used MODBUS TCP/IP or RS485, also simultaneously.
- Data recording: ZAsset functions
- MODBUS device overview in tree structure. Free allocation of MODBUS devices in groups within the structure.
- Patented auto-addressing for large MODBUS networks via TCP/IP or MODBUS RS485, which means that 247 MODBUS subscribers can be addressed when ZIEHL-ABEGG MODBUS gateways and repeaters are used.
- Group monitoring and control of fans with optional licence available.
- Automatic update with existing Internet connection.

3.2 System requirements

	Minimum requirement
Processor	1.3 GHZ clock frequency
Operating system	Windows 7 (32-bit and 64-bit) or Windows 8 (32-bit and 64-bit) Windows 10 (32-bit and 64-bit) or Windows 11 (32-bit and 64-bit) Windows server 2016, Windows server 2019, Windows server 2022 (32-bit and 64-bit)
RAM size	512 MB RAM
Hard disk	100 MB free hard disk memory
Monitor	Resolution 1024 x 768
.NET framework	Microsoft .NET Framework 4.8

3.3 Download

ZAsset can be downloaded free of charge:

www.ziehl-abegg.com/en-gb/product-range/digital-solutions/software/zaset

3.4 Software Bill of Materials SBOM

The SBOM is a detailed directory of all components, modules, libraries, and dependencies included in a software product, including their respective versions, origins and license information. In a standard installation, this file is in the path C:\Program Files\ZIEHL-ABEGG\ZAsset_manifest.

4 Server and network

4.1 Server context menu

Icon	Menu text	Explanation
	Connect to the server	
	Disconnect from the server	
	Add server	
	Delete server	
	Show server message list	Current status of the server Display the last 100 messages. Hold = stop updating the messages with the checkbox
	Automatic addressing	All products connected to a server that support ZIEHL-ABEGG MODBUS addressing are automatically initialised.
	New folder	New folder under a server for grouping products.
	Add new client	Overview of available clients

4.2 Server status

Colour	Explanation
Green	Connected to server
Red	No connection to server
Blue	Server is not configured

4.3 Overview of interfaces

	Serial port	TCP/IP	BluetoothLE	ZAbluegalaxy
IP	-	Target device, e.g. gateway	-	-
Port Interface	COM1, USB	Port on target device	-	Depending on the device to be controlled
Transfer rate	19200	-	-	-
Parity	Even	-	-	-
StopBits	One	-	-	-
Timeout in ms	Recommended: 1,000	Recommended: 1,000	Recommended: 1,000	Recommended: 1,000
Poll interval in ms	With the Max option, the smallest interval is used. If you experience problems with communication or resources, reduce the interval to > 100 ms.			
Alias	-	-	Optional server name	-
PIN per product	-	-	Mandatory	-
Serial number S/N	-	-	Mandatory	-
MQTT topic	-	-	-	Mandatory

Serial port:

To use a USB connection, connect an interface converter USB-485 converter type USB-485-Mini/OP or use a converter with RJ45 connection and bridged pins 7 and 8 to connect the junction box directly.

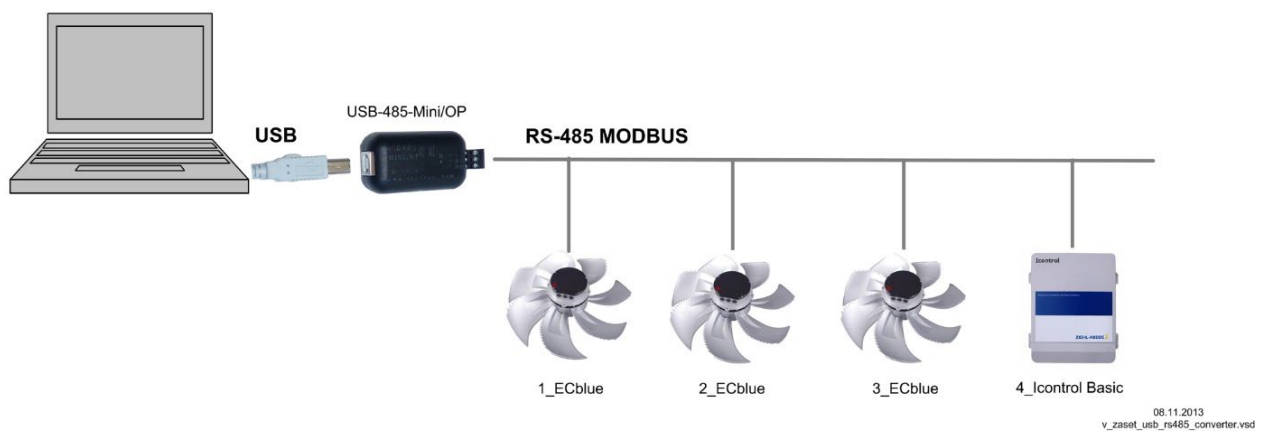
If CRC errors occur more frequently during data transmission, this may indicate that the computer is overloaded.

▷ Deactivate the **Fast Interframe Delay** option.

Optionally available from ZIEHL-ABEGG:

- USB-485 converter type USB-485-Mini/OP Art. 380065
- Converter with RJ45 connection and bridged pins 7 + 8; cable length 3 m Art. 380095

Example for using the USB interface



4.4 Connecting to the server

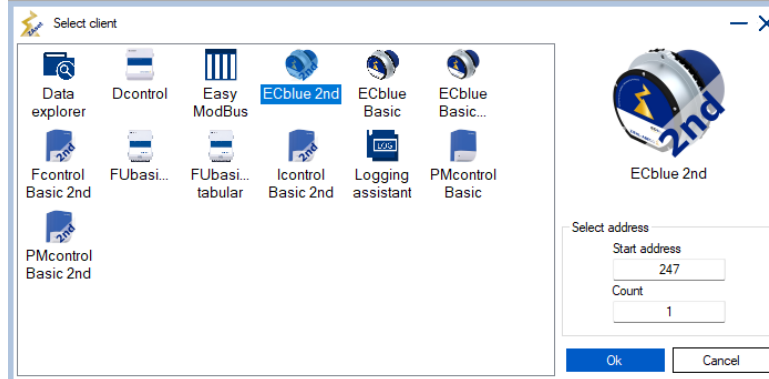
Procedure:

1. Add a server.
2. Select and configure an interface, see *Interface overview*.
3. Check if there is a connection to the server. The server icon is green. If the icon is red, check the server's message list.
If no MODBUS network has been set up yet, see *4.5 Setting up a MODBUS network*.
4. Add a client. Depending on the product, different clients are supported and different setting options are available, see *5.1 Overview of clients*.

4.5 Setting up a MODBUS network

4.5.1 Manual addressing

- ▷ Select the device and enter the start address; highest available address 247.

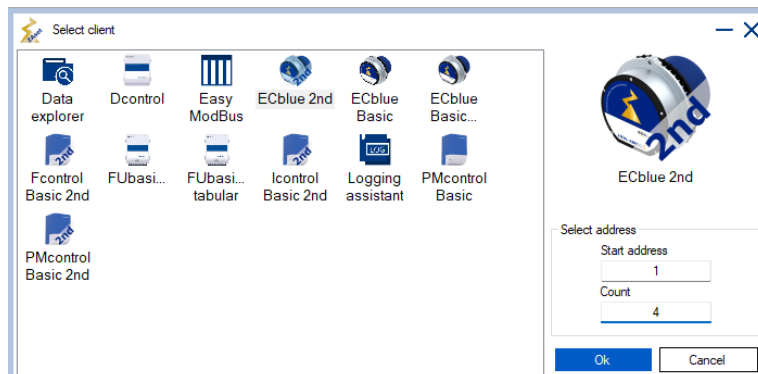


The new address settings in the client's IO setup is adopted after a reset caused by an interruption to the line voltage.

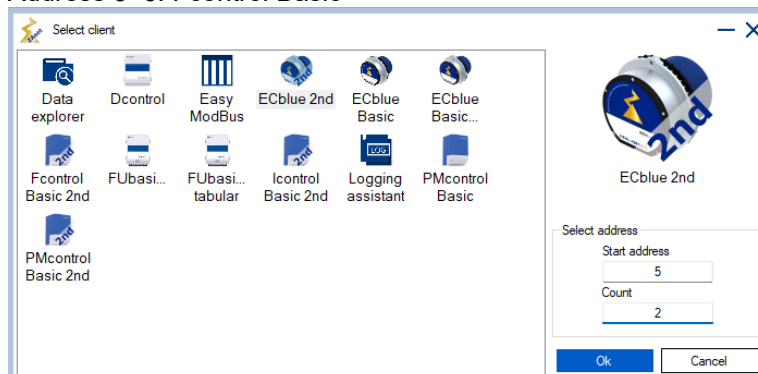
If there are multiple devices in the bus connection and these are already addressed, all clients can be added automatically.

Example:

6 devices addressed: Address 1–4: ECblue



Address 5–6: Fcontrol Basic



The images of the clients overlap. These may be arranged differently under **windows**.

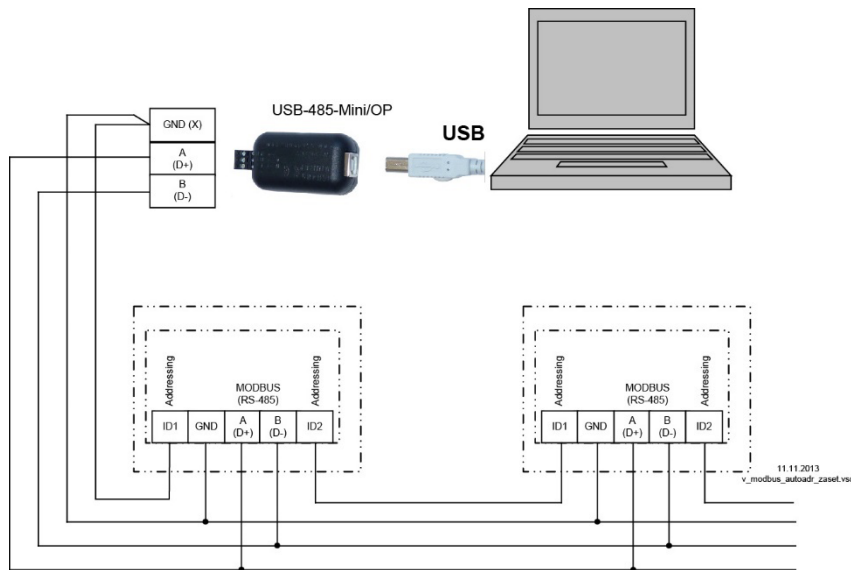
4.5.2 Automatic addressing

Previous addressing is overwritten.

