

Venkon **1.48**

KaControl for Venkon



Assembly and installation instructions

Keep in a safe place for future reference!

Symbols:



Caution! Danger!

Non-observance of this information may cause serious damage to persons or property.



Danger of electrocution!

Non-observance of this information may cause serious damage to persons or property by electric current.

Read this manual through carefully before commencement of installation!

All persons involved in the installation, commissioning and use of this product are duty bound to pass this manual onto subsequent tradespersons and then to the end user or operator. Retain this manual until the system is ultimately decommissioned!

Amendments to the content of this manual may take place without prior notice being given!

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1. Correct and Proper Use

Kampmann KaControllers and Venkons are designed according to the state of the art and recognised safety regulations. Nevertheless their use can lead to dangers to personnel or damage to the unit or other material items if they are not installed and operated correctly or not used correctly and properly.

Applications

The KaController should only be used as a room unit to control 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, and 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.

Venkons should only be used indoors (for instance in residential properties and offices, showrooms). They should not be used in humid areas, such as swimming pools or outdoors. During installation, the products should be protected against moisture. In case of doubt, discuss the application directly with the manufacturer. Any use other than the uses specified above is deemed not to be correct and proper use. Any damage resulting from this shall be the sole responsibility of the operator of the unit. Correct and proper use is also deemed to include compliance with the installation instructions described in this manual.

Specialist knowledge

The installation of this product requires specialist knowledge of heating, cooling, ventilation and electrical engineering. This knowledge is generally assumed to have been gained in the course of vocational training in the aforementioned fields and is not described separately.

Damage resulting from improper installation is the sole responsibility of the operator of the units. The installer of these units should have adequate knowledge, gained in specialist vocational training about

- 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 application of the manual

This manual contains information on the operation of the KaController. The information contained in the manual can be changed without prior notification.

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2. Important Information / Safety Information

Installation, assembly and maintenance work on electrical units should only be performed by a qualified electrician (in compliance with VDE requirements).

Wiring should comply with applicable VDE regulations and provisions laid down by regional electricity providers. Non-adherence to these regulations and the operating manual can lead to malfunction of the unit with consequential damage and resulting danger to personnel. There is a risk of fatal injury if wiring is not correct or wires are crossed! All parts of the system should be disconnected from the power source before commencing with wiring or maintenance work and should be prevented from accidental re-connection!

Please read this manual in full to guarantee correct installation and trouble-free 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 with installation/maintenance work, wait until the fan has come to a standstill once the unit has been switched off.
- Caution! Pipes, casings and fittings can become very hot or very cold depending on the mode of operation!
- Specialist personnel must have adequate knowledge, obtained in their training, of:
 - 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
 - DIN VDE 0100, DIN VDE 0105
 - EN 60730 (Part 1)
 - Technical wiring regulations (TABs) issued by the regional electricity providers.

During installation, the products should be protected against moisture. In case of doubt, discuss the application directly with the manufacturer. Any use other than the uses specified above is deemed not to be correct and proper use. Any damage resulting from this is the sole responsibility of the operator of the unit. Correct and proper use is also deemed to include compliance with the installation instructions described in this manual.

Modifications to the unit

Do not undertake any modifications, renovations or additions to the KaController or Venkon unit without discussing these with the manufacturer as this could impair the safety and correct operation of the units.

Do not undertake any work on the unit that is not described in this manual. On-site systems and cabling must be suitable for connecting to the intended system!

3. Operation of the KaController

The KaController is capable of controlling the wide range of Kampmann products and systems. The KaController is equipped with the latest technology and provides users with the option of adapting the air conditioning of buildings to individual needs.

Up to two switching-on and switching-off times can be configured for every weekday so that the room temperature can be regulated by the user to meet the demand



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



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KaController with operating keys type 3210004



KaController without operating keys (single-button operation) type 3210003



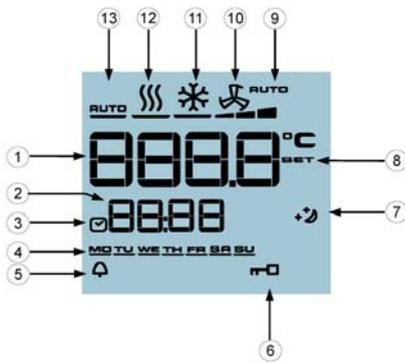
3.1 Operating Keys, Display Elements

1. Display with LED background lighting
2. ON/OFF button (depending on setting)
 - ON / OFF (factory setting)
 - Eco mode / Day mode
3. TIMER key
 - Set time
 - Set timer program
4. ESC key
 - Back to default view
5. Navigator
 - Change settings
 - Call up menus
6. MODE key
 - Set operating modes (disabled with 2-pipe applications)
7. FAN key
 - Set fan control

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.

LCD display symbols



1	Display of target room temperature
2	Current time
3	Timer program enabled
4	Weekday
5	Alarm
6	Selected operation is blocked
7	Eco mode ☾
8	Target value setting enabled
9	Fan control setting Auto-1-2-3
10	Ventilation mode
11	Cooling mode
12	Heating mode
13	Automatic Heating/Cooling changeover mode

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

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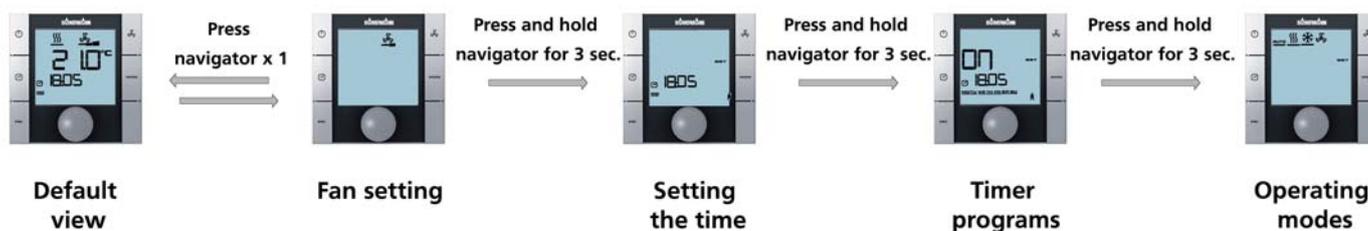
3.2 Operation

The KaController is operated by the navigator and the operating keys.

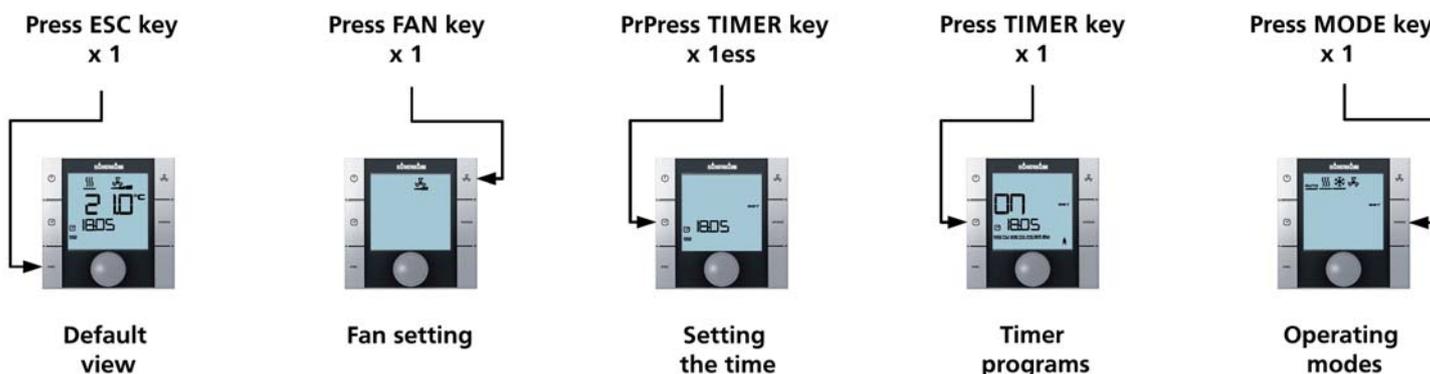
The operations that can be called up and set using the navigator are identical on both versions (with/without operating keys at the side) so that the KaController with operating keys at the side is used throughout the manual for ease of understanding.

The different selection menus are called up either using the navigator or the operating keys at the side.

Menu selection using the navigator



Menu selection using operating keys



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

3.2.1 Switching the Control Off and On



Default view

Once the control has been switched on, the default view appears on the display showing the current target room temperature and the fan stage set.



When the KaController is started up for the first time, the time is not shown in the default view (see "Setting the time" 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

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3.2.2 Setting the Temperature

The target temperature is entered from the default view. Press ESC or do not use the KaController for 3 seconds to call up the default view.



Setting the temperature setpoint:

A new temperature setpoint can be entered by turning the navigator in the standard view. The figure is applied by pressing the navigator and the default view is called up.



Default view



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

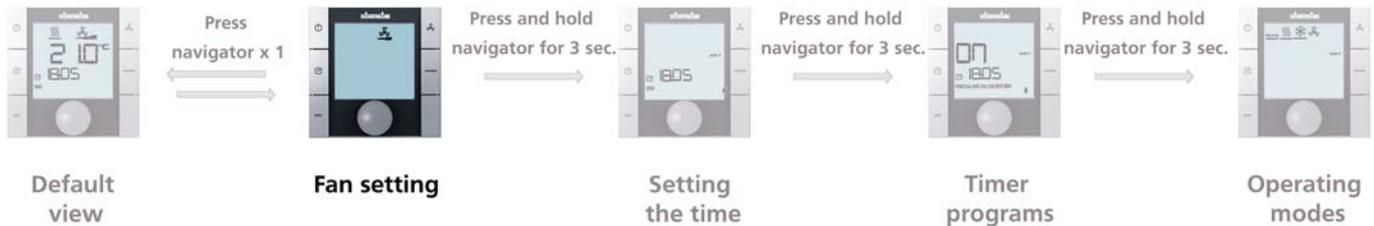


Temperature setpoint setting

3.2.3 Setting the Fan

To call up the "Fan setting" selection menu, press the FAN key (quick access) or use the navigator.

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



In Automatic mode, the room temperature is regulated by automatic adjustment of the fan speed. The user also has the option of setting fan speeds Auto-1-2-3 to meet demand.

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



Fan stage 3

You can select the fan speed you require from Auto-1-2-3 by turning the navigator.

Pressing the navigator activates the selected fan stage.



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

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3.2.4 Setting the Time

To call up the "Time setting" selection menu, press the TIMER key 1 x (quick access) or use the navigator.

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



Setting the time:

Use the navigator to set the following:

1. Current hour
2. Current minute
3. Current day



Time setting view



The "Timer program" selection menu is automatically called up after the current day is confirmed by pressing the navigator.



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



Setting to hide time in default view



When the KaController is started up for the first time, the time is not shown in the default view.

Only when the time has been set, is the current time shown in the default view!

If "--:--" is entered for the hour and minute, the realtime clock is disabled and the time is hidden in the default view.

3.2.5 Timer Programs

The KaController offers the option of programming 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, it is not only possible to set one on and off time each day, but two on and off times per day.



