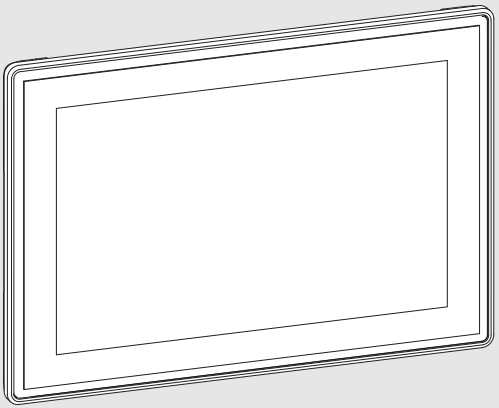
BOSCH

Installation instructions/Quick-Start-Guide

Central controller with touch display
Air Center Control

ACC MT



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1 Explanation of symbols and safety instructions

1.1 Explanation of symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimising danger are not taken.

The following signal words are defined and can be used in this document:

DANGER

DANGER indicates that severe or life-threatening personal injury will occur.

WARNING

WARNING indicates that severe to life-threatening personal injury may occur.

CAUTION

CAUTION indicates that minor to medium personal injury may occur.

NOTICE

NOTICE indicates that material damage may occur.

Important information

The info symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Meaning
▶	a step in an action sequence
→	a reference to a related part in the document
•	a list entry
–	a list entry (second level)

Table 1

1.2 General safety instructions

Operation of the ACC MT central controller in the VRF air conditioning system cannot result in conditions that are hazardous to the user and environment.

⚠ Notices for the target group

These installation instructions are intended for qualified persons who are skilled in dealing with climate, heating and electrical systems. All instructions must be observed. Failure to comply with instructions may result in material damage and personal injury, including danger to life.

- ▶ Read installation manual (outdoor unit, indoor unit, control unit, ERV ventilation unit, etc.) prior to installation.
- ▶ Observe the safety instructions and warnings.
- ▶ Follow national and regional regulations, technical regulations and guidelines.

⚠ Intended use

- ▶ Only use the product to control Air Flux/MDCI VRF and/or CL5000L/M air conditioning systems (VRF = Variable Refrigerant Flow).

All other use is considered unsuitable. Any damage resulting from unsuitable operations is excluded from liability.

⚠ Electrical work

Electrical work must only be carried out by a qualified electrician.

- ▶ Before starting electrical work:
  - – Isolate all poles of the mains voltage and secure against reconnection.
  - – Make sure the mains voltage is disconnected.
- ▶ Only connect the product to the mains voltage using the supplied power supply unit or a professionally installed cable in accordance with the specifications (→ Table 4, page 13).
- ▶ Observe the wiring diagrams of other system components as well.

⚠ Notes regarding fire protection

The variable refrigerant flow central controller must not be installed in the following locations:

- Rooms in which fat residues or steam could damage plastic parts, e. g. kitchens.
- Locations where harmful gases, e.g. gases containing sulphuric acid, are present as this can corrode components.
- Near machines that give off electromagnetic radiation.
- Locations where combustible gases or dusts are present.

- In locations with high temperatures or near an open flame.
- Damp rooms where water can enter the device and cause a short-circuit.

⚠ Original spare parts and accessories

The manufacturer assumes no liability for damage caused by spare parts not supplied by the manufacturer.

▶ Use only original spare parts and accessories from the manufacturer.

⚠ Safety instructions for care and cleaning

The projected capacitive touchscreen (PCT) contains a layer of tempered glass. This could be damaged if the touchscreen is used incorrectly.

▶ Only operate the touchscreen with a finger or a capacitive stylus.
▶ Protect against sharp edges and scratching.
▶ To clean, wipe with a soft cloth.
▶ Do not use organic solvents, acids or alkaline solutions.
▶ Wipe off water or fat residue without delay.

⚠ Dehumidifying

The Air Flux VRF air conditioning system is intended only for commercial use where temperatures deviating from the set values do not lead to harming living beings or damage to materials.

The Air Flux VRF air conditioning system can not be used for setting the defined absolute moisture content of the ambient air. For applications, where moisture is critical, such as for example in museums or libraries, special dehumidifying or humidifying systems must be used.

2 Product Information

2.1 Product Description

The Air Flux product series is an air-conditioning system solution for commercial buildings, e.g. offices, hotels or apartment complexes.

The variable refrigerant flow central controller with ACC MT (Air Center Control) touch screen – referred to as "central controller" in this document – plays a key role in the operation of the air-conditioning system. The central controller is primarily designed to be used and operated by professional users in the area of HVAC technology who are authorised to make more in-depth system settings.

The central controller controls up to 32 outdoor and 64 indoor units (or other units of the type ERV, AF-HB or AHU-KIT) via an XYE communication cable. An optional expansion board AC-EXP controls up to 128 outdoor units and 256 indoor units (or other units of the type ERV, AF-HB or AHU-KIT) via an 4 XYE communication cable.

The central controller can be operated via 3 different user levels or user roles:

- User
- Expert
- Administrator

Users with the role of “User” can control indoor units either individually or as a group via the central controller. These users can only perform the most important settings.

Users with the role of “Expert”, e. g. Facility Manager, can access functions in the central controller such as grouping of indoor units, user management, assignment of user roles and a lock manager for time programs and diagnostics.

Users with the “Administrator” user role have unrestricted rights and can manage the rights of other users.

The central controller can be connected to a commercially-available PC via a local network (LAN).

Additionally, a connection to building management systems of third-party providers can be established via Modbus/TCP using the additional Ethernet interface provided by the expansion board AC-EXP. Connections, to fire-alarm call points or emergency flasher systems for example, can be established by using other interfaces. Connections to other systems, such as fire-alarm systems, can be established by using the digital inputs and outputs.

To protect against unauthorised access to the central controller from the Internet:

▶ Use suitable firewall (→ Figure 1, page 5).

