

Movement by Perfection



<https://www.ziehl-abegg.com/en/zacore>

ZAcore

CMP... Programmable controllers
CMB..., CMA ... Pre-programmed controllers

Issue 2026/23

Operating instructions
Store for future use!

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1 Introduction

1.1 Liability

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

1.2 Validity and meaning of the operating instructions

These operating instructions are valid for freely programmable controllers of type CMP... as well as pre-programmed controllers of type CMA... and CMB... from the ZAcCore model range.

These instructions can be accessed online using the product's article number, see the name plate on the product. All language versions available for the instructions can be downloaded.

<https://www.ziehl-abegg.com/int-bal>



- ▷ Store the operating instructions so that they are accessible to all persons who work with the product.
- ▷ Pass the operating instructions on to subsequent users.
- ▷ Read and follow the operating instructions in full.

These instructions apply only to the product ZIEHL-ABEGG and not to the complete system. If additional devices are used or installed, the respective instructions must be observed.

1.3 Target group of the instructions

The target group of these instructions are transport personnel, fitters who have been instructed in mechanical and electrical engineering, adjustment technicians, programmers, electricians, electrically instructed personnel, start-up and maintenance personnel, see *Requirements placed on the personnel*, page 5.

1.4 Applicable documents

Observe the following documents for instructions:

- Order confirmation
- Operating manual
- Component instructions

1.5 Open source software licence information

The software supplied with ZAcCore products may contain copyrighted software components that are the subject of various open source licences.

Detailed information about the open source projects used, their versions, the licences used and the complete licence texts can be found on the product's website, under the area titled Licences.

The open source code files used by ZIEHL-ABEGG can be requested by contacting opensource@ziehl-abegg.com. They can be made available on a physical medium, e.g. a CD-ROM, subject to compensation for expenses.



2 Safety instructions

2.1 Intended use

The product is intended for controlling, regulating and visualising systems in the heating, ventilation, air conditioning and refrigeration sector.

The operating instructions are part of the product. The product is only intended for use according to these instructions.

2.2 Requirements placed on the personnel

The client of the required measures in the product life cycle is responsible for ensuring that the personnel carrying out the work are sufficiently qualified.

Personnel	Minimum requirements, knowledge and experience
Planners and project designers	They are responsible for the project planning of the complete system. They have knowledge of applicable standards, legal requirements and safety regulations.
Assembly personnel	They can identify and avoid hazards during assembly of the product.
Electrician	They have technical training in the field of electrical engineering. They can identify and avoid hazards associated with electricity. They have also been instructed and trained in the necessary protective equipment and protective measures to use. They comply with the technical regulations and have the following electrotechnical knowledge: ▫ Read and fully understand electronic connection diagrams. ▫ Understand all relationships regarding the safety devices. ▫ Are familiar with the function and design of the electrical components used.
Electrically trained personnel	Personnel instructed or supervised by a qualified electrician. They can identify and avoid hazards associated with electricity. They have been instructed in the assigned tasks and possible hazards in the event of improper conduct. They have also been instructed and trained in the necessary protective equipment and protective measures to use.
Start-up technician	They handle the entire system safely. They can identify and avoid hazards that may occur during start-up. They have also been instructed and trained in the necessary protective equipment and protective measures to use.
Adjustment technician	They can assess and avoid the risks and hazards that may arise from actuating individual devices or the entire system. They can identify and avoid hazards associated with electricity.
Programmer	They are familiar with programming in CODESYS and have the qualifications and knowledge required for their work. They observe the current security guidelines for networks, adhere to the specifications for authentication and authorization, and evaluate protocols.
Maintenance personnel	They handle the entire system safely. They can identify and avoid hazards that may occur during service and maintenance. They have also been instructed and trained in the necessary protective equipment and protective measures to use. They detect and avoid dangers associated with electricity, batteries and hazardous substances. They are system administrators who know how to configure the product and implement it within the system. Working with the security team, they monitor the product's environment and eliminate risks and vulnerabilities. They are familiar with building management and can perform physical security checks of environmental conditions.

2.3 Live parts

Live parts pose a risk of death due to electric shock.

- ▷ NEVER apply line voltage to connection terminals not intended for this purpose.
- ▷ Use suitable design measures to protect terminals carrying hazardous voltage against contact.

2.4 Remote control

The product enables electrical devices to be controlled, even if they are not visible.

- ▷ During use, make sure that there are no persons in the danger area.
- ▷ Only trained personnel may operate the product and software.

2.5 Sharp contact pins

Sharp contact pins can cause injury.

- ▷ Do not touch the contact pins on the terminals and jumpers.
- ▷ Reconnect terminals if they have slipped off the contact pins, e.g. during transport.

2.6 Ambient conditions

Ambient conditions beyond those specified can lead to material damage.

- ▷ Observe the information regarding temperatures and air humidity, see *Technical data, page 19*.
- ▷ DO NOT expose the product to direct solar radiation.

2.7 Electrostatic charge

Electrostatic charging can lead to material damage.

- ▷ Discharge yourself before working on electrical components, e.g. by touching grounded metallic parts.

3 Storage

Prerequisite:

The product is stored in the ambient conditions specified in the technical data.

Procedure:

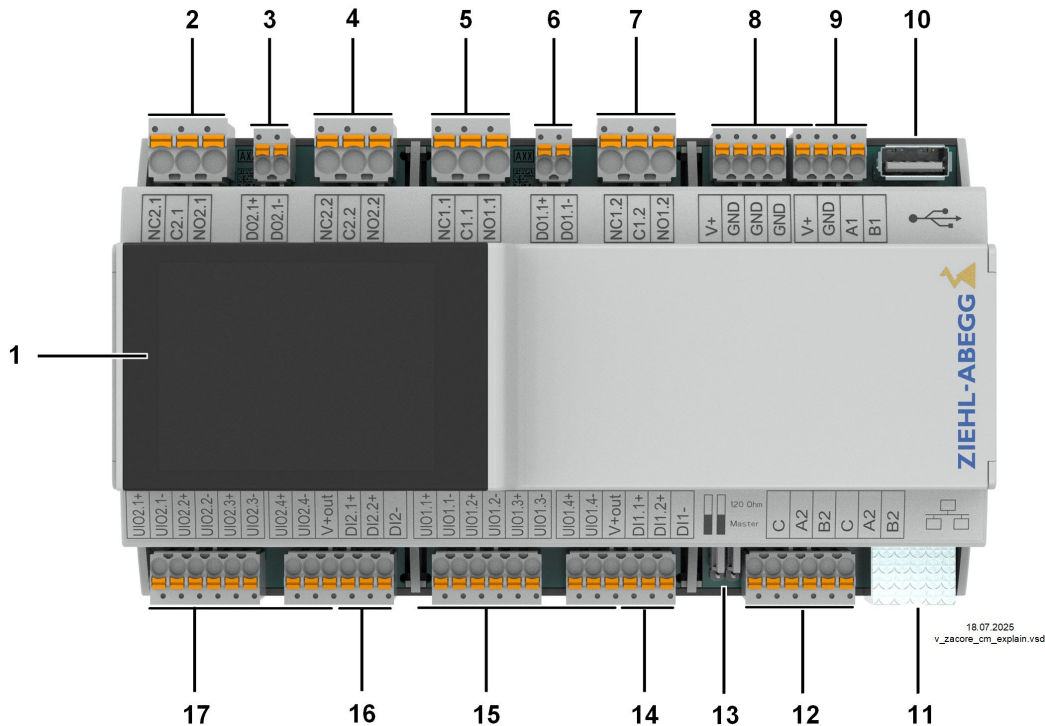
- ▷ Protect the product from moisture, dirt and heat sources.
- ▷ Maximum storage period is one year. Consult the manufacturer in the event of an extended period before start-up.



