



KaCool D Ceiling Cassette

► Installation and Operating Instructions

Keep these instructions in a safe place for future use!

Kampmann.co.uk/KaCool-D

Kampmann GmbH

Friedrich-Ebert-Str. 128 - 130
49811 Lingen (Ems)
Germany

T +49 591 7108-660

F +49 591 7108-173

E export@kampmann.de

W Kampmann.eu

Inhaltsverzeichnis

1	General	5
1.1	About these Instructions	5
1.2	Explanation of Symbols	5
1.3	Copyright	6
1.4	Customer Service	6
2	Safety	7
2.1	Intended Use	7
2.2	Fundamental Dangers	8
2.2.1	Dangers due to Electrical Energy	9
2.3	Responsibility of the Operator	9
2.4	Training	10
2.5	Personnel Requirements	10
2.5.1	Qualifications	10
2.6	Personal Protective Equipment	11
3	Technical Data	12
3.1	Main Dimensions	12
3.2	Connection Dimensions	13
3.3	Weights	14
3.4	Connected Loads	14
3.5	Operating Data	15
3.6	Specification Plates	16
3.6.1	Specification Plate for Basic Unit	16
3.6.2	Specification Plate with Control Configuration KaControl	16
3.7	Spare Parts List	17
4	Design and Function	18
4.1	Overview	18
4.2	Short Description	20
4.3	Accessories	21
5	Transport, Packaging and Storage	23
5.1	Safety Instructions for Transport	23
5.2	Packages	24
5.3	Transport Inspection	25
5.4	Packaging	25
5.5	Storage	26

6	Installation and Connection	27
6.1	Requirements at the Installation Site	27
6.2	Inspection Openings with a Sealed Ceiling	27
6.3	Wiring	35
6.4	Control Overview	36
7	Operation and Commissioning	51
7.1	Pre-commissioning Checks	51
7.2	Venting the Heat Exchanger	52
7.3	Switching on the Unit	52
8	Maintenance	53
8.1	Preventing the Unit from being Switched on Again	53
8.2	Maintenance Schedule	54
8.3	Maintenance Work	55
8.3.1	Cleaning the Filter	56
8.3.2	Cleaning the Unit	57
9	Faults	58
9.1	Fault Display	58
9.2	Fault Table	59
10	Dismantling and Disposal	60
10.1	Safety Instructions for Dismantling and Disposal	60
10.2	Dismantling	60
10.3	Disposal	61
11	Declaration of Conformity	62

1 General

1.1 About these Instructions

These instructions allow the safe and efficient handling of the unit. The instructions are part of the unit and must be stored in its immediate vicinity and be accessible to the personnel at all times.

The personnel must have carefully read and understood these instructions before commencing any work. Compliance with all the safety instructions and handling instructions in these instructions is a fundamental requirement for working safely.

Furthermore, the local accident prevention regulations and general safety conditions for the application are also applicable.

Illustrations in these instructions are intended to facilitate basic understanding and may deviate from the actual design.

1.2 Explanation of Symbols

Information



DANGER!

This combination of symbol and signal word indicates an imminently dangerous situation that will lead to death or serious injuries if not avoided.



NOTE!

This combination of symbol and signal word indicates a potentially dangerous situation that may lead to property and environmental damage if not avoided.



This symbol highlights tips and recommendations as well as information for the efficient and trouble-free operation of the unit.

Additional markings

The following markings are used in these instructions to highlight handling instructions, results, lists, references and other elements.

Marking	Explanation
	Step-by-step handling instructions
	Results of action taken
	References to sections of these instructions and other applicable documents
	Lists without a specified sequence
[Button]	Operating controls (e.g. button, switch), Display elements (e.g. indicator lights)
"Display"	Screen elements (e.g. buttons, assignment of function keys)

1.3 Copyright

The contents of these instructions are protected by copyright. It is permitted to use them for operating the unit. Any other use is not permitted without the written consent of the manufacturer.

1.4 Customer Service

Our Customer Service team is on hand to provide technical information:

Address	Kampmann GmbH Friedrich-Ebert-Str. 128–130 49811 Lingen (Ems)
Phone	+49 591 7108 670
Fax	+49 591 7108 360
Email	service@kampmann.de
Website	www.kampmann.de

We are also always interested in information and experiences resulting from the use of the unit and that may be valuable for the improvement of our products.

2 Safety

This section gives an overview of all important safety information for the protection of individuals as well as for the safe and trouble-free operation of the unit. Other task-related safety instructions are indicated in the sections about the individual life cycles.

2.1 Intended Use

The units are exclusively designed for the heating and cooling of air in dry, frost-free rooms. The unit must be connected to the on-site heating / cooling / ventilation system in the room to be heated as well as the sewage system and power supply on site.

Correct and proper use is also deemed to include observing all the information in these instructions.

Any use over and above the intended use or any other use is deemed to be misuse.



WARNING!

Danger due to misuse!

- Never operate the unit in humid areas, such as swimming pools, in wet rooms, etc.
- Never operate the unit in areas with a potentially explosive atmosphere.
- Never operate the unit in areas with a high dust content.
- Never operate the unit in areas containing high temperature gases.
- Never operate the unit in an aggressive or corrosive atmosphere (such as sea air).
- Never operate the unit above electrical equipment (such as switch cabinets, computers or other electrical equipment or contacts that are not drip-proof).
- Never operate the unit outdoors.
Keep windows closed whilst operating the unit.
- Only operate the unit in its entirety and when connected to the supply networks (waste water, heating/cooling, electricity).
- Never operate the unit outside its technical specifications (↪ Chapter 3 "Technical Data" on page 12).
- Install away from radiators or other heating appliances.
- The air flow must be able to circulate freely.
Do not place any objects on the unit.
- Do not cover the unit.
- Always observe the requirements at the installation site (↪ Chapter 6.1 "Requirements at the Installation site" on page 27).

2.2 Fundamental Dangers

The following section lists the residual risks that may occur even when the unit is used as intended.

Please observe the safety instructions shown here and in the following sections of these instructions to reduce the risk of personal injuries and property damage and to avoid dangerous situations.

2.2.1 Dangers due to Electrical Energy

Electric current



DANGER!

Mortal danger from electric current!

Contact with live parts may result in immediate mortal danger by electric shock. Damage to the insulation or individual components may endanger life.

- Work on electrical equipment may only be carried out by qualified electricians.
- In case of damage to the insulation, switch off the power supply immediately and arrange for repairs to be carried out.
- Keep moisture away from live parts. This may cause a short circuit.
- Ground the unit properly.

2.3 Responsibility of the Operator

Obligations of the operator

Use the unit in the commercial sector. The operator of the unit therefore subject to the legal obligations regarding occupational health and safety.

The applicable safety, occupational safety and environmental regulations for the application must also be observed in addition to the safety guidelines in these instructions.

The following applies in particular:

- The operator must know about the applicable occupational safety regulations and use a risk assessment to determine additional hazards that arise from the special working conditions at the location in which the unit is used. He must implement this in the form of operating instructions for the operation of the unit. The operator must clearly regulate and specify
- the responsibilities for installation, operation, troubleshooting, maintenance and cleaning. The operator must ensure that
- all people handling the unit have read and understood these instructions. In addition, he must train the personnel at regular intervals and inform them about the dangers. The operator must provide
- the necessary protective equipment to the personnel carrying out maintenance and repair work and advise them that it is mandatory to wear the necessary protective equipment.

In addition, the operator is responsible for ensuring that the unit is always in a perfect technical condition. The following therefore applies:

- The operator must ensure that the maintenance intervals described in these instructions are observed.

Hygiene requirements

The operator must observe the guidelines regarding hygiene requirements in accordance with the standards and directives applicable at the location in which the unit is used. These include the following, amongst others:

Observing

- the hygienic separation of fresh and waste water,
- the appropriate maintenance and inspection intervals,
- the guidelines for air ducts and air passages,
- the specified filter grades.

2.4 Training

The manufacturer offers training to users. Please refer to ↪ Chapter 1.4 "Customer Service" on page 6 for contact details.

2.5 Personnel Requirements

2.5.1 Qualifications

Only people who are expected to perform their work reliably are allowed. People whose reactions are influenced, for example, by drugs, alcohol or medication are not allowed.

Qualified electrician

A qualified electrician is specifically trained for the working environment in which they operate and are familiar with the relevant standards and regulations.

Installation personnel

The installation personnel have the technical skills and experience as well as knowledge of the relevant provisions to carry out the tasks assigned to them and to recognise possible dangers themselves as a result of their training. The installation personnel have all the necessary equipment and tools.

Caretaker/user

The caretaker/user have been trained by the manufacturer in the tasks assigned to them and advised about possible dangers in case of improper conduct. The caretaker/user may only carry out tasks over and above operation of the unit in normal mode if this is specified in these instructions.

2.6 Personal Protective Equipment

Personal protective equipment is used to protect individuals from safety hazards and health risks at work. The accident prevention regulations applicable at the location in which the unit is operated always apply.

If necessary, the personnel must wear the personal protective equipment referred to separately in the individual sections of these instructions whilst carrying out maintenance and repair work on and with the unit.

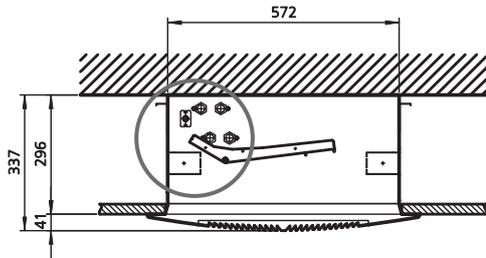
Technical Data

Main dimensions

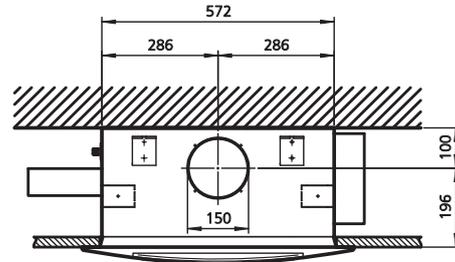
3 Technical Data

3.1 Main Dimensions

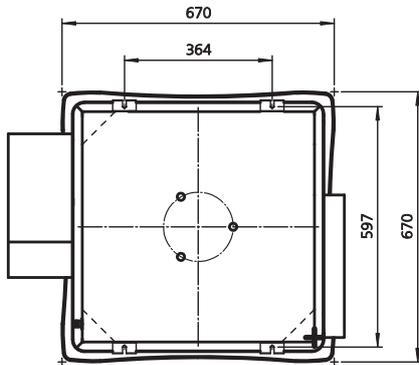
Model 1–3 (dimensions in mm)



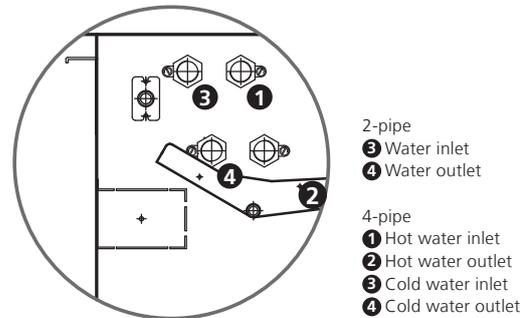
Front view



Side view



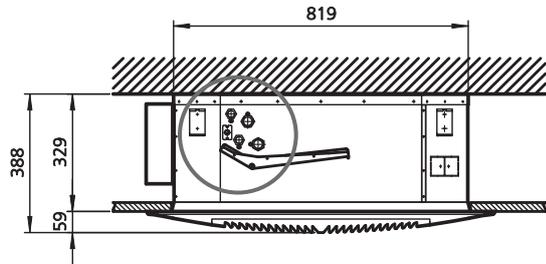
Top view



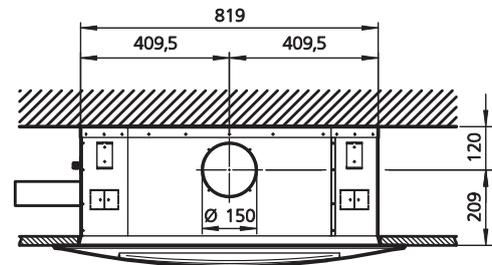
Details

Unit size		Model 1–3
Condensation connection		1/2"
Connections without valve kit		
Water inlet/outlet 2-pipe	Inches	3/4"
Water inlet/outlet 4-pipe cooling	Inches	3/4"
Water inlet/outlet 4-pipe heating	Inches	1/2"
Connections with valve kit		
Water inlet/outlet 2-pipe	Inches	1"
Water inlet/outlet 4-pipe cooling	Inches	1"
Water inlet/outlet 4-pipe heating	Inches	3/4"

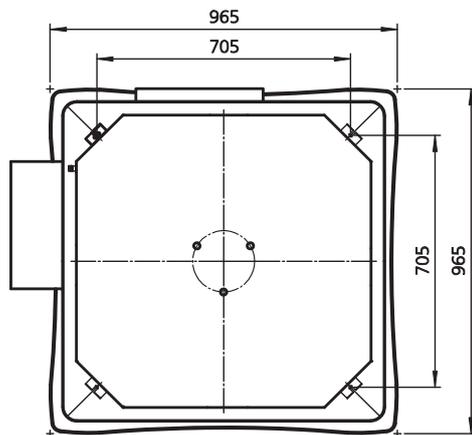
Model 4-6 (dimensions in mm)