Prerequisite:

- The products to be controlled support the automatic addressing function, see operating instructions of the product to be controlled.
- The wiring has been carried out as follows:
On the 1st product connected directly to the terminal or to the PC, bridge GND and ID1. For the following products, connect the output ID2 of one product to the input ID1 of the next product.

Example of wiring for automatic addressing via USB converter



Procedure:

1. Start automatic addressing in the server menu.
2. Add new clients and enter the start address and number.

5 Clients

5.1 Overview of clients

Client	Explanation
Data explorer	File exchange for devices from the 2nd generation, e.g. ECblue, Fcontrol, Icontrol and PMcontrol
Dcontrol	Communication with Dcontrol
Easy Modbus	General MODBUS client for communicating with MODBUS devices.
ECblue 2nd	Communication with ECblue products from the 2nd generation.
ECblue Basic	Communication with ECblue products from the 1st generation.
ECblue Basic, tabular	Communication with ECblue products from the 1st Generation of tabular view at tab level.
Fcontrol Basic 2nd	Communication with Fcontrol Basic products from the 2nd generation.
FUbasic(-M)	Communication with FUbasic products from the 1st generation.
Icontrol Basic 2nd	Communication with Icontrol Basic from the 2nd generation.
NETconVis	Cleanroom visualisation
PMcontrol Basic 2nd	Communication with PMcontrol Basic from the 2nd generation.
Logging assistant	Data logging at tab level
Remote support	Via ZABluegalaxy, an encrypted Internet connection is established between 2 computers via MQTT port 8883. The remote device's ZAsset server is used for communicating with the respective end devices.
Vibration analysis	Measurement of vibration values from a ventilator system. The measurement is based on one or more predefined signal characteristics and measures the first order vibration values in the X, Y and Z axes via the integrated vibration sensor.

If the product to be controlled does not correspond to the appropriate generation, an error message appears.

5.2 Basic functionalities for products from the 1st and 2nd generation

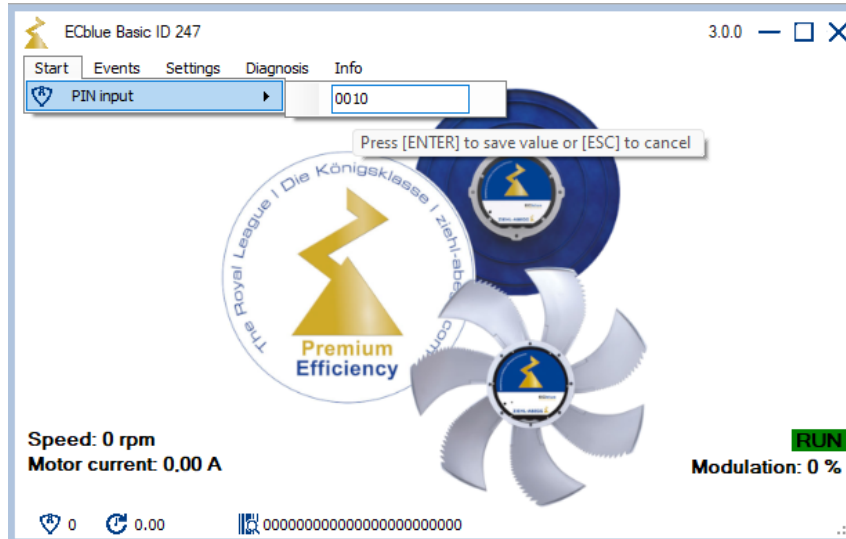
5.2.1 Products from the 1st generation

Start tab

Command input	Entering the PIN for the product, see instructions for the product to be controlled
Save parameters	Saving the product's settings as a CSV file.
Open parameter set	Loading a product's settings, only possible offline without communication
Load parameter set to the device	Sending settings to the end device

Example for programming function D1

1. Left-click to open the Start menu group.
2. Enter the PIN under Start/PIN input. The set level is protected.



3. Use the IO Setup tab to select the *D1 function: Select Release (ID)* and make a selection in the drop-down menu.
4. Confirm with the Enter key.

Saving parameters

- Select the **Start/Save parameter set** tab and save the settings as a CSV file. These settings can be loaded to the same product or copied to another product: Select a new product and select **Start/Load parameter set to device**.

5.2.2 Products from the 2nd generation

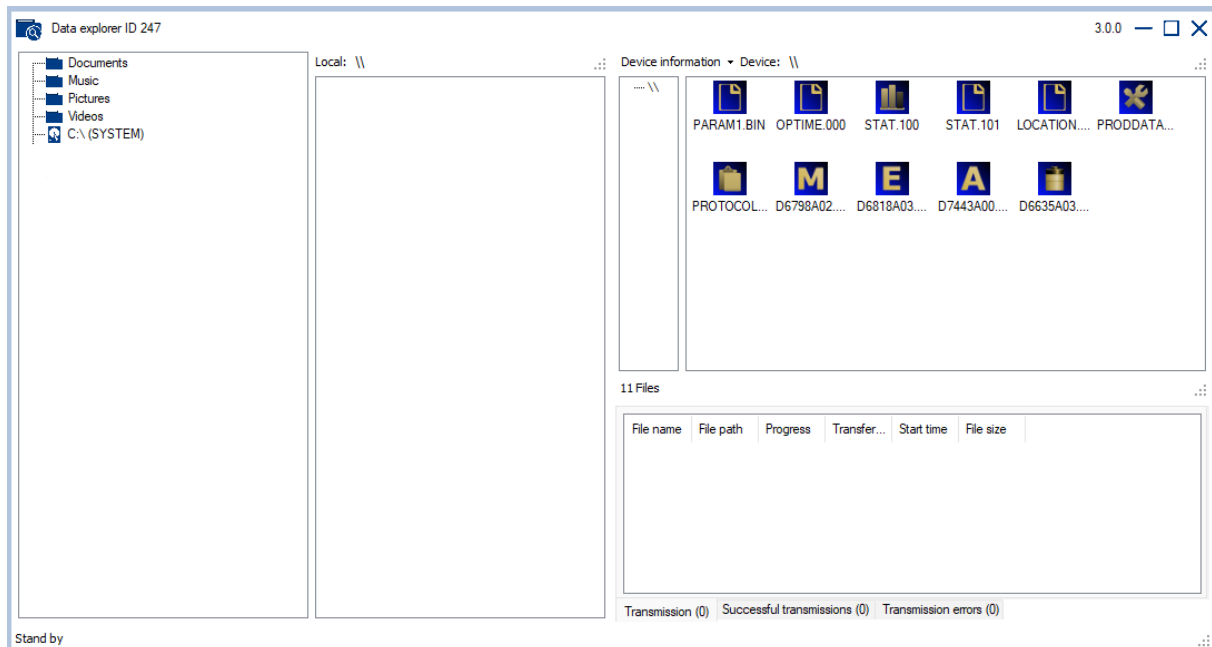
Uniform menu in all applications on desktop, mobile, Edge and cloud.

HOME menu

PIN input	Input PIN
Device information	Information about the product
Operating statistics	Product statistics file
Event log	All warnings and errors in the file EVENTLOG.301
Error log	Extended error logging

5.3 Data explorer

The Data Explorer can be used to transfer configuration files and software from one device to a PC or vice versa. On the left side, the PC side is shown in a tree structure, on the right side the device information is shown as files.



Connection status bottom left:

Standby = not connected; Online = connected; Offline = no connection

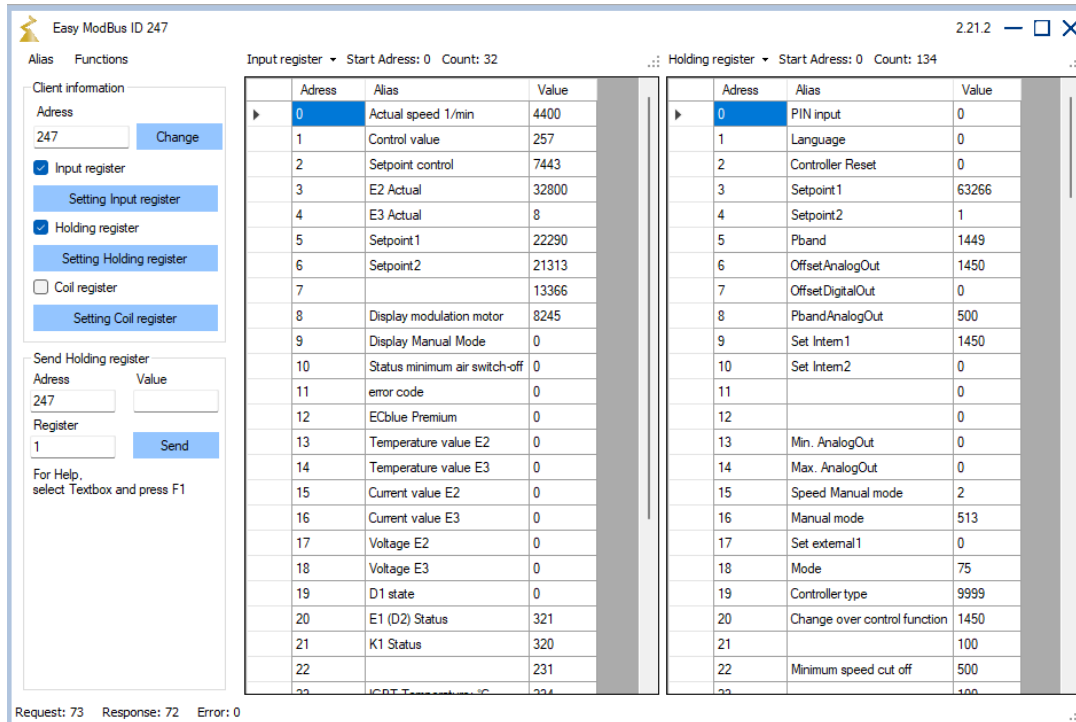
To transfer data, drag and drop it to the respective target side.

ZIEHL-ABEGG provides different files on the device to be controlled. These files can be opened with a double-click or via the context menu.

Ending	Name	Description
.100	STATISTIC Statistics information	Information about the entire operating period of the fan.
.201	PRODDATA Product information	Product information
.300	PROTOCOL Advanced error logging	Detailed error log
.301	EVENTLOG History of error states	Displaying - Errors - Warnings - Information

5.4 Easy Modbus

General MODBUS client for communicating with MODBUS devices. Individual client settings differ depending on the product to be controlled.