4 Product overview

4.1 Device structure example

- ZAc core fan control Type CMA1-2U1.H1-R3
- ZAc core open control Type CMP1-2U1.H1-R3



1	Touch panel 2.4"	10	USB 2.0 host interface
2	Relay output K2.1	11	Ethernet 10/100 BASE-T RJ-45 interface
3	Open collector output DO2.1	12	Isolated RS-485 interface COM2, for master applications
4	Relay output K2.2	13	Jumper for terminating RS-485 interface COM2
5	Relay output K1.1	14	Digital input DI1.1 + DI1.2
6	Open collector output DO1.1	15	Universal inputs and outputs UIO 1.1 - 1.4
7	Relay output K1.2	16	Digital input DI2.1 + DI2.2
8	Voltage supply input V+, GND	17	Universal inputs and outputs UIO 2.1 - 2.4
9	Non-isolated RS-485 interface COM1, for slave applications		

4.2 Description

The product enables systems in the areas of heating, ventilation, air conditioning and cooling to be controlled, regulated and visualised in a flexible approach. It works in conjunction with sensors, fans and control equipment within a plant.

Components are connected to the device via various hardware inputs, hardware outputs, bus protocols or network protocols.

A capacitive touch display is integrated into type CM.-...H1-... products. This enables initial commissioning to be performed without any additional equipment.

4.3 Safety guidelines for operation

Safe and reliable operation

Specific safety measures are required for the safe and reliable operation of the ZAcCore.

This includes protection against:

- Unauthorised access
- Tampering
- Harmful environmental influences

ZAcCore meets the requirements of relevant standards such as EN 18031-1:2024:08 and takes into account recommended data protection guidelines.

Data protection breaches may lead to recourse claims.

- Avoid connecting the ZAcCore to open networks or the Internet without any firewalls.
- For remote access, use additional layers of data protection, such as VPN.
- Install firewalls to protect against unauthorised access.
- Only allow access to authorised persons.
- Change any passwords during start-up and then at specified intervals.

Compliance with these specifications is important for the system's functionality and safety. Failure to comply may render standard conformity and product liability provisions void.

Set up a fault monitoring system and performance monitoring system with an alarm signal function to prevent personal injury and damage to property in the event of malfunction or product failure.

Network security

Network segmentation and access restriction:

- Connect the product to a dedicated, isolated network segment, which is segregated from IT networks and internet-enabled systems. Use VLANs or firewalls.

Encryption and secure protocols:

- Use secure communication protocols such as TLS, VPN or encrypted industrial protocols. Disable unsecure protocols such as Telnet and FTP.

Firewall rules:

- Use a firewall to restrict data traffic to and from ZAcCore. Only allows the required minimum ports and services.

Port and network isolation:

- Open ports only when needed and use isolated networks for fieldbus communication.

Guidelines for wireless communication:

- Use secure bandwidth for wireless communication and do not implement any critical routings over wireless channels. See manual for further details.

Authentication and authorisation

User authentication:

- Configure user accounts for WEB UI with passwords that are at least 8 characters long and contain a mix of upper and lower case letters, numbers and special characters.

Role-based access control (RBAC):

- Assign permissions based on job roles such as Operator, Service and Administrator.

Log-in information:

- Regularly update passwords and disable unused accounts.



Local access control:

- Limit physical access to programming interfaces such as USB and serial ports.

Recommendations for physical media and interfaces:

- Do not store any critical data on portable media such as SD cards or USB drives.
- Access to device interfaces, such as SD card slots, must be limited to authorised personnel.

Monitoring protocols

Protocol and categorisation:

- The protocol records all actions performed on the system, such as user logins, user logouts, configuration changes, operational activities and system errors, warnings, and information messages.
- The entries are categorised so that critical events requiring special attention can be identified quickly.

Logging and categorisation:

- Authorised personnel regularly review log entries to identify and correct potential safety issues, system malfunctions, or operating anomalies. After it has been reviewed and edited as necessary, each log entry is confirmed to ensure accountability and document the fact that the appropriate team is aware of the entry.
- Unconfirmed critical log entries such as errors or warnings must trigger follow-up warnings to make sure they are not missed.

Response to incidents

Define and document procedures for responding to safety and security incidents. Train staff to recognise and report suspicious activity.

5 Installation

Personnel qualifications: Assembly personnel

ATTENTION Material damage due to unauthorised access and manipulation.

- ▷ Mount the product in a protected location.
- ▷ Install the product in tamper-proof housing.
- ▷ Implement tamper detection mechanisms.
- ▷ Allow access to authorised personnel only.

5.1 Assembling the product

Prerequisite:

- The surface is free from vibrations.

Procedure:

1. Observe the storage duration, see *Storage*, page 6.
2. Check the product for damage and contamination. Do not put damaged products into operation.
3. Maintain a minimum clearance of 50 mm to other components on all sides.
4. Secure the product in a control cabinet or in plastic housing by snapping it onto a 35 mm EN 50022 standard rail or using screws.

6 Electrical installation

Personnel qualifications: Qualified electrician or electrically instructed personnel





DANGER

Danger to life due to electric current.

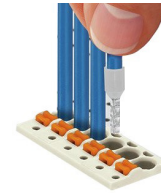
- ▷ NEVER carry out work if the product is electrically live.
- ▷ Route the lines so that they are NOT damaged.

6.1 Using push-in clamps

The product is equipped with push-in terminals, connectable conductors see *Connectable conductors*, page 22.

Procedure:

- ▷ Single-wire conductors and fine-wire conductors with wire end sleeves can be inserted directly into the terminal without pressing a button.
- ▷ Push the key to connect fine-wire conductors and release all forms of conductors.



6.2 Connecting the voltage supply

ATTENTION Material damage due to disruption in the mains.

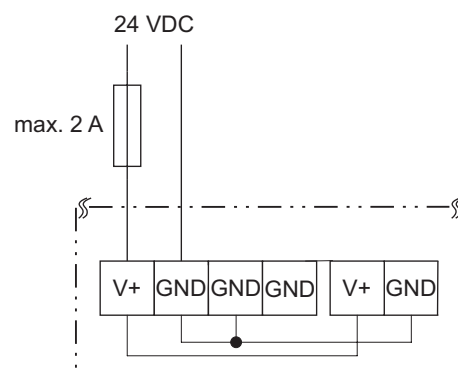
- ▷ Install a UPS to protect against power failure and voltage fluctuations.
- ▷ Install surge protection devices to protect against voltage spikes.