System overview

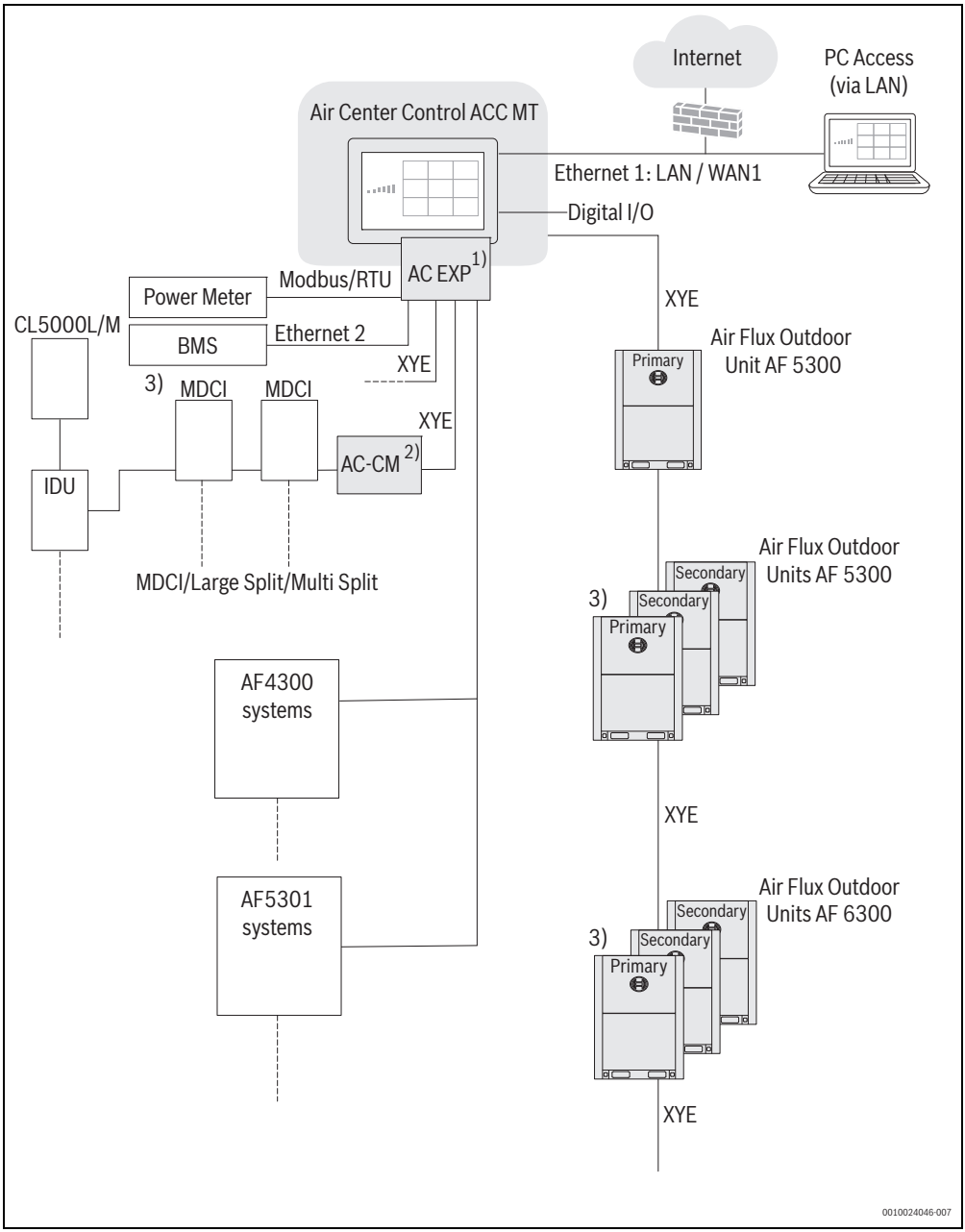


Fig. 1 VRF system overview (schematic overview;the system configuration shown is only an example, not all options are shown;

the actual wiring/piping is not shown in this figure)

1) AC-EXP (available as an accessory).
2) Adaptor AC-CM for connection of outdoor units of the type MDCI, and direct connection of selected Climate 5000L and Climate 5000M indoor units (some functions of these systems are restricted).
3) Auto addressing is the default setting in the outdoor units. However, this only leads to a successful system scan if only one refrigerant system with address “0” is connected.
If more than one refrigerant system is connected to an XYE cable, the addressing must be carried out manually in combination with unique IDU addresses.

On one XYE, either systems using an AC-CM (MDCI, CL5000L/M), or AF5300 / AF6300, or AF4300 / AF5301 can be connected. If more than one of such combinations exist, additional XYE ports via AC-EXP are required.

2.2 Compatible variable refrigerant flow system components

The central controller is compatible with the following system components:

- Air Flux systems of type MDCI (via AC-CM), AF4300, AF5300, AF5301, AF6300
- CL5000L/M IDUs (via AC-CM)
- Expansion card AC-EXP
- Modbus/RTU energy meters (via AC-EXP)

For more information on compatible variable refrigerant flow system components → Air Flux product catalogue.

2.3 Scope of delivery

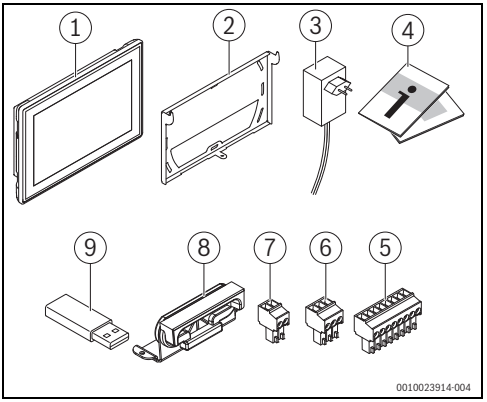


Fig. 2 Scope of delivery of central controller

[1] Variable refrigerant flow central controller with touch screen
[2] Wall mounting bracket
[3] Power source for central controller with country-specific adapter
[4] Installation Instructions
[5] 1 × Digital terminal I/O
[6] 1 × XYE terminal
[7] 1 × Power source terminal
[8] 2 × Insert for cable feed, each with 2 fixing screws
[9] USB stick with open source information (open source information is also available at https://www.bosch-homecomfortgroup.com/, along with software updates)

The expansion card AC EXP is not included in the scope of delivery.

2.4 Status LED indication

The front top right-hand side of the VRF central controller (→ Figure 2, [1], page 6) has a status LED indicator.

This indicates the current operating or fault status of the central controller:

Status display LED	Description
Solid white	No faults are present. Starting procedure of the central controller is complete.
Flashing white	Starting procedure of the central controller in progress.

Status display LED	Description
Solid red	System fault is present (more information is shown on the display). Central controller is in operation.
Flashing red	A fault is present in the central controller.

