

UNIcon

CXG-327(A)NE-R & Webvisu

Control module for cleanroom installations with visualisation software

Operating Instructions



Keep for reference!

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1 General notes

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

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

1.1 Structure of the operating instructions

Before installation and start-up, read this manual carefully to ensure correct use!

We emphasize that these operating instructions apply to specific units only, and are in no way valid for the complete system!

Use these operating instructions to work safely with and on the device. They contain safety instructions that must be complied with as well as information that is required for failure-free operation of the device.

Keep these operating instructions together with the device. It must be ensured that all persons that are to work on the device can refer to the operating instructions at any time.

Keep the operating instructions for continued use. They must be passed-on to all successive owners, users and final customers.

1.2 Target group

The operating instructions address persons entrusted with planning, installation, start-up, maintenance and servicing, who have the corresponding qualifications and skills for their job.

1.3 Exclusion of liability

Concurrence between the contents of these operating instructions and the described hardware and software in the device has been examined. It is still possible that non-compliances exist; no guarantee is assumed for complete conformity. To allow for future developments, construction methods and technical data given are subject to alteration. We do not accept any liability for possible errors or omissions in the information contained in data, illustrations or drawings provided.

ZIEHL-ABEGG SE is not liable for damage due to misuse, incorrect use, improper use or as a consequence of unauthorized repairs or modifications.

1.4 Copyright

These operating instructions contain copyright protected information. The operating instructions 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 Safety instructions

2.1 Intended use

The equipment is to be used solely for the purposes specified and confirmed in the order.

Any other use above and beyond this is considered not for the intended purpose unless agreed otherwise by contract. The manufacturer will not be liable for any damage resulting from this. The individual or company using it bears the sole risk.

Reading these operating instructions and complying with all contained instructions - especially the safety notifications contained therein - are considered part of intended use. To consider is also the manual of attached components. Not the manufacturer, rather the operator of the device is liable for any personal harm or material damage arising from non-intended use!

2.2 Explanations of symbols

Safety instructions are highlighted with warning triangles and are depicted according to the degree of hazard as follows.

	Attention! General hazardous area. Death or severe injury or significant property damage can occur if the corresponding precautions are not taken!
	Danger due to electric current Danger by dangerous, electric voltage! Death or severe injury can occur if the corresponding precautions are not taken!
	Information Important additional information and advice for user.

2.3 Product safety

The device conforms to the state of the art at the time of delivery and is fundamentally considered to be reliable. The device and its accessories must only be used in a flawless condition and installed and operated in compliance with the operating instructions. Operating outside the device's technical specification (see technical data) can lead to a defect in the device and additional damage!

2.4 Requirements placed on the personnel / due diligence

Persons entrusted with the planning, installation, commissioning and maintenance and servicing in connection with the frequency inverter must have the corresponding qualifications and skills for these jobs.

In addition, they must be knowledgeable about the safety regulations, EU/EC directives, rules for the prevention of accidents and the corresponding national as well as regional and in-house regulations. Personnel to be trained or instructed and apprentices are only permitted to work on the device under the supervision of an experienced person. This also applies to personnel undergoing general training. Comply with the legal minimum age.

2.5 Start-up and during operation



Attention!

- During commissioning, unexpected and hazardous conditions can arise in the entire installation due to defective adjustments, defective components or incorrect electrical connections. Remove all persons and objects from the hazardous area.
- During operation, the device must be closed or installed in a control cabinet. Fuses may only be replaced by new ones and must not be repaired or bypassed. The data for the maximum line fuse are to be considered absolutely (see Technical data). Use only fuses specified in schematic diagrams.
- Any faults detected in the electric system/modules/operating equipment must be corrected immediately. If these faults are not corrected, the device/system is potentially very dangerous. The device/system must therefore not be operated when it is faulty.

2.6 Work on the device



Information

Mounting, electrical connection, and start-up operation may only be carried out by an electrical specialist in accordance with electrotechnical regulations (e.g. EN 50110 or EN 60204)!



Danger due to electric current

It is generally forbidden to carry out work on electrical live parts. Protection class of the device when open is IP00! It is possible to touch hazardous voltages directly.

The safe isolation from the supply must be checked using a **two-pole** voltage detector.

2.7 Modifications / interventions in the device



Attention!

For reasons of safety, no unauthorized interventions or modifications may be made on the device. All planned modifications must be authorized by the manufacturer in writing.

Use only genuine spare parts / genuine wearing parts / genuine accessories from ZIEHL-ABEGG. These parts were specifically designed for the device. There is no guarantee that parts from non-original sources are designed and manufactured in correspondence with load and safety requirements. Parts and optional equipment not supplied by ZIEHL-ABEGG are not approved by ZIEHL-ABEGG for use.

2.8 Operator's obligation of diligence

- The contractor or owner must also ensure that the electric systems and equipment are operated and maintained in accordance with electro-technical regulations.
- The owner is obliged to ensure that the device is operated in perfect working order only.
- The device may only be used as intended.
- You must periodically examine the safety equipment for their properly functioning condition.
- The assembly instructions and/or operating instructions are always readily available at the location where the device is being used, are complete and are in legible condition.
- These persons are regularly instructed in all applicable questions regarding occupational safety and environmental protection and are knowledgeable regarding the assembly instructions and/or operating instructions and, especially, are familiar with the safety instructions contained therein.
- All safety and warning notices attached to the device are never removed and remain legible.

2.9 Employment of external personnel

Maintenance and service work are frequently carried out by external employees who often do not recognize the specific situations and the thus resulting dangers. These persons must be comprehensively informed about the hazards in their area of activity.

You must monitor their working methods in order to intervene in good time if necessary.

3 Product overview

3.1 Operational area

Control and visualisation of fans in an installation networked using a compatible MODBUS interface.

3.2 Function

The device has two separate MODBUS master interfaces for a maximum of 62 members each (e.g. ECblue fans). The patented automatic addressing guarantees quick and easy set-up.

The Webvisu web visualisation software that we provide for the device makes it easy to configure the installation and program the individual members.

The CXG-327 **ANE-R** type also has a display and keypad, allowing alternative operation directly on the device. This allows initial set-up without a PC or software.

Each addressed member (fan) can be activated at a speed of 0 - 100 %.

On each MODBUS master interface, the networked fans can be split into up to 6 groups, and the maximum number of members in a group equals the maximum number on the two MODBUS interfaces (i.e. 124).

The settings for each group can be made manually, e.g. using a potentiometer, or automatically using integrated PID controller. A total of 6 separate control circuits (one per group) with individual setting options are available, and actual values are recorded by sensors (e.g. for air velocity) at the analog inputs.

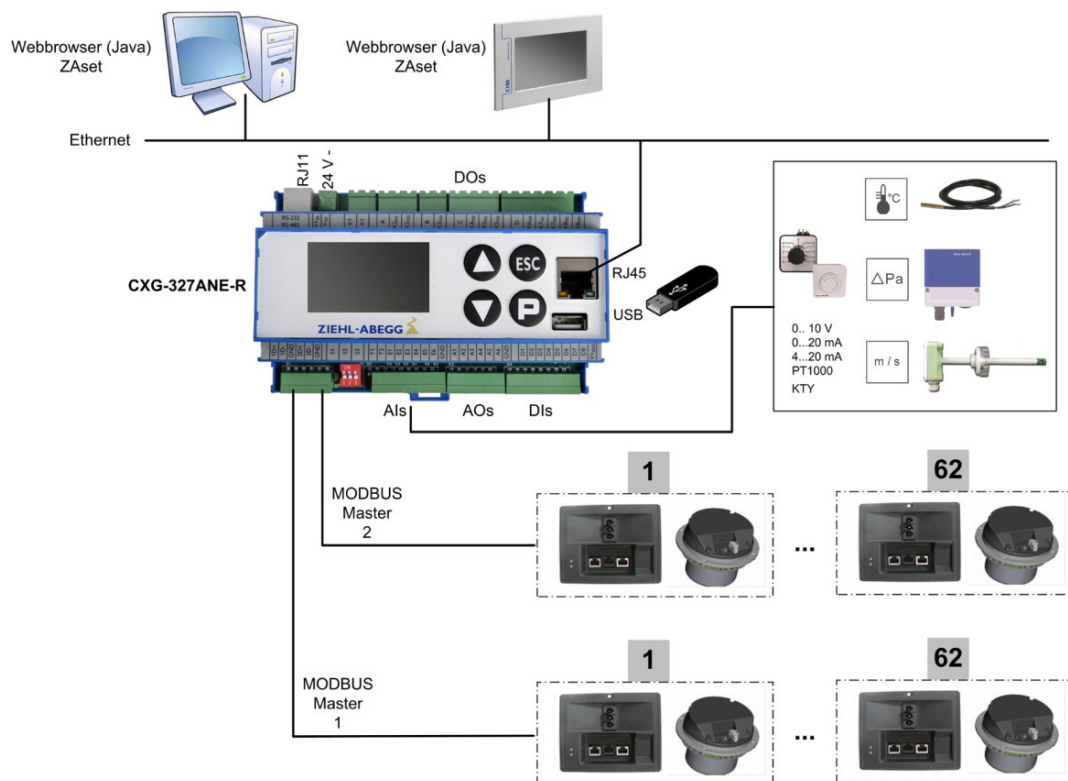
Parameters for all members on a MODBUS master interface can be changed using a combined "broadcast".

Data from the connected members is transferred to the device and can be stored in the device or on a USB stick.

The analog and digital inputs can be used to make settings and output messages.

The device has a real-time clock with power reserve. Error entries are given a timestamp.

Networking and example of possible components



20.03.2017
v_applic_cxg-327_modbus_net_vsd

3.3 System requirement for web visualisation

The web browser based visualisation software "Webvisu" allows convenient programming and monitoring of the device and the networked members.

Java

In order to be able to use Webvisu on your computer, installation of Java is required. The browser you use must support Java. The Java software is available from the following link: <https://java.com/en/-download>



Information

If access is not possible, this may be due to the Java security settings. For example, open "Configure Java" in the Windows Start menu (search for Java) and add the device IP for the CXG-327 (A)NE-R to the exceptions.

CHIPtool

You can use the CHIPtool software to change the preset device IP address and manage the files on the two drives on the device.

This Windows software is available from the following link: <https://www.beck-ipc.com/de>

Proxyserver

In your browser you have to make a setting to bypass the proxy server.

Internet Explorer: Set "No proxy server" for addresses used

- Proceed as follows:
 - ▷ "Tools" → "Internet options" → "Connections" → "LAN settings"
 - Check Bypass proxy server: ☒ "Bypass proxy server for local addresses"
 - ▷ Under "Advanced" enter the addresses you want to use for the connection to the CXG-327 in the "Exceptions" field.
 - If you want to retain the factory default address "192.168.1.20", it must be entered here

3.4 Transport

- The device is packed ex factory to suit the transport method previously agreed.
- Always use the original packaging materials when transporting the device.
- Avoid shocks and impacts to the device during the transport.
- During manual handling the human lifting and carrying restrictions must be observed and adhered to.

3.5 Storage

- The device must be stored in its original packaging in a dry and weather-proof room.
- Avoid exposure to extreme heat and cold.
- Avoid over-long storage periods (we recommend a maximum of one year).

3.6 Disposal / recycling



Disposal must be carried out professionally and in an environmentally friendly way in accordance with the respective national legal stipulations.

- ▷ Separate the materials by type and in an environmentally friendly way.
- ▷ If necessary, commission a specialist company with the waste disposal.

4 Mounting

4.1 General notes

**Attention!**

The following points must be complied with during the mechanical installation to avoid causing a defect in the device due to assembly errors or environmental influences:

- Before installation remove the device from the packing and check for any possible shipping damage! Start-up is not allowed in the case of transport damage!
- The installation in a switch cabinet or in a adequate plastic housing will be made through a snap-up on a 35 mm top-hat-rail (EN 50 022) or through screw fastening.
- Do not allow drilling chips, screws and other foreign bodies to reach the device interior!
- Do not mount equipment on vibrating base!
- Care must be taken to avoid direct radiation from the sun!

4.2 Temperature influences during commissioning

Avoid condensation in the controller and functional faults attributable to condensation by storing the controller at room temperature!

5 Electrical installation

5.1 Safety precautions

**Danger due to electric current**

- Work on electric components may only be carried out by trained electricians or by persons instructed in electricity under the supervision of an electrician in accordance with electrical engineering regulations.
- The 5 electrical safety rules must be observed!
- It is forbidden to carry out work on electrically live parts.
- Cover neighbouring electrical equipment during installation work.
- Other measures may be necessary to achieve safe electrical isolation.
- A second person must always be present when working on energized parts or lines who disconnects in case of emergency.
- Electrical equipment must be checked regularly: Loose connections are to be re-tightened and damaged lines or cables must be replaced immediately.
- Always keep switch cabinets and all electrical supply facilities locked. Access is only allowed for authorized persons using a key or special tool.
- The device owner is responsible for the EMC of the entire plant according to the locally applicable standards.
- Never clean electrical equipment with water or similar liquids.

**Information**

The respective connections are represented in the enclosure of this manual (☞ Connection diagram)!

5.2 EMC-compatible installation of control lines

To avoid interference, sufficient space must be left for power and motor cables. The control cables can have a maximum length of 30 m and must be shielded above 20 m. When using a shielded cable the shield must be connected to the PE conductor on one side, i.e. only on the device side, e.g. using a shield connection terminal on the top hat rail (as short and with as low an induction as possible).

5.3 Voltage supply

The supply voltage is connected to terminals "V₊_{in}" and "V_{-in}". Here, it must strictly observed that the supply voltage lies within the allowable tolerance specifications.

Supply voltage: 24 V DC +/- 10 % (400 mA)

Option: Power supply for switch cabinet mounting

Type STEP-PS/1AC/24DC/1.75

Part.-No. 380067

Primary: 1~100...240 V +/- 10 % / 50/60 Hz (600 mA)

Secondary: 24 V DC (1,75 A / 42 W)

for top hat rail mounting



5.4 Analog inputs

The device supports up to 6 analog inputs (E1 to E6); for input resistance see Technical Data.

The connection depends on the used sensor signal.



Danger due to electric current

Never apply line voltage to analog inputs!

- When connecting **passive** temperature sensors TF.. (KTY81-210) or PT1000 at terminals "E1" and "T" or "E2" and "T" polarity can be ignored.
For a high interference immunity a capacitor must be connected directly to the sensor (1 nF parallel). With temperature sensors type TF.. (KTY81-210) a capacitor is integrated.
- When connecting **active** sensors to the terminals "E1" and "GND" or "E2" and "GND" etc., correct polarity must be ensured; a 24 V DC power supply is integrated.
- For sensors with two-wire technology (4 - 20 mA signal) connection is to the terminals "E1" and "24 V" or "E2" and "24 V" etc.; the "GND" connection is not required.

Function assignment of analog inputs

Input	Function
E1	Specification signal or sensor actual value for Group 1
E2	Specification signal or sensor actual value for Group 2
E3	Specification signal or sensor actual value for Group 3
E4	Specification signal or sensor actual value for Group 4
E5	Specification signal or sensor actual value for Group 5
E6	Specification signal or sensor actual value for Group 6

Inverting

Inversion of the inputs is possible using the Webvisu web visualisation software (see settings).

By factory default, inversion of the inputs is set to "OFF" (signal: 0 - 10 V, 0 - 20 mA, 4 - 20 mA).

For activation using inverted default signals or sensors with inverted output signals proportional to the measurement range, switch inverting to "ON" (Signal: 10 - 0 V, 20 - 0 mA, 20 - 4 mA).



Information

Inversion is only possible for an active signal (0...10 V, 0...20 mA, 4...20 mA), i.e. not for passive sensor signals (KTY 81-210, PT 1000)!

Activation via MODBUS-TCP (see RJ45 Ethernet interface MODBUS-TCP)

Programming to bus mode is possible using the Webvisu web visualisation software. Then only the values transferred via MODBUS-TCP are used (regardless of the physical state at the input terminals).

5.5 Analog outputs

The device supports up to 6 analog outputs (A1 to A6), see Technical Data and Connection Diagram for maximum load.

Function assignment of analog outputs

Output	Function
A1	Group 1 (output voltage 0...10 V $\triangleq$ for activation of 0...100 % speed)
A2	Group 2 (output voltage 0...10 V $\triangleq$ for activation of 0...100 % speed)
A3	Group 3 (output voltage 0...10 V $\triangleq$ for activation of 0...100 % speed)
A4	Group 4 (output voltage 0...10 V $\triangleq$ for activation of 0...100 % speed)
A5	Group 5 (output voltage 0...10 V $\triangleq$ for activation of 0...100 % speed)
A6	Group 6 (output voltage 0...10 V $\triangleq$ for activation of 0...100 % speed)

Inverting

The Webvisu web visualisation software allows inversion of the outputs (see programming with Webvisu).

- Factory setting not inverted: Output voltage 0...10 V for activation of 0...100 % speed
- With active inversion: Output voltage 10...0 V for activation of 0...100 % speed

Activation via MODBUS-TCP (see RJ45 Ethernet interface MODBUS-TCP)

Programming to bus mode is possible using the Webvisu web visualisation software. The outputs are then no longer activated by the CXG (control) but only via MODBUS-TCP.

5.6 Digital inputs

The device supports up to 8 digital inputs (D1 to D8); see Technical Data for input resistance. They are activated by potential-free contacts at terminals "D1"... "D8" and "V+out"; a low voltage of approx. 24 V DC is connected.



Danger due to electric current

Never apply line voltage to the digital input!

Function assignment of digital inputs

Input	Function
D1	Switch over Setpoint 1 / Setpoint 2 Group 1 alternative: enable group 1
D2	Switch over Setpoint 1 / Setpoint 2 Group 2 alternative: enable group 2
D3	Switch over Setpoint 1 / Setpoint 2 Group 3 alternative: enable group 3
D4	Switch over Setpoint 1 / Setpoint 2 Group 4 alternative: enable group 4
D5	Switch over Setpoint 1 / Setpoint 2 Group 5 alternative: enable group 5
D6	Switch over Setpoint 1 / Setpoint 2 Group 6 alternative: enable group 6
D7	No function in relation to CXG functions, activation via MODBUS-TCP possible
D8	Message via digital output K8

Inverting

Inversion of the inputs is possible using the Webvisu web visualisation software (see settings).

for D1...D6 Switch over Setpoint 1 / Setpoint 2

- Factory setting not inverted: Operation with Setpoint 2 with bridged contact, e.g. at "D1" - "V+out" for Group 1
- With active inversion: Operation with Setpoint 2 with open contact.

For D1...D6 enable group 1..6

- Factory setting not inverted: Enable with bridged contact e.g. at "D1" - "V+out" for group 1
- With active inversion: Enable with opened contact.

For D8 message via digital output "K8"

- Factory setting not inverted: Message via K8 with bridged contact at "D8" - "V+out" for Group 1
- With active inversion: Message via K8 with open contact.

**Information**

Activation via the digital inputs to switch over Setpoint 1 / Setpoint 2 must be enabled in the Web visualisation. Unless this is done, activations via the potential-free contacts at the digital inputs will not be carried out.

For required setting, see Webvisu web visualisation software / Settings: Group 1...Group 6 / Setpoint Select: 0..Setpoint Select Dx: Switch over setpoint via digital input.

Activation via MODBUS-TCP (see RJ45 Ethernet interface MODBUS-TCP)

Programming to bus mode is possible using the Webvisu web visualisation software. Then only the values transferred via MODBUS TCP are used (regardless of the physical state at the input terminals).

5.7 Digital outputs

The device supports up to 7 digital outputs (K2 to K8); for relay contact load see technical data.

Function assignment of digital outputs

Output	Function
K1	no function
K2	Fault indication Group 1
K3	Fault indication Group 2
K4	Fault indication Group 3
K5	Fault indication Group 4
K6	Fault indication Group 5
K7	Fault indication Group 6
K8	Reporting of a fault in Groups 1...6. Webvisu can be used to reprogram to report the switching state at the digital input "D8". The relay can be switched using MODBUS-TCP (e.g. using building control technology) or for a group fault for groups 1..6.

Inverting

Inversion of the outputs is possible using the Webvisu web visualisation software (see settings).

- If the factory setting is not inverted, the relay is triggered in case of a fault.
 - Example: In case of a fault in Group 1, the contacts "A" and "K2no" are bridged.
- If programmed to inverted, the relay drops out in case of a fault.
 - Example: In case of a fault in Group 1, the contacts "A" and "K2nc" are bridged.

Activation via MODBUS-TCP (see RJ45 Ethernet interface MODBUS-TCP)

Programming to bus mode is possible using the Webvisu web visualisation software. The outputs are then no longer activated by the CXG (control) but only via MODBUS-TCP.

5.8 RS-485 interfaces for MODBUS RTU

The device has two RS-485 interfaces for networking via MODBUS RTU:

Both interfaces are for MODBUS Master applications and up to **62** members (ECblue) can be connected to each.

MODBUS allows a maximum of 64 members:

1 x CXG-327

62 x ECblue

1 x repeater to extend the permitted cable length

The interfaces have an integrated fail-safe circuit and a 150 Ohm termination.

Addressing when the members are activated is performed automatically using a patented method.

Thus, it is no longer necessary to address every single member manually in the network.

1. Interface MODBUS Master 1: "1A (1D+)", "1B (1D-)"
2. Interface MODBUS Master 2: "2A (2D+)", "2B (2D-)"

When using telephone cable with four cable cores, we recommend the following allocation:

- A (D+) = red
- B (D-) = black
- GND = white

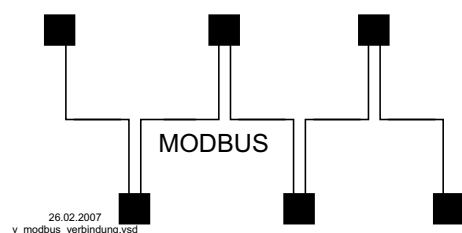


Information

- You must ensure correct connection; i.e. "A (D+)" must also be connected on the following devices to "A (D+)". The same applies to "A (D+)".
- In addition, a "GND" connection must be established, as dissimilar potential (over 10 V!) will lead to the destruction of the RS-485 interface (e.g. lightning).
- Except the data link "A (D+)", "B (D-)" the "ID1 - ID2" and the "GND" connection may no further cable cores of the data line be used.
- Make sure the distance from powerlines and motor wires is sufficient (min. 20 cm).
- The MODBUS register description and the information sheet "Network structure of MODBUS" can be requested from our Support Department V-STE for control systems - ventilation.

The data line must be connected from one device to the next. No other type of wiring is allowed! Always use only two wires of one lead (twisted pair) for the connection.

MODBUS connection



Recommended wire types

1. CAT5 / CAT7 cables
2. J-Y (St) 2x2x0.6 (telephone cable)
3. AWG22 (2x2 twisted pair)

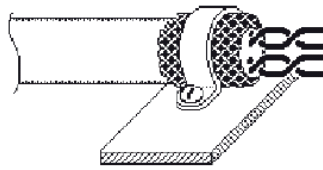
Max. allowed wire length 1000 m (CAT5/7 500 m)

Shielding

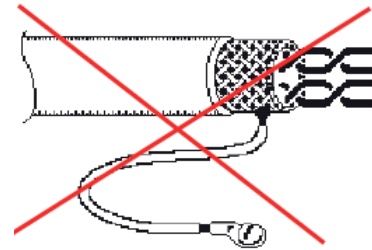
The use of shielded cables is normally not needed but offers high protection against electromagnetic interferences, especially high frequencies. However, the effectiveness of the shield depends on careful installation of the line.

If shielded cables are used, the shield should be placed at "PE" on at least one side (preferably on the master connection). The occurrence of compensating currents may have to be considered if the shield is contacted on both sides.

Shield connection correct



Shield connection incorrect



i

Information

If any matters are unclear, please contact our V-STE support department for control systems - ventilation technology. The information sheet "Network structure of MODBUS" R-TIL08_01 contains detailed information about "MODBUS".

5.8.1 Automatic addressing of members

No other components are required for the patented automatic addressing. Only the connections "ID1" and "ID2" for the Slave members are connected to one another in addition to the bus connection. In order to be able to perform automatic addressing, it is necessary to connect the "ID" terminal on the **first** member with the "GND" terminal. This is recognised as a result and occupied by address **1**. For the following users the connection "ID1" or "ID2" of a Slave user respectively is connected with connection "ID1" or "ID2" of the next Slave user.

The automatic addressing of other users is initiated by the previous user via this connection.

The individual members can be addressed in advance without this device by an external terminal or a PC.