Easy Modbus ID 247 2.21.2

Alias Functions

Client information

Address: 247 [Change]

☒ Input register [Setting Input register]

☒ Holding register [Setting Holding register]

☐ Coil register [Setting Coil register]

Send Holding register

Address: 247 Value: []

Register: 1 [Send]

For Help, select Textbox and press F1

Request: 73 Response: 72 Error: 0

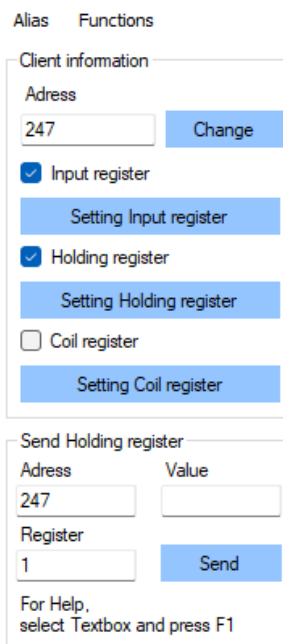
Address	Alias	Value
0	Actual speed 1/min	4400
1	Control value	257
2	Setpoint control	7443
3	E2 Actual	32800
4	E3 Actual	8
5	Setpoint1	22290
6	Setpoint2	21313
7		13366
8	Display modulation motor	8245
9	Display Manual Mode	0
10	Status minimum air switch-off	0
11	error code	0
12	ECblue Premium	0
13	Temperature value E2	0
14	Temperature value E3	0
15	Current value E2	0
16	Current value E3	0
17	Voltage E2	0
18	Voltage E3	0
19	D1 state	0
20	E1 (D2) Status	321
21	K1 Status	320
22		231

Address	Alias	Value
0	PIN input	0
1	Language	0
2	Controller Reset	0
3	Setpoint1	63266
4	Setpoint2	1
5	Pband	1449
6	OffsetAnalogOut	1450
7	OffsetDigitalOut	0
8	PbandAnalogOut	500
9	Set Intern1	1450
10	Set Intern2	0
11		0
12		0
13	Min. AnalogOut	0
14	Max. AnalogOut	0
15	Speed Manual mode	2
16	Manual mode	513
17	Set external1	0
18	Mode	75
19	Controller type	9999
20	Change over control function	1450
21		100
22	Minimum speed cut off	500

The Alias menu item can be used to change the names of the tabs and to load or save set names and formatting.

5.4.1 Configuring reading operations

▷ Select the register types and enter these into the tab addresses to be accessed.



Alias Functions

Client information

Address: 247 [Change]

☒ Input register [Setting Input register]

☒ Holding register [Setting Holding register]

☐ Coil register [Setting Coil register]

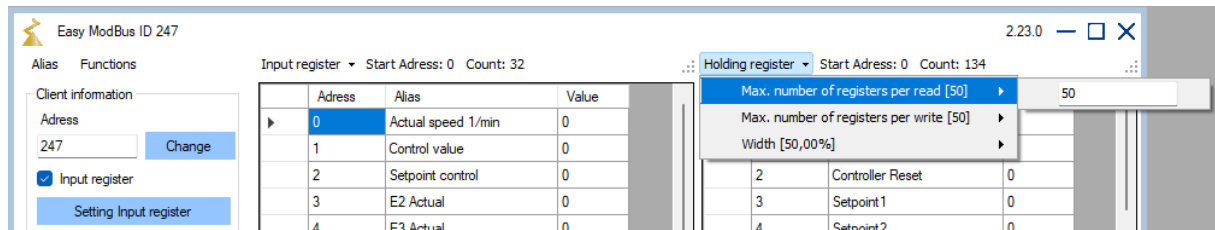
Send Holding register

Address: 247 Value: []

Register: 1 [Send]

For Help, select Textbox and press F1

Define the number of registers per read and write process via the button for the type of register display.



5.4.2 Sending values to the device to be controlled

- Double-click on the register value and enter via InputBox or
- Single click on the register value and enter via the Send button

5.4.3 Configuring Alias manually

Double-click on the Alias field to adjust the entries.

5.4.4 Formatting values

The offset can be positive or negative. The number system can be changed to decimal, hexadecimal or binary. The decimal place, offset and unit formats are only available in decimal display format.

- ▷ Right-click to select and format the register value.
- The formatting can be transferred to all marked values by highlighting multiple values.

5.5 NETconVis

NETconVis@ZAsset is a software extension for visualising networked fans, e.g. in clean room installations. The fans are integrated into a system drawing as interactive elements. NETconVis@ZAsset enables easy programming of individual fans or whole fan groups, with operating states being easily recognizable.

ATTENTION! Risk of material damage due to disconnection of the connection to the product

If the server, PC, connection or software fails, the entire system shuts down. The products might not be activated and might not start automatically.

- ▷ After a failure, check that the products being are controlled are running smoothly.

Requirements:

- The drawings are created with interactive fans in SVG format, e.g. with Inkscape.
- ZIEHL-ABEGG licence key
- Microsoft SQL Server database for the master database files
 - Local MDF file with an MS SQL Server instance.
 - Local MDF file with an MS SQL Server LocalDB instance.
 - MS SQL Server.

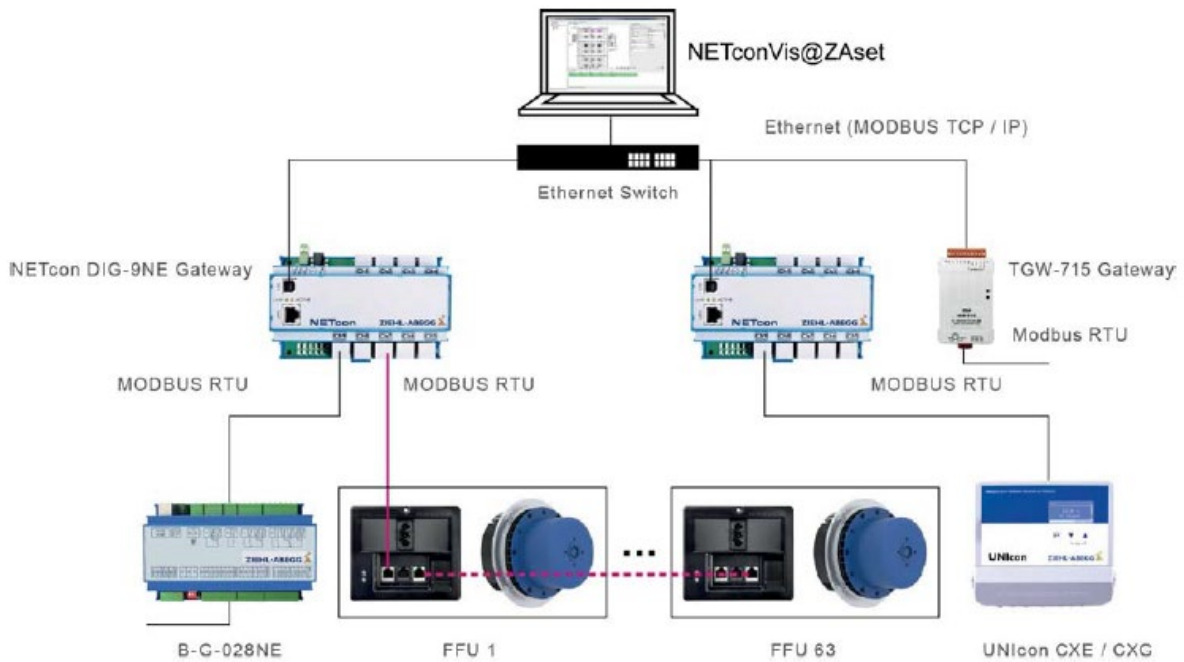
Restrictions with MS SQL Server Express

- Only 1 processor or 1 processor core is used.
- Maximum 1 GB RAM
- Maximum database size 10 GB, in 2008 R1 only 4 GB

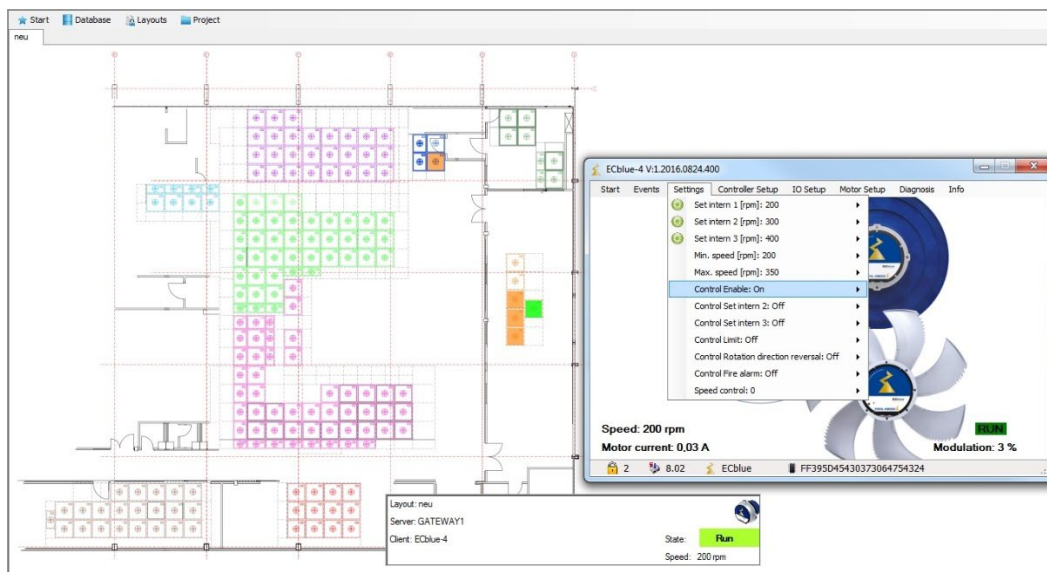
Features:

- Graphic overview of up to 500 fans spread over several field maps.
- Control and configuration of up to 500 fans directly via NETcon gateway.
- Status monitoring via cyclic reading of fans or MODBUS nodes, e.g. B-G-028NE or UNIcon MODBUS master.
- Error alarm: visually, by e-mail and error logging
- Grouping and group control
- Timer