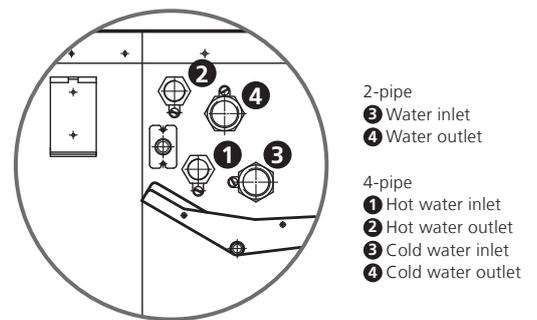
Front view



Side view



Top view



Details

- 2-pipe
 3 Water inlet
 4 Water outlet
- 4-pipe
 1 Hot water inlet
 2 Hot water outlet
 3 Cold water inlet
 4 Cold water outlet

Unit size		Model 4-6
Condensation connection		1/2"
Connections without valve kit		
Water inlet/outlet 2-pipe	Inches	3/4"
Water inlet/outlet 4-pipe cooling	Inches	3/4"
Water inlet/outlet 4-pipe heating	Inches	1/2"
Connections with valve kit		
Water inlet/outlet 2-pipe	Inches	1"
Water inlet/outlet 4-pipe cooling	Inches	1"
Water inlet/outlet 4-pipe heating	Inches	3/4"

Technical Data

Operating data

3.2 Weights

Unit size:		model 1	model 2-3	model 4	model 5-6
Heat exchanger, 2-pipe model					
Basic unit	kg	22	24	36	39
Casing	kg	3	3	6	6
Total	kg	25	27	42	45
Heat exchanger, 4-pipe model					
Basic unit	kg	24	24	39	39
Casing	kg	3	3	6	6
Total	kg	27	27	45	45

3.3 Connected Loads

Unit size:		model 1	model 2	model 3	model 4	model 5	model 6
Mains voltage		230 V / 50 Hz					
Protection		IP 21					
Protection class		class 1					
AC fan model							
Max. power consumption	W	56.5	80.5	102.5	89.5	132.5	182.5
Max. current consumption	A	0.35	0.45	0.60	0.50	0.65	0.90
EC fan model							
Max. power consumption	W	28.5	44.0	81.0	43.5	126.0	–
Max. current consumption	A	0.25	0.40	0.70	0.40	1.10	–

3.4 Limits of operation and use

operating limits			
water temperature min./max.	°C	5-80	
air inlet temperature min./max.	°C	15-40	
air humidity min./max.	%	15-75	
operating pressure max.	bar	8	
max. glycol concentration	%	50	

We would refer to VDI-2035 Sheet1&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 also be free of suspended matter, dust etc. and any additional substances that could cause reactions.

water properties					
pH ^{*1}		8-9	Manganese ions (Mn ²⁺)	mg/l	<0,05
Conductivity ^{*1}	µS/cm	< 700	Ammonia ions (NH ⁴⁺)	mg/l	< 0,1
Oxygen content (O ₂)	mg/l	< 0.1	Chlorine ions (Cl)	mg/l	< 100
Hardness	°dH	4-8.5	CO ₂	ppm	< 50
Sulphur ions (S)		not detectable	Sulphate ions (SO ₄ ²⁻)	mg/l	< 50
Sodium ions (Na ⁺)	mg/l	< 100	Nitrite ions (NO ₂ ⁻)	mg/l	< 50
Iron ions (Fe ²⁺ , Fe ³⁺)	mg/l	< 0.1	Nitrate ions (NO ₃ ⁻)	mg/l	< 50

3.5 Operating Data

Unit size:		model 1	model 2	model 3	model 4	model 5	model 6
AC fans, 2-pipe model							
Min./max. cooling output * ¹	W	1840 - 2680	2250 - 4330	2940 - 5020	4210 - 6160	5310 - 9510	5310 - 11100
Min./max. heat output * ²	W	1350 - 2040	1570 - 3180	6340 - 11570	9510 - 14620	11300 - 21932	11300 - 26310
Min./max. air volume	m ³ /h	310 - 520	320 - 710	430 - 550	630 - 1140	710 - 1500	710 - 1820
Min./max. sound pressure level * ³	dB(A)	24 - 36	24 - 44	32 - 50	24 - 39	25 - 44	25 - 49
Min./max. sound power level	dB(A)	33 - 45	33 - 53	41 - 59	33 - 48	34 - 53	34 - 58
AC fans, 4-pipe model							
Min./max. cooling output * ¹	W	1850 - 2700	2090 - 3930	2720 - 4530	4140 - 6340	4490 - 8770	4990 - 10200
Min./max. heat output * ²	W	2630 - 3780	1490 - 2950	3310 - 5330	6710 - 10170	7310 - 12400	7310 - 14345
Min./max. air volume	m ³ /h	310 - 520	320 - 710	430 - 880	630 - 1140	710 - 1500	710 - 1820
Min./max. sound pressure level * ³	dB(A)	24 - 36	24 - 44	32 - 50	24 - 39	25 - 44	25 - 49
Min./max. sound power level	dB(A)	33 - 45	33 - 53	41 - 59	33 - 48	34 - 53	34 - 58
EC fans, 2-pipe model							
Min./max. cooling output * ¹	W	1840 - 2750	2240 - 4330	2560 - 5020	4210 - 6330	5290 - 10750	–
Min./max. heat output * ²	W	4150 - 6480	4730 - 9770	5475 - 11570	9510 - 15060	10915 - 23770	–
Min./max. air volume	m ³ /h	310 - 535	310 - 710	360 - 880	630 - 1165	710 - 1770	–
Min./max. sound pressure level * ³	dB(A)	24 - 38	24 - 45	28 - 51	24 - 39	25 - 48	–
Min./max. sound power level	dB(A)	33 - 47	33 - 54	37 - 60	33 - 48	34 - 57	–
EC fans, 4-pipe model							
Min./max. cooling output * ¹	W	1850 - 2770	2090 - 3930	2380 - 4530	4300 - 6510	4980 - 9870	–
Min./max. heat output * ²	W	2760 - 4070	2295 - 3765	2540 - 4220	6970 - 10450	6020 - 10645	–
Min./max. air volume	m ³ /h	310 - 535	310 - 710	360 - 880	630 - 1165	710 - 1770	–
Min./max. sound pressure level * ³	dB(A)	24 - 38	24 - 45	28 - 51	24 - 39	25 - 48	–
Min./max. sound power level	dB(A)	33 - 47	33 - 54	37 - 60	33 - 48	34 - 57	–

*1 at CHW 7/12 °C, t_L = 27°C, 48% relative humidity

*2 at LPHW 75/65, t_L = 20°C

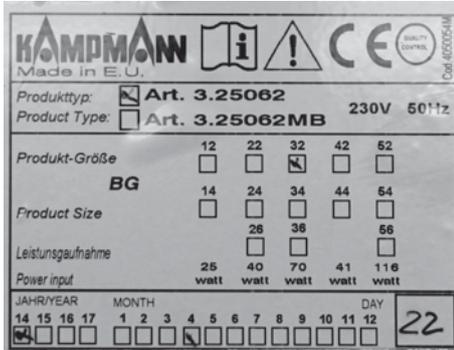
*3 Sound pressure level data for a room size 100m³, reverberation time 0.5 seconds, sound absorption 9 dB(A).

Technical Data

Specification plate

3.6 Specification Plates

3.6.1 Specification Plate for Basic Unit

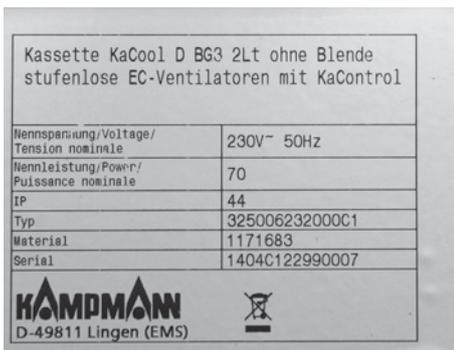


The specification plate is located on the electrical housing of the basic unit and contains the following information:

- Type
- Nominal voltage
- Nominal power
- Article number
- Serial number
- Year and month of manufacture
- Manufacturer
- CE mark

Fig. 7: Sample specification plate

3.6.2 Specification Plate with KaControl Control Configuration



The specification plate is also located on the electrical housing in addition to the unit rating plate.

3.7 Spare Parts List

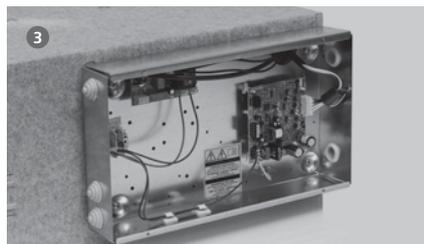
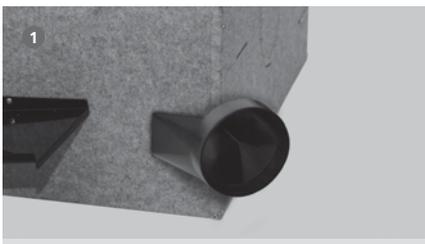
Unit size:	model 1	model 2	model 3	model 4	model 5	model 6
Air intake filter		003251173061			003251173062	
Plastic casing, only middle section		003251173063			003251173064	
Air outlet louvre (1 no.)		003251173065			003251173066	
Plastic lock for casing, left			003251181302			
Plastic lock for casing, right			003251181305			
Fan impeller		003251173010			003251173011	
Polystyrene condensation tray		003251173034			003251173035	
Condensation tray for valves			003251173036			
Float switch for condensation pump			003251173037			
Condensation pump			003251173036			
Mounting bracket/fixing for cassette 4 no.			003251173059			
AC fan model						
Fan motor		003251172596		003251172598		003251172996
Condenser		003251173048		003251173049		003251173050
Transformer		003251173045		003251173046		003251173046
Electronics (not infra-red remote control)			003251173041			
Electronics (infra-red remote control)			003251173042			
EC fan model						
Fan motor		003251172998		3003251172999		–
Speed PCB	003251173051	003251173052	003251173053	003251173054	3251173055	–
Electronics (not infra-red remote control)			003251173043			
Electronics (infra-red remote control)			003251173044			

4 Design and Function

4.1 Overview



Features





1 Punched opening for optional fresh air connection:

- ▶ For 20 % fresh air at medium fan speed (Fig. including fresh air spigot)

2 Punched opening for external air outlet:

- ▶ Connection option for on-site air outlets

3 Electrical control box for Control PCBs:

- ▶ KaControl
- ▶ Infra-red electronic receiver
- ▶ Terminals only

4 Compact basic housing:

- ▶ Made of galvanised sheet steel
- ▶ The outside has a fleece coating for improved insulation from the environment
- ▶ The inside has high-grade 10 mm vapour diffusion-tight polyethylene foam matting

5 Stylish casing similar to RAL 9003 (signal white):

- ▶ Dimensions coordinated to acoustic ceiling grids (with model 4–6, the casing and the unit can be centred within four fields)

6 Air outlet:

- ▶ Four manually adjustable outlet air louvres
- ▶ made of smooth plastic
- ▶ Easy to clean

7 Air filter:

- ▶ Simple to remove
- ▶ Easy to clean

8 Air intake grille:

- ▶ Large free cross-section to minimise pressure losses

9 Hydraulic connections:

- ▶ For CHW, LPHW and drainage of condensation Valve drip tray drains
- ▶ any condensation produced into the condensation tray
- ▶ Drip tray is supplied with the unit

10 Condensation pump and float switch:

- ▶ Easily accessible by removal of the polystyrene condensation tray Integrated condensation pump
- ▶ drains the condensation up to a max. head of 650 mm
- ▶ Pump activation by a two-stage float switch
- ▶ The pump is switched on when the first stage is reached and the second stage activates an evaluable alarm contact

11 Fans:

- ▶ 3-stage AC fans
- ▶ Infinitely adjustable EC fans
- ▶ Vibration-damped mounting
- ▶ Direct-driven, backward-curved impeller
- ▶ Efficient and low-noise
- ▶ Protection class IP 44, insulation class B
- ▶ Integrated thermal contacts to prevent the motor from overheating

12 Heat exchanger:

- ▶ Made of copper pipe with aluminium fins
- ▶ 2 / 4 pipe configuration
- ▶ Vent and drain valves on the outside of the unit
- ▶ Max. operating pressure: 8 bar

4.2 Short Description

The KaCool D is a decentralised unit for heating, cooling and filtering air in hotels, offices and conference rooms, amongst other places. Users can set a comfortable temperature for themselves thanks to the effective and extremely quietly operated fan.

Operating mode

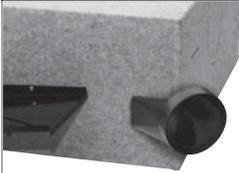
The secondary air is drawn in to the middle section of the casing. The air initially passes through the air intake grille to the filter. This removes dust, for example, from the secondary air and therefore protects the following components from contamination. The air is drawn out by the filter and forced through the copper/aluminium heat exchanger. The air is cooled or heated in the exchanger depending on the temperature at which the medium flows through the heat exchanger.

The air passes through the outlet air slats into the room. The outlet air slats can be manually adjusted depending on the desired air direction.

Condensation may be produced on the heat exchanger when cooling with low water temperatures. This drips onto the heat exchanger and falls into the condensation tray underneath. The condensation accumulates in one corner. A float switch monitors the condensation level. The condensation pump is activated when a certain level is exceeded. A condensation warning is issued if an even higher level is exceeded.

Valve kits, available as accessories, can be connected to the side of the unit. The units are supplied with condensation trays that can be installed below the valve kits. The condensation is routed and drained through a prepared opening into the condensation tray of the unit.

