



KaCool W

► Assembly, installation and operating instructions

Keep these instructions in a safe place for future use!

Table of contents

1 General	5
1.1 About these instructions	5
1.2 Explanation of Symbols.....	5
2 Safety.....	6
2.1 Correct use.....	6
2.2 Limits of operation and use.....	6
2.3 Risk from electrocution!.....	8
2.4 Personnel requirements - Qualifications	9
2.5 Personal Protective Equipment	9
3 Transport, storage and packaging.....	10
3.1 General transport instructions	10
3.2 Scope of delivery	10
3.3 Storage	11
3.4 Packaging	11
4 Technical data.....	12
5 Construction and function	13
5.1 Overview.....	13
5.2 Brief description	13
5.3 Wear parts list.....	13
6 Installation and wiring	14
6.1 Requirements governing the installation site.....	14
6.2 Minimum clearances.....	14
6.3 Installation	14
6.3.1 Suspending the unit.....	15
6.4 Installation	18
6.4.1 Connection to the pipe network	18
6.4.2 Overview of valve kits	18
6.4.3 Condensate drainage using a condensate pump	21
7 Electrical connection.....	22
7.1 Maximum electrical rating values	22
7.2 Electromechanical control	22
7.2.1 Connection (*00).....	22
7.3 Infra-red remote control version	32
7.4 KaControl (*C1)	41

7.4.1	KaController installation.....	41
7.4.2	Connection (*C1).....	42
8	Pre-commissioning checks.....	46
9	Operation.....	47
9.1	Operation of electromechanical control	47
9.2	Operation of the KaController.....	50
9.2.1	Function keys, display elements	50
10	Maintenance	53
10.1	Securing against reconnection	53
10.2	Maintenance Schedule:	53
10.3	Maintenance work	54
10.3.1	Replacing the filter.	54
10.3.2	Cleaning the condensate tray	54
10.3.3	Cleaning the condensate pump	54
10.3.4	Clean the inside of the unit	54
11	Faults	55
11.1	Fault table.....	55
11.2	KaControl faults	56
11.3	Start-up after rectification of fault	56
12	List of KaControl parameters.....	57
12.1	Parameter list.....	57
12.2	KaController parameter list.....	60
13	Certificates.....	62
	Table	64

1 General

1.1 About these instructions

These instructions ensure the safe and efficient handling of this equipment. These instructions form an integral part of the equipment and have to be kept in the direct vicinity of the equipment and available to personnel at all times.

All personnel must have carefully read through these instructions prior to commencing all work on the equipment. A fundamental prerequisite for safe working is compliance with all the stated safety instructions and other instructions contained in this manual.

In addition all local occupational health and safety at work regulations apply, as do general safety provisions governing the use of the equipment.

Illustrations in this guide are intended to provide a basic understanding and may differ from the actual model.

Ongoing tests and further developments may result in small variations between the unit supplied and the instructions.

1.2 Explanation of Symbols

**DANGER!**

This combination of symbol and signal word indicates an immediately dangerous situation caused by electrical power, which will cause death or serious injury if not avoided.

**WARNING!**

This combination of symbol and signal word indicates a possible hazardous situation.

**IMPORTANT NOTE!**

It represents a potentially hazardous situation, which could lead to damage to property or for a measure to optimise workflows.

**IMPORTANT NOTE!**

This symbol highlights useful hints, recommendations and information for efficient and trouble-free operation.

2 Safety

This section provides an overview of all important safety aspects to ensure optimum protection of personnel as well as safe and trouble-free operation. In addition to the safety instructions in these operating instructions, the valid safety, accident prevention and environmental protection regulations must be observed for the area of use of the unit. It is the duty of the operator to ensure that instructions relating to maintenance (e.g. relating to hygiene) are complied with.

2.1 Correct use

The units are only intended to be used for heating and cooling air in frost-free and dry rooms. Within the room, the unit needs to be connected to the building's heating/cooling/ventilation system and to the building's waste water and power network. The operating limits and limits of use described in Chapter 2.2 [► 6] must be observed.



IMPORTANT NOTE!

Only use the unit after completion of the complete building and system. Site heating is not deemed to be correct and proper use.

Intended use of the unit also includes adherence to these instructions.

Information in accordance with EN60335-1

- This unit can be used by children aged 8 years or more and also by people with reduced physical, sensory or mental capabilities or a lack of experience and knowledge, if they are supervised or have been instructed in the safe use of the unit and the resulting dangers. Do not allow children to play with the unit. Do not allow children to clean and maintain the unit without supervision.
- The unit is not intended for operation above 2,000 m.a. s.l.
- This unit is not intended for permanent connection to the drinking water supply system.
- This unit is intended for being accessible to the general public.

Any use beyond or other than the stated intended use is considered as misuse.

Any change to the unit or use of non-original spare parts will cause the expiry of the warranty and the manufacturer's liability.

2.2 Limits of operation and use

Limits of operation		
Min./max. water temperature	°C	6-75
Min./max. air intake temperature	°C	15-30
Min./max. air humidity	%	max. 63%
Min. operating pressure	bar/kPa	-
Max. operating pressure	bar/kPa	8/800
Min./max. glycol percentage	%	0-50

Tab. 1: Limits of operation

Operating voltage	230 V/ 50/60 Hz
Power/current consumption	On the typeplate

Tab. 2: Operating voltage

We would refer to VDI-2035 Sheets 1 & 2, DIN EN 14336 and DIN EN 14868 with regard to the properties of the medium used to protect the equipment. The following values provide further guidance.

The water used should be free of contamination, such as suspended substances and reactive substances.

Water quality		
pH value (at 20 °C)		8-9
Conductivity (at 20 °C)	µS/cm	< 700
Oxygen content (O ₂)	mg/l	< 0.1
Hardness	°dH	4-8.5
Sulphur ions		not measurable
Sodium ions (Na ⁺)	mg/l	< 100
Iron ions (Fe ²⁺)	mg/l	< 0.1
Manganese ions (Mn ²⁺)	mg/l	< 0.05
Ammonia ions (NH ₄ ⁺)	mg/l	< 0.1
Chlorine ions (Cl)	mg/l	< 100
CO ₂		< 50
Sulfate ions (SO ₄ ²⁻)	mg/l	< 50
Nitrite ions (NO ₂ ⁻)	mg/l	< 50
Nitrate ions (NO ₃ ⁻)	mg/l	< 50

Tab. 3: Water quality



IMPORTANT NOTE!

Danger of frost in cooling mode!

There is a risk of the heat exchanger freezing when used in unheated rooms.

- ▶ Make sure that the unit is equipped with a frost protection sensor and/or thermostat in this case.



IMPORTANT NOTE!

Warning of misuse!

In the event of misuse, as itemised below, there is a danger of limited or failing operation of the unit. Ensure that the airflow can circulate freely.

- ▶ Never operate the unit in humid areas, such as swimming pools, wet areas etc.
- ▶ Never operate the unit in rooms with an explosive atmosphere.
- ▶ Never operate the unit in aggressive or corrosive atmospheres (e.g. sea air).
- ▶ Never operate the unit above electrical equipment (such as switch cabinets, computers or other electrical units, or contacts that are not drip-proof).
- ▶ Never use the unit as a construction site heater.
- ▶ Never operate the unit in areas with a high dust content.



IMPORTANT NOTE!

Energy losses due to misuse!

Operating the unit with open windows (or other room openings) can result in significant energy losses.

- ▶ Heating and cooling modes (particularly when operating different units) need to be coordinated with each other.

2.3 Risk from electrocution!



DANGER!

Risk of fatal injury from electrocution!

Contact with live parts will lead to fatal injury from electrocution. Damage to the insulation or individual components can lead to a fatal injury.

- ▶ Only permit qualified electricians to work on the electrical system.
- ▶ Immediately disconnect the system from the power supply and repair it in the event of damage to the insulation.
- ▶ Keep live parts away from moisture. This can cause a short circuit.
- ▶ Properly earth the unit.

2.4 Personnel requirements - Qualifications

Expertise

The installation of this product requires specialist knowledge of heating, cooling, ventilation, installation and electrical engineering. This knowledge, generally learned in professional training in one of the fields mentioned above, is not described separately.

Damage caused by improper installation is the responsibility of the operator or installer. The installer of these units should have adequate knowledge of the following gained from specialist professional training

- ▶ Safety and accident prevention regulations
- ▶ Guidelines and recognised technical regulations, i.e. Association of German Electricians VDE regulations, DIN and EN standards.
- ▶ VDI 6022; maintenance personnel must be trained to Category B (possibly Category C) to comply with hygiene requirements (as required).

The installation, operation and maintenance of this unit must comply with the applicable laws, standards, provisions and regulations in the respective country and the current state of the art.

2.5 Personal Protective Equipment

Personal protective equipment is used to protect people from impaired safety and health when working with the unit. The applicable accident prevention regulations at the place of use apply in all cases.

Personnel have to wear personal protective equipment during maintenance and troubleshooting on and with the unit.

3 Transport, storage and packaging

3.1 General transport instructions

Check on delivery for completeness and transport damage.

Proceed as follows in the event of visible damage:

- ▶ Do not accept delivery or only accept with reservations.
- ▶ Record any transport damage on the transportation documents or on the transport company's delivery note.
- ▶ Submit a complaint to the freight forwarder.



IMPORTANT NOTE!

Warranty claims can only be made within the applicable period for complaints. (More information is available in the T&Cs on the Kampmann website)



IMPORTANT NOTE!

2 people are needed to transport the unit. Wear personal protective clothing when transporting the unit. Only lift the unit on both sides and not by the pipes / valves.



IMPORTANT NOTE!

Material damage caused by incorrect transport!

Units being transported can drop or topple over if transported wrongly. This can cause serious material damage.

- ▶ Proceed carefully when unloading the equipment on delivery and when transporting it on site and note the symbols and instructions on the packaging.
- ▶ Only use the holding points provided.
- ▶ Only remove packaging shortly before assembling the unit.

3.2 Scope of delivery



IMPORTANT NOTE!

Check the scope of delivery!

- ▶ Check the delivery for damage.
- ▶ Check that the articles and type numbers are correct.
- ▶ Is the delivery and number of items delivered correct?

3.3 Storage

Store packaging under the following conditions:

- ▶ Do not store outdoors.
- ▶ Store in a dry and dust-free place.
- ▶ Store in a frost-free place.
- ▶ Do not expose to aggressive media.
- ▶ Protect from direct sunlight.
- ▶ Avoid mechanical vibrations and shocks.

**IMPORTANT NOTE!**

Under certain circumstances, packages can carry storage instructions that exceed the requirements listed here. Comply with these instructions accordingly.

3.4 Packaging

Handling packaging materials

**IMPORTANT NOTE!**

Dispose of packaging materials in line with the applicable statutory requirements and local regulations.

**IMPORTANT NOTE!**

The packaging is also use to protect the product from site dust and dirt. Only remove packaging shortly before assembling the unit.

KaCool W

Assembly, installation and operating instructions

4 Technical data

Unit	KaCool W	
Size	1/2	3/4
Width [mm]	185	185
Length [mm]	929	1235
Height [mm]	332	332
Weight [kg]	13	16
Air volume flow [m³/h]	238-608	292-822
Internal volume of 2-pipe system [l]	0.9	1.3
Heat output [W] ¹	3418-6887	4424-10166
Cooling output [W] ²	1312-2611	1715-4040
Sound power level [dB(A)]	30-48	27-49

¹ at LPHW 75 / 65°C, t_{l1} = 20°C

² at CHW 7/12°C, t_{l1} = 27 °C, 48% relative humidity

5 Construction and function

5.1 Overview

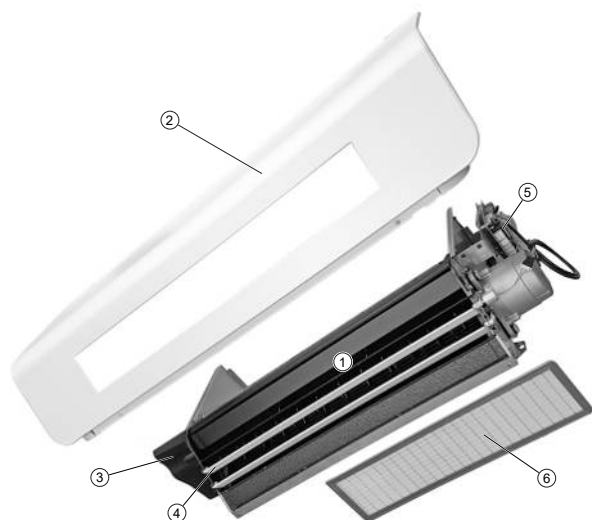


Fig. 1: KaCool W at a glance

1	Basic unit	2	Casing
3	Condensate tray	4	Air outlet fin
5	Electrical connection	6	ISO Coarse filter

5.2 Brief description

The KaCool W is a decentralised design wall-mounted unit for heating and cooling air in hotels, offices and business premises, among other places. The secondary air is drawn in through a regenerable air filter, which removes dust from the secondary air, protecting the downstream components from dirt. The fan blows the air through the copper-aluminium heat exchanger. Depending on the temperature at which the medium flows through the heat exchanger, the air is either cooled or heated in the heat exchanger. The air then passes through the outlet air fins into the room. The outlet air fins can be manually adjusted to the required direction. Condensate can be produced at the heat exchanger when cooling with low water temperatures. This drips onto the heat exchanger and falls into the condensate tray below. From here, the condensate can be discharged by a condensate pump and/or a condensate drain provided by others.

5.3 Wear parts list

Figure	Article	Properties	For use with	Art. no.
	Replacement filter with frame	1x	KaCool W	Size 1 / 2: 324001638253
				Size 3 / 4: 324001638255

6 Installation and wiring

6.1 Requirements governing the installation site

Only install and assemble the unit if the following conditions are met:

- ▶ Make sure that the wall is sufficiently load-bearing to take the weight of the unit (Technical data [► 12]).
- ▶ Make sure that the unit is securely suspended/standing.
- ▶ Ensure that the airflow can circulate freely.
- ▶ Provide adequate space for appropriately sized flow and return water connections on site (Connection to the pipe network [► 18]).
- ▶ There is a power supply on site (Maximum electrical rating values [► 22]).
- ▶ If need be, provide a condensation connection with a sufficient gradient on site.

6.2 Minimum clearances

Adhere to the minimum distances when suspending the unit in order to guarantee the unobstructed circulation of the air and ensure comfort.

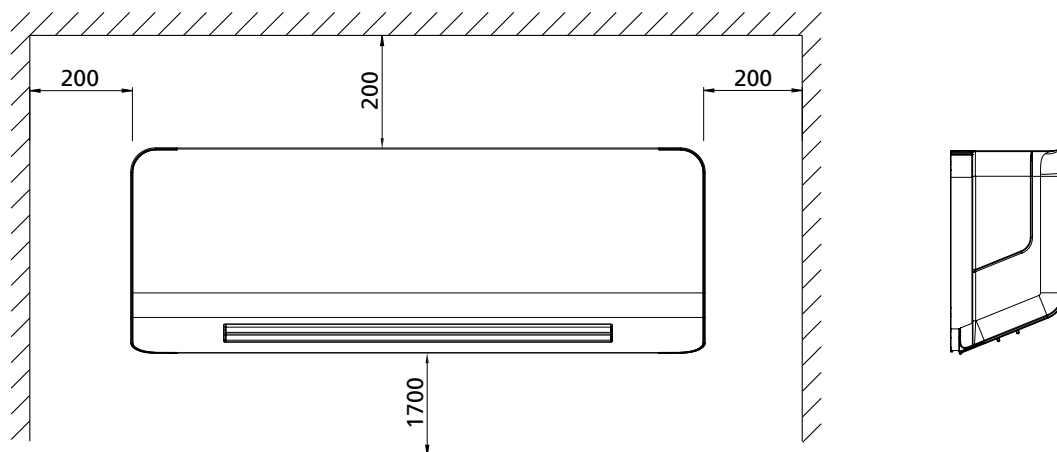


Fig. 2: Minimum distances (dimensions in mm)

6.3 Installation

2 people are needed to install the unit.

