Installation Instructions

KaControl for Door Air Curtains

Keep these instructions in a safe place for future use!
Read them carefully prior to commissioning!

KAMPMANN

Genau mein Klima.

1.96 Door air curtains

Ka*Control* for Door Air Curtains

INSTALLATION AND OPERATING INSTRUCTIONS

Key to symbols:

Caution! Danger!

Non-compliance with this information can lead to serious personal injuries or damage to property.

Danger from electrocution

Non-compliance with this information can lead to serious personal injuries or damage to property by electrocution.

Carefully read this manual in full prior to any assembly and installation work!

Anyone involved with the installation, commissioning and use of this product is obliged to pass these instructions on to trades people who are involved at the same time or subsequently, as well as to end users or operators.
Retain this manual until final decommissioning!

Content or design-related changes may be made without any prior notice!

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Genau mein Klima.

1. Intended Use

Kampmann KaControllers and door air curtains are built in line with the state of the art and recognised safety regulations. Nevertheless, their use can result in danger to people or damage to the units or other materials assets if they are not appropriately installed and operated or correctly and properly used.

Applications
The KaController should only be used as a room unit in conjunction with Kampmann systems.

KaControllers should only be used
- indoors (for instance in residential properties and offices, showrooms etc.)

KaControllers should not be used
- Outdoors,
- In humid areas, such as swimming pools, in wet rooms,
- In areas where there is a risk of explosion,
- In areas with a high dust content,
- In areas with an aggressive atmosphere.

Door air curtains are solely intended for use indoors (e.g. residential and commercial properties, showrooms etc.). They are not suitable for use in humid environments, such as swimming pools or outdoors.
The products should be protected from any moisture during installation. Check the application with the manufacturer in case of any doubt. Any use other than the use specified above is deemed not to be correct and proper.
The operator of the unit is solely responsible for any damage arising as a result of this. Correct and proper use is deemed to include observing the installation instructions described in these instructions.

Specialist knowledge
The installation of this product requires specialist knowledge of heating, cooling, ventilation and electrical engineering. This knowledge, generally learned in vocational training in one of the fields mentioned above, is not described separately. Damage caused by improper installation is the responsibility of the operator.
The installer of these units should have adequate knowledge of the following gained from specialist vocational training
- Safety and accident prevention regulations
- Guidelines and recognised technical regulations, i.e. Association of German Electricians (VDE) regulations, DIN and EN standards.

Purpose and scope of these instructions
This manual contains information on the operation of the KaController. The information contained in these instructions can be changed without prior notification.


2. Important Information / Safety Information

Installation, assembly and maintenance work on electrical units should only be performed by a qualified electrician in compliance with the VDE guidelines.
Wiring should comply with the applicable VDE regulations and provisions laid down by the regional electricity providers.
Non-compliance with these regulations and operating instructions can result in the units malfunctioning with consequential damage and danger to persons and property. The units can be incorrectly wired by the wires being swapped – danger of fatal injury! Disconnect all parts of the system from the mains power supply and prevent them from being reconnected before starting any connection and maintenance work!

Please read these instructions in full to ensure correct and proper installation and the correct operation of the KaController.
Please note the following safety-relevant information:

- Disconnect all parts of the system that are being worked on.
- Ensure that the system cannot be accidentally re-connected!
- Before commencing the installation/maintenance work, wait until the fan has stopped when the unit is switched off.
- Caution! Pipes, casings and fittings can become very hot or very cold depending on the operating mode!
- Qualified personnel must have undergone training to provide them with adequate knowledge of the following:
  - Safety and accident prevention regulations
  - Guidelines and recognised technical regulations, i.e. Association of German Electricians (VDE) regulations
  - DIN and EN standards.
  - Accident prevention regulations VBG, VBG4, VBG9a
  - DDIN VDE 0100, DIN VDE 0105
  - EN 60730 (Part 1)
  - Technical wiring regulations (TABs) issued by the regional electricity providers

The products should be protected from any moisture during installation. Check the application with the manufacturer in case of any doubt. Any use other than the use specified above is deemed not to be correct and proper. The operator of the unit is solely responsible for any damage arising as a result of this. Correct and proper use is deemed to include adhering to the installation instructions described in these instructions.

Modifications to the unit
Do not undertake any modifications or upgrades on the KaController or door air curtain unit without discussing these with the manufacturer as these can impair the safety and operation of the unit.
Do not undertake any work on the unit that is not described in this manual. On-site systems and cabling must be suitable for connection to the intended system!

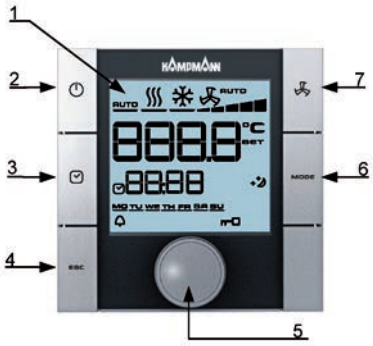
3. Operation of the KaController

The KaController is capable of controlling the wide range of Kampmann systems. KaControllers are equipped with state of the art technology and offer users the option of adapting the air conditioning of buildings to individual needs.
Users can configure up to two switching on and off times for every day of the week so that demand-led temperature control can be set by the user.

Product features:

- Integral temperature sensor
- Large LCD multifunctional display
- Automatic LED background lighting
- Large seven-segment display for visualisation of target room temperature
- Real-time clock with integral timer programs
- 2 Switch-on and switch-off times per day
- Alarm display
- Individually adjustable basic display
- Press/Turn button with endless turn/rest function
- Single-button operation of all functions
- Connection of Kampmann system components via bus connection
- Password-protected service level
- Language-independent display, ideal for international use

KaController with operating keys type 3210002



3.1 Function Keys, Display Elements

1. Display with LED background lighting

2. ON/OFF key (depending on setting)
   - ON / OFF (factory setting)
   - Eco mode / Day mode

3. TIMER key
   - Setting the time
   - Set timer program

4. ESC key
   - Back to default view

5. Navigator dial
   - Changing settings
   - Call up menus

6. MODE key
   - Setting operating modes
     (disabled with 2-pipe applications)

7. FAN key
   - Setting fan control

KaController without operating keys (single-button operation) type 3210001

All menus can be selected and set using the navigator.

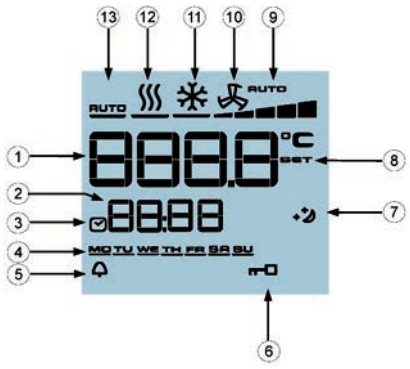
The LED background lighting is automatically switched off 5 seconds after the last operation on the KaController.
The LED background lighting can be permanently disabled by adjusting the parameters.

1.96 Door air curtains

Ka*Control* for Door Air Curtains

INSTALLATION AND OPERATING INSTRUCTIONS

LCD display symbols



1	Display of 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-1-2-3-4-5
10	Ventilation mode
11	Operating mode - summer mode
12	Operating mode - winter mode

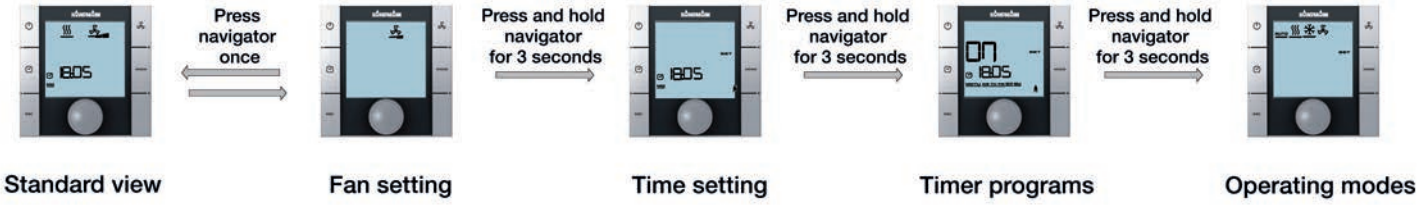
The symbols on the display depend on the application (2-pipe, 4-pipe etc.) and the parameters set.

3.2 Operation

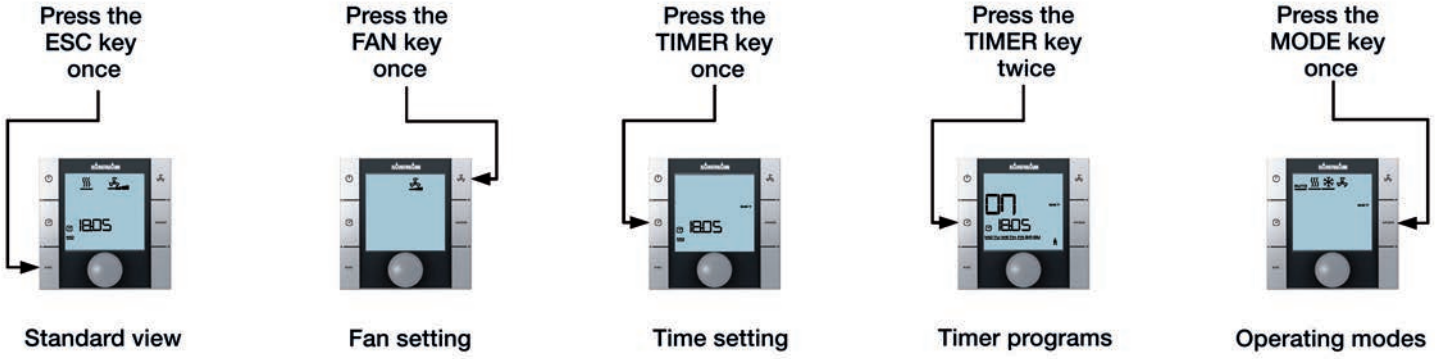
The KaController is operated by the navigator dial and the function keys. The functions that can be called up and set using the navigator are identical on both versions (with and without function keys on the side). An illustration of the KaController with the function keys at the side is used throughout these instructions for ease of understanding.

The navigator dial or side function keys are also used to select the various selection menus.

Menu selection using the navigator



Menu selection using function keys



If no action is carried out using the navigator or the function keys for longer than 3 seconds, the last change made is saved and the default view is called up.

3.2.1 Switching the Controller Off and On

Default view

When the control is switched on, the display shows the standard view with the current room temperature target figure and the fan stage set.

Following initial commissioning of the KaController, the time is no longer shown in the standard view (see "Time setting" selection menu).

Default view

Switching off the control:

There are 3 options for switching off the control:

1. Press the ON/OFF key
2. Turn the navigator to the left until OFF appears
3. Press and hold down the navigator until OFF appears

Control OFF display

Switching on the control:

There are 2 options for switching on the control:

1. Press the ON/OFF key
2. Press the navigator

3.2.2 Fan Setting

Press the FAN key (quick access) or use the navigator dial to call up the "Fan setting" selection menu.

