Control and Regulation Technology

For an optimum climate

Genau mein Klima.

KAMPMANN

We have been the market leader for over 50 years

With over 1000 employees at 16 sites around the world, Kampmann is one of the leading companies in the construction and building services sector. Kampmann systems for heating, cooling and ventilation are at the forefront of different market segments today.

My kind of climate.

KAMPMANN

INHALT

Extensive control options

Kampmann products are available with two control versions. The "electromechanical control" version (12 or 14-digit article number with the suffix 00) is ideal for control by the customer and for use with simple accessories, such as thermostats and fan speed controllers. The "KaControl MC" version (14-digit article number with the suffix M1 or M2) is an advanced and convenient solution for the control of individual rooms or for integration into an overall system. The required control version needs to be taken into account when selecting the unit, e.g. by selecting the article number with the suffix M1 or M2 with the KaControl MC version.

Example of selecting the unit for control

Product range	Electromechanical	KaControl MC1	KaControl MC2
TOP unit heaters	153000473058	153000473058**M1**	153000473058**M2**
KaDeck fan coils	32612626211**100**	326126262111**M1**	326126262111**M2**
Katherm HK	14329261111**900**	143292611119**M1**	143292611119**M2**

Electromechanical control

With the electromechanical version, all factory-fitted actuators are wired to the terminal. This also includes factory-fitted accessories, such as valve actuators and condensate pumps. Suitable support terminals are also available for on-site installation. The speed of the built-in EC fans can be infinitely controlled via a 0-10 V DC signal. “Intelligent” motor electronics built into the fans continuously monitor operation and detect potential motor malfunctions. In the event of a malfunction, the fan shuts down automatically. Either thermostats supplied by the customer or a building management system (BMS) can be used to operate and control the units. Kampmann also offers an extensive range of controllers as accessories.

KaControl MC control

KaControl MC is a fully-fledged comfort control which can be used to control individual rooms, groups of units, and even entire systems including ventilation units and heat generators. It can be operated either via a modern, design-orientated touch display or a user-friendly web interface. KaControl MC controls and monitors all functions of the connected units in all respects and is the optimum solution for communication with a BMS (building control system). This is possible because one controller (Smartboard M) is assigned to each unit.

All KaControl MC devices are equipped with the hardware for all common communication protocols (Modbus RTU, Modbus TCP, BACnet IP and KNX TP) as standard. The respective interface can be activated at the factory or on site by means of a permanent licence.

Selection guide

Use the following table for assistance when selecting the appropriate control version based on the required functions. Kampmann recommends the KaControl MC controller as a modern and future-proof solution that offers the widest possible range of functions.

Functions	Electromecha-nical	KaControl MC
Unit article number suffix (e.g. KaDeck)	32612626211**100**	326126262111**M1**
On-site control, e.g. 0-10 V fan, open/close valves etc.	✓	✓
Use of electromechanical range of controllers	✓	✗
Use of KaControl MC accessories, e.g. TP 2 touch panel and System Controller	✗	✓
Use and convenient adjustment of timer programs and Eco functions		
rudimentary	✓*	✓
advanced, e.g. holidays and public holidays	✗	✓
Continuous valve control, e.g. for supply air or return flow temperature control	✗	✓**
Advanced communication with units, e.g. to display fault messages, target and actual values	✗	✓
Group control for each control unit		
up to 4 units	✓	✓
up to 10 units	✗	✓
Webserver: online interface for simplified commissioning, operation and trend display etc.	✗	✓
Communications interfaces		
Wi-Fi for service purposes	✗	✓
Modbus RTU	✓*	✓
Modbus TCP	✗	✓
KNX TP	✗	✓
BACnet IP	✗	✓

* partially, depending on the controller used

** The suffix M2 must be selected for supply air/return temperature control or 6-way valve control.

Electromechanical version

If the electromechanical version of the unit is selected, all built-in actuators and sensors are wired to a terminal block. Controllers or communications interfaces provided by the customer can be connected to these terminal blocks. Kampmann also offers a variety of controllers for easy, straightforward control of the units. The following overview lists the various properties of the versions.