Default interface parameter

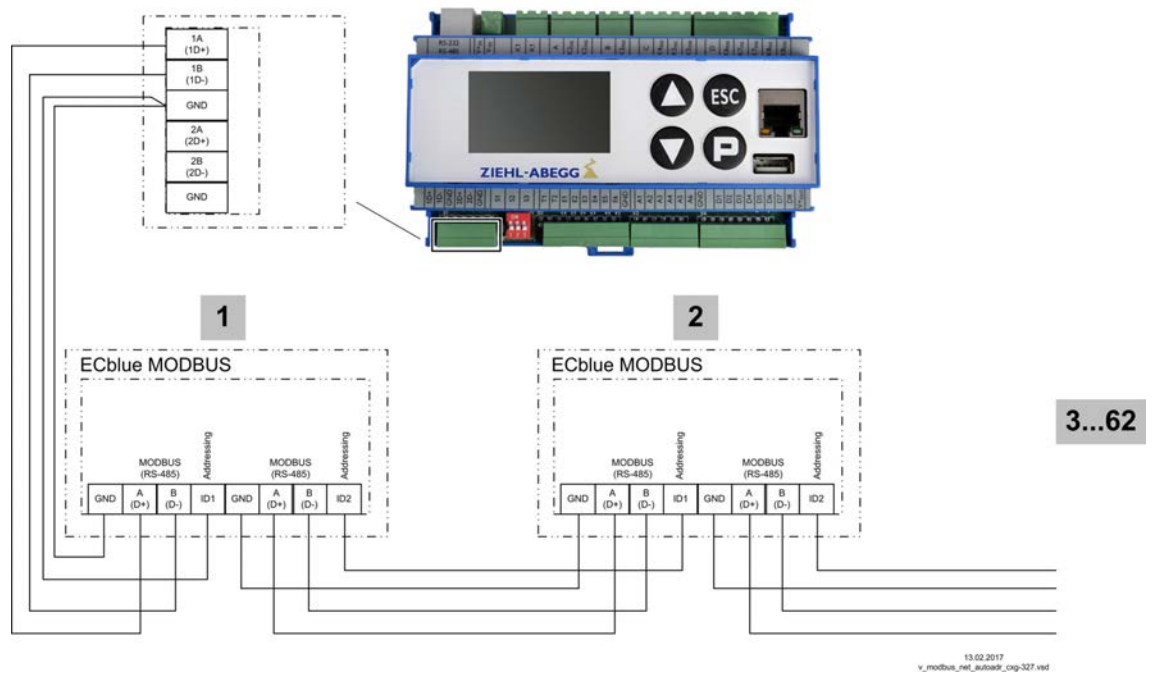
Baudrate	=	19200
Bits	=	8
Parity	=	Even (None, exception of devices agriculture)
Stop bits	=	1
Handshake	=	none

i

Information

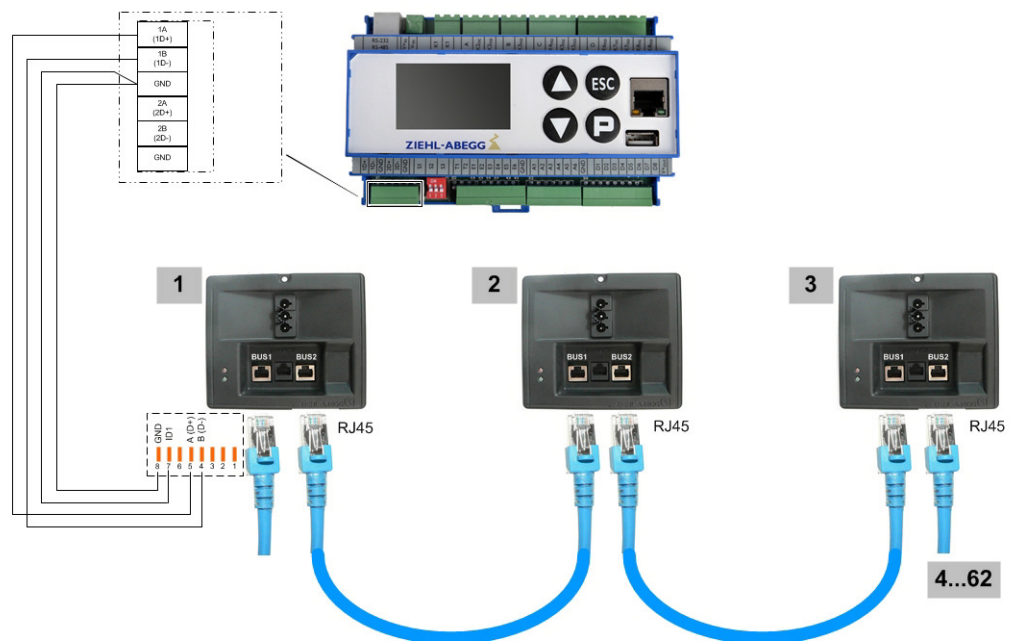
- Depending on the version, the connections for MODBUS "A (D+)", "B (D-)" are available single or double at the Slave members. These are connected with each other internally electrically.
- The connections for the automatic addressing "ID1" and "ID2" are **not directly** connected with each other. These may not be bridged; any order of connection is possible.
- When using the connection box the cable shield of the CAT5 cable is internally connected to "PE" by an RC element.
- The communication parameters are fixed settings.

Networking with telephone wire



Connection a MODBUS Master via the terminals: 1A (1D+), B (1D-), ID and GND
 Connection of the Slave members via the terminals: A (D+), B (D-), GND and ID1 / ID2

Networking with RJ45 patch cable by usage connection box for ECblue (part. no. 380085).



Connection to the MODBUS Master at the terminals: A1 (1D+), 1B (1D-) and GND
 Connection of the Slave members via the two RJ45 connections "BUS1" and "BUS2"

5.9 RJ45 Ethernet Interface MODBUS-TCP

Through the RJ45 Ethernet interface (see controls and menu / front view) the device provides access to control systems via MODBUS-TCP (Port 502). The MODBUS register description can be requested from our Support Department V-STE for control systems - ventilation.

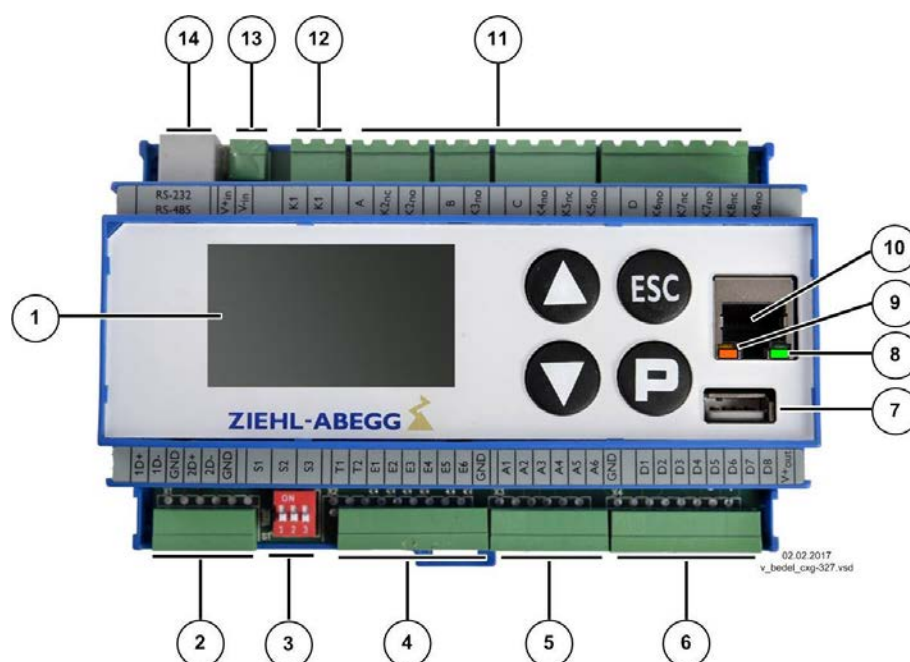
Inputs and outputs can therefore be activated via MODBUS-TCP provided they are switched to bus mode ON in Webvisu.

- At the inputs, only the values transferred via MODBUS-TCP are then used (regardless of the physical state at the input terminals).
- The outputs are then no longer activated by the CXG-327ANE (control) but only via MODBUS-TCP.

At the same time, the RJ45 interface can be used as the interface to the web visualisation (HTTP - Port 80).

6 Controls and Menu

6.1 Front view



- 1 LCD-Display (only CXG-327 ANE-R)
- 2 interfaces MODBUS Master 1+2
- 3 DIP switch (no Function)
- 4 Analog inputs
- 5 Analog outputs
- 6 Digital inputs
- 7 USB-Interface 1.0
- 8 Link-LED
- 9 Traffic-LED
- 10 RJ 45 Ethernet Interface
- 11 Digital outputs (relays)
- 12 Digital output "K1" no function
- 13 Voltage supply
- 14 RJ11 no Function

Keypad and menu guidance on CXG-327ANE-R type (see also next section on menu structure)

The device has a built-in user interface consisting of an illuminated 4-line display with 20 characters per line and 4 buttons (see illustration).

P	- Start submenu - Start change parameter (text flashes) - Store parameter	▼	- Menu selection (down/right) - Reduce parameter value
ESC	- Leave submenu - Keep parameter unchanged	▲	- Increase parameter value - Menu selection (up/left)

Navigation

- Use the two arrow keys ▼ + ▲ to select the required menu level.
- Press the **P** key to open the required sub-menus and select a menu item using the two arrow keys ▼ + ▲.
- To change a parameter, press the **P** key and then adjust the flashing value with the arrow keys ▼ + ▲.
- Press the **P** key to save the changed value, or press **ESC** to cancel the setting.
- Press the **ESC** key to exit sub-menus.

6.2 Menu structure for CXG-327ANE-R type

Programming using the display and the keypad is an easy way to set-up the installation without using a PC and software. However, the full range of functions is not available using this method.

To start automatic addressing, enter the PIN2: 0010 and then select the "Terminal 1D Initial start-up" and "Terminal 2D Initial start-up" menu items.

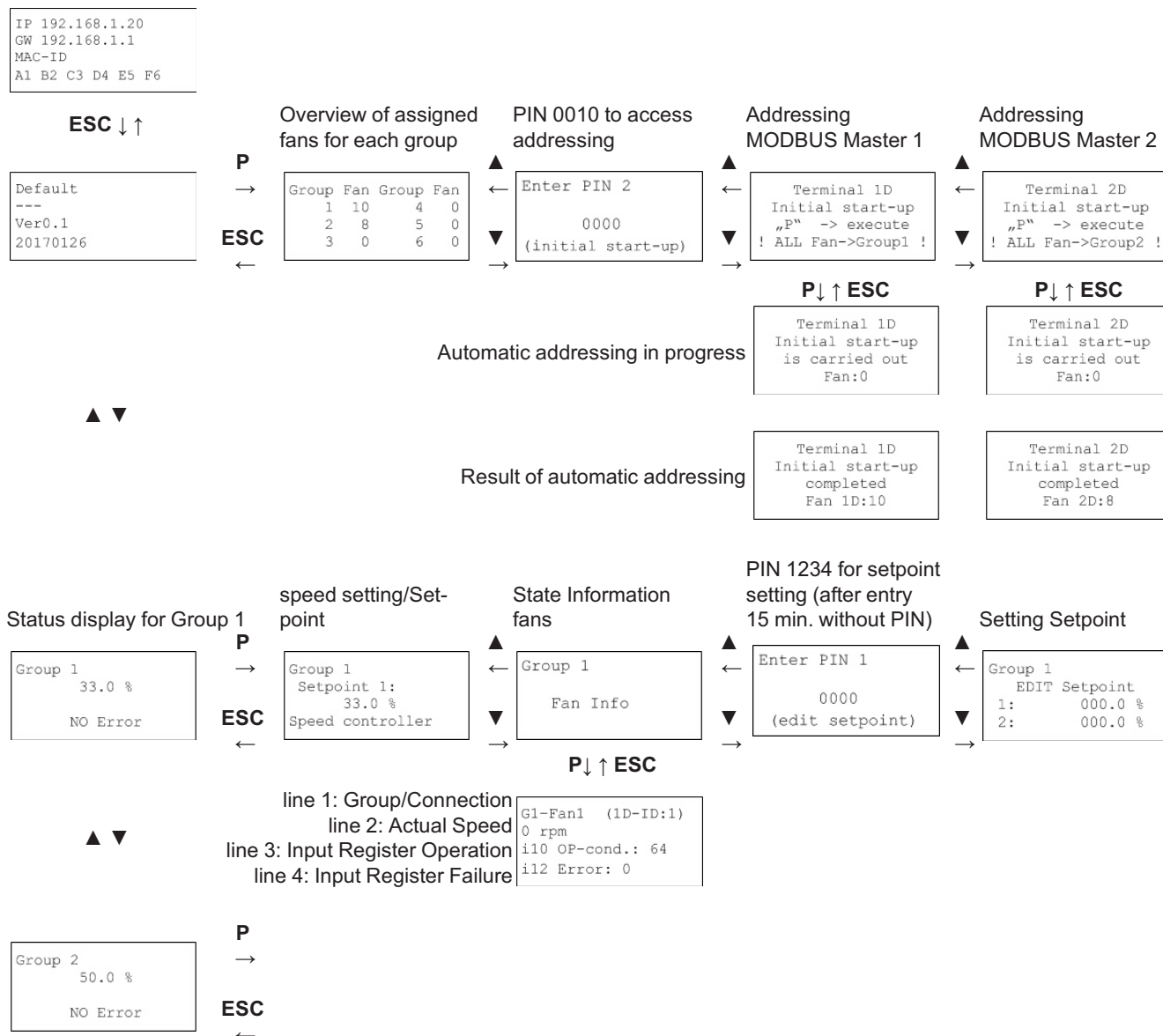
- All fans connected to the "MODBUS Master 1" interface (Terminal 1D) are assigned to Group 1.
 - All fans connected to the "MODBUS Master 2" interface (Terminal 2D) are assigned to Group 2.
- For both groups, the relevant "Setpoint 1" with manual rotational speed specification is active, and switching over to "Setpoint 2" via a digital input is not possible. The setpoint switch over function must be enabled using the Webvisu software.

For required setting, see Webvisu web visualisation software / Settings: Group 1...Group 6 / Setpoint Select: 0..Setpoint Select Dx: Switch over setpoint via digital input.

Line 1: IP address

line 2: Gateway

line 3+4: MAC-ID



**Information**

If an error has occurred, the view in the display changes from the home screen to the window for the group in which the errors occurred. Pressing a key stops the display from changing.

7 Start-up

7.1 Prerequisites for commissioning

**Attention!**

1. You must mount and connect the device in accordance with the operating instructions.
2. Double check that all connections are correct.
3. The mains voltage must match the information on the rating plate.
4. Make sure that no persons or objects are in the fan's hazardous area.

7.2 Initial start-up for version with user interface (CXG-327ANE-R type)

The initial start-up for the version with user interface (CXG-327 ANE-R type) is described below. The description of the start-up using the Webvisu software can be found in the Programming section.

Proceed as follows (see also Menu structure):

1. Turn on mains voltage.

```
Default
---
Ver0.1
20170126
```

2. Starting from the "Default" display, press the **P** key to open the sub-menu, then 1x **▼** key to select the "Enter PIN 2" menu item.

```
Enter PIN 2

      0000
(initial start-up)
```

3. Enter the PIN **0010** to access automatic addressing.
4. Depending on the assigned MODBUS Master interface, press the **P** key to start automatic addressing for "Terminal 1D" and/or "Terminal 2D".

```
Terminal 1D
Initial start-up
„P“ -> execute
! ALL Fan->Group1 !
```

```
Terminal 1D
Initial start-up
completed
Fan 1D:10
```

5. When addressing is complete, use the **ESC** key and the **▲** key to return to the group overview.

```
Group Fan Group Fan
1 10 4 0
2 8 5 0
3 0 6 0
```

6. Check whether the number of fans displayed per group matches the number of fans connected.
7. Press the **ESC** key to exit the sub-menu.

8. Press the ▼ key to access the status display for Group 1 and/or Group 2. Check whether these show "No Error". If there is an error message, check that the connections are correct and repeat addressing.

```
Group 1
  33.0 %
NO Error
```

9. Starting from the "Group 1" / "Group 2" display, press the **P** key to open the sub-menu, then 2x ▼ key to select the "Enter PIN 1" menu item.

```
Enter PIN 1
      0000
(edit setpoint)
```

10. Enter the PIN 1234 to access setpoint editing.
11. Under "EDIT Setpoint" enter a test speed (not too high, we recommend specifying 20 % for the group).

```
Group 1
  EDIT Setpoint
1:      000.0 %
2:      000.0 %
```

12. Use the ▼ key to return to the "Group 1 Fan Info" / "Group 2 Fan Info" fan status information display. Check all connected fans for correct addressing, speed display and error messages.

```
Group 1
  Fan Info
```

```
G1-Fan1 (1D-ID:1)
0 rpm
i10 OP-cond.: 64
i12 Error: 0
```

13. Press the **ESC** key to exit the sub-menu.



Information

The automatic addressing can be performed several times.

8 Chiptool

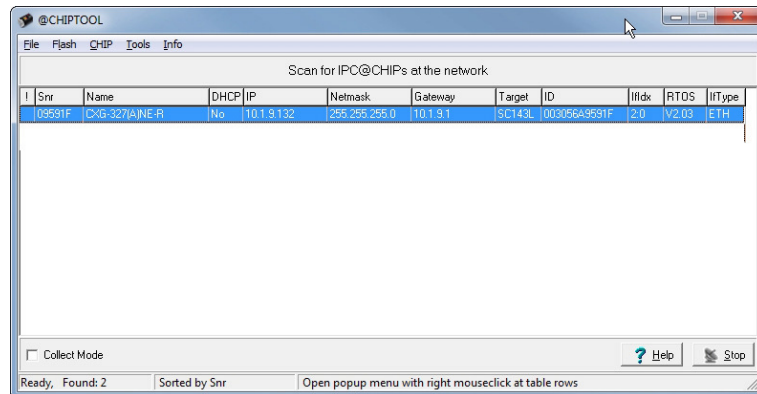
8.1 Setting the IP address

The address **192.168.1.20** is the factory default setting, but a new address can be assigned using the CHIPtool software if required.

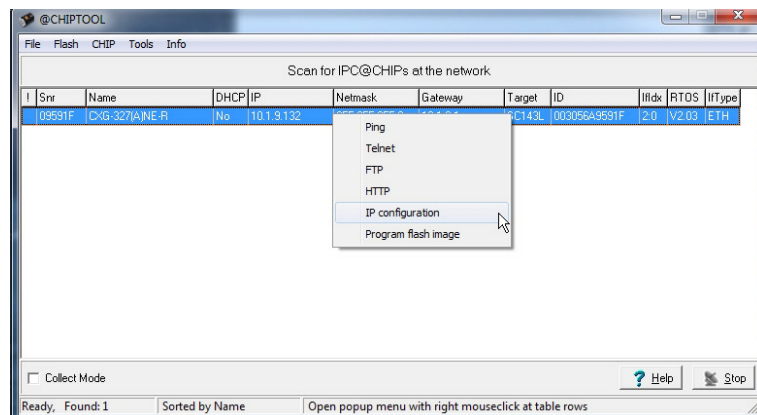
To assign a new IP address:

1. Start the CHIPtool program to scan your network. This displays all devices with an IPC@CHIP® controller that are located in the same subnet (gateway) as your PC.

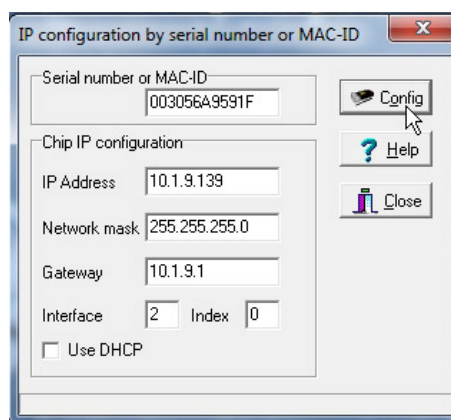
Example of result after network scan



2. Right-click on the relevant device and select "IP configuration".



3. Position the cursor in the "IP Address" field, enter the address and click on "Config" to apply.



8.2 Parameter set operation with CHIPTool

The CXG-327(A)NE-R has two drives for storing data - the integrated Flash memory (drive a:\) and the USB stick (drive d:\), if connected.

You can use the CHIPTool program (see system requirements) to view and manage the files. For example, if you want to transfer a file from the flash memory (drive a:\) to the USB stick (drive d:\), you first have to save it to a local drive and then transfer it from there onto the USB stick.

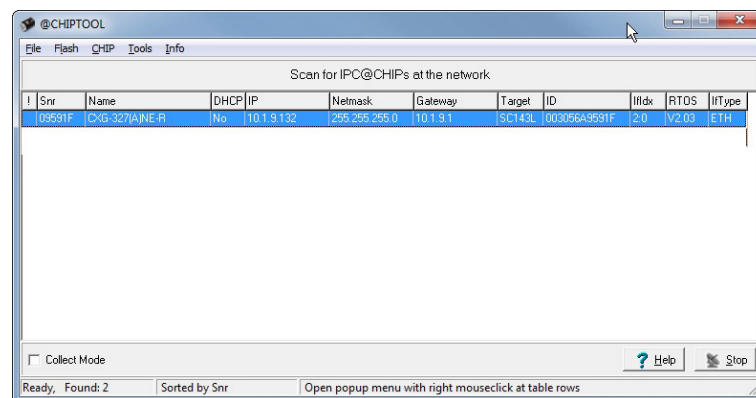
Management is also possible using the Webvisu parameter set operation function (see Webvisu / Settings: General / Parameter set operation section).

You can use CHIPTool to view, modify and manage data records created with Webvisu.

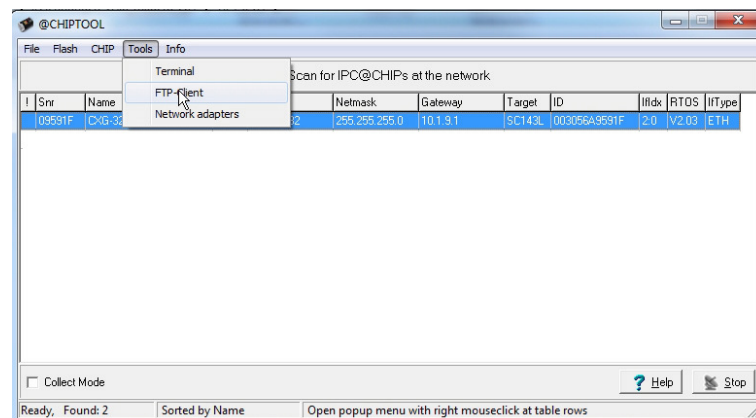
To manage the parameters of the CXG-327(A)NE-R:

1. Start the CHIPTool program to scan your network. This displays all devices with an IPC@CHIP® controller that are located in the same subnet (gateway) as your PC.

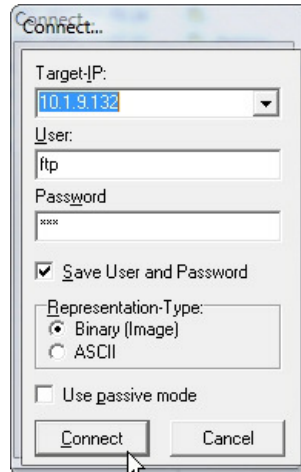
Example of result after network scan



2. Select the relevant device by clicking on the line (blue background), and then select "Tools" and open the "FTP-Client" folder. Alternatively, right-click on the line and open the pop-up menu.

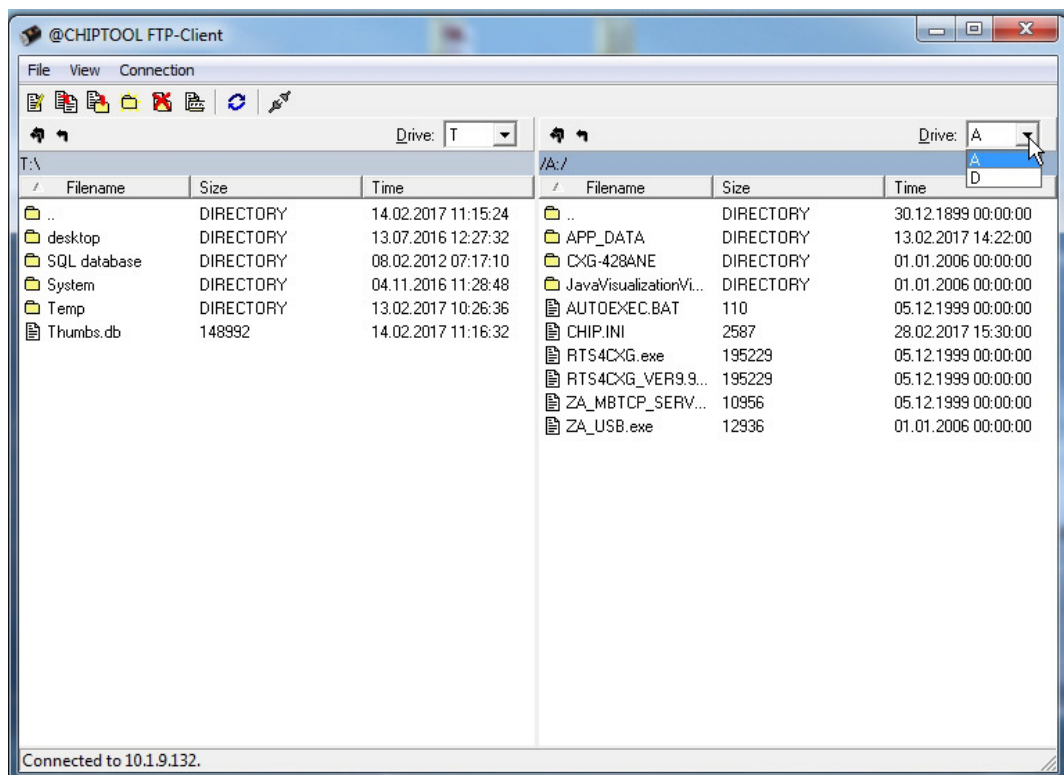


- Under Password, enter "ftp" (corresponds to User "ftp") and click on "Connect" to establish the connection to the CXG-327(A)NE-R.



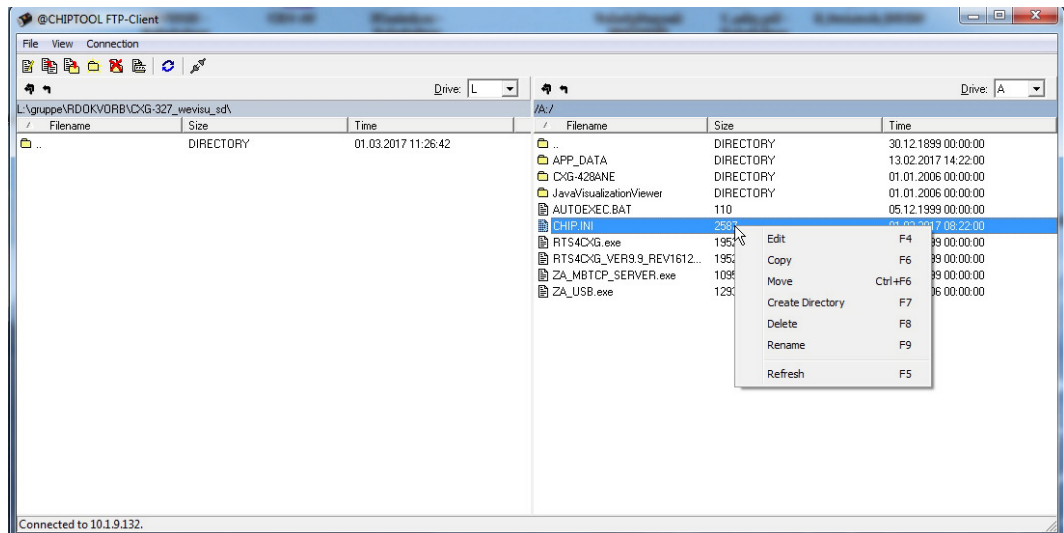
Explorer view with CHIPTool:

Left column = Network environment / Right column = CXG-327(A)NE-R drives



- In the left column, set the relevant drive from the network environment in the "Drive" field, and then create/select the folder where you want to transfer files.
- In the right column, select the relevant device drive where the files are located in the "Drive" field (drive "A" = Flash memory, drive "D" = USB stick).

6. Click on the relevant file and open the pop-up menu.



Edit: Open file

Copy: Copy file to folder in left column

Move: Move file to folder in left column

Create Directory: Create new folder

Delete: Delete File!