Table 2 Status LED indication

2.5 Dimensions

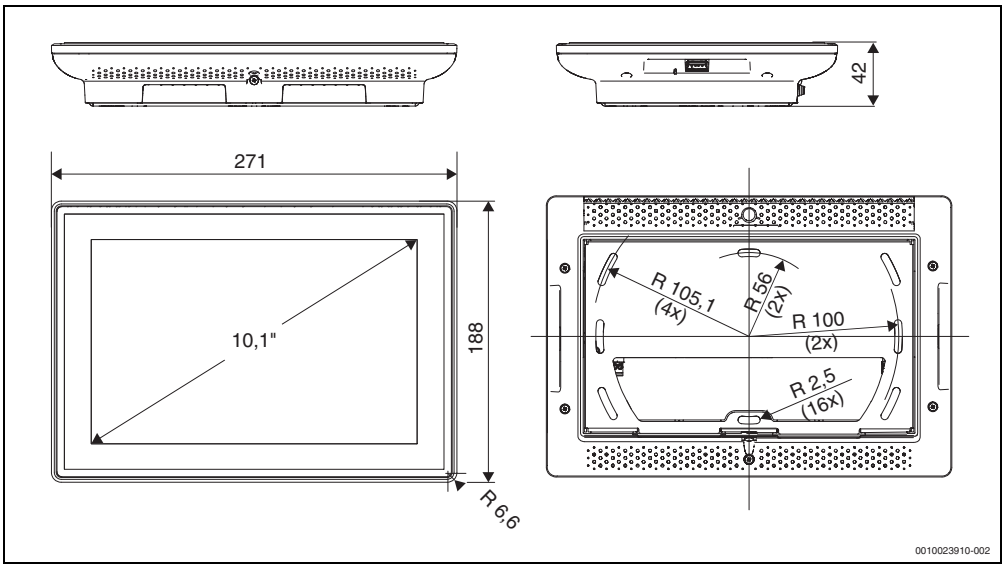


Fig. 3 Dimensions (in mm)

2.6 Connections and control elements

2.6.1 Connections on reverse side without AC EXP

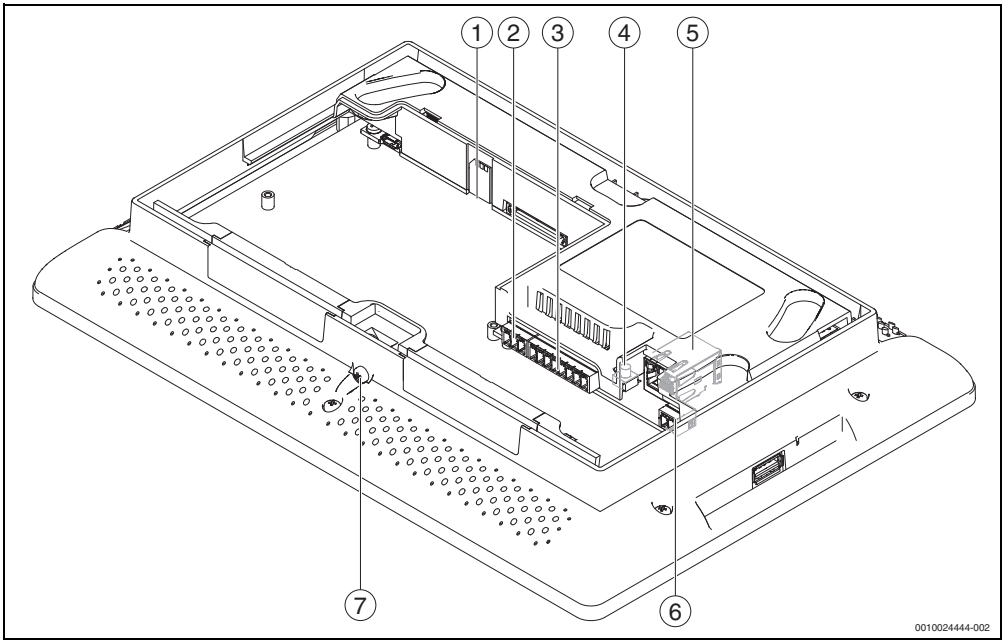


Fig. 4 Connections on rear (without AC EXP expansion board for ACC MT central controller; shown without cover)

[1] Slot for Micro SD card (insert card into the slot below the marking in the holder with the contacts facing upwards and pointing towards the marking)
[2] XYE 1
[3] Digital I/O
[4] Factory-Reset (default setting) with LED
[5] Ethernet 1 incl. PoE+ WAN + LAN
[6] DC_{in} power supply
[7] Screw (locking device of central controller on wall mounting bracket)

Notice: When inserting the Micro-SD card, make sure it is actually in the slot and is not being pushed through underneath it on the bottom panel.

If an AC EXP expansion board is used, it must be removed in order to access the slot for the Micro-SD card.

2.6.2 Restore default setting of central controller

When the default setting of the central controller is restored, all configurations and settings are reset to the delivered condition.

To restore the default setting of the central controller:

- Press and hold Factory-Reset [Fig. 4, Item 4].
  The LED next to the pushbutton flashes after roughly 5 seconds.
- Briefly release the Factory-Reset while LED is flashing.
- Press Factory-Reset again and hold for at least 5 seconds while the LED is flashing.
  The LED lights up continuously. The central controller will now reset to the default settings.

2.6.3 Connections on reverse side (AC EXP only)

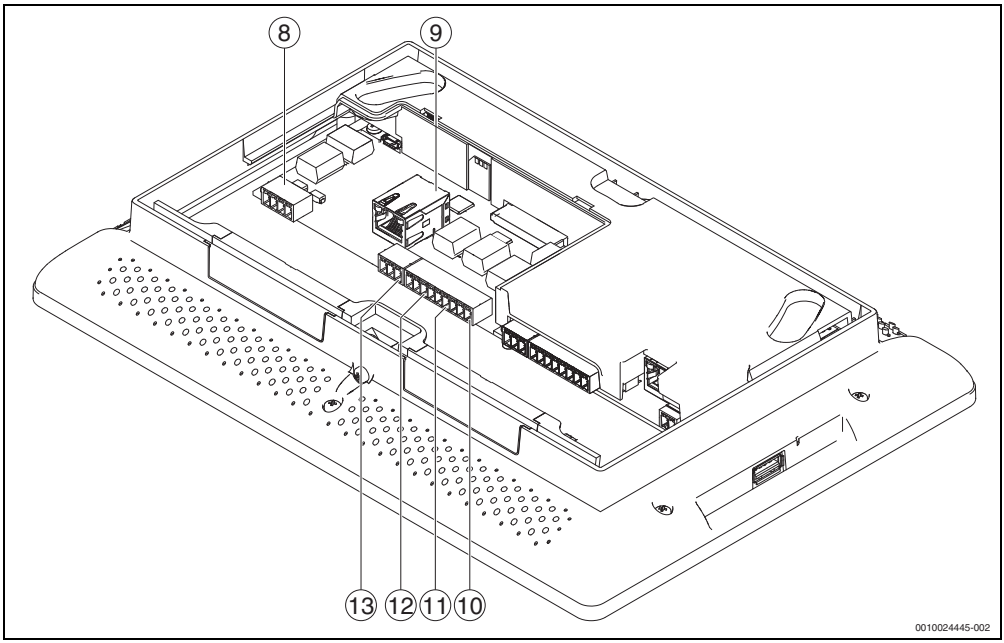


Fig. 5 Connections on rear (only AC EXP expansion board connections for ACC MT central controller; shown without cover)