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

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 timer program



Display elements in the Timer Programs selection menu



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

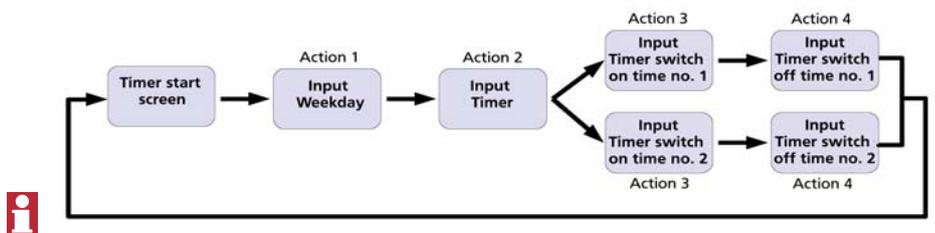
The timer program switches the controller on and off in accordance with the set time intervals. Once the controller has been switched off by the timer program, the user then has the option of switching it on again using the ON/OFF key or the navigator.

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 on or off time is entered into the timer matrix, the "Clock" symbol is hidden in the default view.



If no on or off time is entered into the timer matrix, the "Clock" symbol is hidden in the default view.

The diagram below shows the sequence for setting the timer programs. 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 Start menu or do not operate the KaController for 15 seconds.

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To call up the "Timer programs" selection menu, press the TIMER key 2 x (quick access) or use the navigator.

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



Step 1:

Turn the navigator to select a weekday 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 (for instance: MO-FR) and the next input screen is called up.



Timer start screen

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 no. 1) and the next input screen is called up.



Input screen for timer number

Step 3:

It is possible to set **the switching on** time you require by turning the navigator. Once the minutes have been entered, press the navigator to apply the switching-on time and the input screen for **the switching-off** time of the selected timer number is called up.



Input screen for switching-on time



Input screen for switching-off time

Step 4:

It is possible to set the **switching-off** time you require by turning the navigator.

Once the minutes have been entered, press the navigator to apply the switching-off time entered and the timer program start screen is called up (-> **Step 1**).



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

Important note: The block-wise deletion of timer entries is not possible!



Timer entries can be overwritten at any time and this can be done for a block as well as for each day.



Switching-on and off times should only be requested singly for each day. The block-wise requesting of switching-on and off times is not possible with different timer entries for the respective weekdays and the time is displayed with "--:--"!



To exit the "Timer programs" selection menu, press and hold down the navigator for 3 seconds in the Timer Start screen or do not perform any operation on the KaController for 15 seconds.

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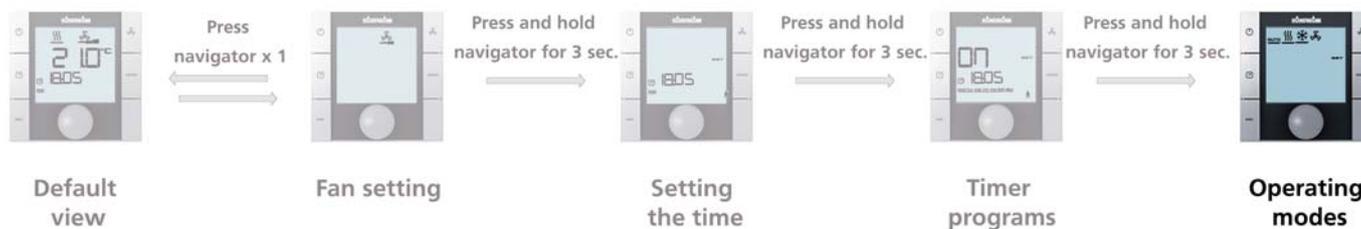
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3.2.6 Operating Modes (Mode Key)

To call up the "Operating modes" selection menu, press the MODE key (quick access) or use the navigator.

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



The operating mode can be set using the navigator depending on the parameter setting.

Automatic mode: The control switches automatically between heating mode and cooling mode whilst maintaining a neutral zone.

Heating mode: The control only works in heating mode.

Cooling mode: The control only works in cooling mode.

The preferred operating mode can be selected by turning the navigator in the Operating Mode selection menu.

Pressing the navigator activates the selected operating mode.



Heating operating mode setting



The MODE key is locked with 2-pipe applications, as Heating and Cooling operating modes are specified via an external contact or a clip-on sensor. It is generally not possible to adjust the operating mode using the KaController in 2-pipe applications.



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

4. Alarm Messages

The KaController displays fault messages using the alarm messages given 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 Installed/Service Technician) to remedy the cause of the fault.

4.1 Venkon



View of "Motor fault" alarm

Venkon alarm table

Code	Alarm	Priority
A01	EEPROM fault	1
A03	Room sensor fault	2
A04	B2 or B3 sensor fault	3
A06	Condensation alarm	4
A07	Motor fault	5

4.2 KaController Control Electronics

KaController control electronics alarm table



View of "Realtime fault in KaController"

Code	Alarm
tAL1	Temperature sensor fault in KaController
tAL3	Realtime fault in KaController
tAL4	EEPROM fault in KaController
Cn	Communication fault with the ext. control PCB



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

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5. Motor Protection, Condensation Alarm

5.1 Motor Protection

Any motor fault with a Venkon is shown on the KaController by the display "A07". The Venkon with the motor fault shuts down automatically.

When a motor fault has occurred, check whether an impeller is blocked. To eliminate the fault, disconnect the Venkon and remedy the cause of the fault. The Venkon should then restart after the power supply has been reconnected and switched to a fan stage.

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 fault in the motor of a master unit is shown on the KaController.

5.2 Condensation Alarm

The condensation alarm of a Venkon is shown on the KaController by the display "A06". The Venkon with a condensation alarm shuts down automatically.

Check that the condensation pump is running correctly and check the water level in the condensation tank when a condensation alarm occurs.

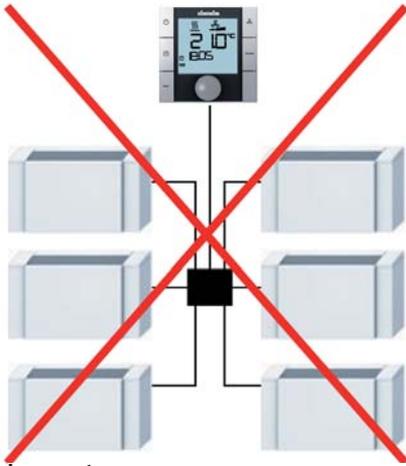


The condensation alarm of a slave unit is not shown on the KaController. Only the condensation alarm of a master unit is shown on the KaController.

6. Cabling

6.1 General Information

- All low voltage cables should be laid along the shortest route.
- Ensure that low voltage and high voltage cables are separated using metal planking on cable trays.
- Only shielded cables should be used 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 via a bus connection to the respective Venkon and must be connected to the Venkon's PCB.



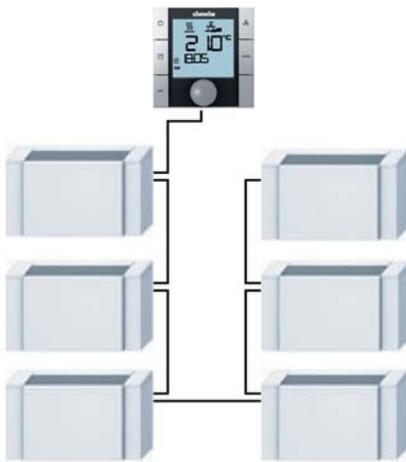
Incorrect:
Star-shaped cabling of bus cables



All BUS cables are shielded, paired cables, for instance CAT5 (AWG23), however must be at least of the same value.



When laying bus cables, avoid the formation star points, for instance in the junction box. Instead loop the cables through the units (Venkons).



Correct:
Line-shaped cabling of bus cables

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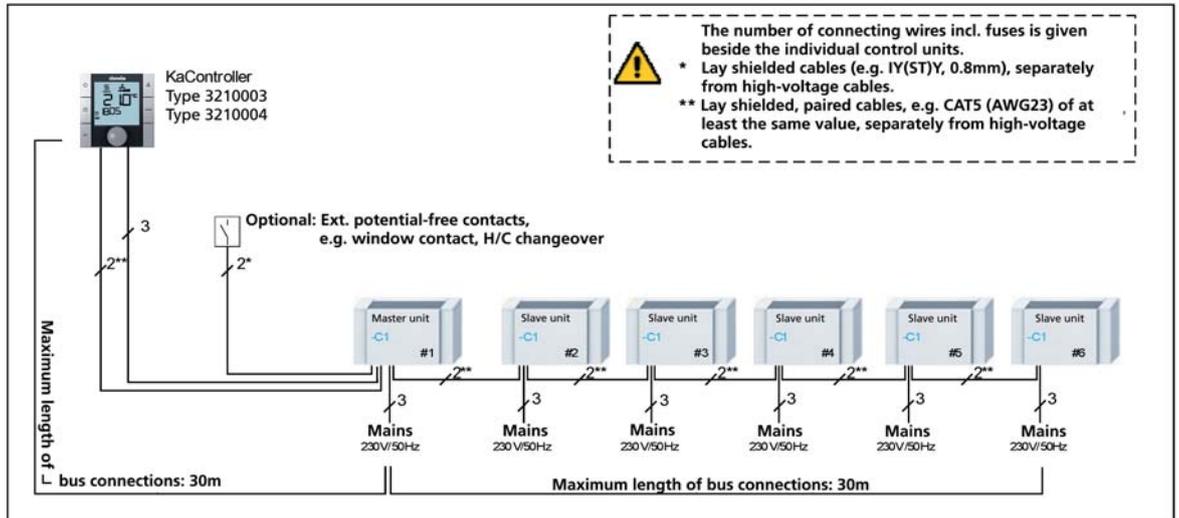
ASSEMBLY AND INSTALLATION INSTRUCTIONS

6.2 Single-circuit Control of up to 6 Units

Single-circuit control of up to 6 units with KaController for wall mounting

Master unit: C1 control design

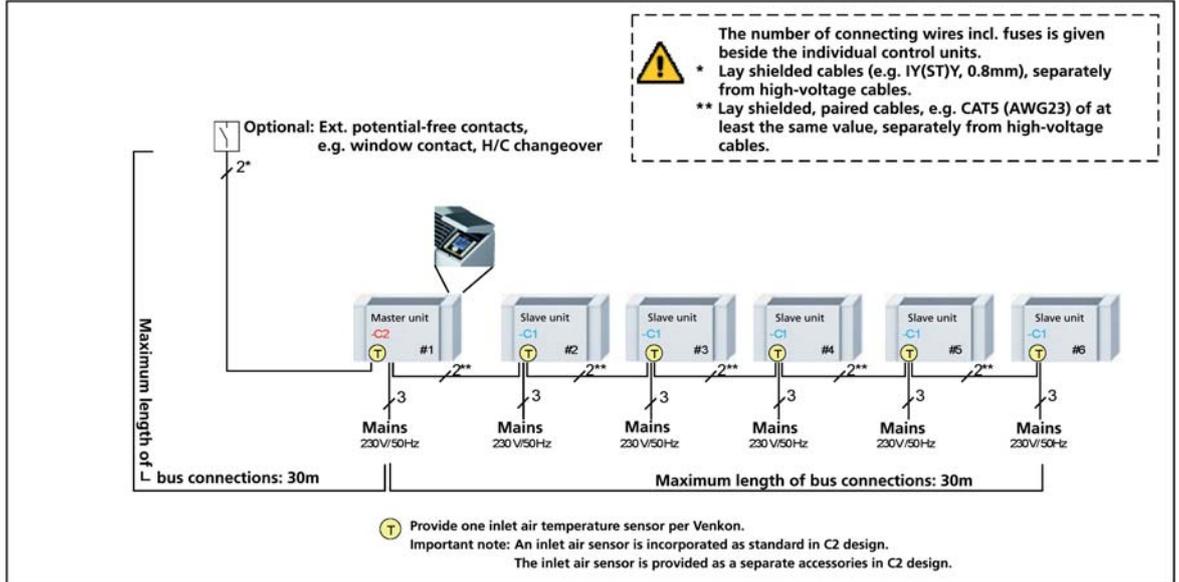
Slave unit: C1 control design



Single-circuit control of up to 6 units with KaController incorporated into the master unit