**CAUTION!****Risk of injury from sharp metal housing!**

The inner metal of the casing can have sharp edges.

- ▶ Wear suitable protective gloves.

**IMPORTANT NOTE!****Horizontal installation of units!**

When installing the units, ensure that they are completely horizontal to ensure proper operation.

**IMPORTANT NOTE!****Avoid draughts!**

Consider the occupied zone when installing/suspending the units. Do not expose people to the direct air flow. Position the unit accordingly and adjust the air outlet if required.

KaCool W

Assembly, installation and operating instructions

6.3.1 Suspending the unit

- Use the template (which is part of the packaging) to mark on the suspension points:

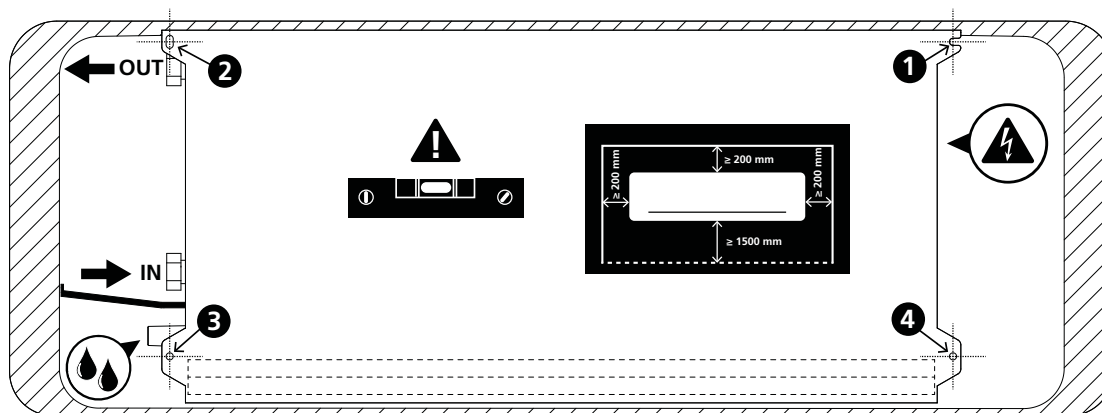


Fig. 3: Drilling template

Dimensions of the suspension points, size 1/ size 2

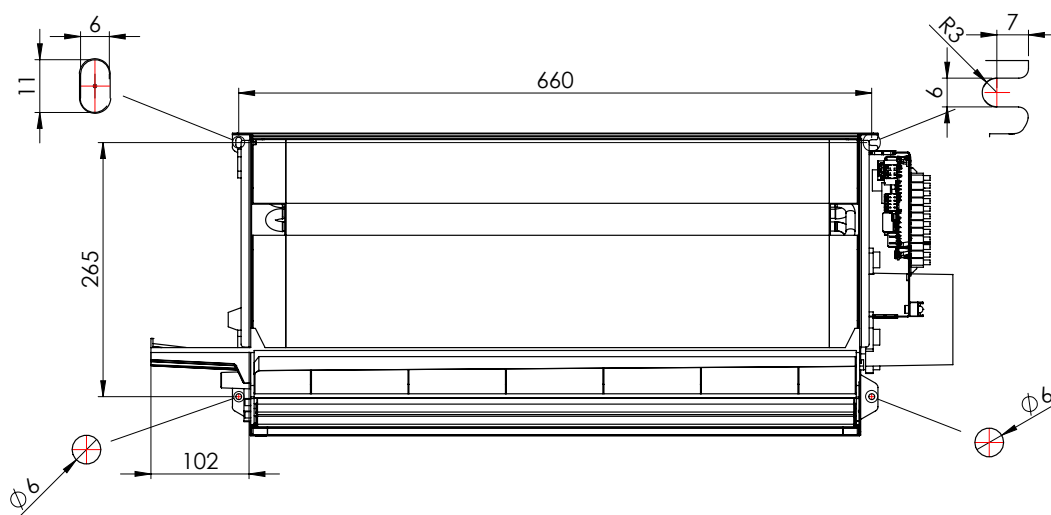


Fig. 4: Size 1/ size 2 suspension points

Dimensions of the suspension points, size 3/ size 4

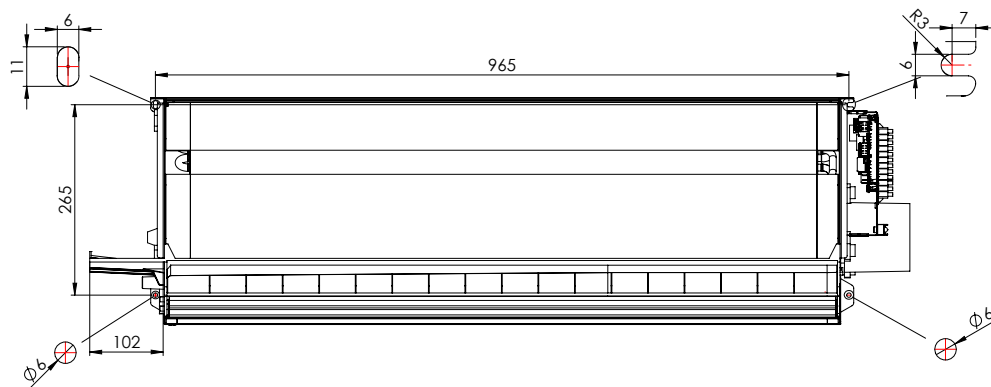






Fig. 5: Size 3/ size 4 suspension points

	<ul style="list-style-type: none"> ▶ Remove the fixing screws and remove the design panel.
	<ul style="list-style-type: none"> ▶ Fix the basic unit to the wall using screws and rawlplugs (provided by others). ▶ Once the basic unit has been installed, make the water-side and electrical connections.
	<ul style="list-style-type: none"> ▶ Screw the casing to the basic unit.
	<ul style="list-style-type: none"> ▶ Position the casing on the basic unit so that it sits over the filter rail.

KaCool W

Assembly, installation and operating instructions

6.4 Installation

6.4.1 Connection to the pipe network

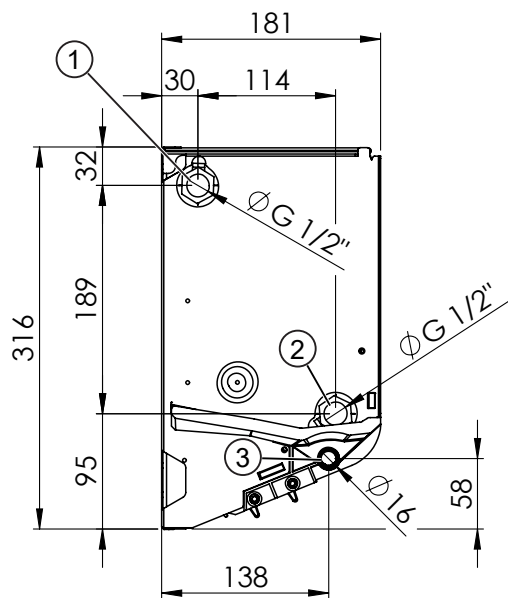





Fig. 6: Connecting dimensions

1	Supply 1/2"	2	Return 1/2"
3	Condensate connection (Ø16 mm)		

6.4.2 Overview of valve kits

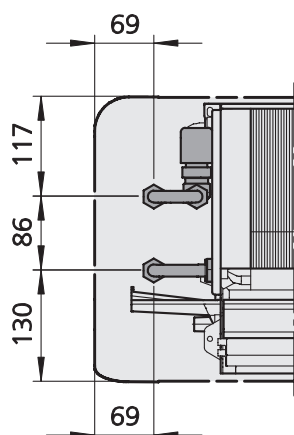
Valve kits	Article	Properties	Dimensions [mm]	For use with	Article no.
	2-way valve kit	2-pipe, 2-way valve, 1x 230 V 2-point actuator 230 V Open/Close, 50 Hz, 1/2" connection, KVS value 1.7 m³/h, max. operating pressure 16 bar, supplied loose	185 x 140 x 90	Size 1 - 4, DN15	324002012110
		2-pipe, 2-way valve, 1x 24 V 2-point actuator 24 V Open/Close, 50 Hz, 1/2" connection, KVS value 1.7 m³/h, max. operating pressure 16 bar, supplied loose			324002012112
	3-way valve kit	2-pipe, 3-way valve, 1x 230 V 2-point actuator 230 V Open/Close, 50 Hz, 1/2" connection, KVS value 1.7 m³/h, max. operating pressure 16 bar, supplied loose	185 x 140 x 90	Size 1 - 4, DN15	324002012120
		2-pipe, 3-way valve, 1x 24 V 2-point actuator 24 V Open/Close, 50 Hz, 1/2" connection, KVS value 1.7 m³/h, max. operating pressure 16 bar, supplied loose			324002012122
	Differential pressure-independent valve kit	2-pipe, 230 V 2-point actuator 230 V Open/Close, 50 Hz, 1/2" connection, max. operating pressure 16 bar, supplied loose	185 x 140 x 90	Size 1 - 4, flow rate (min./max.) 65 - 650 l/h, DN15	324002012130
		2-pipe, 24 V 2-point actuator 24 V Open/Close, 50 Hz, 1/2" connection, max. operating pressure 16 bar, supplied loose			324002012132

Tab. 4: Valve kit at a glance

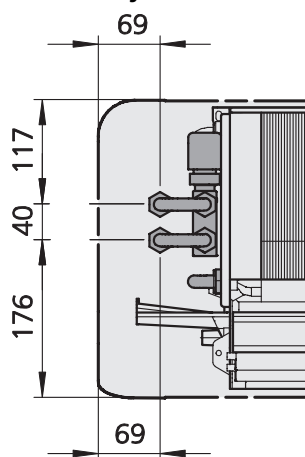
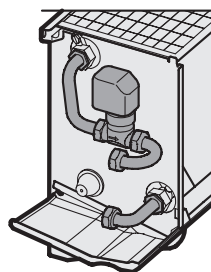
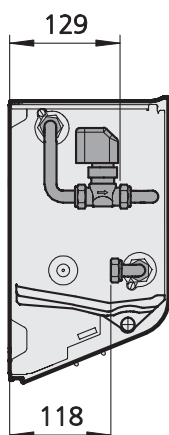
KaCool W

Assembly, installation and operating instructions

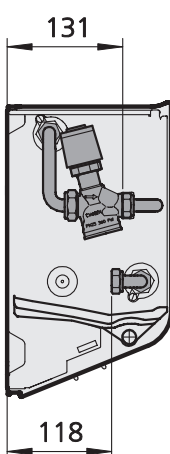
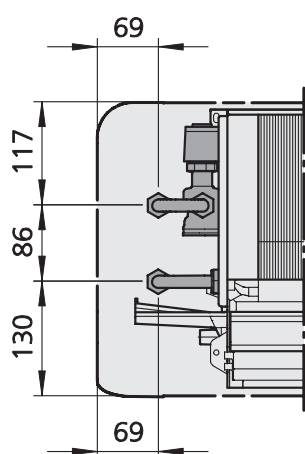
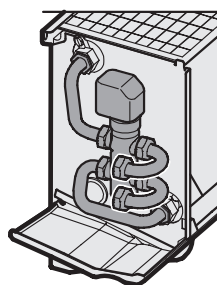
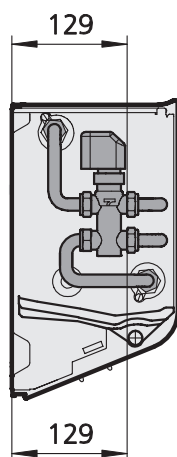
Valve kit dimensions



2-way valve



3-way valve



Differential pressure-independent valve


Fig. 7: KaCool W valve kits

6.4.3 Condensate drainage using a condensate pump

The water is drawn off by the condensate pump and discharged along a hose (supplied loose) connected on the pressure side. Depending on conditions on site, the water can be discharged into drainage lines, possibly with a trap connection.

In the event of a fault with the condensate drain, the water level will continue to rise until the float switch triggers an alarm contact. The contact can be analysed by external signalling devices.

Cooling mode must be automatically terminated, possibly with a shut-off valve, if the alarm contact is triggered to prevent the condensate tray from overflowing.

Figure	Article	Properties	Dimensions [mm]	For use with	Article no.
	Condensate pump	As an alternative to the free drain, 230 V 50 Hz, supplied loose	185 x 140 x 90	Size 1- 4	324002000410


Condensate drain

- ▶ Drainage of condensate from the condensate pump must be along a natural gradient with an adequate cross-section (minimum 1/2"). Increase the cross-section of the line with longer condensate lines.
- ▶ Check whether the condensate line needs to be insulated to prevent the build-up of condensate along the line.
- ▶ Never use a rigid transition to the on-site condensate drain. We would recommend a free overflow into a trap.

KaCool W

Assembly, installation and operating instructions

7 Electrical connection



IMPORTANT NOTE!

Condensation formation in the cooling unit!

In the event of on-site valve control, the cooling valve must be closed when the fans are switched off.

7.1 Maximum electrical rating values

KaCool D HC , electromechanical design (*00), F7/ F9 filter

Size	Nominal voltage [V AC]	Mains frequency [Hz]	Nominal power [W]	Nominal current [A]	Leakage current [mA]	Ri analogue input [kΩ]	Max. fuse [A]	IP class	Protection class

Tab. 5: Maximum electrical rating values

7.2 Electromechanical control

7.2.1 Connection (*00)

Circuit description, KaCool W electromechanical 230 V (*00)

- ▶ All KaCool W require a 230 V AC power supply. Factory-fitted actuators are wired to the terminals.
- ▶ The appropriate terminals are available for valve actuators.
- ▶ The fan speed of the EC fans used can be continuously variably controlled by a 0–10 V DC signal. The internal motor electronics detects any possible motor malfunction and automatically switches off the fan.
- ▶ When operating with external control, make sure that the cooling valve is closed when the fans are switched off.