Rename: Rename file

Refresh: Refresh view



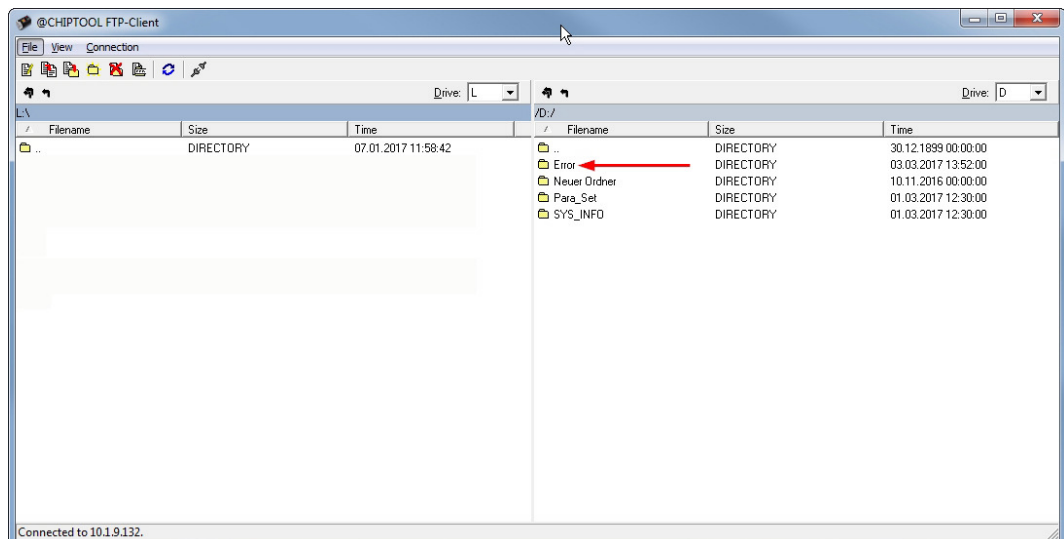
Information

The folders and files you will find the first time you open the Flash memory (drive a:\) must be retained to guarantee the functioning of the device and the Webvisu software.

Renaming or deleting folders, files and their content can cause malfunctions and lead to start-up no longer being possible.

Therefore, you should only make changes if you have the required specialist knowledge.

Example view of USB stick (drive d:\)



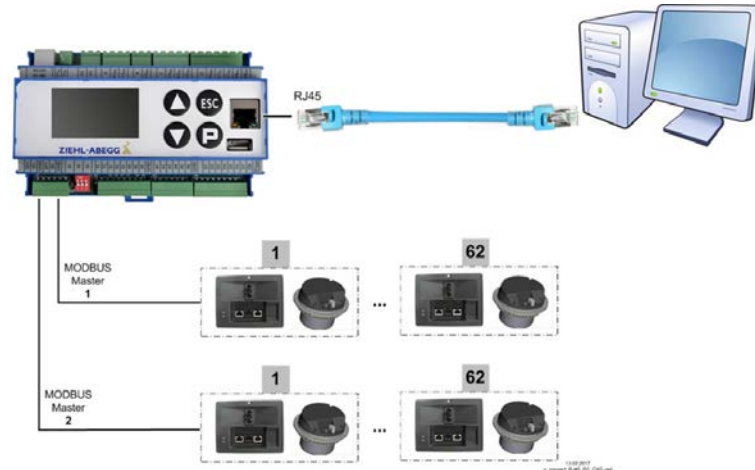
The "Error" folder contains the error lists in csv format

9 Webvisu web visualisation software

9.1 Establishing the connection

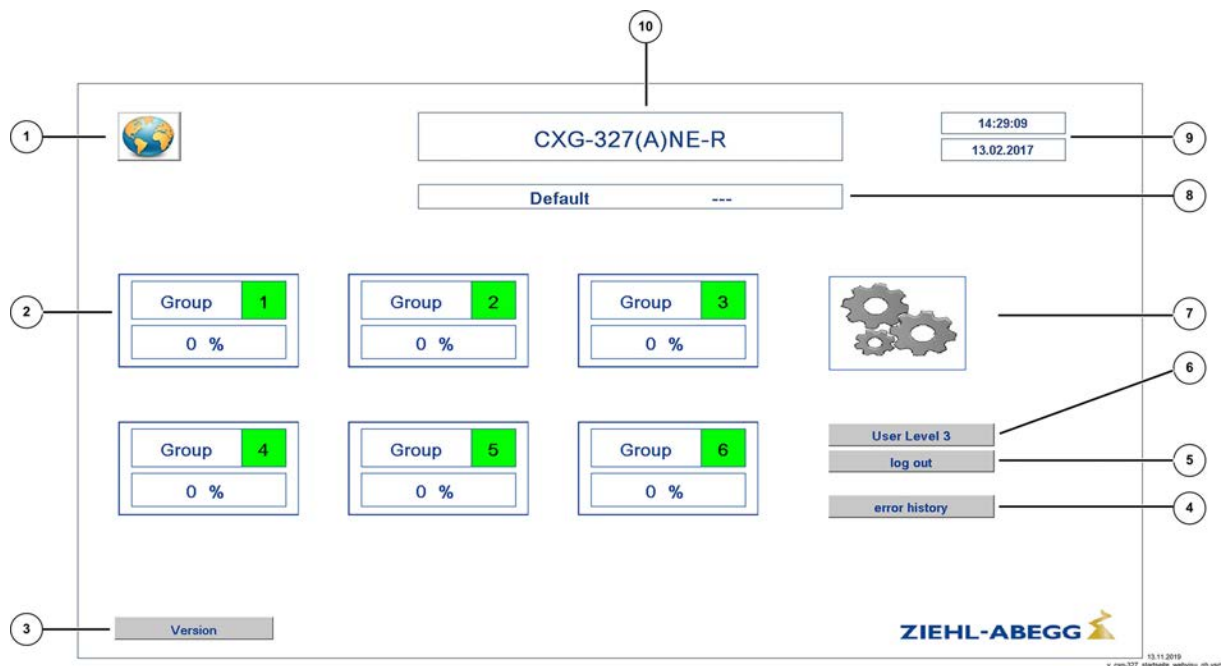
Proceed as follows:

- ▷ Use the RJ 45 Ethernet interface to establish a connection between the device and PC.
 - Direct connection with crossover cable.
 - Connection in the same subnet with normal patch cable (straight through).



- ▷ Start a web browser that supports Java and enter the device's IP address. The address **192.168.1.20** is the factory default setting, but a new address can be assigned using the CHIPtool software if required (see system requirements).

Home page at initial login



- 1 Language setting (factory setting English)
- 2 Group 1...6 (selection not yet possible, as addressing has not been carried out)
- 3 Display of software and hardware version, serial number and IP address
- 4 Error message history
- 5 log out = back to User Level "0"
- 6 Setting User Level 0...3
- 7 Installation configuration/settings
- 8 Name of installation adjustable (factory set display Default - - -)
- 9 Date and time (set for the device)
- 10 Type designation UNIcon

9.1.1 User Level setting

To prevent unauthorised access to the installation configuration, Webvisu uses different user levels. For security reasons, when you first log in the user level will be set to "0". At this user level, no settings other than the language setting are available.

The user level "3" is required to configure the installation. Clicking on the "User Level 0" field opens up a field for entering the password. To make initial installation easier, no password is assigned when the software is supplied, i.e. you can set the relevant user level and confirm with "OK".

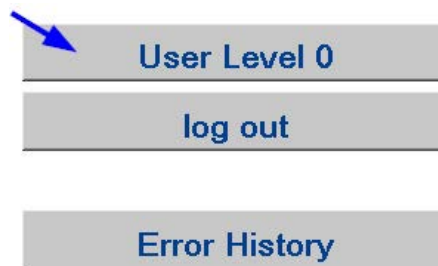
The **Log out** button resets the user level to "0"; this can be done from any programming window.

If you set a user level higher than "0", the user level automatically reverts to "0" after one hour. This happens regardless of entries made or closing/opening the browser window.

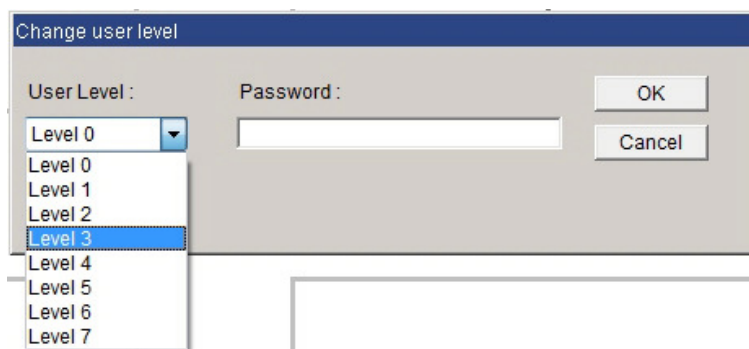
If you re-establish the connection between the PC and the CXG-327 after a power failure, it automatically starts with user level "0".

To set the user level without password protection:

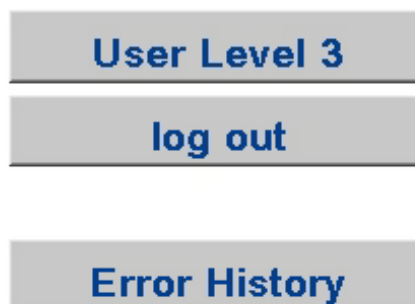
1. Click on the **User Level 0** button.



2. Select Level 3 in the drop-down menu and confirm with "OK".



3. The new user level set is then displayed.



User levels and their rights

User Level:	Rights
0	Display parameters and language setting, otherwise no settings available
1	Settings for members on the Webvisu home page "Fan edit" (offset, enable, access)
2	Control parameter settings
3	All settings are available for installation and configuration of the device and the system
4...7	no function

Moving the cursor over a setting option displays the required user level.

Example: User level 3 is required to assign a password



Information

Assign passwords for the user levels to prevent unauthorised access to the device and the installation (see next section).

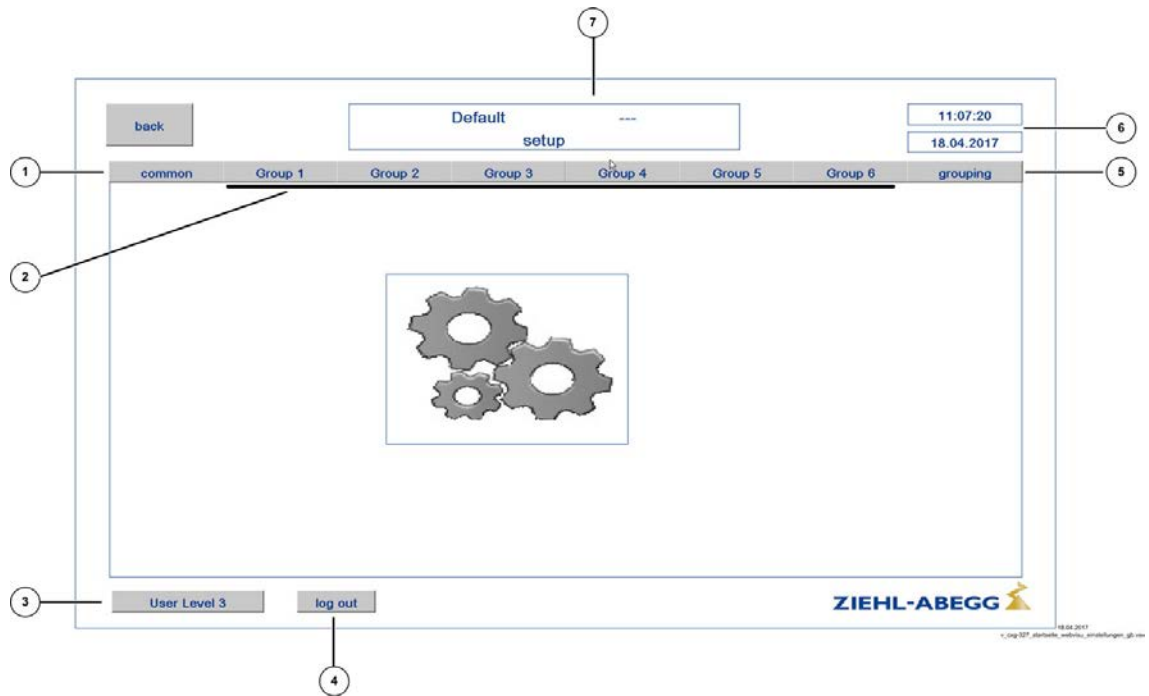
9.2 Configuring the installation and making settings

Before you can use the web visualisation, some basic settings are required.

▷ To make them, click on the button with the gear wheels to open the settings area.



▷ The home page for settings then opens



- 1 General settings
- 2 Settings for groups 1...6
- 3 Setting User Level 0...3
- 4 log out = back to User Level "0"
- 5 Grouping and addressing
- 6 Date and time (set for the device)
- 7 Name of installation adjustable (factory set display Default - - -)

9.2.1 Start-up using Webvisu

This section describes the start-up using Webvisu. On the version with user interface (CXG-327 ANE type), initial start-up is also possible directly on the device, i.e. without using Webvisu (see Initial start-up for version with user interface).

If the initial start-up has already been completed using the CXG-327 ANE, you can recognise this by the activated fields for Group 1 and/or Group 2 on the home page. Some of the points described below, e.g. automatic addressing, will not have to be carried out again.

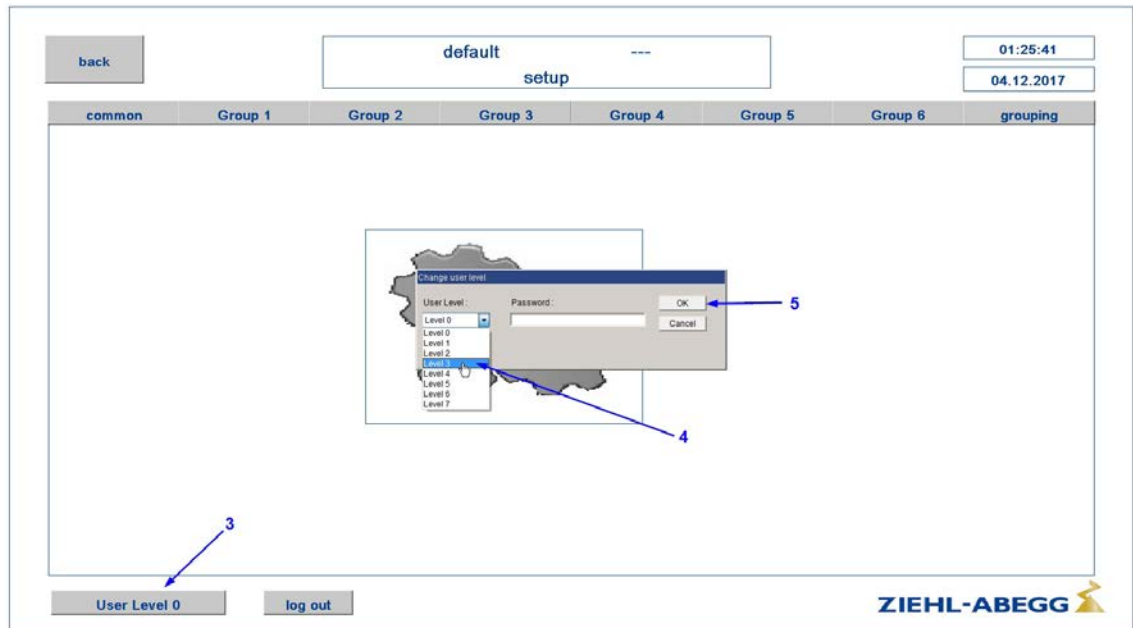


Information

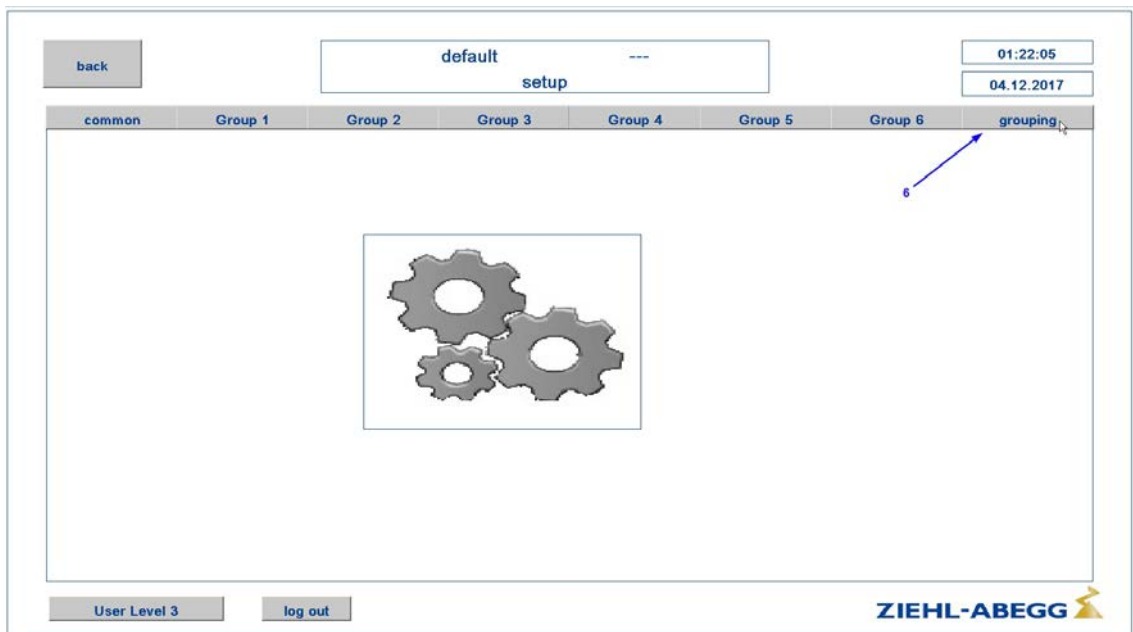
This section describes a quick and easy start-up using Webvisu and does not cover all possible functions of the device and visualisation. Refer to subsequent sections for more details.

Proceed as follows:

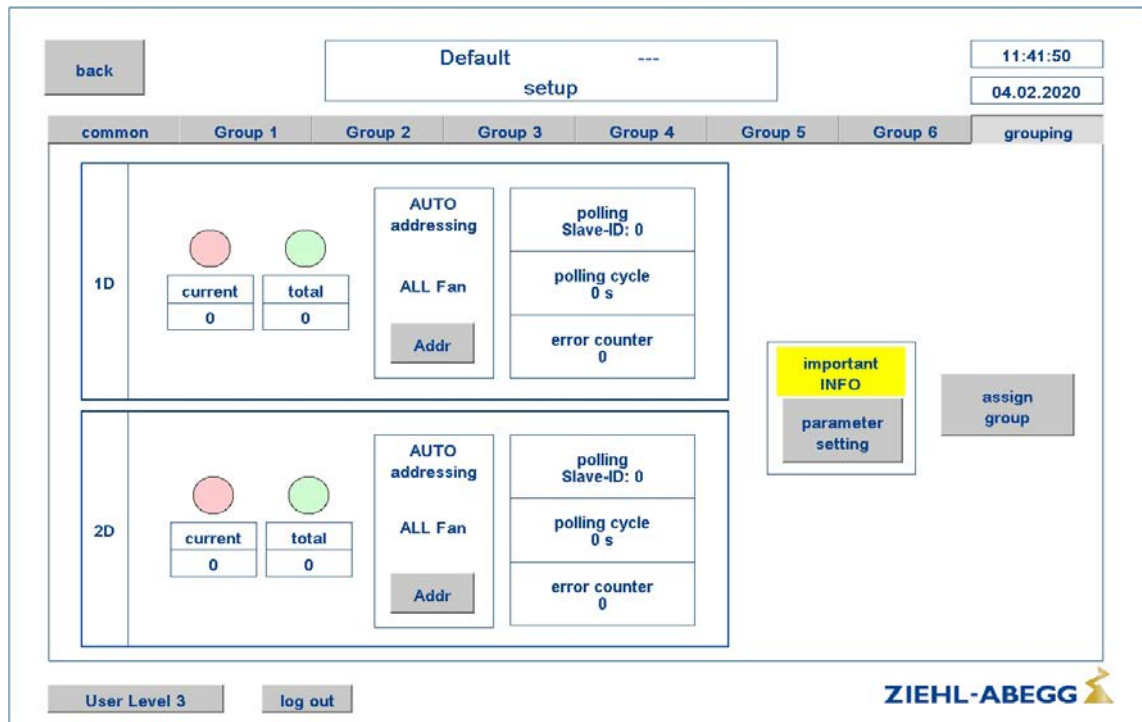
1. Turn on the mains voltage for all components.
2. Open the installation configuration/settings home page (gear wheel icon).
3. Click on the **User Level 0** button.
4. Select "Level 3" in the drop-down menu (levels 4 - 7 are inactive).
5. Confirm the setting with "OK".



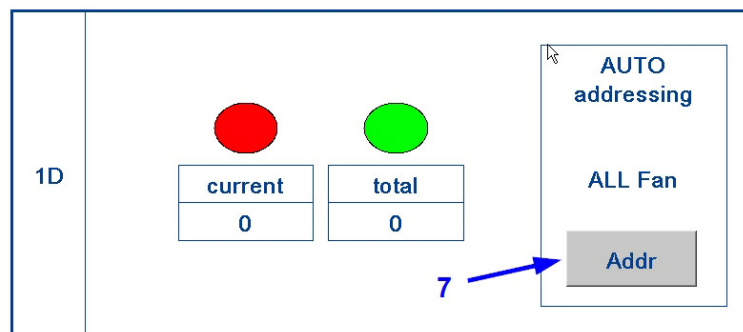
6. User level 3 is displayed; now click on the "grouping" field.



The addressing and grouping page is opened



7. Start automatic addressing for the members on MODBUS Master interface 1 (1D).
If assigned, do the same for MODBUS Master interface 2 (2D).



Example of successful addressing of a member on MODBUS Master interface 1 (1D)



The currently saved number of member "fans" is shown under "total".

After every automatic addressing, the number of member "fans" is automatically saved.



Information

If automatic addressing has previously been performed on the version with user interface (CXG-327 ANE-R type), the devices will be assigned as followed:

- All members connected on the "MODBUS Master 1" interface (terminal 1D) have been assigned to Group 1.
- All members connected on the "MODBUS Master 2" interface (terminal 2D) have been assigned to Group 2.

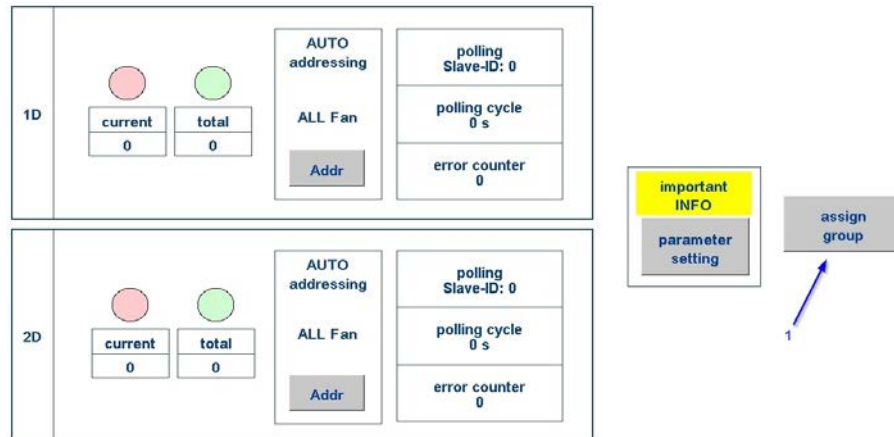
This group assignment is retained even if addressing is performed again using Webvisu.

If you want to make a different assignment, refer to the following description of group assignment. You can assign the addressed members (62 per MODBUS Master interface) in up to 6 groups.

To carry out a group assignment:

1. Open group assignment

Example with 62 addressed members on MODBUS Master interface 1 (1D) and 5 addressed members on MODBUS Master interface 2 (2D).



If you have not previously performed addressing using the user interface (on CXG-327 ANE-R type), the group assignment for all members is set to "0" (= deactivated). Group assignment is a prerequisite for starting up a member.

1D	Slave-ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Group	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Slave-ID	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	Group	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Slave-ID	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	Group	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fan 1D -> Group 1	Slave-ID	49	50	51	52	53	54	55	56	57	58	59	60	61	62		
	Group	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2D	Slave-ID	1	2	3	4	5											
	Group	0	0	0	0	0											
	Slave-ID																
	Group																
	Slave-ID																
	Group																

2. Select **Fan 1D -> Group 1** to assign all members connected to the "MODBUS Master 1" interface (terminal 1D) to Group 1
Select **Fan 2D -> Group 2** to assign all members connected to the "MODBUS Master 2" interface (terminal 2D) to Group 2

- Click on the current assignment of a member (under the Slave ID) to carry out individual group assignment. Position the cursor in the input box, enter the group 0...6 using the virtual keypad or the physical keypad on the PC and confirm with "OK".

Slave-ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gruppe	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
Slave-ID	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Gruppe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slave-ID	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Gruppe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slave-ID	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Gruppe	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0

- Click **[on]** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
- Click **[save]** to apply the settings.

- Open the settings for the required group.

Example for Group 1 (Factory setting)

common	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	grouping
Ctrl - Mode	0						
n = SET (actuator)							
SET-Point 1	external						
SET-Point 1	0.000						
SET-Point 2							
setpoint select	1						

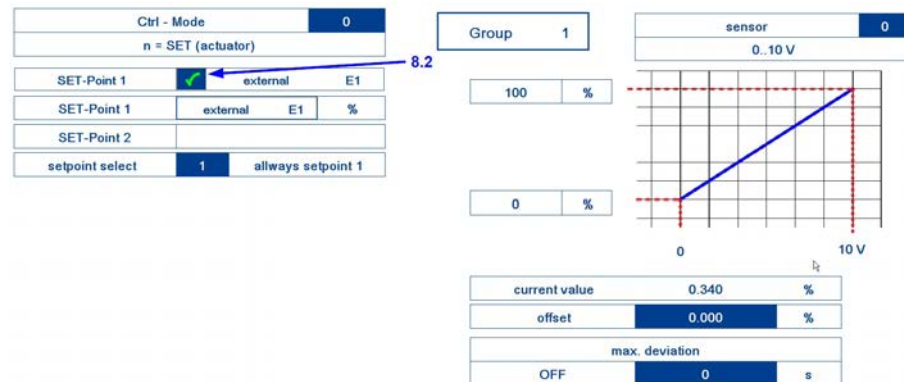
- Click in the blue "Ctrl - Mode" field and set the relevant control mode.
 - 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting)
 - 1..n = f(v) (airspeed): Air velocity control
 - 2..n = f(p) (pressure): Pressure control [Pa]
 - 3..n = f(T) (temperature): Temperature control
 - 4..n = f(%R.H.) (relative humidity): relative humidity control
 - 5..n = f(p) (pressure): Pressure control refrigerant technology [bar]

common	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	grouping
Ctrl - Mode	0						
n = SET (actuator)							
SET-Point 1	external						
SET-Point 1	0.000						
SET-Point 2							
setpoint select	1						

8. Set the type of setpoint specification - entry using the keypad or using an external signal

- Setpoint specification using keypad ("external E1" not activated = red cross)

- Setpoint specification using external signal ("external E1" activated = green checkmark)



9. Set "setpoint select"

- 0..Setpoint Select Dx: Switch over setpoint via digital input
- 1..always Setpoint 1: Fixed operation using Setpoint 1
- 2..always Setpoint 2: Fixed operation using Setpoint 2
- 3..Setpoint Select Week Schedule: Switch over Setpoint 1/2 using timer
- 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS
- 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable

- Click **[on]** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
- Click **[save]** to apply the settings.
- Click the **[back]** button twice to return to the Webvisu home page.