Calling up the "Fan setting" menu using the navigator:

The room temperature is initially controlled with natural convection in Automatic mode and then by continually adjusting the fan speed.

Users also have the option of setting the fan stages Auto-0-1-2-3-4-5 as required.

Fan stage 3

Pressing the navigator dial in standard view switches the display to the "Fan setting" menu.

You can select the required fan stage Auto-0-1-2-3-4-5- by turning the navigator.

Pressing the navigator activates the selected fan stage.

If no action is carried out using the navigator for longer than 3 seconds, the last change made is saved and the standard view is called up.

3.2.3 Time Setting

Press the TIMER key (quick access) or use the navigator dial to call up the "Time setting" selection menu.

Calling up the "Time setting" menu using the navigator:

Time setting view

Setting the time

Use the navigator to set the following:
1. Current hour
2. Current minute
3. Current day

The "Timer programs" selection menu is automatically called up once the current day has been confirmed by pressing the navigator dial.

If no action is carried out using the navigator or the function keys for longer than 7 seconds, the last change made is saved and the default view is called up.

Setting to hide the time in the default view

Following initial commissioning of the KaController, the time is no longer shown in the standard view.
Only when the time has been set, is the current time shown in the standard view.
If "- -: - -" is entered for hours and minutes, the real-time clock is disabled and the time is hidden in the default view.

3.2.4 Timer Programs

The KaController provides the option of programming switching on and off times using a timer program if rooms are only to be air conditioned during certain times of the day. Unlike with conventional thermostatic controllers where only one switching on and off time can be selected, two switching on and off times can be set for each day.

Set the time in the "Time setting" selection menu before parameterizing the switching on and off times.

The KaController can manage 2 switching on and 2 switching off times per day. The switching on and off times can be entered as a block or individually for each day.

The timer program switches the controller on and off in accordance with the timer entries. After switching off the controller using the timer program, the user then has the option of switching the controller on using the ON/OFF key or the navigator.

Timer matrix

	ON1	OFF1	ON2	OFF2
MO	**6 : 00**	**18 : 00**	- - : - -	- - : - -
TU	**6 : 00**	**18 : 00**	- - : - -	- - : - -
WE	**6 : 00**	**18 : 00**	- - : - -	- - : - -
TH	**6 : 00**	**18 : 00**	- - : - -	- - : - -
FR	**6 : 00**	**18 : 00**	- - : - -	- - : - -
SA	**8 : 00**	**14 : 00**	- - : - -	- - : - -
SU	- - : - -	- - : - -	- - : - -	- - : - -

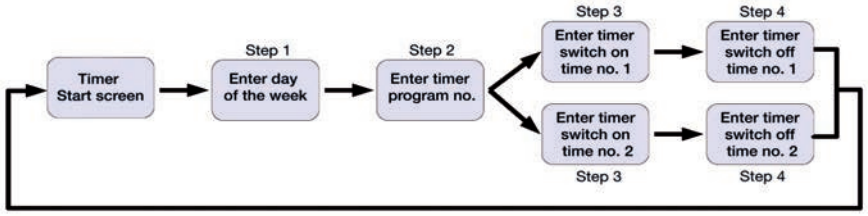
Example of a weekly switching program

Display elements in the Timer Programs selection menu

1	ON = SWITCH ON timer program OFF = SWITCH OFF timer program
2	1 = Timer program no. 1 2 = Timer program no. 2
3	Switching on/switching off time
4	Weekday
5	If no switching on or off time is entered in the timer program matrix, the "Clock" symbol is hidden in the standard view.

If no switching on or off time is entered in the timer program matrix, the "Clock" symbol is hidden in the standard view.

The diagram below shows the sequence for setting the timer program. Steps 1-4 are described in more detail in the next section.



To exit the "Timer programs" selection menu, press and hold down the navigator for 3 seconds in the timer program start screen or do not use the KaController for 15 seconds.

Press the TIMER key twice (quick access) or use the navigator dial to call up the "Time switching program" selection menu.

Calling up the "Timer programs" menu using the navigator:

Timer start screen

Step 1:

Turn the navigator to select a day for which you would like to program a switching-on or off time.

You have the option of selecting the days of the week as a block (MO-FR, SA-SU, MO-SU) or individually.

The figure is applied by pressing the navigator and
(For example: MO–FR) and the next input screen is called up.

Input screen for timer program no.

Step 2:

Select the number of the timer program (no. 1 or no. 2) by turning the navigator.

The figure is applied by pressing the navigator (for instance: Timer program no. 1) and the next input screen is called up.

Input screen for switching on time

Step 3:

It is possible to set the switching on time you require by turning the navigator.

Once the minutes have been set, the set switching on time is carried over by pressing the navigator and the input screen for the switching off time of the selected program no. is called up.

Input screen for switching off time

Step 4:

You can set the switching off time you require by turning the navigator dial.

Once the minutes have been set, the set switching off time is carried over and the timer program start screen is called up by pressing the navigator dial (-> Step 1).

The respective day and associated timer program no. must be called up (Step 1 + Step 2) to delete the switching-on and off times entered.
The switching on or off time entered should be replaced by " - -:- -" (Step 3 +Step 4).

Important note: It is not possible to delete timer entries as a block!

Timer entries can be overwritten at any time and can be overwritten either as a block or for each day.

Switching-on and off times should only be requested singly for each day. It is not possible to request switching on and off times as a block where there are differing time entries for the respective days of the week and the time is then shown by "--:--".

To exit the "Timer programs" selection menu, press and hold down the navigator for 3 seconds in the timer program start screen or do not use the KaController for 15 seconds.

3.2.5 Operating Modes (Mode key)

The MODE key is locked with door air curtain applications, as only Heating mode can be active.
The KaController cannot enter the mode setting (see Section 11.3.11.2)!

3.2.6 Operating Modes (Summer Mode / Winter Mode)

Press the MODE key (quick access) or use the navigator dial to call up the "Operating modes" selection menu.

Calling up the "Operating modes" menu using the navigator:

The operating mode can be set using the navigator depending on the parameter setting.
Operating mode - summer mode: The controller operates only in summer mode (Fan ON, Heating OFF).
Operating mode - winter mode: The controller operates only in cooling mode (Fan ON, Heating ON).

Operating mode - winter mode setting

The operating mode required can be selected by turning the navigator dial in the 'Operating mode' selection menu.

Pressing the navigator activates the selected operating mode.

If the summer mode / winter mode changeover is actuated by an external thermostat, the KaController cannot perform the summer mode / winter mode changeover.

If no action is carried out using the navigator for longer than 3 seconds, the last change made is saved and the standard view is called up.

4. Alarm Messages

The KaController displays faults by means of the alarm messageslisted in the table below. The alarm messages are displayed according to their priority.
In the event of an alarm, note down the alarm message and contact the responsible member of staff (System Administrator or Installer/Service Technician) to fix the fault quickly.

4.1 Door air curtains

View of "Motor fault" alarm

Door air curtain - Alarm table

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

4.2 KaController Control Electronics

KaController control electronics alarm table

Code	Alarm
tAL1	Temperature sensor in KaController defective
tAL3	Realtime clock in KaController defective
tAL4	EEPROM in KaController defective
Cn	Communication fault with the external PCB

Should more than one fault occur simultaneously in the KaController control electronics, the alarm messages are displayed alternately in the display.

5. Frost Protection Function, Motor Protection

5.1 Motor Protection

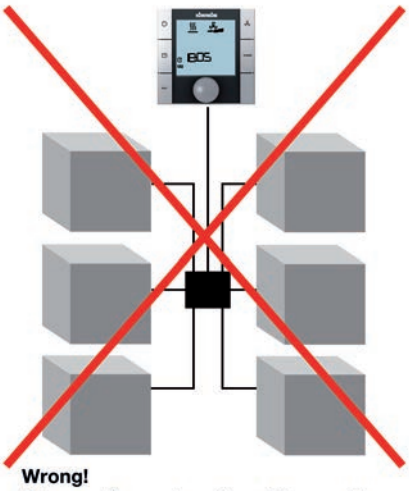
Any motor fault with a door air curtain is shown on the KaController by the display "A12". The door air curtain with the motor fault shuts down automatically.

When a motor fault has occurred, check whether the fan is blocked. To eliminate the fault, disconnect the door air curtain and remedy the cause of the fault.
The door air curtain should then restart after the power supply has been reconnected and a fan stage has been selected.
Contact a Service Technician should the motor fault continue to be shown on the display.

A fault in the motor of a slave unit is not shown on the KaController. Only a motor fault in a master unit is shown on the KaController!

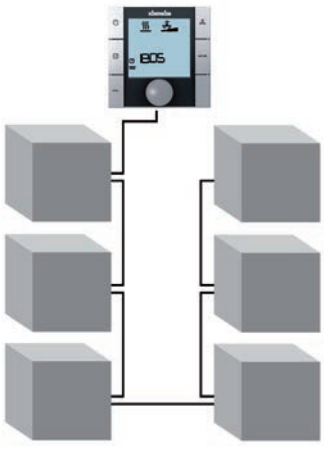
6 Cabling

6.1 General Information



Wrong!
Star-configured routing of bus cables

- Lay all low voltage cables along the shortest route.
- Ensure that low voltage and high voltage cables are laid separately, for instance using metal planking on cable trays
- Use only shielded cables as low voltage and bus cables.
- Lay all BUS cables in a linear pattern. Star-shaped wiring is not permitted (Figure on left).
- The KaController is connected to the door air curtain by a bus line and should be connected to the door air curtain's PCB.



Right!
Linear routing of bus cables

Shielded, paired cables should be used as BUS cables, for instance CAT5 (AWG23), but at least of the same value.

When laying bus cables, avoid the formation of star points, for instance in junction boxes. Pass the cables through the units (door air curtains)!