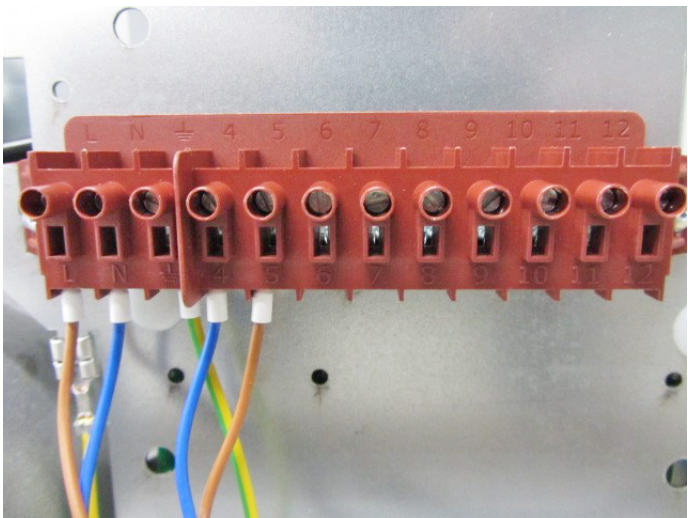


Fig. 8: Terminal assignment

Terminals	Site connection	Internal connection	Optional / supplied loose
L	Mains power supply line	Motor L	Condensate pump L
N		Motor N	
PE		PE	
4	GND	GND	
5	0 - 10 V	0 - 10 V	
6			
7	Optional jumper (N)		Jumper N (by others)
8	Optional jumper (N)		Valve / condensate pump N
9			Valve / Condensate pump fault
10			
11			
12	Heating / cooling valve 230 V		Condensate pump fault

Control via 0 – 10 V DC

control signal	Function
0 V	Off
1.5 V – 10 V	0 – 100%

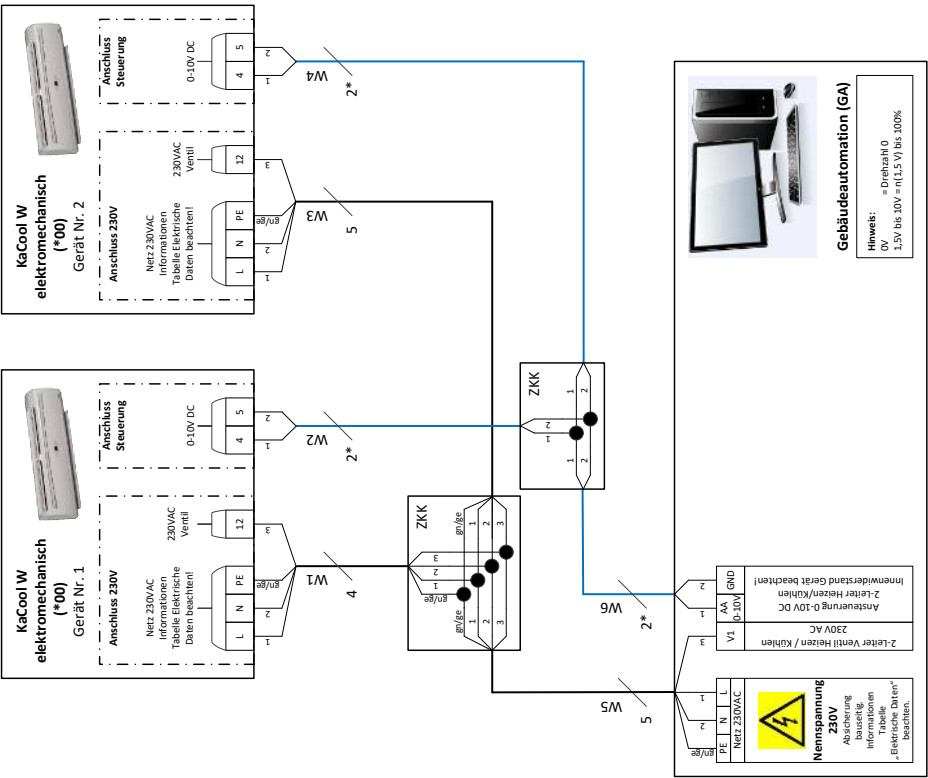
Refer to these points in the following layout plans with electromechanical control:

- ▶ Comply with the details on cable types and cabling with due consideration of VDE 0100.
- ▶ Without *: NYM-J. The requisite number of wires, including PE conductor, is stated on the cable. Cross-sections are not stated, as the cable length is included in the calculation of the cross-section.
- ▶ With *: J-Y(ST)Y 0.8mm. Lay separately from high-voltage lines.
- ▶ With **: UNITRONIC® BUS LD 2x2x0.22 mm². Lay separately from high-voltage lines.
- ▶ If other types of cables are used, they must be at least equivalent.
- ▶ The terminals on the unit are suitable for a maximum wire cross-section of 2.5 mm².
- ▶ All RCCBs used must at least be mixed frequency-sensitive (type F). Refer to the provisions of DIN VDE 0100 Parts 400 and 500 when designing the rated fault current.
- ▶ Note the electrical data when rating the in-situ mains power supply and fuse.

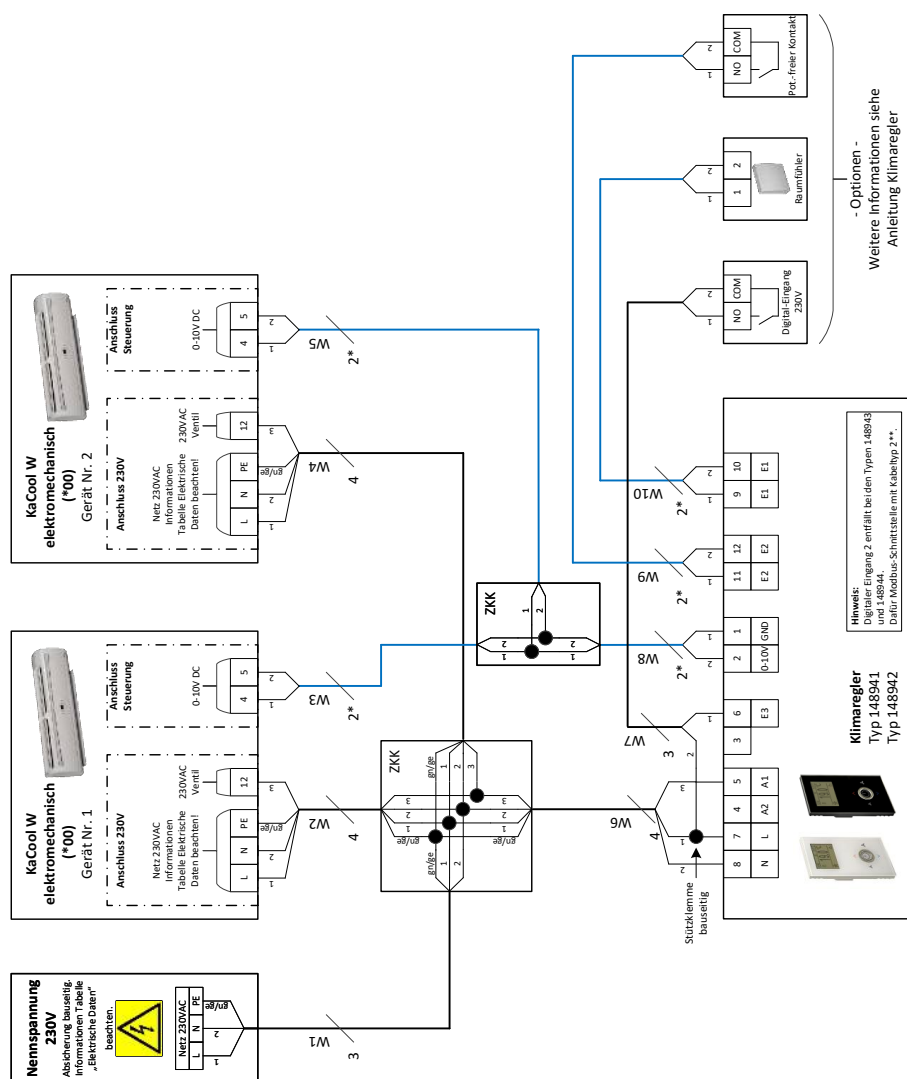
KaCool W

Assembly, installation and operating instructions

Elektromechanisch 230 V, 2-Leiter Ventilantrieb 230V AC Auf/Zu,
Kondensatpumpe optional, Ansteuerung 0-10 V DC über GA



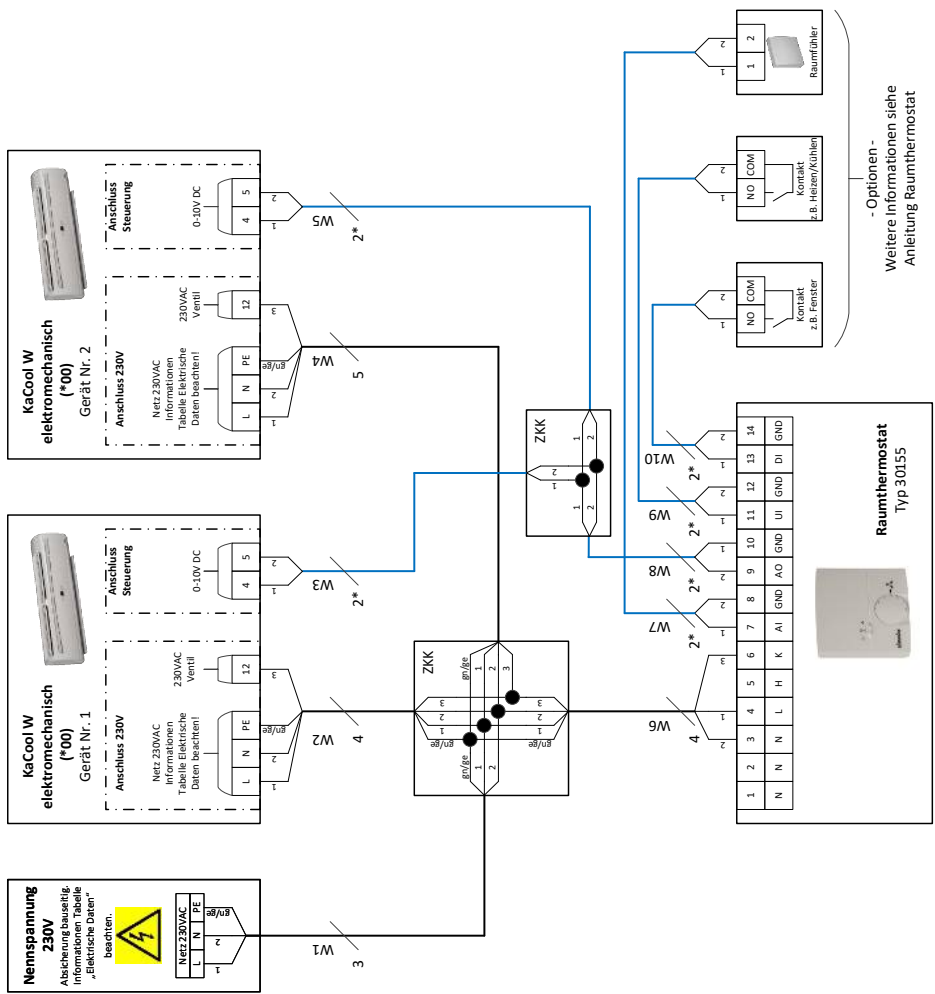
**Elektromechanisch 230V, 2-Leiter, Ventilantrieb 230VAC Auf/Zu,
Kondensatpumpe optional, mit Klimaregler Typ 14894x**



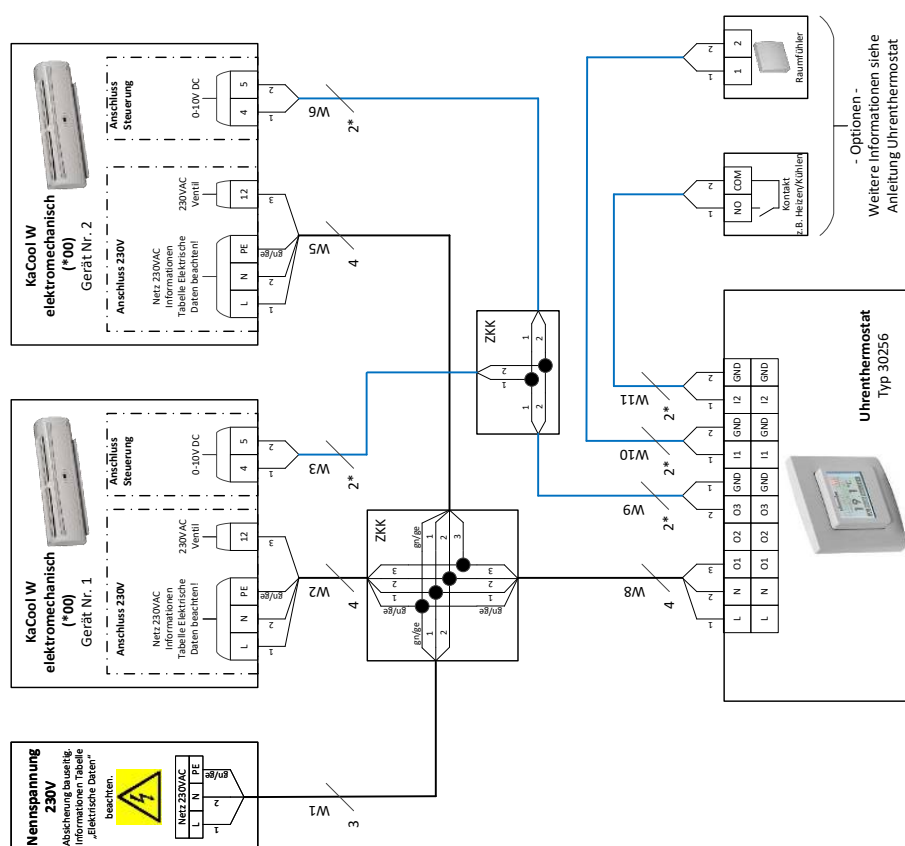
KaCool W

Assembly, installation and operating instructions

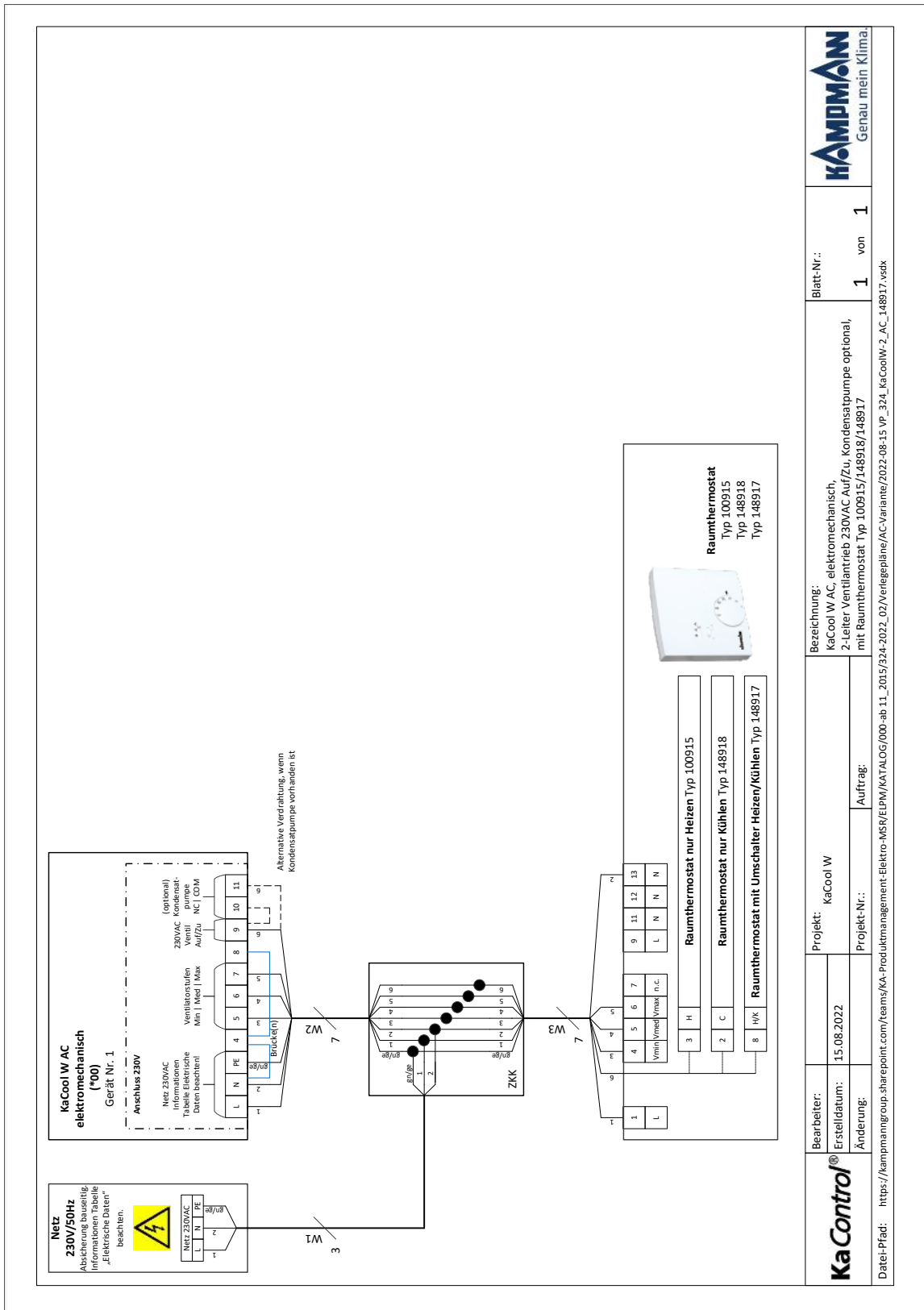
Elektromechanisch 230V, 2-Leiter Ventilantrieb 230V AC Auf/Zu,
Kondensatpumpe optional, mit Raumthermostat Typ 30155