Example of home page



Group 1, 3, 4, 5, 6 Display of group specification in % = Speed specification
 Group 2 Display of group specification in m/s = Air velocity control

13. Click in the field for a group to display the assigned members and their operation conditions.

Group 1 with speed setting 20 %

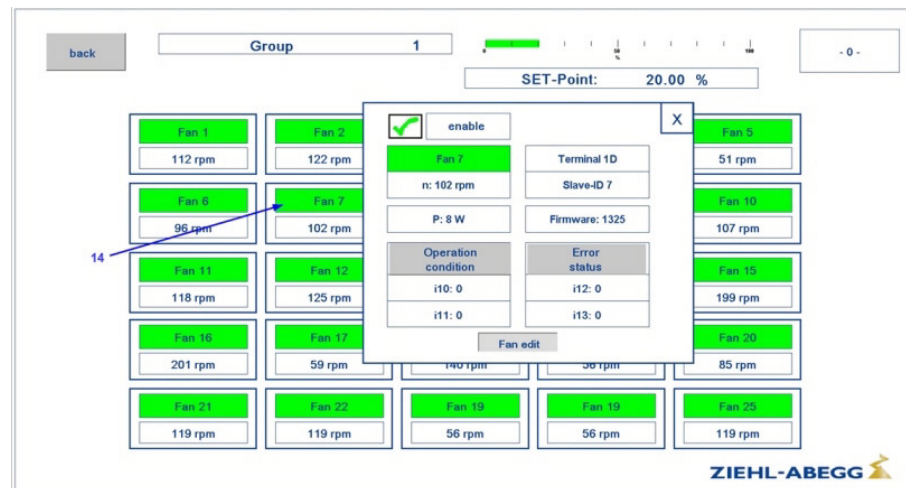


Example: The first 25 members of Group 1



14. Click in the field for a member to display detailed information.

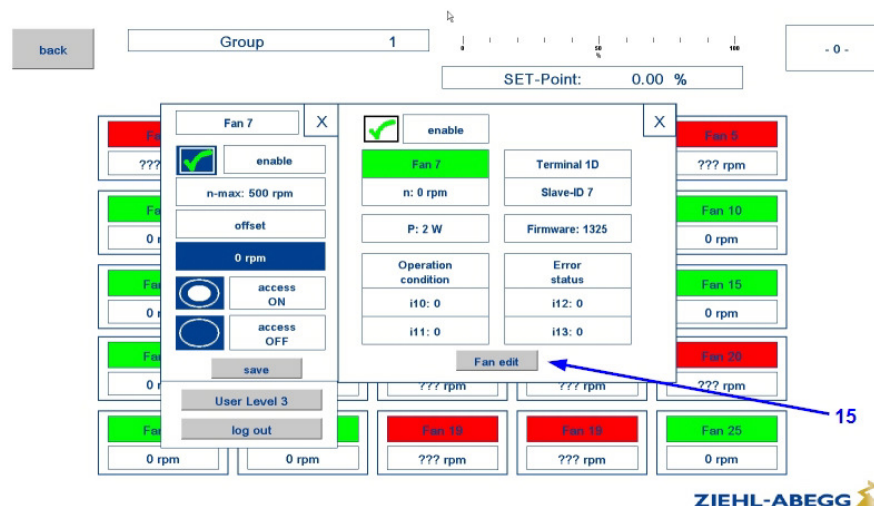
Example: member "Fan 7"



15. To change the settings for the member, click the **Fan edit** button.

The following settings are possible (click blue fields in left column)

- Enable On/Off
- Offset - Speed offset +/- from group default value
- Access to member on/off



16. Click **save** to apply the settings.

17. Close the window using the cross **X** in the top right and click **back** to return to the Webvisu home page.

✓ **Start-up using Webvisu is now complete. Refer to subsequent sections for further details.**

9.2.2 Settings: common

Home page **common**

You can make the following settings on the "common" page:

1	Name 1/Name 2 Entry of Name 1 and 2, which are displayed under Type designation on the home page. ▷ Click the blue input box for Name 1/Name 2. ▷ Position the cursor in the input box for the virtual keypad, enter the relevant Name 1/2 using the virtual keypad or the physical keypad on the PC and confirm with "OK". ▷ Click save to apply the settings.
2	Inverting Inversion of the analog and digital inputs and outputs ▷ To invert the IOs (inputs and outputs), click on the blue input box (green checkmark = inversion active) ▷ Click save to apply the settings. For a function description, refer to Electrical installation: Analog inputs, analog outputs, digital inputs, digital outputs
3	User Level Display and set the user level: User Level 0...3
4	log out Reset the user level: log out = Back to User Level "0"
5	Sensor error When programming a 4...20 mA signal or a passive temperature sensor (KTY81-201 / PT 1000), it is possible to activate sensor monitoring. ▷ To activate, click on the blue input box for the input to be monitored (green checkmark = monitoring active). ▷ Click save to apply the settings. The group with the current sensor fault is shown in red on the Webvisu home page. The fault is archived under "Error History". If a 4...20 mA signal is active, there is an error message if the value is below 4 mA. For passive temperature sensors, there is an error message in case of disconnection or short circuit of the sensor line and at measured values < 150 Ω or > 4500 Ω. Precise temperatures cannot be assigned to these resistance values, as they lie outside the defined temperature measuring range. Defined temperature measuring range: KTY81-210: -50...+150 °C = 1030...4280 Ω PT1000: -200...+ 620°C = 185,20...3201,16 Ω

6	Password Password assignment for a user level to prevent unauthorised access to the device and the installation (see "Setting a password for user levels" section).
7	Parameter set operation Save settings and transfer them to the device, reset to factory settings etc. (see "Parameter set operation" section).
8	Switching times Switching times for the integrated timer for setpoint switch over (see "Setting switching times" section).
9	Busmode (MODBUS-TCP) Set analog and digital inputs and outputs to bus mode, i.e. access via Ethernet interface for MODBUS-TCP slave. ▷ To set the IOs to bus mode (MODBUS-TCP), click on the blue input box (green tick = bus mode active) ▷ Click save to apply the settings. If the outputs (Ax / Kx) are ticked, they are no longer activated by the CXG (control) but only via MODBUS-TCP. If the inputs (Ex / Dx) are ticked, only the values transferred via MODBUS-TCP are used (regardless of the physical state at the Ex / Dx input terminals).
10	K8 input D8/common error Relay K8 function: Common error or switching state of digital input D8 (see Electrical installation - Digital inputs and digital outputs) Factory setting to common error for groups 1...6. Alternatively, monitoring of the switching state at the digital input "D8" is possible. To do this, click on the adjacent blue field and then click on save to apply the settings made!
11	Set the date/time Set the time and date for the integrated clock, automatic daylight savings time adjustment on/off (see "Setting the date and time" section)
12	Current time and date
13	Load setting Restore settings to those currently saved, i.e. cancel - changes are not applied.
14	Name 1 and Name 2 Name 1 and 2 set under "1" (factory setting Default - -)
15	save Accept the settings
16	back Return to previous page
17	Ax min./max. Ax min./max. adjustable 0.0..10.0 V
18	Selection amplifier input
19	Selection amplifier output
20	Antiblock protection

9.2.2.1 Setting a password for user levels

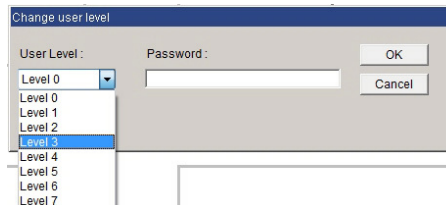
As supplied, the user levels are not password protected. To prevent unauthorised access to the device and the installation, we recommend setting up passwords as soon as possible.

To set up passwords:

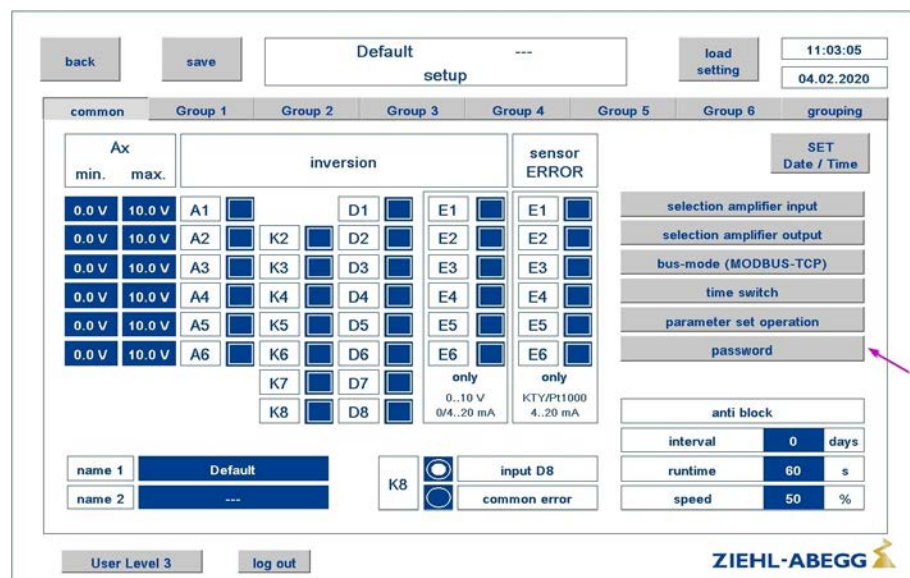
1. Click on **User Level 0** (if "3" is no longer set).



2. Select Level 3 in the drop-down menu and confirm with "OK".



3. Click on the "Password" field.



4. In the subsequent window, create the passwords for the user levels. As no factory default passwords are assigned, an entry under "OLD password" is invalid during the initial setup.

back

password

load setting

User Level 3

log out

change password

UserLevel	OLD password	NEW password	confirm NEW password	
1				change
2				change
3				change

PIN protection level (MODBUS-TCP / LCD)

1: 1234	2: 0010
---------	---------

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5. Click in the "NEW password" field and position the cursor in the input box. You can use the virtual keypad or the physical keypad on the PC for entry.

Min: Max:

A	1	2	3	4	5	6	7	8	9	0	ß	·	\	BACK		
@	q	w	e	r	t	z	u	i	o	p	ü	+	~	CLEAR		
	a	s	d	f	g	h	j	k	l	ö	ä	#		Esc		
	<	y	x	c	v	b	n	m	,	.	-		Shift			
z	s	Space										{	[	]	}	Ok

6. Confirm the password and click "change" to apply.



Information

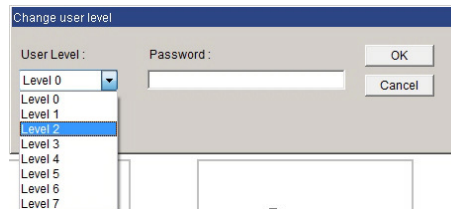
Make sure that you store passwords securely. Without correct passwords, access to the device and thus to the entire installation is restricted or not even possible.
In case of lost passwords, access can only be restored by our Support department.

Example of changing the user level with password entry

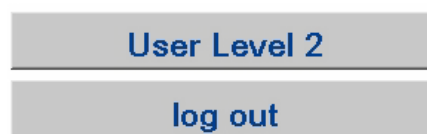
1. Click on the **User Level 0** button.



2. Select Level 2 in the drop-down menu, enter the password for this user level and confirm with "OK".



Display for user level 2



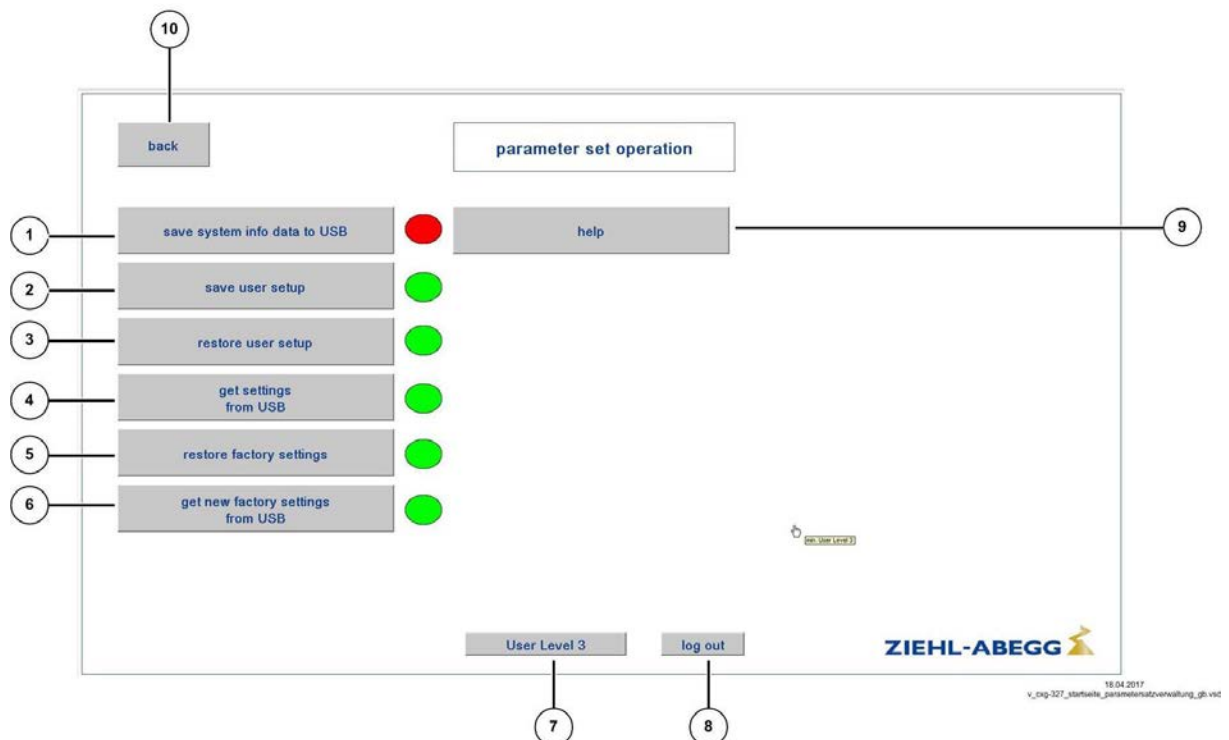
9.2.2.2 Parameter set operation

The CXG-327(A)NE-R has two drives for storing data - the integrated Flash memory (drive a:\) and the USB stick (drive d:\), if connected.

You can use the program CHIPtool (see Parameter set operation using the CHIPtool program) to view and manage the files.

This is also possible using the Webvisu Parameter set operation function. You can use the buttons 1...6 to copy or archive parameter sets and transfer them to the device (i.e. load them).

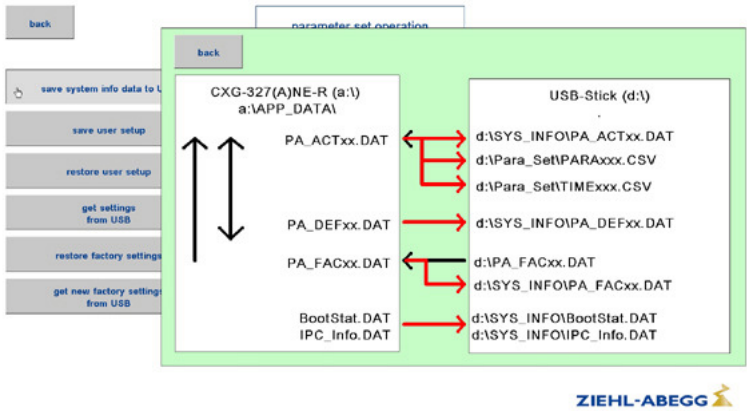
Home page: Parameter set operation



-  The button changes color from green to red if one of the following situations has occurred. This also happens if an internal error occurs during read or write access to memory (Flash or USB). In this case, repeat the operation.

1	Save system info data to USB ▷ Click on the grey field to write the following files to the directory d:\SYS_INFO\ as a backup: • a:\APP_DATA\PA_ACTxx.DAT • a:\APP_DATA\PA_DEFxx.DAT • a:\APP_DATA\PA_FACxx.DAT • a:\APP_DATA\BootStat.DAT • a:\APP_DATA\IPC_Info.DAT The following files are also created: • d:\Para_Set\PARAxxx.CSV • d:\Para_Set\TIMExxx.CSV The button turns red if: • No USB stick is connected • At least one of the following source files not found: – a:\APP_DATA\PA_ACTxx.DAT – a:\APP_DATA\PA_DEFxx.DAT – a:\APP_DATA\PA_FACxx.DAT – a:\APP_DATA\BootStat.DAT – a:\APP_DATA\IPC_Info.DAT
2	Save user setup ▷ Click on the grey field to save the current parameter set as the "user setup": a:\APP_DATA\PA_ACTxx.DAT -> a:\APP_DATA\PA_DEFxx.DAT • The old user setup (a:\APP_DATA\PA_DEFxx.DAT) is renamed to (a:\APP_DATA\PA_DEFxx.DAT.BAC). • Any existing file (a:\APP_DATA\PA_DEFxx.DAT.BAC) is deleted. The button turns red if: • Source file not found – a:\APP_DATA\PA_ACTxx.DAT
3	restore user setup ▷ Click on the grey field to load the saved "user setup" parameter set: a:\APP_DATA\PA_DEFxx.DAT -> a:\APP_DATA\PA_ACTxx.DAT • The old parameter set (a:\APP_DATA\PA_ACTxx.DAT) is renamed to (a:\APP_DATA\PA_ACTxx.DAT.BAC). • Any existing file (a:\APP_DATA\PA_ACTxx.DAT.BAC) is deleted. The button turns red if: • Source file not found – a:\APP_DATA\PA_DEFxx.DAT Attention, any changes that have been made to the settings are thus lost! (whenever a:\APP_DATA\PA_ACTxx.DAT is overwritten)

4	Get settings from USB ▷ Click on the grey field to load the current parameter set from the USB stick: d:\SYS_INFO\PA_ACTxx.DAT - The old parameter set (a:\APP_DATA\PA_ACTxx.DAT) is renamed to (a:\APP_DATA\PA_ACTxx.DAT.BAC). - Any existing file (a:\APP_DATA\PA_ACTxx.DAT.BAC) is deleted. The button turns red if: - No USB stick is connected - Source file not found - d:\SYS_INFO\PA_ACTxx.DAT Attention, any changes that have been made to the settings are thus lost! (whenever a:\APP_DATA\PA_ACTxx.DAT is overwritten)
5	Restore factory settings ▷ Click on the grey field to load the factory setting. - The factory settings are saved as the current parameter set: a:\APP_DATA\PA_FACxx.DAT -> a:\APP_DATA\PA_ACTxx.DAT - The old parameter set (a:\APP_DATA\PA_ACTxx.DAT) is renamed to (a:\APP_DATA\PA_ACTxx.DAT.BAC). - Any existing file (a:\APP_DATA\PA_ACTxx.DAT.BAC) is deleted. The button turns red if: - Source file not found - a:\APP_DATA\PA_FACxx.DAT Attention, any changes that have been made to the settings are thus lost! (whenever a:\APP_DATA\PA_ACTxx.DAT is overwritten)
6	Get new factory settings from USB ▷ Click on the grey field to load the parameter set saved on the USB stick: d:\PA_FACxx.DAT -> a:\APP_DATA\PA_FACxx.DAT - The old parameter set (a:\APP_DATA\PA_FACxx.DAT) is renamed to (a:\APP_DATA\PA_FACxx.DAT.BAC). - Any existing file (a:\APP_DATA\PA_FACxx.DAT.BAC) is deleted. The button turns red if: - No USB stick is connected - Source file not found - d:\PA_FACxx.DAT
7	User Level Display and set the user level: User Level 0...3
8	log out Reset user level: log out = Back to user level "0"

9	help (parameter function overview) ▷ Click on the grey field to open the overview of parameter functions. ▷ With the overview open, press buttons 1. to 6 to show the associated data transfer with red arrows. This overview is intended to represent the data graphically - pressing a button does not execute the copy function. Example: Display for data transfer after clicking button 1 "Save system info data to USB" 
10	back Return to previous page

Structure of file names

PA_ACTxx.DAT

PA_DEFxx.DAT

PA_FACxx.DAT

PA ..Parameter

ACT ..ACTual

DEF ..DEFault

FAC ..FACtory setting

xx ..Index Index depending on software version

PARAxxx.CSV

TIMExxx.CSV

PARA ...System parameter

TIME ...Switching time parameter

XXXX ...Date/time YYYYMMDDHHMM when the file was created

Errxxxx.CSV

Err ..Error

XXXX ...Date YYYYMMDD on which the error(s) occurred

Y Year
M Month
D Day
H Hour
M minute

9.2.2.3 Set the date and time

The device has a real-time clock. The clock is backed up (Gold Cap) and has a reserve of 2 or 3 days after sufficient operation on a voltage supply.

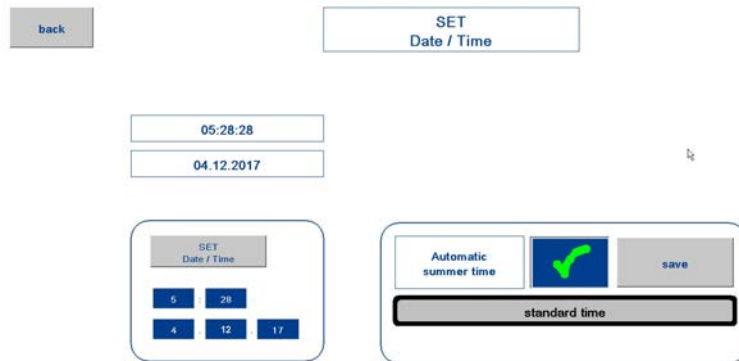
The time and date must be set during start-up operation and when using the real-time clock. The device calculates the weekday based on the date.

To set the time and date:

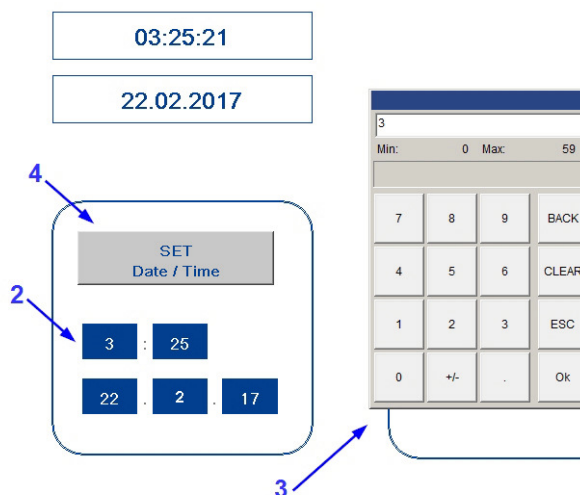
1. Click on the "SET Date/Time" button.



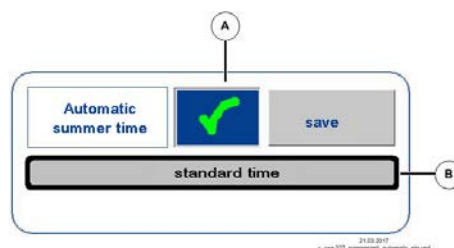
The current setting is displayed.



2. Click the blue input box for hour's setting and position the cursor in the input box for the virtual keypad.
3. Enter the current hour using the virtual keypad or the physical keypad on the PC and confirm with "OK". Make the settings for minute, date, month and year in the same way.
4. Click the "SET Date/ Time" to apply the time.



Automatic summer time



- A As supplied, Automatic daylight saving time (displayed as "Automatic summer time" in the software) is active = green checkmark.
- B Display of current winter time phase

To deactivate automatic daylight saving time

1. Click in the blue field, and a red cross is displayed instead of the green checkmark.
2. Click **save** to apply the settings.



Information

Automatic daylight saving time only applies to countries in the Northern hemisphere.

The time is put forward from 2:00 am to 3:00 am on the last Sunday in March and put back from 3:00 am to 2:00 am on the last Sunday in October.

If other dates for the switch over between daylight saving time and winter time are required, the clock must be changed by hand (manually) on the respective date.

9.2.2.4 Setting switch times

Switch times home page

For each group, you can set two setpoints between which the timer can switch. For time control to be active, "Setpoint Select" must be set to the function "3...Setpoint Select Week Schedule" (see Setting the group parameters). You can specify which of the two setpoints is the "Standby setpoint", i.e. the setpoint that is used outside the periods activated by the timer using the **Standby** parameter (factory default "Setpoint 1").

Time control can relate to days of the week with time entries or entire days with date entries (see Days in Standby mode).

1	Mon, Tue, Wed, Thu, Fri, Sat, Sun Days of the week for switching times
2	Standby Standby Setpoint (1 or 2) outside the switch cycles and on the days in standby mode (see item 7).
3	Switch cycle 1 In the period between "ON" and "OFF", the Setpoint 1 or Setpoint 2 set on the right is used.
4	Switch cycle 2 In the period between "ON" and "OFF", the Setpoint 1 or Setpoint 2 set on the right is used.
5	Switch cycle 3 In the period between "ON" and "OFF", the Setpoint 1 or Setpoint 2 set on the right is used.
6	Edit switch times Set the period for the switch cycles, at which setpoint switch over is to be carried out (see explanation below).
7	Days in Standby mode Individual days (e.g. holidays) and periods (e.g. holiday season) when reduced Standby mode is used (see explanation below).
8	Load setting Restore settings to those currently saved, i.e. cancel - changes are not applied.
9	save Accept the settings
10	back Return to previous page

You can set up to three switch cycles. They simultaneously affect all groups for which "Setpoint Select" is set to the function "3...Setpoint Select Week Schedule".

You can set Setpoint 1 and Setpoint 2 separately for each group.

Example for Wednesday

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
standby								SET-points 1 SET-points 2
switchcycle 1	ON		8:00					SET-points 1 SET-points 2
	OFF		12:00					
switchcycle 2	ON							SET-points 1 SET-points 2
	OFF							
switchcycle 3	ON		13:00					SET-points 1 SET-points 2
	OFF		20:00					

00:00 - 08:00 AM: Standby (Setpoint 1)
 08:00 - 12:00 AM: Switch cycle 1 (Setpoint 2)
 12:00 - 13:12 PM: Standby (Setpoint 1)
 13:00 - 20:00 PM: Switch cycle 3 (Setpoint 2)
 20:00 PM - 00:20 AM: Standby (Setpoint 1)

In this example, switch cycle 2 is not active.

To set the switch times:

1. Click on the **edit switch times** field.



The current settings are displayed (by factory default, all switch times are deactivated = 24)

2. Set switch times for individual days of the week (e.g. Mon = Monday) or for parts of the week (e.g. working week Mo - Fr)
 - To program individual days of the week, click in the blue fields for hours and minutes under each day, enter the time and confirm with "OK".