4.3 Accessories

Figure	Article	Properties	Suitable for	Art. no.
Valves				
	2-way valve kit 2-pipe system	230 V Open/shut	Model 1-3, 2-Pipe, without KaControl	325007012110
		24 V Open/shut	Model 1-3, 2-Pipe, with KaControl	325007012112
	3-way valve kit 2-pipe system	230 V Open/shut	Model 1-3, 2-Pipe, without KaControl	325007012120
		24 V Open/shut	Model 1-3, 2-Pipe, with KaControl	325007012122
	2-way valve kit 4-pipe system	230 V Open/shut	Model 1-3, 4-Pipe, without KaControl	325007014110
		24 V Open/shut	Model 1-3, 4-Pipe, with KaControl	325007014112
	3-way valve kit 4-pipe system	230 V Open/shut	Model 1-3, 4-Pipe, with KaControl	325007014120
		24 V Open/shut	Model 1-3, 4-Pipe, with KaControl	325007014122
	2-way valve kit 2-pipe system	230 V Open/shut	Model 4-6, 2-Pipe, without KaControl	325007022110
		24 V Open/shut	Model 4-6, 2-Pipe, with KaControl	325007022112
	3-way valve kit 2-pipe system	230 V Open/shut	Model 4-6, 2-Pipe, without KaControl	325007022120
		24 V Open/shut	Model 4-6, 2-Pipe, with KaControl	325007022122
	2-way valve kit 4-pipe system	230 V Open/shut	Model 4-6, 4-Pipe, without KaControl	325007024110
		24 V Open/shut	Model 4-6, 4-Pipe, with KaControl	325007024112
	3-way valve kit 4-pipe system	230 V Open/shut	Model 4-6, 4-Pipe, without KaControl	325007024120
		24 V Open/shut	Model 4-6, 4-Pipe, with KaControl	325007024122
Connections				
	Fresh air connection	Connection diameter: 105 mm Max. fresh air volume per spigot 100 m ³ /h Max. fresh air volume per cassette: Model 1: 85 m ³ / h Model 2: 100 m ³ / h Model 3: 120 m ³ / h Model 4: 165 m ³ / h Model 5: 165 m ³ / h Model 6: 195 m ³ / h	All models	325007000300

Valve kit

Valve	Model	2/4 pipe system	KVS		DP max		Connection	
			Cooling element	Heating element	Cooling element	Heating element	Cooling element	Heating element
			[m³/h]		[kPa]		[inch]	
2-way valve	1-3	2-Pipe	2,8		50		3/4"	
		4-Pipe	2,8	2,8	50	50	3/4"	3/4"
	4-6	2-Pipe	5,2		60		1"	
		4-Pipe	4,5	2,5	60	50	1"	3/4"
3-way valve	1-3	2-Pipe	2,5		50		3/4"	
		4-Pipe	5,2	2,8	50	50	3/4"	3/4"
	4-6	2-Pipe	4,5		50		1"	
		4-Pipe	4,5	2,5	50	50	1"	3/4"

Thermoelectric actuator (included in valve kit)

Thermoelectric actuator	Voltage	Current consumption (Start)	Power consumption	Protection class	Direction of operation
		[A]	[W]		
Standard drive	230	0,25	2,5	IP 43	Without current Closed
Suitable for KaControl	24	0,35	2,5	IP 43	

5 Transport, Packaging and Storage

5.1 Safety instructions for transport

Risk of injury



WARNING!

Risk of injury due to sharp-edged or broken transport items!

The improper use of unit components as a carrying option can lead to personal injury and property damage.

- 2 people are needed to transport the unit.
- Wear personal protective equipment during transport.
- Carry the units only on both sides and hold the basic housing to lift it (not the valves).
- Use suitable transport aids for transport to prevent health-related injuries and damage to the units.

Inappropriate transport



NOTE!

Property damage due to inappropriate transport!

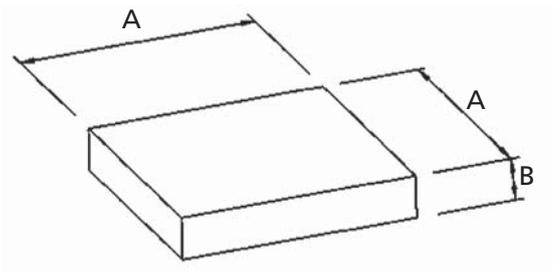
Transport items may fall or topple over due to inappropriate transport. This may lead to

- substantial property damage. Proceed carefully and observe the symbols and instructions on the packaging when unloading the transport items upon delivery as well as during internal transport.
- Use only the attachment points provided.
- Only attach lifting equipment to the unit. Ensure that the weight is evenly distributed.
- Remove packaging just before the installation.

5.2 Packages

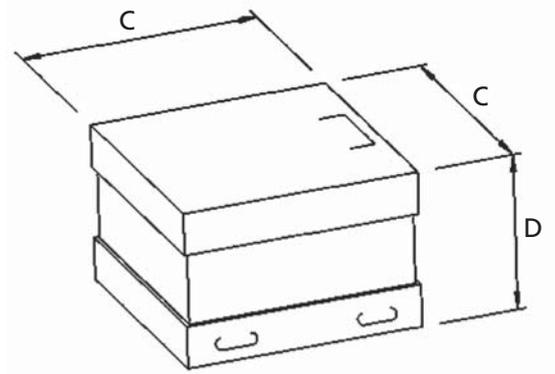
The basic housing and stylish casing are supplied separately depending on the order.

Stylish casing



Please refer to the table on page 14 for weights

Basic housing



Unit size		Model 1-3	Model 4-6
A	mm	790	1050
B	mm	350	400
C	mm	750	1000
D	mm	150	200

Delivery (depending on the model ordered)

Basic housing:

- Basic housing
- Fixing materials
- Condensation tray/valves
- Instructions/wiring diagram

Stylish casing:

- Casing
- Fixing materials

Valve kit

- Connecting pipe
- Valve
- Actuator
- Instructions

5.3 Transport Inspection

Check the delivery immediately upon receipt for completeness and transport damage.

Proceed as follows in case of obvious external transport damage:

Delivery

- Do not accept the delivery or only under reserve. Note the extent of damage on the transport documents or on the carrier's delivery note.
- Lodge a complaint via the carrier.



Complain any defect as soon as it is recognized. Claims for damages can only be made within the valid complaints become.

5.4 Packaging

About the packaging

The individual packages are packed according to the anticipated transport conditions.

The packaging should protect the individual components against transport damage, corrosion and other damage up until installation. Therefore, do not destroy the packaging and only remove it just before the installation.

Handling packaging materials

Dispose of packaging material in accordance with the applicable statutory provisions and local regulations in each case.



NOTE!

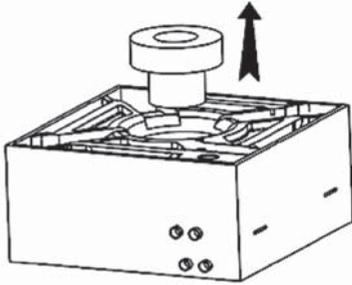
Environmental damage due to incorrect disposal!

Packaging materials are valuable raw materials and can continue to be used or sensibly reconditioned and recycled in many cases.

Environmental damage may occur due to the incorrect disposal of packaging materials.

- Dispose of packaging materials in an environmentally friendly manner.
- Observe the locally applicable disposal regulations. If necessary, employ a specialist company to dispose of the packaging.

Removing the transport protection



With cassettes supplied with models 1-3, the fans are protected by polystyrene transport protection. Remove this protection after assembly and before putting into service.

5.5 Storage

Storing the packages

Store the packages under the following conditions:

- Do not store outdoors.
- Store in a dry and dust-free place.
- Do not expose to aggressive media.
- Keep away from direct sunlight.
- Avoid mechanical vibrations.
- Storage temperature: 15 to 35° C.
- Relative humidity: max. 60%.



Under certain circumstances there may be instructions on the packages that exceed the requirements mentioned here. Adhere to these accordingly.

6 Installation and Connection

6.1 Requirements at the installation site

Only install the unit if the following conditions are met:

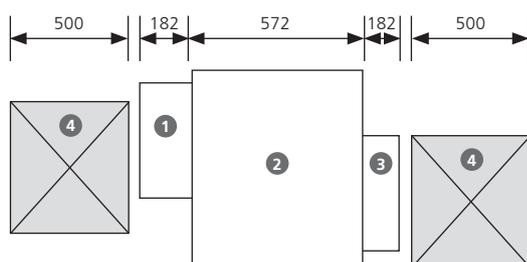
- The installation site will bear the unit's weight (↪ Chapter 3 "Technical Data" on page 14).
- The unit is guaranteed to be overload-proof and free of vibrations (consult a structural engineer or architect if necessary, also for wall or ceiling openings).
- The required minimum clearances from the unit to the wall/ceiling/floor are observed (P. 28).
- The air flow must be able to circulate freely.
- Drilling positions for drilling work to install the unit are positioned away from electrical cables or pipes.
- Adequately dimensioned connections for the water supply and drainage are available on site (↪ Chapter 3 "Technical Data" on page 14).
- Mounting of units without mechanical torsion or stress must be guaranteed at any installation site.
- An electrical power supply is available on site (↪ Chapter 3 "Technical Data" on page 14).

6.2 Inspection Openings with a Sealed Ceiling

Inspection opening connection

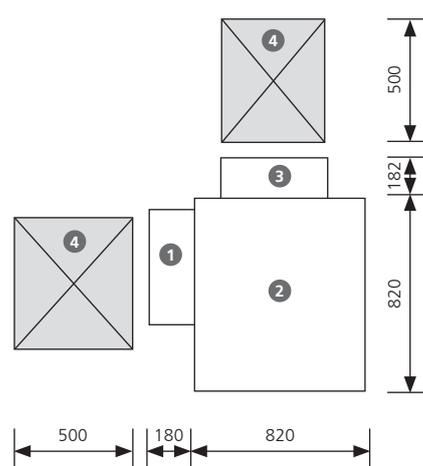
Two inspection openings are needed for each cassette to maintain and service ceiling cassettes with sealed ceiling systems.

Model 1–3



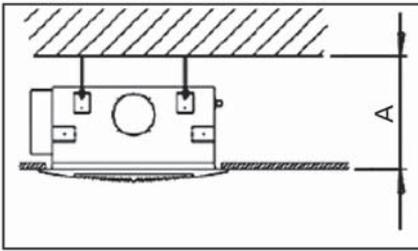
- ① Condensation tray for valves
- ② Chilled water cassette
- ③ Electrical control box
- ④ Service flaps (500 x 500 mm recommended)

Model 4–6



Installation (general)

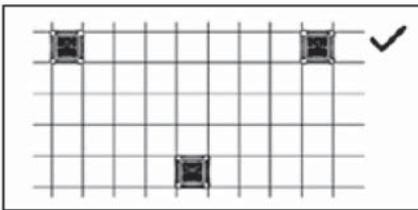
Installation (general)



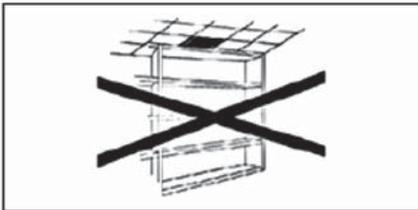
The ceiling cassette can be installed within a suspended ceiling or under a bare concrete ceiling (without a suspended ceiling construction). Observe the minimum clearance to the bare ceiling.

Unit size	Model 1-3	Model 4-6
A	min. 296 mm	min. 329 mm

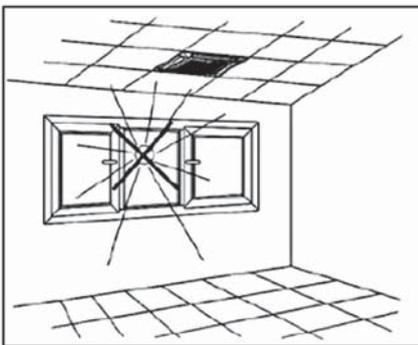
Firstly, you need to calculate the cooling or heating load of the room and select the appropriate ceiling cassette (also from an acoustic point of view).



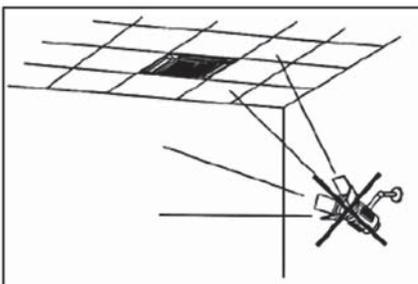
After selecting the cassette, determine the optimum position in the room; observe the throw data (see technical catalogue). In addition, ensure that draughts are minimised when selecting the position!



If more than one ceiling cassette is installed in each room, the cassettes need to be staggered to avoid them affecting each other.

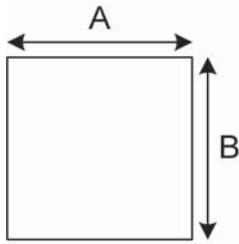


The ceiling cassette needs to be installed horizontally. No objects, such as cupboards, must be located under the ceiling cassette that may minimise the air intake.



Direct radiated heat on the cassette (and temperature sensor) from lamps or windows must be avoided.