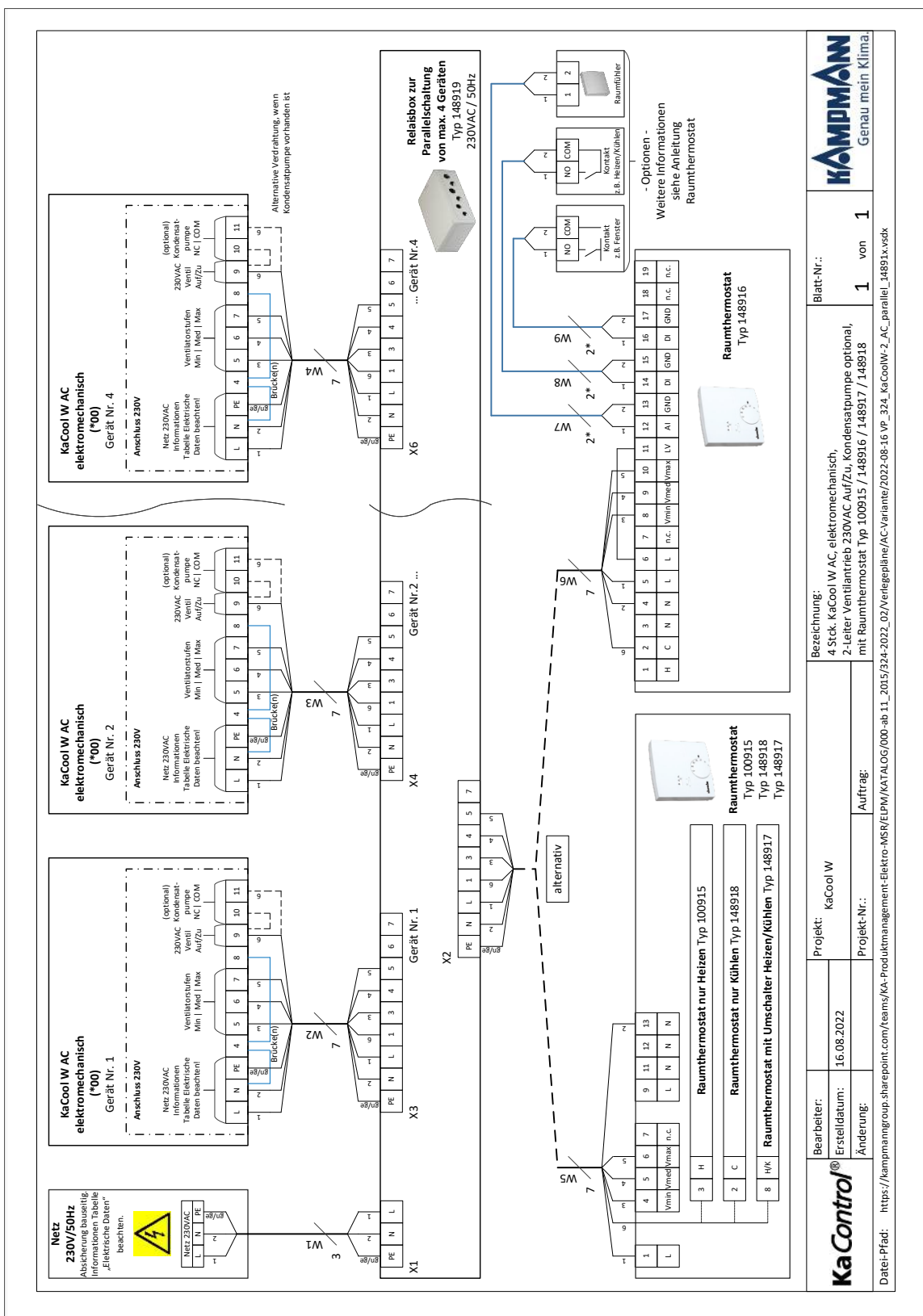
**Elektromechanisch, 2-Leiter, Ventiltrieb 230VAC Auf/Zu,
Kondensatpumpe optional, mit Uhrenthermostat Typ 30256**











7.3 Infra-red remote control version

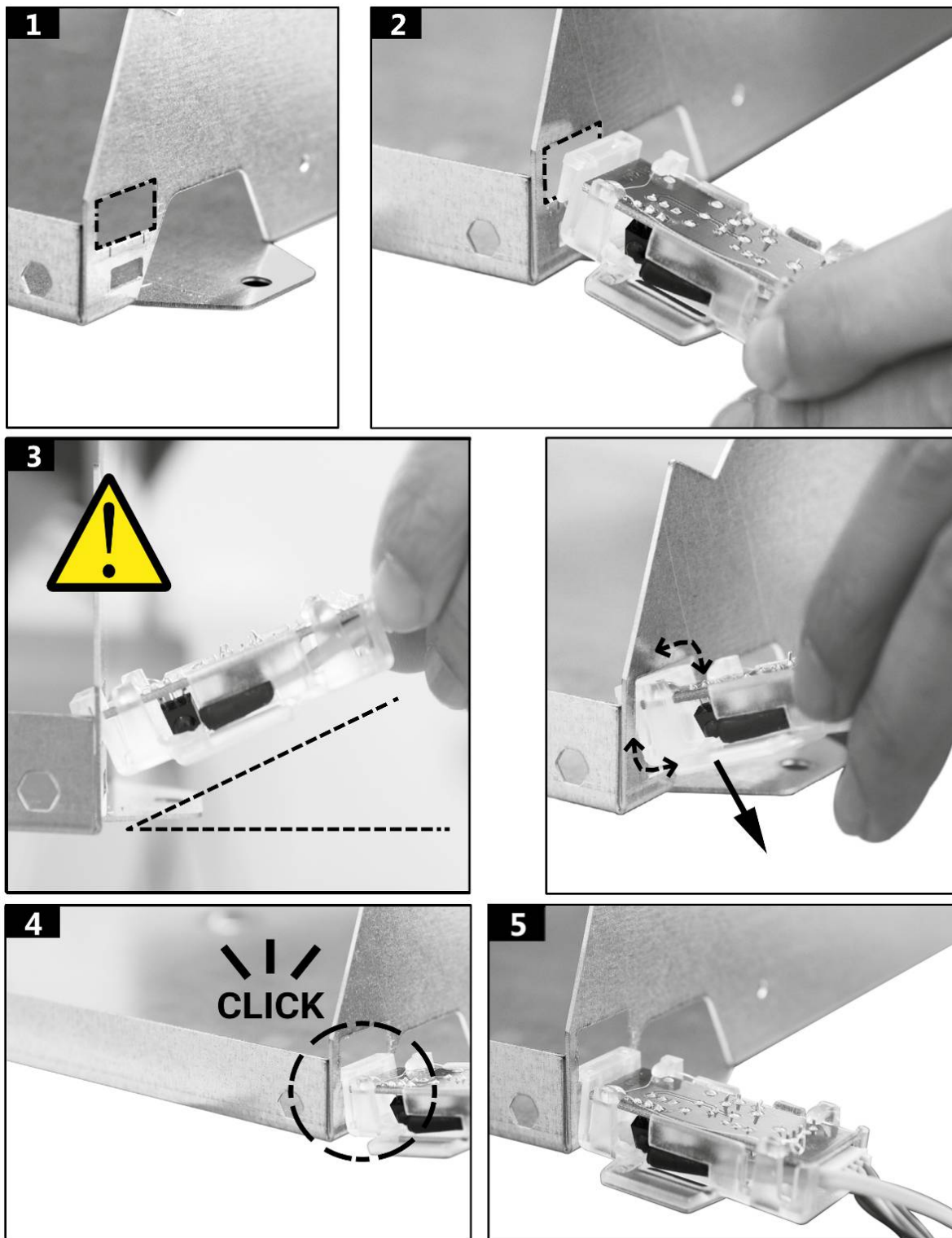


Fig. 9: Attaching the infra-red receiver

Note: When inserting and removing the receiver, always tilt the plug as shown on the figure to avoid breaking the plug.

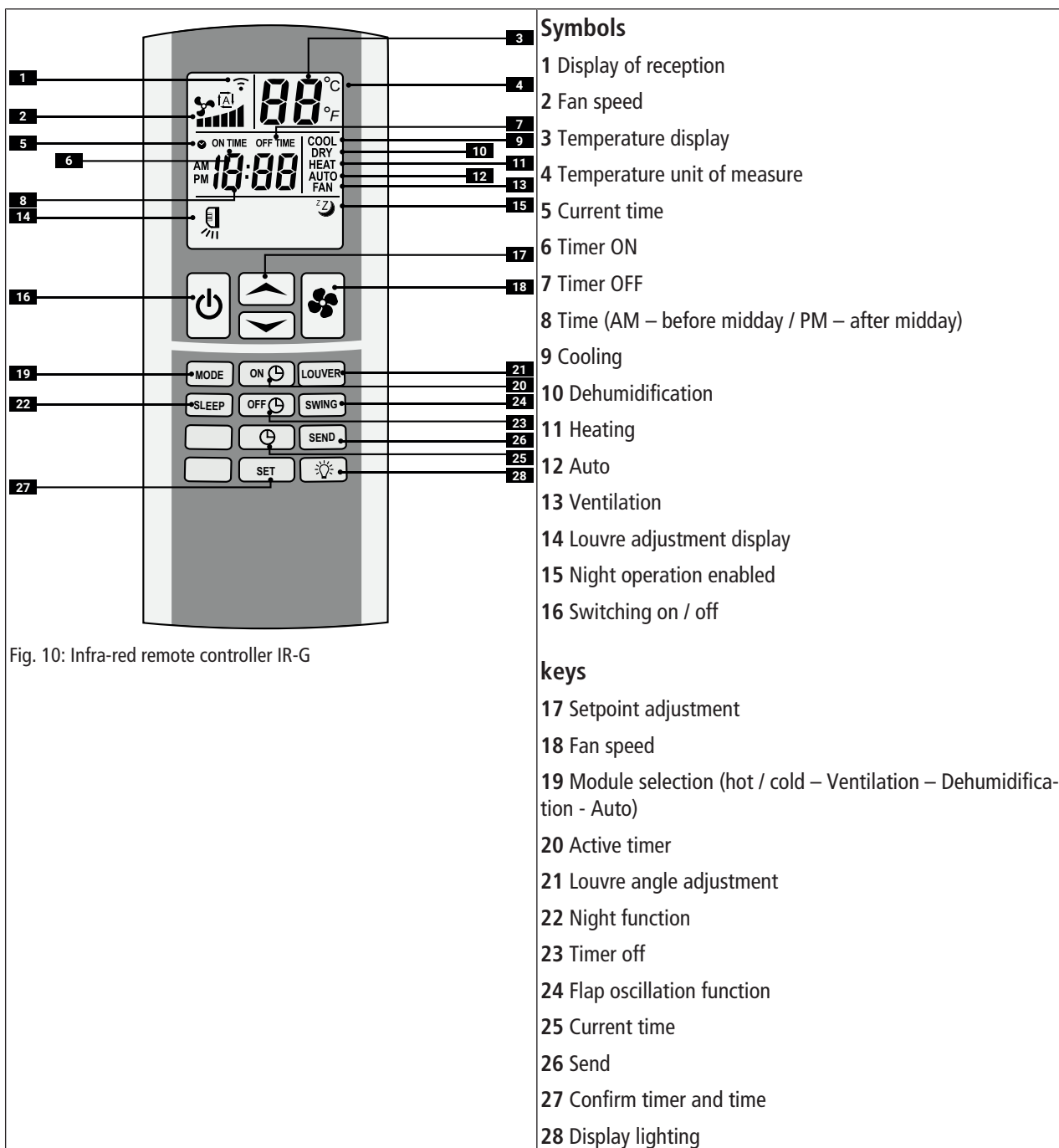
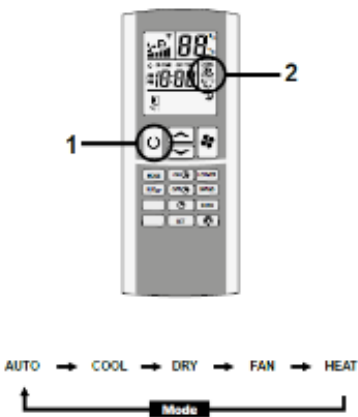



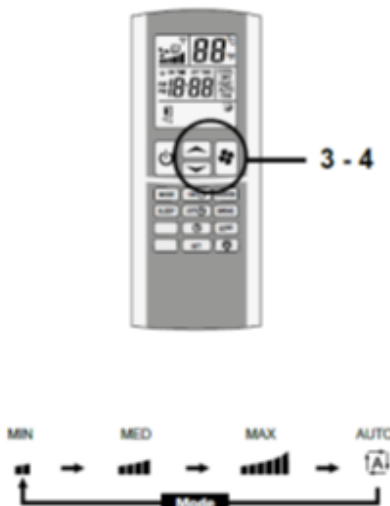
















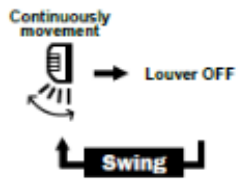


Fig. 10: Infra-red remote controller IR-G

KaCool W

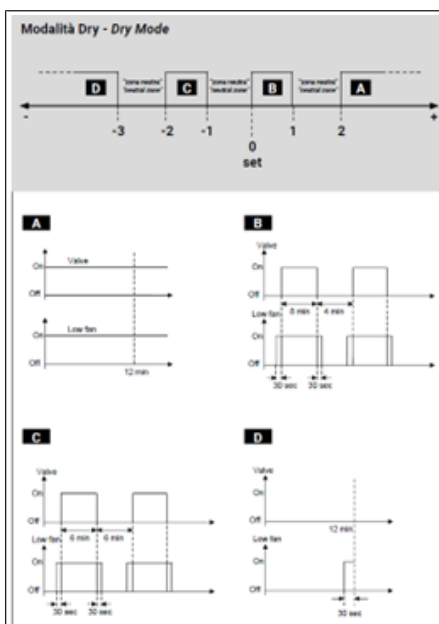
Assembly, installation and operating instructions

	<p>1. Switching on / off</p> <ul style="list-style-type: none"> Press POWER  to switch the unit on or off. Once the unit has been switched on, it is operated in accordance with the setting displayed on the remote control. <p>2. Operating mode</p> <ul style="list-style-type: none"> Pressing MODE enables the unit to be set to 5 different operating modes (Fan, Cool, Dry, Heat, Auto). <p>COOL: The system is operated in cooling mode.</p> <p>DRY: The system is operated in dehumidification mode.</p> <p>HEAT: The system is operated in heating mode.</p> <p>AUTO: The system switches automatically between cooling and heating mode depending on the entering water temperature.</p> <p>FAN: The unit works only in ventilation mode. The SLEEP, TEMP  and TEMP  keys are then not used.</p>
	<p>3. Temperature setting</p> <ul style="list-style-type: none"> The temperature can be set within a range of 16 - 30 °C. To do this, press TEMP  or TEMP . <p>4. Motor</p> <ul style="list-style-type: none"> Press FAN  to select the motor speed (high, medium, minimum or auto-matic). <p>Note: The  key can only be pressed in FAN, COOL, HEAT and AUTO mode (not in DRY mode).</p>

 <p>5 - 6</p>	<h3>5. Timer ON</h3> <ul style="list-style-type: none"> ▶ The unit can be programmed to switch on in advance. Press ON  and the symbol (ON TIME) appears. ▶ Press  or  to change the time (+ 1 minute). ▶ Press and hold down  or  for 3 seconds to increase the time in 10-minute increments. Press SET and the symbol (OFF TIME) appears on the screen. <p>Note:</p> <ul style="list-style-type: none"> ▶ Press ON  when the symbol (ON TIME) appears on the screen: the symbol (ON TIME) flashes. Then press ON  again to delete the switching-on setting. The symbol (ON TIME) appears on the screen. ▶ Press OFF  when the symbol (OFF TIME) appears on the screen: the symbol (OFF TIME) flashes. Then press OFF  again to delete the switching-on setting. The symbol (OFF TIME) is no longer visible on the screen. The timer function sent once to the unit is always enabled.
 <p>7</p> 	<h3>7. LOUVRE function</h3> <ul style="list-style-type: none"> ▶ When LOUVRE is pressed, the horizontal flaps are positioned as shown in the symbols.
	<h3>SWING function</h3> <ul style="list-style-type: none"> ▶ When SWING is pressed, the horizontal flaps swing continuously, as shown in the symbols.