6.2 Single-circuit Controls of up to 6 Units

Door air curtain with KaController
Maximum 6 door air curtains

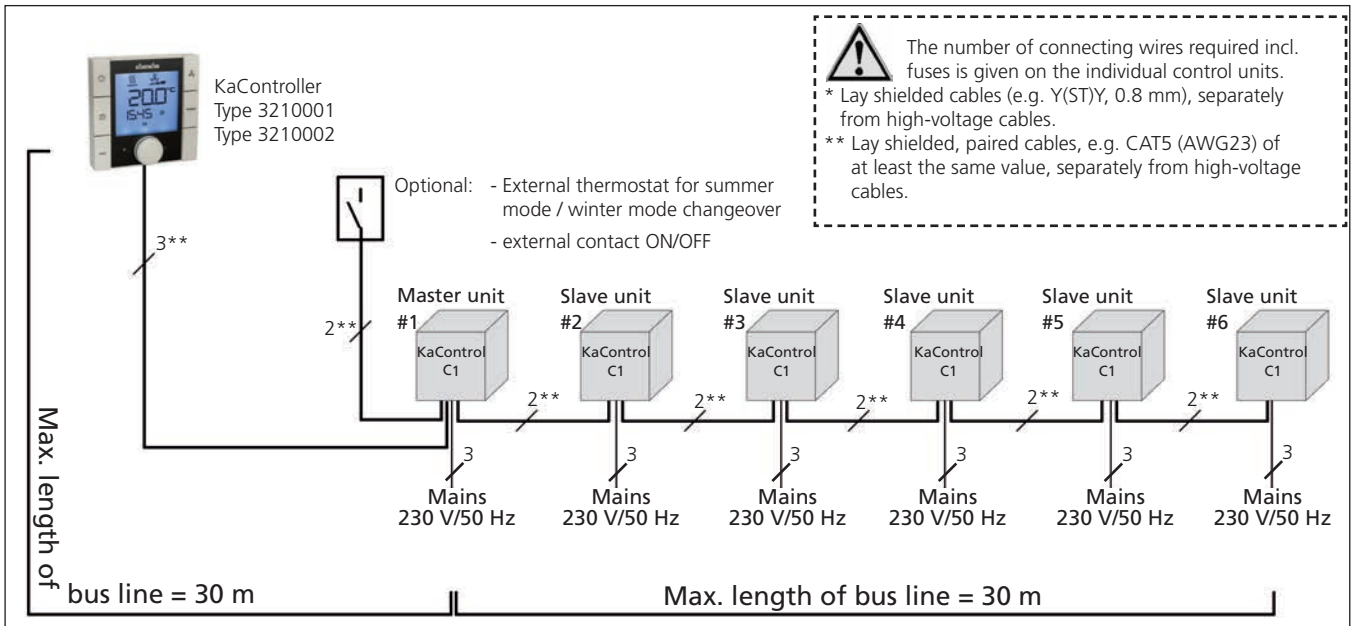
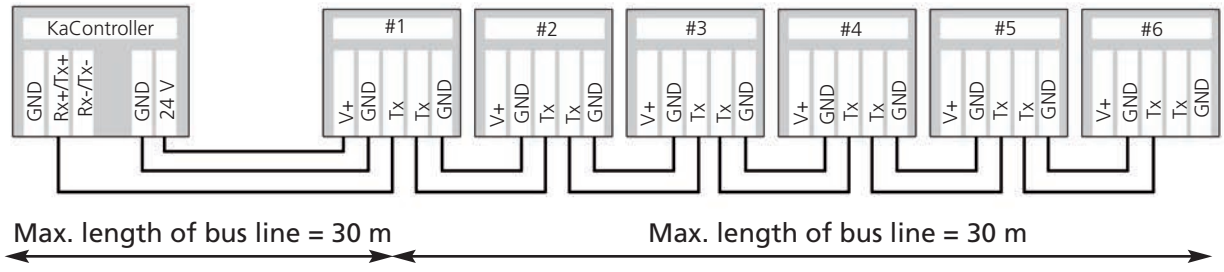


Diagram of bus cabling

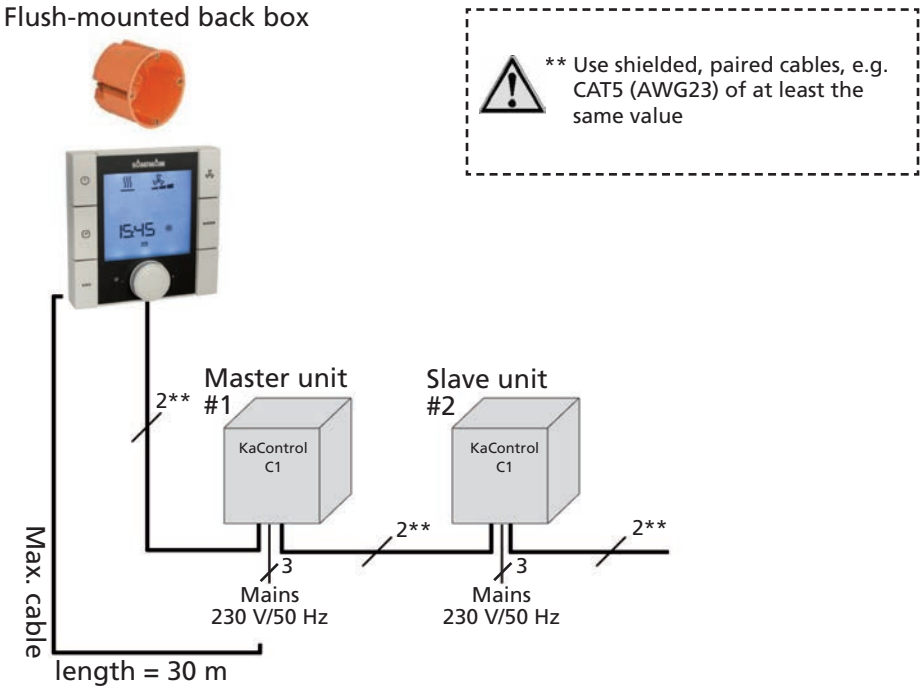


Maximum permissible cable lengths

Total length of bus cables between door air curtains	max. 30 m
Total length of bus cable between room control unit and master unit	max. 30 m
Total length between door air curtain and external potential-free contacts e.g. external thermostat, ext. contact ON/OFF etc.	max. 30 m

6.3 KaController

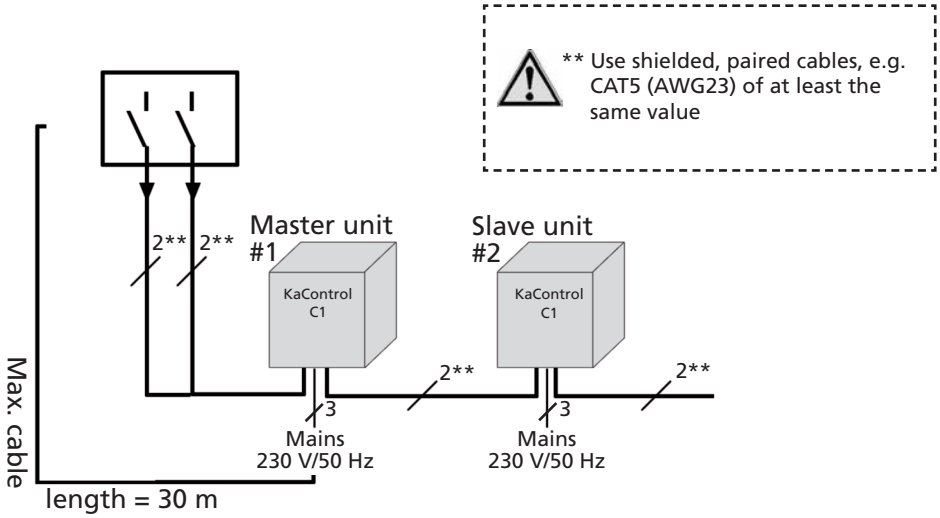
- A flush-mounted back box is needed for the KaController.
- Connect the KaController to the nearest door air curtain as per the wiring diagram.
  The maximum bus length between the KaController and door air curtain is 30 m.
- By connecting a KaController, the respective door air curtain automatically becomes the master unit in the control circuit.



6.4 Inputs for Processing External Contacts (e.g. external thermostat, ON/OFF etc.)

- All door air curtain master units have multifunctional inputs that can be assigned different functions during commissioning.
- Connect up the cables in accordance with the wiring diagram and configure the functions using the KaController.
- The maximum cable length between the master unit and the external potential-free contacts is 30 metres.

No external contacts (e.g. external thermostat, ext. contact ON/OFF etc.) can be connected to the slave units.



7. Installation, Electrics, Door Air Curtains, Room Control Unit

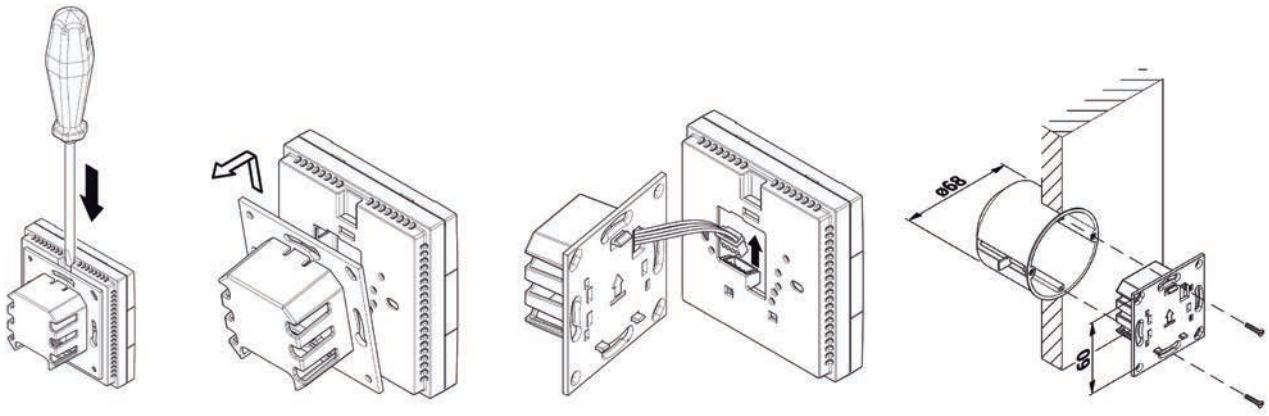
7.1 Door Air Curtains

- The electrical cables are connected to the door air curtains in the control unit.
- To connect the electrical cables, open the control unit, insert the cables and connect them up according to the wiring diagram.

⚠
- Disconnect the door air curtain prior to embarking on "any" wiring work.
  Only connect the bus cables when the door air curtain has been disconnected.

7.2 KaController

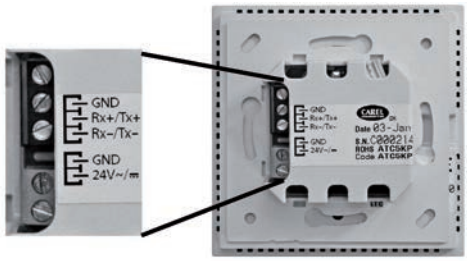
Installation/Dismantling



Electrical Connection

- Connect the KaController to the nearest door air curtain as per the wiring diagram. The maximum bus length between the KaController and door air curtain is 30 m.
- Connecting a KaController to it automatically converts the respective door air curtain into the master unit in the control circuit.

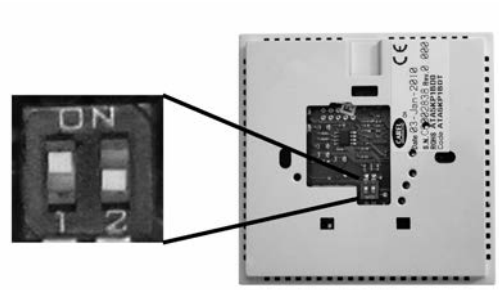
- Disconnect the door air curtain from the mains power supply prior to undertaking "any" electrical work. Only connect the bus cables on the KaController when the power has been disconnected from the door air curtain.