Master unit: C2 control design

Slave unit: C1 control design + inlet temperature sensor



Maximum permissible cable lengths

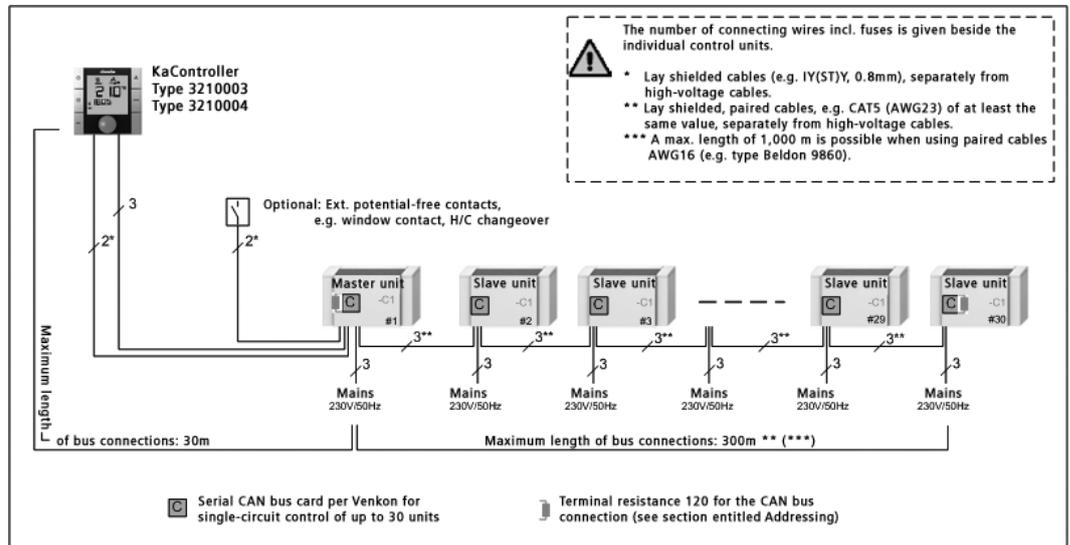
Total length of bus cables between the Venkon units	max. 30 m
Total length of bus cables between the room control unit and master unit	max. 30 m
Total length between Venkon and the external potential-free e.g. window contact etc.	max. 30 m

6.3 Single-circuit Control of up to 30 Units

Single-circuit control of up to 30 units with KaController for wall mounting

Master unit: C2 control design

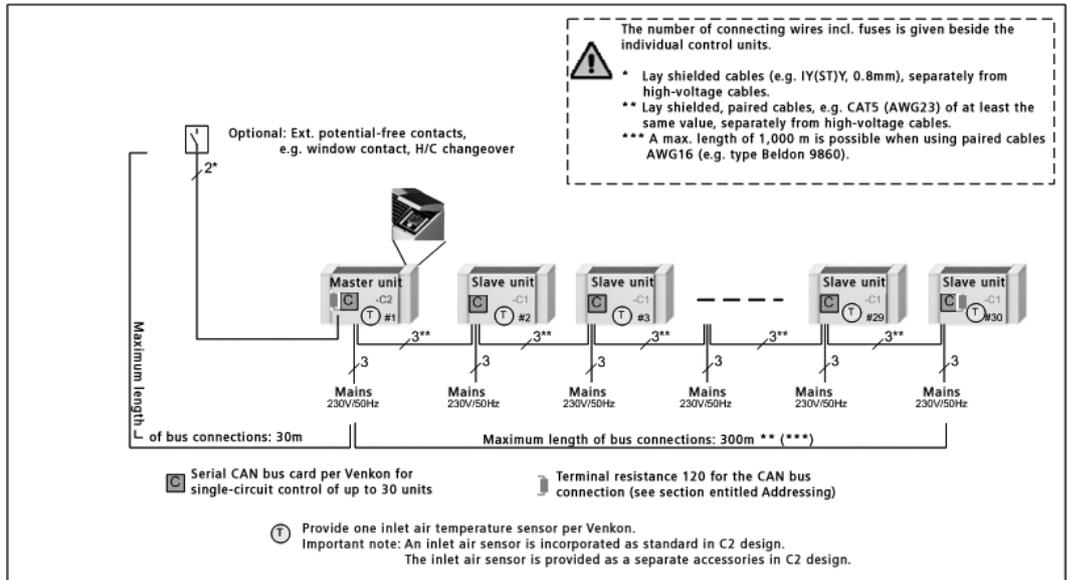
Slave unit: C1 control design



Single-circuit control of up to 30 units with KaController incorporated in the Venkon.

Master unit: C2 control design

Slave unit: C1 control design + inlet air temperature sensor



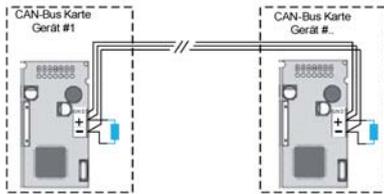
Maximum permissible cable lengths

Total length of bus cables between the Venkon units	max. 300 m max. 1000 m (Beldon 9860)
Total length of bus cables between the room control unit and master unit	max. 30 m
Total length between Venkon and the external potential-free contacts e.g. window contact etc.	max. 30 m

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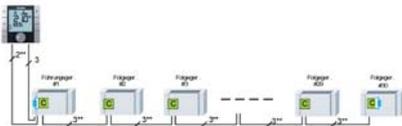
6.3.1 Terminal Resistors in a CAN Bus System

- The bus lines between the CAN bus cards must be linear.
- Disconnect the Venkons before adjusting the final resistors.
- A terminating resistor must be connected to the first and last CAN bus card in a bus line between terminals "+" and "-".
- Resistance of terminating resistor: 120 Ohm

6.3.2 Bus connections between Venkons

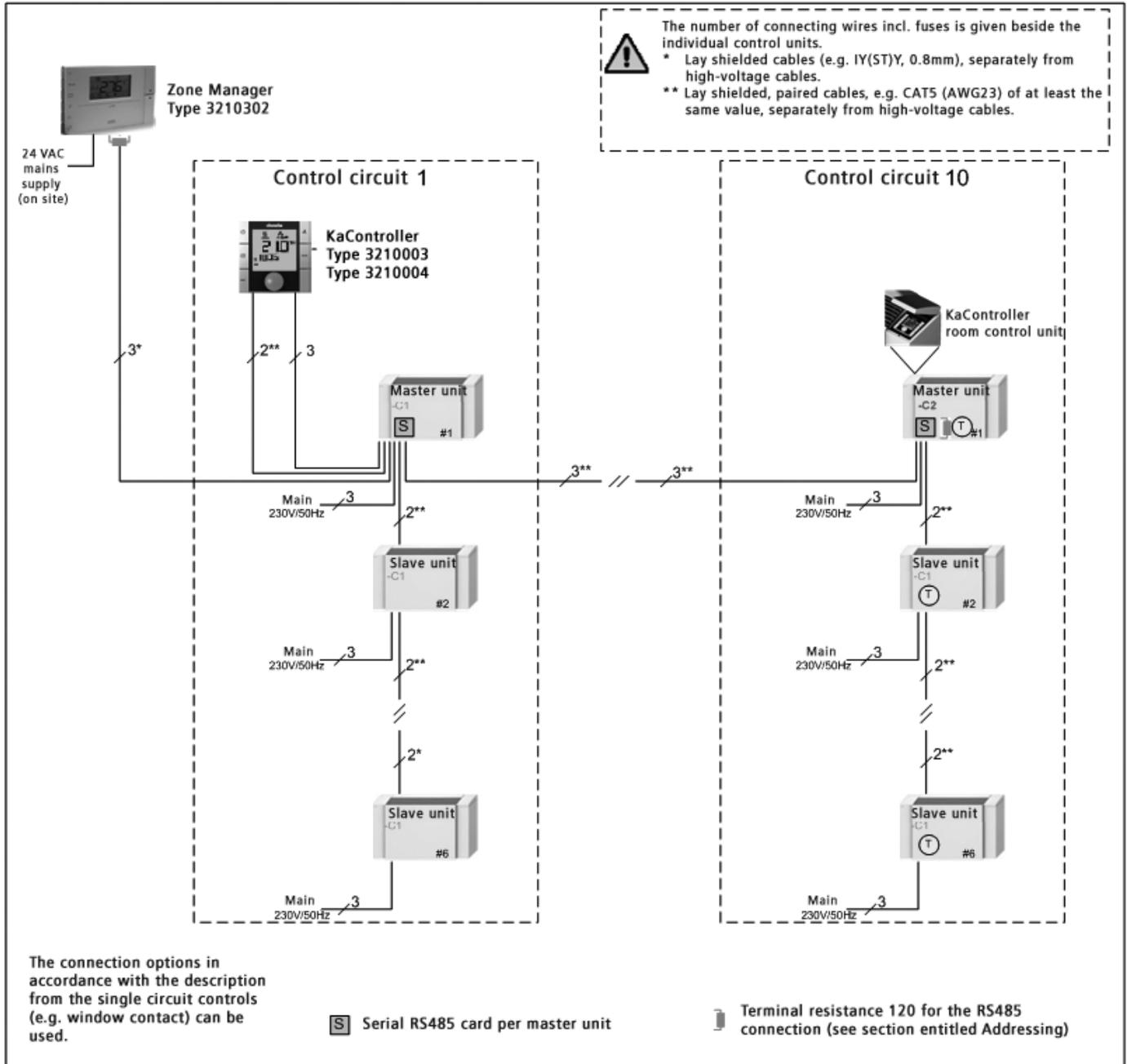
- Bus communication between Venkons and CAN bus cards is solely via the CAN bus. The tLAN bus communication in single-circuit controls between the Venkons is not connected.
- Refer to the technical datasheet on the CAN bus cards for the connection conditions of the CAN bus cards.