KaCool W

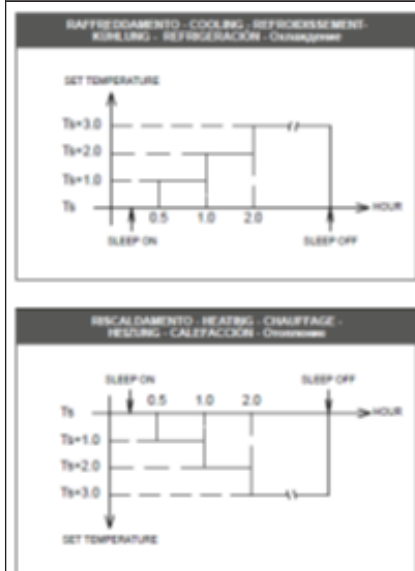
Assembly, installation and operating instructions




Dry function

- Dry mode is a predefined cooling working cycle control. Only temperature control is permitted in this mode. The fan works automatically and only at minimum speed. There are four pre-defined operating zones A-B-C-D and three neutral zones in which the function remains unchanged (the previous function is repeated).

Note: The previous cycle is repeated in the neutral zone.



Sleep function

- Press SLEEP to enable the sleep function. The  symbol appears on the display. The temperature entered is automatically raised by 1 °C after one hour for COOL operating mode. The temperature entered is automatically lowered by 1 °C after one hour for HEAT operating mode.
- Press SLEEP once more to disable the sleep function.
- In the event of a power failure, the sleep function is disabled by switching off and changing the operating mode.



Replacing the remote control batteries

If the remote control batteries start to lose power, the display becomes dimmer until it completely goes out if the batteries are not replaced.

Replace the batteries as follows:

- ▶ Push down the battery cover and remove.
- ▶ Remove the depleted batteries.
- ▶ Wait 1 minute before inserting the new batteries (AAA).
- ▶ Note the correct poles when inserting the new batteries.
- ▶ Replace the battery cover.

Remove the batteries if the unit is not used for a longer period of time.

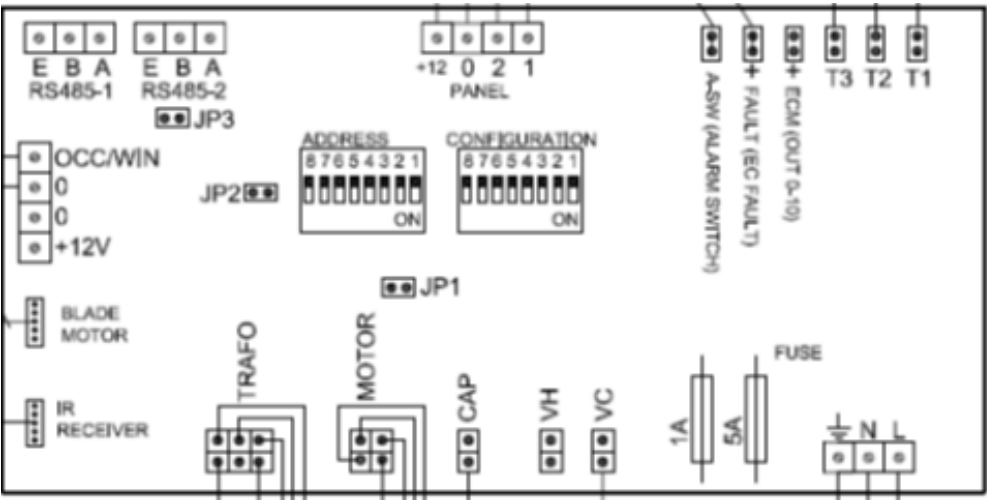
Emergency On/Off key

The receiver has an Emergency On/Off key [On/OFF] using which the unit can be switched on and off when the unit is not in operation. Press and hold down the key for more then 3 (but no more than 10) seconds until an acoustic signal is audible. The unit switches on or off as soon as the key has been pressed. Once the unit has been switched on using the Emergency On/Off key, the season changes automatically on the unit. The target temperature is set to 21 °C (Heating) and 24 °C (Cooling), and the fan is set to medium speed.

KaCool W

Assembly, installation and operating instructions

Functional description of the infra-red PCB



DIP no.	Function	ON	OFF	Standard
1	System type	4-pipe	2-pipe	OFF
2	VH out	Not used	Valve	OFF
3	Regulation type	Wall terminal	Infra-red receiver	OFF
4	Motor type	3 speeds	0-10 V DC (EC)	OFF
5	Fan in cooling mode	Thermostatic	Continuous mode	OFF
6	Fan in heating mode	Thermostatic	Continuous mode	OFF
7	Delay time for switching off the fan	No delay time	3-minute delay	OFF
8	Master/slave	Master	Slave	OFF

Tab. 6: DIP switch "Configuration" functional logic

DIP switch "Address" functional logic

Address	DIP switch to be set	Address	DIP switch to be set	Address	DIP switch to be set
0	Not assigned	21	1,3,5	42	2,4,6
1	1	22	2,3,5	43	1,2,4,6
2	2	23	1,2,3,5	44	3,4,6
3	1.2	24	4,5	45	1,3,4,6
4	3	25	1,4,5	46	2,3,4,6
5	1.3	26	2,4,5	47	1,2,3,4,6
6	2.3	27	1,2,4,5	48	5,6
7	1,2,3	28	3,4,5	49	1,5,6
8	4	29	1,3,4,5	50	2,5,6
9	1.4	30	2,3,4,5	51	1,2,5,6
10	2.4	31	1,2,3,4,5	52	3,5,6
11	1,2,4	32	6	53	1,3,5,6
12	3,4	33	1,6	54	2,3,5,6
13	1,3,4	34	2,6	55	1,2,3,5,6
14	2,3,4	35	1,2,6	56	4,5,6
15	1,2,3,4	36	3,6	57	1,4,5,6
16	5	37	1,3,6	58	2,4,5,6
17	1.5	38	2,3,6	59	1,2,4,5,6
18	2.5	39	1,2,3,6	60	3,4,5,6
19	1,2,5	40	4,6		
20	3,5	41	1,4,6		

Jumper functional logic

Jumper no.	Function	Open	Closed	Standard
JP1	<ul style="list-style-type: none"> ▶ De-stratification with heating or cooling ▶ Switches on the fan at the lowest speed when the setpoint is reached ▶ $T_{on} = 1$ minute ▶ $T_{off} = 5$ minutes 	Active	Not active	Locked
JP2	RS485-1 terminal board in a communication bus system	120 Ohm resistor not switched on	120 Ohm resistor switched on	Open
JP3	RS485-2 terminal board in a communication bus system	120 Ohm resistor not switched on	120 Ohm resistor switched on	Open

KaCool W

Assembly, installation and operating instructions

LED display (normal operation)

LED display	Meaning	Unit status
LED is switched off.	Unit is switched off or in fan mode.	Unit is switched off or in fan mode.
LED steady blue light	Cooling mode	Operating mode
LED steady red light	Heating mode	Operating mode
LED blue flashing light 1 second ON – 1 second OFF	Window contact open.	Unit is switched off.
LED flashes red / blue	Water temperature reading under way Temperature > 18 °C cooling mode Temperature < 32 °C heating mode	Standby mode

LED display (alarm status)

LED display (red)	Meaning	Unit status
2x flashing and a pause	Alarm switch input open	Condensate water level alarm
3x flashing and a pause	EC fault input open	Locked with alarm
4x flashing and a pause	RT3 = 75 °C RT3 = 4 °C	Maximum water temperature alarm Minimum water temperature alarm
5x flashing and a pause	Sensor RT1 is not connected or has short-circuited	Locked with alarm
6x flashing and a pause	Sensor RT2 is not connected or has short-circuited	Locked with alarm
7x flashing and a pause	Sensor RT3 is not connected or has short-circuited	Locked with alarm

Sensor

IR remote control versions of units have 3 sensors as standard:

- ▶ T1 Air intake sensor: measures the temperature at the air intake and is used to determine the air intake or room temperature.
- ▶ T2 Water temperature/changeover sensor: determines the medium temperature for the changeover between cooling and heating mode.
- ▶ T3 Heat exchanger sensor: determines the temperature of the heat exchanger. Stops or starts the fan when the heat exchanger temperature is within the right range.

7.4 KaControl (*C1)

7.4.1 KaController installation

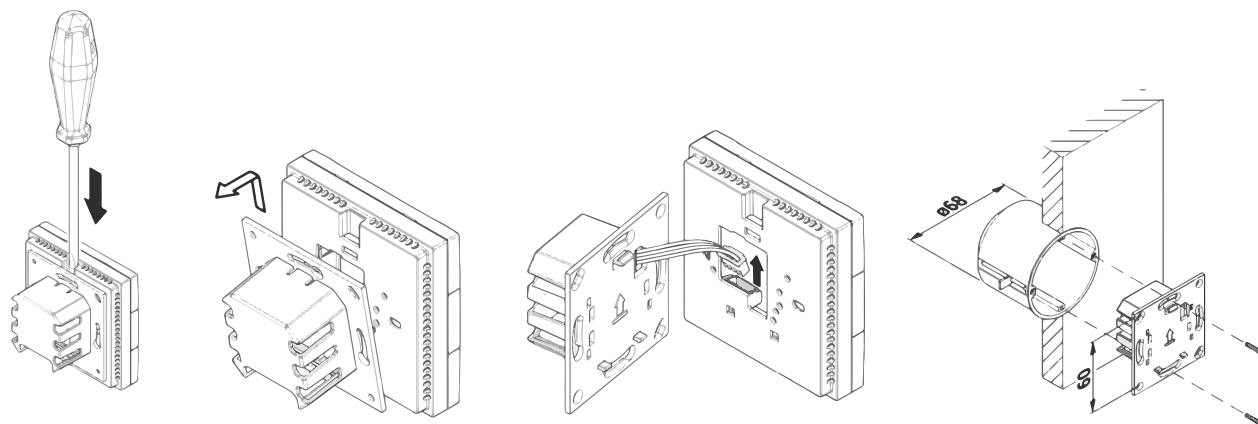


Fig. 11: Installation of flush-mounted back box

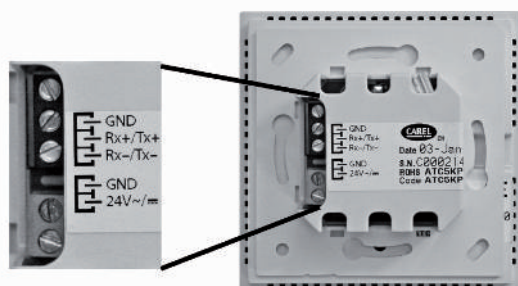


Fig. 12: KaController terminals

Electrical connection

- Connect the KaController to the nearest KaControl unit in line with the wiring diagram. The maximum bus length between the KaController and the KaControl master unit is 30 m.
- The respective KaControl automatically becomes the master unit in the control circuit when a KaController is connected to it.

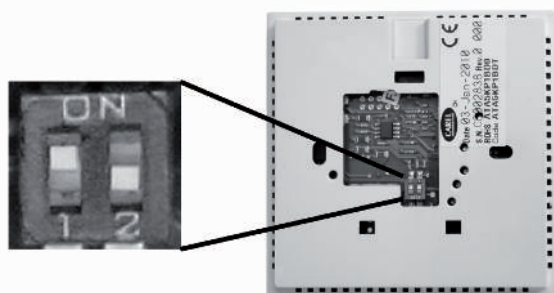


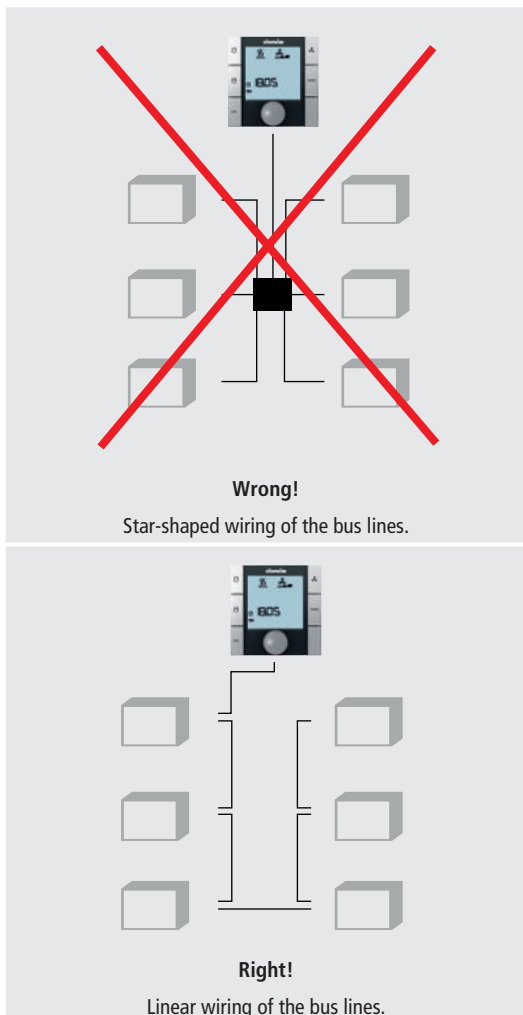
Fig. 13: DIP switch setting on KaController

DIP switch setting

The DIP switches on the rear of the KaController should be set according to the illustration:

- DIP switch 1: ON
- DIP switch 2: OFF

7.4.2 Connection (*C1)



General information

- ▶ Route all low voltage cables along the shortest route.
- ▶ Ensure that low-voltage and power cables are separated, using metal partitions on cable harnesses.
- ▶ Use only shielded cables as low-voltage and bus cables.
- ▶ Lay all BUS cables in a linear pattern. Star-shaped wiring is not permitted.
- ▶ The KaController is connected via a bus connection to the respective control PCB on the unit.

Tab. 7: Wiring of bus lines



IMPORTANT NOTE!

Use shielded, paired cables as bus cables, UNITRONIC® BUS LD 2x2x0.22, but at least of the same value or higher.