KaController terminals

DIP switch setting

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



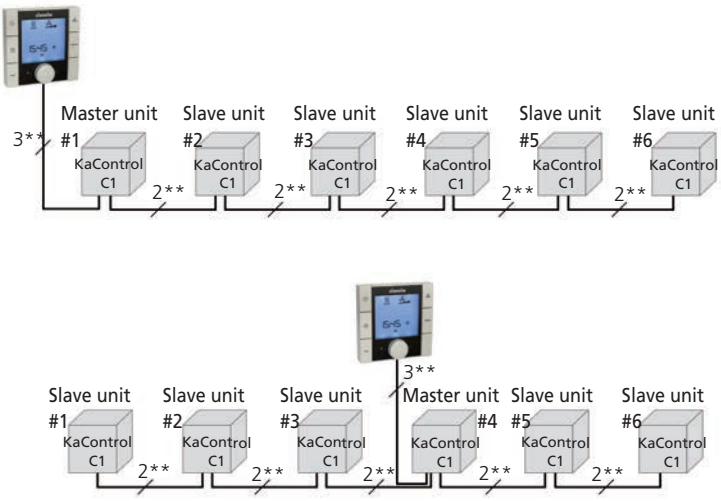
DIP switch setting on KaController
DIP switch 1: ON
DIP switch 2: OFF

8. Addressing

8.1 Single-circuit Controls of up to 6 Units

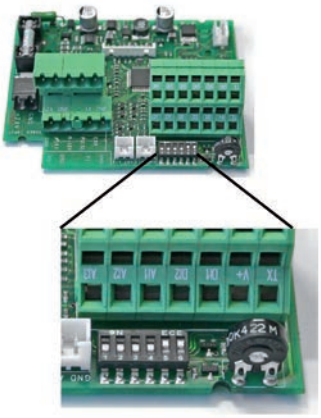
8.1.1 Maximum 6 door air curtains in one control zone

- Door air curtains in single-circuit controls with a maximum of 6 units need not be addressed.
- The master unit / slave unit is defined by the connection of the KaController.
- Connecting a KaController to it automatically converts the respective door air curtain into the master unit in the control circuit.
- A master unit must not necessarily be arranged at the end of a bus system.
- Lay all BUS cables in a linear pattern. Star-shaped wiring is not permitted.



9 Setting Configuration of Unit by Means of DIP Switch

DIP switch

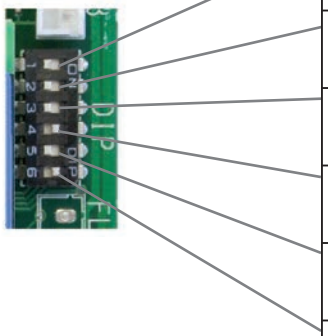


PCB

Set the configuration of a door air curtain using the DIP switch on the PCB.
Once the DIP switch has been set, all the basic functions of the configuration have been parameterised and the door air curtain can be operated immediately.
Special setting options have to be parameterised in the Service menu. This parameterisation is possible using the KaController.
Open the control unit to check and possibly adjust the DIP switches.
The DIP switches are factory-set in accordance with the unit configuration!

Disconnect the control before starting to adjust the DIP switches.

DIP switch settings on the PCB



DIP1	OFF = ----- ON = Actuation by means of a measurement and control system provided by others
DIP2	OFF = It is essential that DIP switch no. 2 is set to OFF ON = -----
DIP3	OFF = No clip-on sensor fitted ON = Clip-on sensor fitted
DIP4	OFF = Summer mode / winter mode changeover by KaController ON = Summer mode / winter mode changeover by DI2
DIP5	OFF = It is essential that the DIP switch is set to OFF ON = -----
DIP6	OFF = Temperature detection by induction sensor/ ext. room sensor ON = Temperature detection by KaController

DIP switch no. 1
Dip switch no. 1 must be set to ON to actuate a door air curtain by means of 0…10 V signals within a building management system provided by others.
The parameter settings required are described in Section 11.3.14.

Factory setting: DIP1=OFF

DIP switch no. 2
It is essential that DIP switch no. 2 is set to OFF.

Factory setting: DIP2 = OFF

DIP switch no. 3
A clip-on sensor can be connected as a frost protection sensor to provide frost protection. In this case, DIP switch no. 3 has to be set to ON.

Factory setting: DIP3=OFF

DIP switch no. 4
Summer mode / winter mode changeover is set as standard using the KaController.
Alternatively, summer mode / winter mode changeover can also be performed by an external thermostat or an external switching contact. In this case, DIP switch no. 4 has to be set to ON.
DIP4=ON + External thermostat contact open --> Winter mode
DIP4=ON + External thermostat contact closed --> Summer mode

Factory setting: DIP4=OFF (no external thermostat fitted)

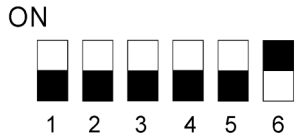
DIP switch no. 5
It is essential that DIP switch no. 5 is set to OFF.

Factory setting: DIP5=OFF

DIP switch no. 6
The room temperature can be detected by the KaController or an external KaControl room temperature sensor. DIP switch no. 6 has to be set to ON to detect the temperature using the KaController.
If an external temperature measurement is set and no temperature sensor is fitted, a fault message will be issued.

Factory setting: DIP6=ON

DIP switch factory settings for door air curtains
Control configuration C1

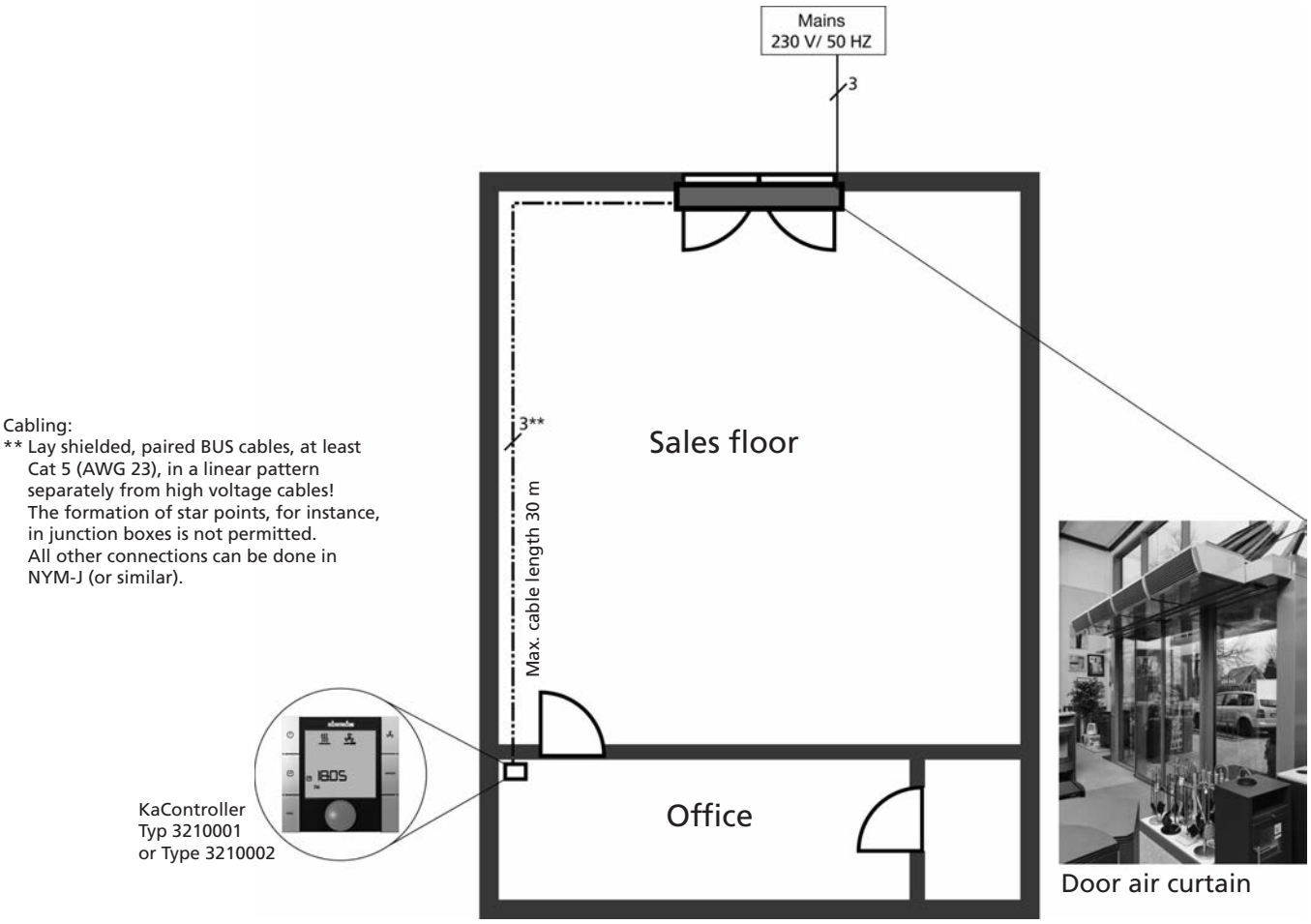


DIP switch factory settings for door air curtains
Control configuration C1

DIP1	OFF = ----- ON = Actuation by means of a measurement and control system provided by others
DIP2	OFF = It is essential that DIP switch no. 2 is set to OFF ON = -----
DIP3	OFF = No clip-on sensor fitted ON = Clip-on sensor fitted
DIP4	OFF = Summer mode / winter mode changeover by KaController ON = Summer mode / winter mode changeover by DI2
DIP5	OFF = It is essential that the DIP switch is set to OFF ON = -----
DIP6	OFF = Temperature detection by induction sensor/ ext. room sensor ON = Temperature detection by KaController

10. Operation and Systems

10.1 System 1/Factory Setting



Cabling:
** Lay shielded, paired BUS cables, at least Cat 5 (AWG 23), in a linear pattern separately from high voltage cables! The formation of star points, for instance, in junction boxes is not permitted. All other connections can be done in NYM-J (or similar).