Single circuit control
(maximum 30 units) communication
between the Venkons via CAN bus,
bus connection on the CAN bus card



6.4 Multi-circuit Control of up to 10 Control Circuits

Venkon with Zone Manager multi-circuit control,
maximum 10 control circuits



Maximum permissible cable lengths

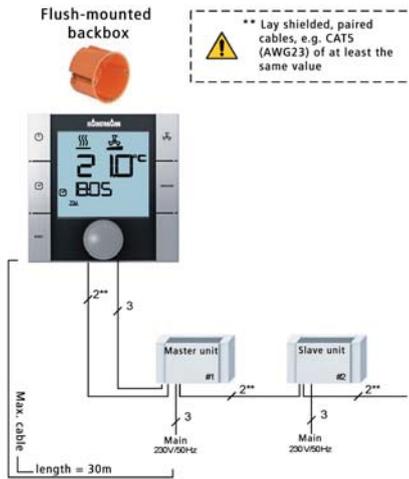
Total length of bus cables between the Venkon units in a control circuit (see single-circuit controls)	max. 30 m
Total length of bus cables between the room control unit and master unit (see single-circuit controls)	max. 30 m
Total length of bus cables between the control circuits (master units) incl. the zone manager	max. 500 m

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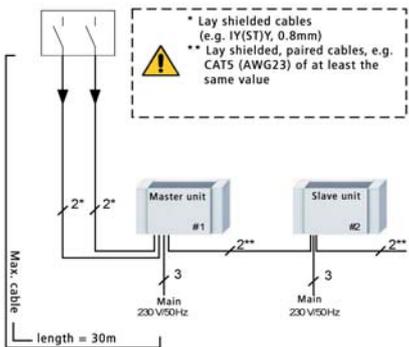
ASSEMBLY AND INSTALLATION INSTRUCTIONS

6.5 KaController



- A flush-mounted backbox is needed for the KaController.
- Connect the KaController to the nearest Venkon on the wiring diagram. The maximum bus length between the KaController and Venkon is 30 m.
- By connecting a KaController to it, the respective Venkon automatically becomes the master unit in the control circuit.

6.6 Inputs for Processing Ext. Contacts (e.g. window contact, card reader etc.)

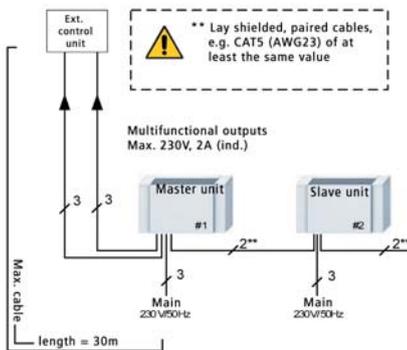


- All Venkon master units have multifunctional inputs that can be assigned different functions during commissioning.
- Connect up the cables in accordance with the wiring diagram and configure the functions using the KaController.
- The maximum cable length between the master unit and the external potential-free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



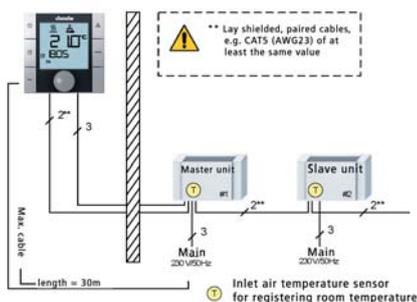
No external contacts (e.g. window contacts, card readers etc.) can be connected to the slave units.

6.7 Outputs to Activate Ext. Control Units (e.g. heat demand, faults etc.)



- All KaControl Venkon master units have multifunctional outputs that can be assigned different functions (heat requirement, cooling requirements, fault etc.)
- 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 control units is 30 m.

6.8 Inlet Air Temperature Sensor



- All KaControl PCBs have analogue inputs to register the inlet air temperature.
- There is no need to lay a separate cable to connect the inlet air temperature sensor, as the connecting lines from the temperature sensor can be connected directly to the PCB.
- Connect up the inlet air temperature sensor in accordance with the wiring diagram and adjust the DIP switch in line with the instructions in section 9.
- In control layout C2, an inlet air temperature sensor is integrated as standard in the fan convector, while in layout C1 it must be ordered separately.



*Inlet air temperature sensor:
"all" fan convectors in a control zone must be fitted with an inlet air temperature sensor.*

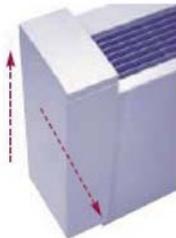
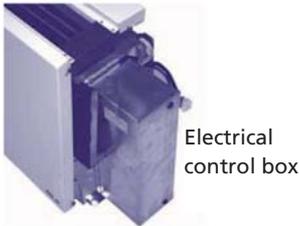
1.48 Venkon

KaControl for Venkon

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7. Installation, Venkon Wiring, Room Control Unit, Inlet Air Temperature Sensor

7.1 Fan Convector



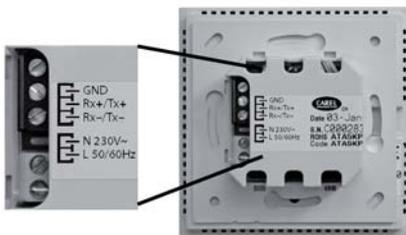
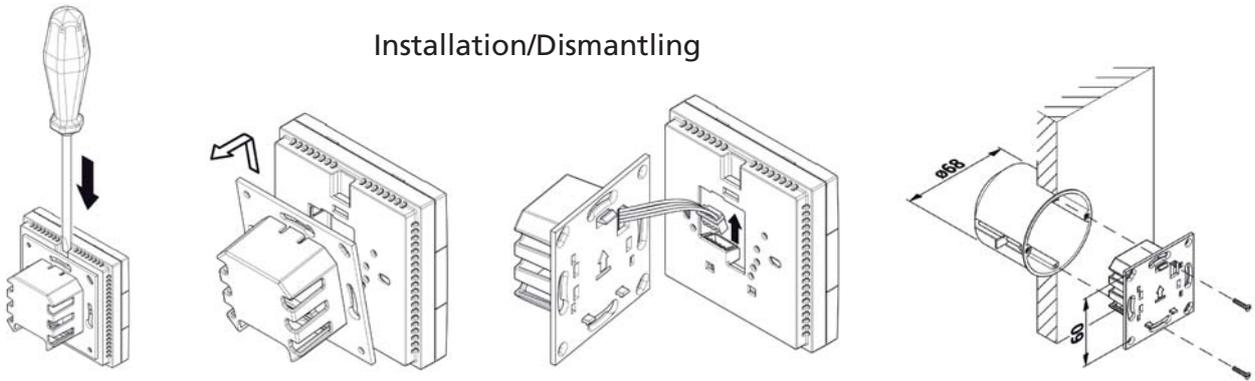
- The electrical cables are connected to the KaControl Venkon in the electrical control box.
- The electrical control box is located behind one of the side mullions and is always mounted on the opposite side to the valve assemblies.
- To connect the electrical cables, open the electrical control box, insert the cables and connect up as per the wiring diagram.
- Dismantle the side mullions as follows:
 - Open the operating flap
 - Loosen the screws on the inside of the side panel
 - Carefully raise the side casing approx. 20 mm until it comes loose from the bracket.
 - Loosen the side mullions towards you.
 - Should a control unit (layout C2) be incorporated in the casing, the cable should be isolated by loosening the reverse polarity protected plug
 - Place the casing in a safe position
- Disconnect the KaControl Venkon prior to embarking on "any" wiring work.



The bus lines should also only be connected to the KaControl Venkon when the unit is fully disconnected.

7.2 KaController

Installation/Dismantling



KaController terminals

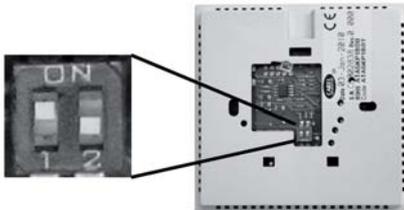
Electrical wiring

- Connect the KaController to the nearest Venkon on the wiring diagram. The maximum bus length between the KaController and Venkon is 30 m.
- By connecting a KaController to it, the respective Venkon automatically becomes the master unit in the control circuit.
- Disconnect the Venkon prior to embarking on "any" wiring work.



The bus lines should also only be connected to the KaController when the unit is fully disconnected.

DIP switch adjustment



DIP switch adjustment
KaController

DIP switch no. 1: ON
DIP switch no. 2: OFF

- The DIP switches on the rear of the KaController should be adjusted in accordance with the illustration at the side:

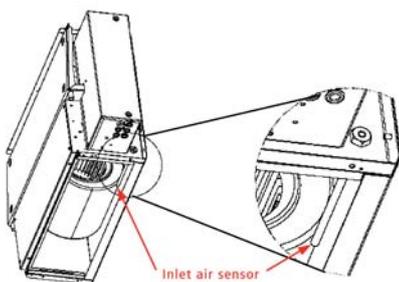
DIP switch no. 1: **ON**
DIP switch no. 2: **OFF**

7.3 Inlet Air Temperature Sensor

- All KaControl PCBs have analogue inputs to register the inlet air temperature.
- An inlet air temperature sensor is incorporated as standard in control layout C2.
- An inlet air temperature sensor can be subsequently fitted into control layout C1 in accordance with the figures.



*Inlet air temperature sensor:
"all" fan convectors in a control zone must be fitted with an inlet air temperature sensor*



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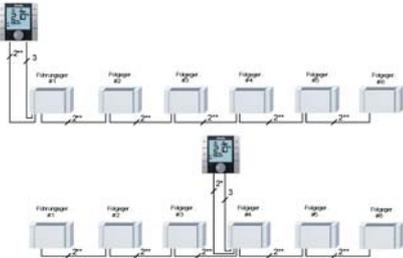
ASSEMBLY AND INSTALLATION INSTRUCTIONS

8. Addressing

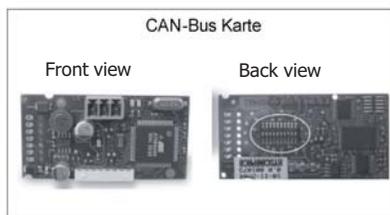
8.1 Single-circuit Controls

8.1.1 Maximum 6 Venkons in One Control Zone

- Venkons in single-circuits with a maximum of 6 units need not be addressed.
- The master unit / slave unit is defined by the connection of the KaController.
- By connecting a KaController to it, the respective Venkon automatically becomes the master unit in the control circuit.
- A master unit must not necessarily be arranged at the end of a bus system.
- All BUS cables must be laid in a linear pattern. Star-shaped wiring is not permitted.



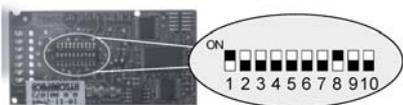
Addressing via DIP switches on the CAN-Bus card



8.1.2 Maximum 30 Venkons in One Control Zone

- Venkons in single-circuits with more than 6 units must be addressed.
- They are addressed by means of DIP switch settings on the CAN bus card.
- The master unit / slave unit is defined by the connection of the KaController.
- By connecting a KaController to it, the respective Venkon automatically becomes the master unit in the control circuit.