Example of clean room installation components

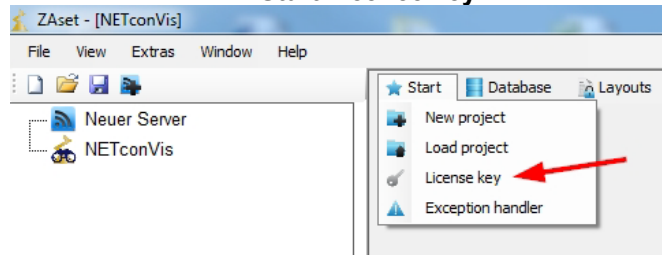


Example for visualising a clean room installation

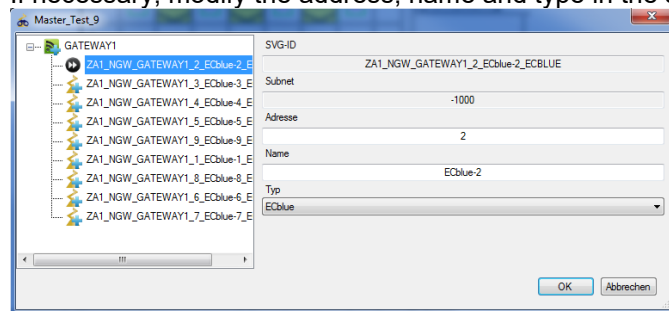


Procedure:

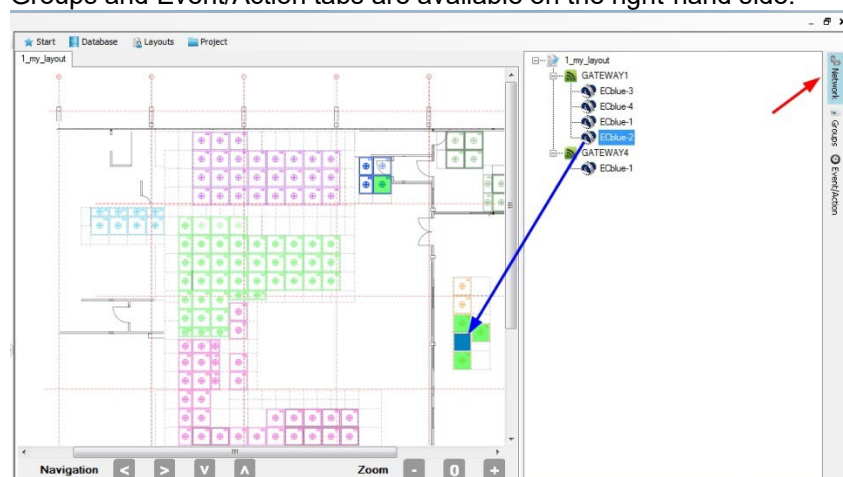
1. Connect NETconVis@ZAsset as client.
2. Activate in the menu **Start/ licence key**.



3. Request licence key: Select **Create**. A system information file NETconVisZAsset.dat is created. Add the company name and send the file to fan-controls-service@ziehl-abegg.com. The licence key will be sent by email.
4. Locate and activate this licence key under **Create**.
5. In the **Database/Select database** menu, open and select the relevant database.
If no SQL Server is installed, install the Microsoft SQL Server LocalDB or Microsoft SQL Server Express software package.
If you are working with an SQL server, create an empty database for NETconVis@ZAsset.
6. Create a drawing with interactive fans in SVG format, see *Creating a drawing*.
7. Import the drawing into the database:
In the **Layouts/New layout** menu, select the SVG drawing.
8. Create a new project in the **Start/Create new project** menu
9. Before adding a new layout, pay attention to the correct IP address and gateway port.
If necessary, modify the address, name and type in the settings of the product to be controlled.

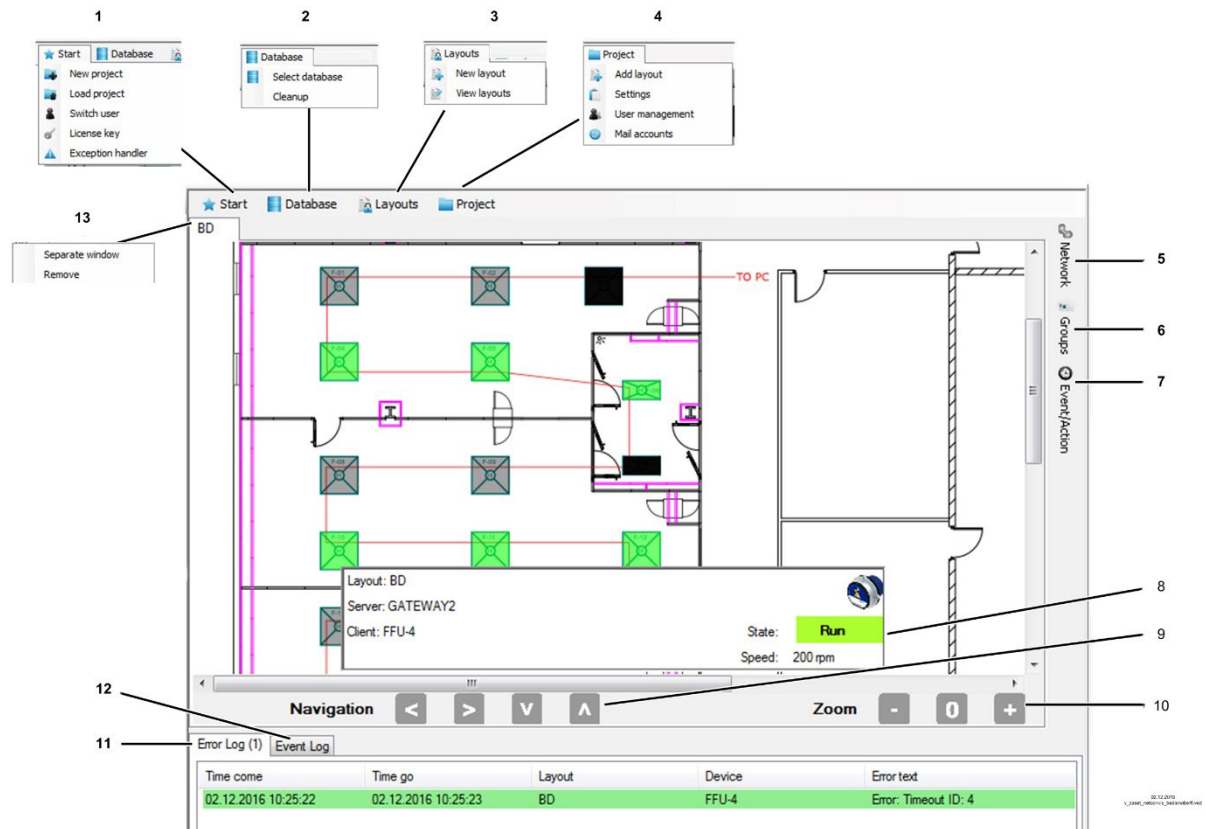


The context menu displays the operating state of the product to be controlled. The Network, Groups and Event/Action tabs are available on the right-hand side.



10. Save the project.
11. Optionally, create a user, see *Create user*.
12. Optionally, create a mail account, see 5.5.5 *Creating a mail account*.
13. Optionally, create an event and/or an action, see 5.5.8 *Events and actions*.

5.5.1 Overview of visualisation and operation via ZAsset NETconVis



1. Start menu	Managing projects and requesting licence keys
2. Database menu	Creating and managing database for ZAsset NETconVis
3. Layouts menu	Import system layouts into database and manage
4. Project menu	Allocating a layout to a project, managing status colour settings, users and e-mail accounts
5. Network menu	Displaying networks and clients
6. Groups	Creating groups and allocating clients
7. Event/action	Creating and activating events and actions
8. Information on the selected client	Current status of the controlled device
9. Navigation in the layout	Alternative: Mouse wheel or arrow keys
10. Zooming in or out of the layout display	Alternative: Mouse wheel or key combination CTRL+Minus and CTRL+Plus
11. Error log	Error log including the time of occurrence and solution to the problem
12. Event log	Events and actions are logged
13. Layout context menu with a right click	Opening layout as a copy in a separate window Remove layout from project

5.5.2 Exception handler

The exception handler contains all program errors that occur during visualisation with NETconVis@ZAsset.

- ▷ In the menu, select **Start/Exception handler**.
To see details, highlight the error message.

5.5.3 Creating drawings

The following identifier of these objects is required so that NETconVis@ZAsset can recognise the clients in a SVG drawing:

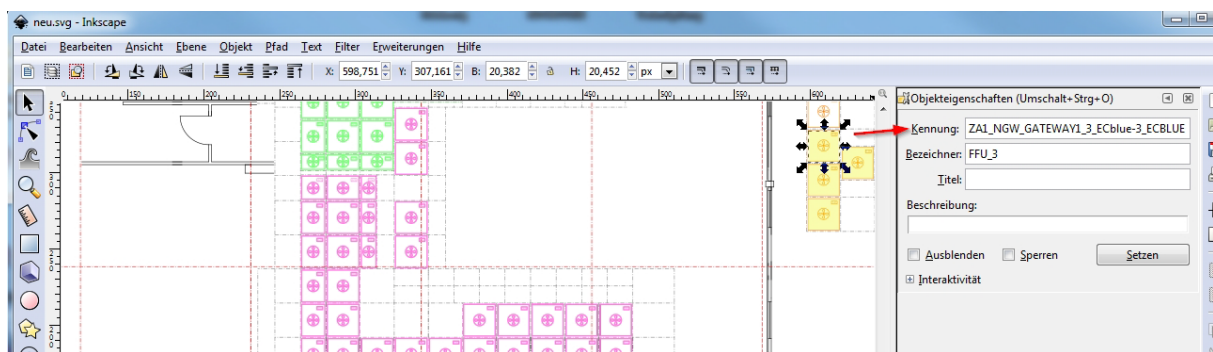
Position	Meaning	Explanation/selection
1	Version	ZA1 : ZIEHL-ABEGG, version 1
2	Type of interface	SERIAL : Serial interface, e.g. COM1 IP : Connection via TCP/IP NGW : Connection via a NETcon gateway
3	Gateway name	User-defined gateway name
4	Client MODBUS ID	1...247: MODBUS ID of the product to be controlled
5	Client name	User-defined name of the product to be controlled
6	Device type	ECBLUE : ECblue device UCONTROL : Ucontrol device

Example of identifiers:

ZA1 _ NGW _ GATEWAY1 _ 3 _ ECBlue-3 _ ECBLUE
1 2 3 4 5 6

- ▷ Rename the identifier and designation automatically assigned in the drawing program according to the SVG ID specifications. Please observe the sequence of MODBUS client IDs, which is automatically produced during automatic addressing according to the installed layout of fans, see *chapter Automatic addressing*.