Functional description

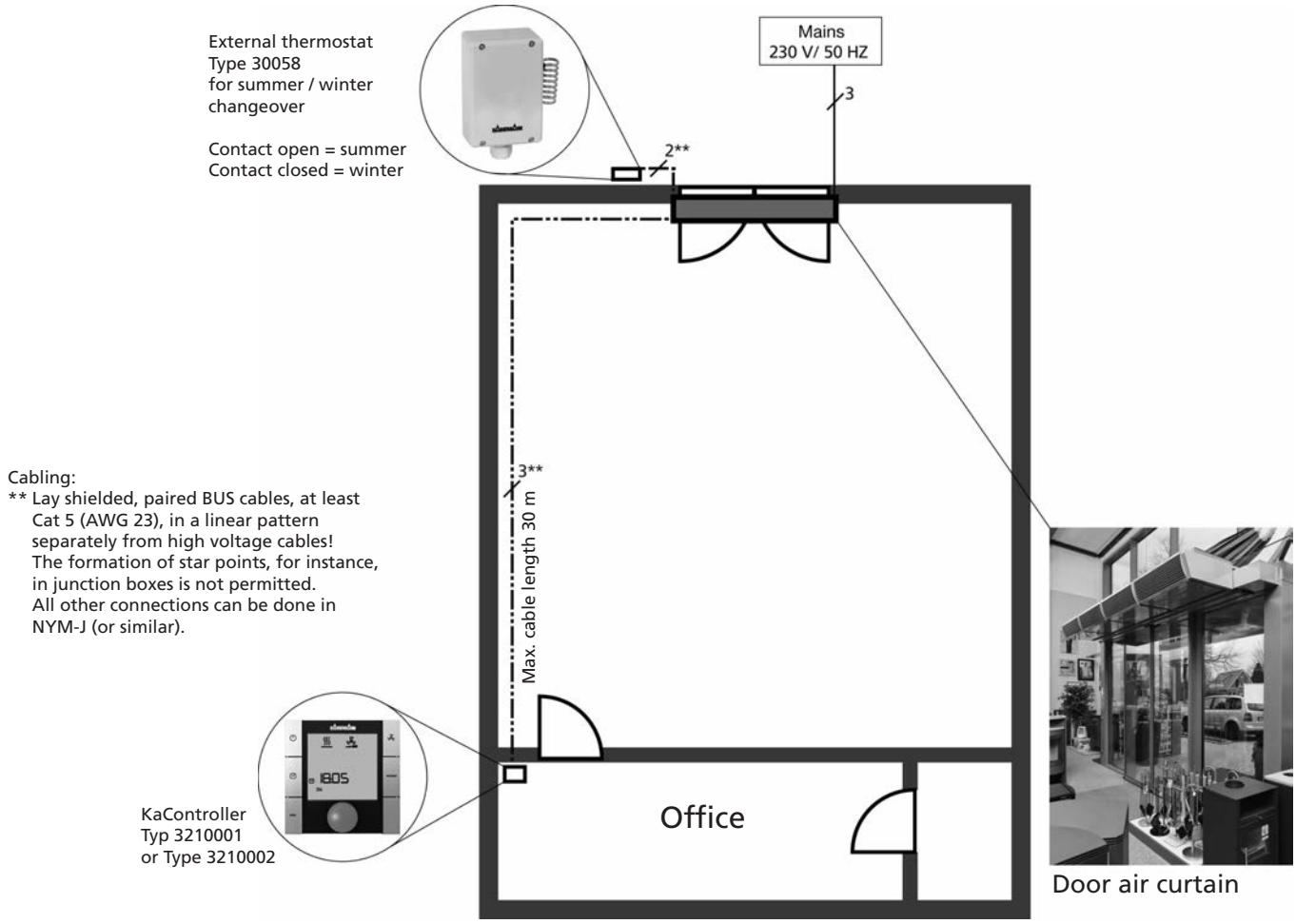
- Switching door air curtain on and off using the KaController
- Door air curtain switched on: shut-off valve opens, pre-set fan stage running continuously
- Operating options on the KaController:
  - ON/OFF
  - Fan stage setting 1, 2, 3, 4, 5
  - Summer / winter mode changeover
  - Timer setting ON/OFF

Note:
- Temperature control is configured in such a way that it is not possible to set a target temperature
- Fan only switches off if the KaController on the door air curtain is set to OFF

Parameter setting: Standard
DIP switch setting:

DIP switch PCB

10.2 System 2



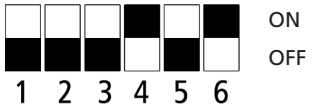
Cabling:
** Lay shielded, paired BUS cables, at least Cat 5 (AWG 23), in a linear pattern separately from high voltage cables! The formation of star points, for instance, in junction boxes is not permitted. All other connections can be done in NYM-J (or similar).

Functional description

- Switching door air curtain on and off using the KaController
- Door air curtain switched on:
  - Winter mode: shut-off valve OPEN, pre-set fan stage running continuously
  - Summer operation: shut-off valve CLOSED, pre-set fan stage running continuously
- Operating options on the KaController:
  - ON/OFF
  - Fan stage setting 1, 2, 3, 4, 5
  - Timer setting ON/OFF

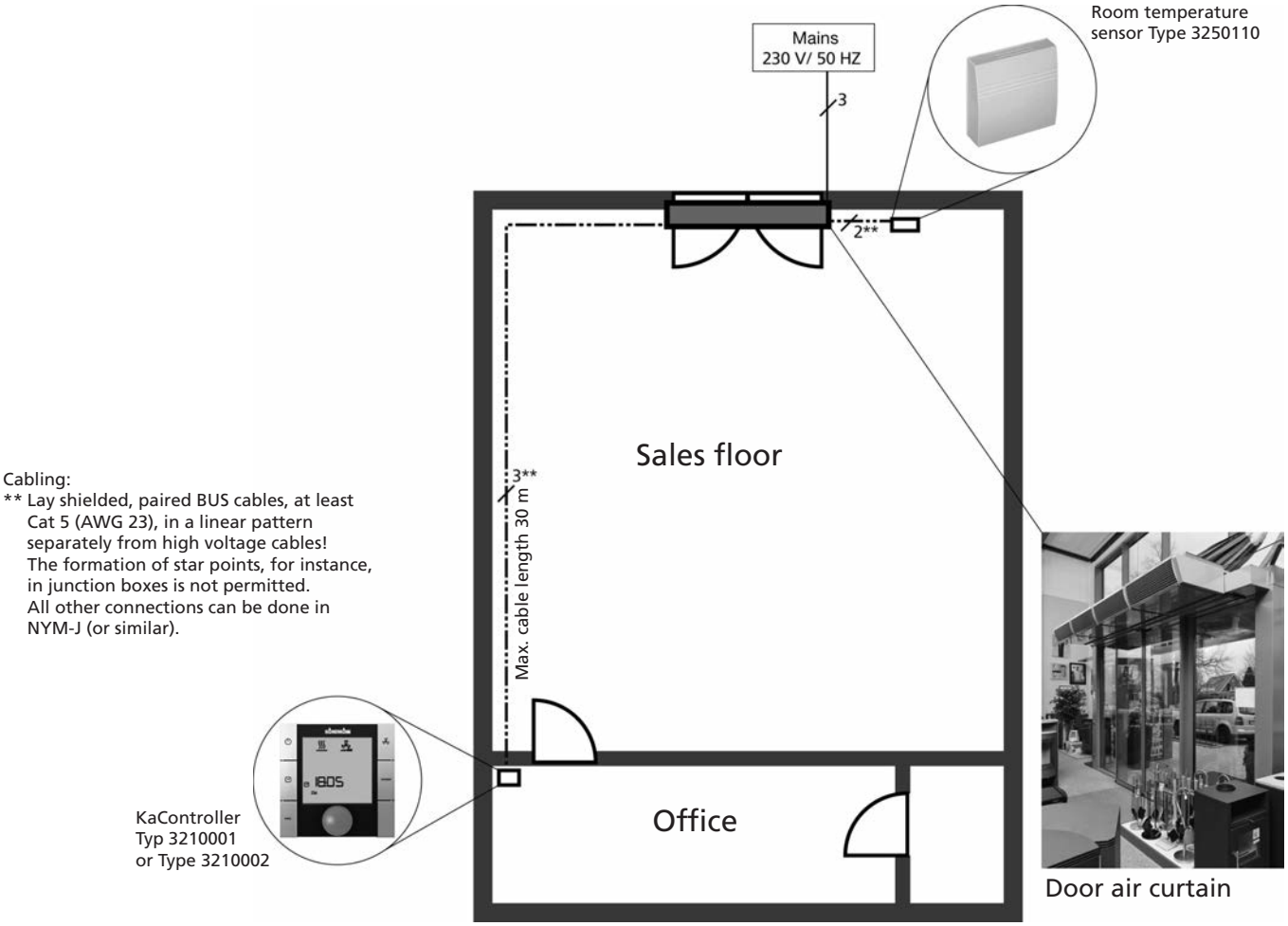
Note:
- Automatic summer / winter mode changeover by external thermostat. Changeover by the KaController is not possible!

Parameter setting: Standard
DIP switch setting:



DIP switch PCB

10.3 System 3



Cabling:
** Lay shielded, paired BUS cables, at least Cat 5 (AWG 23), in a linear pattern separately from high voltage cables! The formation of star points, for instance, in junction boxes is not permitted. All other connections can be done in NYM-J (or similar).

Functional description

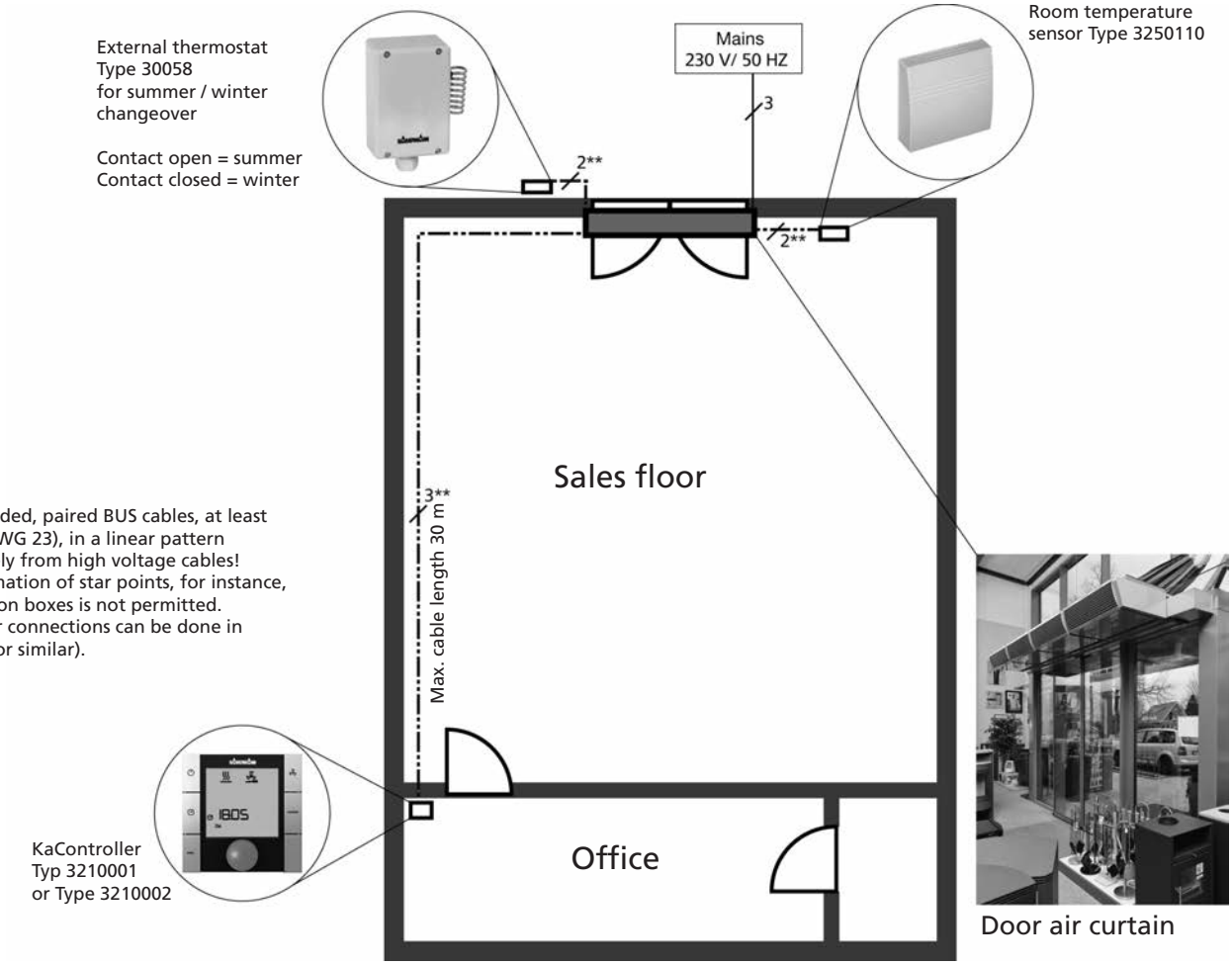
- Switching door air curtain on and off using the KaController
- Door air curtain switched on: Room temperature control,
  - Room temp. < Target value - valve OPEN, fan running continuously in the set stage
  - Room temp. > Target value - valve CLOSED, fan running continuously in the set stage
- Operating options on the KaController:
  - ON/OFF
  - Fan stage setting 1, 2, 3, 4, 5
  - Summer / winter mode changeover
  - Timer setting ON/OFF
  - Room temperature setpoint

Note:
- Fan only switches off if the KaController on the door air curtain is set to OFF
- Room frost protection at a room temperature of < 8 °C
- Set the temperature set point in summer to 35 °C!