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

- Procedure for setting the address using DIP switch settings on the CAN bus card:

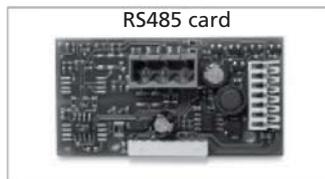
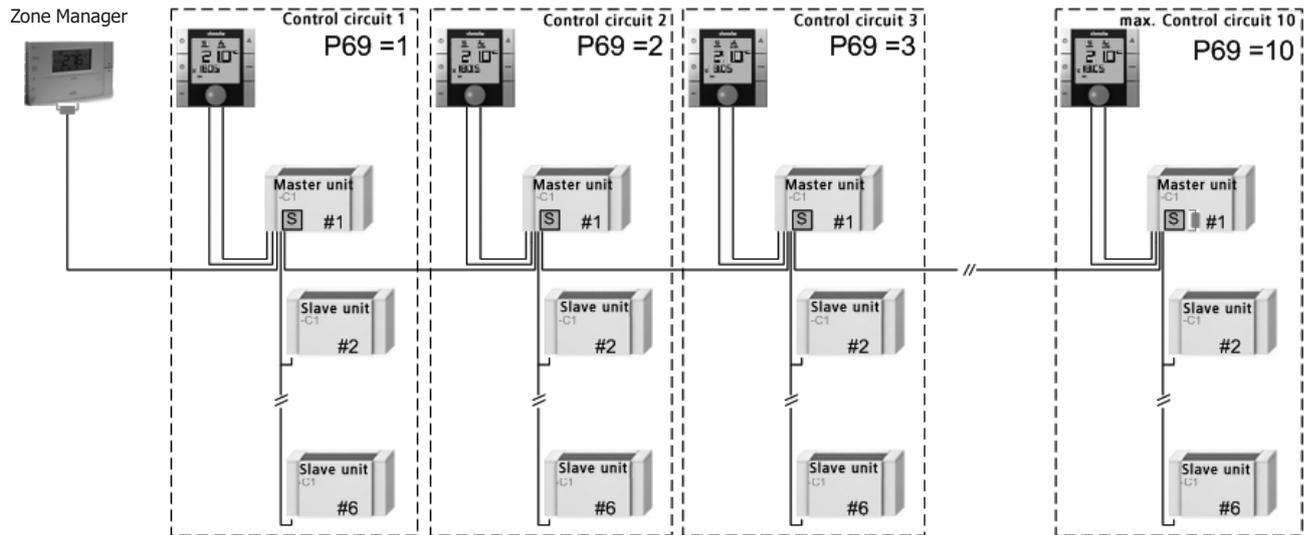
1. Disconnect the Venkon
2. Remove CAN bus card from the basic PCB
3. Set the DIP switch as shown in the figure
4. Refit the CAN bus card to the basic PCB
5. Connect up the bus cable
6. Re-connect the Venkon

- The DIP switches on all CAN bus cards in a control circuit must be set identically!

8.2 Multi-circuit Controls

8.2.1 Maximum 10 Control Zones with up to 6 Venkons in One Control Zone

Addressing needed via parameter settings



- KaControl Venkons in multi-circuit controllers must be addressed, whereas only the master unit needs to be addressed in one control circuit.
- Addressing is done by means of parameter settings in the Service menu using the KaController.
- The master unit / slave unit in a control circuit is defined by the connection of the control unit.
- By connecting a control unit to it, the respective Venkon automatically becomes the master unit in the control circuit.
- A master unit need not necessarily be arranged at the end of a bus system in a control circuit.

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8.2.2 Parameter Settings for Addressing Master Units

The following steps are needed to set the parameters:

1. Switch off the Venkon by:
 - Pressing the ON/OFF key
 - or
 - Pressing the navigator for a minimum of 5 seconds
 - or
 - Turn the navigator to the left until OFF appears
2. Call up the Service menu by pressing the navigator for a minimum of 10 seconds. The message "Para" and the "CODE" with the value 000 is 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. Select parameter P92 (Access to Service level 2) by turning the navigator and enter the value P92=66. You are now in Service level 2. Enter the parameters in accordance with the table below by turning the navigator.
5. Setting parameters:
 - Select the parameter by turning the navigator.
 - Call up Edit mode by pressing the navigator.
 - Enter the required value by turning the navigator.
 - Save the new value by pressing the navigator.
6. There are 3 ways to exit the Service menu and call up the Standard view:
 - If no action has been carried out using the navigator for 2 seconds
 - Hold down the navigator for 5 seconds
 - Press the navigator and select "ESC" in the display and confirm by pressing the navigator

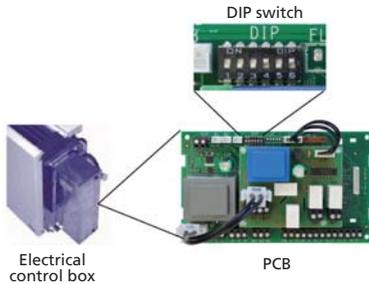


Parameter settings to address the control circuits

Parameter	Name	Setting range
P69	Number of control circuit	1-10
P54	RS485 0 communication	0

9. Setting Configuration of Unit by means of DIP Switches

The configuration of a Venkon (e.g. 2-pipe or 4-pipe operation) is set using the DIP switches on the circuit board. Once the DIP switches have been set, all of the basic configuration functions have been parameterised and the Venkon is immediately ready for operation. Special setting options, such as lowering the temperature setpoint during the night, must be parameterised in the Service menu. This parameterisation is possible using the KaController. Dismantle the side mullions and open the junction box to check and set the DIP switches.



The DIP switches are factory-set in accordance with the unit configuration!

Disconnect the circuit board before starting to adjust the DIP switches.



DIP switch settings on the PCB



DIP1	OFF = No clip-on sensor fitted ON = Clip-on sensor fitted
DIP2	OFF = DI2 not operational ON = H/C changeover via DI2
DIP3	OFF = Operating function lock disabled ON = Operating function lock enabled
DIP4	OFF = 2-pipe system ON = 4-pipe system
DIP5	DIP5 - DIP5 must be turned to OFF
DIP6	OFF = Room control to clip-on temperature sensor ON = Room control to sensor in KaController

DIP switch no. 1

Clip-on sensors (hot water, cold water) can optionally be installed to monitor the water temperatures. The following functions can be triggered by the clip-on sensor:

1. Activation of fan stages if there is hot or cold water in the element in a 2-pipe system (Auto-Eco function)
2. Change-over heating/cooling in a 2-pipe system

If a clip-on sensor is fitted, DIP switch no. 1 must be set to ON. Venkons are supplied as standard without clip-on sensors and DIP switch no.1 has the setting DIP1=OFF.

Factory setting: DIP1= OFF

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DIP switch no. 2

In a 2-pipe system, changeover between heating and cooling is activated by the switching of digital input DI2, with the following operating modes being executed according to the external contact:

Ext. contact open → Heating mode
Ext. contact closed → Cooling mode

Factory setting:

2-pipe system → DIP2 = ON
4-pipe system → DIP2 = OFF

Alternatively the changeover between heating and cooling in a 2-pipe system can also be activated by a clip-on sensor. DIP switch no. 2 must be set to DIP2=OFF with this variation (see Section 10.3.5)

DIP switch no. 3

Operating functions can be locked using DIP switch no. 3. The following functions are possible after setting DIP switch no. 3:

- Switch control on / off
- Set setpoint temperature
- Set fan stage

All other functions, such as the setting of timer programmes, specification of operating mode etc., are not activated.

Factory setting:

DIP3 = OFF

DIP switch no. 4

The convector configuration (2-pipe/ 4-pipe) is set by means of DIP switch no. 4.

Factory setting:

2-pipe system → DIP4 = OFF
4-pipe system → DIP4 = ON

DIP switch no. 5

DIP switch no. 5 must always be set to OFF!

Factory setting:

DIP5 = OFF

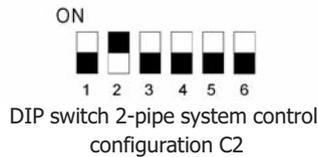
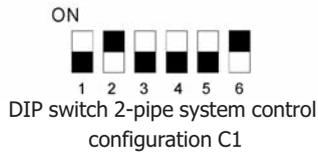
DIP switch no. 6

The internal sensor of the KaController or a clip-on sensor in the Venkon can be used to control the room temperature.

Factory setting:

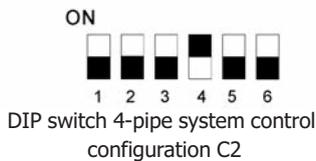
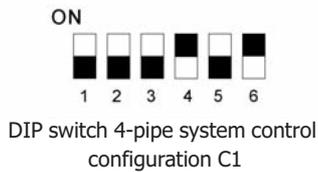
DIP6 = OFF → Room temperature control on a clip-on sensor in the Venkon
DIP6 = ON → Room temperature control on the internal sensor of the KaController

DIP Switch Factory Settings - 2-pipe System



DIP	2-pipe		Functions
	C1	C2	
DIP1	OFF	OFF	Clip-on temperature sensor not fitted
DIP2	ON	ON	H/C changeover via digital input DI2
DIP3	OFF	OFF	Operating function lock disabled
DIP4	OFF	OFF	2-pipe system
DIP5	OFF	OFF	OFF must be set
DIP6	ON	OFF	OFF=Room control to clip-on temperature sensor ON=Room control to sensor in the KaController

DIP Switch Factory Settings - 4-pipe System



DIP	4-pipe		Functions
	C1	C2	
DIP1	OFF	OFF	Clip-on temperature sensor not fitted
DIP2	OFF	OFF	Digital input DI2 not operational
DIP3	OFF	OFF	Operating function lock disabled
DIP4	ON	ON	4-pipe system
DIP5	OFF	OFF	OFF must be set
DIP6	ON	OFF	OFF=Room control to clip-on temperature sensor ON=Room control to sensor in the KaController



When using control configuration C2, all slave units must be fitted with a clip-on temperature sensor.

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10. Parameter Settings

10.1 General

Special system requirements can be configured by means of parameters settings in the Service menu.

Special system requirements may include:

- Display: Room temperature of setpoint temperature
- Lock operating functions
- Set absolute setpoint temperature or $\pm 3K$
- Setting parameters in Eco / Day mode
- Sensor compensation

The required settings can be made using the KaController.



Disconnect and reconnect the power supply to the control unit after changing the parameters!

10.2 Calling up the Service Menu

The following steps are needed to set the parameters:

1. Switch off the Venkon by:
 - Pressing the ON/OFF key
 - or
 - Pressing the navigator for a minimum of 5 seconds
 - or
 - Turn the navigator to the left until OFF appears
2. Call up the Service menu by pressing the navigator for a minimum of 10 seconds. The message "Para" and the "CODE" with the value 000 is 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.
5. Setting parameters:
 - Select the parameter by turning the navigator
 - Call up Edit mode by pressing the navigator
 - Enter the required value by turning the navigator
 - Save the new value by pressing the navigator
6. There are 3 ways 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 the navigator for 5 seconds
 - Press the navigator and select "ESC" in the display and confirm the selection by pressing the navigator



10.3. Parameter Settings

10.3.1 Display of Setpoint Temperature/Room Temperature

Various values can be displayed using the large seven-segment display. The value is set using parameter P37.

Parameter P37

	Operation	Standard	Min	Max	Unit
P37	0 = Room temperature setpoint 1 = Current room temperature 2 = Temperature measurement B2 3 = Temperature measurement B3	0	0	3	



Parameter P36 = 0
"absolute" setting of setpoint temperature

10.3.2 Setting the Setpoint Temperature Absolute or $\pm 3K$

Parameter P36

It may be necessary with office or hotel applications for the system operator to specify a base setpoint. The user not only has the option of changing the setpoint temperature by $\pm 3 K$, to compensate for a differing perception of the room temperature. Alternatively the setpoint can be set in absolute values.