[8] Analogue I/O is not used
[9] Ethernet 2 Modbus/TCP is for BMS connection
[10] XYE 2
[11] XYE 3
[12] XYE 4
[13] Modbus/RTU for Energy Meter connection

2.6.4 Connections – view from above

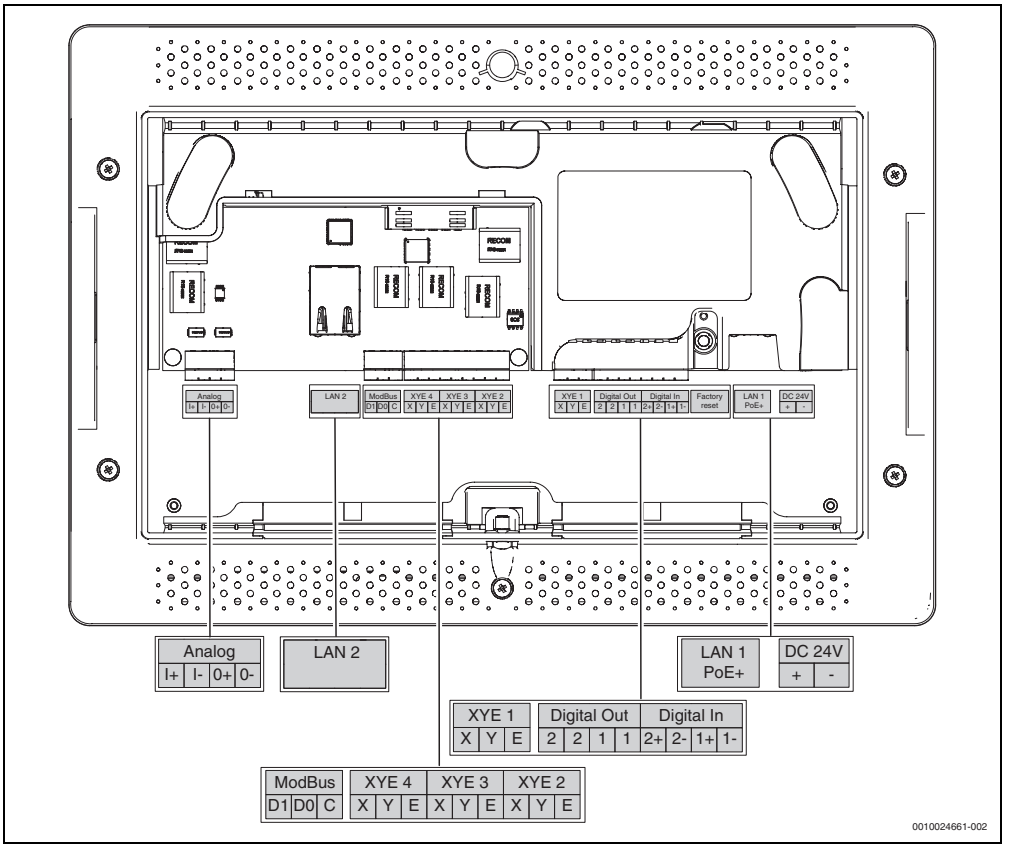


Fig. 6 Connections – view from above (shown without cover)

2.6.5 Connections on right

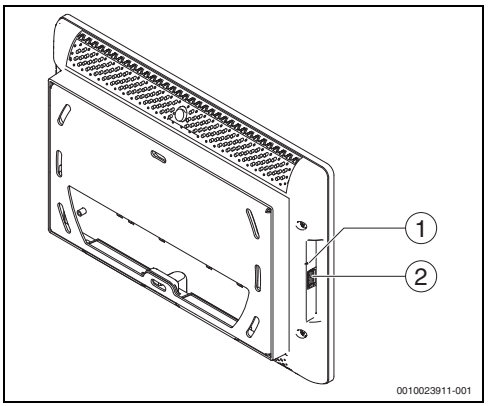


Fig. 7 Connections on right

[1] Restart button
[2] USB interface

Pressing the Restart button restarts the central controller. This can be done with a paper clip, for example. It is also possible to force a restart by disconnecting the central controller from the power supply then reconnecting it.

2.6.6 Power supply connection

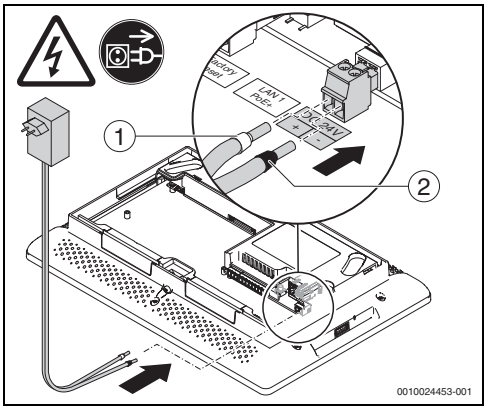


Fig. 8 Power supply connection

[1] Red wire ferrule (+)
[2] Black wire ferrule (–)

For more information → installation instructions of power source (included in scope of delivery of power source).

2.7 Technical data

Device designation	Air Center Control ACC MT
Construction	Electronic, separately installed controller for surface installation
Weight	1590 g
Dimensions	271 × 188 × 42 mm
Power supply	24 V DC 1A or PoE+ and 24 W (802.3at)
Electricity consumption	Max. 24 W, typical 10.2 W
Display	10.1" WXGA (1200 × 800) with PCAP-Touch
Connections, basic device	USB (Type A, max. 500 mA, max. 32 GB, FAT 32)
	LAN (100 Mbit/s)
	1 × XYE
	2 × Digital In (24 V DC, max. 15 mA)
	2 × Digital Out (Dry-Contact, max. 24 V AC/DC, continuously max. 250 mA (max. 2 A peak))
	1 × micro SD card
Connections for expansion card	1 × LAN (100 Mbit/s)
	3 × XYE
	1 × ModBus/RTU (max. 115 kbit/s)
	1 × Analogue In (0…10 V)
	1 × Analogue Out (0/4…20 mA)
Protection index	IP30
Ambient conditions, operation	0…40 °C, 5…85 % RH, pollution degree 2
Ambient conditions, transport	–30…70 °C, 5…95 % RH
Ambient conditions, storage	–25…55 °C, 5…95 % RH

SELV voltage	Max. 57 V DC
Rated impulse voltage	DC_{in}, PoE+:1500 V; other connections: 500 V
Operating principle according to IEC/EN 60730-1	Type 1
Software class according to IEC/EN 60730-1	A
Specified voltage and specified current for the purpose of EMC interference tests	24 V/0,7 A

Table 3 Technical data

3 Installation

WARNING

Danger to life through electric shock!