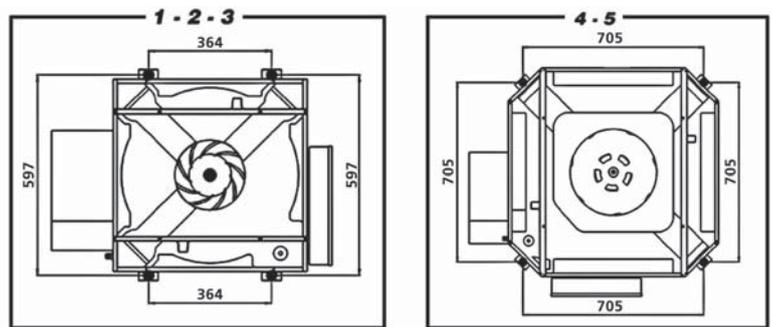
Hanging the unit



Ceiling cut-out		Model 1-3	Model 4-6
A	mm	600	870
B	mm	600	870

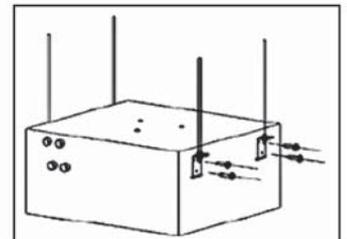
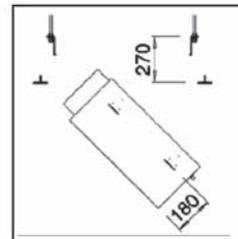
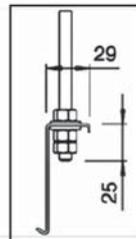
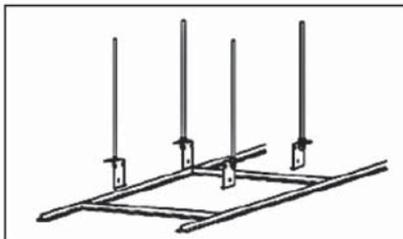
The ceiling needs to be opened accordingly after selecting the installation site. With a ceiling construction with insert panels, remove these over a wide area around the cassette. With a fixed plasterboard ceiling, create an appropriate cut-out based on the dimensions shown opposite. In addition, create the inspection openings according to the illustration shown opposite.

Now drill holes in the bare concrete ceiling for the rawplugs for fixing the unit. Then attach the rawplugs and, for example, the threaded rods.



Fix the mounting brackets (supplied with the delivery) for the ceiling cassette at an appropriate height. The mounting brackets rest on a rubber pad to prevent vibrations and are fixed with washers and nuts.

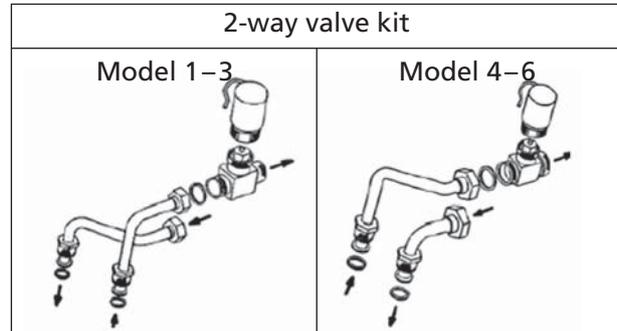
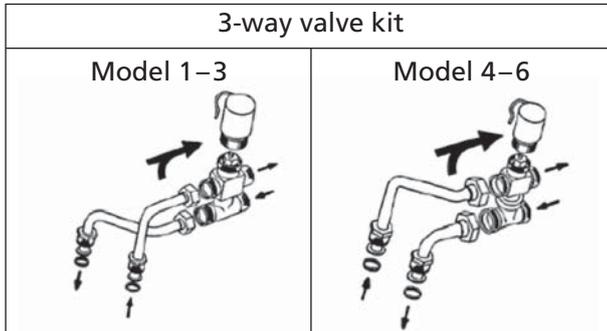
The ceiling cassette can now be guided into the ceiling construction with the aid of two people or an appropriate lifting aid and hung in the first two mounting brackets. Then fix the other two mounting brackets to the ceiling cassette. Now secure the brackets with the enclosed screws. The water, condensation and electrical connections can now be made.



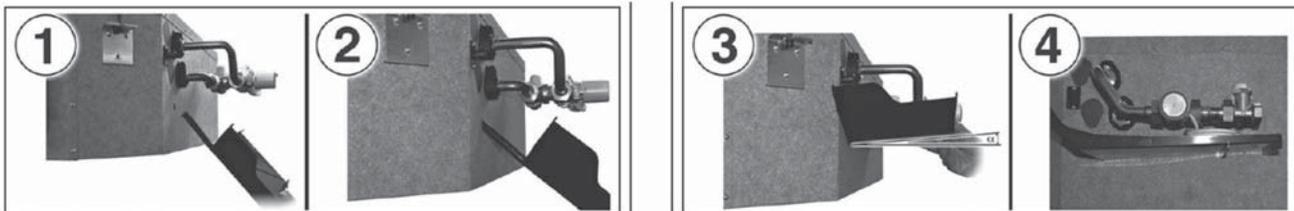
Water-side connection

Water-side connection

Firstly, fit the enclosed valve kit to the ceiling cassette, if there is one. Use the enclosed sealing material to do this. **The counterpart must be fixed accordingly to the cassette when tightening the screw connection!**



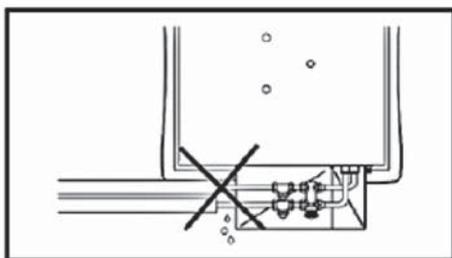
Now the valve condensation tray can be installed with the screws supplied according to the illustrated procedure.



The pipes on site can then be connected to the valve kit. Establish a flexible connection, e.g. using reinforced hoses. In any case, avoid tensions and vibrations in the pipe system from transferring to the ceiling cassette.

Insulate the pipes to just over the valve condensation tray to ensure they are vapour diffusion-tight.

If necessary, install shut-off devices and quantity regulators (e.g. tacosetter) before the cassette for hydraulic calibration and for maintenance purposes.



Condensation connection

The condensation forming on the heat exchanger and valves is discharged by means of a condensation pump integrated in the cassette.

A 2-stage float switch is used to detect the condensation.

1st stage: Switch on/off the condensation pump

2nd stage: Condensation drain fault

A condensation drain fault must be used to switch off the cooling valve (depending on the controller configuration on site)!

The cassette condensation hose has a length of 470 mm and an outer diameter of 14 mm.

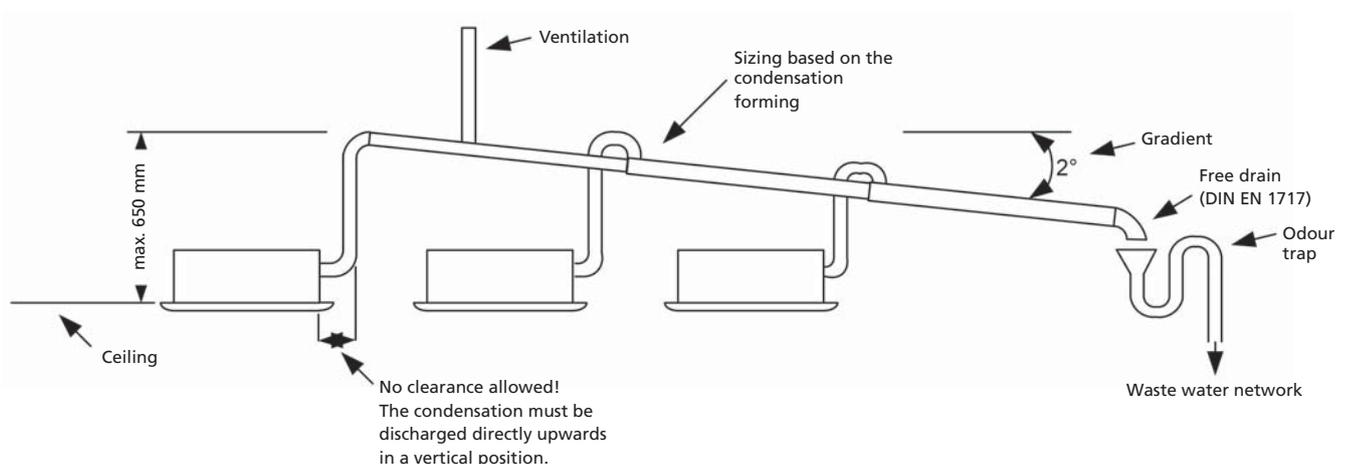
The condensation hose must be securely attached to the main pipe.

Lay the drain pipe according to the applicable regulations and standards.

It is essential that the line is vented; this should be as high as possible, but at least 30 cm above the highest point of the condensation line. The venting should protect condensation from escaping. The riser must be positioned vertically, directly on the cassette in an upwards direction; it is not permitted to lay the cassette horizontally or at an angle to the final gradient.

The line must be made of rigid and adequately dimensioned pipe material (laying hosing is not permitted). The gradient must be observed over the entire route. No sagging is permitted. Low-temperature insulation of the condensation line may be needed to prevent condensation depending on the pipe material. Create a free drain connection with the waste water line for hygienic reasons.

Up to 10 litres of water/hour may be generated by each cassette.



Installation: Casing

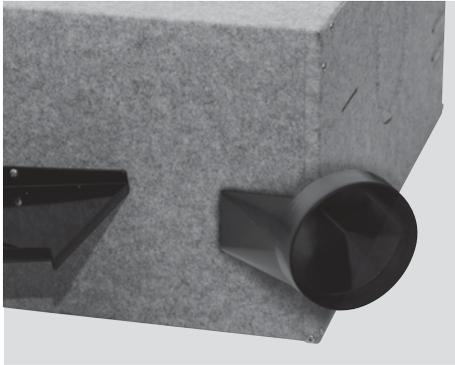
Installation: Casing



Installation: Accessories

Accessories: Fresh air connection, art. no. 325007000300

Primary air spigots for fresh air supply



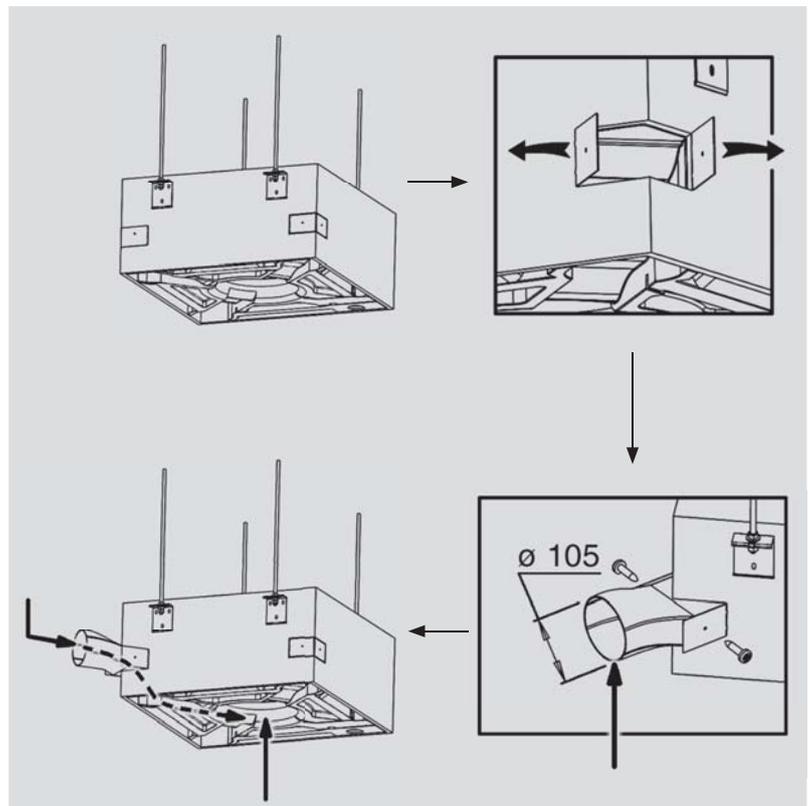
Fresh air connection

Fresh air connection spigots (see Accessories) can be fitted to three of the four corners of the ceiling cassette. This enables rooms to be supplied with a percentage of fresh air. The air has to be cleaned on site with an appropriate air filter and be routed to the cassette at a minimum temperature of 5°C.

Maximum fresh air volume per unit

Model	Air volume ¹⁾ [m ³ /h]
1	85
2	100
3	120
4	150
5	150
6	150

Installing the primary air spigot



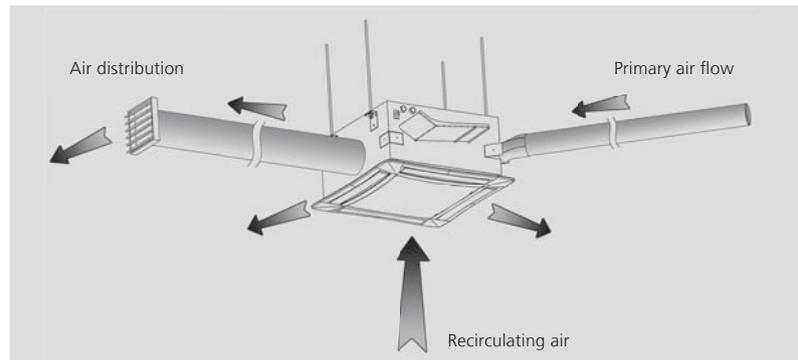
¹⁾ A maximum of 100m³/h can be fed in per corner / connecting spigot with models 1 to 3 and 50 m³/h with models 4 to 6.