Parameter setting: deviates from the standard: P036 = 0, P037 = 1
DIP switch setting:

DIP switch PCB

10.4 System 4



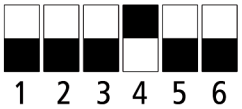
Functional description

- Switching door air curtain on and off using the KaController
- Door air curtain switched on: Room temperature control,
  - Room temp. < Target value - valve OPEN, fan running continuously in the set stage
  - Room temp. > Target value - valve CLOSED, fan running continuously in the set stage
- Operating options on the KaController:
  - ON/OFF
  - Fan stage setting 1, 2, 3, 4, 5
  - Timer setting ON/OFF
  - Room temperature setpoint

Note:

- Automatic summer / winter mode changeover by external thermostat. Changeover by the KaController is not possible!
- Fan only switches off if the KaController on the door air curtain is set to OFF
- Room frost protection at a room temperature of < 8 °C
- Set the temperature set point in summer to 35 °C!

Parameter setting: deviates from the standard: P036 = 0, P037 = 1
DIP switch setting:



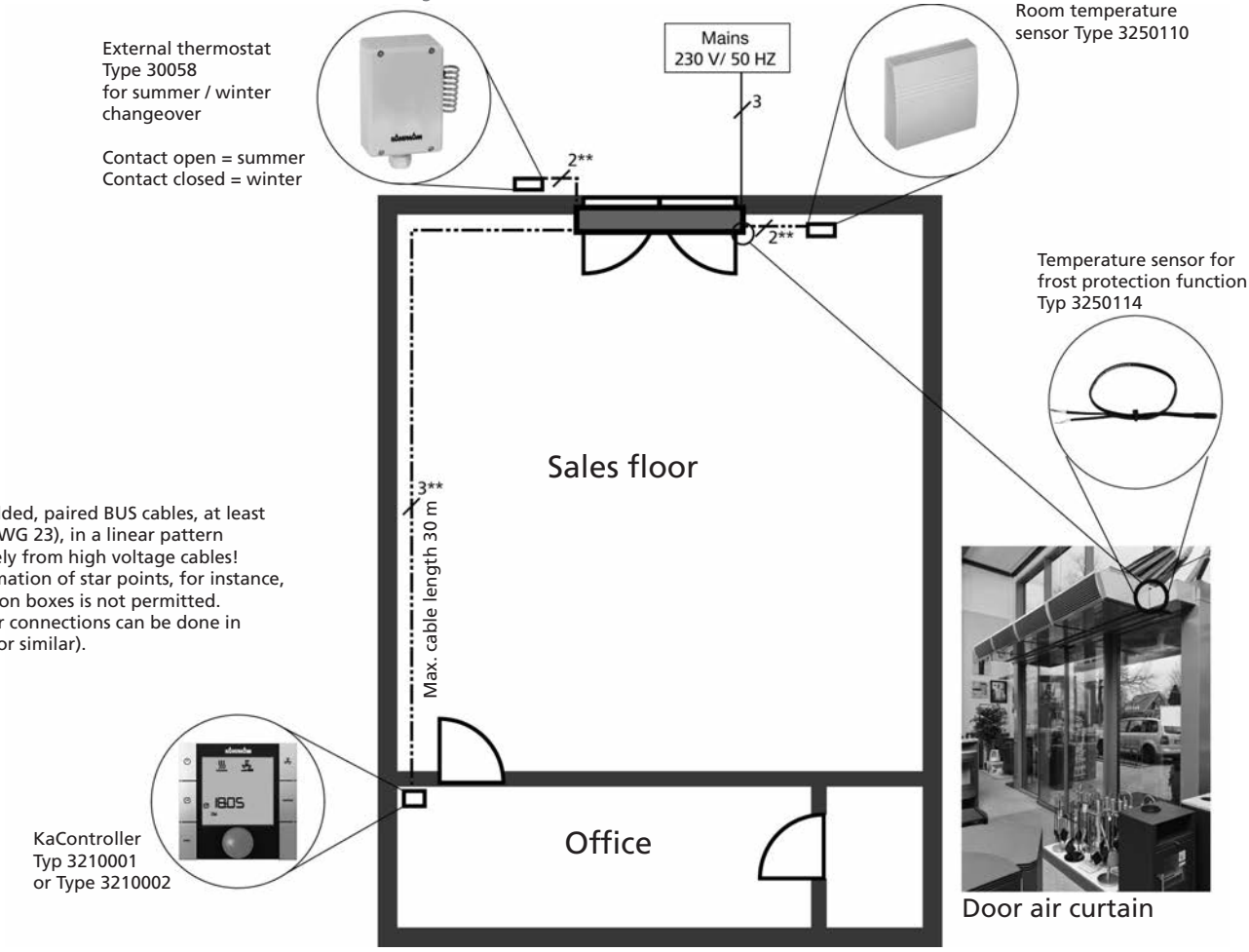
DIP switch PCB

1.96 Door air curtains

Ka*Control* for Door Air Curtains

INSTALLATION AND OPERATING INSTRUCTIONS

10.5 System 5



Cabling:
** Lay shielded, paired BUS cables, at least Cat 5 (AWG 23), in a linear pattern separately from high voltage cables! The formation of star points, for instance, in junction boxes is not permitted. All other connections can be done in NYM-J (or similar).

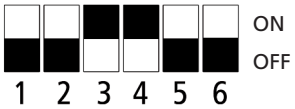
Functional description

- Switching door air curtain on and off using the KaController
- Door air curtain switched on: Room temperature control,
  - Room temp. < Target value - valve OPEN, fan running continuously in the set stage
  - Room temp. > Target value - valve CLOSED, fan running continuously in the set stage
- Operating options on the KaController:
  - ON/OFF
  - Fan stage setting 1, 2, 3, 4, 5
  - Timer setting ON/OFF
  - Room temperature setpoint

Note:

- Automatic summer / winter mode changeover by external thermostat. Changeover by the KaController is not possible!
- Fan only switches off if the KaController on the door air curtain is set to OFF
- Room frost protection at a room temperature of < 8 °C
- Unit frost protection at a temperature of < 4 °C on the clip-on sensor
- Set the temperature set point in summer to 35 °C!

Parameter setting: deviates from the standard: P036 = 0, P037 = 1
DIP switch setting:



DIP switch PCB

KAMPMANN
Genau mein Klima.

11. Parameter Settings

11.1 General

Special system requirements can be configured using parameter settings in the Service menu. These could include:

- Locking operating functions
- Locking fan stages

The required settings can be made using the KaController.

11.2 Calling up the Service menu

Perform the following steps to set the parameters:

1. Switch off the door air curtain by:
   - Pressing the ON/OFF key

   or
   - Pressing the navigator for a minimum of 5 seconds

   or
   - Turning the navigator to the left until OFF appears

2. Calling up the Service menu by pressing the navigator for a minimum of 10 seconds. The message "Para" and the "CODE" with the value 000 are shown on the display in sequence.
3. Select the password (Code) 22 by turning the navigator and confirm by pressing the navigator.

You are now in Service level 1 and the display shows the current software version (P000=...).

4. Parameters can now be set using the navigator dial.
5. Setting parameters:
   - Select the parameter by turning navigator
   - Call up Edit mode by pressing navigator
   - Enter the required value by turning navigator
   - Save the new value by pressing navigator

6. There are 3 options to exit the Service menu and call up the standard view:
   - If no action is carried out using the navigator for 2 seconds
   - Hold down navigator for 5 seconds
   - Turning the navigator, select "ESC" on the display and confirm the selection by pressing the navigator.

11.3 Parameter Settings

11.3.1 Display of Setpoint Temperature/Room Temperature

Display of setpoint temperature - room temperature
Parameter P37
Various values can be displayed using the large seven-segment display.

Function	P37=0	P37=1	P37=2	P37=3	P37=4	P37=5	P37=6
No display	X						
Setpoint room temperature		X					
Current room temperature			X				
Temperature measurement AI1				X			
Temperature measurement AI2					X		
Temperature measurement AI3						X	
Fan actuation 0..100%							X

X = value is displayed, **factory setting P37=0**

11.3.2 Locking Operating Functions

Locking operating functions
Parameter P117
Certain functions and settings can be locked, for instance with office or hotel applications, to ensure that the system is easy to operate and energy is optimised.

Function	P117=0	P117=1	P117=2	P117=3	P117=4	P117=5	P117=6
ON/OFF (Eco/Day) key					X		X
Fan setting					X	X	
Time functions		X		X	X	X	X
Specification of operating modes (Mode)			X	X	X	X	X

X = Function is locked, **factory setting P117=0**

Example:
Set parameter P117 to 1 to lock the timer function.

Set parameter P38 to use the Eco/Day functions with the KaController's timer programs.

11.3.3 Fan Actuation

Fan actuation can be adapted to the user's needs using various parameter settings.

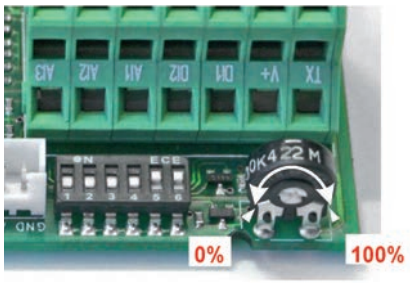
11.3.3.1 Maximum Fan Speed using Parameter P50

Parameter P50

The maximum fan speed is set and limited by parameter P50.