Prerequisite:

- A PELV current source is used that ensures safe electrical isolation of the operating voltage in accordance with IEC/DIN EN 60204-1.
- U.S. and Canadian regulations such as NFPA 79 and CSA C22.2 No.301 are observed.

Procedure:

1. Observe the specifications in the technical data, see *Technical data*, page 19.
2. Connect the 24 V voltage supply to the terminals V+ and GND.
The V+ voltage supply is transmitted internally and via the busbar to the IO modules. The maximum load of the busbar and the internal connections is 2 A.



Power supply unit accessories:

- Type STEP-PS/1AC/24DC/1.75, article number 380067



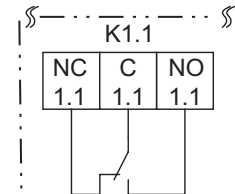
- Type STEP-PS/1AC/24DC/4.2, article number 00161449
- Type MEAN WELL HDR-15-24 (24VDC, 15W), article number 380114

6.3 Connecting relay outputs K

The number of K relays is dependent on the type, see *Equipment, page 22*. The function is dependent on the configuration, see manual.

Procedure:

1. Observe the specifications for the relay outputs, see *Specification for relay outputs K.., page 20*
2. Connect the conductors to the relay output terminals.



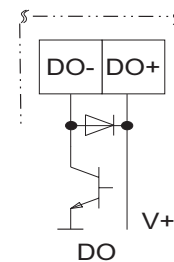
6.4 Connecting open collector outputs DO

The number of open-collector outputs DO is dependent on the type, see *Equipment, page 22*. The function is dependent on the configuration, see manual.

When configured for PWM output, the frequencies can be adjusted in increments up to 10 kHz for actuators, e.g. to actuate fans.

Procedure:

1. Observe the specifications for the open-collector outputs, see *Specification for open-collector outputs DO.., page 20*.
2. Connect the conductors to the open-collector output terminals.

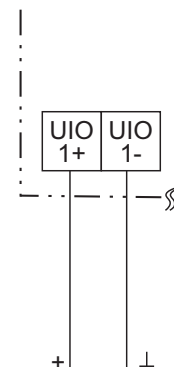


6.5 Connecting universal inputs and outputs UIO

The number of universal inputs and outputs UIO is dependent on the type, see *Equipment, page 22*. The function is dependent on the configuration, see manual. Optocouplers are used to insulate these from GND. Actuation via 24 V DC voltage at UIO+, ... and UIO-.

Procedure:

1. Observe the specifications for the universal inputs and outputs, see *Specification for universal inputs and outputs UIO.., page 20*.
2. Connect the conductors to the universal input and output terminals.



Overview of signal types

Signal type	Usage and specifications
Voltage output 0 to 10 V	Industry-standard signal for controlling actuators, e.g. fans. Cable length up to 30 m.
Current output 0 to 20 mA	Industry-standard signal for controlling actuators, including over long distances. The 4 mA offset is generated by the application.
Voltage input 0 to 10 V	For sensors
External current source current input 0 to 20 mA	Industry-standard signal 4 to 20 mA for sensors. The 4 mA offset is taken into account by the application.
Current input in series connection 0 to 20 mA	Industry-standard signal 4 to 20 mA for sensors. The 4 mA offset is taken into account by the application. Measuring resistance: 100 Ω Min. required voltage: 5 V
Resistance measurement 0 to 1 M Ω	For sensors, e.g. resistance temperature sensors
Digital logic input	For switches
Digital input in series connection	For switches

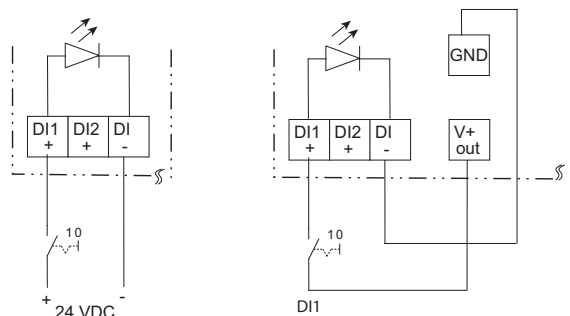
6.6 Connecting digital inputs DI

The number of digital inputs DI is dependent on the type, see *Equipment, page 22*. The function is dependent on the configuration, see manual. Optocouplers are used to insulate these from GND. Actuation via a 24 V DC voltage at DI+, and DI-.

The digital inputs are suitable for logic signals and frequency measurement up to 5 kHz.

Procedure:

1. Observe the specifications for the digital inputs, see *Specification for digital inputs DI...*, page 22.
2. Connect the conductors to the digital input terminals.
3. When using the device-side 24 V DC voltage, connect GND and DI- as the inputs are insulated.



V+: Input voltage on the device side

6.7 RS-485 MODBUS interfaces COM1 and COM2

6.7.1 Connecting the interface COM1

The non-insulated interface is on the voltage supply potential.

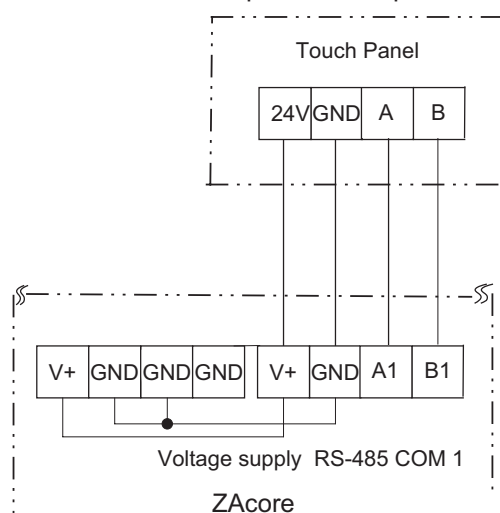
Application	Comment
MODBUS-RTU client	Only in combination with external terminating resistors and fail-safe circuits
MODBUS-RTU server	Max. 64 nodes
BACnet MS/TP server	Max. 64 nodes
Remote touchpanel 4.3"	Article number: 386003

Procedure:



- ▷ Connect the conductors to the COM1 interface terminals.