- To enter parts of the of the week, for each of them click in the blue fields for hours and minutes, enter the time and confirm with "OK".
- Click on **edit** to apply the settings to the days of the week listed on the left.

- Click **load** setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
- Click **save** to apply the settings.

Pay attention to the following in order to avoid invalid entries:

- Switch cycles 1-2-3 must be in chronological order and may not overlap.
- If an invalid entry is made, the affected fields turn red and the **save** function is not available.

Example invalid entry

Mon Switch cycle 2 is before switch cycle 1
 Tue Switch cycle 1 and switch cycle 2 overlap
 Thr OFF time is before ON time

To set the days in Standby mode:

1. Click the **days in Standby** button.

The current settings are displayed

back

days in Standby

14:12:53
18.04.2017

standby

single days

1. 1. 2012	Neujahr
6. 1. 2012	Heilig 3 Koenig
6. 4. 2012	Karfreitag
8. 4. 2012	Ostermontag
17. 5. 2012	Chr. Himmelfahrt
28. 5. 2012	Pfingstmontag
7. 6. 2012	Fronleichnam
15. 8. 1999	Mariä Himmelf.
3. 10. 2012	Tag dt. Einheit
31. 10. 1999	Reformationstag
1. 11. 2012	Allerheiligen
21. 11. 1999	Buß- und Bettag
25. 12. 2012	1. Weihnachtstag
26. 12. 2012	2. Weihnachtstag
3. 6. 1999	Brückentag_1
24. 6. 2012	Brückentag_2
0. 0. 1999	Brückentag_3
0. 0. 1725	XXX
0. 0. 1725	XXX
0. 0. 1725	XXX

standby periods

2. 4. 2012	-	13. 4. 2012	Osterurlaub
29. 5. 2012	-	1. 6. 2012	Pfingsturlaub
27. 8. 2012	-	7. 9. 2012	Sommerurlaub

edit

User Level 3 log out

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2. Click **edit** to make settings



All available input boxes now have a blue background.

back

save

days in Standby

load setting

05:31:25
04.12.2017

standby

single days

1. 1. 2012	Neujahr
6. 1. 2012	Heilig 3 Koenig
6. 4. 2012	Karfreitag
8. 4. 2012	Ostermontag
17. 5. 2012	Chr. Himmelfahrt
28. 5. 2012	Pfingstmontag
7. 6. 2012	Fronleichnam
15. 8. 1999	Mariä Himmelf.
3. 10. 2012	Tag dt. Einheit
31. 10. 1999	Reformationstag
1. 11. 2012	Allerheiligen
21. 11. 1999	Buß- und Bettag
25. 12. 2012	1. Weihnachtstag
26. 12. 2012	2. Weihnachtstag
3. 6. 1999	Brückentag_1
24. 6. 2012	Brückentag_2
0. 0. 1999	Brückentag_3
0. 0. 1725	XXX
0. 0. 1725	XXX
0. 0. 1725	XXX

standby periods

2. 4. 2012	-	13. 4. 2012	Osterurlaub
29. 5. 2012	-	1. 6. 2012	Pfingsturlaub
27. 8. 2012	-	7. 9. 2012	Sommerurlaub

edit

User Level 3 log out

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- Click in the relevant blue field, make the setting using the virtual keypad or the physical one on the PC and confirm with "OK". The procedure is the same for individual days and for periods, and the texts can be freely set.

save

days in Standby

load setting

1. 1. 2012	New Year	1. 11. 2012	Allerheiligen
6. 1. 2012	Heilig 3 Koenig	21. 11. 1999	Buß- und Betttag
6. 4. 2012	Karfreitag	25. 12. 2012	1.Weihnachtstag
8. 4. 2012			2.Weihnachtstag
17. 5. 2012			Brückentag_1
28. 5. 2012			Brückentag_2
7. 6. 2012			Brückentag_3
15. 8. 1999			XXX
3. 10. 2012			XXX
31. 10. 1999			XXX

New Year
 Min: Max:
 1 2 3 4 5 6 7 8 9 0 . / BACK
 @ # \$ % & ' () * + = - < > [\] ^ _ ` { | } ~
 Space Esc Ok

2. 4. 2012	-	13. 4. 2012	Osterurlaub
29. 5. 2012	-	1. 6. 2012	Pfingsturlaub
27. 8. 2012	-	7. 9. 2012	Sommerurlaub

- Click **on** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
- Click **save** to apply the settings.



Information

If you set a day that is in the past or that does not exist (e.g. 30.02.2017), the programmed switch function will never be executed. In other words, to deactivate a day or period, simply date it in the past.

9.2.2.5 Antiblock protection

To prevent the fans from getting stuck, an interval can be set in which they are switched on automatically; the running time and speed are also adjustable.

interval = 0 => Antiblock protection OFF

anti block		
interval	1	days
	0 = OFF	
runtime	30	s
speed	50	%

Example: The ECblue fans run for 30 seconds once every day at 50 % speed



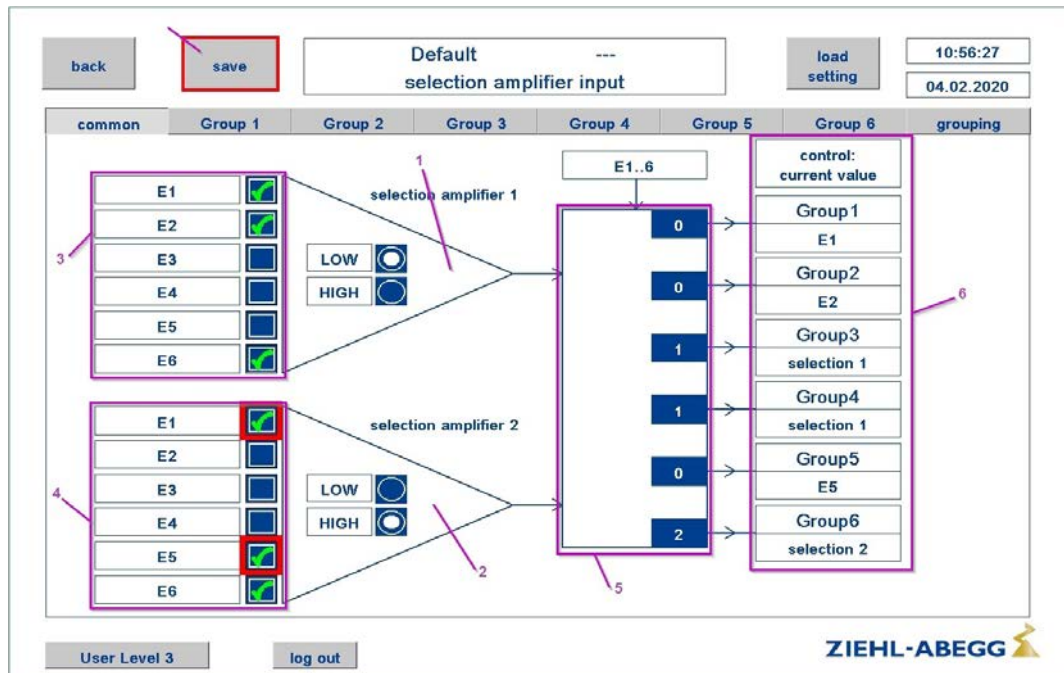
Information

- If the anti block protection is activated or the group assignment is saved when the anti block protection is activated, a "Protection Run" is performed first.
- For motors controlled by 0 - 10 V or via MODBUS the interval starts after they have come to a standstill for approx. 0.3 seconds.

9.2.2.6 Selection amplifier

2 x selection amplifier (SA) / selection amplifier (input)

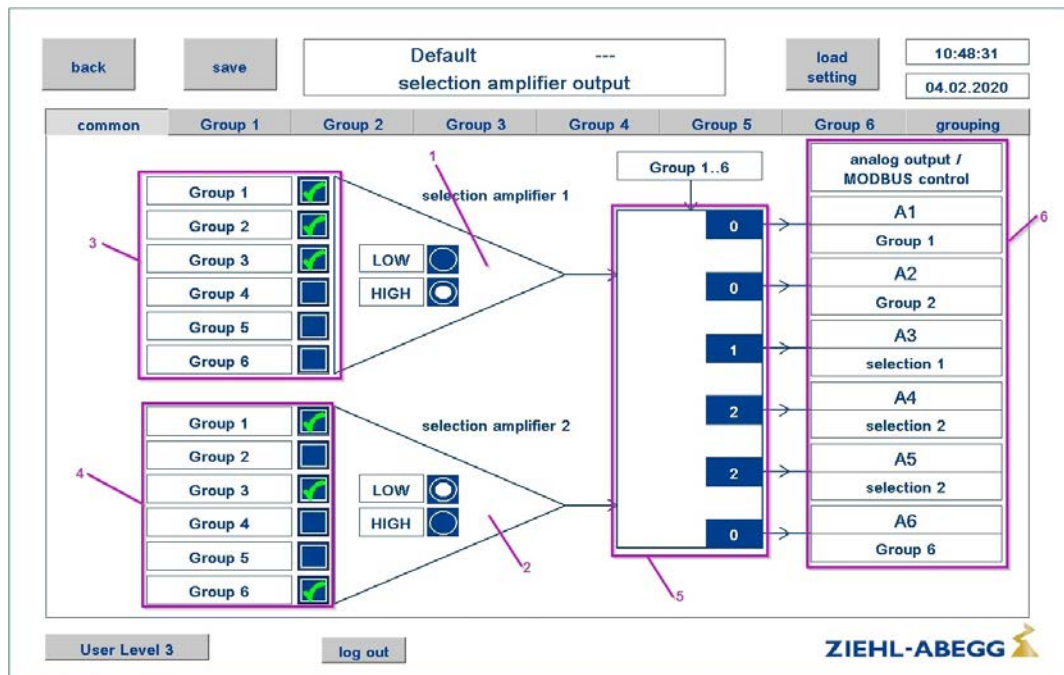
The AWW input enables an input signal can be selected from a maximum of 6 inputs and forwarded to the control of the individual groups as an actual signal.



- 1 AWW 1 "LOW"...The lowest signal is forwarded
- 2 AWW 2 "HIGH"...The highest signal is forwarded
- 3 The Ex inputs for AWW 1 are selected
- 4 Ex for AWW 2 (at E1 and E5 sensors are set that are not harmonised)
- 5 Selection of which sensor signal is used for the individual groups 0. Input signal X is forwarded to group X (e.g. E1 -> Group 1) 1. The input signal selected by AWW1 is forwarded to group X (e.g. AWW1 -> Group 3) 2. The input signal selected by AWW2 is forwarded to group X (e.g. AWW2 -> Group 6)
- 6 The allocation selected under 5 is displayed
- 7 The Save button is blocked due to selection of two non-harmonising inputs (under 4)

2 x selection amplifier (SA) / selection amplifier (output)

The AWW output enables a setting to be selected from a maximum of 6 groups (controllers) and used as a control signal for the individual (group) motors. For outputs Ax and control via MODBUS



- 1 AWW 1 "HIGH"...The highest signal is forwarded
- 2 AWW 2 "LOW"...The lowest signal is forwarded
- 3 The settings for the group controllers Gx for AWW 1 are selected
- 4 The settings for the group controllers Gx for AWW 2 are selected
- 5 Selection of which group setting is used for the individual outputs 0. The group setting X is forwarded to output X (e.g. group 1 setting -> A1) 1. The group setting selected by AWW1 is forwarded to output X (e.g. AWW1 ->A3) 2. The group setting selected by AWW2 is forwarded to output X (e.g. AWW2 ->A4)
- 6 The allocation selected under 5 is displayed

9.2.3 setup: Group 1...Group 6

The specification for each group can be made manually, e.g. using a potentiometer, or automatically using the integrated PID controllers. A total of 6 separate control circuits are available (one per group) with individual setting options. Actual values are recorded by sensors at the analog inputs. Selecting the mode (Ctrl - Mode) determines the control function for each group (see next section).



Information

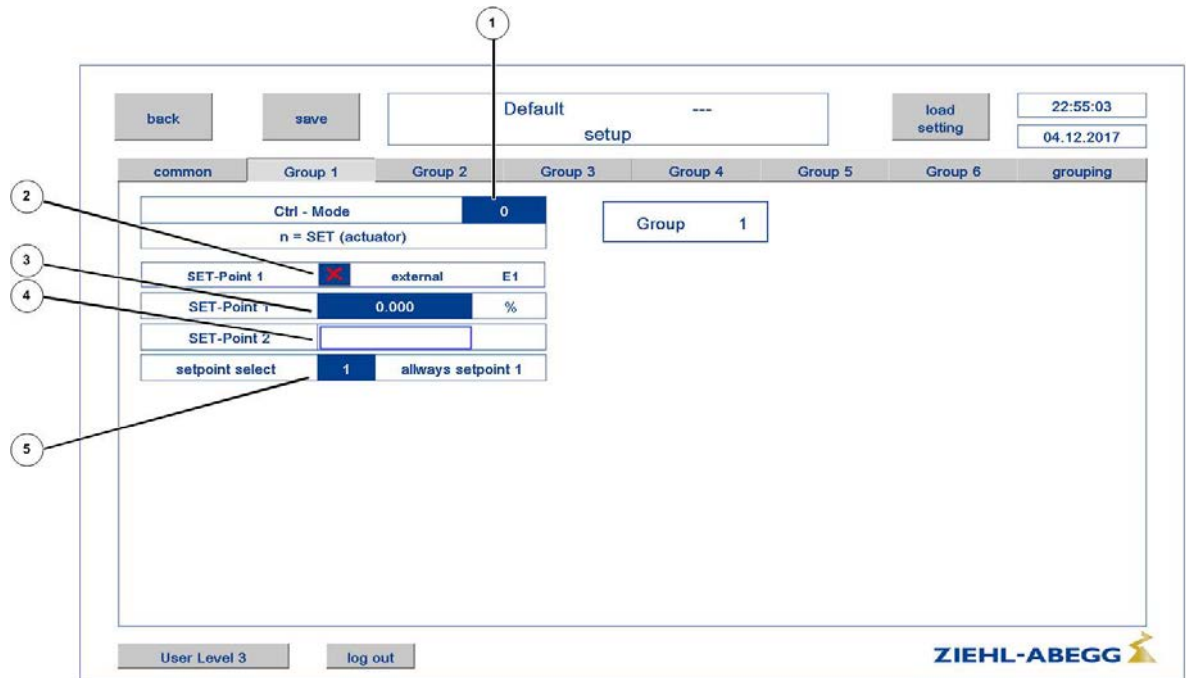
The settings are only described for Group 1, but they are identical for all groups 1...6. The assignments of analog inputs, digital inputs and digital outputs (relays) differ from group to group. Refer to the function assignments in the "Electrical installation" section for more information.

9.2.3.1 Mode "0" = Speed controller

As factory default, all groups are preset to Speed controller mode (Ctrl - Mode = "0") with speed specification using the "Setpoint 1" field.

The setpoint select is set to "1" - "always setpoint 1". This means that with the factory setting, switching over to Setpoint 2 using a digital input or the timer is not possible.

Home page Group 1



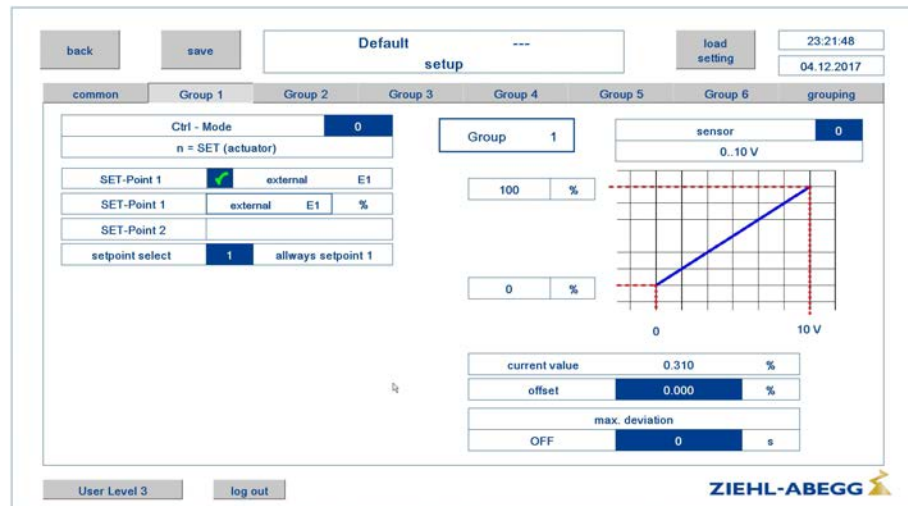
1	Mode (Ctrl - Mode) 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting) 1..n = f(v) (airspeed): Air velocity control (m/s) 2..n = f(p) (pressure): Pressure control air technology (Pa) 3..n = f(T) (temperature): Temperature control (°C) 4..n = f(%R.H.) (relative humidity): relative humidity (% R.H.) 5..n = f(p) (pressure): Pressure control refrigerant technology (bar)
2	Setpoint 1 / external E1 - Red cross = "external E1" not activated: Setpoint specification is fixed value (entry using Webvisu keypad) - Green checkmark = "external E1" activated: Setpoint specification via external signal
3	Setpoint 1 % Setting only possible for setpoint select 0, 1, 3, 4, 5
4	Set Internal2 Setting only possible for setpoint select 0, 2, 3
5	Setpoint select 0..Setpoint Select Dx: Switch over setpoint via digital input 1..always Setpoint 1: Fixed operation using Setpoint 1 2..always Setpoint 2: Fixed operation using Setpoint 2 3..Setpoint Select Week Schedule: Setpoint specification by timer 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable

To activate specification via an external signal:

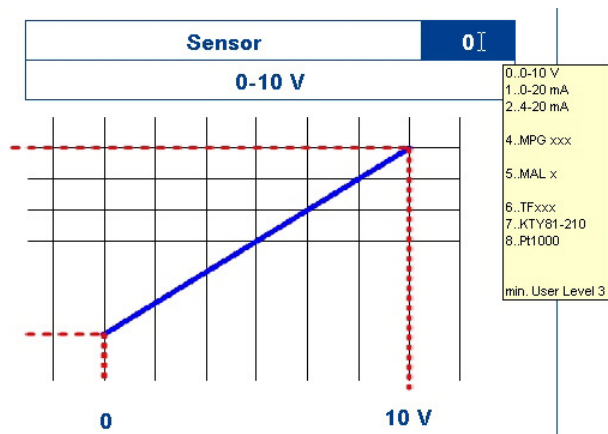
1. Click on the red cross for Setpoint 1.

Ctrl - Mode	0
n = SET (actuator)	
SET-Point 1	 external E1
SET-Point 1	0.000 %
SET-Point 2	
setpoint select	1 always setpoint 1

Home page for operation with external setpoint specification (green checkmark set)



2. If necessary, set setpoint select (see Group 1 home page)
3. Under "Sensor" set the relevant signal type for speed specification via the analog input "E1". Selection: 0 = 0-10 V (factory default), 1. = 0-20 mA, 2 = 4-20 mA (all other selection options are invalid!)



4. If necessary, set a value under "Offset" that is added to the actual value (percentage of 100 % signal range).

Example for Signal adaption Offset 30 %

current value	30.000	%
Offset	30.000	%

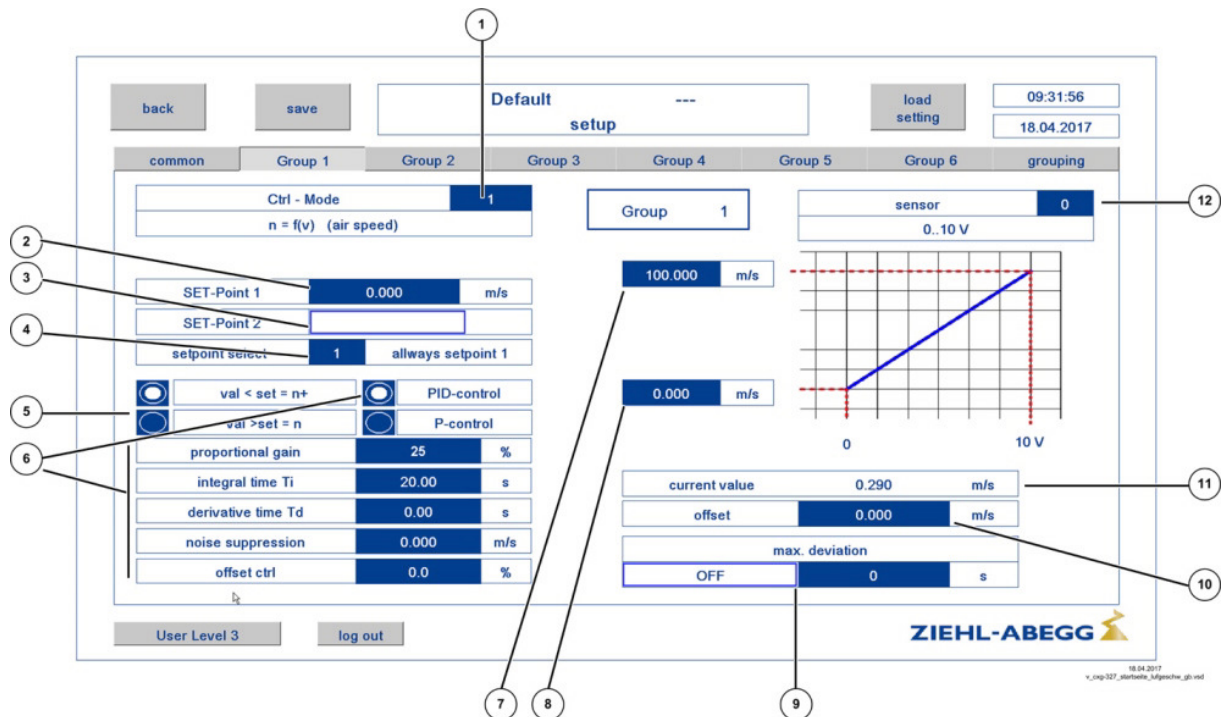
The "max. deviation" setting has no function in mode "0".

max. deviation		
OFF	0	s

5. Click load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
6. Click to apply the settings.
7. Click the button twice to return to the Webvisu home page.

9.2.3.2 Mode "1" = Air velocity control

Home page Group 1



View with setting on PID controller

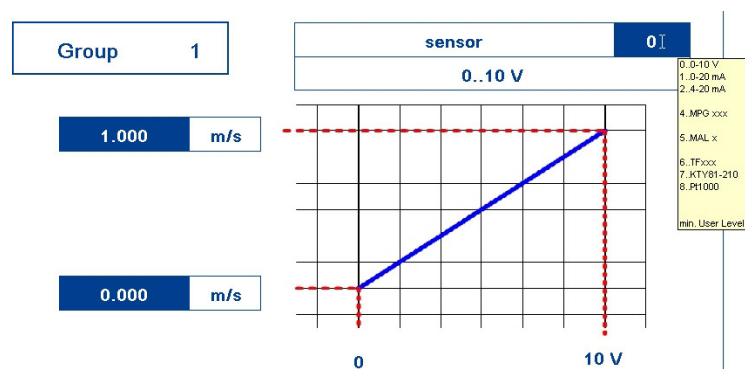
1	Mode (Ctrl - Mode) 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting) 1..n = f(v) (airspeed): Air velocity control (m/s) 2..n = f(p) (pressure): Pressure control air technology (Pa) 3..n = f(T) (temperature): Temperature control (°C) 4..n = f(%R.H.) (relative humidity): relative humidity (% R.H.) 5..n = f(p) (pressure): Pressure control refrigerant technology (bar)
2	Setpoint 1 % Setting only possible for setpoint select 0, 1, 3, 4, 5
3	Set Internal2 Setting only possible for setpoint select 0, 2, 3.
4	Setpoint select 0..Setpoint Select Dx: Switch over setpoint via digital input 1..always Setpoint 1: Fixed operation using Setpoint 1 (factory setting) 2..always Setpoint 2: Fixed operation using Setpoint 2 3..Setpoint Select Week Schedule: Setpoint specification by timer 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable
5	Val < Set = n+ / Val > Set = n+ For the effect of the regulation there are two functions: "Val < Set = n+" $\triangleq$ increasing modulation for decreasing actual value below setpoint. "Val > Set = n+" $\triangleq$ increasing modulation for increasing actual value over setpoint.

6	P-Controller / PID-controller The type of control determines the method with which the controlled value behaves in case of a difference between the target and current values. For this, the control technology has standard algorithms, which consist of a combination of three methods: Selection P, PID: • Pcontrol (Proportional component, proportion of the absolute deviation) • I-control (Integral component, proportion of the sum of all deviations) • D-control (Differential component, proportion of the last difference) For control parameters for PID controllers, see PID controller configuration.
7	100,000 m/s Sensor measuring range maximum value setting
8	0,000 m/s Sensor measuring range minimum value setting
9	max. deviation Limit value monitoring of the deviation between actual value and setpoint. If the set deviation between the actual value and setpoint (+/-) is longer than the set time, this is reported on the Webvisu home page and via relay "K2".
10	Offset Adjustable offset (+/-) to actual value, e.g. for sensor calibration
11	Actual value Current actual value measured at input E1 +/- offset setting
12	Sensor Set the signal type for the sensor at analog input "E1". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA (all other selection options are invalid!).

To make the setting:

1. Set the signal type under "Sensor". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA.
2. Program the sensor measuring range. To do this, set the measured value for the minimum output signal and the measured value for the maximum output signal; the sensor signal must be linear to the measuring range.

Example for ZIEHL-ABEGG air speed sensor type MAL1 (measuring range 0 - 1 m/s, output signal 0 - 10 V)



3. For air velocity control, set to PID controller. If necessary, adjust the control parameters for the PID controller after start-up and the test run.
4. Retain the control function "Val < Set = n+" so that the fan speed is increased if the air velocity falls below the setpoint.

☒	val < set = n+	☒	PID-control
☐	val > set = n	☐	P-control
proportional gain		25	%
integral time Ti		20.00	s
derivative time Td		0.00	s
noise suppression		0.000	m/s
offset ctrl		0.0	%

5. Set the required setpoint in the sensor measuring range.

Example for setpoint 0.45 m/s

SET-Point 1	0.450	°C
SET-Point 2		
setpoint select	1	allways setpoint 1

6. If necessary, set setpoint select (see Group 1 home page)

7. If necessary activate actual value monitoring. To do this, click in the blue field and set the required value. The setting for the maximum deviation value is only activated after entering the time.