	Function	Standard	Min	Max	Unit
P50	Maximum fan speed	100	0	100	%

Alternatively, the maximum fan speed can be set using the potentiometer on the PCB.
The minimum set value from P50 and the potentiometer is executed as the maximum fan speed!
Beispiel: P50 = 80%
Potentiometer = 50%
--> maximum fan speed = 50%



Potentiometer setting on the control PCB

11.3.3.2 Maximum Fan Speed using a Potentiometer

The maximum fan speed can alternatively be prescribed by setting the potentiometer.
The potentiometer setting is set by default to 100%.
Potentiometer setting:

- Disconnect the control before starting to set the potentiometer.
- Remove the cover on the control unit to set the potentiometer. The potentiometer is located on the control PCB right next to the DIP switches.
- The maximum fan speed can be limited using the potentiometer (refer to parameter P50!).

11.3.3.3 Minimum Fan Speed

Parameter P51
The minimum fan speed is set and limited by parameter P51.

	Function	Standard	Min	Max	Unit
P51	Minimum fan speed	0	0	100	%

11.3.3.4 Locking Fan Stages

Parameter P42
Parameter P42 is used to lock individual fan stages (0,1,2,3,4,5,AUTO).
Locked fan stages cannot be selected manually using the KaController

	Function	Standard	Min	Max	Unit
P42	Parameter to lock the fan stages Fan stage 0 is locked by default!	3	0	127	

Each fan stage is allocated a defined value.

Fan stage	Value
Automatic fan mode	1
Stage 0 (OFF)	2
Stage 1	4
Stage 2	8
Stage 3	16
Stage 4	32
Stage 5	64

Example:
Locking fan stages 4,5

The values of the locked fan stages have to be added together and assigned to Parameter P42.

Fan stage	Value	
Automatic fan mode	1	1
Stage 0 (OFF)	2	2
Stage 1	4	
Stage 2	8	
Stage 3	16	
Stage 4	32	
Stage 5	64	
Setting Parameter P42 (default)		3

11.3.4 Sensor Calibration

Parameters P58, P61, P62
Parameters P58, P61 and P62 can be used to calibrate the sensor. The temperature sensors should be calibrated during initial commissioning and at every service.

	Function	Standard	Min	Max	Unit
P58	Offset analog input AI1 (external room temperature sensor)	0	-99	127	°C/10
P61	Offset sensor in the KaController	0	-99	127	°C/10
P62	Offset analog input AI2 (clip-on sensor)	0	-99	127	°C/10

The temperature setpoint is shown as standard in the display. It is necessary to display the measured room temperature to calibrate the sensor.
Set Parameter P37 = 2 to display the room temperature
(Display in room temperature display, see Section 11.3.1)

	Function	Standard	Min	Max	Unit
P58	Offset analog input AI1 (external room temperature sensor)	0	-99	127	°C/10
P61	Offset sensor in the KaController	0	-99	127	°C/10
P62	Offset analog input AI2 (clip-on sensor)	0	-99	127	°C/10

11.3.5 Function of Multifunctional Inputs AI1, AI2 and AI3

The function of the multifunctional inputs AI1, AI2 and AI3 can be configured using parameter settings.

11.3.5.1 Function of AI1

Parameter P15
Parameter PI5 is used to set the function of the multifunctional input AI1.

The multifunctional input AI1 can only be set using Parameter P15 if DIP switch no. 6 is set to ON!
The setting of DIP switches is described in section 10.

	Function	Standard	Min	Max	Unit
P15	Function AI1 0 = Function of AI1 not used (input disabled) 1 = NTC Fresh air sensor 2 = NTC Cold / hot water sensor (clip-on sensor) 3 = NTC Cold water sensor (clip-on sensor) 4 = NTC Hot water sensor 5 = NTC External room temperature sensor / inlet air sensor 6 = 0..100 kOhm Fan actuation 7 = 0..100 kOhm Temperature setpoint 8 = 0..10 V BMS-Heating/cooling control 9 = 0..10 V BMS-Heating control 10 = Eco/Day mode . . . . . .(contact open --> Day) 11 = No function . . . . . .(contact open without function) 12 = Condensation alarm . . . . . .(Contact open --> no condensation) 13 = General alarm . . . . . .(Contact open --> no alarm) 14 = External frost protection monitor . . .(Contact open --> no frost) 15 = Eco/Day mode . . . . . .(contact closed --> Day) 16 = No function . . . . . .(contact closed, no function) 17 = Condensation alarm . . . . . .(Contact closed --> no condensation) 18 = General alarm . . . . . .(Contact closed --> no alarm) 19 = External frost protection monitor . . .(Contact closed --> no frost)	0	0	19	

11.3.5.2 Function of AI2

Parameter P16
Parameter PI6 is used to set the function of the multifunctional input AI2.

The multifunctional input AI2 can only be set using parameter P16 if DIP switch no. 3 is set to OFF! The setting of DIP switches is described in section 10.

	Function	Standard	Min	Max	Unit
P16	Function of AI2: see P15	0	0	19	

11.3.5.3 Function of AI3

Parameter P17
Parameter PI7 is used to set the function of the multifunctional input AI3.

The multifunctional input AI3 can only be set using parameter P17 if DIP switch no. 3 is set to OFF! The setting of DIP switches is described in section 10.

The multifunctional input AI3 can only process analog signals unlike inputs AI1 and AI2.

	Function	Standard	Min	Max	Unit
P17	Funktion AI3 0 = Function of AI3 not used (input disabled) 1 = NTC Fresh air sensor 2 = NTC Cold / hot water sensor (clip-on sensor) 3 = NTC Cold water sensor (clip-on sensor) 4 = NTC Hot water sensor 5 = NTC External room temperature sensor / inlet air sensor 6 = 0..100 kOhm Fan actuation 7 = 0..100 kOhm Temperature setpoint 8 = 0..10 V BMS-Heating/cooling control 9 = 0..10 V BMS-Heating control	0	0	9	

11.3.6 Function of Digital Inputs DI1 and DI2

The function of digital inputs DI1 and DI2 can be configured using parameter settings.

11.3.7.1 Function of DI1

Parameter P43
Parameter P43 is used to set the function of the digital input DI1.

	Function	Standard	Min	Max	Unit
P43	Function of DI1 0 = No function 1 = ON / OFF . . . . . (Contact open --> ON) 2 = Heating / cooling changeover . . . . . (Contact open - heating) 3 = Eco/Day mode . . . . . (contact open → Day) 4 = No function . . . . . (contact open without function) 5 = Condensation alarm . . . . . (Contact open --> no condensation) 6 = General alarm . . . . . (Contact open --> no alarm) 7 = External frost protection monitor . . . (Contact open --> no frost) 8 = ON / OFF . . . . . (Contact closed --> ON) 9 = Heating / cooling changeover . . . . . (Contact closed - heating) 10 = Eco/Day mode . . . . . (contact closed → Day) 11 = No function . . . . . (contact closed, no function) 12 = Condensation alarm . . . . . (Contact closed --> no condensation) 13 = General alarm . . . . . (Contact closed --> no alarm) 14 = External frost protection monitor . . . (Contact closed --> no frost)	1	0	14	

11.3.6.2 Function of DI2

Parameter P44
Parameter P44 is used to set the function of the digital input DI2 when DIP switch no. 4 = OFF.

	Function	Standard	Min	Max	Unit
P44	Function DI2 0 = No function 1 = ON / OFF . . . . . (Contact open --> ON) 2 = Heating / cooling changeover . . . . . (Contact open - heating) 3 = Eco/Day mode . . . . . (contact open → Day) 4 = No function . . . . . (contact open without function) 5 = Condensation alarm . . . . . (Contact open --> no condensation) 6 = General alarm . . . . . (Contact open --> no alarm) 7 = External frost protection monitor . . . (Contact open --> no frost) 8 = ON / OFF . . . . . (Contact closed --> ON) 9 = Heating / cooling changeover . . . . . (Contact closed - heating) 10 = Eco/Day mode . . . . . (contact closed → Day) 11 = No function . . . . . (contact closed, no function) 12 = Condensation alarm . . . . . (Contact closed --> no condensation) 13 = General alarm . . . . . (Contact closed --> no alarm) 14 = External frost protection monitor . . . (Contact closed --> no frost	2	0	14	

The polarity of the digital input DI2 is set using parameter P56 when DIP switch no. 4 is set to ON.

	Function	Standard	Min	Max	Unit
P56	Polarity of DI2 when DIP2=ON (Heating/Cooling changeover via DI2) 0 = Contact closed . . . . . --> heating Contact open . . . . . --> cooling 1 = Contact open . . . . . --> heating Contact closed . . . . . --> cooling	1	0	2	

11.3.7 Locking Operating Options or Functions, Parameter 38

Parameter P38 can be used to lock individual operating options or functions.

	Function	Standard	Min	Max	Unit
P38	Locking operating options or functions	105	0	255	

Every operating option or function is allocated a defined value.

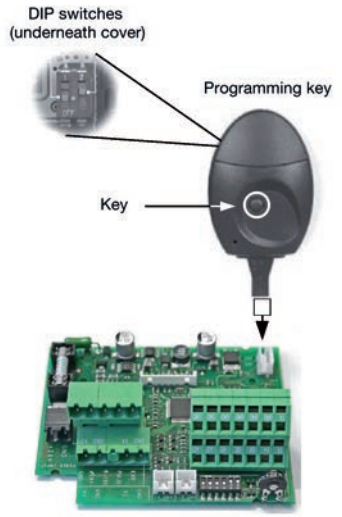
	Value	
Automatic operating mode	1	
Cooling mode	2	
Real-time clock	4	
Ventilation-only operating mode	8	
Heating mode	16	
Automatic fan function	32	
Eco/Day function	64	
Timer programs	128	

Example: Locking
- Eco/Day function

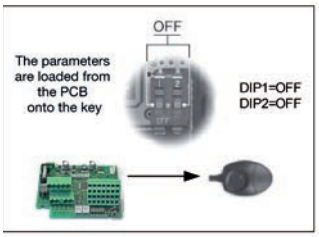
The values of the locked operating options or functions must be added together and assigned to parameter P38.

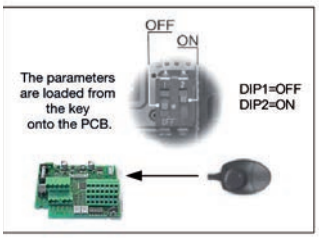
	Value	
Automatic operating mode	1	1 -
Cooling mode	2	-
Real-time clock	4	-
Ventilation-only operating mode	8	8 -
Heating mode	16	-
Automatic fan function	32	32-
Eco/Day function	64	64
Timer programs	128	-
Parameter P38 setting (default)		105

11.4 Programming Key



Important note:
The new door air curtain circuit board should also be disconnected before writing the parameters.





Programming Key

After the parameters have been set, the setup can be simply copied to other door air curtain PCBs with the help of the programming key. Please follow the following steps to copy setup:

1. Disconnect the previously programmed door air curtain KaControl circuit board.

Read parameters

2. Set the DIP switch of the programming key to Read mode (DIP1=OFF, DIP2=OFF). The DIP switches are located underneath the cover!
3. Plug the key into the 4-pin plug on the door air curtain circuit board.
4. Press the button on the programming key.
   If the copy is successful, the red LED will light up followed by the green LED

Loading parameters

5. Remove the programming key and set the internal DIP switches of the programming key to Write mode (DIP1=OFF, DIP2=ON).
6. Repeat steps 3 and 4 to write the parameters to the Venkon circuit board.