IMPORTANT NOTE!

When laying bus cables, avoid the formation of star points, for instance in junction boxes. Loop the cables through to the units!

Circuit description KaCool W (*C1)

- ▶ All KaCool W need a 230 V / 50 Hz power supply.
- ▶ Factory-fitted actuators are wired to the terminals.
- ▶ The speed of the EC fans used is controlled by a 0-10 V DC signal from the KaControl.
- ▶ The internal motor electronics detects any possible motor malfunction and automatically switches off the fan.
- ▶ The KaControl allows the EC fan and the valve actuator either to be controlled by a 0 – 10 V DC signal or by the KaControl.

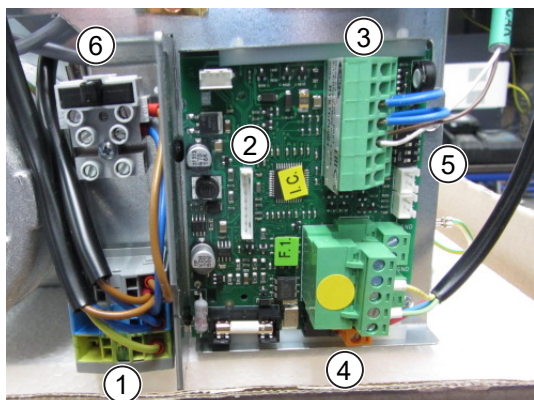


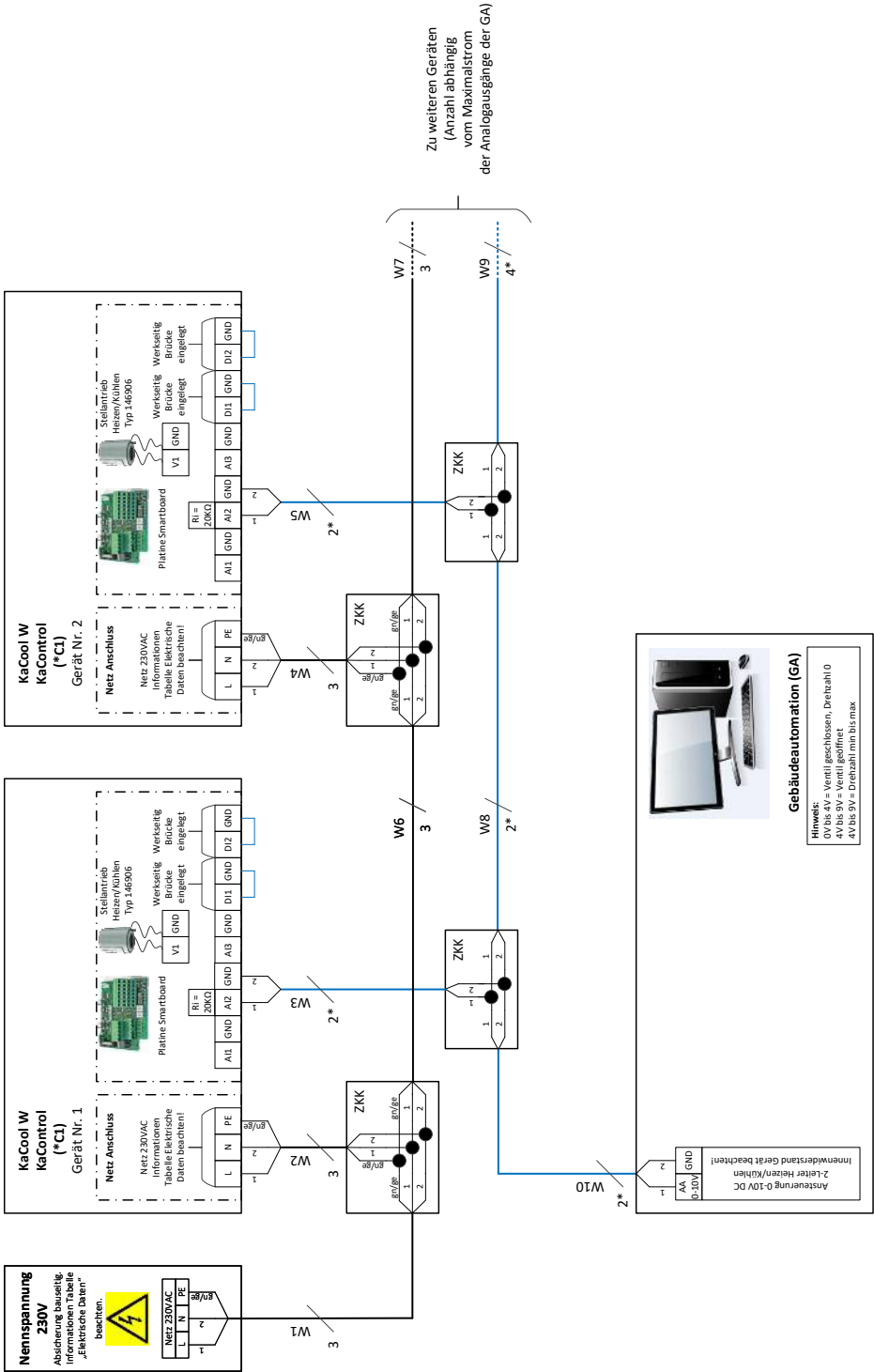
Fig. 14: Terminal assignment (*C1)

1	Power supply 230 V	2	Slot for interface card
3	KaController connection and control contacts	4	Fan and valve actuators
5	DIP switch	6	Optional condensate pump

Observe these points in the following layout plans with KaControl:

- ▶ Comply with the details on cable types and cabling with due consideration of VDE 0100.
- ▶ Without *: NYM-J. The requisite number of wires, including PE conductor, is stated on the cable. Cross-sections are not stated, as the cable length is involved in the calculation of the cross-section.
- ▶ With *: J-Y(ST)Y 0.8mm. Lay separately from high voltage lines.
- ▶ With **: Lay UNITRONIC BUS LD 0.22 mm² or similar separately from high voltage lines.
- ▶ If other types of cables are used, they must be at least equivalent.
- ▶ Length of the BUS line from the KaController to unit 1: max. 30 m.
- ▶ Maximum number of parallel units: 6 units. With CANbus card type 3260301 needed for each unit (see accessories) maximum 30 no.
- ▶ Length of bus line from unit 1 to the last unit max. 30 m. The cable length can be increased to maximum 500 m with a CANbus card per unit type 3260701 (see accessories).
- ▶ The terminals on the unit for the mains power supply are suitable for a maximum wire cross-section of 2.5 mm².
- ▶ All RCCBs used must at least be mixed frequency-sensitive (type F). Refer to the provisions of DIN VDE 0100 Parts 400 and 500 when designing the rated fault current.
- ▶ The electrical data needs to be respected when rating the in-situ mains power supply and fusing.

KaControl C1, 2-Leiter, Ventilantrieb 24VDC Auf/Zu, Ansteuerung 0-10V DC über GA



**KaCool W
KaControl
Typ 321000x**

Gerät Nr. 1

Gerät Nr. 2

Gerät Nr. 3

Gerät Nr. 4

Gerät Nr. 5

Gerät Nr. 6

Gerät Nr. 7

Gerät Nr. 8

Gerät Nr. 9

Gerät Nr. 10

Gerät Nr. 11

Gerät Nr. 12

Gerät Nr. 13

Gerät Nr. 14

Gerät Nr. 15

Gerät Nr. 16

Gerät Nr. 17

Gerät Nr. 18

Gerät Nr. 19

Gerät Nr. 20

Gerät Nr. 21

Gerät Nr. 22

Gerät Nr. 23

Gerät Nr. 24

Gerät Nr. 25

Gerät Nr. 26

Gerät Nr. 27

Gerät Nr. 28

Gerät Nr. 29

Gerät Nr. 30

Gerät Nr. 31

Gerät Nr. 32

Gerät Nr. 33

Gerät Nr. 34

Gerät Nr. 35

Gerät Nr. 36

Gerät Nr. 37

Gerät Nr. 38

Gerät Nr. 39

Gerät Nr. 40

Gerät Nr. 41

Gerät Nr. 42

Gerät Nr. 43

Gerät Nr. 44

Gerät Nr. 45

Gerät Nr. 46

Gerät Nr. 47

Gerät Nr. 48

Gerät Nr. 49

Gerät Nr. 50

Gerät Nr. 51

Gerät Nr. 52

Gerät Nr. 53

Gerät Nr. 54

Gerät Nr. 55

Gerät Nr. 56

Gerät Nr. 57

Gerät Nr. 58

Gerät Nr. 59

Gerät Nr. 60

Gerät Nr. 61

Gerät Nr. 62

Gerät Nr. 63

Gerät Nr. 64

Gerät Nr. 65

Gerät Nr. 66

Gerät Nr. 67

Gerät Nr. 68

Gerät Nr. 69

Gerät Nr. 70

Gerät Nr. 71

Gerät Nr. 72

Gerät Nr. 73

Gerät Nr. 74

Gerät Nr. 75

Gerät Nr. 76

Gerät Nr. 77

Gerät Nr. 78

Gerät Nr. 79

Gerät Nr. 80

Gerät Nr. 81

Gerät Nr. 82

Gerät Nr. 83

Gerät Nr. 84

Gerät Nr. 85

Gerät Nr. 86

Gerät Nr. 87

Gerät Nr. 88

Gerät Nr. 89

Gerät Nr. 90

Gerät Nr. 91

Gerät Nr. 92

Gerät Nr. 93

Gerät Nr. 94

Gerät Nr. 95

Gerät Nr. 96

Gerät Nr. 97

Gerät Nr. 98

Gerät Nr. 99

Gerät Nr. 100

Gerät Nr. 101

Gerät Nr. 102

Gerät Nr. 103

Gerät Nr. 104

Gerät Nr. 105

Gerät Nr. 106

Gerät Nr. 107

Gerät Nr. 108

Gerät Nr. 109

Gerät Nr. 110

Gerät Nr. 111

Gerät Nr. 112

Gerät Nr. 113

Gerät Nr. 114

Gerät Nr. 115

Gerät Nr. 116

Gerät Nr. 117

Gerät Nr. 118

Gerät Nr. 119

Gerät Nr. 120

Gerät Nr. 121

Gerät Nr. 122

Gerät Nr. 123

Gerät Nr. 124

Gerät Nr. 125

Gerät Nr. 126

Gerät Nr. 127

Gerät Nr. 128

Gerät Nr. 129

Gerät Nr. 130

Gerät Nr. 131

Gerät Nr. 132

Gerät Nr. 133

Gerät Nr. 134

Gerät Nr. 135

Gerät Nr. 136

Gerät Nr. 137

Gerät Nr. 138

Gerät Nr. 139

Gerät Nr. 140

Gerät Nr. 141

Gerät Nr. 142

Gerät Nr. 143

Gerät Nr. 144

Gerät Nr. 145

Gerät Nr. 146

Gerät Nr. 147

Gerät Nr. 148

Gerät Nr. 149

Gerät Nr. 150

Gerät Nr. 151

Gerät Nr. 152

Gerät Nr. 153

Gerät Nr. 154

Gerät Nr. 155

Gerät Nr. 156

Gerät Nr. 157

Gerät Nr. 158

Gerät Nr. 159

Gerät Nr. 160

Gerät Nr. 161

Gerät Nr. 162

Gerät Nr. 163

Gerät Nr. 164

Gerät Nr. 165

Gerät Nr. 166

Gerät Nr. 167

Gerät Nr. 168

Gerät Nr. 169

Gerät Nr. 170

Gerät Nr. 171

Gerät Nr. 172

Gerät Nr. 173

Gerät Nr. 174

Gerät Nr. 175

Gerät Nr. 176

Gerät Nr. 177

Gerät Nr. 178

Gerät Nr. 179

Gerät Nr. 180

Gerät Nr. 181

Gerät Nr. 182

Gerät Nr. 183

Gerät Nr. 184

Gerät Nr. 185

Gerät Nr. 186

Gerät Nr. 187

Gerät Nr. 188

Gerät Nr. 189

Gerät Nr. 190

Gerät Nr. 191

Gerät Nr. 192

Gerät Nr. 193

Gerät Nr. 194

Gerät Nr. 195

Gerät Nr. 196

Gerät Nr. 197

Gerät Nr. 198

Gerät Nr. 199

Gerät Nr. 200

Gerät Nr. 201

Gerät Nr. 202

Gerät Nr. 203

Gerät Nr. 204

Gerät Nr. 205

Gerät Nr. 206

Gerät Nr. 207

Gerät Nr. 208

Gerät Nr. 209

Gerät Nr. 210

Gerät Nr. 211

Gerät Nr. 212

Gerät Nr. 213

Gerät Nr. 214

Gerät Nr. 215

Gerät Nr. 216

Gerät Nr. 217

Gerät Nr. 218

Gerät Nr. 219

Gerät Nr. 220

Gerät Nr. 221

Gerät Nr. 222

Gerät Nr. 223

Gerät Nr. 224

Gerät Nr. 225

Gerät Nr. 226

Gerät Nr. 227

Gerät Nr. 228

Gerät Nr. 229

Gerät Nr. 230

Gerät Nr. 231

Gerät Nr. 232

Gerät Nr. 233

Gerät Nr. 234

Gerät Nr. 235

Gerät Nr. 236

Gerät Nr. 237

Gerät Nr. 238

Gerät Nr. 239

Gerät Nr. 240

Gerät Nr. 241

Gerät Nr. 242

Gerät Nr. 243

Gerät Nr. 244

Gerät Nr. 245

Gerät Nr. 246

8 Pre-commissioning checks

When commissioning the device for the first time, ensure that all the necessary requirements are met so that the device can function safely and in accordance with its intended use.

Structural tests

- ▶ Check that the unit is securely standing and fixed.
- ▶ Check the horizontal installation/suspension of the unit.
- ▶ Check the completeness and correct seating of all filters (dirt side).
- ▶ Check whether all components are properly fitted.
- ▶ Check whether all dirt, such as packaging or site dirt, has been removed.

Electrical tests

- ▶ Check whether all lines have been properly laid.
- ▶ Check whether all lines have the necessary cross-section.
- ▶ Are all wires connected in accordance with the electric wiring diagrams?
- ▶ Is the earth wire connected and wired throughout?
- ▶ Check whether the fault signal contacts of the EC fans have been correctly connected (break contacts in series with multiple units).
- ▶ Check all external electrical connections and terminal connections are fixed in place and tighten if necessary.

Water-side checks

- ▶ Check whether all supply and drainage lines have been properly connected.
- ▶ Fill pipes and unit with water and bleed.
- ▶ Check whether all bleed screws are closed.
- ▶ Check leak tightness (pressure test and visual inspection).
- ▶ Check whether the parts carrying water have been flushed through.
- ▶ Check whether any shut-off valves fitted on site are open.
- ▶ Check whether any electrically actuated shut-off valves have been properly connected.
- ▶ Check whether all valves and actuators are working properly (note permitted mounting position).

Air-side checks

- ▶ Check whether there is unimpeded flow at the air inlet and outlet.
- ▶ Check whether the air inlet filter is fitted and dirt-free.

Condensation water connection

- ▶ Check whether the condensation tray is free of building rubble.
- ▶ Check the condensation drain and operation of the alarm signal on the condensation pump.
- ▶ Check whether the cooling valve switches off in the event of an alarm signal.
- ▶ Check whether the unit is connected leak-free to the on-site condensation connection.
- ▶ Check whether the waste water lines are clean and have a sufficient gradient.
- ▶ Check whether the condensation pump has a working power supply.

Once all checks have been completed, initial commissioning can be carried out in line with Chapter 9 "Operation" [▶ 47].