Connection example for touchpanel



6.7.2 Connecting the interface COM2

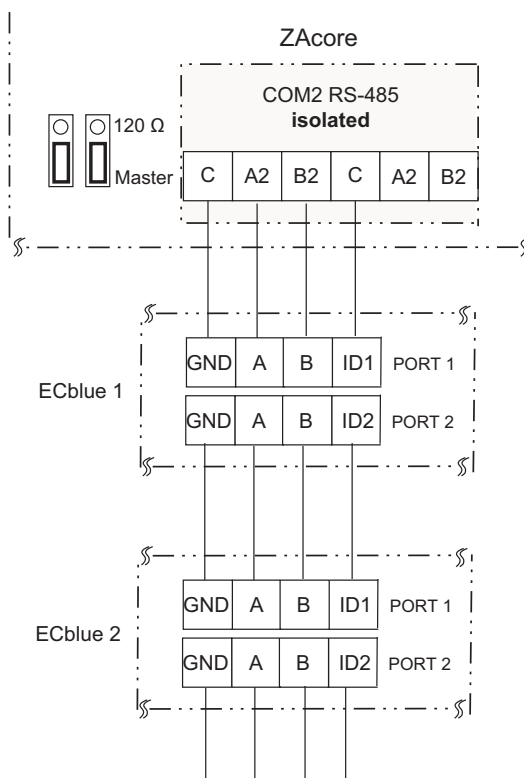
The insulated interface is designed for master applications, in particular for actuating EC fans and frequency inverters. The functional insulation allows for trouble-free operation.

Jumper for RS-485 interface COM2

Jumper position	Function
Both bottom	Factory setting Fail-safe circuit with 120 Ω Termination for master applications
Not inserted	Without termination for slave applications
Both top	120 Ω termination for slave applications as bus termination on the last device

Procedure:

- ▷ Connect the conductors to the COM2 interface terminals.
- Connection example for ZIEHL-ABEGG ECblue fans with automatic addressing



6.7.3 Setting up the RS-485 network

Recommended line types	Maximum total cable length
CAT5/CAT7 lines	500 m
J-Y (St) Y 2x2x0.6 telephone wire	1000 m
AWG22, 2x2 twisted	1000 m

For longer cables, use the ZIEHL-ABEGG repeater type Z-G-1NE.

Prerequisite:

- The distance from the bus cables to the mains supply lines and motor cables must be at least 20 cm (7.87 in).
- The maximum length of the stub line between the bus and the device is 30 cm (11.80 in.).

Procedure:



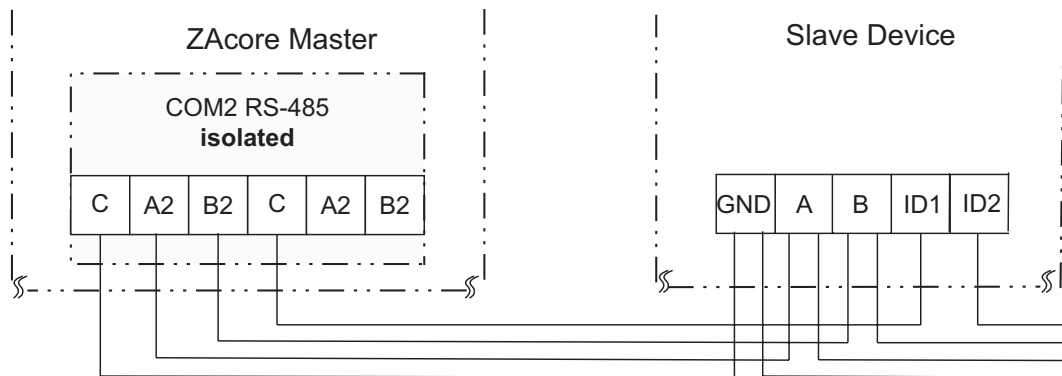
1. Route the data line from one device to the next.
2. Only use two wires from a twisted-pair line for the data connection.
3. Only use wires from the COM1 interface line for the data connection A1, B1 and the GND connection.
4. Only use wires from the COM2 interface line for the data connection A1, B1, the GND connection and C for automatic addressing.
5. Ensure correct connection, **A**, also connecting downstream devices to **A** An on subsequent devices; the same applies to **B**.

ATTENTION! Material damage due to unequal potential above 10 V

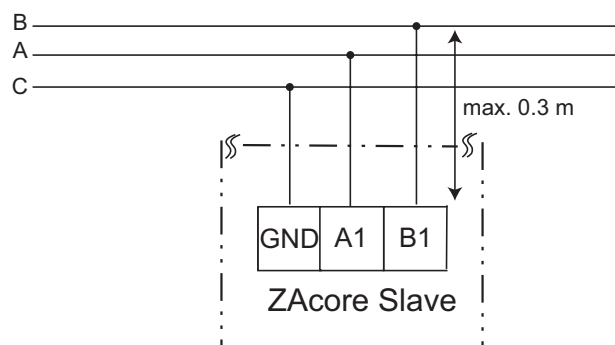
▷ Establish potential connection between the RS-485 interfaces.

6. In a bus system with automatic addressing, place one of the two ID connections of the first slave device on the potential of the master interface. COM 1 = GND, COM 2 = C. Then route the ID connections from device to device.

ZAcCore as master in an RS-485 network with automatic addressing



ZAcCore as slave on a stub line in an RS-485 network

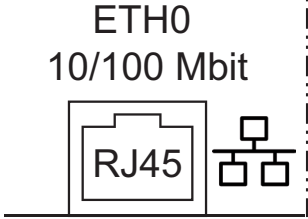
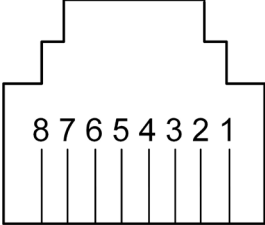


6.8 Connecting to Ethernet

The Ethernet controller supports the MDI/MDIX auto-crossover line function. Dedicated Ethernet cross-over cables are not required for direct connection, i.e. connections without an Ethernet hub or switch. Maximum cable length: 100 m (328 ft.).

Procedure:

➤ Connect the cable to the Ethernet interface.

Ethernet interface	Pin assignment	Pin	Signal
10/100 BASE-T RJ-45			
		1	TD+
		2	TD-
		3	RD+
		4	-
		5	-
		6	RD-
		7	-
		8	-

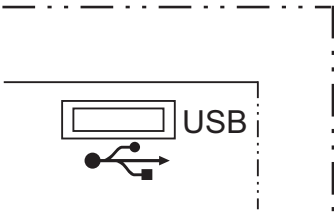
6.9 Connecting to the USB host

ZAcore supports a number of standard classes for USB devices. However, ZIEHL-ABEGG cannot guarantee that every device on the market is compatible.

For USB RS-485/RS-232 interface converters, devices with an FTDI chipset are required. For USB Ethernet adapters, devices with a Realtek chipset are required.

ZAcore only allows further Ethernet enlargement via USB.

USB 2.0 host interface



6.10 Connecting the touch panel to the RS-485 interface

The ZAcore offers the option of connecting a 4.3" touchpanel for panel installation on an RS-485 interface. The COM1 interface is intended for this connection, see manual for the requisite settings. The touchpanel is preconfigured for the connection to ZAcore.

Other types of connection, e.g. LAN, are possible, see instructions for touchpanel.