Before installing the product:

- ▶ disconnect the outdoor units, indoor units and all other BUS nodes from the supply voltage across all poles, and check they are safely isolated from the supply.

3.1 Preparations before installation

The central controller is installed separately and is designed for wall-mounted installation on a flat wall.

3.1.1 Installation site

- ▶ Do not install central controller more than 2000 m above sea level.
- ▶ Only install central controller inside buildings (not outside).
- ▶ Install central controller in a well-ventilated location.
- ▶ Do not install the central controller in damp areas.
- ▶ Exclude electrically conductive dirt deposits at the installation site (pollution degree 2).
- ▶ Do not install the central controller near heat sources/ heating systems and protect it from direct solar irradiation, etc.
- ▶ Air vents must not be covered.

3.1.2 Use cable feed (optional)

The supplied cable feed is required for the installation with cable conduit. The inserts for the cable feed are required to be used in these cases only.

If the central controller is used without an expansion board, an insert must only be replaced by a cable feed.
If an expansion board is used, both cable feeds are required. In each case both openings must be equipped with an insert or cable feed. None of the openings should remain empty.

- ▶ Remove existing inserts.
- ▶ Insert cable feed (scope of delivery).
- ▶ Attach cable feed insert to the floor plate.

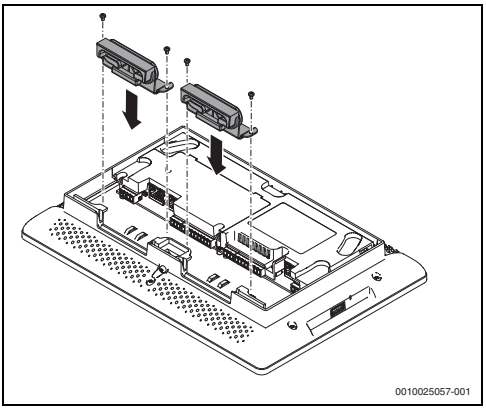


Fig. 9 Use cable feed

- ▶ Once fed through, cables can be fixed with cable ties to the tabs below the cable feeds.

3.1.3 Inserting expansion card AC EXP (optional)

The expansion card AC EXP and corresponding cover are not included in the scope of delivery of the central controller.

▶ Inserting expansion card.

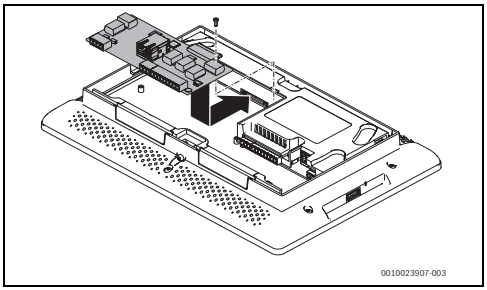


Fig. 10 Inserting expansion card

CAUTION

Material damage due to overtightened screws!

Components on the underside of the board could be damaged.

▶ **Do not tighten the screws too tight, and only tighten when the cover is fitted**.

▶ Fit cover of expansion card (cover included in the scope of delivery of the expansion card) and fasten with screws.

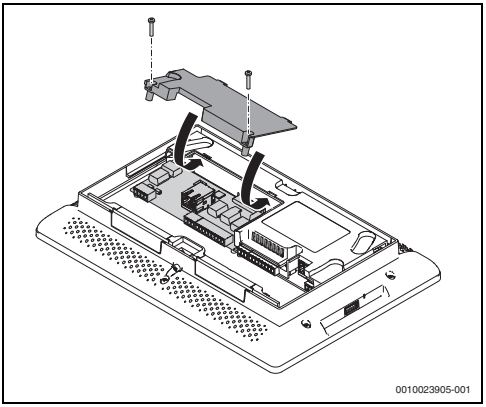


Fig. 11 Fitting the cover

3.1.4 Cable specifications

Connections	Specification	Precautions
DC_{in} power supply	Use the power source provided. Use alternative power source according to IEC 60335-1 (double insulated, approved for domestic appliances), with connecting cable 1.5 mm^2.	Power can also be supplied via network cable (PoE+).
Ethernet	minimum CAT 5e S/UTP	Maximum length 100 m
XYE	Shielded, 3-wire, flexible cable 0.75 mm^2; use uninsulated wire ferrules.	Maximum length 1200 m If this length is exceeded, it is not possible to establish an interference-free connection.
Digital I/O	Shielded[1)], 0.5...0.75 mm^2	Maximum length 1200 m
Analogue I/O	Shielded, 0.5...0.75 mm^2	Maximum length 1200 m

1) To be evaluated depending on the application; do not connect shield to central controller.

Table 4 Cable specifications

3.2 Types of installation

The central controller can be attached in 2 ways:

- Installation on finished walls without cable conduit
- Installation on finished walls with cable conduit

3.2.1 Installation on finished walls without cable conduit

NOTICE

Risk of fire

▶ When installing a wall box, the fire regulations must be observed.

The wall box is not a Bosch product and must be acquired separately.

To position the communication lines and install the wall box:

▶ Use a suitable wall box for the wall type.

▶ Prepare a sufficiently large opening in the wall.

- Install wall box in the opening.

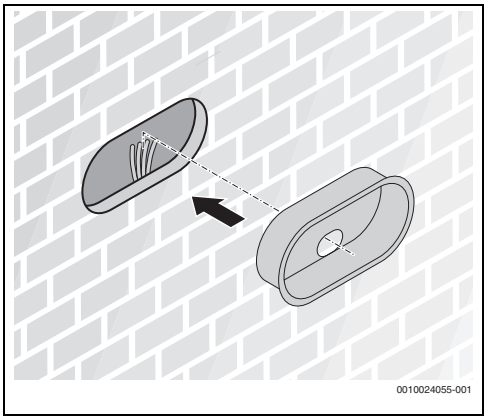


Fig. 12 Installing the wall box (example for illustration purposes)

- Guide the communication lines through the opening provided in the wall box.

Screws and anchors are not included in the scope of delivery.