9 Operation

9.1 Operation of electromechanical control



 <p>Fig. 15: Room thermostat, type 196000148915/ 196000148918/ 196000148917</p>	<p>Room thermostat, type 196000148915/ 196000148918/ 196000148917</p> <p>Electronic room thermostat with 3-stage switch for 2-pipe applications, surface-mounted wall mounting on a flush-mounted box in visually unobtrusive design. Parallel operation of 2 units is possible.</p> <ul style="list-style-type: none"> ▶ type 148915 (heating only) ▶ type 148918 (cooling only) ▶ type 148917 (heating/cooling changeover)
 <p>Fig. 16: Room thermostat type 196000148916</p>	<p>Room thermostat type 196000148916</p> <ul style="list-style-type: none"> ▶ Electronic room thermostat with 3-stage switch for 2- and 4-pipe applications, surface-mounted wall mounting on a flush-mounted box in visually unobtrusive design ▶ Option for external room sensor ▶ Control input for heating/cooling changeover with 2-pipe applications ▶ Digital input can be set to Comfort/ECO or ON/OFF switchover ▶ Parallel operation of 2 units is possible



Fig. 17: Room thermostat, type 30155

Room thermostat, type 30155

- ▶ Electronic room thermostat with 3-stage automatic function for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box in visually unobtrusive design
- ▶ simple operation using a large rotary dial for temperature setting with mechanical range limitation of the temperature setpoint, operating mode selector switch, Standby, Manual fan, Automatic fan, 3-stage switch for pre-selecting the fan speed when the operating mode selector switch is in the "Manual fan" position
- ▶ option for external room sensor connection
- ▶ control input for heating/cooling changeover with 2-pipe applications
- ▶ digital input can be set to Comfort/ECO or ON/OFF switchover



Fig. 18: Clock thermostat type 30256

Clock thermostat 230 V, type 30256

- ▶ Electronic clock thermostat for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box in visually unobtrusive design
- ▶ Operation using 4 sensor keys
- ▶ Timer with automatic summer/winter changeover
- ▶ Option for external room sensor
- ▶ Control input for heating/cooling changeover with 2-pipe applications
- ▶ Digital input can be set to Comfort/ECO or ON/OFF switchover
- ▶ Parallel operation of 2 units is possible



Fig. 19: Clock thermostat, type 30456

Clock thermostat 24 V, type 30456

- ▶ Electronic clock thermostat for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box in visually unobtrusive design
- ▶ operation using 4 sensor keys
- ▶ timer with automatic summer/winter switch-over
- ▶ option for external room sensor connection
- ▶ control input for heating/cooling changeover with 2-pipe applications
- ▶ digital input can be set to Comfort/ECO or ON/OFF switchover
- ▶ parallel operation of 5 units is possible



Fig. 20: Climate controller type 196000148941

Climate controller, white, type 196000148941

- ▶ for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box with a visually unobtrusive design with 2.5" LCD display and high-quality glass finish with capacitive keys
- ▶ automatic LED backlight
- ▶ parametrisable language: German or English
- ▶ timer program with 3 time channels, each with 4 switch-over points
- ▶ option to connect an external room sensor
- ▶ 3 control inputs (functions parametrisable, e.g. window contact, presence detector, heating/cooling switchover)



Fig. 21: Climate controller type 196000148942

Climate controller, black, type 196000148942

- ▶ for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box with a visually unobtrusive design with 2.5" LCD display and high-quality glass finish with capacitive keys
- ▶ automatic LED backlight
- ▶ parametrisable language: German or English
- ▶ timer program with 3 time channels, each with 4 switch-over points
- ▶ option to connect an external room sensor
- ▶ 3 control inputs (functions parametrisable, e.g. window contact, presence detector, heating/cooling switchover)

KaCool W

Assembly, installation and operating instructions



Fig. 22: Climate controller type 196000148943

Climate controller, white, type 196000148943

- ▶ with Modbus interface
- ▶ for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box with a visually unobtrusive design with 2.5" LCD display and high-quality glass finish with capacitive keys
- ▶ automatic LED backlight
- ▶ parametrisable language: German or English
- ▶ timer program with 3 time channels, each with 4 switch-over points
- ▶ Modbus-RTU interface as a slave device
- ▶ option to connect an external room sensor
- ▶ 2 control inputs (functions parametrisable, e.g. window contact, presence detector, heating/cooling switchover)



Fig. 23: Climate controller type 196000148944

Climate controller, black, type 196000148944

- ▶ with Modbus interface
- ▶ for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box with a visually unobtrusive design with 2.5" LCD display and high-quality glass finish with capacitive keys
- ▶ automatic LED backlight
- ▶ parametrisable language: German or English
- ▶ timer program with 3 time channels, each with 4 switch-over points
- ▶ Modbus-RTU interface as a slave device
- ▶ option to connect an external room sensor
- ▶ 2 control inputs (functions parametrisable, e.g. window contact, presence detector, heating/cooling switchover)

9.2 Operation of the KaController

The following information is limited to the key content on the operation of the KaController and KaControl system. More information is included separately in the KaControl SmartBoard user manual.

9.2.1 Function keys, display elements

All menus can be selected and set using the navigator dial.

The LED background lighting is automatically switched off 5 seconds after the KaController is last used. The LED background lighting can be permanently disabled using a parameter setting.

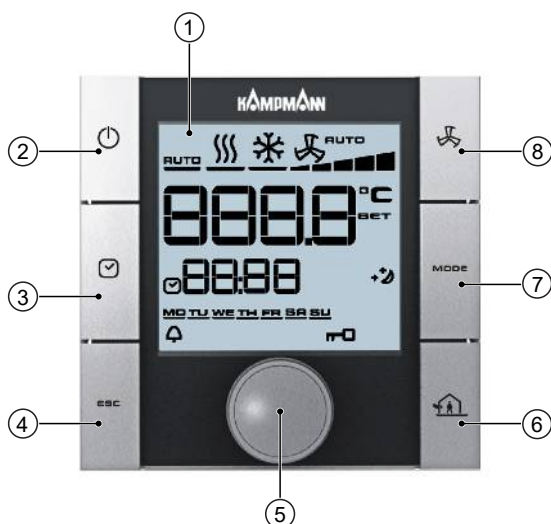


Fig. 24: KaController with function keys, type 3210002

1	Display with LED background lighting	2	ON/OFF key (depending on setting) ► ON/OFF ► Eco mode/Day mode (factory setting)
3	TIMER button ► Set time ► Set timer programs	4	ESC button ► back to standard view
5	Navigator dial ► Change settings ► Call up menus	6	House symbol ► External ventilation
7	MODE button ► Set operating modes (disabled with 2-pipe applications)	8	FAN button ► Set fan control

 Fig. 25: KaController type 3210001	KaController without operating keys (one-button operation) type 3210001 1. Display with LED background lighting 2. Navigator dial ► Change settings ► Call up menus
 Fig. 26: KaController black, type 3210006	KaController, black without function keys (one-button operation) type 3210006 1. Display with LED background lighting 2. Navigator dial ► Change settings ► Call up menus

KaCool W

Assembly, installation and operating instructions

The symbols shown on the display depend on the application (2-pipe, 4-pipe etc.) and the parameters set.

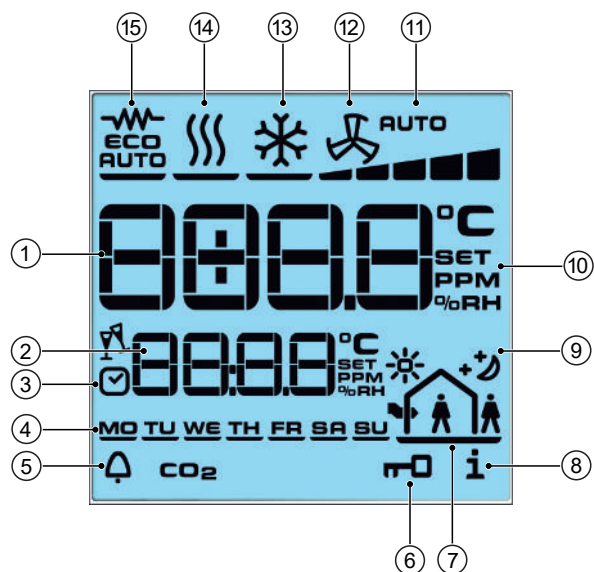


Fig. 27: Display

1	Display of setpoint room temperature	2	Current time
3	Timer program enabled	4	Weekday
5	Alarm	6	Selected function is locked
7	"External ventilation" mode is locked	8	Filter alert
9	Eco mode	10	Setpoint setting enabled
11	Fan control setting Auto-0-1-2-3-4-5	12	Ventilation mode
13	Cooling mode	14	Heating mode
15	Automatic Heating/Cooling changeover mode		

10 Maintenance

10.1 Securing against reconnection



DANGER!

Risk of death by unauthorised or uncontrolled restart!

Unauthorised or uncontrolled restarting of the equipment can result in serious injury or death.

- Before restarting, ensure that all safety devices are fitted and working properly and that there is no hazard to humans.

Always follow the procedure described below to prevent accidental restart:

1. de-energise.
2. Prevent accidental re-connection.
3. Check that the equipment is de-energised.
4. Cover and cordon off adjacent live parts.



WARNING!

Risk of injury from rotating parts!

The fan impeller can cause severe injuries.

- Switch off the unit and prevent it from reconnection before commencing any work on moving components of the fan. Wait until all parts have come to a standstill.

10.2 Maintenance Schedule:

The sections below describe maintenance work needed for the proper and trouble-free operation of the equipment.

If there are signs of increased wear during regular checks, shorten the required maintenance intervals to the actual wear and tear. Contact the manufacturer with any questions about maintenance work and intervals.

Interval	Maintenance task	Personnel
As required	Regular visual checks and acoustic checks for damage, dirt and function.	User
quarterly	Check filter for dirt, clean and change filter when needed.	User
every six months	Clean unit components (heat exchanger, condensate tray, condensate pump, float switch).	User
every six months	Check water-side connections, valves and fittings for dirt, leak-tightness and function.	User
every six months	Check the electrical wiring.	Qualified personnel
every six months	Clean components/surfaces that come into contact with air.	Qualified personnel
quarterly	Check the heat exchanger for dirt, damage, corrosion and leak-tightness. Carefully vacuum the heat exchanger if dirty.	User
quarterly	Check the condensation tray, float switch and drain connection for dirt, damage and leak-tightness. Remove any condensation deposits that have accumulated.	User

KaCool W

Assembly, installation and operating instructions

10.3 Maintenance work

Open the design panel before maintenance work!

Open the design panel before maintenance work, as described in "Installing the unit on the ceiling".

10.3.1 Replacing the filter.

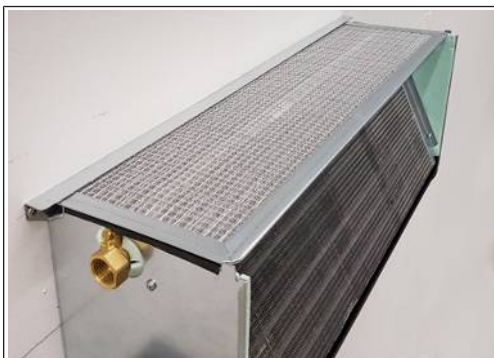


CAUTION!

Risk of injury from sharp metal housing!

The inner metal of the casing can have sharp edges.

- Wear suitable protective gloves.



- Pull the replacement filter out of the rail, clean it or replace it if necessary.

10.3.2 Cleaning the condensate tray



- Clean the condensate tray.

10.3.3 Cleaning the condensate pump

Condensate pump check

Once you have refitted the cleaned condensate pump, reinsert the condensate tray and fill it with water until the filling level monitor is half-filled with water. If it is working properly, the condensate pump should now start operating and drain the water.

10.3.4 Clean the inside of the unit

Check all elements that come into contact with air (internal surfaces of the unit, outlet elements etc.) for dirt or deposits during maintenance and use a commercially available product to remove.

11 Faults

The following chapter describes possible causes of faults and the work needed to rectify them. Should faults occur frequently, shorten the maintenance intervals in line with the actual loading on the unit.

Contact the manufacturer with any faults that cannot be rectified using the following information.

Behaviour in the event of faults

The following applies:

1. Immediately switch off the unit with faults that pose an immediate danger to persons or property!
2. Determine the cause of the fault!
3. Switch off the unit and prevent it from being reconnected if rectifying the fault requires work in the hazard area. Immediately advise a supervisor on site about the fault.
4. Either rectify the fault yourself or have it repaired by authorised personnel, depending on the nature of the fault.

The Fault table ► 55 provides information on who is authorised to rectify and remedy faults.

11.1 Fault table

Fault	Possible cause	Remedy
No function.	No power supply.	Check voltage, switch on repair switch.
		Replace fuse.
System water leakage	Heat exchanger defect.	Replace heat exchanger if necessary.
	Hydraulic connection not correct.	Check flow and return, retighten if necessary.
Water leakage condensate	Drains of the condensate tray clogged.	Clean condensate drains and check for sufficient slope.
	Cold water pipe not properly insulated.	Check insulation.
	Condensate drain not properly installed.	Check the function of the condensate pump. Check condensate drain, clean if necessary.
	Air-conducting accessory components not properly insulated.	Check insulation.
Unit not heating or cooling sufficiently (LPHW/CHW)	Fan is not switched on.	Switch on fan at controller.
	Air volume is too low.	Set a higher speed.
	Filter is dirty.	Replace filter.
	No heating or cooling medium.	Switch on heating and/or cooling system, switch on circulation pump, vent unit/system.
	Valves not operating.	Replace faulty valves.
	Water volume too low.	Check pump output, check hydraulics.
	Setpoint temperature on the controller set too low/high.	Adjust temperature setting on the controller.
	Operating unit with integral sensor and/or external sensor is exposed to direct sunlight or positioned over a heat source.	Place operating unit with integral sensor and/or external sensor in a suitable position.
	Air cannot blow out or in freely.	Remove obstacles at the air outlet/air inlet.
	Heat exchanger dirty.	Clean heat exchanger.
Unit too loud	Air in the heat exchanger.	Vent heat exchanger.
	Speed too high.	Set a lower speed, if possible.
	Air inlet/outlet opening is obstructed.	Free air ducts.
	Filter dirty.	Replace filter.
	Rotating parts unbalanced	Clean and/or replace impeller. Please make sure that no balancing clips are removed during cleaning.
	Fan dirty.	Clean dirt from fan.
	Heat exchanger dirty.	Clean dirt from Heat exchanger.

KaCool W

Assembly, installation and operating instructions

11.2 KaControl faults

Code	Alarms	Priority
A11	Faulty control sensor.	1
A12	Motor fault.	2
A13	Room frost protection.	3
A14	Condensation alarm.	4
A15	General alarm.	5
A16	Sensor AI1, AI2 or AI3 faulty.	6
A17	Unit frost protection.	7
A18	EEPROM error.	8
A19	Offline slave in the CAN bus network.	9

Tab. 8: KaControl unit alarms

Code	Alarms
tAL1	Temperature sensor in the KaController faulty.
tAL3	Real-time clock in the KaController faulty.
tAL4	EEPROM in the KaController faulty.
Cn	Communication fault with the external control.

Tab. 9: KaController alarms



IMPORTANT NOTE!

Important note!

More information on control settings can be found in the separate KaControl SmartBoard user manual.

11.3 Start-up after rectification of fault

After correction of the fault, carry out the following steps for recommissioning:

1. Make sure that all maintenance covers and access openings are sealed.
2. Switch off the unit.
3. Acknowledge the fault on the controller, if necessary.