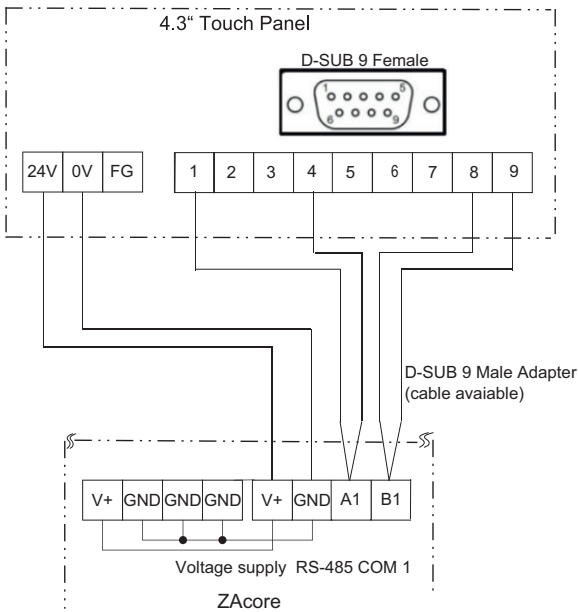
- Touchpanel type TFT display, article number 386003

The touchpanel is supplied with a D-SUB 9 adapter for the connection to ZAcore.

Procedure:



- ▷ Connect the touchpanel connection cable to the voltage supply terminals and the COM1 interface.



7 Service

Personnel qualifications: Maintenance personnel

7.1 Service plan

**DANGER**

Danger to life due to electric shock.

- ▷ Defective components or cables must be replaced immediately regardless of the specified interval.

Intervals	Component	Activity
Every 6 months	Complete product, including add-on modules and cables	▷ Perform a visual inspection and functional test. ▷ Replace defective parts immediately.
Regular	Product software	▷ Perform firmware updates and software updates. ▷ Back up the ZAcree configuration, programs and data. ▷ Store backups securely in a separate location. ▷ Perform safety and security checks to verify compliance with regulations and identify vulnerabilities.

7.2 Replacing the battery

A backup battery is integrated for the real-time clock.



⚠ DANGER Risk of death due to choking and poisoning

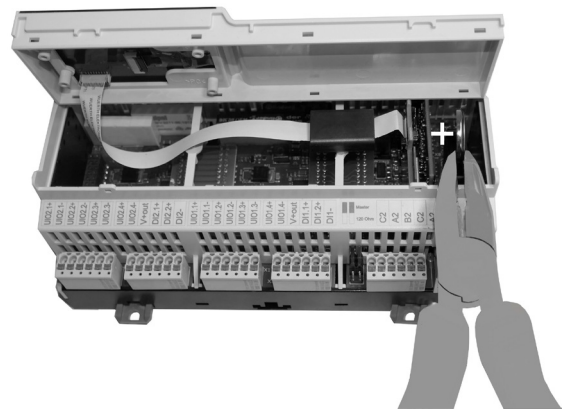
- ▷ NEVER put the battery in your mouth.
- ▷ Keep the battery out of reach of children.

ATTENTION Risk of fire and explosion due to overloading

- ▷ Do NOT recharge the battery.
- ▷ Only use one type CR 2032 Li-Mn 3V battery. ZIEHL-ABEGG article number 00161068.

Procedure:

1. Disconnect the product from the power supply.
2. Verify that no voltage is present.
3. Disconnect all conductors.
4. Use a screwdriver to detach the lid on the bottom of the product.
5. Carefully open the lid.
6. Pull the battery out of the battery compartment using **insulated** pliers.
7. Insert the new battery using **insulated** pliers, ensuring the polarity is correct.
8. Close the lid and press it down until you hear it engage.
9. Connect the conductor.
10. Switch on the voltage supply.
11. Dispose of the used battery correctly and without delay.



8 Disposal

- ▷ Dispose of the product 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, employ a specialised contractor to handle the disposal.

8.1 WEEE marking

Disposal of old electrical and electronic equipment, applicable in the European Union



Affected devices are marked with the appropriate symbol.

For further notices, see www.ziehl-abegg.com/weee

9 Technical data

Characteristic	Unit	Value
Voltage supply	V	24 DC +/- 10%
Maximum current consumption without add-on modules	mA	445
Maximum current consumption with load of 24 V DC outputs	A	2
Maximum line fuse	A	2
Air humidity	%	0 ... 85 no condensation
Maximum ambient temperature	°C	50
Minimum ambient temperature	°C	0, if mains voltage is not switched off up to -20
Temperature during storage and transport	°C	-30 ... +80
Installation height above sea level	0 to 4000 m (0 to 13100 ft.)	
	≤ 2000 m (6560 ft.) No restrictions	
	> 2000 to 4000 m (6560 to 13100 ft.)	
	Maximum allowed voltage supply = Maximum voltage specified on the rating plate minus 1.29%/100 m (1.29%/328 ft.)	
Electromagnetic compatibility for the standard voltage 230 V according to DIN IEC 60038	Interference emission according to EN IEC 61000-6-3, domestic setting	
	Interference immunity according to EN IEC 61000-6-2, industrial setting	
Housing	Suitable for installation on distribution boards according to DIN 43880 or wall mounting	
	Polycarbonate, flammability rating UL94V0	
Degree of protection	IP20	
Real-time clock		
Data preservation in the event of a power failure	10 years	
Accuracy, deviation	≤ 30 seconds/month at 25°C ambient temperature	

WiFi specification

Properties	Unit	Value
Medium-frequency-range operating channel	MHz	2412 ~ 2484
Data transfer rate	Mbps	max. 54
WLAN standard	IEEE 802.11b/g/n	
Supported modes	Soft access point, station	
Aerial type	Internal	
Transmission power with spectral mask and EVM according to the requirements of standard 802.11		
Rate		Typical
802.11b, 1 Mbp	dBm	20.5
802.11b, 11 Mbps	dBm	20.5
802.11g, 6 Mbps	dBm	20.0
802.11g, 54 Mbps	dBm	18.0
802.11n, HT20, MCS0	dBm	19.0
802.11n, HT20, MCS7	dBm	17.5

Properties	Unit	Value
802.11n, HT40, MCS0	dBm	18.5
802.11n, HT40, MCS7	dBm	17.0
Maximum reception level		
Rate	dBm	Typical
802.11b, 1 Mbps	dBm	5
802.11b, 11 Mbps	dBm	5
802.11g, 6 Mbps	dBm	5
802.11g, 54 Mbps	dBm	0
802.11n, HT20, MCS0	dBm	5
802.11n, HT20, MCS7	dBm	0
802.11n, HT40, MCS0	dBm	5
802.11n, HT40, MCS7	dBm	0

Specification for relay outputs K..

Specifications with resistive load, $\cos\phi = 1$.

Properties	Unit	Value
Max. contact rating	A	6 AC 250V
Min. switching voltage	V	5
Min. switching current:	mA	10
Max. operation cycles		6000

If the switching voltage or switching current is lower than specified, no current flow can occur due to contact oxidation, for example.

Specification for open-collector outputs DO..

The output is short-circuit-proof.

Properties	Unit	Value
Min. collector voltage UCE	V	5 DC
Max. collector voltage UCE	V	30 DC
Max. current rating	mA	50
Max. cable length	m	30

Specification for universal inputs and outputs UIO..