Example setting: Message if actual value deviates from setpoint by 0.2 s m/s for longer than 5 s

max. deviation			
0.200	m/s	5	s

min. User Level 2

8. Click **[on]** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.

9. Click **[save]** to apply the settings.

10. Click on the “back” button twice to return to the Webvisu home page.

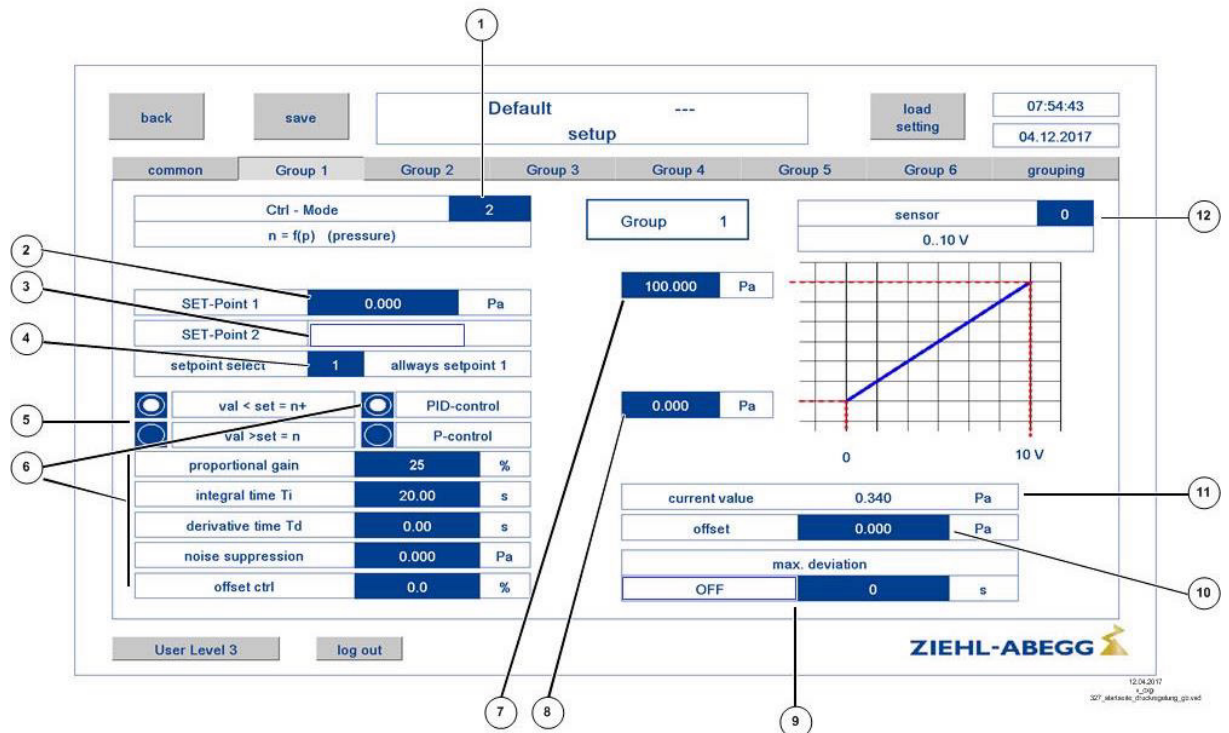
Sensor offset

- ▷ After an initial test run, if necessary calibrate the sensor with a comparative measuring instrument.
- ▷ Set the offset value (+/-) so that the value displayed matches the value on the comparative measuring instrument.

Example: Measured air velocity at the sensor in the installation is 0.1 m/s too high

current value	0.408	m/s
Offset	-0.100	m/s

▷ Click **[save]** to apply the settings.

9.2.3.3 Mode "2" = Ventilator technology pressure controlHome page **Group 1**

View with setting on PID controller

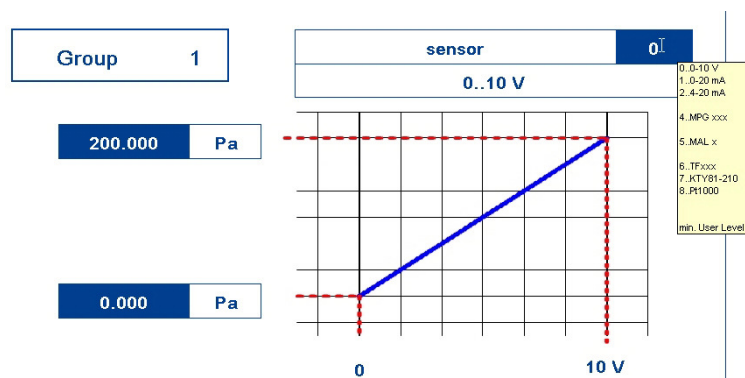
1	Mode (Ctrl - Mode) 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting) 1..n = f(v) (airspeed): Air velocity control (m/s) 2..n = f(p) (pressure): Pressure control air technology (Pa) 3..n = f(T) (temperature): Temperature control (°C) 4..n = f(%R.H.) (relative humidity): relative humidity (% R.H.) 5..n = f(p) (pressure): Pressure control refrigerant technology (bar)
2	Setpoint 1 % Setting only possible for setpoint select 0, 1, 3, 4, 5
3	Set Internal2 Setting only possible for setpoint select 0, 2, 3.
4	Setpoint select 0..Setpoint Select Dx: Switch over setpoint via digital input 1..always Setpoint 1: Fixed operation using Setpoint 1 (factory setting) 2..always Setpoint 2: Fixed operation using Setpoint 2 3..Setpoint Select Week Schedule: Setpoint specification by timer 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable
5	Val < Set = n+ / Val > Set = n+ For the effect of the regulation there are two functions: "Val < Set = n+" $\triangleq$ increasing modulation for decreasing actual value below setpoint. "Val > Set = n+" $\triangleq$ increasing modulation for increasing actual value over setpoint.

6	P-Controller / PID-controller The type of control determines the method with which the controlled value behaves in case of a difference between the target and current values. For this, the control technology has standard algorithms, which consist of a combination of three methods: Selection P, PID: • P control (Proportional component, proportion of the absolute deviation) • I control (Integral component, proportion of the sum of all deviations) • D control (Differential component, proportion of the last difference) For control parameters for PID controllers, see PID controller configuration.
7	100,000 Pa Sensor measuring range maximum value setting
8	0,000 Pa Sensor measuring range minimum value setting
9	max. deviation Limit value monitoring of the deviation between actual value and setpoint. If the set deviation between the actual value and setpoint (+/-) is longer than the set time, this is reported on the Webvisu home page and via relay "K2".
10	Offset Adjustable offset (+/-) to actual value, e.g. for sensor calibration
11	Actual value Current actual value measured at input E1 +/- offset setting
12	Sensor Set the signal type for the sensor at analog input "E1". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA (all other selection options are invalid!).

To make the setting:

1. Set the signal type under "Sensor". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA.
2. Program the sensor measuring range. To do this, set the measured value for the minimum output signal and the measured value for the maximum output signal; the sensor signal must be linear to the measuring range.

Example for ZIEHL-ABEGG pressure sensor type MPG-200V (measuring range 0 - 200 Pa, output signal 0 - 10 V)



3. For pressure control, set to PID controller. If necessary, adjust the control parameters for the PID controller after start-up and the test run.
4. Retain the control function "Val < Set = n+" so that the fan speed is increased if the pressure falls below the setpoint (standard application).

☒	val < set = n+	☒	PID-control
☐	val > set = n	☐	P-control
proportional gain		25	%
integral time Ti		20.00	s
derivative time Td		0.00	s
noise suppression		0.000	m/s
offset ctrl		0.0	%

5. Set the required setpoint in the sensor measuring range.

Example for Setpoint 120 Pa

SET-Point 1	120.000	Pa
SET-Point 2		
setpoint select	1	always setpoint 1

6. If necessary, set setpoint select (see Group 1 home page)
 7. If necessary activate actual value monitoring. To do this, click in the blue field and set the required value. The setting for the maximum deviation value is only activated after entering the time.

Example setting: Message if actual value deviates from setpoint by 20 Pa for longer than 5 s

max. deviation			
20.000	Pa	5	s

8. Click **[on]** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
 9. Click **[save]** to apply the settings.
 10. Click the **[back]** button twice to return to the Webvisu home page.

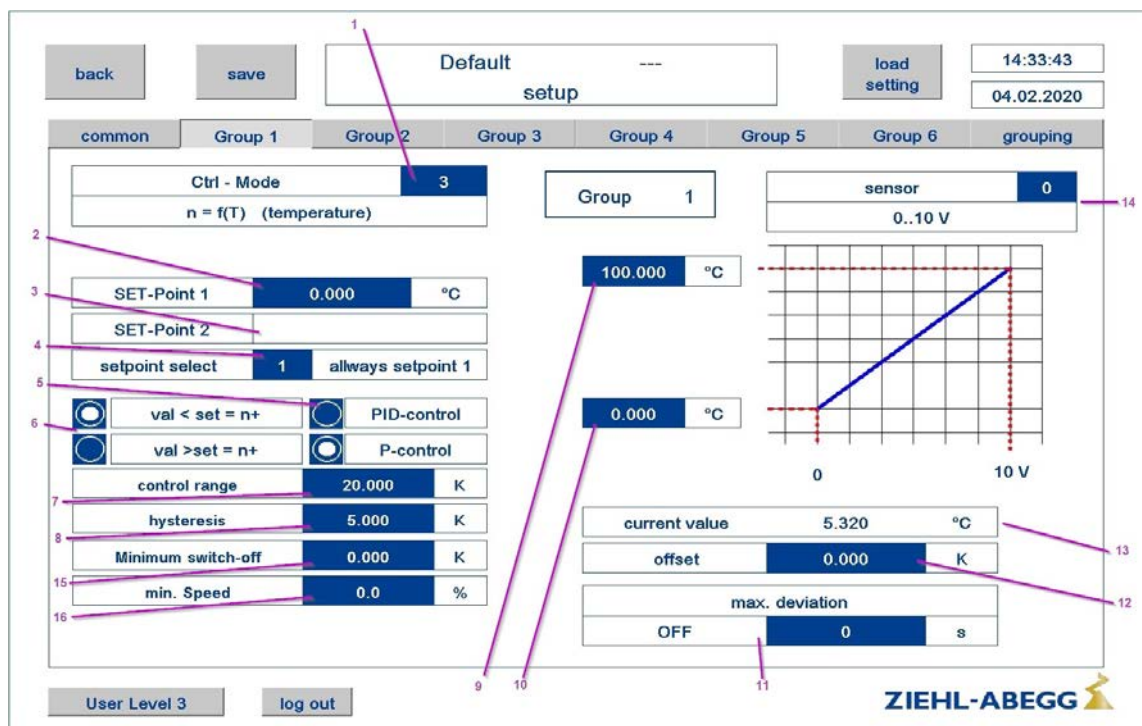
Sensor offset

- ▷ After an initial test run, if necessary calibrate the sensor with a comparative measuring instrument.
 ▷ Set the offset value (+/-) so that the value displayed matches the value on the comparative measuring instrument.

Example: Measured pressure at the sensor in the installation is 5 Pa too high

current value	120.150	Pa
Offset	-5.000	Pa

- ▷ Click **[save]** to apply the settings.

9.2.3.4 Mode "3" = Temperature controlHome page **Group 1**

1	Mode (Ctrl - Mode) 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting) 1..n = f(v) (airspeed): Air velocity control (m/s) 2..n = f(p) (pressure): Pressure control air technology (Pa) 3..n = f(T) (temperature): Temperature control (°C) 4..n = f(%R.H.) (relative humidity): relative humidity (% R.H.) 5..n = f(p) (pressure): Pressure control refrigerant technology (bar)
2	Setpoint 1 % Setting only possible for setpoint select 0, 1, 3, 4, 5
3	Set Internal2 Setting only possible for setpoint select 0, 2, 3.
4	Setpoint select 0..Setpoint Select Dx: Switch over setpoint via digital input 1..always Setpoint 1: Fixed operation using Setpoint 1 (factory setting) 2..always Setpoint 2: Fixed operation using Setpoint 2 3..Setpoint Select Week Schedule: Setpoint specification by timer 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable
5	P-Controller / PID-controller The type of control determines the method with which the controlled value behaves in case of a difference between the target and current values. For this, the control technology has standard algorithms, which consist of a combination of three methods: Selection P, PID: P control (Proportional component, proportion of the absolute deviation) I control (Integral component, proportion of the sum of all deviations) D control (Differential component, proportion of the last difference) A pure P controller is frequently used for temperature control (see Control range setting). For control parameters for PID controllers, see PID controller configuration.

6	Val < Set = n+ / Val > Set = n+ For the effect of the regulation there are two functions: • “Val < Set = n+” $\triangleq$ Increasing modulation as actual value falls below setpoint = heating function. The fan speed is increased if the temperature (actual value) falls below the setpoint. • “Val > Set = n+” $\triangleq$ Increasing modulation as actual value rises above setpoint = cooling function. The fan speed is increased if the temperature (actual value) rises above the setpoint.
7	Pband Proportional component on a pure P controller Narrow control range = Short control times Wide control range = Longer control times and more stable control
8	Hysteresis Adjustable value by which the actual value must deviate from the setpoint before the control becomes active (proportional controller). • For a heating function “Val < Set = n+” the temperature (actual value) must fall below the setpoint temperature by the hysteresis value. • For a cooling function “Val > Set = n+” the temperature (actual value) must rise above the setpoint temperature by the hysteresis value.
9	100,000 °C For sensors with active signal (0-10 V, 0-20 mA, 4-20 mA) setting for the maximum value of the sensor measuring range. For sensors with passive PT 1000 signal, setting for the maximum value of the sensor measuring range (adjustable up to maximum 327 °C). For sensors with passive KTY 81-210 signal, the sensor measuring range of -50...150 °C is a fixed setting.
10	0,000 °C For sensors with active signal, setting for the minimum value of the sensor measuring range. For sensors with passive PT 1000 signal, setting for the minimum value of the sensor measuring range (adjustable down to minimum -200 °C). For sensors with passive KTY 81-210 signal, the sensor measuring range of -50...150 °C is a fixed setting.
11	max. deviation Limit value monitoring of the deviation between actual value and setpoint. If the set deviation between the actual value and setpoint (+/-) is longer than the set time, this is reported on the Webvisu home page and via relay "K2".
12	Offset Adjustable offset (+/-) to actual value, e.g. for sensor calibration
13	Actual value Current actual value measured at input E1 +/- offset setting
14	Sensor Set the signal type for the sensor at analog input "E1". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA, TF.. (KTY 81-210), PT1000. All other selection options are invalid!
15	Minimum switch-off = OFF (factory setting) If no “Min. speed” is adjusted, the motor stops with reaching the desired value. If a “Min.speed” is set (e.g. 20 %), the motor20is not cut off. In other words, a minimum speed is always guaranteed (motor does not drop below the “Min. speed setting”). Minimum switch-off, e.g. -2.0 K It takes place a disconnection from setting “Min. speed”to “0”, if the given difference is reached related to the desired value. At a plus value (+) before reaching the desired value At a minus value (-) after falling below the desired value.
16	Minimum speed



Information

The description below applies to the settings for temperature control as a pure P controller.

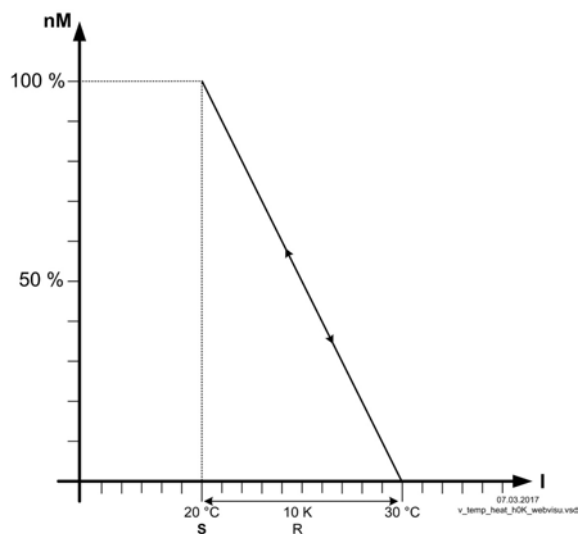
Function diagrams for "heating function" temperature control (factory setting)

Example without Hysteresis

Setpoint: 30 °C

Pband: 10 K

Hysteresis: 0 K

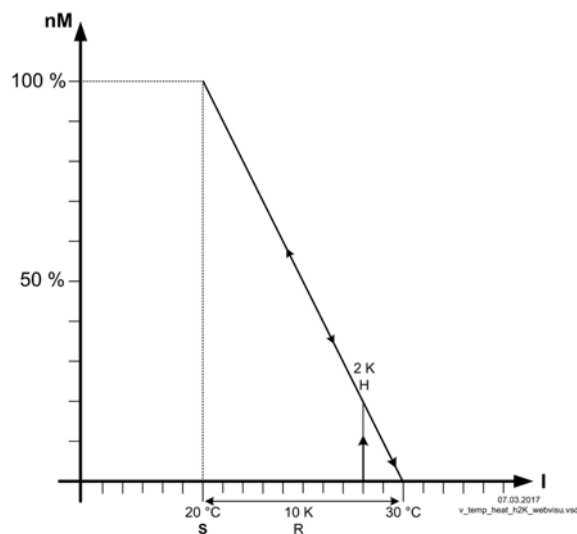


Example with Hysteresis

Setpoint: 30 °C

Pband: 10 K

Hysteresis: 2 K



nM Motor speed

S Setpoint

R Pband

I Actual value

H Hysteresis

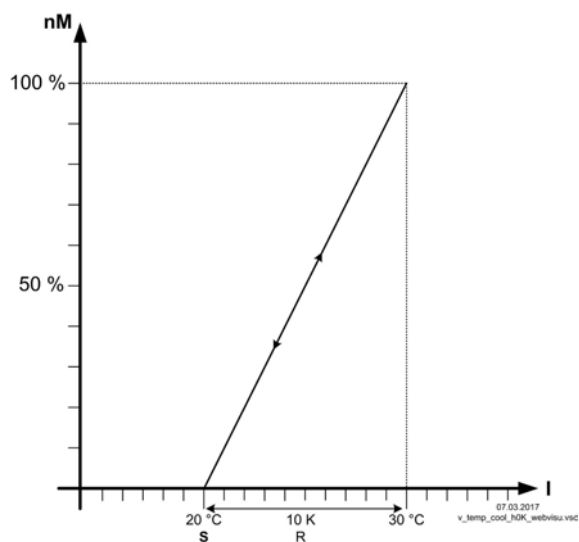
Function diagrams for "cooling function" temperature control

Example without Hysteresis

Setpoint: 20 °C

Pband: 10 K

Hysteresis: 0 K

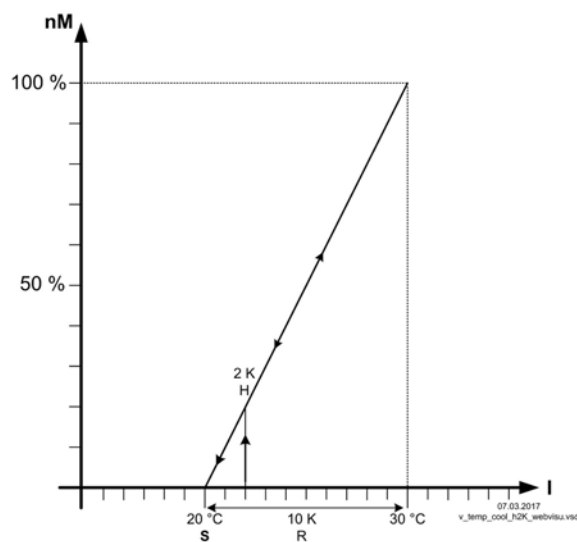


Example with Hysteresis

Setpoint: 20 °C

Pband: 10 K

Hysteresis: 2 K



nM Motor speed

S Setpoint

R Pband

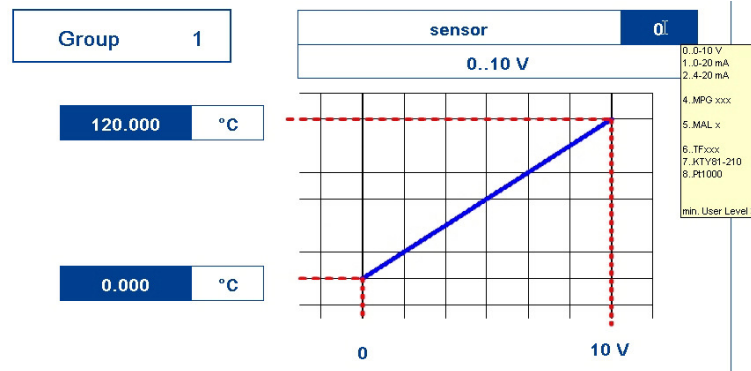
I Actual value

H Hysteresis

To make the setting:

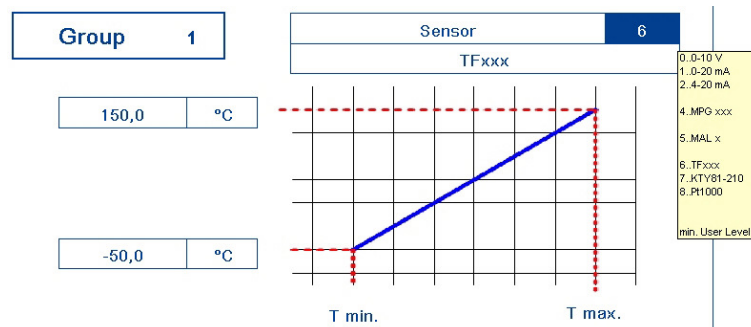
1. Set the signal type for the sensor under "Sensor". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA, TF.. (KTY 81-210), PT1000.
2. For sensors with active signal (0-10 V, 0-20 mA, 4-20 mA) and for sensors with passive PT 1000 signal, program the sensor measuring range. To do this, set the measured value for the minimum output signal and the measured value for the maximum output signal; the sensor signal must be linear to the measuring range.

Example for ZIEHL-ABEGG temperature sensor type MTG-120V (measuring range -10...120 °C, output signal 0 - 10 V)



3. For sensors with passive KTY 81-210 signal, the measuring range of -50...150 °C is a fixed setting.

Example for ZIEHL-ABEGG temperature sensor type TFR (KTY 81-210)



4. If necessary, set to PID controller. If necessary, adjust the control parameters for the P/PID controller after start-up and the test run.
5. Set the required control function:
 - "Val < Set = n+" Δ Increasing modulation as actual value falls below setpoint = heating function (factory default).
 - "Val > Set = n+" Δ Increasing modulation as actual value rises above setpoint = cooling function.
6. Set the required setpoint in the sensor measuring range.
7. Set the required control range.

Example settings: Cooling function, P controller, setpoint 20 °C, control range 10 K and hysteresis 2 K

☒	val < set = n+	☐	PID-control
☐	val > set = n	☒	P-control
control range		10.000	K
hysteresis		2.000	K

8. If necessary, set setpoint select (see Group 1 home page)
9. If necessary activate actual value monitoring. To do this, click in the blue field and set the required value. The setting for the maximum deviation value is only activated after entering the time.

Example setting: Message if actual value deviates from setpoint by 6 K for longer than 50 s

max. deviation			
6.000	K	50	s

10. Click load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
11. Click to apply the settings.
12. Click the button twice to return to the Webvisu home page.

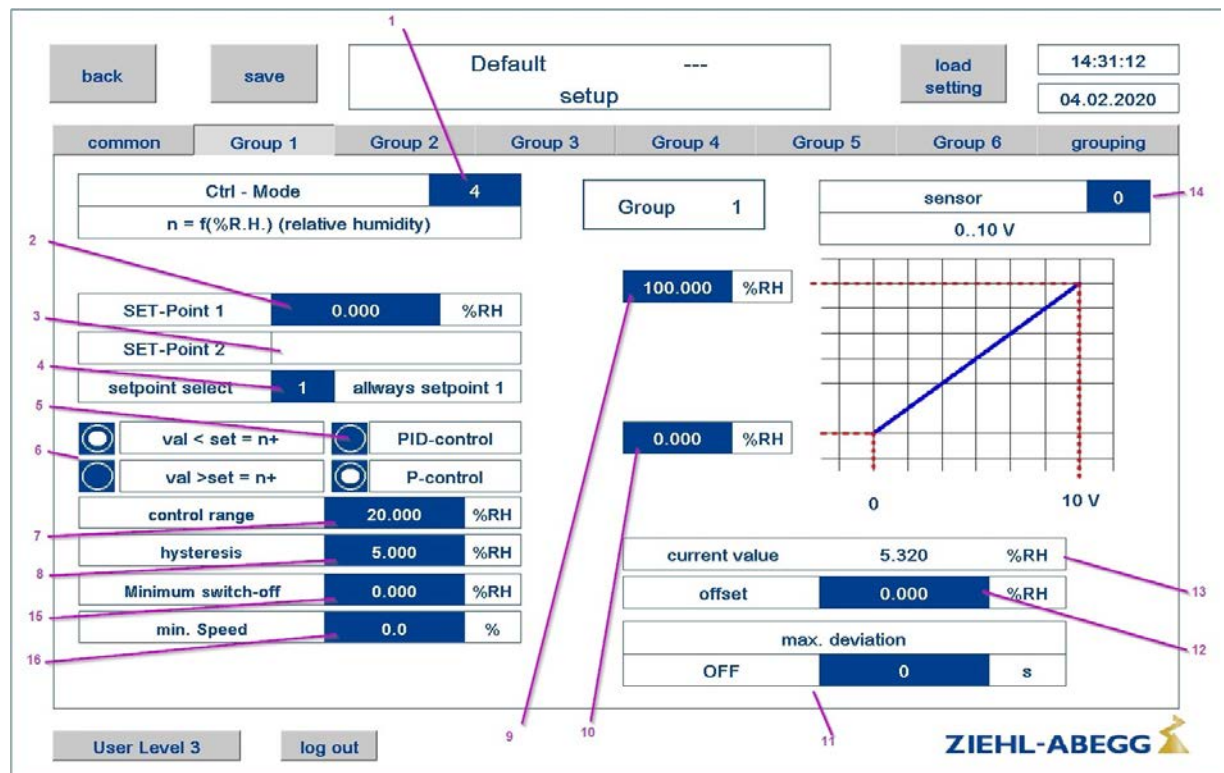
Sensor offset

- ▷ After an initial test run, if necessary calibrate the sensor with a comparative measuring instrument.
- ▷ Set the offset value (+/-) so that the value displayed matches the value on the comparative measuring instrument.

Example: Measured temperature at the sensor in the installation is 1.5 °C too high

current value	20.620	°C
Offset	-1.500	K

- ▷ Click to apply the settings.