Parameter P36 = 1
Setting of setpoint temperature $\pm 3K$

The setpoint setting can be configured via parameter P36.

	Operation	Standard	Min	Max	Unit
P36	Setpoint setting 0 = Absolute setpoint setting 1 = Setpoint setting $\pm 3 K$	0	0	1	

The base setpoint for the "Setpoint setting + 3 K" can be configured via parameter P01.

	Operation	Standard	Min	Max	Unit
P01	Base setpoint for setpoint adjustment $\pm 3K$	22	8	35	$^{\circ}C$



*When setting the parameters
P37=0 → Display of setpoint temperature
P36=1 → Setpoint setting $\pm 3K$
no setpoint value is shown in the standard view!*

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10.3.3 Operation ON/OFF, Eco/Day

Parameter P38

The ON/OFF key function and the timer programs are specified using parameter P38. The ON/OFF key and the timer programs can be used to switch the unit ON and OFF or to switch between Eco and Day mode.

Option 1:

The ON/OFF key and timer programs are used to switch between Eco mode and Day mode.

Option 2:

The ON/OFF key and the timer programs are used to switch the Venkon on and off.

Parameter P38 can also be set for the "Heating/Cooling changeover via clip-on sensor" function (Section 1.3.5).

	Operation	Standard	Min	Max	Unit
P38	8 = Eco/Day mode changeover 26 = Eco/Day mode changeover + Heating/Cooling changeover via clip-on sensor (2-pipe system) 72 = ON/OFF switchover 90 = ON/OFF switchover + Heating/Cooling changeover via clip-on sensor (2-pipe system)	72	0	255	



Optionally, the Venkon can be switched on and off via an external potential-free contact or changed over between Eco and day mode. For details on the configuration refer to section 10.03.10

10.3.4 Temperature Setpoint in Eco Mode

Parameter P18, P19

Parameter P18 can be used to increase the temperature in cooling mode during Eco operating mode. Parameter P19 can be used to lower the temperature in heating mode during Eco operating mode.

	Operation	Standard	Min	Max	Unit
P18	Temperature increase of cooling setpoint in Eco operating mode	30	0	255	°C/10
P19	Temperature drop in heating setpoint in Eco operating mode	30	0	255	°C/10

The cooling setpoint is raised by 3.0 °C during Eco mode.
The heating setpoint is lowered by 3.0 °C during Eco mode.



The use of the Eco/Day function via the timer program in the KaController can be set via parameter P38 (ON/OFF, Eco/Day function).

10.3.5 Heating/Cooling Changeover via Clip-on Sensor in 2-Pipe Systems

The changeover between heating and cooling is performed as standard in 2-pipe systems via an external contact and the digital input DI2.

If there is no external contact to change over between heating and cooling, the switchover can be made via a clip-on sensor.

The clip-on sensor should be ordered separately and, after installation, wired to the analog input B2 of the PCB (as per the wiring diagram). The configuration is documented in the following descriptions.



The slave units should also be fitted with a clip-on temperature sensor within one control zone.

10.3.5.1 Setting DIP Switch no. 1

If the changeover between heating and cooling is performed by a clip-on sensor, then the DIP switches must be set to

DIP switch no. 1 = ON

DIP switch no. 2 = OFF

The functions of the DIP switches are described in Section 9 "Setting Configuration of Units by Means of DIP Switches".

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10.3.5.2 Automatic Heating/Cooling Changeover Mode Setting

Parameter P38

Parameter P38 is used to set Automatic mode, as Heating and Cooling modes can only be specified via the clip-on sensor.

Parameter P38 can also be set for the "ON/OFF and Eco/Day" function (see Section 10.3.3)

The following table shows the settings of parameter P38.

	Operation	Standard	Min	Max	Unit
P38	8 = Eco/Day mode changeover 26 = Eco/Day mode changeover + Heating/Cooling changeover via clip-on sensor (2-pipe system) 72 = ON/OFF switchover 90 = ON/OFF switchover + Heating/Cooling changeover via clip-on sensor (2-pipe system)	72	0	255	



If switchover is via a clip-on sensor in a 2-pipe system, parameter P38 must be set to P38=26 or P38=90 to meet requirements.

10.3.5.3 Heating Mode Limit Values

Parameter P10, P11, P12

Parameters P10, P11 and P12 can be used to set the limit values for switching on the fan stages in Heating mode.

	Operation	Standard	Min	Max	Unit
P10	Limit value to activate fan stage 1 in Heating mode	29	0	255	°C
P11	Limit value to activate fan stage 2 in Heating mode	33	0	255	°C
P12	Limit value to activate fan stage 3 in Heating mode	37	0	255	°C



The controller permanently monitors the water temperature and only activates Heating mode and the fan stages when the water temperature has exceeded the set limit values.

If the limit temperature as per P10 is not reached after at most 5 minutes, the valve is closed and then reopened for 5 minutes after 4 hours (see Cyclic Opening and Shutting of the Valve).

The heating symbol flashes on the display if Heating mode cannot be switched on because of the water temperature.

10.3.5.4 Cooling Mode Limit Values

Parameter P14

Parameter P14 is used to set the limit value for switching on the fan stages in Cooling mode.

	Operation	Standard	Min	Max	Unit
P14	Limit value temperature to activate the fan stages in Cooling mode	21	0	255	°C



The controller permanently monitors the water temperature and only activates Cooling mode and the fan stages when the water temperature has fallen below the set limit value.

If the temperature as per P14 has not fallen below the limit value temperature after at most 5 minutes, the valve is closed and then reopened for 5 minutes after 4 hours (see Cyclic Opening and Shutting of the Valve).

The cooling symbol flashes on the display if Cooling mode cannot be switched on because of the water temperature

10.3.5.5 Cyclical Opening and Closing of the Straight Way Valve

Parameter P51, P52

The clip-on sensor can only measure the water temperature correctly in 2-pipe systems with a straight way valve if the straight way valve is cyclically opened.

Parameters P51 and P52 can be set to cyclically open and close the valve to check the water temperature.

	Operation	Standard	Min	Max	Unit
P51	Duration of valve open to check water temperature	0	0	255	Minutes
P52	Duration of valve closed	0	0	255	Minutes



If the changeover between Heating and Cooling is activated by a clip-on sensor in a 2-pipe system, then the parameters have to be set as follows: P51 = 5 and P52 = 240.

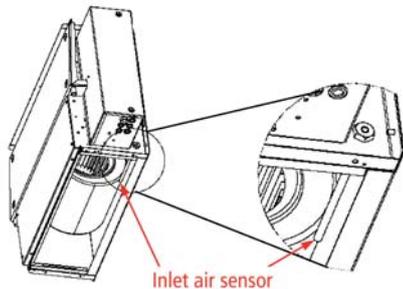
This setting opens the valve every 4 hours for 5 minutes to be able to measure the water temperature correctly in the pipe system.

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10.3.6 Rinsing Function



The fan must be switched on in fan stage 1 after a defined idle time to record the room temperature correctly when using a clip-on sensor in control configuration **C2**.

The rinsing function is always activated when DIP switch no. 6 = OFF.

The clip-on sensor is installed underneath the convector in control configuration C2.

10.3.6.1 Fan Idle Time and Running Time During Rinsing Function

Parameter P32, P33

The maximum idle time of the fan and the duration of the rising function are specified via parameters P32 and P33.

	Operation	Standard	Min	Max	Unit
P32	Maximum idle time of fan	2	0	255	Minutes
P33	Duration of rinsing function	90	0	255	Seconds

10.3.6.2 Rinsing Function, Operating Modes

Parameter P34

Parameter P34 sets the operating mode in which the rinsing function is enabled.

	Operation	Standard	Min	Max	Unit
P34	0 = Rinsing function disabled 1 = Rinsing function enabled in: - Cooling mode - Automatic mode 2 = Rinsing function enabled in: - Heating mode - Automatic mode 3 = Rinsing function enabled in: - Cooling mode. - Heating mode - Automatic mode	0	0	3	

10.3.7 Auto-Eco Function

There is an option to lock the fan stages depending on the water temperature using the clip-on sensor. This application enables the central raising or lowering of the water temperatures in the building and can be detected and managed on the respective Venkon.



When a clip-on sensor is used, DIP switch no. 1 must be set to ON (see Section 9 "Setting Unit Configuration by Means of DIP Switches").

10.3.7.1 Limit Value of Water Temperature in Heating Mode

Parameter P10, P11, P12

Parameters P10, P11 and P12 can be used to set the limit values for switching on the fan stages in Heating mode

	Operation	Standard	Min	Max	Unit
P10	Limit value to activate fan stage 1 in Heating mode	29	0	255	°C
P11	Limit value to activate fan stage 2 in Heating mode	33	0	255	°C
P12	Limit value to activate fan stage 3 in Heating mode	37	0	255	°C

10.3.7.2 Limit Value of Water Temperature in Cooling Mode

Parameter P14

Parameter P14 is used to set the limit value for switching on the fan stages in Cooling mode.

	Operation	Standard	Min	Max	Unit
P14	Limit value temperature to activate the fan stages in Cooling mode	21	0	255	°C

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10.3.8 Display of Heating Symbol / Cooling Symbol

Parameter P55

Parameter P55 can be switched on and off to display the heating and cooling system in Automatic mode.

	Operation	Standard	Min	Max	Unit
P55	0 = Heating and cooling symbols are permanently hidden 1 = Heating and cooling symbols are shown depending on requirements	1	0	1	

10.3.9 Function of Analogue Inputs B1, B2 and B3

The functions of the analogue inputs are specified by the DIP switch settings and cannot be changed via the parameter settings.

The user has the option of calibrating the temperature sensor to the analogue inputs B1-B3 using offset values. The temperature sensor should be calibrated during initial commissioning and at every service.

10.3.9.1 Sensor Calibration

Parameter P58 – P65

Parameters P58 - P65 can be used to calibrate the sensor. The temperature sensor should be calibrated during initial commissioning and at every service.

	Operation	Standard	Min	Max	Unit
P58	Offset analog input B1 in Cooling mode	0	-99	127	°C/10
P59	Offset analog input B1 in Heating mode	0	-99	127	°C/10
P60	Offset analog input B1 in Automatic mode	0	-99	127	°C/10
P61	Offset sensor in the KaController	0	-99	127	°C/10
P62	Offset analog input B2 in Cooling mode	0	-99	127	°C/10
P63	Offset analog input B2 in Heating mode	0	-99	127	°C/10
P64	Offset analog input B3 in Cooling mode	0	-99	127	°C/10
P65	Offset analog input B3 in Heating mode	0	-99	127	°C/10



The temperature setpoint is shown as standard in the display. The measured temperature must be displayed to calibrate the sensor.

Parameters P37=1 must be set so that the room temperature can be displayed (Room temperature shown in the display, see Section 10.3.1).

10.3.10 Function of Digital Inputs DI1, DI2, DI3, DI4 and DI5

10.3.10.1 Digital Input DI1

The function of the digital input DI1 is specified and cannot be changed using parameters.