Example of a client in the SVG drawing layout



Tip: Only represent the contour of the forms so that the objects can be defined via the NETconVis@ZAsset program in terms of colour depending on status.

Different colours can be defined for individual states of a product in the project settings.

Status	Explanation
Standby	Product in standby mode
Ok	No error
Error	Error
Marking	If the client is highlighted in a menu item, it is displayed in the selected colour.
Stop	Optional parameter
Speed 0	Optional parameter

The file name must be unique. If a file with the same name is available in the database, then it will be stored under the same name with a new index. The layout with the older index will not be available for new projects. The layout with the original index will continue to be used for existing projects.

All drawings are listed as layouts in NETconVis@ZAsset.

The **Layouts/View layouts** menu shows all existing layouts with a preview.

5.5.4 User management

NETconVis@ZAsset includes integrated user management. If more than one user is created, an administrator must be defined.

▷ Create a new user in the **Project/User management** menu.

Configuration options for users

Field	Explanation
View	Displaying the layout
Navigation	Switching between layouts
Display protocol	Error log and event log
Process event	Defining events and actions
Smart settings	Opening Smart settings
Process	Configuring settings in a project

5.5.5 Creating a mail account

Central management of all mail accounts in the project under **Project/Mail accounts**.

Add a new account by right-clicking in the list on the right.

Field	Explanation
SMTP server name	Name or IP address of the host for SMTP transactions
SSL	This must be enabled to encrypt the connection
Server port for SMTP transactions	Enter port
Use standard login information	Windows login is used
Log-in information	Enter username and password
Sender information	Name of the sender
Sender address	Sender's email address

5.5.6 Network function menu

The Network menu shows all networks with the products to be controlled via the complete layouts in the project. If networks exist in several layouts, these are shown repeatedly in the corresponding layouts.

Red display: Communication error

Yellow display: Deactivated products

Client context menu

Field	Explanation
Expand all	Expand the tree view.
Hide all	Hide the tree view.
Change the name	Rename the product to be controlled
Deactivate	Deactivated clients are no longer read cyclically

5.5.7 Groups function menu

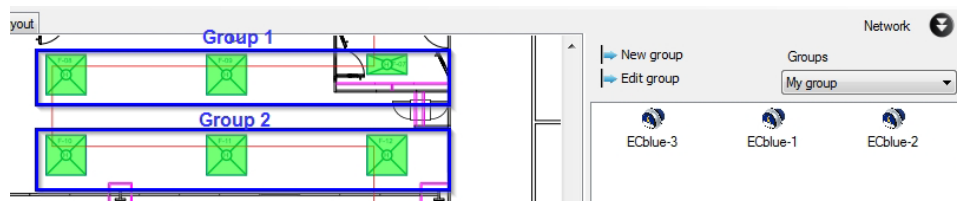
To control several products at the same time, group the products in the **Groups** menu.

1. Open the Groups menu on the right.
2. Select a new group and assign a name.
3. With a single click, mark the client in the layout in colour, and with a double-click accept into the group.
If there are several groups, select the group in the drop-down menu. When selecting the group, the products in the group are marked in colour.
4. Open the settings via the client or Smart Control by double-clicking on a product in the group.

Products in a group can be deleted by right clicking on the product. Groups can be renamed or deleted via the **Edit group** field.

The network can be shown or hidden using the **Network** button .

Example for controlling 2 groups with 3 fans each



Group 1: FFU-1, FFU-2 and FFU-3
Group 2: FFU-4, FFU-5 and FFU-6

To accept a default value for all products in a group, each product must have the same basic settings, e.g. **Default Intern 1** setting.

5.5.8 Events and actions

Each event can have multiple actions.

1. Create a new event using the Create new event button.
2. Give the event a name.
3. Define event:
 - a) **Read MODBUS register** or
 - b) **Time event**, see below
4. Release event: Activate the checkbox. If the checkbox is checked, the event is monitored.

Event types:

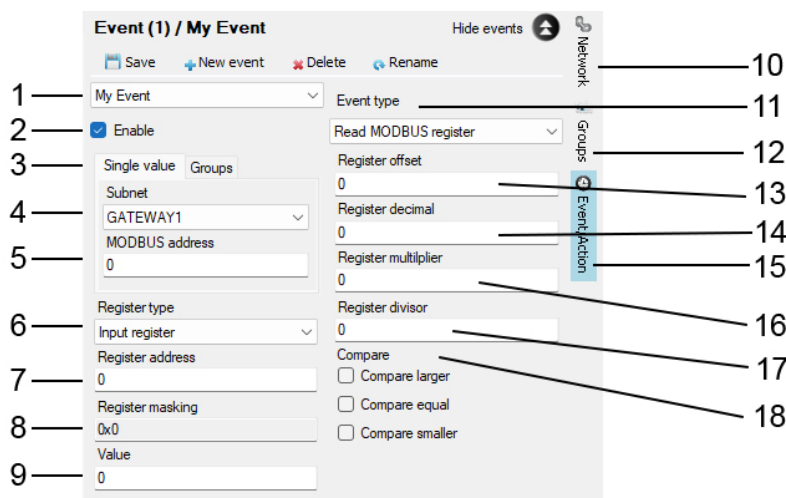
Events are executed once. If the state reoccurs, the event is repeated.

a) Read MODBUS register

The event reads a raw value from a MODBUS register, formats this raw value and compares it with a reference value. The individual value query of a MODBUS ID in an existing subnet. Coil, Input and Holding register is supported.

Raw value formatting order:

1. Masking
2. Offset
3. Multiplier
4. Divisor
5. Decimal places



The screenshot shows the 'Event (1) / My Event' configuration window. It includes a 'Hide events' button and a 'Network' icon. The window is divided into several sections: 'My Event' (with 'Save', 'New event', 'Delete', and 'Rename' buttons), 'Event type' (set to 'Read MODBUS register'), 'Single value' and 'Groups' tabs, 'Subnet' (set to 'GATEWAY1'), 'MODBUS address' (set to '0'), 'Register type' (set to 'Input register'), 'Register address' (set to '0'), 'Register masking' (set to '0x0'), 'Value' (set to '0'), 'Register offset' (set to '0'), 'Register decimal' (set to '0'), 'Register multiplier' (set to '0'), 'Register divisor' (set to '0'), 'Compare' (with options 'Compare larger', 'Compare equal', and 'Compare smaller'), and 'Event/Action' (with a 'Network' icon). Numbered callouts 1 through 18 point to these fields and buttons.

1	Name of event	10	Network function menu
2	Release event	11	Select event type
3	Individual value or group tab	12	Groups function menu
4	Select subnet	13	Register offset adds a fixed value
5	MODBUS address	14	Register decimal places formats the value with the specified decimal places
6	Select register type	15	Event/Action function menu
7	Register address	16	Register multiplier multiplies the value by a fixed value
8	Select Register masking Bit-wise AND-relationship of the raw value Example: 0101 AND 0011 = 0001	17	Register divider divides the value by a fixed value
9	Formatted TARGET value for comparison	18	Comparison indicates when the result is TRUE: ACTUAL value greater than, equal to or/and less than TARGET value

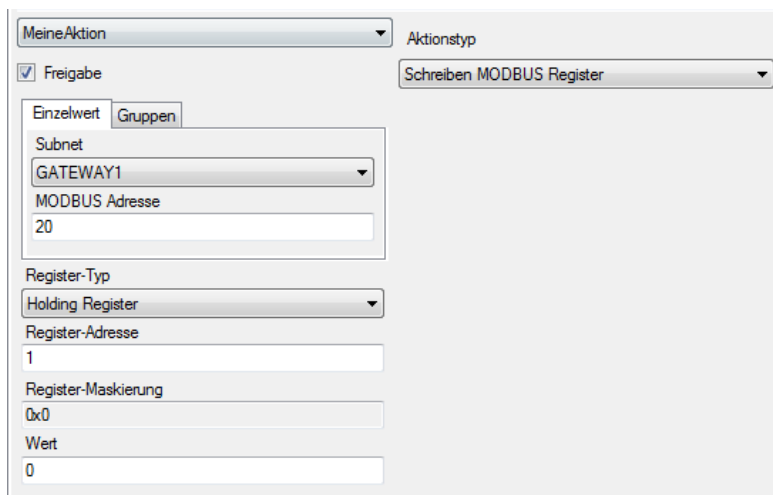
b) Time event

The time event is triggered at a given time, reference is the system time.

Actions

When the event is executed, an action is triggered once. If an error occurs in an action, this action is not repeated.

a) Write MODBUS register: Writes a value to the MODBUS register of a MODBUS ID or group. The action supports writing a MODBUS ID or an entire group.



The screenshot shows a configuration window titled 'MeineAktion'. It has a dropdown menu for 'Aktionstyp' set to 'Schreiben MODBUS Register'. Below this, there is a checkbox for 'Freigabe' which is checked. Underneath, there are two tabs: 'Einzelwert' and 'Gruppen'. The 'Einzelwert' tab is active, showing fields for 'Subnet' (set to 'GATEWAY1'), 'MODBUS Adresse' (set to '20'), 'Register-Typ' (set to 'Holding Register'), 'Register-Adresse' (set to '1'), 'Register-Maskierung' (set to '0x0'), and 'Wert' (set to '0').

The Coil and Holding register types are supported.

Masking enables a bit-wise AND-relationship of the raw value: the register to be written is read from the device, then masked, added to the value and then written.

Example:

	0101
AND	0011
=	0001

b) Send e-mail, see Set up server, enter message and add recipient address list with right click.

Setting the operating states via Smart Control

Smart Control can be used to configure the most important settings for a product or group to be controlled. The settings are dependent on the product to be controlled.

- Move the mouse cursor over a product, a separate window will open with the following information:
 - Layout designation
 - Name of the server
 - Client name
 - Status: In process or stop
 - Speed or fan level (according to device type)
- Click on a product, this is marked in colour and both setting options are displayed:
 - Client, see *Adding a client*
 - Smart Control**; double-click

- Set the parameters and confirm.
If you want the settings to be adopted for a group, check the box for **Accept for group** and configure the settings.

Protocols

Error protocol

The error protocol documents all errors occurring in the networks. The affected layout, the product to be controlled, the error text and the time period in which the error occurred are output.