9.2.3.5 Mode "4" = humidity controlHome page **Group 1**

View with setting on P-controller

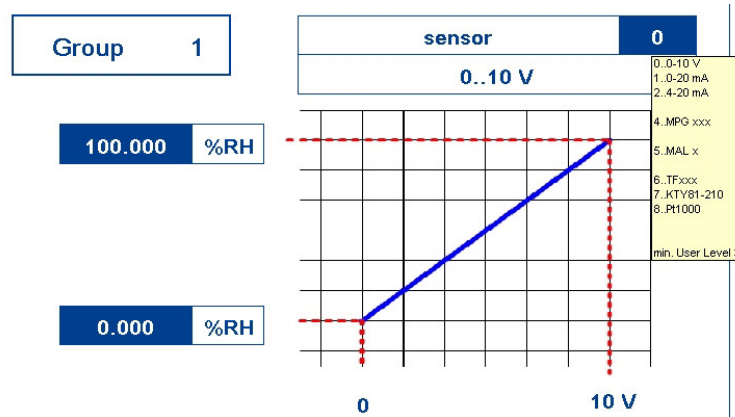
1	Mode (Ctrl - Mode) 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting) 1..n = f(v) (airspeed): Air velocity control (m/s) 2..n = f(p) (pressure): Pressure control air technology (Pa) 3..n = f(T) (temperature): Temperature control (°C) 4..n = f(%R.H.) (relative humidity): relative humidity (% R.H.) 5..n = f(p) (pressure): Pressure control refrigerant technology (bar)
2	Setpoint 1 % Setting only possible for setpoint select 0, 1, 3, 4, 5
3	Set Internal2 Setting only possible for setpoint select 0, 2, 3.
4	Setpoint select 0..Setpoint Select Dx: Switch over setpoint via digital input 1..always Setpoint 1: Fixed operation using Setpoint 1 (factory setting) 2..always Setpoint 2: Fixed operation using Setpoint 2 3..Setpoint Select Week Schedule: Setpoint specification by timer 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable

5	P-Controller / PID-controller The type of control determines the method with which the controlled value behaves in case of a difference between the target and current values. For this, the control technology has standard algorithms, which consist of a combination of three methods: Selection P, PID: • P control (Proportional component, proportion of the absolute deviation) • I control (Integral component, proportion of the sum of all deviations) • D control (Differential component, proportion of the last difference) For control parameters for PID controllers, see PID controller configuration.
6	Val < Set = n+ / Val > Set = n+ For the effect of the regulation there are two functions: • “Val < Set = n+” $\triangleq$ increasing modulation for decreasing actual value below setpoint. • “Val > Set = n+” $\triangleq$ increasing modulation for increasing actual value over setpoint.
7	Pband Proportional component on a pure P controller Narrow control range = Short control times Wide control range = Longer control times and more stable control
8	Hysteresis Adjustable value by which the actual value must deviate from the setpoint before the control becomes active (proportional controller).
9	100 %RH For sensors with active signal (0-10 V, 0-20 mA, 4-20 mA) setting for the maximum value of the sensor measuring range.
10	0 %RH For sensors with active signal, setting for the minimum value of the sensor measuring range.
11	max. deviation Limit value monitoring of the deviation between actual value and setpoint. If the set deviation between the actual value and setpoint (+/-) is longer than the set time, this is reported on the Webvisu home page and via relay "K2".
12	Offset Adjustable offset (+/-) to actual value, e.g. for sensor calibration
13	Actual value Current actual value measured at input E1 +/- offset setting
14	Sensor Set the signal type for the sensor at analog input "E1". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA, TF.. (KTY 81-210), PT1000. All other selection options are invalid!
15	Minimum switch-off = OFF (factory setting) If no “Min. speed” is adjusted, the motor stops with reaching the desired value. If a “Min.speed” is set (e.g. 20 %), the motor is not cut off. In other words, a minimum speed is always guaranteed (motor does not drop below the “Min. speed setting”). Minimum switch-off, e.g. -2.0 % It takes place a disconnection from setting “Min. speed” to “0”, if the given difference is reached related to the desired value. At a plus value (+) before reaching the desired value At a minus value (-) after falling below the desired value.
16	Minimum speed

To make the setting:

1. Set the signal type under "Sensor". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA.
2. Program the sensor measuring range. To do this, set the measured value for the minimum output signal and the measured value for the maximum output signal; the sensor signal must be linear to the measuring range.

Example for ZIEHL-ABEGG humidity and temperature sensor type MFTG-100V (measuring range 0...100 % R. H., output signal 0 - 10 V)



3. If necessary, set to PID controller. If necessary, adjust the control parameters for the P/PID controller after start-up and the test run.
4. Retain the control function "Val > Set = n+" so that the fan speed is increased if the humidity exceeds the setpoint (standard application).
5. Set the required setpoint in the sensor measuring range.

Example for Setpoint 50 % r. F

SET-Point 1	50.000	%RH
SET-Point 2		
setpoint select	1	always setpoint 1

6. Set the required control range.
7. If necessary, set setpoint select (see Group 1 home page)
8. If necessary activate actual value monitoring. To do this, click in the blue field and set the required value. The setting for the maximum deviation value is only activated after entering the time.

Example setting: Message if actual value deviates from setpoint by 20 % for longer than 30 s

max. deviation			
20.000	%RH	30	s

9. Click **on** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
10. Click **save** to apply the settings.
11. Click the **back** button twice to return to the Webvisu home page.

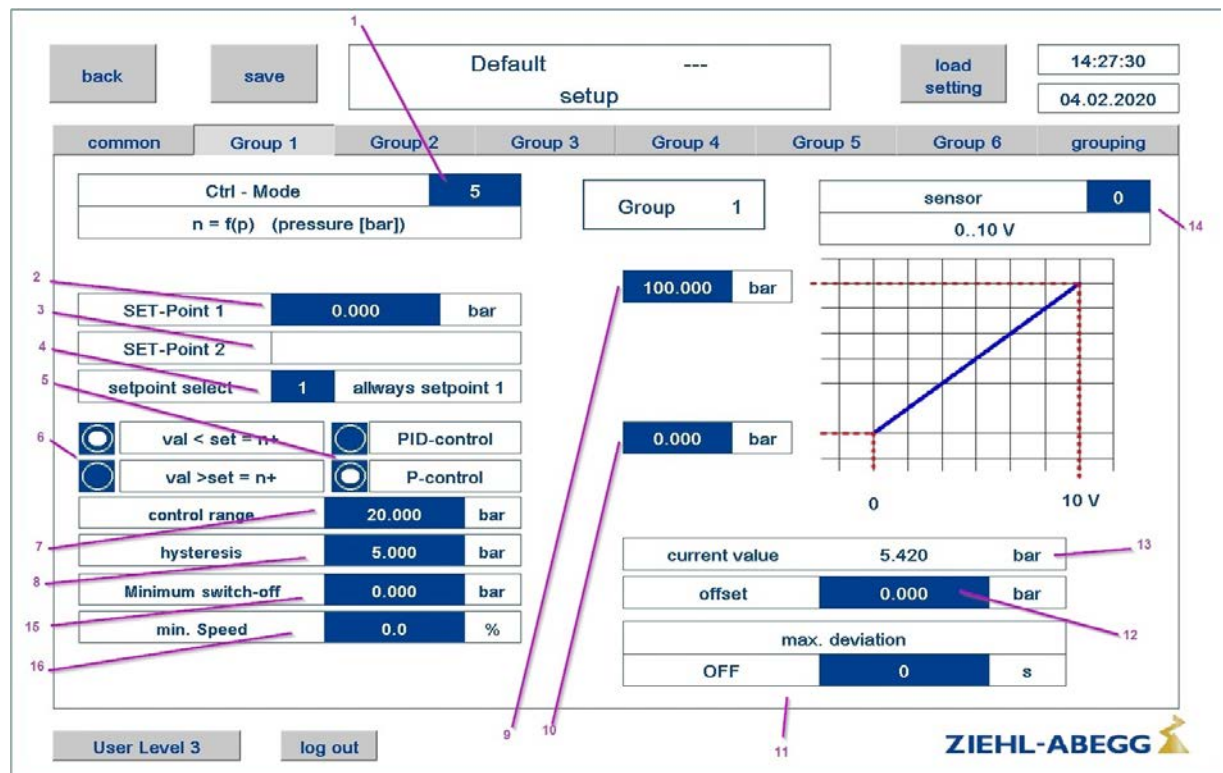
Sensor offset

- ▷ After an initial test run, if necessary calibrate the sensor with a comparative measuring instrument.
- ▷ Set the offset value (+/-) so that the value displayed matches the value on the comparative measuring instrument.

Example: Measured humidity at the sensor in the installation is 5.3 % too high

current value	18.160	%RH
offset	-5.300	%RH

- ▷ Click **save** to apply the settings.

9.2.3.6 Mode "5" = Pressure control refrigerant technologyHome page **Group 1**

View with setting on P-controller

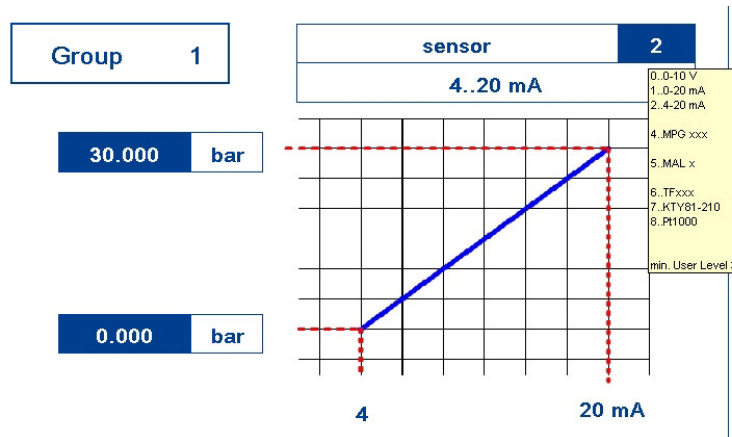
1	Mode (Ctrl - Mode) 0..n = SET (actuator): Speed controller using external signal or manual specification by entry (factory setting) 1..n = f(v) (airspeed): Air velocity control (m/s) 2..n = f(p) (pressure): Pressure control air technology (Pa) 3..n = f(T) (temperature): Temperature control (°C) 4..n = f(%R.H.) (relative humidity): relative humidity (% R.H.) 5..n = f(p) (pressure): Pressure control refrigerant technology (bar)
2	Setpoint 1 % Setting only possible for setpoint select 0, 1, 3, 4, 5
3	Set Internal2 Setting only possible for setpoint select 0, 2, 3.
4	Setpoint select 0..Setpoint Select Dx: Switch over setpoint via digital input 1..always Setpoint 1: Fixed operation using Setpoint 1 (factory setting) 2..always Setpoint 2: Fixed operation using Setpoint 2 3..Setpoint Select Week Schedule: Setpoint specification by timer 4..always Setpoint 1 by MODBUS-TCP: Fixed operation using Setpoint 1 with specification by MODBUS 5..always Setpoint 1, Dx group enable: fixed operation using Setpoint 1 / Dx for group enable

5	P-Controller / PID-controller The type of control determines the method with which the controlled value behaves in case of a difference between the target and current values. For this, the control technology has standard algorithms, which consist of a combination of three methods: Selection P, PID: • P control (Proportional component, proportion of the absolute deviation) • I control (Integral component, proportion of the sum of all deviations) • D control (Differential component, proportion of the last difference) For control parameters for PID controllers, see PID controller configuration.
6	Val < Set = n+ / Val > Set = n+ For the effect of the regulation there are two functions: • “Val < Set = n+” $\triangleq$ increasing modulation for decreasing actual value below setpoint. • “Val > Set = n+” $\triangleq$ increasing modulation for increasing actual value over setpoint.
7	Pband Proportional component on a pure P controller Narrow control range = Short control times Wide control range = Longer control times and more stable control
8	Hysteresis Adjustable value by which the actual value must deviate from the setpoint before the control becomes active (proportional controller).
9	100 bar For sensors with active signal (0-10 V, 0-20 mA, 4-20 mA) setting for the maximum value of the sensor measuring range.
10	0 bar For sensors with active signal, setting for the minimum value of the sensor measuring range.
11	max. deviation Limit value monitoring of the deviation between actual value and setpoint. If the set deviation between the actual value and setpoint (+/-) is longer than the set time, this is reported on the Webvisu home page and via relay "K2".
12	Offset Adjustable offset (+/-) to actual value, e.g. for sensor calibration
13	Actual value Current actual value measured at input E1 +/- offset setting
14	Sensor Set the signal type for the sensor at analog input "E1". Selection: 0 = 0-10 V (factory default), 1 = 0-20 mA, 2 = 4-20 mA, TF.. (KTY 81-210), PT1000. All other selection options are invalid!
15	Minimum switch-off = OFF (factory setting) If no “Min. speed” is adjusted, the motor stops with reaching the desired value. If a “Min.speed” is set (e.g. 20 %), the motor is not cut off. In other words, a minimum speed is always guaranteed (motor does not drop below the “Min. speed setting”). Minimum switch-off, e.g. -2.0 bar It takes place a disconnection from setting “Min. speed” to “0”, if the given difference is reached related to the desired value. At a plus value (+) before reaching the desired value At a minus value (-) after falling below the desired value.
16	Minimum speed

To make the setting:

1. Set the signal type under "Sensor". Selection: 0 = 0-10 V , 1 = 0-20 mA, 2= 4-20 mA (factory setting).
2. Program the sensor measuring range. To do this, set the measured value for the minimum output signal and the measured value for the maximum output signal; the sensor signal must be linear to the measuring range.

Example for ZIEHL-ABEGG pressure sensor type MBG-30-I (measuring range 0...30 bar, output signal 4 - 20 mA)



3. If necessary, set to PID controller. If necessary, adjust the control parameters for the P/PID controller after start-up and the test run.
4. Retain the control function "Val > Set = n+" so that the fan speed is increased if the pressure exceeds the setpoint (standard application).
5. Set the required setpoint in the sensor measuring range.

Example for Setpoint 5.0 bar

SET-Point 1	5.000	bar
SET-Point 2		
setpoint select	1	always setpoint 1

6. Set the required control range.
7. If necessary, set setpoint select (see Group 1 home page)
8. If necessary activate actual value monitoring. To do this, click in the blue field and set the required value. The setting for the maximum deviation value is only activated after entering the time.

Example setting: Message if actual value deviates from setpoint by 1 bar for longer than 10 s

max. deviation			
1.000	bar	10	s

9. Click **on** load setting to restore all settings to those currently saved, i.e. cancel - changes are not applied.
10. Click **save** to apply the settings.
11. Click the **back** button twice to return to the Webvisu home page.

Sensor offset

- ▷ After an initial test run, if necessary calibrate the sensor with a comparative measuring instrument.
- ▷ Set the offset value (+/-) so that the value displayed matches the value on the comparative measuring instrument.

Example: Measured pressure at the sensor in the installation is 0.3 bar too high

current value	0.733	bar
offset	0.300	bar

- ▷ Click **save** to apply the settings.

9.2.3.7 PIC controller configuration

When selecting application-specific modes 1, 2 and 3, it is possible to configure the PID controller if required. The factory default settings for each mode are based on values gained over many years of experience and are suitable for many applications. These settings generally achieve the required control behaviour, but for exceptional cases it is possible to make further adjustments here.

The following settings are possible:

- Proportional gain
- Adjustment time TN
- Rate time TV
- Noise suppression
- Offset activation

The PID controller with dynamic "Anti Wind-Up" works according to the following formula:

$$Y = KP * (DIFF + 1/TN * INTEG(DIFF) + TV * DERIV(DIFF)) + OFFSET$$

where: DIFF = SET_POINT – ACTUAL

Actual = Measured value after the control loop

SET_POINT = Specified setpoint for controller

The PID controller is free running and uses the trapezium rule for calculation to ensure maximum accuracy and optimum speed.

Noise suppression is used to set the control deviation above which the controller is activated. This setting can prevent constant fluctuations at the controller output. Noise suppression should be scaled so that it suppressors the noise of the control loop and the sensor. For example, if the noise suppression is set to 0.1 the controller is only activated at control deviations greater than 0.1.

The offset is the last value added to the output. It is primarily used to compensate for interference signals whose effect on the control circuit can be estimated.

The control parameters are specified in the form KP, TN and TV. If the parameters are present as KP, KI and KD, they can be converted using the following formula:

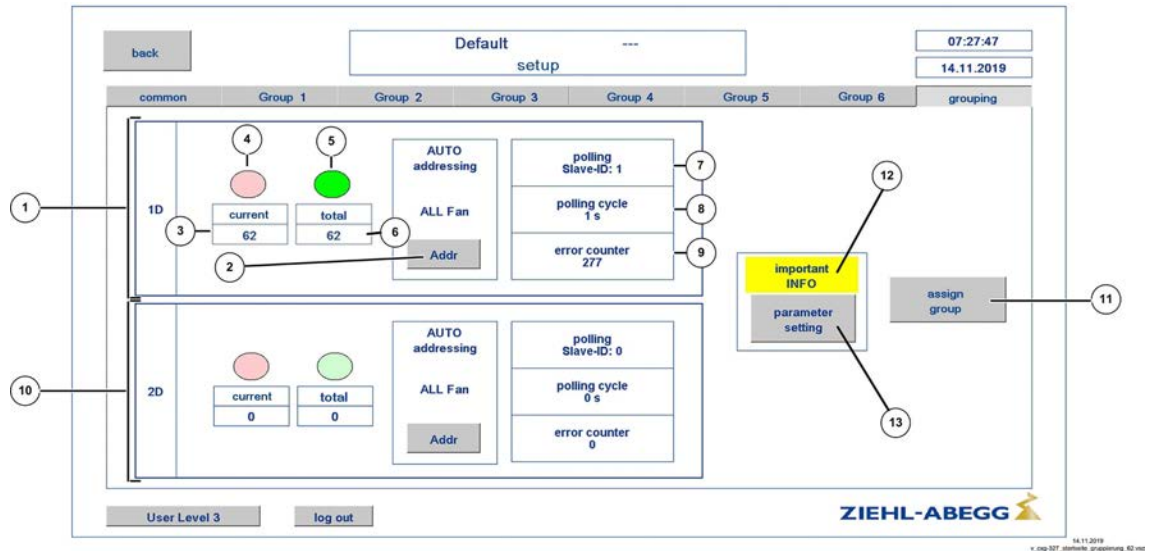
$$TN = KP/KI \text{ and } TV = KD/KP$$

9.2.4 Settings: Grouping

9.2.4.1 Main page

The **Grouping** page is used to carry out addressing and group assignment. The procedure for doing this is described in the "Start-up using Webvisu" section. The details are explained below.

Grouping home page



- 1 MODBUS-RTU on Terminal 1D
- 2 Start automatic addressing
- 3 Current progress during addressing
- 4 Red display = Error during addressing
- 5 Green display = Addressing successful
- 6 Result (number of members addressed)
- 7 Members in current polling
- 8 Duration of last polling of all members on Terminal 1D
- 9 Sum of all MODBUS errors on Terminal 1D (the current change in the number of errors provides information about the quality of the MODBUS connection)
- 10 MODBUS-RTU on Terminal 2D
- 11 Access to group assignment of members
- 12 Note: When this parameter setting screen is open, the connected ECblue motors are not addressed via MODBUS (polling). Any active communication watchdog for the ECblue is triggered, the ECblue enters its safe operating state if necessary and an alarm message is triggered.
- 13 Parameterization of EC motors via MODBUS



Information

Once automatic addressing has been performed successful, the addressing is automatically saved.

Group assignment home page

back save Default setup load setting 23:36:27 04.12.2017

common Group 1 Group 2 Group 3 Group 4 Group 5 Group 6 grouping

1D

Slave-ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
Slave-ID	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Group	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4
Slave-ID	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Group	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5
Slave-ID	49	50	51	52	53	54	55	56	57	58	59	60	61	62		
Group	5	5	6	6	6	6	6	6	6	6	6	6	6	0	0	0

2D

Slave-ID

Group

Slave-ID

Group

Slave-ID

Group

Slave-ID

Group

User Level 3 log out

ZIEHL-ABEGG

- 1 Members connected and addressed on MODBUS Master interface 1 (1D) (62 in example)
- 2 Quick assignment for 1D - all members on MODBUS Master interface 1 (1D) are assigned to Group 1
- 3 Quick assignment for 2D - all members on MODBUS Master interface 2 (2D) are assigned to Group 2
- 4 Members connected and addressed on MODBUS Master interface 2 (2D) (none in example)
- 5 Group assignment line. Clicking in the blue field enables the member to be assigned to a group 1...6, "0" = no assignment (deactivated)
- 6 Slave ID line (generated by automatic addressing according to the installation arrangement)
- 7 Restore settings to those currently saved, i.e. cancel - changes are not applied.
- 8 Save settings!



Information

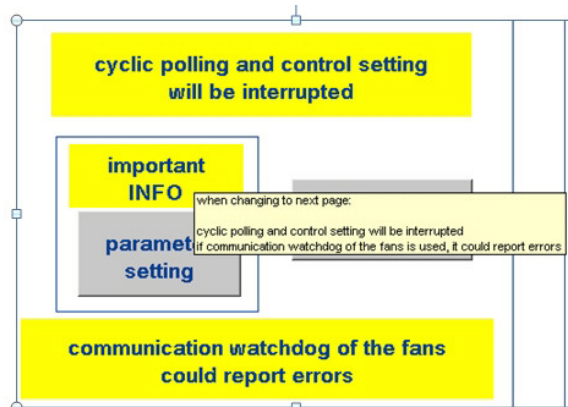
Saving the group assignment performs a complete reassignment. All settings you can make for each member on the Webvisu home page are set to the factory setting!
This means: Offset = 0 rpm, Access = on, Enable on (ECblue h1.1 =1)

9.2.4.2 Parameterization of EC motors via MODBUS

Various parameters for the ECblue motors can be changed here.

- 1 Parameters to be written in the ECblue
- 2 Parameters to be written in the ECblue (2 parameters in a common MODBUS holding register)
- 3 Terminal (1D / 2D) of the holding register to be written
- 4 Slave ID of the holding register to be written
- 5 Display during the write process
- 6 Display of write processes with errors (if a write process is NOT displayed, it has been completed correctly)
- 7 Note: When this parameter setting screen is open, the connected ECblue motors are not addressed via MODBUS (polling). Any active communication watchdog in ECblue is triggered, the ECblue enters its safe operating state if necessary and an alarm message is triggered.

Notes before opening the screen:



- 1 Key for initiating writing of the parameter to the ECblue set under 3.
- 2 Error when reading in the parameters from ECblue (see 3)
- 3 If an unavailable terminal or slave ID is set here, the field has a red outline and button 1 is blocked.
- 4 Blocking in case of incorrect input for 3
- 5 Reading the parameters is triggered manually

- 1 Toggle parameters for all / one ECblue
- 2 Set (all) activates writing of the parameter to all
- 3 If Write all is set, the parameters from the ECblue terminal 1D, slave ID 1 (if this does not exist: 2D-1) are always read and displayed



Information

If an offset is set for a motor (on the overview screen), the default setting n-min = 0 is always assumed for the input.

If the minimum speed (h7) is described for this engine, it is included in the calculation.

Example:

n-max (h8) = 1000 rpm, n-min (h7) = 500 rpm, Offset = 200rpm, default 0%

=> n = 600 rpm

(The offset 200 rpm relates to 0...1000 rpm and is converted to 500...1000 rpm due to n-min)

Min. Speed (h7)	500	rpm
Max.Speed (h8)	1000	rpm

Fan 1

☒ enable

n-max: 1000 rpm

offset

200 rpm

☒ access ON

☐ access OFF

save

☒ enable

Fan 1

n: 599 rpm

P: 12 W

Operation condition

i10: 0

i11: 0

Terminal 1D

Slave-ID 1

Firmware: 2901

Error status

i12: 0

i13: 0

Fan edit

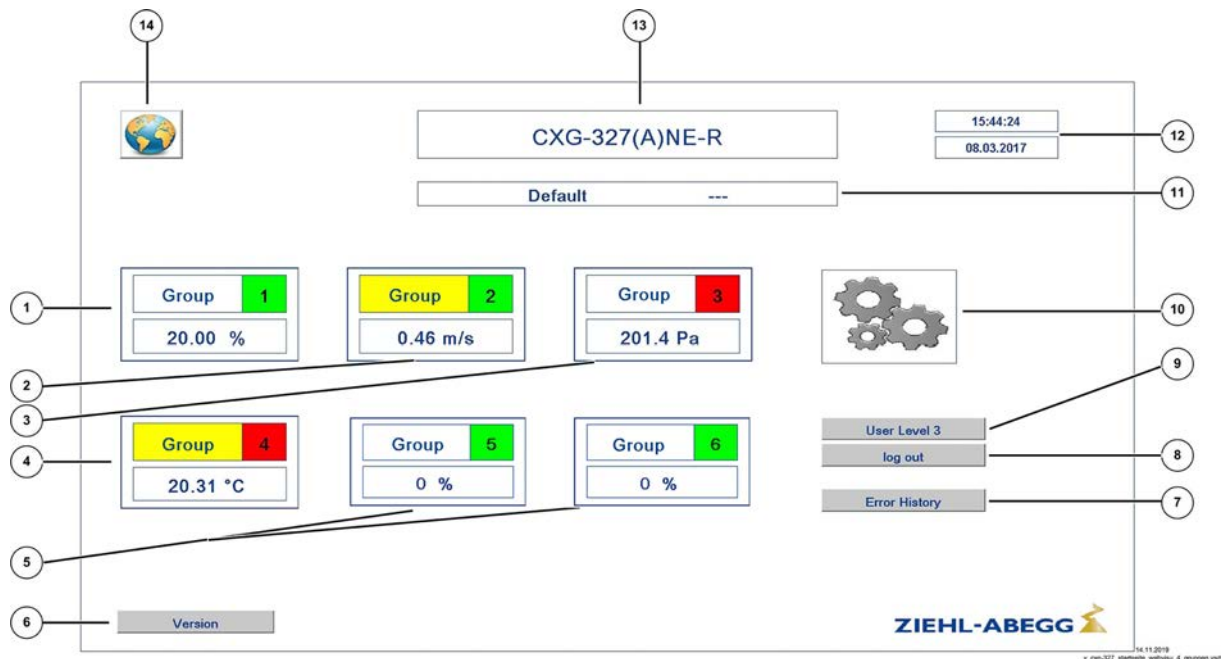
User Level 3

log out

9.3 Home page Webvisu

The groups and their actual values are displayed on the Webvisu home page. Differentiating the operation conditions using traffic light colours allows a quick visual check.