Accessories: External condensation pump

Accessories: External air outlets

Up to two air pipes can be connected to the cassettes to supply adjacent rooms (e.g. changing rooms) with conditioned air from the cassette. Two pre-punched openings with a diameter of 150 mm have to be removed on the sides of the cassette to which on-site flanges have to be fitted. Insulated air ducts and outlets can be connected to them. Seal the respective air outlets with an adhesive tape.

Connection dimensions	
Model 1-3	Model 4-6
150 mm	180 mm



Accessories: External condensation pump, art. no. 325007000410

If the condensation pumps installed in the cassettes do not reach the max. head (650 mm), you can use an additional external condensation pump. This can be fitted adjacent to or onto the cassette. To do this, insert the condensation hose of the cassette into the collecting vessel of the external pump. Please refer to the supplementary leaflet relating to the external condensation pump for further technical data about the pump.

The power supply must be provided via a separate supply line. The fault alarm contact must be integrated in the controls of the cooling valve and this must be switched off in case of a fault.

Technical data:	
Max. head:	4.6 Meter
Maximum number of connectable cassettes: 2 no.	2 Stück

The external condensation pump produces higher noise levels. This must be taken into consideration when choosing the installation site!

6.3 Wiring

Personnel: ■ Installation personnel
■ Qualified electrician

Protective equipment: ■ Safety shoes
■ Protective gloves
■ Workwear



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

Additional connections, such as a building control system or external controls, may optionally be needed. Please refer to the relevant supplier documentation.

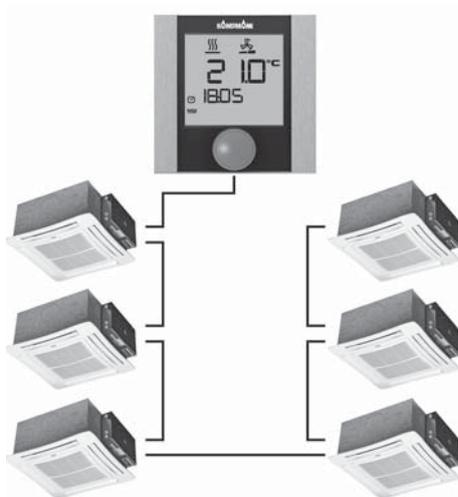
- Use the wiring diagram enclosed only to carry out the electrical connection.
- Carry out the electrical connection only in accordance with the currently applicable VDE and EN directives as well as the technical wiring regulations (TBAs) issued by the regional electricity providers.
- The unit must only be connected to fixed cabling.



Note:

An all-pole mains separator should be included in the wiring on site that can be reliably secured to avoid the system being switched on again (e.g. a lockable switch with a contact opening of at least 3 mm up to a rated voltage of 480 V).

No protective measures are indicated in the Kampmann wiring diagrams. These must be provided additionally when installing the system and when connecting the units in accordance with VDE 0100 and the regulations of each of the respective energy supply companies.



Cabling

An authorised electrician will determine the type of cable and cable cross-sections: The cable cross-sections are basically dependent on the safety of the cable length and the wiring capacity of the electric motors on site. Lay control lines separately from supply lines. Use CAT5 (AWG 23), for example, or similar as data cables. Connect wiring in series, star wiring is not permitted.

6.4 Control overview



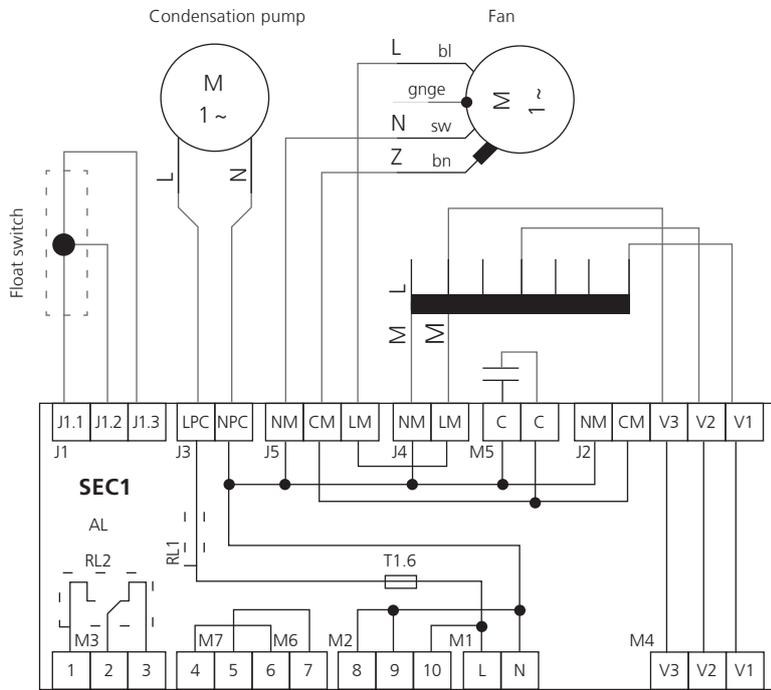
The unit is available in a variety of electrical configurations. It can be connected via a receiver PCB in the electrical junction box. This is located on the opposite side to the unit's water connection. Refer to the respective wiring diagram for the wiring, which varies depending on the model.

Model	Art. no. ending
AC fans, electromechanical model	
AC fans, infra-red remote control_W	_W
EC fans, electromechanical model	
EC fans, KaControl control electronics _C1	_C1

Example:

325006232001**C1** -> KaControl controller

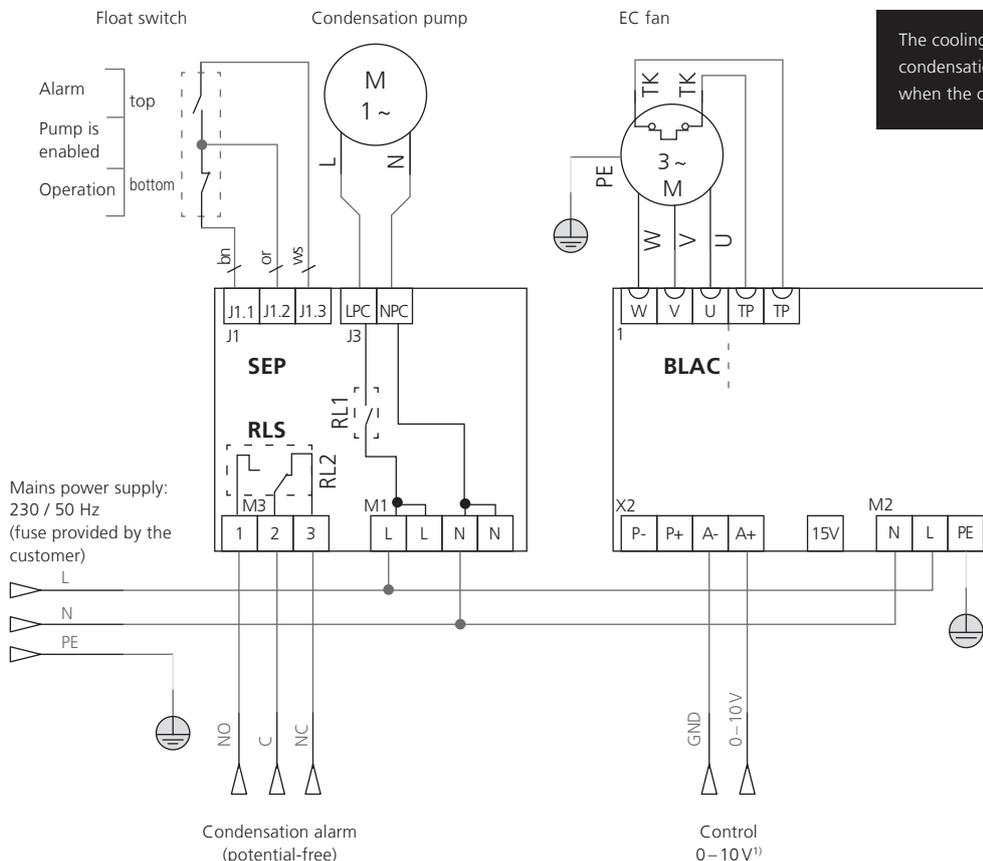
AC fans, electromechanical model Stand-alone unit, on-site control



The cooling valve has to be routed via the condensation alarm. The valve has to be closed when the contact changes to fault.

- 1 = Condensation level OK
- 2 = Condensation pump foot contact
- 3 = Condensation level too high, fault
- 4 = Heating valve 4-pipe, foot contact
- 5 = Cooling valve 2 / 4-pipe, foot contact
- 6 = Heating valve 4-pipe, foot contact
- 7 = Cooling valve actuation, 2 / 4-pipe
- 8 = Neutral wire, heating and cooling valve
- 9 = Neutral wire, thermostat
- 10 = Power supply to thermostat
- L = Power supply 230 V/50 Hz
- N = Neutral wire
- V3 = Maximum fan stage
- V2 = Medium fan stage
- V1 = Minimum fan stage
- RL1 = 150 seconds from the liquid falling below the lower level, pump on (Condensation pump control)
- RL2 = 150 seconds from the liquid falling below the upper level, alarm on (Condensation pump control)

EC fans, electromechanical model Stand-alone unit, on-site control

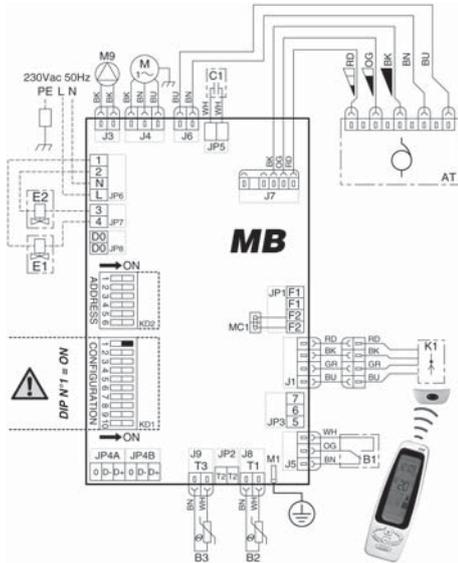


The cooling valve has to be routed via the condensation alarm. The valve has to be closed when the contact changes to fault.

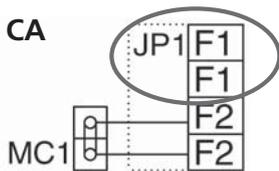
- 1 = Condensation level OK
- 2 = Foot contact
Condensation pump
- 3 = Condensation alarm
- A+ = Signal input
Impedance < 68 KOhm
- A- = Signal input
Impedance < 68 KOhm
- L = Power supply
230 V / 50 Hz
- N = Neutral wire
- RL1 = 120 seconds from the liquid falling below the lower level, pump on (Condensation pump control)
- RL2 = 120 seconds from the liquid falling below the upper level, alarm on (Condensation pump control)

¹⁾ 0V: Off / >1,5-10V: On

AC fans, infra-red remote control Configuration: External contacts



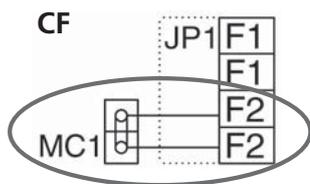
The infra-red remote control variant offers the option of operating the cassette using an infra-red transmitter supplied separately. A number of other functions can be used via inputs and outputs CA/CF and D0 that can be configured using DIP switch D1. In addition, up to 20 units in one group can be controlled with a remote control.



CA input: On/Off or Heating/Cooling

Input CA can be used to process a centralised signal (e.g. from a building control system). The cassette reacts according to the external command depending on the setting on DIP switch 9 (D2/D1).

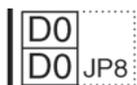
Function	DIP 9	Priority
External ON/OFF	OFF	Contact open -> Cassette ON
External Heating/Cooling	ON	Contact open -> Heating mode



CF input: External On/Off

Input CF can be used, for example, to integrate a window contact or presence detector. Remove jumper MC1 if the contact is used.

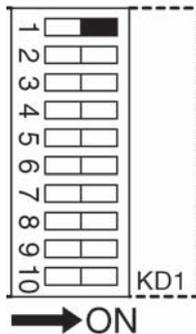
Function	Priority
External ON/OFF	Contact open -> Cassette OFF



Output D0 can be used to pass the current status of the cassette to an on-site controller. The output indicates whether the cassette is switched on or off or whether the float switch signals a condensation fault depending on the configuration of DIP switch 8.

Function	DIP 8	Priority
External switched on/off	OFF	OFF Contact open -> Cassette OFF
Condensation fault	ON	Contact open -> No alarm

AC fans, infra-red remote control Configuration: Functions



D2 DIP switch for control configuration

The DIP switches can be used to configure the control of the chilled water cassette (8 and 9 see previous page).

