Functions room automation

Specification heating / cooling / automatic / day / eco superordinate based on the date, position of the sun, outside temperature, inside temperature, window contact of individual rooms or similar.

Specification of the basic setpoints, if necessary, also depending on the outside temperature.

Selection of the fan speed depending on the target / actual temperature.

Optional:
> Speed limitation parameterized ex works for fan speed or automatic mode
> Change in P-component: fan inertia Automatic

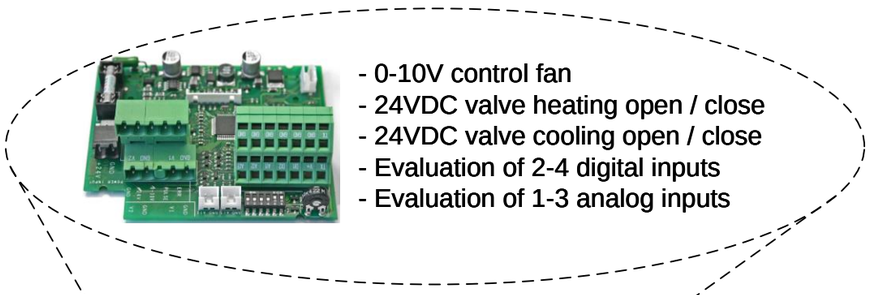
The number of required connection wires including protective conductor is indicated on the individual control sections.
* Lay shielded cables (e.g. IY (ST) Y, 0.8 mm), separate from power cables
** Lay shielded, paired cables, e.g. UNITRONIC® BUS LD 2x2x0.22 or equivalent, separately from power cables.

Settings to be made for each device, on site or at the factory:

Mount the Modbus interface cards
Parameter 54 = 1 (activate Modbus protocol)
Parameter 69 = set Modbus address

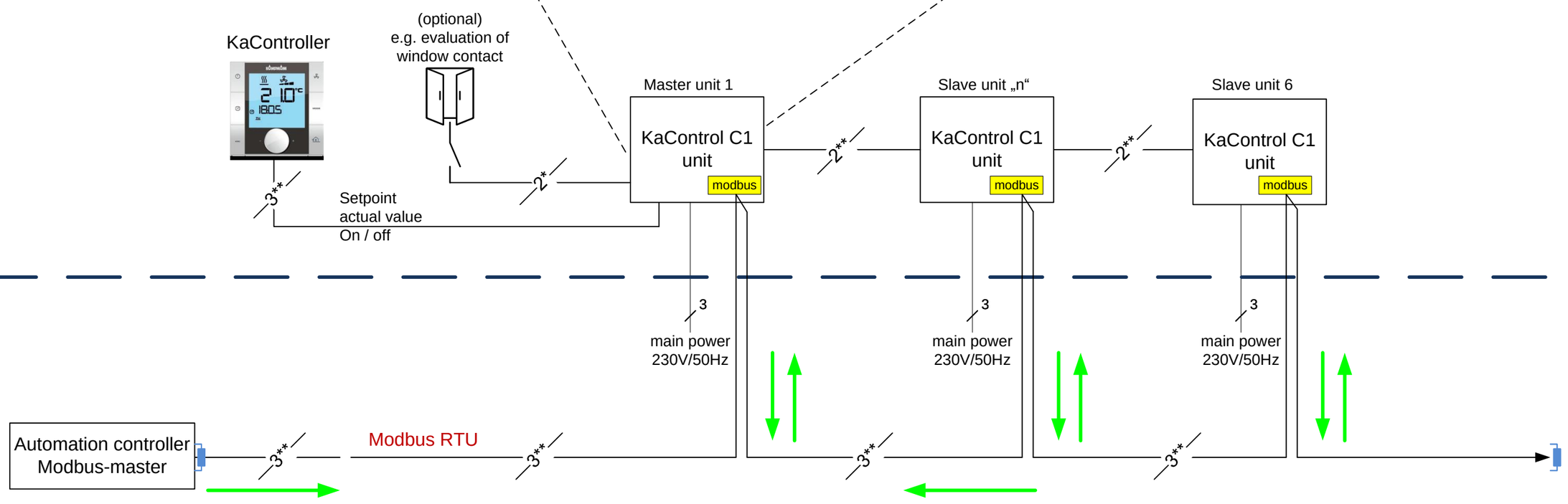
Modbus Modbus RS485 card
Type 3260101

120 Ohm resistor
Modbus terminating resistor



Shown is a room control that can be expanded to a total of 6 devices and allows a maximum cable length of the internal bus of 30m!

The Modbus cards in the downstream devices are optional for recording feedback!