12 List of KaControl parameters

12.1 Parameter list

Parameter	Function	Standard	Min.	Max.	Unit	KaCool W ¹¹
P000	Software version	24	0	255	-	24
P001	Basic setpoint for setpoint input $\pm 3K$	22	8	32	°C	22
P002	Switch-on and switch-off hysteresis for valves	3	0	255	K/10	1
P003	Neutral zone in a 4-pipe system (only in automatic mode)	3	0	255	K/10	20
P004	Cooling without fan assistance (natural convection)	0	0	255	K/10	0
P005	Heating without fan assistance (natural convection)	5	0	255	K/10	0
P006	Fan On/Off hysteresis (only in ventilation mode)	5	0	255	K/10	5
P007	P-band, heating	20	0	100	K/10	25
P008	P-band, cooling	20	0	100	K/10	25
P009	Shift to the basic setpoint for setpoint input $\pm 3K$	3	0	10	C	3
P010	Contact sensor: temperature limit value to activate fan stages 1 and 2 in heating mode	26	0	255	°C	26
P011	Contact sensor: temperature limit value to activate fan stages 3 and 4 in heating mode	28	0	255	°C	28
P012	Contact sensor: temperature limit value to activate fan stage 5 in heating mode	30	0	255	°C	30
P013	Contact sensor: hysteresis for limit temperatures P010, P011, P012, P014	10	0	255	K/10	10
P014	Contact sensor: limit value temperature to activate fan stages in cooling mode	18	0	255	°C	18
P015	Function of input AI1	0	0	19	-	0
P016	Function of input AI2	0	0	19	-	0
P017	Function of input AI3	0	0	9	-	0
P018	Temperature increase of cooling setpoint in Eco mode	30	0	255	K/10	30
P019	Temperature reduction of heating setpoint in Eco mode	30	0	255	K/10	30
P020	ADC limit coefficient	6	0	15	-	6
P021	ADC average coefficient	6	0	15	-	6
P022	Activation/deactivation of sun symbol in Comfort mode	0	0	1	-	0
P023	Difference for compensation when cooling	0	-99	127	K/10	0
P024	Coefficient for compensation when cooling	0	-20	20	1/10	0
P025	Difference for compensation when heating	0	-99	127	K/10	0
P026	Coefficient for compensation when heating	0	-20	20	1/10	0
P027	Fan setting: maximum run-time for manual fan mode	0	0	255	min.	0
P028	Rinsing function: fan stage during the rinsing function	2	1	5	-	2
P029	Activation of continuous fan mode	0	0	1	-	0
P030	Ventilation temperature activation	12	0	255	°C	12
P031	Ventilation interval	27	0	255	°C	27
P032	Flushing function: maximum idle time of fan	15	0	255	min.	15
P033	Flushing function: duration of the flushing function	120	0	255	s	120
P034	Flushing function: activation in operating modes	0	0	3	-	3

¹¹

Parameter key KaCool W , SAP no.9001386, dated 10.07.2020

KaCool W

Assembly, installation and operating instructions

Parameter	Function	Standard	Min.	Max.	Unit	KaCool W ¹¹
P035	Fan run-on time after an operating mode is switched to stage 1	0	0	255	s	0
P036	Type of setpoint setting	0	0	1	-	0
P037	Display	1	0	7	-	1
P038	Lock/disable function on the control unit	72	0	255	-	72
P039	Function of digital output V2 (in a 2-pipe system)	0	0	3	-	0
P040	Valve control by pulse width modulation	0	0	1	-	0
P041	Reset time of PI controller to activate the fan in automatic fan mode	0	0	20	min.	0
P042	Fan setting: lock and activate fan stages	0	0	127	-	2
P043	Function of digital input DI1	0	0	22	-	12
P044	Function of digital input DI2	0	0	22	-	0
P045	Threshold voltage for potentiometer to switch on the unit	10	0	100	kiloohm	10
P046	Temperature setting corresponds to the minimum resistance value = 10 kiloohm in the potentiometer	18	12	34	°C	18
P047	Temperature setting corresponds to the maximum resistance value = 100 kiloohm in the potentiometer	24	13	35	°C	24
P048	Threshold voltage for potentiometer for starting up the fans	10	0	100	kiloohm	10
P049	Threshold voltage for potentiometer for maximum fan speed	90	0	100	kiloohm	90
P050	Fan setting: max. fan speed	100	0	100	%	100
P051	Fan setting: min. fan speed	0	0	90	%	15
P052	Fan setting: activation of fan speed limit	0	0	1	-	1
P053	Valve activation by pulse width modulation of the valve switching cycle	15	10	30	min.	15
P054	Configuration of bus system	0	0	2	-	0
P055	Display of heating/cooling symbols in automatic mode	0	0	1	-	1
P056	DI2 setting (polarity) when DIP 4 = ON	1	0	1	-	1
P057	Reset setpoint to the value of P01 (after changing an operating program)	0	0	1	-	0
P058	Sensor adjustment: sensor AI1	0	-99	127	K/10	0
P059	Supply air temperature setpoint in heating mode	35	0	50	°C	35
P060	Supply air temperature setpoint in cooling mode	18	0	50	°C	18
P061	Sensor adjustment: sensor in the KaController	0	-99	127	K/10	0
P062	Sensor adjustment: sensor AI2	0	-99	127	K/10	0
P063	Outside temperature <P63 fan increase by P122	0	-99	127	°C	0
P064	Sensor adjustment: sensor AI3	0	-99	127	K/10	0
P065	reserved	-	-	-	-	-
P066	Master/slave assignment in CAN bus	0	0	1	-	0
P067	Serial CAN bus address	1	1	125	-	1
P068	Logic of the hydronic algorithms	0	0	7	-	0
P069	Network address	1	0	207	-	1
P070	Dependence of the hydronic algorithms (on slaves)	0	0	7	-	0
P071	Serial address of slave 1	0	0	207	-	0
P072	Serial address of slave 2	0	0	207	-	0
P073	Serial address of slave 3	0	0	207	-	0
P074	Serial address of slave 4	0	0	207	-	0
P075	Serial address of slave 5	0	0	207	-	0

Parameter	Function	Standard	Min.	Max.	Unit	KaCool W ¹¹
P076	Serial address of slave 6	0	0	207	-	0
P077	Serial address of slave 7	0	0	207	-	0
P078	Serial address of slave 8	0	0	207	-	0
P079	Serial address of slave 9	0	0	207	-	0
P080	Serial address of slave 10	0	0	207	-	0
P081	Dependence of the hydronic algorithms, slave 1	0	0	7	-	0
P082	Dependence of the hydronic algorithms, slave 2	0	0	7	-	0
P083	Dependence of the hydronic algorithms, slave 3	0	0	7	-	0
P084	Dependence of the hydronic algorithms, slave 4	0	0	7	-	0
P085	Dependence of the hydronic algorithms, slave 5	0	0	7	-	0
P086	Dependence of the hydronic algorithms, slave 6	0	0	7	-	0
P087	Dependence of the hydronic algorithms, slave 7	0	0	7	-	0
P088	Dependence of the hydronic algorithms, slave 8	0	0	7	-	0
P089	Dependence of the hydronic algorithms, slave 9	0	0	7	-	0
P090	Dependence of the hydronic algorithms, slave 10	0	0	7	-	0
P091	Load default values	0	0	255	-	0
P092	Password management	0	0	255	-	0
P093	Type of pre-comfort (room occupancy)	0	0	3	-	0
P094	Pre-comfort timer	60	1	255	min.	60
P095	Disable DIP switch settings	0	0	1	-	0
P096	Digital outputs continuously activated	0	0	1	-	0
P097	Read off DIP switch	-	0	63	-	-
P098	0..10 V control: valve switch on limit	30	0	100	V/10	40
P099	0..10 V control: min. switch-on limit for fan speed	40	0	100	V/10	40
P100	0..10 V control: max. switch-on limit for fan speed	90	0	100	V/10	90
P101	Valve activation by pulse width modulation of P-band in heating mode	15	0	100	K/10	15
P102	Valve activation by pulse width modulation of P-band in cooling mode	15	0	100	K/10	15
P103	Valve activation by pulse width modulation of PI controller reset time	0	0	20	min.	0
P104	Minimum ON time with PWM valve activation	3	0	20	min.	3
P105	Compensation: max. negative delta setpoint	50	0	150	K/10	50
P106	Compensation: max. positive delta setpoint	50	0	150	K/10	50
P107	Duration of valve open to check water temperature	5	0	255	min.	5
P108	Duration of valve closed	240	35	255	min.	240
P109	Dead zone PI control for 3-way valve	10	0	100	K/10	10
P110	Hysteresis to switch between heating/fan mode	0	0	20	°C	0
P111	Threshold to switch between heating/fan mode	0	0	50	°C	0
P112	reserved	-	-	-	-	-
P113	reserved	-	-	-	-	-
P114	reserved	-	-	-	-	-
P115	reserved	-	-	-	-	-
P116	reserved	-	-	-	-	-
P117	Lock function buttons on the KaController	0	0	7	-	0
P118	On delay time	0	0	255	sec	0

KaCool W

Assembly, installation and operating instructions

Parameter	Function	Standard	Min.	Max.	Unit	KaCool W ¹¹
P119	Off delay time	0	0	255	sec	0
P120	reserved	-	-	-	-	-
P121	reserved	-	-	-	-	-
P122	Relative fan speed increase via contact	2	0	5	-	2
P123	Maximum valve running time	150	0	255	sec	150
P124	Minimum P + I output variation for valve movement (0 to 10)	5	0	100	%	5
P125	reserved	-	-	-	-	-
P126	Operating weeks	0	0	255	week	0
P127	Information on operating weeks reached (filter message)	0	52	255	week	0
P128	Reset operating week counter	0	0	1	-	0
P129	Fan speed limiter activation in certain operating modes	0	0	1	-	0
P130	Absolute fan speed increase via contact	2	0	5	-	2
P131	External ventilation, delay time	0	0	255	min.	0
P132	Operating level, master password	22	0	255	-	22
P133	Hysteresis for outside temperature to switch between heating/fan mode	0	0	255	K/10	0
P134	Threshold for outside temperature to switch between heating/fan mode	0	0	50	°C	0
P135	Activate virtual sensor	0	0	1	-	0
P136	Activate external ventilation	0	0	2	-	0

Tab. 10: Parameter key, standard revision 1.024 from 10.07.2020

12.2 KaController parameter list

Parameter	Function	Standard	Min.	Max.	Unit	Comment
t001	Serial address	1	0	207	-	Address in Mod-bus network
t002	Baud rate 0 = Baud rate 4800 1 = Baud rate 9600 2 = Baud rate 19200	2	0	2	-	
t003	Background lighting function 0 = Slow fade in, fast fade out 1 = Slow fade in, slow fade out 2 = Fast fade in, fast fade out	0	0	2	-	
t004	Strong background lighting	4	0	5	-	
t005	Sensor calibration of KaController sensor	0	60	60	°C	
t006	LCD display contrast	15	0	15	-	
t007	BEEP setting 0 = BEEP ON 1 = BEEP OFF	0	0	1	-	
t008	Password for KaController Parameter menu	11	0	999	-	
t009	Minimum settable setpoint temperature	8	0	20	°C	
t010	Maximum settable setpoint temperature	35	10	40	°C	
t011	Interval of setpoint setting 0 = Automatic setting depending on PCB (parameterisable, freely programmable) 1 = Increment of 1 °C (parameterisable PCBs) 2 = Increment of 0.5 °C (freely programmable PCBs)	0	0	2	-	
t012	Date/Time setting: Year	9	0	99	-	
t013	Date/Time setting: Month	1	1	12	-	
t014	Date/Time setting: Day	1	1	31	-	
t015	Date/Time setting: Weekday	1	1	7	-	
t016	Date/Time setting: Hour	0	0	23	-	
t017	Date/Time setting: Minute	0	0	59	-	

13 Certificates



EU-Konformitätserklärung

EU Declaration of Conformity
Déclaration de Conformité CE
Deklaracja zgodności CE
EU prohlášení o konformite

Wir (Name des Anbieters, Anschrift):

We (Supplier's Name, Address):
Nous (Nom du Fournisseur, Adresse):
My (Nazwa Dostawcy, adres):
My (Jméno dodavatele, adresa):

KAMPMANN GMBH & Co. KG
Friedrich-Ebert-Str. 128-130
49811 Lingen (Ems)

erklären in alleiniger Verantwortung, dass das Produkt:

declare under sole responsibility, that the product:
déclarons sous notre seule responsabilité, que le produit:
deklarujemy z pełną odpowiedzialnością, że produkt:
deklarujeme, vědomi si své odpovědnosti, že produkt:

Type, Modell, Artikel-Nr.:

KaCool W

324***

Type, Model, Articles No.:
Type, Modèle, N° d'article:
Typ, Model, Nr artykułu:
Typ, Model, Číslo výrobku:

auf das sich diese Erklärung bezieht, mit der / den folgenden Norm(en) oder normativen Dokumenten übereinstimmt:

to which this declaration relates is in conformity with the following standard(s) or other normative document(s):
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s):
do którego odnosi się niniejsza deklaracja, jest zgodny z następującymi normami lub innymi dokumentami normatywnymi:
na který se tato deklarace vztahuje, souhlasí s následující(mi) normou/normami nebo s normativními dokumenty:

DIN EN 1397

**EN 55014-1; -2
EN 61000-3-2; -3-3
EN 62233
EN/IEC 63000
EN 60335-1; -2-40**

**Wasserübertrager – Wasser-Luft-Ventilator-konvektoren –
Prüfverfahren zur Leistungsfeststellung
Elektromagnetische Verträglichkeit
Elektromagnetische Verträglichkeit
Elektromagnetische Verträglichkeit
Beschränkung gefährlicher Stoffe in Elektrogeräten
Sicherheit elektr. Geräte für den Hausgebrauch und
ähnliche Zwecke**



Gemäß den Bestimmungen der Richtlinien:

Following the provisions of Directive:
Conformément aux dispositions de Directive:
Zgodnie z postanowieniami Dyrektywy:
Odpovídající ustanovení směrnic:

2014/30/EU	EMV-Richtlinie
2014/35/EU	Niederspannungsrichtlinie
2011/65/EU	RoHS

Lingen (Ems), den 26.06.2023

Ort und Datum der Ausstellung

Place and Date of Issue
Lieu et date d'établissement
Miejsce i data wystawienia
Místo a datum vystavení

Frank Bolkenius

Name und Unterschrift des Befugten

Name and Signature of authorized person
Nom et signature de la personne autorisée
Nazwisko i podpis osoby upoważnionej
Jméno a podpis oprávněné osoby

KaCool W

Assembly, installation and operating instructions

Table

Tab. 1	Limits of operation	7
Tab. 2	Operating voltage	7
Tab. 3	Water quality.....	7
Tab. 4	Valve kit at a glance.....	19
Tab. 5	Maximum electrical rating values	22
Tab. 6	DIP switch "Configuration" functional logic.....	38
Tab. 7	Wiring of bus lines	42
Tab. 8	KaControl unit alarms	56
Tab. 9	KaController alarms	56
Tab. 10	Parameter key, standard revision 1.024 from 10.07.2020.....	57

<https://www.kampmanngroup.com/hvac/products/fan-coils/kacool-w>

Land	Kontakt
Germany	Kampmann GmbH & Co. KG
	Friedrich-Ebert-Str. 128 - 130
	49811 Lingen (Ems)
	T +49 591/ 7108-660
	F +49 591/ 7108-173
	E export@kampmann.de
	W Kampmann.eu

Country	Contact
Great Britain	Kampmann UK Ltd.
	Dial House, Govett Avenue
	Shepperton, Middlesex, TW17 8AG
	T +44 1932/ 228592
	F +44 1932/ 228949
	E info@kampmann.co.uk
	W Kampmann.co.uk