DIP	Function	Position	Description
1	4-pipe system	ON	The cassette is configured as a 2-pipe system (heating or cooling) or 4-pipe system (heating and cooling) depending on the position.
	2-pipe system	OFF	
	Cyclical fan	ON	The fan always runs in "Continuous flow fan" mode whenever the cassette is supplied with power. The fan stops 3 min. after reaching the room temperature (and closing the valves") in cyclical fan mode. The fan is operated every 10 min. for 100 sec. to allow room temperature measurement on the air intake sensor.
	Continuous flow fan	OFF	
3	Sensor 3 enabled	ON	Sensor T3 is located in the heat exchanger. The fan is only enabled when the temperature is 32 °C or higher.
	Sensor 3 disabled	OFF	
4	Sensor T3, only heating mode	ON	If sensor T3 is enabled, you can decide in which operating modes the control function is enabled using DIP 4. Cooling mode: below 20 °C starts, above 24 °C stops Heating mode: above 34 °C starts, below 30 °C stops
	Sensor T3, heating and cooling mode	OFF	
5	Enable fan with valve opening	ON	The fan is operated in continuous mode or only when opening the valves depending on the setting.
	Continuous fan mode	OFF	
6	Changeover enabled	ON	Special function only with optional cassette features (e.g. electric heating element) in terms of functionality
	Changeover disabled	OFF	
7	Changeover enabled	ON	Special function only with optional cassette features (e.g. electric heating element) in terms of functionality
	Changeover disabled	OFF	
8			See description for inputs/outputs on page 38
9			See description for inputs/outputs on page 38
10			See description for group formation on 40

Fault messages: PCB

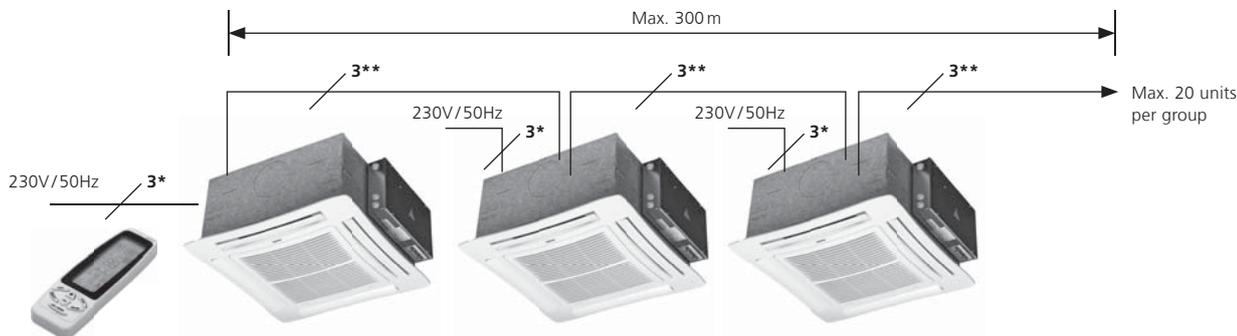
The PCB conducts its own diagnosis and shows its status via LED indicators

LED 1	LED 1	LED 2	LED 3
Fault sensor T1 flashing		Flashing	
Fault sensor T3 on or flashing		On or flashing	
Input CA open			Flashing
Input CF open			On or flashing 4x long, 2x short

Installation and Connection

Control overview

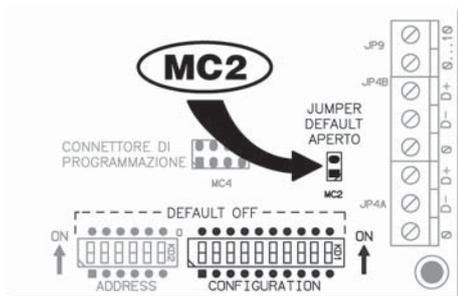
AC fans, infra-red remote control Group formation



Remote control range
About 3 m

* Connection e.g. as NYM-J, sized according to cable length.

** CAT5 connection (AWG 23 or equivalent), linear wiring.

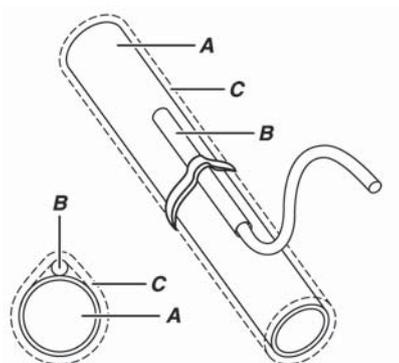


To form a group with up to 20 units, connect the units to each other with a data cable as shown in the illustration opposite. Set DIP switch 10 as follows to proceed with the configuration.

DIP	Function	Position	Description
10	Slave unit	ON	All slave units are set to ON, the master unit is set to OFF.
	Master unit	OFF	

Insert the jumper MC2 in the last slave unit of the group. Remove the jumper from all other units.

Changeover sensor

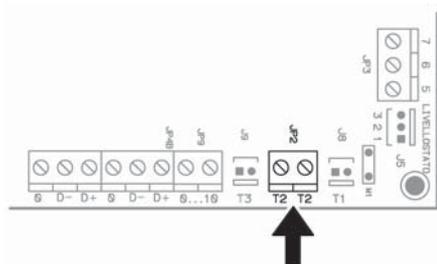
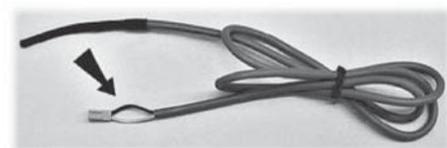


A sensor (T2) must be installed before the cassette and valve kit on the pipe to communicate to the cassette whether the entire system is in heating or cooling mode in a 2-pipe system.

- A Pipe
- B Sensor
- C Insulation A Pipe

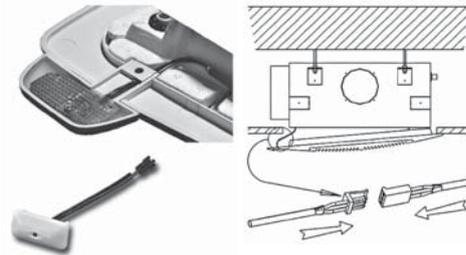
The function is only possible in combination with a 3-way valve!

Insert the sensor in the JP2 slot of the PCB.



Water temperature	Function
Below 20°C	Cooling mode
Between 20°C and 30°C	Only recirculating air mode
Above 30°C	Heating mode

AC fans, infra-red remote control Installation: Infra-red receiver



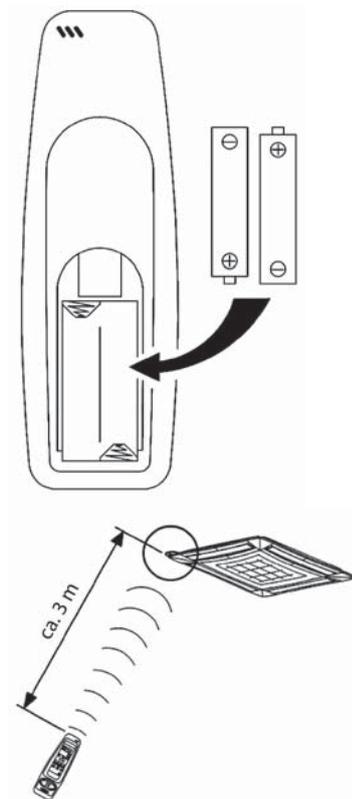
The infra-red receiver and transmitter are located in a separate cardboard box. Fix the receiver to the casing as shown on the illustration opposite. A recess is provided on one side of the casing for mounting. Once the casing is mounted and fixed to the cassette, the plug of the receiver can be connected to the PCB.

Infra-red transmitter/remote control

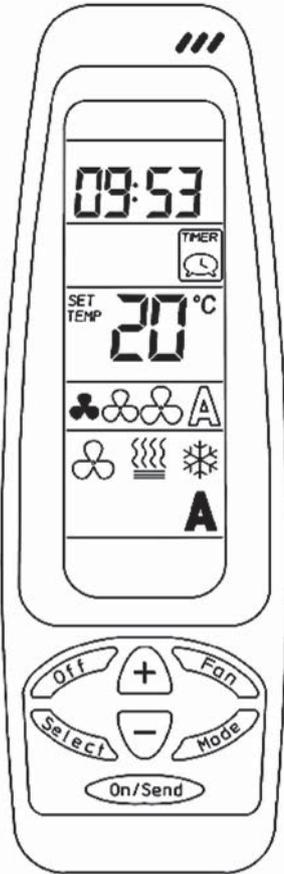
The enclosed batteries (2x AAA 1.5 V) must be inserted into the back of the remote control before it can be used.

Observe the special requirements for disposal of batteries once they have been used.

The maximum range of the remote control to the receiver is approx. 3 m.
The transmitter must be pointed directly at the receiver to enable communication. Surrounding furnishings, such as lamps, can significantly affect the transmission capacity.



Infra-red transmitter/remote control



The buttons on the remote control can be used to change the function of the cassette. The display on the remote control initially changes by pressing the buttons. Once all desired changes have been set, these are sent to the cassette by pressing the On/Send button. The settings are not transferred to the cassette if the On/Send button is not pressed.

Button function		
Button	Description	Display
OFF	Disable the ceiling cassette	---
FAN	Change the fan speed	
MODE	Change the operating mode	
Select	Select Set the clock (Save with On/Send)	
On/Send	Save the changed data	
+	Increase the set values (e.g. temperature)	---
-	Reduce the set values (e.g. temperature)	---

Priority Display Speed	
Set value	Priority
	Low fan speed, low air volume and output
	Medium fan speed, average air volume and output
	High fan speed, high air volume and output
	Automatic adjustment of the speed once the room temperature deviates to the setpoint temperature

Priority Display Operating mode	
Set value	Priority
	Only recirculating mode, only the fan operates
	Heating mode, the cassette heats the room to the setpoint temperature
	Cooling mode, the cassette cools the room to the setpoint temperature
	Automatic mode, the cassette changes over automatically between heating and cooling mode depending on the room temperature deviation. Only suitable for 4-pipe systems.

 Timer mode setting		
Display	Action	Description
	Press Select 2x	Show "Program & Start" on the display
	Press +/-	Set the desired hour of time
---	Press Select 1x	Confirm the hour, change to minute
	Press +/-	Set the desired minute of time
	Press Select 1x	Show "Program & Stop" on the display
	Press +/-	Set the desired hour of time
---	Press Select 1x	Confirm the hour, change to minute
	Press +/-	Set the desired minute of time
---	Press Select 1x	Confirm the entry
---	On/Send	Save the changed data

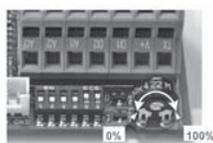
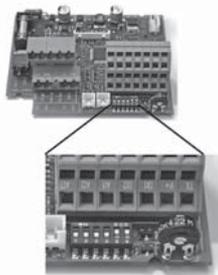
EC fans, KaControl
Overview: PCB

The KaControl control variant offers the option of controlling the cassette using an operating unit supplied separately or an on-site building control system. A variety of settings and configurations are possible using DIP switches on the PCB as well as parameters that can be set via the operating unit.

These instructions only provide a brief overview, please refer to the separate KaControl operating instructions for further setting options (I 492).

The KaControl system offers the option of group formation. An expansion PCB (CAN bus) is available as an accessory for this, where applicable.

Configuration



DIP	Function	Position	Description
1	---	OFF	By changing to ON, the cassette is no longer controlled via the KaControl operating unit, but instead via a 0-10 V signal on input AI2/GND and AI3/GND (see separate KaControl instructions).
	External control 0-10V	ON	
2	---	OFF	By changing to ON, the cassette is no longer controlled via the KaControl operating unit, but instead via an external potentiometer 0-100 kOhm signal on input AI2/GND and AI3/GND (see separate KaControl instructions).
	Control via a potentiometer 0-100 kOhm	ON	
3	Clip-on sensor fitted	ON	The clip-on sensor is available as an accessory and can be used, for example, as a changeover sensor. If it is used, the DIP switch must be set to ON.
	No clip-on sensor fitted	OFF	
4	Changeover from heating/cooling/external	ON	If the function is enabled, the cassette can be changed over in operating mode via an external potential-free contact. The contact affects input DI2/GND.
	---	OFF	
5	4-pipe	ON	The cassette is configured as a 2-pipe heating or cooling system or a 4-pipe heating and cooling system depending on the setting.
	2-pipe	OFF	
6	Temperature detection on the cassette	OFF	The cassettes have an air intake temperature sensor for room temperature detection. Set the DIP switch to ON if the temperature is to be detected on the operating unit. If several cassettes are integrated in a group, set the DIP switch to ON.
	Temperature detection on the operating unit	ON	
Potentiometer	The maximum fan speed can be predetermined via the potentiometer. The maximum speed and therefore also the air volume and sound pressure level can be reduced so that a maximum sound emission, for example, is not exceeded. The maximum achievable cooling or heat output reduces accordingly.		

EC fans, KaControl

Accessories: Clip on temperature sensors



Clip-on temperature sensors

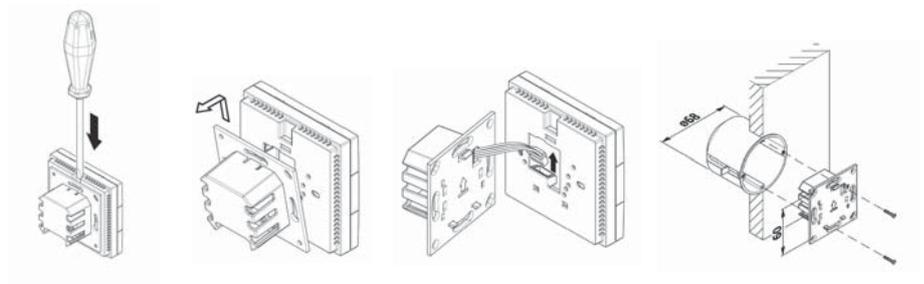
- The clip-on sensors can be fitted to the flow pipe (heating/cooling) using a tension strap. The temperature sensor and tension strap form one unit to ensure a simple installation.
- To connect the electrical connection cables (cable length = 3 m), open the control unit, insert the cables and connect them according to the wiring diagram.



DANGER!

Disconnect the KaCool from the mains power supply when undertaking all electrical work..