Ext. contact	Operation
Open	The unit is activated to switch on and off via the KaController.
Closed	The unit is OFF and cannot be switched on and off via the KaController

10.3.10.2 Digital input DI2

The function of the digital input DI2 is specified and is enabled via DIP switch no. 2.
The polarity of the digital input DI2 is set using parameter P56 when setting DIP switch no. 2.

	Operation	Standard	Min	Max	Unit
P56	Polarity of DI2 if DIP2=ON (Heating/Cooling changeover via DI2) 0 = Contact closed → Heating Contact open → Cooling 1 = Contact open → Heating Contact closed → Cooling	1	0	2	

10.3.10.3 Digital input DI3

The function of the digital input DI3 is specified and cannot be changed using parameters. External switching is not intended as standard.

Parameter P43 must be set to P54=10 for digital input DI3.

	Operation	Standard	Min	Max	Unit
P43	Function of DI3 10 = Evaluation of thermal contact of the fan motor	10	0	10	

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10.3.10.4 Digital Input DI4

The function of the digital input DI4 is specified and cannot be changed using parameters. External switching is not intended as standard.

Parameter P44 must be set to P44=4 for digital input DI4.

	Operation	Standard	Min	Max	Unit
P44	Function of DI4 4 = Evaluation of condensation alarm	4	0	10	

10.3.10.5 Digital Input DI5

The function of the digital input DI5 can be set using parameter P45.

	Operation	Standard	Min	Max	Unit
P45	Function of DI5 0 = no function 1 = Eco/Day mode --- (contact open → Day) 6 = Eco/Day mode --- (contact open → Eco mode)	1	0	10	

10.3.11 Function of Digital Outputs No4, No5, No6 and No7

In the standard model, the functions of the digital outputs No4 and No5 are specified by the DIP switch settings. The function of the digital outputs No6 and No7 can be set using parameters P41 and P42.

The setting for the valve PCBs to activate 0...10 V or 3-point actuators is described in section 10.3.11.3.

10.3.11.1 Digital Output No6

The function of the digital output No6 can be set using parameter P41.

	Operation	Standard	Min	Max	Unit
P41	0 = Output disabled 3 = Cooling requirement 4 = Heating requirement 7 = Unit malfunction 8 = Cooling requirement or heating requirement	3	0	18	

10.3.11.2 Digital Output No7

The function of the digital output No7 can be set using parameter P42.

	Operation	Standard	Min	Max	Unit
P42	0 = Output disabled 3 = Cooling requirement 4 = Heating requirement 7 = Unit malfunction 8 = Cooling requirement or heating requirement	4	0	18	

10.3.11.3 PCB Settings for 0..10 V Actuators and 3-Point Actuators

The KaControl PCB provides the options of accommodating different valve circuit boards using a plug-in connection.

Standard valve circuit board:

No4: Digital output 230 V heating/cooling valve

No5: Digital output 230 V heating valve

No6: Potential-free relay contact

No7: Potential-free relay contact

Outputs No4 and No5 can only be configured using DIP switch settings.

Outputs No6 and No7 are configured using parameters P41 and P42 (see sections 11.3.11.1 and 11.3.11.2).

Valve PCB to activate continuous valve drives 0..10V (non-standard models):

No4: Digital output 0.10 V heating/cooling valve

No5: Digital output 0.10 V heating/cooling valve

No6: Potential-free relay contact

No7: Potential-free relay contact

The valve PCB must be configured using parameter settings!

Valve PCB to activate continuous 3-point valve drives 230 V (non-standard models):

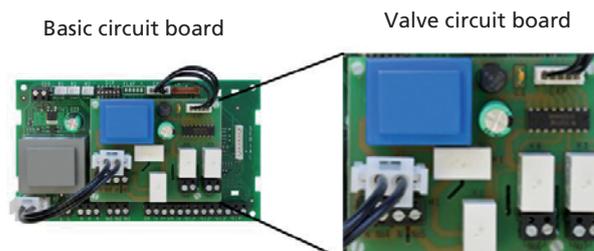
No4: Output 230 V valve OPEN heating/cooling

No5: Output 230 V valve OPEN heating/cooling

No6: Output 230 V valve OPEN heating

No7: Output 230 V valve CLOSED heating

The valve PCB must be configured using parameter settings!



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Parameter setting of valve circuit board for 0..10 V actuators

Parameters P39-P42, P95, P108, P109, P114, P115

The functions of the "Valve circuit board to activate 0..10 V actuators" is configured using the following parameters.

	Operation	0..10V activation	Min	Max	Unit
P39	13 = Output No4 on the valve circuit board: heating/cooling valve 0..10 V	13	0	18	
P40	14 = Output No5 on the valve circuit board: heating valve 0..10 V	14	0	18	
P41	3 = Output No6 on the valve circuit board: cooling requirement	3	0	18	
P42	4 = Output No7 on the valve circuit board: heating requirement	4	0	18	
P95	1 = To activate the valve circuit board for 0..10 V actuators set parameter P95 = 1.	1	0	1	
P108	Reset time of PI controller to activate continuous valve drives Recommended reset time when using a PI controller: Reset time=600 sec → Setting figure=60	60	0	255	sec. *10
P109	Neutral zone	2		255	°C/10
P114	P-band of PI controller to activate continuous valve drives in Cooling mode. Recommended P-band when using a PI controller: P-band for heating=3K → setting figure = 30	30	0	255	°C/10
P115	P-band of PI controller to activate continuous valve drives in Heating mode. Recommended P-band when using a PI controller: P-band for cooling=3K → setting figure = 30	30	0	255	°C/10



The first step when configuring the 0..10 V valve circuit board is to set parameter P95 = 1!

Parameter settings of valve circuit board for 3-point actuators

Parameters P39–P42, P95, P97, P108, P109, P114, P115

The functions of the "Valve circuit board to activate 3-point actuators" can be configured using the following parameters.

	Operation	3-point activation	Min	Max	Unit
P39	9 = Output No4 on the valve circuit board: Heating/cooling valve OPEN	9	0	18	
P40	10 = Output No5 on the valve circuit board: Heating/cooling valve CLOSED	10	0	18	
P41	11 = Output No6 on the valve circuit board: Heating valve OPEN	11	0	18	
P42	12 = Output No7 on the valve circuit board: Heating valve CLOSED	12	0	18	
P95	1 = Set parameter P95 = 1 to activate the valve circuit board for 3-point actuators	1	0	1	
P97	Running time of actuators for heating and cooling. The running time should be set in line with the technical details of the actuators!	255	0	255	sec .
P108	Reset time of PI controller to activate continuous valve drives. Recommended reset time when using a PI controller: Reset time=600 sec → Setting figure=60	60	0	255	sec . *10
P109	Neutral Zone	2	0	255	°C/10
P114	P-band of the PI controller to activate continuous valve drives in cooling mode. Recommended P-band when using a PI controller: P-band for heating=3K → setting figure=30	30	0	255	°C/10
P115	P-band of the PI controller to activate continuous valve drives in heating mode. Recommended P-band when using a PI controller: P-band for cooling=3K → Setting figure=30	30	0	255	°C/10



The first step when configuring the 3-point valve circuit board is to set parameter P95 = 1!

Parameter P100, P101

The "Valve anti-blocking protection" can be configured using the following parameters. The function is only available for valves with 3-point actuators.

	Operation	Standard	Min	Max	Unit
P100	Maximum time of closed valve	4	0	255	Hours
P101	Valve lift while "Valve anti-blocking protection" is running	20	0	100	% Hub

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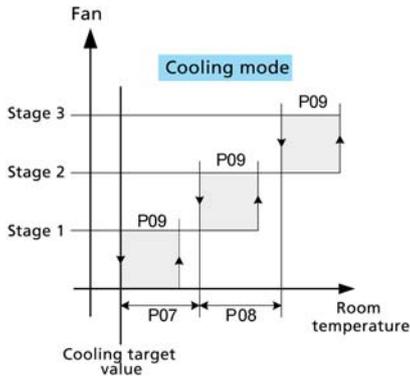
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10.3.12 Fan Settings

10.3.12.1 Automatic Fan Mode

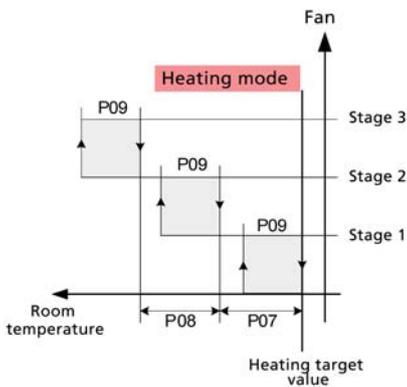
In Automatic fan mode, the fan stages are switched on and off depending on the room temperature control.

Automatic fan mode is set using parameters P07, P08 and P09.



Parameter setting of Automatic fan mode

	Operation	Standard	Min	Max	Unit
P07	see Figures	7	0	255	°C/10
P08	see Figures	7	0	255	°C/10
P09	see Figures	5	0	255	°C/10



The following switching on limits for the fan stages are produced by the standard settings depending on the difference between target value and actual value (room temperature):

Target value – actual value difference 0.5 K: Stage 1

Target value – actual value difference 1.2 K: Stage 2

Target value – actual value difference 1.9 K: Stage 3

10.3.12.2 Manual Fan Mode

If a fan stage is set manually by the user, then the controller works as a thermostat. The switching on and off hysteresis for heating and cooling mode is set using parameter P06.

Parameter P06

Parameter P06 is used to set the switching on and off hysteresis in Manual fan mode.

	Operation	Standard	Min	Max	Unit
P06	Switching on and off hysteresis in manual fan mode	3	0	255	°C/10

10.3.12.3 Continuous Fan Mode

Parameter P29 can be used to activate Continuous fan mode. In Continuous fan mode, the fan remains switched on at the preset fan stage, even if the room temperature has reached the target figure (in Automatic fan mode Stage 1 remains active).

Parameter P29

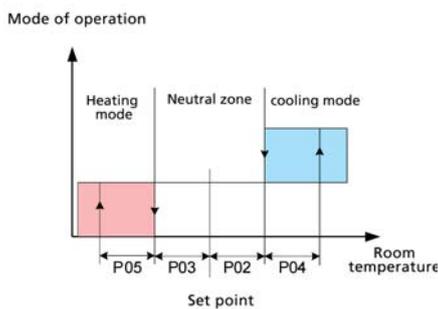
Parameter P29 is used to set continuous fan mode.

	Operation	Standard	Min	Max	Unit
P29	0=Continuous fan mode disabled 1=Continuous fan mode enabled	0	0	1	

10.3.13 Automatic Mode Settings in 4-Pipe Systems

In 4-pipe systems, the controller automatically specifies the operating mode in Automatic mode according to the room temperature and the set target value.

Automatic mode can be set using parameters P02, P03, P04 and P05.



	Operation	Standard	Min	Max	Unit
P02	see Figures	5	0	255	°C/10
P03	see Figures	5	0	255	°C/10
P04	see Figures	10	0	255	°C/10
P05	see Figures	3	0	255	°C/10

Automatic mode in 4-pipe systems

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10.3.14 Locking Operating Options or Functions, Parameter 38

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

Parameter P38 must be used for the following (among other functions):

- ON/OFF function, Eco/Day as outlined in section 10.3.3
- Heating/cooling changeover function in a 2-pipe system in line with section 10.3.5

	Operation	Standard	Min	Max	Unit
P38	Blocking of operating options or functions	72	0	255	

Every operating option or function is allocated a defined value.