Basic setpoint, setpoint
Fan level 0-5, automatic 0-100%
Operating mode heating/cooling/automatic
Setback mode day/eco, on/off

actual value
Heating requirement
Cooling requirement
Device malfunction: motor malfunction, room frost protection, condensate alarm, Device frost protection, sensor value missing

KaControl	editor:	Schomaker, Alexander	Project:			Description: Room layout KaControl C1 with KaController	Sheet: 1 von 3
	creation date:	29.09.2021					
	modification:		Project no.:		Assignment:		

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Functions room automation

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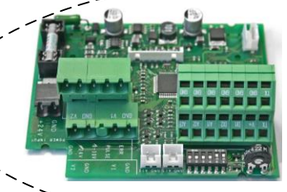
Settings to be made for each device, on site or at the factory:
Mount the Modbus interface cards
Parameter 54 = 1 (activate Modbus protocol)
Parameter 69 = set Modbus address
Insert a 1 kOhm resistor between V + and GND
Insert a 10kOhm resistor between AI1 and GND

Modbus Modbus RS485 card
Type 3260101

1 kOhm resistor (V + / GND)
Established as a master device
(for processing Modbus data)

10 kOhm resistor (AI1 / GND)
Definition for the master device
(for processing Modbus data)

120 Ohm resistor
Modbus terminating resistor



- 0-10V control fan
- 24VDC valve heating open / close
- 24VDC valve cooling open / close
- Evaluation of 2-4 digital inputs
- Evaluation of 1-3 analog inputs

on site

Room control unit for integration in the Modbus RTU network (optional)

Master unit
KaControl C1 unit
modbus

Master unit
KaControl C1 unit
modbus

Master unit
KaControl C1 unit
modbus

(optional)
e.g. evaluation of window contact

Basic setpoint

3

main power 230V/50Hz

3

main power 230V/50Hz

3

main power 230V/50Hz

Modbus binary input

evaluation presence (optional)

Window contact

Presence notification

Automation controller Modbus-master

3**

Modbus RTU

3**

3**

3**

3**

3**

Basic setpoint, setpoint
Fan level 0-5, automatic 0-100%
Operating mode heating/cooling/automatic
Setback mode day/eco, on/off,
actual value

Heating requirement
Cooling requirement
Device malfunction: motor malfunction, room frost protection, condensate alarm, Device frost protection, sensor value missing

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	modification:		Project no.:		Assignment:		

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Modbus in general

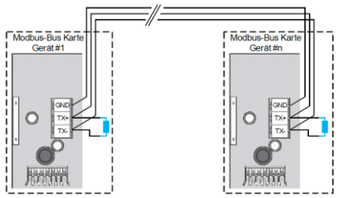
1.Laying of cables
Shielded, paired cables are to be used as BUS cables, e.g. UNITRONIC® BUS LD 2x2x0.22 or CAT5 (AWG23), but at least equivalent.
When laying the bus lines, the formation of star points, e.g. B. in junction boxes to avoid. The lines must be looped through on the devices!

right! **->** Linear routing of the bus lines.

wrong! **->** Star-shaped laying of the bus lines.

Total length of the bus line of the Modbus line max. 500m

2.Termination resistors in a Modbus system
Before setting the terminating resistor, the control unit must be disconnected from the power supply. At the first and last Modbus participant in a Modbus line, a terminating resistor must be connected between the "+" and "-" terminals.



Resistance value terminating resistor: 120 Ohm.

3. Addressing the MODBUS slave ID
The KaController can be switched off by:
■ Press the ON / OFF button or
■ Print the navigator for at least 5 seconds or
■ Turn the navigator to the left until OFF is displayed.

Call up the service menu by pressing the navigator for at least 10 seconds.
The message "Para" and then "CODE" with the value "000" appear in sequence in the display.

Select the password (code) 22 by turning the navigator and confirm by pressing the navigator.
You are now in service level 1 and the current software version (P000 = ...) is shown on the display.

Turn the navigator dial to select parameter P92 (access to service level 2) and set the value P92 = **66**. You are now in service level 2 and can enter the parameters according to the table by turning the navigator.

Setting parameters:
■ Select the parameter by turning the navigator.
■ Call up the edit mode by printing the navigator.
■ Set the required value by turning the navigator.
■ Save the new value by printing the navigator.

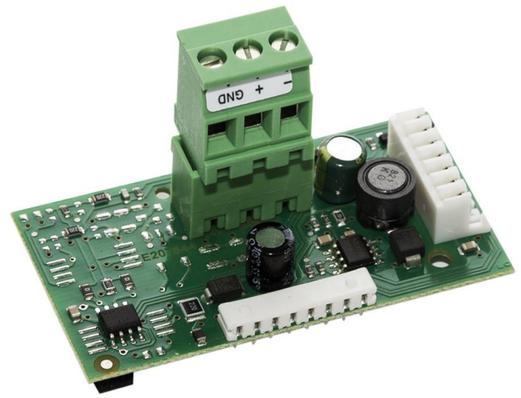
Leaving the service menu:
■ Do not perform any operation via the navigator for longer than 2 minutes.
■ Hold down the navigator for at least 5 seconds.
■ Turn the navigator dial to select "ESC" in the display and confirm the selection by pressing the navigator dial.

Parameter setting of the KaControl control board to activate Modbus communication

	Function	Standard	Min	Max	Unit	Comment
P054	0 = KaControl protocol 1 = Modbus protocol For communication of a KaControl control board in a Modbus network, parameter P054 must be set to P054 = " 1 "!	0	1	2	-	
P069	Slave ID in the Modbus network	1	0	207	-	

Note:
After setting the Modbus address, the device must operate once for at least 10 seconds
Be switched off!

4. Configuration of the Modbus interface of the master unit
(PC, PLC, etc.)

Transmission type:	Modbus RTU	**Note:** The settings of the Modbus interface are fixed and can NOT be adjusted!
Baud-Rate:	9600	
Parity:	None	
Bits:	8	
Stop-Bits	2	

5.Modbus interface card type 3260101