Error Log (27)		Event Log (0)		
Time come	Time go	Layout	Device	Error text
02.12.2016 11:34:33	02.12.2016 11:35:26	BD	FFU-5	Error: Timeout ID: 5
02.12.2016 11:34:33	02.12.2016 11:35:25	BD	FFU-1	Error: Wrong transaction id ID: 1
02.12.2016 11:34:33	02.12.2016 11:35:25	BD	FFU-2	Error: Timeout ID: 2
02.12.2016 11:34:33	02.12.2016 11:35:25	BD	FFU-6	Error: Timeout ID: 6
02.12.2016 11:34:33	02.12.2016 11:35:25	BD	FFU-4	Error: Timeout ID: 4
02.12.2016 11:34:33	02.12.2016 11:35:25	BD	FFU-3	Error: Timeout ID: 3

By single-clicking on the entry, the affected client is highlighted in colour in the layout. Double-clicking on the entry opens the product to be controlled.

Delete – Deleting affects the display and not the entries in the database.

All	Delete all entries
Selected	Delete the selected entries
All good ones	Delete all entries without errors

Save

All	Save all entries
Selected	Save all selected entries

History: Display of all saved errors

Event log

The event protocol documents all events, the execution of subsequent actions and whether the events and actions led to an error. In the event log, all events and actions are documented with a time stamp, inclusive of errors.

Error Log		Event Log (34)		
Time	Type	Event/Action Type	Name	Error
02.12.2016 13:48:00	Event	Read MODBUS register	My event	Error: EXCEPTION 0B :Gat...
02.12.2016 13:47:58	Event	Read MODBUS register	My event	Error: EXCEPTION 0B :Gat...
02.12.2016 13:47:57	Event	Read MODBUS register	My event	Error: EXCEPTION 0B :Gat...
02.12.2016 13:47:56	Event	Read MODBUS register	My event	Error: EXCEPTION 0B :Gat...
02.12.2016 13:47:52	Event	Read MODBUS register	My event	Error: EXCEPTION 0B :Gat...
02.12.2016 13:47:50	Event	Read MODBUS register	My event	Error: EXCEPTION 0B :Gat...

Delete – Deleting affects the display and not the entries in the database.

All	Delete all entries
Selected	Delete the selected entries

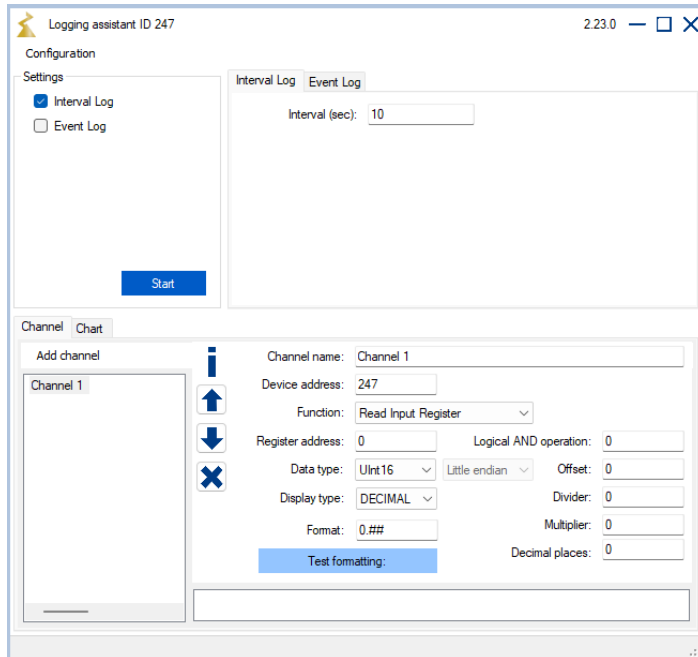
Save

All	Save all entries
Selected	Save all selected entries

5.6 Logging assistant

The logging assistant can be used to record different MODBUS registers per product. The logging assistant allows you to freely define a logging profile. Coil registers, Input registers and Holding registers can be logged. Records are saved in CSV format

The assistant supports logging by time or by register monitoring. All settings can be saved and loaded in XML format. The complete configuration of the logging profile can be saved and loaded using the Configuration button.



Procedure:

1. In the main Configuration menu, select the device address and the recording option.
2. Select at least 1 event

Interval log: In interval mode, logging occurs after a set time.

Event log:

Monitoring register: Select a register

Function code: Select function code

Function: select <, = or >

Value: Enter value

Interval: Enter interval

If interval = 0, a log point is created each time the monitoring register is called up and if the condition is met.

If interval > 0, a log point is created at the specified interval as long as the condition is fulfilled.

3. Press Start
4. Configure channel
 - Channel name** = Heading of the CSV file
 - Enter **device address**
 - Function code:** Select function code
 - Enter **register address**
 - Select **display type** decimal or binary

Enter format

Format	Value	Result
0.##	123.4	123.4
0.00	123.4	123.40
0.##	123.456	123.45
0.00	123.456	123.45

There are different options for formatting the raw value. These are carried out in the following order:

1. Logical AND-relationship
2. Addition of offsets
3. Dividing
4. Multiplying
5. Decimal places

Logical AND-relationship: The register value is linked logically to the entered value.

Example:

	0110
AND	1011
=	0010

Offset: Fixed value that is added to the raw value read out from the MODBUS register

Divisor: Value for the division

Multiplier: Value for multiplication

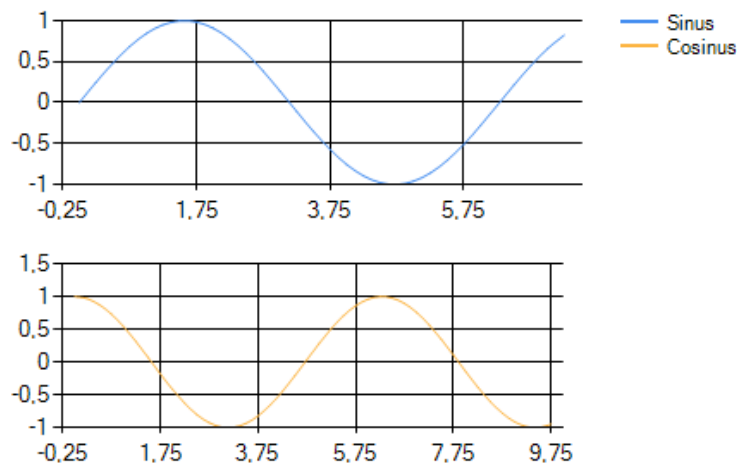
Decimal places

Optional conversion to Boolean value

5. Optionally, display channels in the Chart tab.

All charts use the same interval and time period. Multiple chart areas can be specified, i.e. the channels can be displayed simultaneously in different charts.

Example with 2 chart areas and 1 channel each



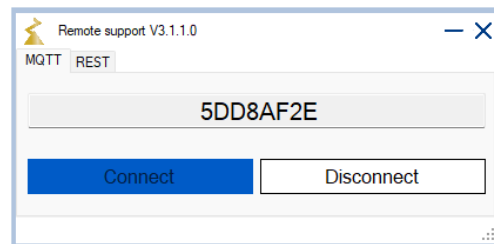
5.7 Remote support

The remote support client uses the functions of ZABluegalaxy to establish a remote connection between 2 computers. The Internet connection of the respective computer is used for this. An encrypted connection is established via MQTT port 8883. The user is granted the right to use the respective ZAsset server of the remote device to communicate with the respective end devices. No ZABluegalaxy account is required for the connection.

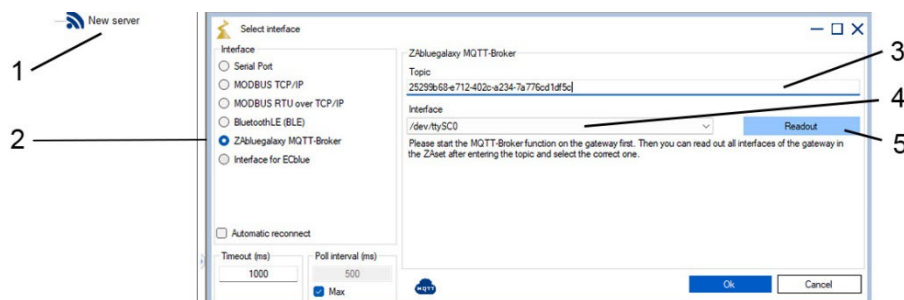
1. Deploy MQTT connection

The remote support client can be added to any server.

After adding, a topic is opened via a button and the connection to the MQTT server is established. The topic represents the key for the connection, e.g. 5DD8AF2E.



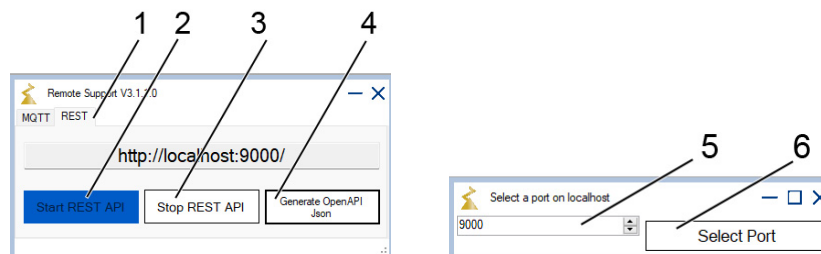
2. Establish remote MQTT connection



Set the server (1) to ZABluegalaxy MQTT broker (2) to establish the connection. In the connection interface, enter the topic of the remote device from step 1 under Topic (3) and use Readout (5) to read out all available interfaces of the remote device; these are displayed under Interfaces (4). A topic has an interface. Communication is transparent and there are no limitations to a serial or TCP/IP connection at the location.

3. Deploy REST connection

The remote client in ZAsset V3 provides a REST connection in addition to the MQTT connection.



In the **REST** tab (1), open a REST API socket on the hosting device.

Select **Start REST API** (2), set the desired port (5) and confirm with **Select Port** (6). The opened host is displayed in the window, e.g. `http://localhost:9000/`

To close the API socket, disconnect **Stop REST API** (3). To obtain the OpenAPI Swagger specification from the API, select **Generate OpenAPI JSON** (4) to generate a standardised document for REST API clients and/or code generators in different programming languages.

5.8 Vibration analysis

The ZAsset vibration analysis client is used to measure a fan system's vibration values. The measurement is based on one or more predefined signal properties and measures the first order vibration values in the X-, Y- and Z-axis via the integrated vibration sensor.