Example of possible home page



1	Group 1 with actual value display in % for mode "0" = Speed controller. The group number has a green background, i.e. there is no fault.
2	Group 2 with actual value display in m/s for mode "1" = Air velocity control. The group number has a green background, i.e. there is no fault. The designation "Group" has a yellow background, i.e. at least one member has either been disabled, had access blocked or both.
3	Group 3 with actual value display in Pa for mode "2" = Pressure control. The group number has a red background, i.e. at least one member has a fault.
4	Group 4 with actual value display in °C for mode "3" = Temperature control. The group number has a red background, i.e. at least one member has a fault. The designation "Group" has a yellow background, i.e. at least one member has either been disabled, had access blocked or both.
5	Groups not active, i.e. no members assigned
6	Display of software and hardware version, serial number and IP address
7	Error message history
8	log out = back to User Level "0"
9	Setting User Level 0...3
10	Installation configuration/settings
11	Name of installation adjustable (factory set display Default - - -)
12	Date and time (set for the device)
13	Type designation UNIcon
14	Language setting (factory setting English)

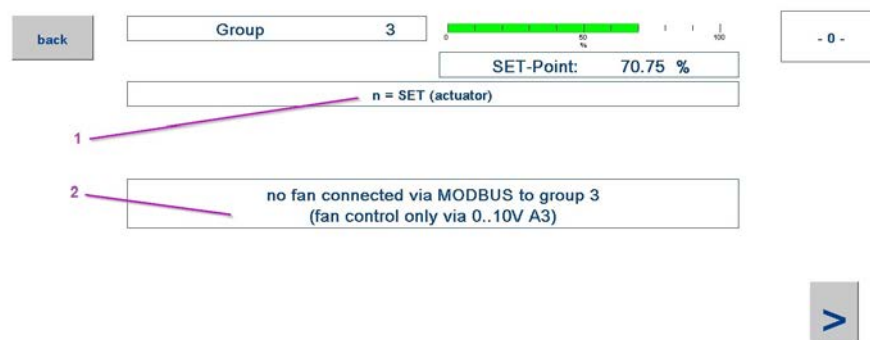


Information

Webvisu is set up for a screen format of 4:3. If using a screen with a different format, the display can be optimised. To do this, switch from full screen (100 %) to a reduced view and set the optimum aspect ratio by dragging. When the gear wheels (icon for settings) appear completely circular, the aspect ratio is correctly set to 4:3.

9.3.1 Info groupX

Actuation display for pure 0...10V operation (even if no motors are assigned to the group via MODBUS).



1 Display Ctrl-Mode

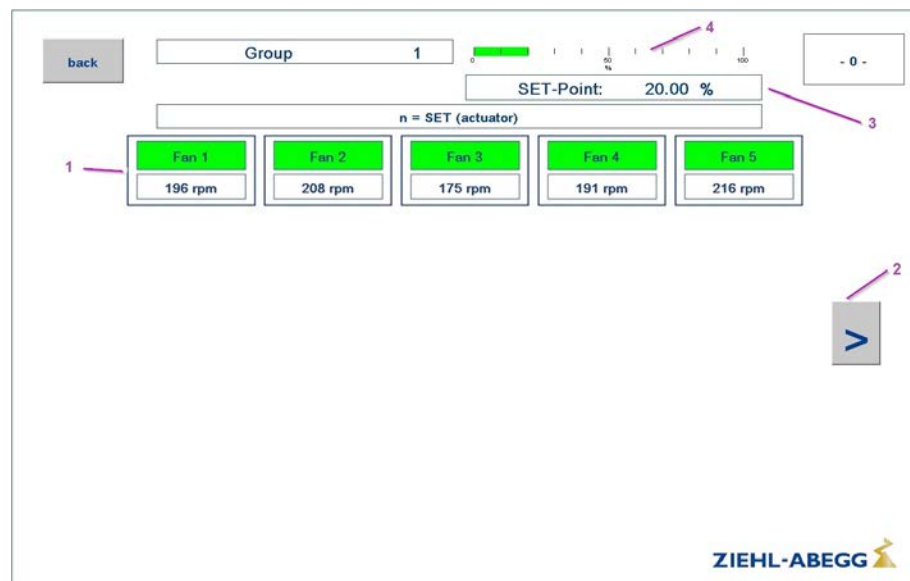
2 Display if no ECblue is assigned to the group (in this case group 3) via MODBUS

9.3.2 View of group members

Click on the relevant group to open the members view. It shows the status of each member and can be used to make individual settings.

View of group menus depending on set mode

Mode "0" = Speed controller



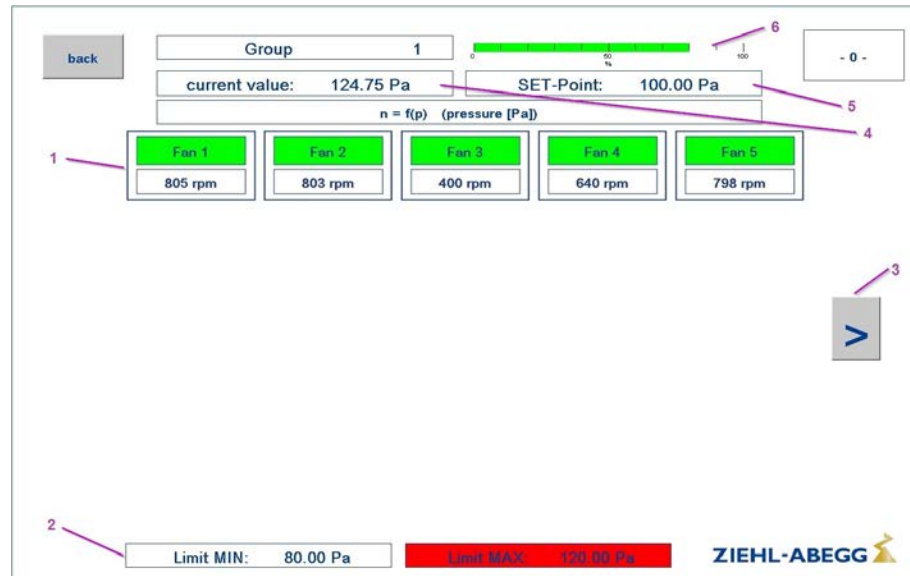
- 1 Status of group members with current speed
- 2 To more members if more than 25
- 3 Setpoint = Speed specification for all members of the group
- 4 Speed specification bar chart

Mode "1" = Air velocity control



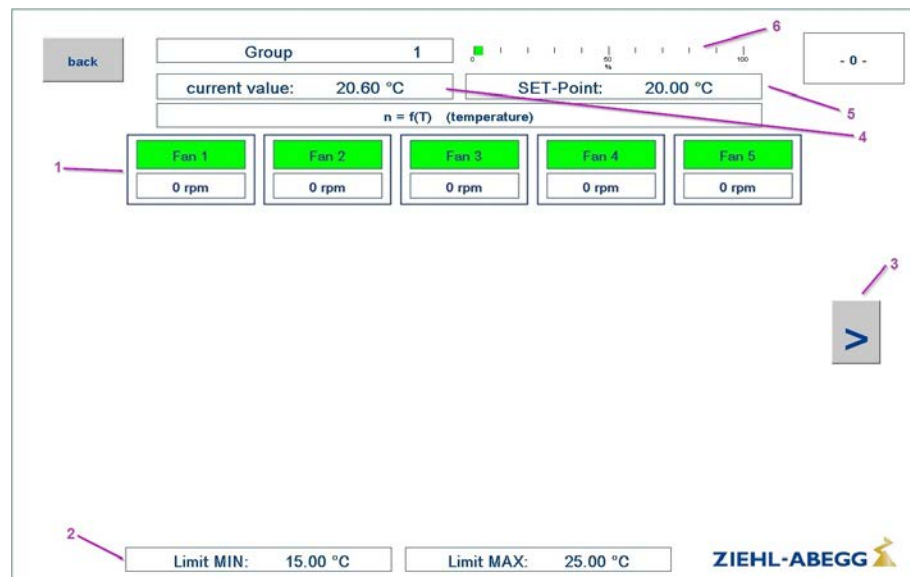
- 1 Status of group members with current speed
- 2 Display of limit values if specified for a maximum permitted deviation +/- . Red display if permitted deviation is exceeded.
- 3 To more members if more than 25
- 4 Measured air velocity actual value
- 5 Setpoint Air velocity control
- 6 Group activation bar chart

Mode "2" = Pressure control air technology



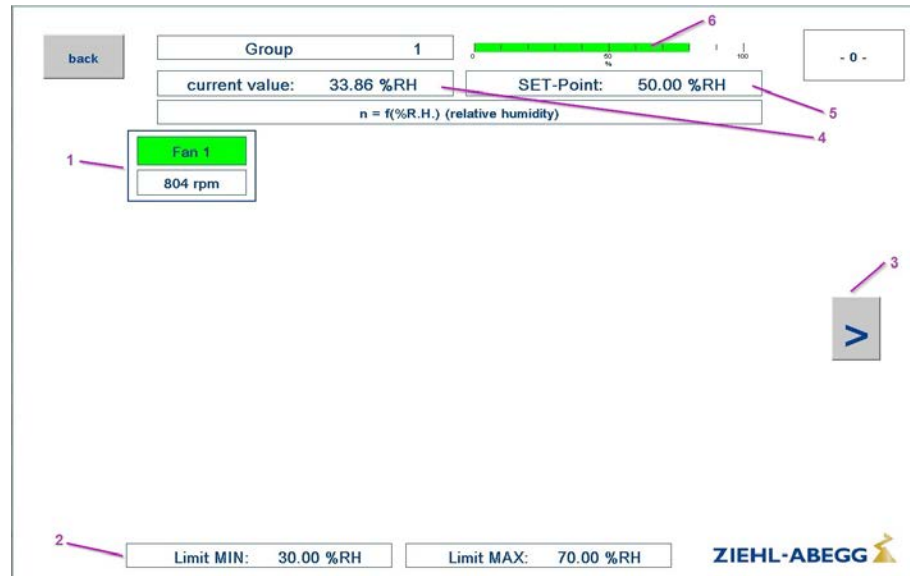
- 1 Status of group members with current speed
- 2 Display of limit values if specified for a maximum permitted deviation +/- . Red display if permitted deviation is exceeded.
- 3 To more members if more than 25
- 4 Measured actual value pressure
- 5 Setpoint Pressure control
- 6 Group activation bar chart

Mode "3" = Temperature control



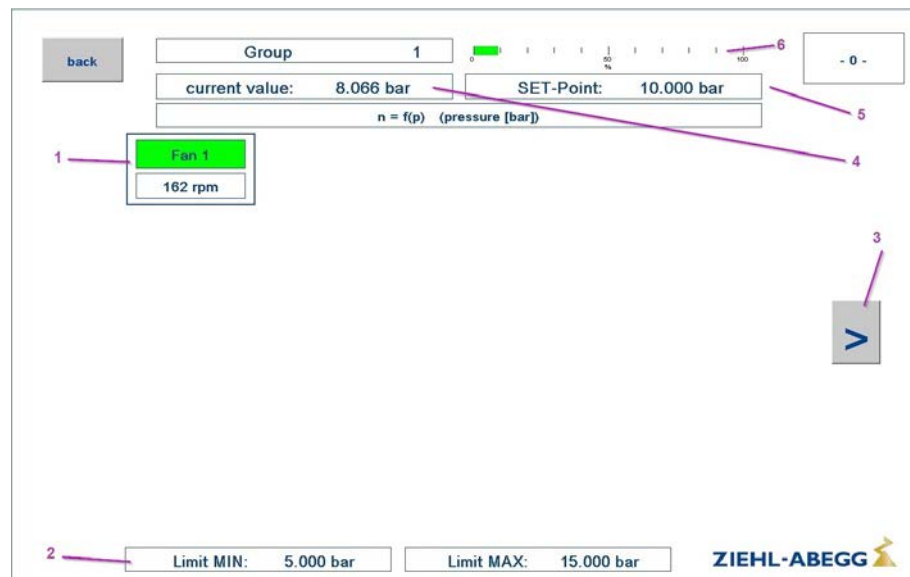
- 1 Status of group members with current speed
- 2 Display of limit values if specified for a maximum permitted deviation +/- . Red display if permitted deviation is exceeded.
- 3 To more members if more than 25
- 4 Measured temperature actual value
- 5 Setpoint Temperature control
- 6 Group activation bar chart

Mode "4" = humidity control



- 1 Status of group members with current speed
- 2 Display of limit values if specified for a maximum permitted deviation +/- . Red display if permitted deviation is exceeded.
- 3 To more members if more than 25
- 4 Measured actual value humidity
- 5 Setpoint humidity control
- 6 Group activation bar chart

Mode "5" = Pressure control refrigerant technology



- 1 Status of group members with current speed
- 2 Display of limit values if specified for a maximum permitted deviation +/- . Red display if permitted deviation is exceeded.
- 3 To more members if more than 25
- 4 Measured actual value pressure
- 5 Setpoint Pressure control
- 6 Group activation bar chart

Example status overview for members of a group

back Group1 current value: 20.17 °C SET-Point: 20.00 °C n = f(T) (temperature) Fan 1138 rpm Fan 20 rpm Fan 3??? rpm Fan 4??? rpm	
Fan 1	The member has a green background, i.e. there is no fault.
Fan 2	The member has a yellow background and "0 rpm" is displayed, i.e. it is not enabled (see setting under "Fan edit").
Fan 3	The member has a yellow background and "??? rpm" is displayed, i.e. access is blocked (see setting under "Fan edit").
Fan 4	The member has a red background and "??? rpm" is displayed, i.e. there is a fault (see diagnosis under "Fan edit").

- ▷ Click on a member to display further details.
- Enable on/off, input power, register for operation condition and error status, firmware, address, terminal (MODBUS Master interface) to which the member is connected.

Example for member 1 no Failure

Enable ticked

☒ enable

Fan 1

n: 200 rpm

P: 13 W

Operation condition

i10: 64

i11: 0

Terminal 1D

Slave-ID 1

Firmware: 1331

Error status

i12: 0

i13: 0

Fan edit

▷ Click on the Operation condition field to display operation details.

operation condition	Group	1	Fan 1
	Terminal 1D	Slave-ID 1	

operation condition 1 (i10): 0000 0000 0100 0000

operation condition 2 (i11): 0000 0000 0000 0000

▷ Click on the Error status field to display details of error messages.

Error status	Group	1	Fan 1
	Terminal 1D	Slave-ID 1	

Error status 1 (i12): 0000 0000 0000 0000
Error status 2 (i13): 0000 0000 0000 0000

▷ Click on **back** and close the window using the cross **X** in the top right.

Example for member 2 no Enable

Enable not ticked

☐ enable X

Fan 1	Terminal 1D
n: 0 rpm	Slave-ID 1
P: 2 W	Firmware: 1331
Operation condition	Error status
i10: 65	i12: 0
i11: 0	i13: 0

Fan edit

▷ Click on the Operation condition field to display operation details.

operation condition	Group	1	Fan 1
	Terminal 1D	Slave-ID 1	

operation condition 1 (i10): 0000 0000 0100 0001
STOP

operation condition 2 (i11): 0000 0000 0000 0000

▷ Click on the Error status field to display details of error messages.

Error status	Group	1	Fan 1
	Terminal 1D	Slave-ID 1	

Error status 1 (i12): 0000 0000 0000 0000
Error status 2 (i13): 0000 0000 0000 0000

▷ Click on **back** and close the window using the cross **X** in the top right.

Example for member 3 no access

Crossed through means the setting is access OFF

☒ enable
 X

Fan 1

n: ??? rpm

Terminal 1D

Slave-ID 1

Fan edit

▷ Close the window using the cross **X** in the top right.

Example for member 4 with Failure

Display MODBUS Failure

☒	enable	MODBUS Error		X
Fan 4		Terminal 1D		
n: ??? rpm		Slave-ID 4		
Fan edit				

If the MODBUS connection is interrupted, no further details can be displayed.

Display for blocked motor and intact MODBUS connection

☒	enable			X
Fan 4		Terminal 1D		
n: 0 rpm		Slave-ID 4		
P: 2 W		Firmware: 1331		
Operation condition		Error status		
i10: 1024		i12: 512		
i11: 2		i13: 0		
Fan edit				

▷ Click on the Operation condition field to display operation details.

operation condition	Group 1	Fan 1
	Terminal 1D	Slave-ID 1

operation condition 1 (i10): 0000 0100 0100 0000
K Status

operation condition 2 (i11): 0000 0000 0000 0010

▷ Click on the Error status field to display details of error messages.

Error status	Group 1	Fan 1
	Terminal 1D	Slave-ID 1

Error status 1 (i12): 0000 0010 0000 0000
Error status 2 (i13): 0000 0000 0000 0000
MOTOR BLOCKED

▷ Click on and close the window using the cross in the top right.

Making settings for members - " Fan edit"

- Proceed as follows:
 - ▷ Click on the button.

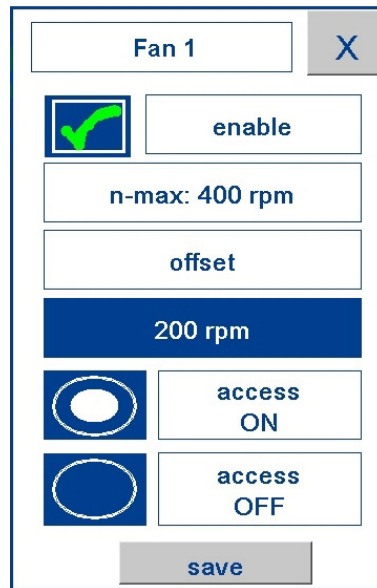
☒ enable

Fan 1	Terminal 1D
n: 200 rpm	Slave-ID 1
P: 13 W	Firmware: 1331
Operation condition	Error status
i10: 64	i12: 0
i11: 0	i13: 0

Fan edit

▷ To disable the member, remove the green tick by clicking in the blue field.

- ▷ To set an offset speed (+/-), click in the blue field and enter the relevant value. The specified speed value for the group is lowered or raised by the set value for this member (e.g. setting a basic speed).
- ▷ Click in the blue "Access OFF" circle to block the member for MODBUS access.
- ▷ Click on "save" to apply the settings made.
- ▷ Close the window using the cross  in the top right.



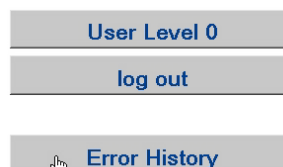

Information

Changes do not take effect until you have clicked on the  button.

9.3.3 Error history

Errors that occur are automatically saved.

- ▷ Click on the Error History button to display the last 15 error messages chronologically.



Example of error history with explanation

1	29.09.16; 14:49;	Error occurred on: 29.09.16 at 14:49
	Group:1;Fan: 1;	The error is in Group 1, on member 1 of this group.
	Modbus: ERROR ;	The MODBUS connection has a fault.
	Error1(i12):0;Error2(i13):0;	As the MODBUS connection has a fault, the ECblue error registers are not up to date and cannot be evaluated.
2	Group:4;	The error is in Group 4.
	actual:0.291 m/s;	The actual value for this group is 0.291 m/s.
	Error MIN-Limit(0.3 m/s);	The value is lower than the maximum permitted deviation (0.3 m/s).
3	Group:5;	The error is in Group 5.
	actual:5132 Pa;	The actual value for this group is 5132 Pa.
	Error MAX-Limit(5000.0 Pa);	The value has exceeded the maximum permitted deviation (5000 Pa).
4	Group: 6;Sensor Error ;	Sensor error is in Group 6
5	Group: 6;Fan: 1;	In Group 6, error on member 1
	Modbus: OKAY ;	MODBUS connection is OK, therefore ECblue error registers can be evaluated:
	Error1 (i12):512;Error2 (i13): 0;	Register i12 (error status) = 512 => Motor blocked (see above)

The last 15 error messages are stored until the mains voltage is disconnected. When the mains voltage is turned on, the error list is cleared. This means that if there is an interruption in the mains voltage the entries are deleted.

If there is a USB stick in the device, all error messages are permanently stored on it. You can use the "CHIPtool" program to open the USB stick (drive d:\). The error lists in CSV format can be found in the "Error" folder (see Parameter set operation with CHIPtool).

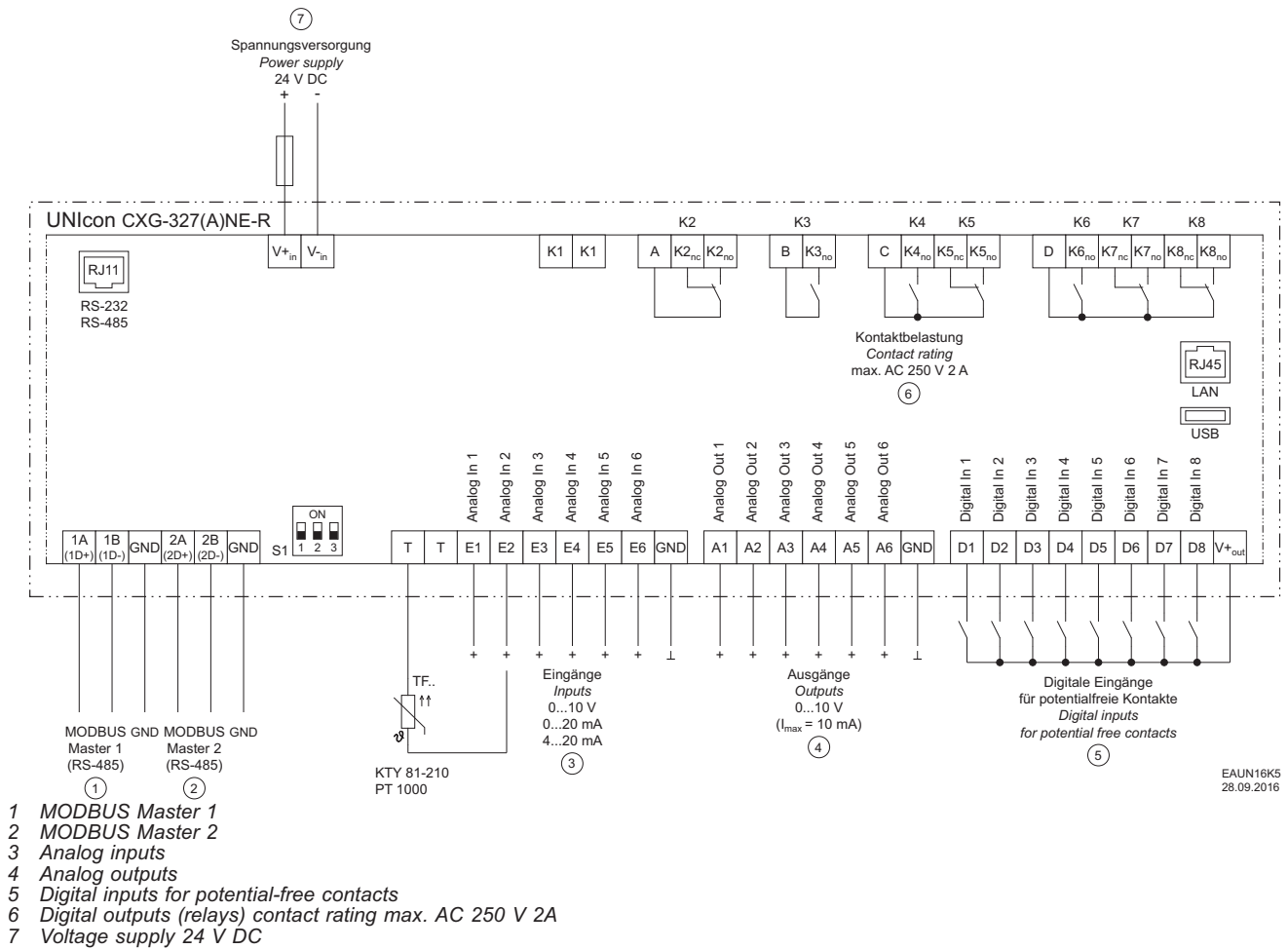
The representation of the error lists in CSV format is identical to that described here under [Error history](#).

10 Enclosure

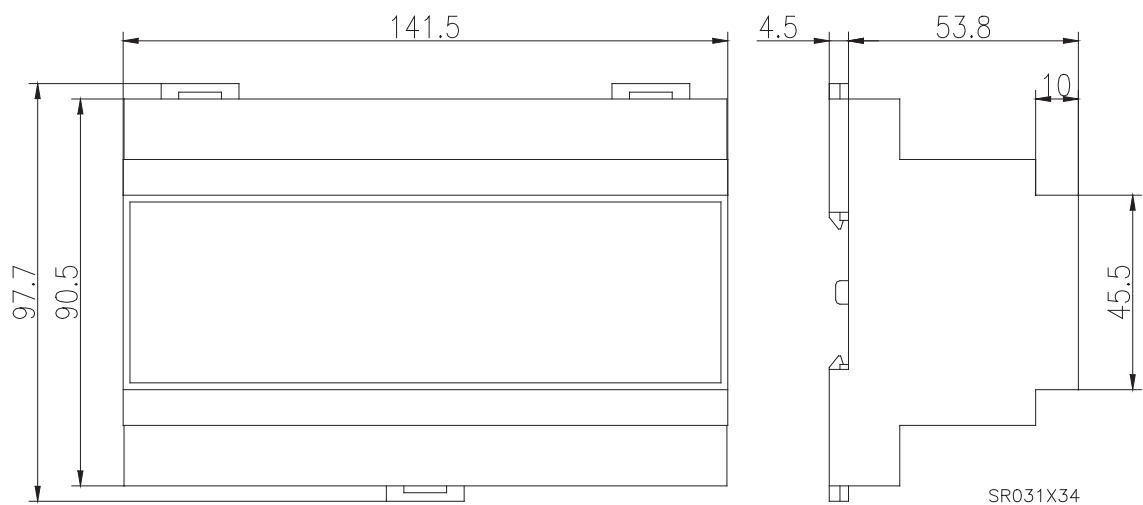
10.1 Technical data

Type: CXG-327NE-R	Part.-No.: 320080
Type: CXG-327ANE-R	Part.-No. 320079
Voltage supply	24 V DC +/- 10 % (400 mA)
Input resistance for sensor or signal set for the rotational speed	for 0 - 10 V input: $R_i > 900 \text{ k}\Omega$ for input 4 - 20 mA: $R_i = 250 \text{ }\Omega$ (max. load $500 \text{ }\Omega$)
Digital inputs "D1 - D8"	Input resistance: R_i approx. $3.9 \text{ k}\Omega$
Analog outputs (0...10 V)	$I_{\max}$ 10 mA (short-circuit-proof)
Max. contact rating of relays "K2 - K8"	2 A / 250 V AC
Max. heat dissipation	10 W
Max. permissible ambient temperature	40 °C
Min. permissible ambient temperature	0 °C (if mains voltage is not switched off up to -20 °C)
Permissible installation height	0...4000 m amsl $\leq 2000 \text{ m}$: no limitation $> 2000 \text{ m}$: max. permissible line voltage = max. voltage indication name plate minus 1.29 % / 100 m
Permissible rel. humidity	85 % no condensation
Electromagnetic compatibility for the standard voltage 230 / 400 V according to DIN IEC 60038	Interference emission EN 61000-6-3 (domestic household applications)
	Interference immunity EN 61000-6-2 (industrial applications)
Housing protection	IP20
Weight	0.3 kg

10.2 Connection diagram

EAUN16K5
28.09.2016

10.3 Dimensions [mm]



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10.5 Manufacturer reference

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

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10.6 Service information

If you have any technical questions while commissioning or regarding malfunctions, please contact our technical support for control systems - ventilation technology.

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Our worldwide contacts are available in our subsidiaries for deliveries outside of Germany, see www.ziehl-abegg.com.