- Use appropriate screws and anchors for the wall type.

To avoid any problems when connecting the central controller, we recommend that the length of the cable outside the wall opening is at least 200 mm.

- Install the wall mounting bracket on the wall box. The opening in the wall mounting bracket is over the opening in the wall box.

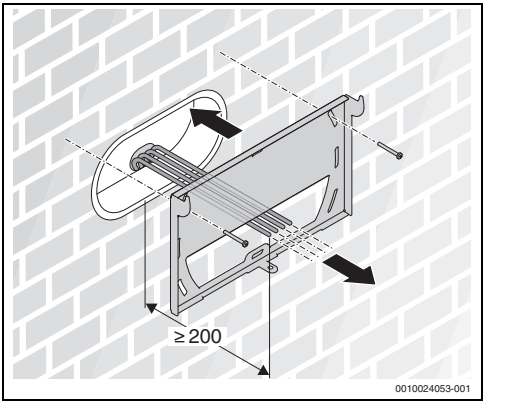


Fig. 13 Installing the wall mounting bracket (dimensions in mm)

- Guide the cable through the opening in the wall mounting bracket and prepare for connection to the central controller.

To make the connection easier:

- Position cable.

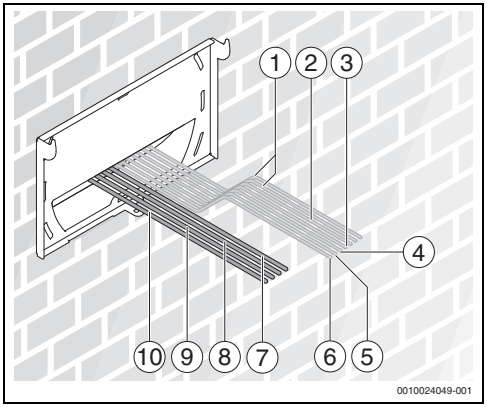


Fig. 14 Position cable

[1] Analogue I/O
[2] LAN2
[3] Modbus/RTU
[4] XYE4
[5] XYE3
[6] XYE2
[7] XYE1
[8] Digital I/O
[9] LAN1
[10] DC_{in}

- Connect cable.
- Hook central controller into the wall mounting bracket.
- Stow away the excess length of cable in the wall box.
- Fold the central controller down.
- Fasten central controller with screw.

Hook central controller into the wall mounting bracket and fasten (→ Chapter 3.2.3, page 16).

3.2.2 Installation on finished walls with cable conduit

- Prepare installation location above the cable conduit for the installation of the central controller wall mounting bracket.

To allow the screw that acts as locking device for the central controller on the wall mounting bracket (→ Fig. 4, Item [8], page 8) to be tightly fastened without problems, we recommend using cable conduits with detachable front.

To avoid any problems when connecting the central controller, we recommend that the length of the cable outside the cable conduit is at least 200 mm.

- Install wall mounting bracket 30 mm above the cable conduit.

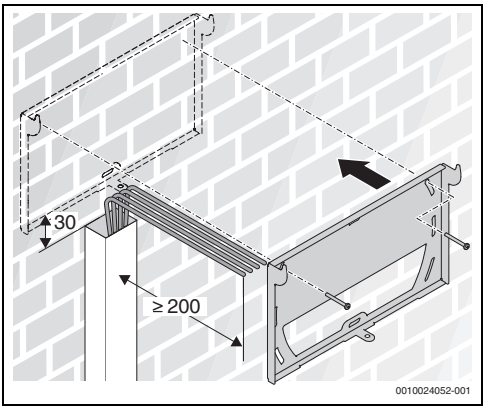


Fig. 15 Installing the wall mounting bracket (dimensions in mm)

- Position cable.

- Connect cable and, if necessary, fasten with cable ties to the tabs below the cable feeds.

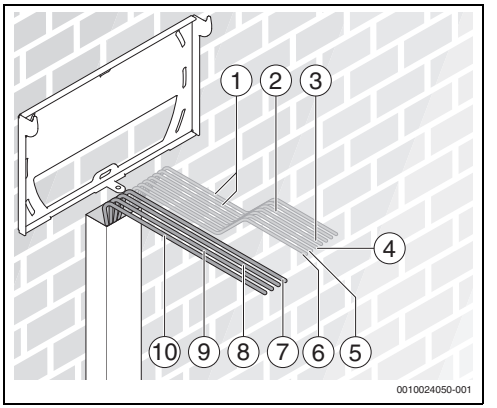


Fig. 16 Connect cable

[1] Analogue I/O
[2] LAN2
[3] Modbus/RTU
[4] XYE4
[5] XYE3
[6] XYE2
[7] XYE1
[8] Digital I/O
[9] LAN1
[10] DC_{in}

- Hook central controller into the wall mounting bracket and fasten (→ Chapter 3.2.3, page 16).

3.2.3 Hook in central controller and fasten

- Hook central controller into the wall mounting bracket, fold down.

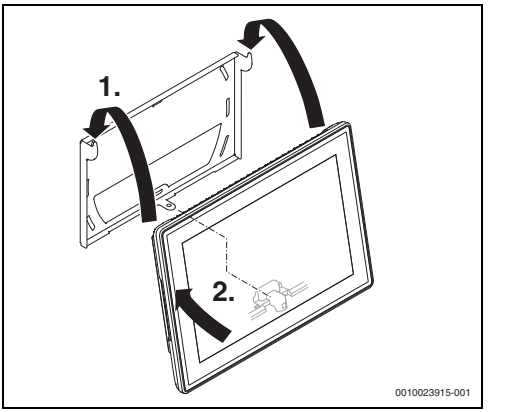


Fig. 17 Hook in central controller

- Fasten central controller with screw.

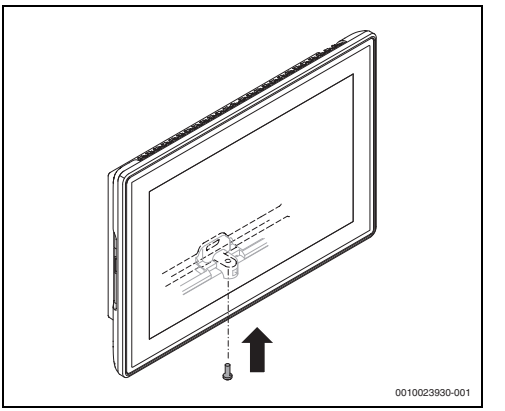


Fig. 18 Fasten central controller

3.2.4 Removing the central controller

▶ Loosen screw on the underside of the central controller.