Properties	Unit	Value
Voltage output 0 to 10 V		
Resolution	bit	13
Allowed load per channel	kΩ	500 to 100
Short-circuit current per channel	mA	29 (source), 3.8 (sink)
Current output 0 to 20 mA		
Resolution	bit	13



Properties	Unit	Value
Allowed load per channel	mA	25
Output impedance	MΩ	4
Voltage input 0 to 10 V		
Resolution	bit	16
Max. allowed voltage	V	10
Input impedance	kΩ	Typically 195
External current source current input 0 to 20 mA		
Resolution	bit	16
Max. allowed current	mA	25
Max. short-circuit current	mA	35
Measuring resistance	Ω	100
Min. voltage required	V	5
Current input in series connection 0 to 20 mA		
Resolution	bit	16
Max. allowed current	mA	25
Max. short-circuit current	mA	24.5
Measuring resistance	Ω	100
Min. voltage required	V	5
Resistance measurement 0 to 1 MΩ	Measuring range and accuracy: 0 to 80 Ω ± 0.5% of measured value ± offset 80 to 200 Ω ± 0.3% ± % of measured value 200 Ω to 1 kΩ ± 0.2% ± % of measured value 1 to 10 kΩ ± 0.2% ± % of measured value 10 to 20 kΩ ± 0.3% ± % of measured value 20 to 100 kΩ ± 0.8% ± % of measured value 100 to 200 kΩ ± 1.0% ± % of measured value 200 kΩ to 1 MΩ ± 8% ± % of measured value	
Digital logic input		
Max. allowed voltage	V	40
Max. allowed frequency	kHz	5
Adjustable threshold voltage	V	0.5 to 1.6
Digital input in series connection		
Min. voltage required	V	5
Max. allowed frequency	kHz	5
Adjustable current to bridge wetting for poten- tial-free contacts	mA	0.5 to 24.5

Specification for digital inputs DI..

Properties	Unit	Value
Min. voltage	V	5 DC
Max. voltage	V	30 DC
Impedance	kΩ	4
Max. Frequency	m	5 kHz, compatibility: S0 DIN 43864 or EN 62053-31

Connectable conductors

Type of connection	Relay terminals K ..	All other terminals
Single-wire conductor	0.2 to 2.5 mm ² (24 to 12 AWG)	0.2 to 1.5 mm ² (24 to 14 AWG)
Fine-wire conductor	0.2 to 2.5 mm ² (24 to 12 AWG)	0.2 to 1.5 mm ² (24 to 14 AWG)
Fine-wire conductor; with wire end sleeve with plastic collar	0.25 to 1.5 mm ²	0.25 to 0.75 mm ²
Fine-wire conductor; with wire end sleeve without plastic collar	0.25 to 2.5 mm ²	+0.25 to 1.5 mm ²
Stripping length	9 to 10 mm (0.35 to 0.39 inches)	8 to 9 mm (0.31 to 0.35 inches)

Equipment

Type	Part.-No.	DI	UIO	K	DO	TP	CLK	ETH	WIFI	RS-485	USB
ZAcore fan gateway											
CMB1-R1	320101	-	-	-	-	-	1	1	1	2	1
CMB1-U1-R2	320102	2	4	2	1	-	1	1	1	2	1
CMB1-U1.H1-R2	320104	2	4	2	1	1	1	1	1	2	1
ZAcore fan control											
CMA1-R1	320111	-	-	-	-	-	1	1	1	2	1
CMA1-U1-R2	320112	2	4	2	1	-	1	1	1	2	1
CMA1-2U1-R3	320113	4	8	4	2	-	1	1	1	2	1
CMA1-U1.H1-R2	320114	2	4	2	1	1	1	1	1	2	1
CMA1-2U1H1-R3	320115	4	8	4	2	1	1	1	1	2	1
ZAcore open control											
CMP1-R1	320106	-	-	-	-	-	1	1	1	2	1
CMP1-U1-R2	320107	2	4	2	1	-	1	1	1	2	1
CMP1-2U1-R3	320108	4	8	4	2	-	1	1	1	2	1
CMP1-U1.H1-R2	320109	2	4	2	1	1	1	1	1	2	1
CMP1-2U1.H1-R3	320110	4	8	4	2	1	1	1	1	2	1
DI: Digital inputs, UIO: Universal inputs and outputs, K: Relay, DO: Open-collector outputs, TP: Touch panel, CLK: Clock, ETH: Ethernet controller, WIFI: WIFI wireless module, RS-485: COM1 and COM2 interfaces. USB: USB host											



For products with a corresponding quality mark, see name plate		
Authorization:	FILE No. E544523	UL 60730-1 CAN/CSA-E60730-1
		
Open type - indoor		

9.1 Declaration of conformity

ZIEHL-ABEGG hereby declares that the controllers of type CMB..., CMA... and CMP... from the ZAcCore model range comply with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address.