Each measurement consists of one or more characteristics. A characteristic describes a setting signal for a fan or fan group. In the case of several characteristics, all characteristic curves have the same number of measuring points; these measuring points are run synchronously. The products to be controlled are assigned to the individual characteristics and receive the corresponding characteristic specification signals during measurement. Settings do not contain any measured values in contrast to measurements. Each measurement has a global parameter that applies to all measured features.

5.8.1 Configuring the ZAsset vibration analysis client

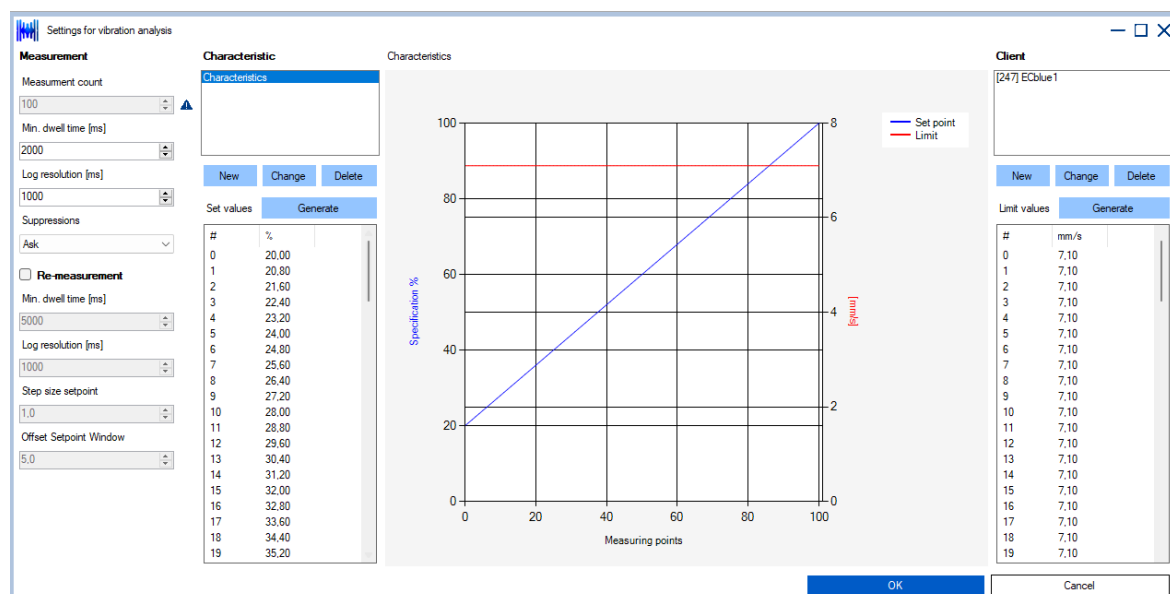
Prerequisite: ECblue fan from the 2nd generation

Procedure:

1. Use the Server context menu to add the vibration analysis client.
2. Configure the measurement, *see 5.8.5 Carrying out measurements*.
 - Specify the number of measuring points
 - Define features
 - Select default response to suppressions
3. Assign characteristics to products *see 5.8.3 Assigning characteristics to products*.
4. Start the measurement
5. Define suppressions, *see 5.8.6 Suppressing operating points*
For more information on suppressions, see Technical Information sheet L-TI-0634 from ZIEHL-ABEGG.

5.8.2 Configuring measurements

A measurement configuration has a primary measurement, optionally a re-measurement for details, e.g. to determine limit value violations. Each measurement can contain one or more specifications. Characteristics are curves that are set at each measuring point for the product to be inspected. There is a limit value for each specification. All specifications are synchronised with each other during the measurement process. This allows different operating states to be simulated in the product. All characteristics have the same number of measuring points. Before creating the first characteristic, the number of measuring points must be defined.



Measurement

Number of measurement points	Define the number of measuring points. The duration of the measurement depends on the number of measurement points. Recommended number of measuring points to cover the complete speed range: 100; optimisation possible through trial and error.
Minimum dwell time	Time in ms that the fan must dwell before a measurement is taken. Recommended dwell time: 2000 ms
Log resolution	The application generates a protocol during a measurement. The resolution of the protocol can be specified here in ms. Recommended time: 1000 – 3000 ms
Suppressions	Options for the default response to suppressions: Question: All suppressions are read out and you are asked how existing suppressions should be dealt with. Deactivate: Always disable existing suppressions. Use: Observe the existing suppressions and do not measure these points.

Re- measurements

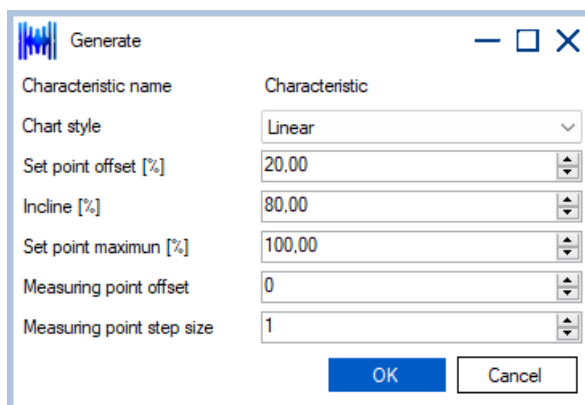
If the specified limit values were exceeded during the first measurement, a more precise re-measurement can be carried out in these areas.

Minimum dwell time	An alternative period can be configured
Log resolution	An alternative resolution can be configured
Step size setpoint	Increment in which the re-measurement range should be scanned as a %. Recommended increment: 1%.
Offset Setpoint window	Enlargement of the measuring range in percent to exceed the limit value. Example: The limit value is exceeded at 300 rpm START and undershot at 500 rpm END, maximum speed 2000 rpm. Enlargement by 5%: START: $300 \text{ rpm} - (2000 \text{ rpm} * 0.05) = 200 \text{ rpm}$ END: $500 \text{ rpm} + (2000 \text{ rpm} * 0.05) = 600 \text{ rpm}$

Characteristics

Overview of all created characteristics. You can use the **New** button to create additional characteristics with any name.

Generate characteristic: Create characteristic curve automatically. To manually adjust the current characteristic curve, modify individual default values by right-clicking on the Edit menu item.



Characteristic name	Name of the characteristic
Chart type	Linear characteristic curve
Set point offset	Offset of the standard characteristic curve in percent. Recommended: 20%. Take into consideration the fan settings in relation to the minimum speed.
Incline	The gradient of the characteristic curve, e.g. at 20% setpoint offset and 80% gradient, results in a presetting of 100% in the last measuring point.
Set point maximum	Maximum value of the preset
Measuring point offset	Not relevant for linear characteristic curve
Measuring point step size	Not relevant for linear characteristic curve

5.8.3 Assigning characteristics to products

A characteristic must be assigned to each product.

- ▷ Select a feature in the feature overview by clicking on it. The current characteristic is displayed above the chart.
Products can be added, changed or deleted from the client overview on the right-hand side.

5.8.4 Setting up the client

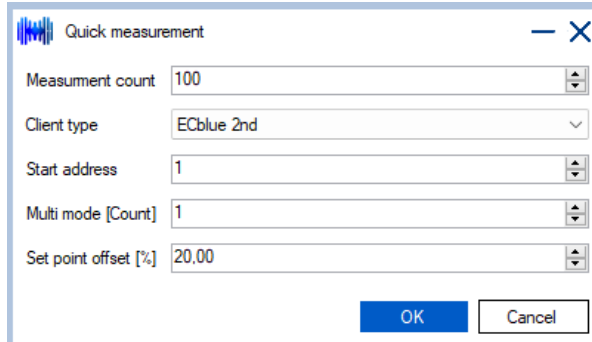
For correct operation during measurement, each product to be controlled requires a basic setting:

Client name	Name of the product to be controlled
Client type	Only the ECblue 2 generation is supported.
Start address	MODBUS address of the product to be controlled
Tolerance speed	Specification of the absolute speed that can deviate from the preset signal. Recommended: 10 rpm
Tolerance offset	Minimum speed from which the vibration should be evaluated. Recommended: approx. 200 rpm
Multi mode	Create multiple devices in one step. The MODBUS address indicates the address of the 1st device, the address is increased by one for each additional device. The name of the client consists of the address and name.
Limit values	Each product has its own limit characteristic, which is initialised by default with a fixed value. This limit can be generated in the same way as the characteristic of the feature and adjusted manually. The current limit value is shown in the chart with a red characteristic curve.

5.8.5 Carrying out measurements

Carrying out a quick measurement

The client offers the option to take a quick measurement. Standard parameters are used for this measurement. These default parameters can be adjusted via the settings menu.



The dialog box titled "Quick measurement" contains the following fields and buttons:

- Measurement count: 100
- Client type: ECblue 2nd
- Start address: 1
- Multi mode [Count]: 1
- Set point offset [%]: 20.00
- Buttons: OK, Cancel

Measurement count	Approx. 100 measuring points are recommended for good measurement coverage of a fan's complete speed range.
Client type	Only the ECblue 2nd generation is supported.
Start address	MODBUS address of the 1st fan
Multi mode [Count]	Create multiple devices in one step. The MODBUS address indicates the address of the first device, with each additional device the address is increased by one. The name of the client consists of the address and the name.
Set point offset [%]	Offset of the standard characteristic curve in percent. Take into consideration the fan settings in relation to the minimum speed. Recommended: 20%

Perform extended measurement

Procedure:

In the main menu, start the measurement with the Start button.

A tab is created in the overview for each product to be measured. During the measurement, it is possible to switch between the products to be measured.

The current values of the product are displayed in the upper left area of each tab.

The product information is displayed in the bottom left part:

- Product code 0x1101 for ECblue 2nd Gen
- Production date
- Part number
- Serial number of the product
- Order number
- Description

This information is also included in the XML protocol.