Installation: Operating unit



Installation/Dismantling

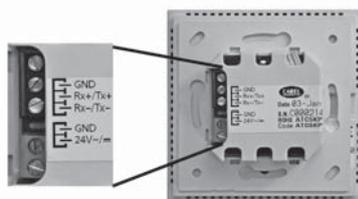
Wiring

- Connect the KaController to the nearest KaCool according to the wiring diagram. The maximum BUS length between the KaController and KaCool is 30 m.
- By connecting a KaController, the respective KaCool automatically becomes the master unit in the control circuit.

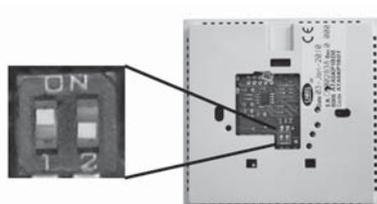


DANGER!

Disconnect the KaCool from the mains power supply when undertaking "all" electrical work! The KaCool KaControl must also be disconnected from the mains power supply when connecting the BUS cables.



KaController terminals



DIP switch setting
KaController
DIP switch no. 1: **ON**
DIP switch no. 2: **OFF**

DIP switch setting

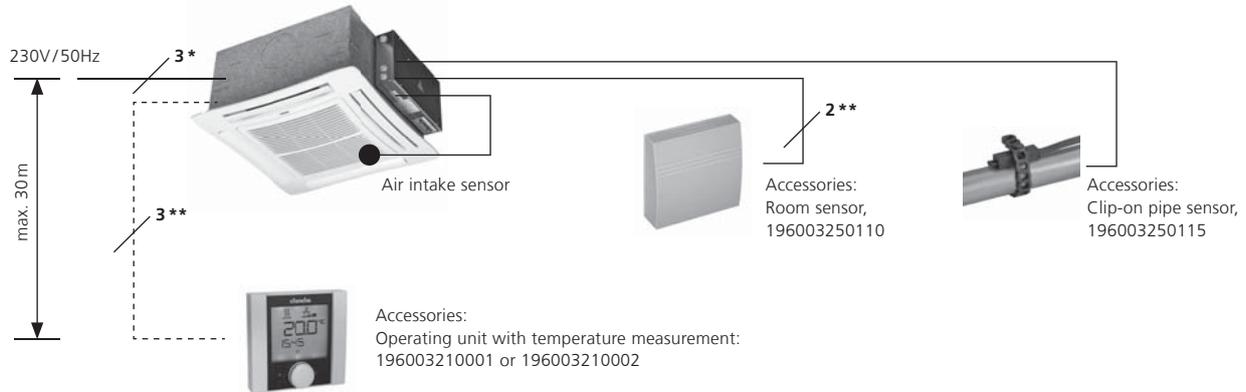
- The DIP switches on the rear of the KaController must be set according to the illustration shown opposite:
DIP switch no. 1: **ON**
DIP switch no. 2: **OFF**

Fault messages, PCB

Fault messages are shown on the display of the KaControl remote control.

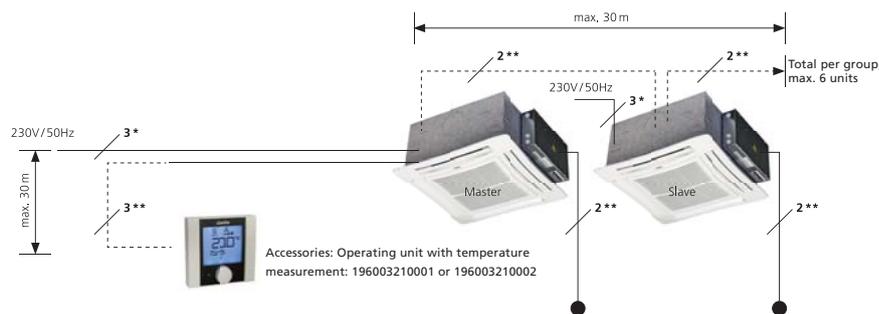
Code	Alarm
A11	Faulty control sensor
A13	Room frost protection
A14	Condensation alarm
A15	General alarm
A16	Faulty AI1, AI2 or AI3 sensor
A17	Unit frost protection
A18	Faulty EEPROM
A19	Offline slave in CAN bus network
tAL1	Faulty temperature sensor in KaController
tAL3	Faulty real-time clock in KaController
tAL4	Faulty EEPROM in KaController
Cn	Cn Communication fault with external control PCB

Wiring of stand-alone unit, KaControl



* Connection e.g. as NYM, sized according to cable length.
** CAT5 connection (AWG 23 or equivalent), linear wiring.

Wiring of group unit, KaControl, max. 6 units



Temperature detection Group control

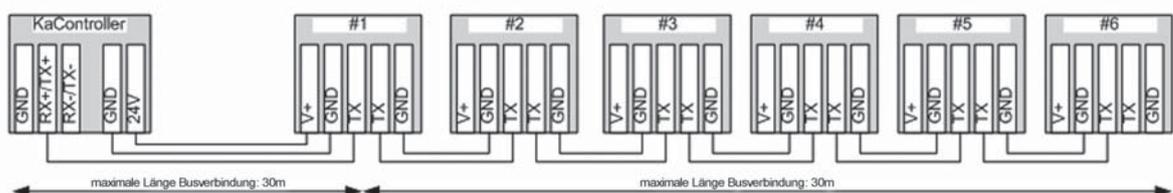
With group control, the air intake temperature is used for control.

Each ceiling cassette controls to its own measured air intake temperature. The value set on the KaController is used as the setpoint for all units in the group.

Potential-free input and H/C sensors can be used for the master unit.

If you wish, you can separately measure the temperature for each unit via a room or air intake sensor.

* Connection e.g. as NYM, sized according to cable length.
** CAT5 connection (AWG 23 or equivalent), linear wiring.



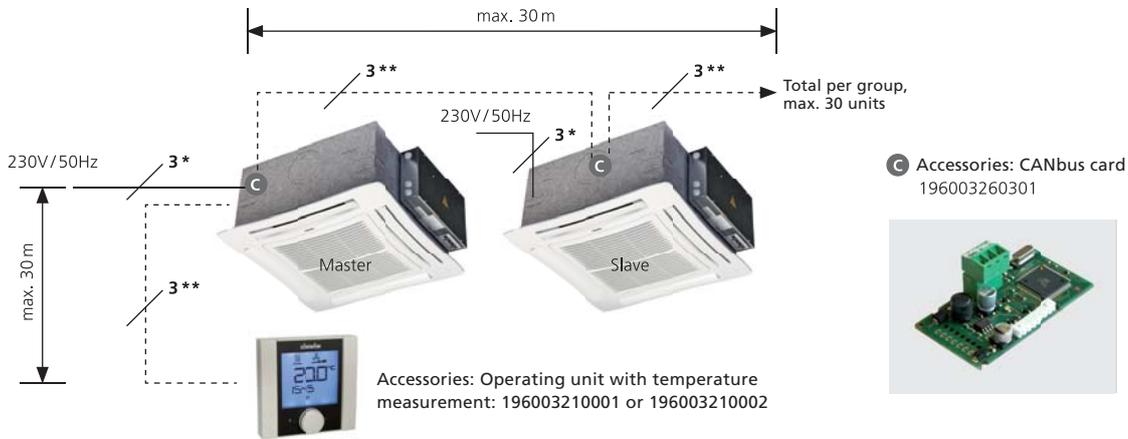
Maximum permissible cable lengths

Total length of BUS cables between the KaCool units:	max. 30 m
Total length of bus cable between the room control unit and master unit:	max. 30 m
Total length between the KaCool and the external potential-free contacts, e.g. window contact, etc.:	max. 30 m
Total length between the KaCool and separate room temperature sensor:	max. 30 m

Installation and Connection

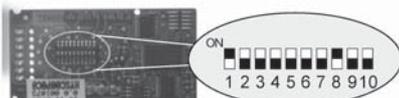
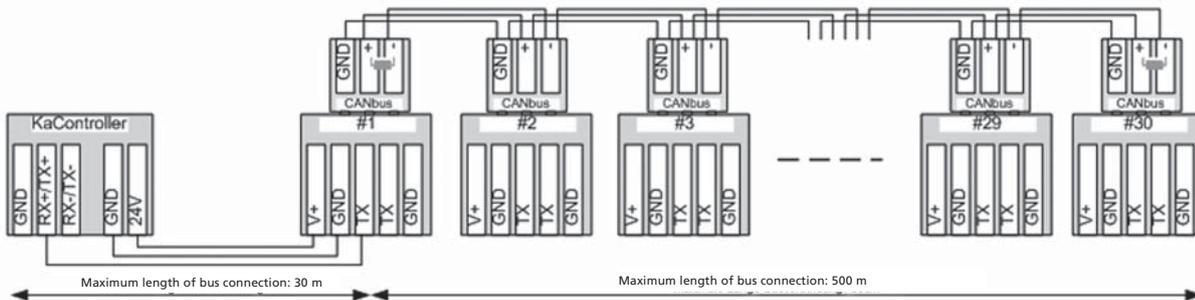
Control overview

Wiring of group unit, KaControl, max. 30 units



Master and last slave unit need to be equipped with a 120 Ohm on-site resistor.

If you wish, you can separately measure the temperature for each unit via a room or air intake sensor.



DIP switches on the rear of the CAN bus card

- DIP1 = ON
- DIP2 = OFF
- DIP3 = OFF
- DIP4 = OFF
- DIP5 = OFF
- DIP6 = OFF
- DIP7 = OFF
- DIP8 = ON
- DIP9 = OFF
- DIP10 = OFF

CAN bus card configuration using a DIP switch setting (identical for all CAN bus cards):

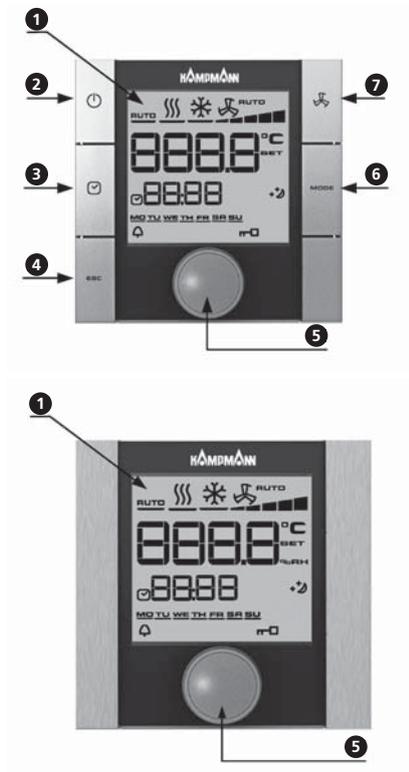
1. Disconnect the KaCool.
2. Remove the CAN bus card from the basic PCB.
3. Set the DIP switch according to the illustration.
4. Plug the CAN bus card into the basic PCB.
5. Connect the BUS cable.
6. Switch on the power supply for the KaCool.

■ Set the DIP switches on all CANbus cards in a control circuit identically!

Maximum permissible cable lengths

Total length of BUS cables between the KaCool units	max. 500 m (CAT5) max. 1000 m (Beldon 98)
Total length of BUS cable between the room control unit and master unit	max. 30 m
Total length between the KaCool and the external potential-free contacts, e.g. window contact, external ON/OFF, etc.	max. 30 m
Total length between the KaCool and separate room temperature sensor	max. 30 m

EC fans, KaControl Operation: Operating unit

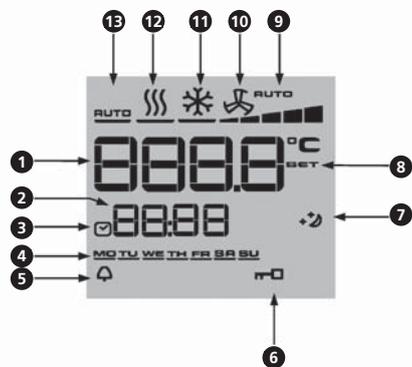


The operating unit can be used to change the function of the cassette.

There are two operating unit options. One with buttons on the side and one without. All functions can be called up with both operating units; the buttons offer the option of a shortcut to a few functions.

No.	Description
1	Display to show the set operating mode
2	Ceiling cassette On/Off (adjustable ECO/Day priority)
3	Set timer
4	ESC, takes you from one menu item to the basic view
5	"NAVIGATOR", turn left/right to set values. Confirm the setting by pressing the NAVIGATOR
6	Mode, to change the heating, cooling, recirculating air mode
7	Reduce or increase the fan speed

LCD display symbols



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

Operation Basic functions	
Function	Description
Switch on/off	Switch on by pressing key 2 or the navigator. The display shows a temperature when switched on. Switch off by pressing key 2 or the navigator. OFF is displayed.
Change temperature	Turn the navigator to the left to reduce the desired temperature or to the right to increase the desired temperature. Confirm the entry by pressing the navigator.
Fan speed	Change by pressing the side fan button or using the navigator. To do this, press the navigator once briefly. Turning the navigator to the left reduces the desired speed and turning it to the right increases the desired speed. Press the navigator again to confirm the display. The speed is adjusted to the setpoint temperature in automatic mode after a deviation in the room temperature.
Heating/cooling/recirculating air	Change by pressing the side fan button or using the navigator. To change over using the navigator, firstly press the navigator for approx. 1 sec.; this will take you to the fan stage selection. Then press the navigator again for approx. 3 sec.; this will take you to the time setting. Press it again for approx. 3 sec.; this will take you to the timer menu. Press it again for approx. 3 sec.; this will take you to the mode menu. Press briefly to confirm the entry.
Timer program	The KaControl controller offers you the option of setting a weekly timer. Please refer to the separate KaControl instructions.

7 Operation and Commissioning



NOTE!