Important note:
The new door air curtain circuit board should also be disconnected before writing the parameters.

The programming key is not supplied as standard with the unit and can be ordered from Kampmann Customer Service as a non-standard accessory.

The software versions of the control circuit boards must be identical when reading and writing the parameter sets (see parameter P000). It is not possible to read parameters from a control board using software version "P000=10" for instance and then write the parameters to a control board using software version "P000=15".

12. Control PCB Parameter List

	Function	Settings	Min	Max	Unit	Comment
P000	Software version (read-only)		0	255	-	
P001	Base setpoint for setpoint entry ± 3K	**32**	8	32	°C	
P002	Switching on / off hysteresis valves	1	0	255	°C/10	
P003	Neutral zone in a 4-pipe system	3	0	255	°C/10	
P004	Cooling without fan support	0	0	255	°C/10	
P005	Heating without fan support	3	0	255	°C/10	
P006	Hysteresis fan On/Off (ventilation-only mode)	5	0	255	°C/10	
P007	P-band for heating	17	0	100	°C/10	
P008	P-band for cooling	20	0	100	°C/10	
P009	Offset to the base setpoint for Setpoint input +/- 3K	**0**	0	10	°C	
P010	Clip-on sensor: Limit value temperature to activate fan stages 1 and 2 in heating mode	29	0	255	°C	
P011	Clip-on sensor: Limit value temperature to activate fan stages 3 and 4 in heating mode	31	0	255	°C	
P012	Clip-on sensor: Limit value temperature to activate fan stage 5 in Heating mode	33	0	255	°C	
P013	Clip-on sensor: Hysteresis for limit value temperatures P010, P011, P012, P014	10	0	255	°C/10	
P014	Clip-on sensor: Limit value temperature to activate fan stages in Cooling mode	18	0	255	°C	
P015	Function of input AI1	0	0	19	-	
P016	Function of input AI2	0	0	19	-	
P017	Function of input AI3	0	0	9	-	
P018	Raising the cooling setpoint in Eco mode	30	0	255	°C/10	
P019	Lowering the heating setpoint in Eco mode	30	0	255	°C/10	
P020	Default value must be set	6	0	15	-	
P021	Default value must be set	6	0	15	-	
P022	Default value must be set	0	0	1	-	
P023	Default value must be set	0	-99	127	°C/10	
P024	Default value must be set	0	-20	20	01.10.12	
P025	Default value must be set	0	-99	127	°C/10	
P026	Default value must be set	0	-20	20	01.10.12	
P027	Fan setting: Maximum running time of manual Fan mode	0	0	255	minutes	
P028	Rinsing function: Fan stage during rinsing function	2	1	5	-	
P029	Continuous fan operation	**1**	0	1	-	
P030	Default value must be set	12	0	255	°C	
P031	Default value must be set	27	0	255	°C	
P032	Rinsing function: Maximum idle time of fan	15	0	255	minutes	
P033	Rinsing function: Duration of rinsing function	240	0	255	S	

	Function	Settings	Min	Max	Unit	Comment
P034	Rinsing function: Activation in operating modes 0 = Rinsing function disabled 1 = Rinsing function is enabled in: - Cooling mode - Automatic mode Rinsing function is enabled in: - Heating mode - Automatic mode Rinsing function is enabled in: - Cooling mode - H	0	0	3	-	
P035	Default value must be set	0	0	255	s	
P036	Setpoint setting 0 = Setpoint setting absolute 1 = Setpoint setting +/- 3K	**1**	0	1	-	
P037	Display: 0 = No display 1 = Display of setpoint temperature 2 = Display of room temperature 3 = Display of sensor AI1 4 = Display of sensor AI2 5 = Display of sensor AI3 6 = Display of fan speed in %	**0**	0	6	-	
P038	8 = Eco/Day mode changeover 26 = Eco/Day mode changeover + changeover Heating/cooling via clip-on sensor (2-pipe system) 72 = ON/OFF changeover 90 = ON/OFF changeover + Heating / cooling changeover via clip-on sensor (2-pipe system)	**105**	0	255	-	
P039	Digital output V2: 0= No function 1= Heating requirement 2= Cooling requirement 3= Collective fault signal	**1**	0	3	-	
P040	Valve actuation by means of pulse width modulation 0 = Function is disabled 1 = Function is enabled	0	0	1	-	
P041	Reset time of PI controller to actuate the fan in automatic fan mode If P41=0 a PI controller is enabled. Recommended reset time when using a PI controller: Reset time = 13 minutes	0	0	20	minutes	
P042	Fan setting: Lock and released fan stages	3	0	127	-	
P043	Digital input DI1	1	0	14	-	
P044	Digital input DI2	2	0	14	-	

	Function	Settings	Min	Max	Unit	Comment
P045	Default value must be set	10	0	100	kOhm	
P046	Default value must be set	18	12	34	°C	
P047	Default value must be set	24	13	35	°C	
P048	Default value must be set	10	0	100	kOhm	
P049	Default value must be set	90	0	100	kOhm	
P050	Fan setting: Max. fan speed	100	0	100	%	
P051	Fan setting: Min. fan speed	0	0	90	%	
P052	Fan setting: Restricting the fan speed 0 = Fan speed restriction is enabled in Automatic fan mode and in Manual fan mode 1 = Fan speed restriction is only enabled in Automatic fan mode	0	0	1	-	
P053	Valve actuation by means of pulse width modulation Valve switching cycle	15	10	30	minutes	
P055	Display Heating/cooling symbols: in Automatic mode 0 = Heating/cooling symbols disabled in Automatic mode 1 = Heating/cooling symbols enabled in Automatic mode	0	0	1	-	
P056	Setting DI2: if DIP4=ON 0 = Contact closed ? Heating Contact open ? Cooling 1 = Contact closed ? Cooling Contact open ? Heating	1	0	1	-	
P057	Setpoint setting on the value of P01 after switching from Eco/Day or ON/OFF: 0 = Function is disabled 1 = Function is enabled	0	0	1	-	
P058	Sensor calibration: Sensor AI1	0	-99	127	°C/10	
P061	Sensor calibration: Sensor in the KaController	0	-99	127	°C/10	
P062	Sensor calibration: Sensor AI2	0	-99	127	°C/10	
P064	Sensor calibration: Sensor AI3	0	-99	127	°C/10	
P093	Default value must be set	0	0	3	-	
P094	Default value must be set	60	1	255	minutes	
P095	Default value must be set	0	0	1	-	
P097	Reading DIP switches (read-only): Display the DIP switch settings as a decimal number. The decimal number must be converted to a binary number. Example: Display: 37 (decimal) Conversion: 100101 (binary) DIP switch setting: DIP1 = ON DIP2 = OFF DIP	--	0	63	-	

	Function	Settings	Min	Max	Unit	Comment
P098	Actuation 0..10V: Switching on limit Valves	30	0	100	V/10	
P099	Actuation 0..10V: Switching on limit Minimum fan speed	40	0	100	V/10	
P100	Actuation 0..10V: Switching on limit Maximum fan speed	90	0	100	V/10	
P101	Valve actuation by means of pulse width modulation P-band in Heating mode	15	0	100	°C/10	
P102	Default value must be set	15	0	100	°C/10	
P103	Valve actuation by means of pulse width modulation Reset time of PI controller If P103=0 a PI controller is enabled. Recommended reset time when using a PI controller: Reset time = 13 minutes	0	0	20	minutes	
P104	Valve actuation by means of pulse width modulation Minimum switching on time for the heating value in PWM mode	0	0	20	minutes	
P105	Default value must be set	50	0	--	-	
P106	Default value must be set	50	0	-	-	
P107	Default value must be set	5	0	255	minutes	
P108	Default value must be set	240	35	255	minutes	
P117	Function buttons: Locking and enabling	0	0	7	-	

13. Functional Testing of Connected Assemblies

The KaController provides the option of checking the operation of the connected external units independently of the software application. The function of individual assemblies, such as the fan, can be directly enabled and checked by means of entries on the KaController.

Hardware-related locks should be observed during the functional test (refer to the respective wiring diagram!)

The functional checks of the connected assemblies are called up and performed by the following operating steps:

1. Switch off the door air curtain by:
   - Pressing the ON/OFF key
   or
   - Pressing the navigator for a minimum of 5 seconds
   or
   - Turning the navigator to the left until OFF appears
2. Call up the Parameter menu by pressing the navigator for a minimum of 10 seconds. The display shows "Para" and then "CODE" with the value 000 in sequence.
3. Select the password (Code) 77 by turning the navigator and confirm by pressing the navigator.
4. "L01" is shown on the display and the functional testing of the connected assemblies can start.

Note:
The individual test steps are called up by pressing the navigator.
The default view with "OFF" on-screen display is shown once the test (L08) has been completed.

Step	Input Output	Display flashes	Display does not flash
L01*	Input AI1	Sensor faulty	Sensor ok
L02*	Input AI2	Sensor faulty	Sensor ok
L03*	Input AI3	Sensor faulty	Sensor ok
L04	Input DI1	Contact open	Contact closed
L05	Input DI2	Contact open	Contact closed
L06	Fan speed	--	Increased actuation
	0.0.10V		Fan 0V --> 10V
L07	Valve output 1	--	Output V1 enabled
L08	Valve output 1	--	Output V1 enabled

* The control automatically detects the requisite sensors on the analog inputs AI1-AI3 via the DIP switch settings. If sensors are defective or not connected, this is shown by the respective display (L01-L03) flashing.

Note hardware-related locks during the functional test (refer to the respective wiring diagram!)

14. KaController Parameters

14.1 General

Special user requirements can be enabled and disabled by means of parameters settings in the KaController.
For example, the minimum and maximum setpoint temperature can be set using parameters in the KaController.

14.2 Calling up the KaController Parameter Menu

The following steps are needed to set the parameters:

1. Switch off the door air curtain by:
   - Pressing the ON/OFF key

   or
   - Pressing the navigator for a minimum of 5 seconds

   or
   - Turning the navigator to the left until OFF appears
2. Call up the Parameter menu by pressing the navigator for a minimum of 10 seconds. The display shows "Para" and then "CODE" with the value 000 in sequence.
3. Select the password (Code) 11 by turning the navigator and confirm by pressing the navigator. You are now in the KaController's Parameter menu,
4. Parameters can now be set using the navigator dial.

Setting parameters:

- Select the parameter by turning navigator
- Call up Edit mode by pressing navigator
- Set the required value by turning navigator
- Save the new value by pressing navigator

There are 3 options for exiting the Parameter menu and calling up the standard view:

- If no action is carried out using the navigator for longer than 2 minutes
- Hold down navigator for 5 seconds
- Turn navigator and select "ESC" in the display and confirm by pressing navigator

14.3. KaController Parameter List

(Access code: 11)

	Function	Standard	Min	Max	Unit	Comment
t001	Serial address	1	0	207	–	
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	Setpoint setting interval 0 = Automatic setting based on PCB (parameterisable, freely programmable) 1 = Interval of 1°C (parameterisable PCBs) 2 = Interval 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 in the month	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	–	

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