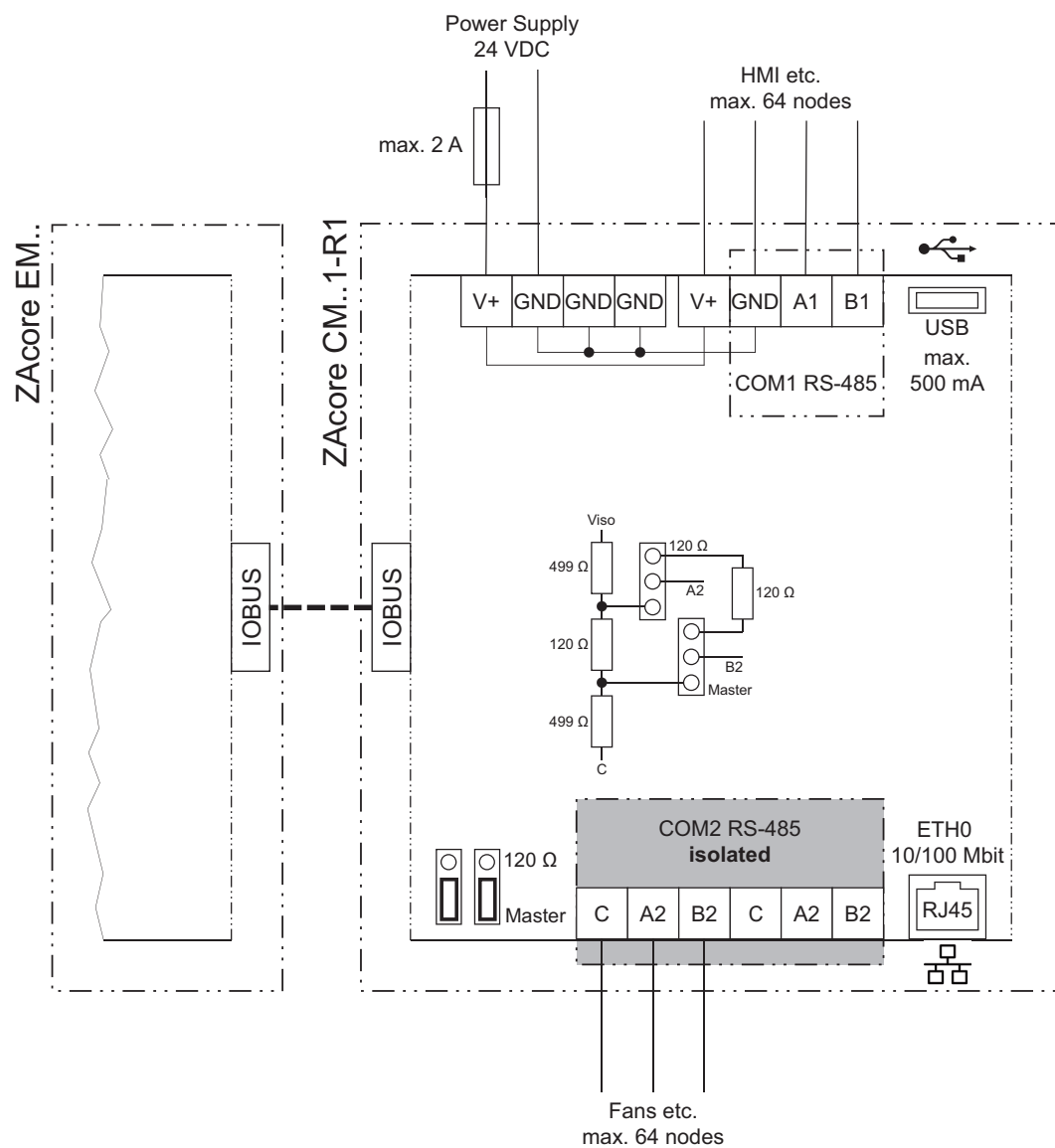
<https://www.ziehl-abegg.com/int-bal>

The available documents are displayed after you have entered the product's article number, see name plate.