Information about operating the unit via the Kampmann room controller can be found in the separate instructions.

7.1 Pre-commissioning checks



DANGER!

Check before initial commissioning whether all necessary conditions have been met so that the unit can function safely and properly.



Kampmann GmbH can also perform a functional check (optional). For contact details please refer to Chapter 1.4 "Customer Service" on page 5.

Structural tests:

- Has the unit been safely installed mechanically?
- Have the accessories and casing been installed safely?
- Has the transport protection been removed from the impeller?

Electrical tests:

- Is the cable laying in accordance with the applicable regulations done?
- Are all cores according to electrical wiring diagrams hung up and wired?
- Is the protective continuous conductor connected and wired?

Water-side checks:

- Have the flow and return pipes been connected properly?
- Have the valves been correctly installed? (Note the permissible fitting position of the actuators!)
- Have all valves and actuators been fitted correctly?
- Are the shut-off valves on site open?

Condensation drain (only for units with a cooling function):

- Has the condensation drain been checked with water introduced for the test run?
- Before the initial commissioning, clean the condensation trays and remove dirt and construction dust.

Check the filter:

- Before the initial commissioning, check that the filter is clean and replace it accordingly if dirty.

Transport protection:

- Has the transport protection been removed from the fans? (see page 26).



NOTE!

Check the unit for contamination (residual packaging, dirt, etc.), remove this if necessary. Then vent the heat exchanger.

7.2 Venting the Heat Exchanger



- Open all shut-off devices and valves (on site).
- Keep a collecting vessel ready for escaping water and protect the surroundings from escaping spray water.
- Then open the vent screw(s).
- Close the vent screw when no air and only water is still escaping.



NOTE!

- *On-site connecting lines also need to be vented.*
- *The water volume may need to be filled up.*
- *The work may need to be repeated depending on the type and design of the hydraulic system on site.*

7.3 Switching on the Unit

- Switch on the mains power supply. Put the unit into operation using the connected control unit.
- Check the fan stages by changing over the stage selector.
- Check the operation of the heating or cooling valves by changing the room temperature setpoint. A varying response time needs to be taken into consideration depending on the controller.
- Put water in the condensate bucket - the pump must switch on and off automatically.



Loud air intake noises may occur when air is drawn in for the first time!

- Testing the condensation alarm: Add water until the externally connected device (warning message, cut-off device) is triggered.

8 Maintenance

8.1 Preventing the unit from being switched on again



WARNING!

Mortal danger due to the unit being switched on again unintentionally or by unauthorised persons

If the unit is switched on again unintentionally or by unauthorised persons, this can lead to serious injuries or even death.

- Before switching on the unit again, ensure that all safety devices are installed and working properly and that there is no danger to persons.
- Always follow the procedure described below to prevent the unit from being switched on again.

Preventing the unit from being switched on again

1. ➤ Switch off the unit.
2. ➤ Disconnect the power supply.
3. ➤ Attach a sign to the mains power supply circuit breaker indicating that work is being carried out in the danger zone and that it is prohibited to switch on the unit. The sign should include the following information:
 - Switched off on:
 - Switched off at:
 - Switched off by:
 - Note: Do not switch on!
 - Note: Do not switch on until you have ensured that there is no danger to persons.

8.2 Maintenance Schedule

The following sections describe maintenance work that is required to ensure the optimum and trouble-free operation of the unit. If increased wear is identified during regular checks, adjust the required maintenance intervals on the basis of the actual signs of wear. Contact the manufacturer if you have any questions about maintenance work and intervals (↳ Chapter 1.4 "Customer Service" on page 6).

Interval	Maintenance work	Personnel
As required	Operating unit display - firstly, observe the separate operating unit instructions	Caretaker/user
	Regular visual inspection of fixings and for damage	Caretaker/user
Quarterly	<i>Visual inspection of filter, replace or clean if necessary</i> (↳ Chapter 8.3.1 "Replacing the filter" on page 56)	Caretaker/user
Every six months	<i>Clean the inside of the unit</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user
Every six months	<i>Check water-side connections, valves, screw connections</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user
Every six months	<i>Vent the heat exchanger</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user
Every six months	<i>Check electrical connections</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user
Every six months	<i>Clean the air discharge grille, remove deposits from the air flow</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user
Every six months	<i>Check the antifreeze (if used)</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user
Every six months	<i>Maintenance of the condensation pump</i> (↳ Chapter 8.3.2 "Cleaning the unit" on page 57)	Caretaker/user

8.3 Maintenance Work

- Personnel: ■ Caretakers/users
- Protective equipment: ■ Protective gloves
■ Safety goggles
■ Light-duty breathing apparatus



The following safety instructions relate to all relevant maintenance work (P. 57 to P. 59).



ATTENTION!

Risk of injury due to sharp housing panels!

Some of the inner housing panels have sharp edges.

- Wear protective gloves.



WARNING!

Risk of injury due to rotating parts!

The fan impeller can cause very serious injuries.

- Switch off the unit before starting any work on moving fan components and prevent it from being switched on again. Wait until all components have stopped moving.

8.3.1 Cleaning the filter



1. Release the latches on the left/right of the casing.
2. Fold down the middle section of the casing.
3. Remove the filter from the side.
4. Clean the filter (e.g. using a vacuum).
5. Slide the filter back into the middle section of the casing.
6. Fold up the middle section of the casing and fix it in place with the latches on the left/right.



8.3.2 Cleaning the Unit



NOTE!

Protect furniture from dirt and water before beginning the cleaning work. Keep the maintenance area below the unit clear to allow for the efficient dismantling of parts to be cleaned.

Start by cleaning the filter, as described on the previous page.

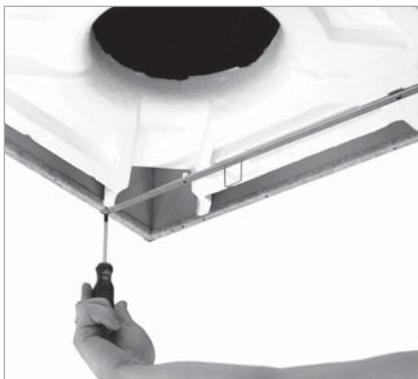
Use a Phillips screwdriver to unscrew the 4 screws in the air outlet and remove the air outlet.

Unscrew the screws in the mounting brackets and remove the mounting brackets; hold the condensation tray at the same time, otherwise it will fall out.



Caution: Condensation tray may be filled with condensation and dirt. Remove the condensation tray carefully by moving it downwards in a horizontal position.

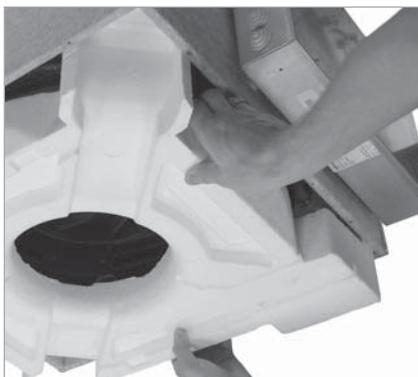
After removing the condensation tray, all unit components are readily accessible and can be cleaned accordingly.



NOTE!

Do not use any cleaning agents that may destroy the existing protective layer on the condensation tray!

After all the components have been cleaned, the dismantled components can be assembled in the reverse order.



9 Faults

The following chapter describes possible causes of faults and the work to rectify them. Reduce the maintenance intervals according to the actual load in case of increasingly occurring faults. Contact the manufacturer in case of faults that cannot be rectified using the following information (↪ Chapter 1.4 "Customer Service" on page 6).

Behaviour in case of faults

As a basic rule:

1. ➔ Switch off the unit immediately in case of faults that represent an immediate danger to persons or property.
2. ➔ Determine the cause of the fault.
3. ➔ If rectifying the fault requires working in a danger zone, switch off the unit and prevent it from being switched on again. Immediately inform the person in charge at the operating site about the fault.
4. ➔ Arrange for the fault to be rectified by authorised specialist personnel or rectify it yourself depending on the type of fault.



The fault table (↪ Chapter 9.2 "Fault Tables" on page 59) provides information on who is entitled to rectify faults.

9.1 Fault Display



The KaControl operating unit displays fault messages. Firstly, observe the separate operating unit instructions.

Fig. 70: KaControl operating unit

9.2 Fault Table

Operating disruptions must only be rectified by authorised specialist personnel! The table below shows some possible faults as well as measures to rectify them:

Fault	Possible cause	Measures	Personnel
Fan is not running	Unit switched off	Switch on the unit via the controller	Specialist personnel
	No mains power supply	Check the mains power supply and restore if necessary	
	Electrical cable not connected or incorrectly connected	Check the wiring and correct if necessary	
	No request from the controller, therefore the fans switch off	Change the controller setting as required	
Unit too loud	Speed too high	Set a lower speed level	User/ caretaker
	Air intake or air outlet openings blocked	Clear air intake and discharge grilles	
	Filter dirty	Replace the filter	
Unit is not heating or cooling sufficiently (LPHW/CHW)	Fan not switched on	Switch on the fan via the controller	User/ caretaker
	Air flow rate too low	Set a higher speed level	
	Filter dirty	Replace the filter	
	No heating or cooling medium	Switch on the heating or cooling system, switch on the circulation pump, vent the unit(s)/system	Specialist personnel
	Valves do not work	Replace faulty valves	
	Water flow rate too low	Check the pump capacity, check the hydraulics	
	Setpoint temperature on the controller set too low or too high	Adjust the temperature setting on the controller	
	Operating unit with integrated sensor or external sensor is exposed to direct sunlight or positioned above a heat source	Position the operating unit with integrated sensor or external sensor in a suitable location	
Water outlet on the unit	Condensation drain is not installed properly	Check the function of the condensation pump, if used (specialist personnel); check the condensation drain, clean if necessary	Specialist personnel
	Cold water pipe is not properly insulated	Check the insulation	
	Drains on the condensation trays blocked	Clean the condensation drains and check there is an adequate gradient	
	Hydraulic connection is not correct	Check the flow and return pipes, tighten if necessary	

10 Dismantling and Disposal

Once the unit has reached the end of its service life, it must be dismantled and disposed on in an environmentally friendly manner.

10.1 Safety Instructions for Dismantling and Disposal

Improper dismantling



WARNING!

Risk of injury due to improper dismantling!

Stored residual energy, sharp components, points and corners on and in the unit or on the required tools can lead to injuries.

- Before starting the work, make sure that there is sufficient space.
- Handle open, sharp-edged components with care.
- Make sure the workplace is kept neat and tidy! Components and tools that are loosely stacked or lying around can cause accidents.
- Dismantle components properly. Please note that some of the components are heavy. Use lifting equipment if required.
- Secure components so that they do not fall or topple over.
- Contact the manufacturer in case of uncertainty.

10.2 Dismantling

Before starting the dismantling work:

- Switch off the unit and prevent it from being switched back on.
- Physically disconnect the entire power supply from the unit, discharge any residual energy.
- Remove operating and auxiliary materials and dispose of them in an environmentally friendly manner.

Then clean assemblies and components properly and dismantle them in compliance with the applicable local occupational safety environmental regulations.

10.3 Disposal

If no agreement has been made for return or disposal, send dismantled components to be recycled:

- Scrap metals.
- Recycle plastic items.
- Dispose of other components, sorted according to material properties.



NOTE!

Environmental damage due to incorrect disposal!

Environmental damage may occur due to incorrect disposal.

- Arrange for electrical waste, electronic components, lubricants and other auxiliary materials to be disposed of by specialist companies.
- If in doubt, obtain information on environmentally friendly waste disposal from the local authorities or specialist disposal companies.

11 Declaration of Conformity

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
 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.:

Type, Model, Articles No.:

Type, Modèle, N° d'article:

Typ, Model, Nr artykułu:

Typ, Model, Číslo výrobku:

Kaltwasser-Kassette KaCool D
 325006*

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 55014-1

DIN EN 55014-2

DIN EN 60335-1

DIN EN 60335-2-40

DIN EN 61000-3-2

DIN EN 61000-3-3

DIN EN 62233

Elektromagnetische Verträglichkeit

Elektromagnetische Verträglichkeit

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke

Elektromagnetische Verträglichkeit

Elektromagnetische Verträglichkeit

Verfahren zur Messung der elektromagnetischen Felder

Gemäß den Bestimmungen der Richtlinien:

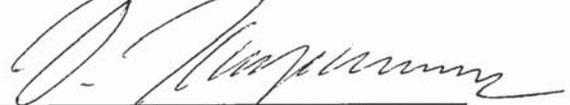
Following the provisions of Directive:
Conformément aux dispositions de Directive:
Zgodnie z postanowieniami Dyrektywy:
Odpovídající ustanovení směrnic:

04/108/EG
06/95/EG

EMV-Richtlinie
Niederspannungsrichtlinie

Lingen (Ems), den 19.02.2013
Ort und Datum der Ausstellung
Place and Date of Issue
Lieu et date d'établissement
Miejsce i data wystawienia
Místo a datum vystavení

Hendrik Kampmann



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

Kampmann.co.uk/KaCool-D

Kampmann GmbH

Friedrich-Ebert-Str. 128 - 130
49811 Lingen (Ems)
Germany

T +49 591 7108-660
F +49 591 7108-173
E export@kampmann.de
W Kampmann.eu

Kampmann UK Ltd.

Dial House, Govett Avenue
Shepperton, Middlesex, TW17 8AG
Great Britain

T +44 (0)1932 228592
F +44 (0)1932 228949
E info@kampmann.co.uk
W Kampmann.co.uk