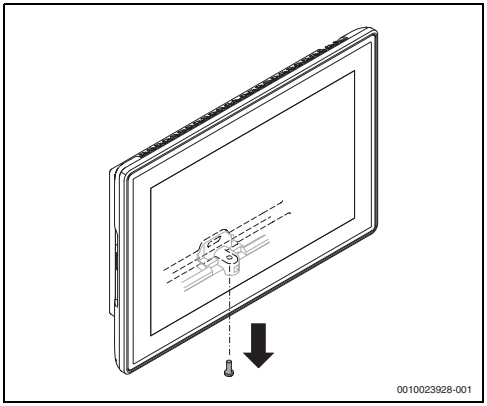


Fig. 19 Loosen screw

▶ Pull off central controller at bottom and unhook from the wall mounting bracket at the top.

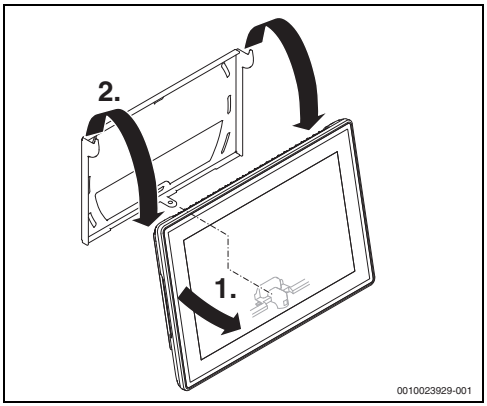


Fig. 20 Unhook central controller

▶ Disconnect all plug-in connectors.

4 Commissioning

Overview of the commissioning steps

1. Installation and electrical wiring of all VRF system components (outdoor units, indoor units, etc. → follow the instructions for the system components).
2. Commissioning of system components.

To ensure fault-free communication between the central controller and variable refrigerant flow system components:

▶ Bring indoor units into operation first, followed by the outdoor units.

▶ System type AF 6300: when connecting to the power supply/switching on, observe the sequence indoor unit, S-Box then outdoor unit.

Only perform the system scan 15 minutes after switching the outdoor units on.

When commissioning the outdoor units, it is advisable not to change the default setting at the selector switch for selecting the central controller to be used to avoid communication problems between the central controller and VRF system.

▶ Commissioning the central controller via the configuration wizard (→ Chapter 4.1, page 17).

▶ Performing settings in the configuration wizard of the central controller (→ Chapter 4.1, page 17).

▶ System handover (→ Chapter 6, page 20).

4.1 Configuration wizard

The configuration wizard starts automatically the first time the central controller is operated after establishing the connection with the power supply.

▶ Follow the instructions of the configuration wizard step-by-step.

The following configurations can be made:

- Select language, country, time zone, date and time
- Restore saved settings
- Perform software updates
- Create new admin user
- Start system scan

The first user account to be set up is a user account with administrator rights. Once the administrator account has been set up, the administrator can create new user accounts and assign user roles.

National data protection regulations must be observed when creating the user accounts (→ “Observe and comply with data protection notices for the operator” in the operating instructions).

4.2 Recommended system configuration

Once the configuration wizard is complete, we recommend making the following settings in the main menu:

Menu	Adjust
User management	Create user and assign access rights. **Notice:** observe data protection notices for the operator in the operating instructions.
Network settings	Configure connections.
Screen	Adjust brightness, switch-off time, etc.

Table 5 Recommended system configuration

The settings listed can be accessed via the page **Dashboard** (→ Chapter 5.1, page 18).

5 First steps

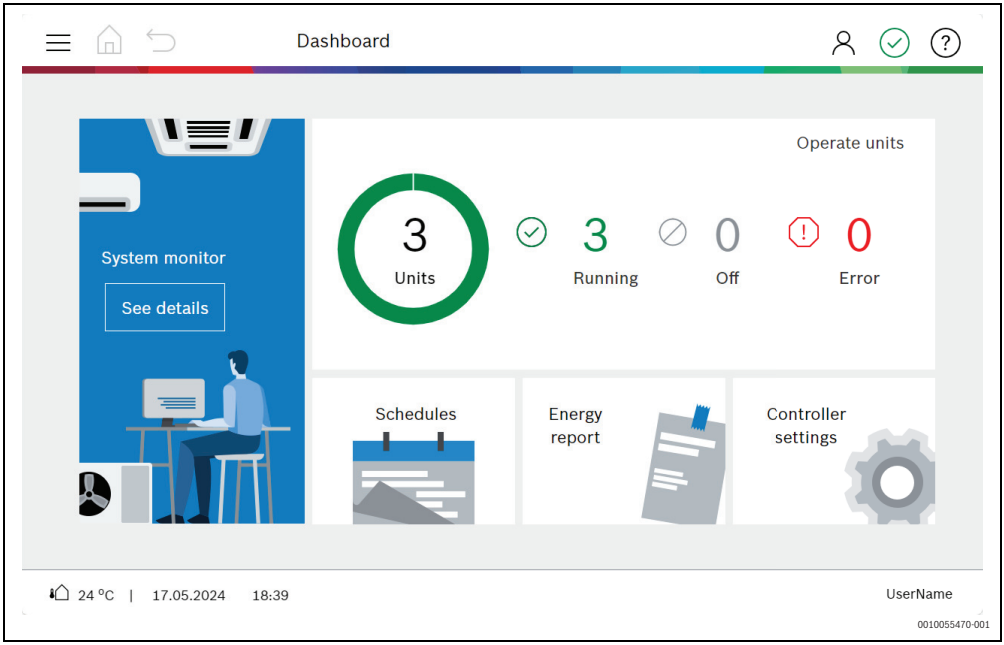
Once a scan has been performed, page **System structure** appears. Page **Dashboard** should be called up afterwards as a recommendation.

To call up the page **Dashboard**:

▶ Select header > ⌂.
Dashboard appears.

All software functions can be accessed from here. Important and the most frequently used functions are displayed as tiles.

5.1 Overview Dashboard



Example for illustration purposes (changes possible)

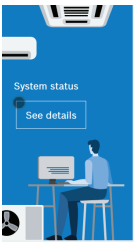
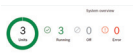
	Description	Description
	Header	• Navigation elements on every page at the top edge of the screen • Access the main menu ( ). • Call up the page **Dashboard** ( ). • Go back to previous page ( ). • Log user in and out ( ). • Warning exist ( ). • Faults exist ( ). • No software updates are available and no faults are present ( ). • Call up help for operation of the current screen ( ).
	Footer	Displays outdoor temperature, date and time.
	System monitor	View the measured values, as well as the refrigerant systems, outdoor units and all units (IDU, MDCI1), ERV, AHU KIT, AF-HB).
	Energy report	Reports the energy consumption of the outdoor units (converted to the connected indoor units).
	Schedules	• Create and edit time programs. • Assign indoor units to the time programs. • Set periods and operational functions for the indoor units.
	Controller settings	• Configure central controller. • Access, among other things, to: – User management – Network settings – Screen settings – Language, date and time – Software update manager – Device & Updates – Restart
	System overview	• Displays all units that are switched on and off and are affected by faults. • Access indoor units in all display variants.