9.2 Connection diagrams

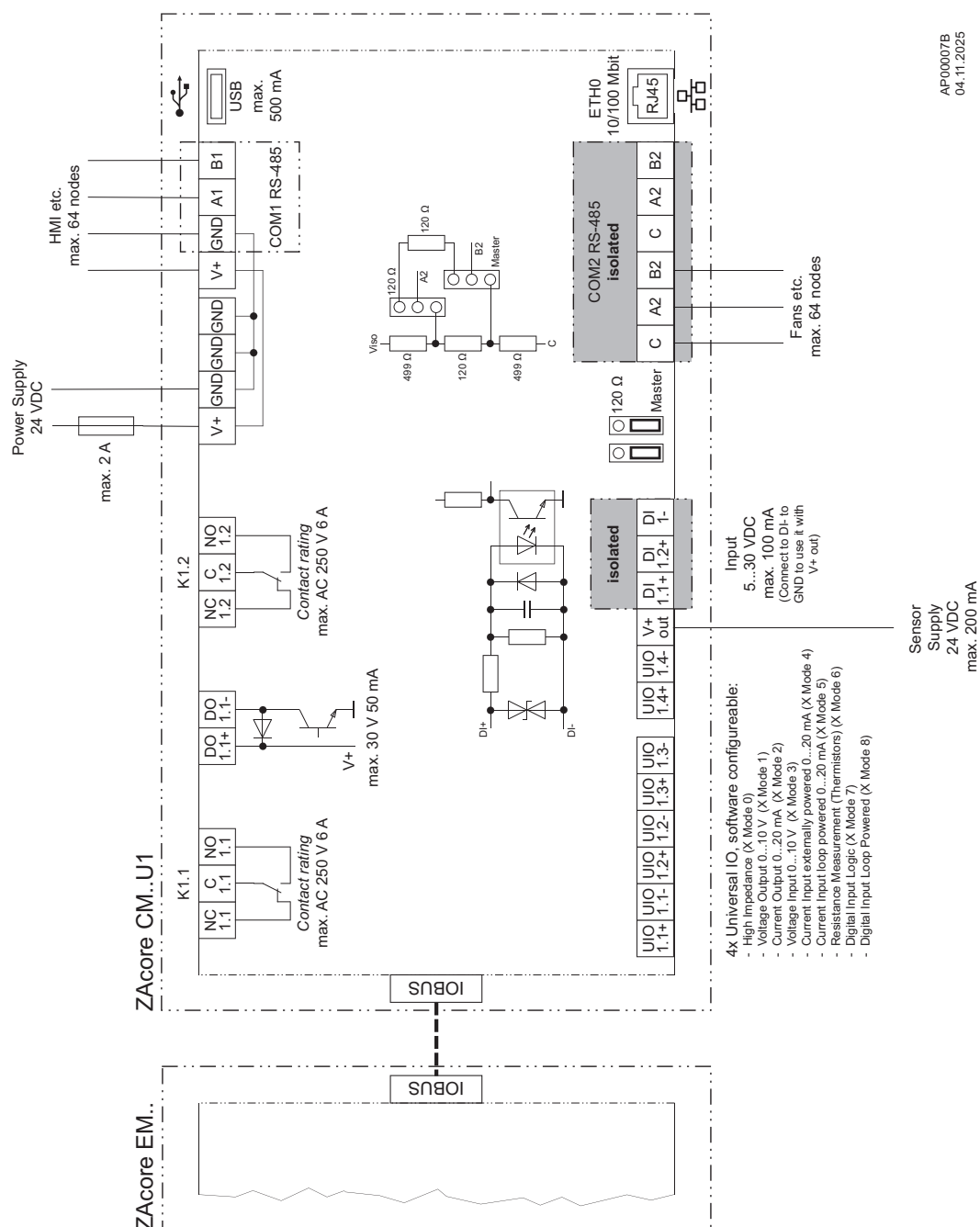
Types: CMB1-R1, CMA1-R1, CMP1-R1



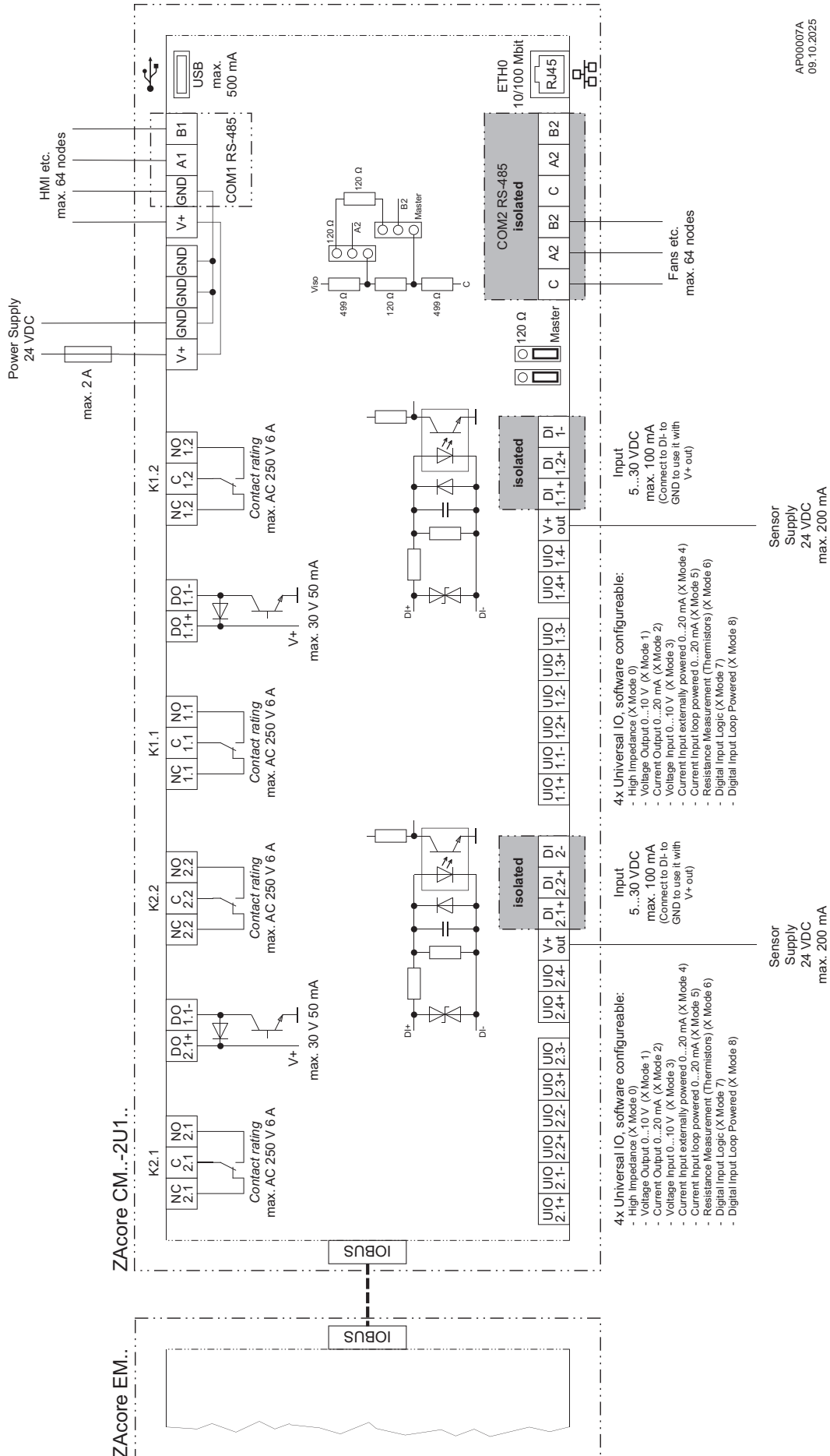
AP00007C
04.11.2025



Types: CMB1-U1-R2, CMB1-U1.H1-R2, CMA1-U1-R2, CMA1-U1.H1-R2, CMP1-U1-R2, CMP1-U1.H1-R2



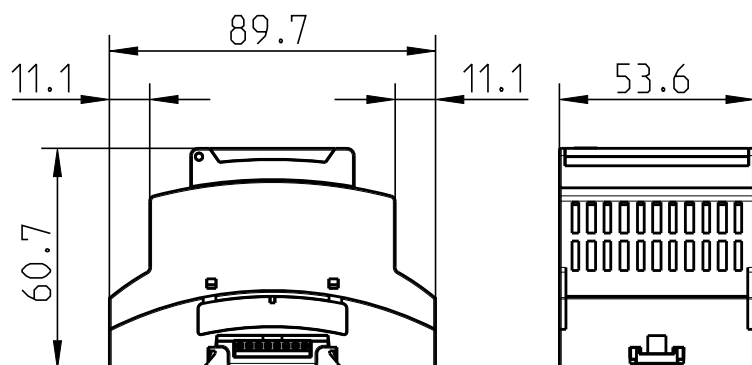
Types: CMA1-2U1-R3, CMA1-2U1H1-R3, CMP1-2U1-R3, CMP1-2U1.H1-R3



9.3 Dimension sheets

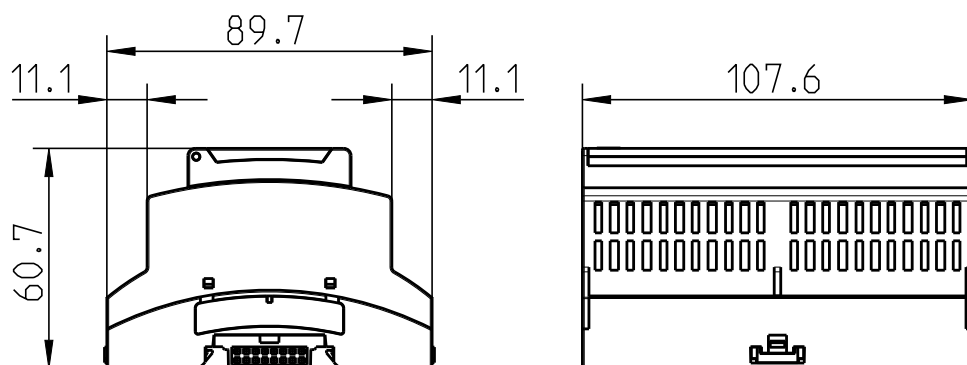
Listed in mm

Types: CMB1-R1, CMA1-R1, CMP1-R1



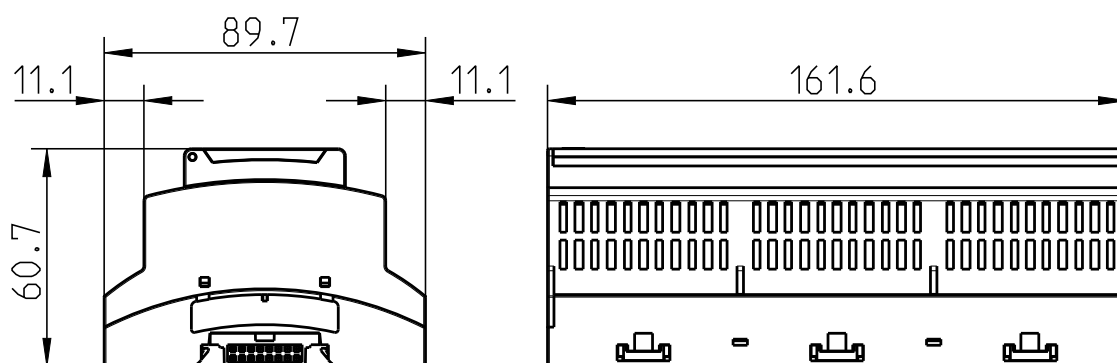
L-KL-4388/1/03.11.2025

Types: CMB1-U1-R2, CMB1-U1.H1-R2, CMA1-U1-R2, CMA1-U1.H1-R2, CMP1-U1-R2, CMP1-U1.H1-R2



L-KL-4388/2/03.11.2025

Types: CMA1-2U1-R3, CMA1-2U1H1-R3, CMP1-2U1-R3, CMP1-2U1.H1-R3



L-KL-4388/3/03.11.2025

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