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

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

Example: Lock

- Eco/Day function
- Ventilation-only operating mode

	Value	
Automatic operating mode	1	-
Cooling-only operating mode	2	-
Real-time clock	4	-
Ventilation-only operating mode	8	8
Heating-only operating mode	16	-
Automatic fan operation	32	-
Eco/Day function	64	64
Timer programs	128	-
Setting parameter P38: (Example)		72

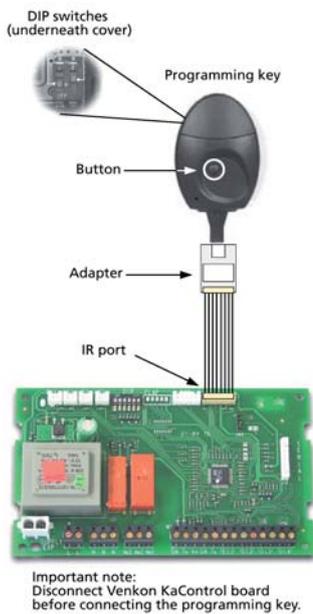
Example: Lock

- Eco/Day function
- Ventilation-only operating mode
- Cooling-only operating mode
- Heating-only operating mode

	Value	
Automatic operating mode	1	-
Cooling-only operating mode	2	2
Real-time clock	4	-
Ventilation-only operating mode	8	8
Heating-only operating mode	16	16
Automatic fan operation	32	-
Eco/Day function	64	64
Timer programs	128	-
Setting parameter P38: (Example)		90



If Eco/Day function is locked, the ON/OFF function is automatically enabled (see section 10.3.3).



10.4 Programming Key

Programming Key

After the parameters have been set, setup can be simply copied to other Venkon circuit boards with the aid of the programming key. Please follow the following steps to copy setup:

1. Disconnect the previously programmed Venkon KaControl circuit board.

Read parameters

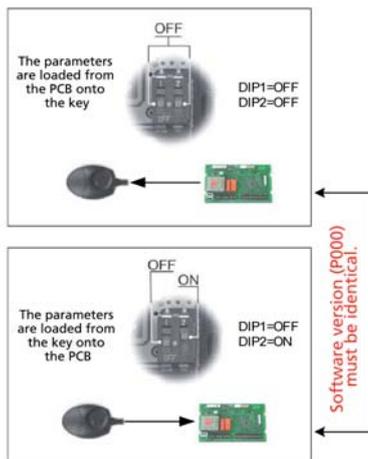
2. Set the DIP switch of the programming key to Read mode (DIP1 =OFF, DIP20 =OFF). The DIP switches are located underneath the cover!
3. Plug the key into the 8-pin plug labelled IR on the Venkon circuit board using the adapter cable.
4. Press the button on the programming key. If the copy is successful, 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 Venkon 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=33" for instance and then write the parameters to a control board using software version "P000=37".

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11. Control PCB Parameter List

The parameters can be called up in the Service menu and adapted to meet the needs of the system.

The steps to call up the Service menu are described in section 10.2.

	Operation	Standard	Min	Max	Unit	Note
P000	Software version (read-only)		0	255	-	
P001	Basic target value for Setpoint input + 3K	22	8	32	°C	Page 37
P002	Neutral zone - Cooling in Automatic mode	5	0	255	°C/10	Page 51
P003	Neutral zone - Heating in Automatic mode	5	0	255	°C/10	Page 51
P004	Switching on/off hysteresis - Cooling in Automatic mode	10	0	255	°C/10	Page 51
P005	Switching on/off hysteresis - Heating in Automatic mode	3	0	255	°C/10	Page 51
P006	Switching on/off hysteresis in manual fan mode	5	0	255	°C/10	Page 50
P007	Automatic fan mode: Stage 2 activation	7	0	255	°C/10	Page 59
P008	Automatic fan mode: Stage 3 activation	7	0	255	°C/10	Page 50
P009	Automatic fan mode: Switching on/off hysteresis stages	5	0	255	°C/10	Page 50
P010	Clip-on sensor: Limit value temperature to activate fan stage 1 in Heating mode	29	0	255	°C	Page 40, 43
P011	Clip-on sensor: Limit value temperature to activate fan stage 2 in Heating mode	33	0	255	°C	Page 40, 43
P012	Clip-on sensor: Limit value temperature to activate fan stage 3 in Heating mode	37	0	255	°C	Page 40, 43
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	21	0	255	°C	Page 41, 43
P015	Operation of input B1	0	0	6	-	Page 44
P016	Operation of input B2	0	0	6	-	Page 44
P017	Operation of input B3	0	0	6	-	Page 44
P018	Temperature increase of cooling setpoint in Eco mode	30	0	255	°C/10	Page 39
P019	Temperature drop of heating setpoint in Eco operating mode	30	0	255	°C/10	Page 39
P020	It is imperative that the standard value is set	6	0	15	-	
P021	It is imperative that the standard value is set	6	0	15	-	
P022	It is imperative that the standard value is set	0	0	1	-	
P023	It is imperative that the standard value is set	0	-99	127	°C/10	
P024	It is imperative that the standard value is set	0	-20	20	1/10	
P025	It is imperative that the standard value is set	0	-99	127	°C/10	
P026	It is imperative that the standard value is set	0	-20	20	1/10	
P027	It is imperative that the standard value is set	0	0	2	-	
P028	It is imperative that the standard value is set	0	1	3	-	
P029	Activation of continuous fan mode	0	0	1	-	Page 51
P030	It is imperative that the standard value is set	15	0	255	°C	

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	Operation	Standard	Min	Max	Unit	Note
P043	Digital input DI3	10	0	10	-	Page 45
P044	Digital input DI4	4	0	10	-	Page 46
P045	Digital input DI5 0 = no function 1 = Eco/Day mode -- (contact open→ Day) 6 = Eco/Day mode --- (contact open→ Eco mode)	1	0	10	-	Page 46
P046	It is imperative that the standard value is set	30	0	255	°C/10	
P047	It is imperative that the standard value is set	40	0	255	°C	
P048	It is imperative that the standard value is set	20	0	255	s	
P049	It is imperative that the standard value is set	3	0	255	Min	
P050	It is imperative that the standard value is set	15	0	255	Min	
P051	Duration of valve opened to check water temperature	0	0	255	Min	Page 41
P052	Duration of valve closed	0	0	255	Min	Page 41
P053	It is imperative that the standard value is set	0	0	255	Min	
P055	Display of Heating/Cooling symbols in Automatic mode: 0 = Heating/Cooling symbols disabled in Automatic mode 1 = Heating/Cooling symbols enabled in Automatic mode	1	0	1	-	Page 44
P056	Setting of DI2: if DIP4=ON 0 = Contact closed → Heating Contact open → Cooling 1 = Contact closed → Cooling Contact open → Heating	1	0	1	-	Page 45
P057	Mains frequency 0 = 50 Hz 1 = 60 Hz	0	0	1	-	
P058	Offset analogue input B1 in Cooling mode	0	-99	127	°C/10	Page 44
P059	Offset analogue input B1 in Heating mode	0	-99	127	°C/10	Page 44
P060	Offset analogue input B1 in Automatic mode	0	-99	127	°C/10	Page 44
P061	Offset sensor in the KaController	0	-99	127	°C/10	Page 44
P062	Offset analogue input B2 in Cooling mode	0	-99	127	°C/10	Page 44
P063	Offset analogue input B2 in Heating mode	0	-99	127	°C/10	Page 44
P064	Offset analogue input B3 in Cooling mode	0	-99	127	°C/10	Page 44
P065	Offset analogue input B3 in Heating mode	0	-99	127	°C/10	Page 44
P092	Password for Service level 2	0	0	255	-	Password: 66
P093	It is imperative that the standard value is set	0	0	3	-	
P094	It is imperative that the standard value is set	60	1	255	Min	
P095	To activate the valve circuit board for 0..10 V or 3-point actuators parameter P95 must be 1	0	0	1	-	Page 47, 48, 49

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	Operation	Standard	Min	Max	Unit	Note
P097	Runtime of the 3-point actuators for Heating/Cooling	120	1	255	s	Page 49
P099	It is imperative that the standard value is set	5	0	100	%	
P100	Anti-blocking protection of 3-point actuators Maximum time of closed valve	4	0	255	Hours	Page 49
P101	Anti-blocking protection of 3-point actuators Valve lift while "Anti-blocking protection" is running	20	0	100	%	Page 49
P107	It is imperative that the standard value is set	1	0	3		
P108	Reset time of PI controller Use only with special valve PCB	0	0	255	sec*10	Page 48, 49
P109	Neutral zone Use with special valve PCB	0	0	20	Min	Page 48, 49
P111	It is imperative that the standard value is set	30	0	255	°C/10	
P112	It is imperative that the standard value is set	5	0	255	°C/10	
P114	P-band of cooling valve Use only with special valve PCB	0	0	255	°C/10	Page 48, 49
P115	P-band of heating valve Use only with special valve PCB	0	0	255	°C/10	Page 48, 49
P116	It is imperative that the standard value is set	0	0	255	°C/10	
P117	It is imperative that the standard value is set	0	0	1		
P123	It is imperative that the standard value is set	0	0	1		
P124	It is imperative that the standard value is set	0	0	1		

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12. 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 using inputs on the KaController.

The functional test of the connected assemblies is called up and implemented by the following operating steps:

1. Switch off the Venkon 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 function test of the connected assemblies can start.

Important 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 has been completed (L15).

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Step	Input and output	Display flashes	Display does not flash
L01*	Input B1	Sensor faulty	Sensor ok
L02*	Input B2	Sensor faulty	Sensor ok
L03*	Input B3	Sensor faulty	Sensor ok
L04	Input DI1	Contact open	Contact closed
L05	Input DI2	Contact open	Contact closed
L06	Input DI3	Contact open	Contact closed
L07	Input DI4	Contact open	Contact closed
L08	Input DI5	Contact open	Contact closed
L09	No1	--	Fan stage 1 enabled
L10	No2	--	Fan stage 2 enabled
L11	No3	--	Fan stage 3 enabled
L12**	No4	--	Power connected
L13**	No5	--	Power connected
L14**	No6	--	Relay switching
L15**	No7	--	Relay switching

* The control automatically detects the requisite sensors at the analogue inputs B1-B3 via the DIP switch settings. If sensors are defective or not connected, this is shown by the respective display (L01-L03) flashing.

** Outputs No4-No7 can only be tested when using the standard valve PCB.



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

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13. KaController Parameters

13.1 General

Specific user requirements can be enabled and disabled by means of parameter settings in the KaController, for instance the minimum and maximum setpoint temperature can be set using parameters in the KaController.

13.2 Calling Up the KaController Parameter Menu



The following steps are needed to set the parameters:

1. Switch off the Venkon 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.

Setting parameters:

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

There are 3 ways 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 the navigator for 5 seconds
- By turning the navigator, select "ESC" on the display and confirm the selection by pressing the navigator.



13.3 KaController parameter list

	Operation	Standard	Min	Max	Unit	Note
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 depending 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	-	

CE

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