Table 6 Overview

5.2 Changing the keyboard assignment

The keyboard assignment can be be changed via the on-screen keyboard.

To change the keyboard assignment to another language.

- ▶ Select language symbol [1].
  The language selection dialogue appears.
- ▶ Select language.
  The language is changed and displayed on the space bar.

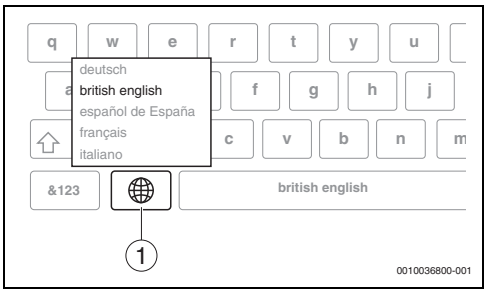


Fig. 21 Changing the keyboard assignment

[1] Language symbol

6 System handover

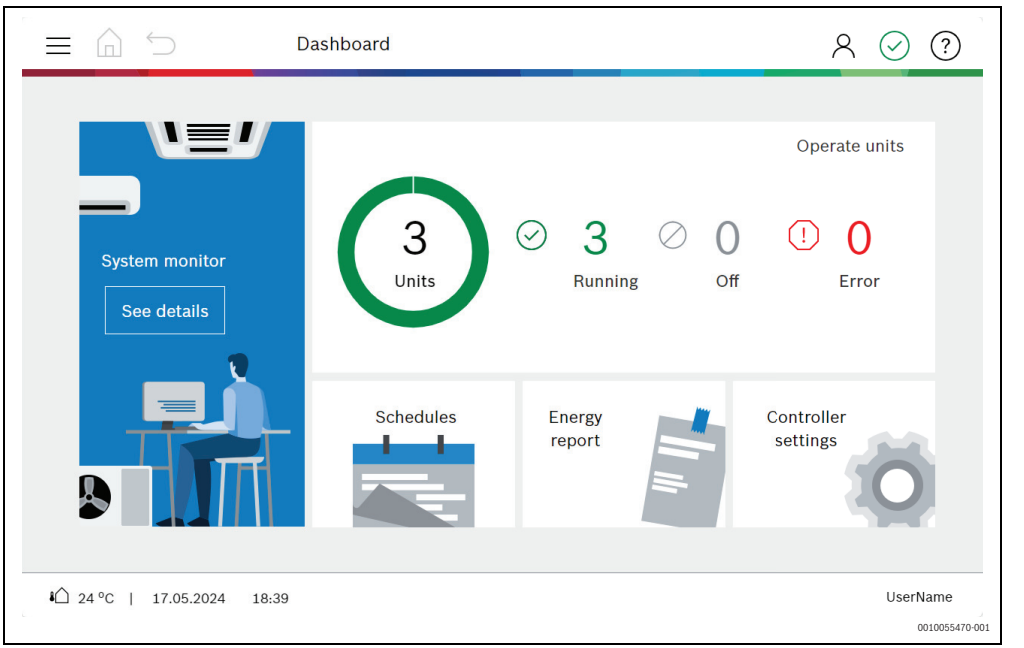
- ▶ Explain the functions and operation of the central controller to the customer.
- ▶ Inform the customer about the selected settings.
- ▶ Make the login details created available to the customer.

We recommend you hand these installation instructions to the customer, and brief the customer on the topic of data protection.

Following successful commissioning, we recommend saving the settings on a USB stick and handing it to the customer (→ operating instructions ACC MT).

7 Help and operation

Further explanations about the product and help can be called up directly at the central controller.



Example of display (changes are possible)

	Description	Description
	Main Menu	• Access the following via the **Help** menu item: – ACC information – Open source information – Terms and conditions – Help
	Help	• Call up help for operation of the current screen: – For more information, see the User manual.

Table 7 Main menu and help

8 Environmental protection and disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.
We use the best possible technology and materials for protecting the environment taking account of economic considerations.

Packaging

Where packaging is concerned, we participate in country-specific recycling processes that ensure optimum recycling. All of our packaging materials are environmentally compatible and can be recycled.

Used appliances

Used appliances contain valuable materials that can be recycled.
The various assemblies can be easily dismantled. Synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling or disposal.

9 Open Source Software

Bosch Thermotechnik also uses Open Source Software to control the products.

A USB stick with open source information is included in the scope of delivery of the central controller.

For open source information and to download available software update → https://www.bosch-thermotechnology.com/global/

Comprehensive information and information on the installed software version can be called up via the Help function of the central controller (→ Chapter 7, page 20).

10 Data Protection Notice

We, **Bosch Thermotechnology Ltd., Cotswold Way, Warndon, Worcester WR4 9SW, United Kingdom** process product and installation information, technical and connection data, communication data, product registration and client history data to provide product functionality (art. 6 (1) sentence 1 (b) GDPR / UK GDPR), to fulfil our duty of product surveillance and for product safety and security reasons (art. 6 (1) sentence 1 (f) GDPR / UK GDPR), to safeguard our rights in connection with warranty and product registration questions (art. 6 (1) sentence 1 (f) GDPR / UK GDPR) and to analyze the distribution of our products and to provide individualized information and offers related to the product (art. 6 (1) sentence 1 (f) GDPR / UK GDPR). To provide services such as sales and marketing services, contract management, payment handling, programming, data hosting and hotline services we can commission and transfer data to external service providers and/or Bosch affiliated enterprises. In some cases, but only if appropriate data protection is ensured, personal data might be transferred to recipients located outside of the European Economic Area and the United Kingdom. Further information are provided on request. You can contact our Data Protection Officer under: Data Protection Officer, Information Security and Privacy (C/ISP), Robert Bosch GmbH, Postfach 30 02 20, 70442 Stuttgart, GERMANY.

You have the right to object, on grounds relating to your particular situation or where personal data are processed for direct marketing purposes, at any time to processing of your

personal data which is based on art. 6 (1) sentence 1 (f) GDPR / UK GDPR. To exercise your rights, please contact us via **privacy.ttgb@bosch.com** To find further information, please follow the QR-Code.

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