5.8.6 Suppressing operating points

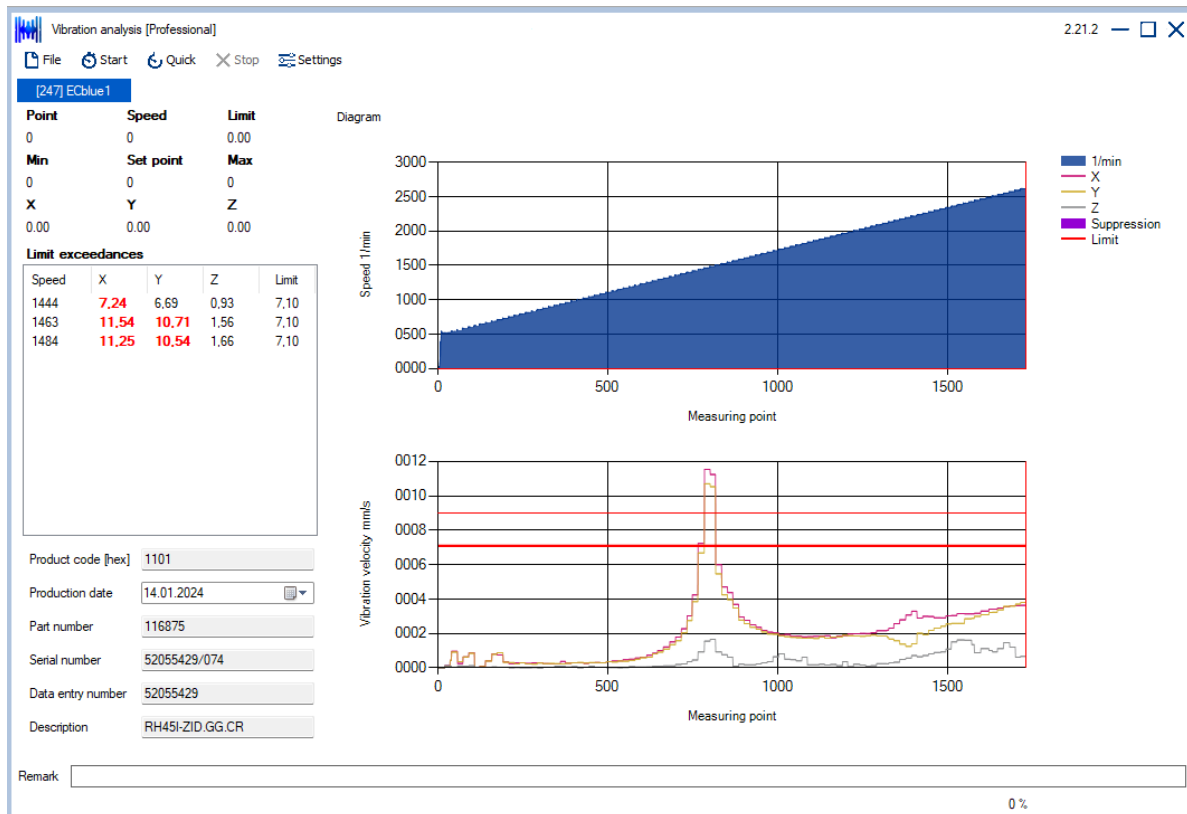
Before each measurement, the existing suppressions of the respective products are read out and displayed, if set in the configuration, see *Measurement configuration*.

For more information on suppressions, see Technical Information sheet L-TI-0634 from ZIEHL-ABEGG.

Editing suppressions

- Deactivate all** action button: deactivate all screens for the measurement.
- Take over for all** context menu: Accept selected suppression for all products.
- Manual editing: Select the entry and adjust it in the right area of the window.

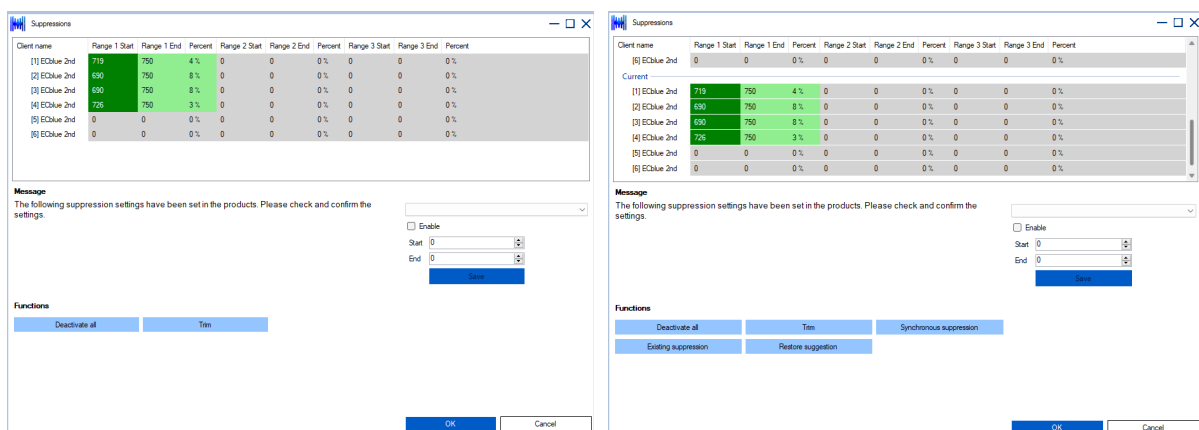
The limit violations overview is updated for each measurement that is above the limits.



Final suppressions

After a measurement, the program determines the appropriate suppressions based on the limit violations. Active suppressions are displayed in green in the table. The start and end speeds are displayed, as well as the percentage of suppression in relation to the entire speed range.

The view can be sorted by products or by type of suppression, *current*, *measurement* or *final* using the context menu for the table.



The first screenshot shows the 'Suppressions' dialog box with a table of suppression settings. The table has columns for 'Client name', 'Range 1 Start', 'Range 1 End', 'Percent', 'Range 2 Start', 'Range 2 End', 'Percent', 'Range 3 Start', 'Range 3 End', and 'Percent'. The table contains six rows of data, with the first row highlighted in green.

Client name	Range 1 Start	Range 1 End	Percent	Range 2 Start	Range 2 End	Percent	Range 3 Start	Range 3 End	Percent
(1) ECblue 2nd	775	750	4%	0	0	0%	0	0	0%
(2) ECblue 2nd	690	750	8%	0	0	0%	0	0	0%
(3) ECblue 2nd	690	750	8%	0	0	0%	0	0	0%
(4) ECblue 2nd	725	750	3%	0	0	0%	0	0	0%
(5) ECblue 2nd	0	0	0%	0	0	0%	0	0	0%
(6) ECblue 2nd	0	0	0%	0	0	0%	0	0	0%

The second screenshot shows the same 'Suppressions' dialog box, but with the 'Current' tab selected. The table contains six rows of data, with the first row highlighted in green.

Client name	Range 1 Start	Range 1 End	Percent	Range 2 Start	Range 2 End	Percent	Range 3 Start	Range 3 End	Percent
(1) ECblue 2nd	775	750	4%	0	0	0%	0	0	0%
(2) ECblue 2nd	690	750	8%	0	0	0%	0	0	0%
(3) ECblue 2nd	690	750	8%	0	0	0%	0	0	0%
(4) ECblue 2nd	725	750	3%	0	0	0%	0	0	0%
(5) ECblue 2nd	0	0	0%	0	0	0%	0	0	0%
(6) ECblue 2nd	0	0	0%	0	0	0%	0	0	0%

Both screenshots include a 'Message' box at the bottom with the text: 'The following suppression settings have been set in the products. Please check and confirm the settings.' Below the message box are fields for 'Start' and 'End' speeds, and a 'Start' button. At the bottom of the dialog box are buttons for 'Deactivate all', 'Tim', 'Synchronous suppression', 'Existing suppression', 'Restore suggestion', 'OK', and 'Cancel'.

Suppression options

Action button Deactivate all	Disable all suppressions for the measurement.
Action button Trim	Remove excess and disabled entries. When automatically determining the necessary suppressions, more suppressions may be determined than are supported. A maximum of 3 areas are supported for an ECblue fan. The suppressions to be disabled or consolidated must be selected manually.
Action button Synchronous suppression	Consolidate overlapping suppressions. From all active suppressions, the best method for simultaneously suppressing all devices that require suppression is determined.
Action button Existing suppression	The suppressions determined and stored in the products before the measurement are applied.
Action button Restore suggestion	Restore the suggestion created by ZAsset, e.g. after manual changes.
Context menu Take over for all	Accept selected suppressions for all products.
Manual editing	By selecting an entry, the individual suppressions can be individually adjusted using the entries in the right area of the window.

If suppressions have been defined manually that do not cover all limit violations, a warning message is displayed.

5.8.7 Log

Logging can be activated for automated post-processing of measuring results in a third-party system. For each measurement, an XML file is generated with all information about the measurement, measurement points and limit values.

Protocol options:

- General protocol path: Standard configuration if no alternative is configured for the measurement.
- Protocol path: A path can be configured for the measurement under Log path. This configuration is part of the measurement configuration and is defined when loading a configuration.

5.8.8 Structure

```

<Log xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001
  <StartTime>2024-02-29T17:58:36.1259596+01:00</StartTime>
  <EndTime>2024-02-29T18:02:09.4916041+01:00</EndTime>
  <Devices>
    ...
  </Devices>
  <Success>true</Success>
  <SuccessWithSuppressions>true</SuccessWithSuppressions>
  <Remark/>
</Log>

```

The top level contains the main features of each measurement:

StartTime	Time stamp when the measurement was started
EndTime	Time stamp when the measurement was completed
Success	Boolean value indicating whether the measurement was completed successfully
SuccessWithSuppressions	Boolean value indicating whether the measurement was successfully completed with suppressions
Devices	Entry for each measured product
ID	Unique identifier for the product within the measurement
Address	MODBUS address product
PartNumber	ZIEHL-ABEGG part number of the product
SerialNumber	ZIEHL-ABEGG serial number of the product
DataEntryNumber	ZIEHL-ABEGG order number of the product
Description	ZIEHL-ABEGG part description of the product
ProductionTime	ZIEHL-ABEGG production date of the product
MeasurementPoints	Number of measurement points in the measurement
Time	Exact time of the measurement
Point	Measuring point within the measurement
Axis X, Y, Z	Measured values of the individual axes
Speed	Actual speed of the measuring point
Limit and LimitReached	Limit value of the measuring point and whether it has been reached or exceeded
Suppressions	All suppressions, before measurement <i>current</i> , during measurement <i>measurement</i> and after measurement <i>final</i> , are saved
Enable	Indicates as a Boolean value whether the suppression was active for this measuring point
Range	Unique index of suppression, in the example of ECblue between one and three
Start	Suppression start speed
End	Suppression end speed

5.8.9 Security

Log files are protected against tampering. The client can be used to check whether a log file has been manipulated.

- ▷ In the menu item *File/Logging/Check*, select the file.
The result of the check appears in the pop-up.

Measurements are tamper-proof. When opening a measurement, the client checks whether the measurement has been tampered with. If a measurement has been tampered with or changes cannot be ruled out, an error message or warning message appears. Measurements for which manipulation cannot be ruled out cannot be saved again.

The Royal League

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