Electromechanical room control units

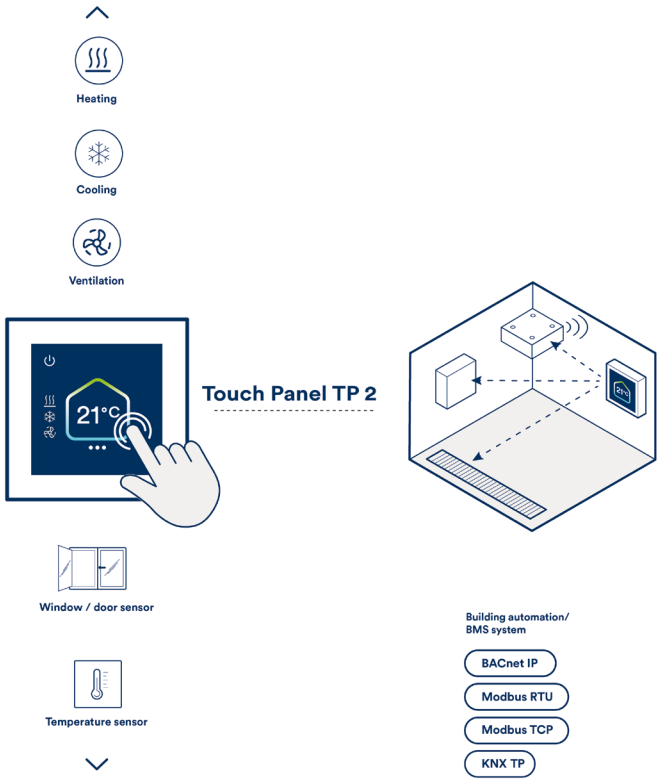
» All basic heating and cooling functions for 2- and 4-pipe applications
» Available in different versions, for example with:
- Switching input for setback mode using a presence detector or window contact
- Modbus RTU interface to automation networks
- Integrated timer function
- Integration into many common flush-mounted ranges

Scope of functions	Room thermostat Typ 196000030155	Clock thermostat Typ 196000030256	Climate controller	
			Typ 196000148941 196000148942	Typ 196000148943 196000148944
Heating only	✓	✓	✓	✓
Heating / cooling	✓	✓	✓	✓
Max. group size	4	4	4	4
Timer program	✗	✓	✓	✓
Fan speed stages	3	5	5	5
Display of setpoint and actual value	✗	✓	✓	✓
Modbus RTU	✗	✗	✗	✓

You make the rules.

KaControl MC
The Multi Connect climate control.

Design KaControlMC



With the KaControl MC Kampmann is offering a future-orientated solution for open and closed-loop control of heating, cooling and ventilation units.

The modern TP 2 touch panel provides convenient access to Kampmann unit settings and it has a sleek design too which fits in well visually with popular switch ranges.

The control system offers preconfigured solutions for simple installation and convenient operation – from single-room control to group control, the management of several rooms or zones, to the integration of complex systems with ventilation units and heat generators and chillers, including heat pumps.

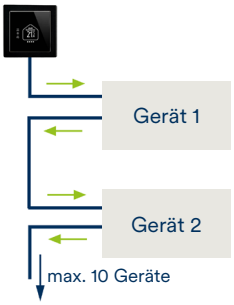
Users can easily access the unit using a web browser via a network or Wi-Fi connection – on a laptop, tablet, or smartphone. All the standard interfaces are available for seamless integration into building management systems, including Modbus RTU, Modbus TCP, BACnet IP and KNX TP.

KaControl MC - benefits at a glance

TP 2 touch panel room control unit

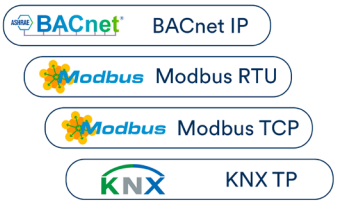
The world of the KaControl MC extends far beyond simply offering a controller for controlling units, it represents an intelligent control solution. Nonetheless, the TP 2 touch panel remains the central interface of the KaControl MC and is functionally and visually impressive. The high-resolution full-touch colour display supports intuitive operation and is fully compatible with almost all standard switch ranges (55 x 55 mm). The display is used for operation, programming and monitoring of the units.

Single unit & group formation



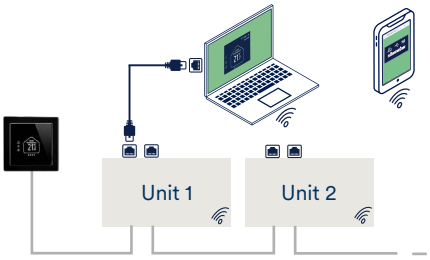
Bidirectional communication between the controller and unit or between units in a group is effected via a high-performance CANbus. This means that all information is available everywhere. For example, if a malfunction of a unit within in a group is reported, this is displayed at the control unit.
The CAN bus forms a multifunctional group that enables external sensors to be connected or signals sent to any unit. A maximum of 10 units can be networked per group, and the maximum cable length within the group is 100 m.

Connectivity



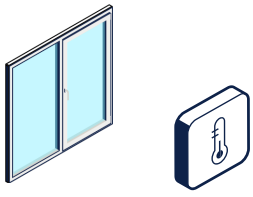
The KaControl MC system demonstrates its versatility when it comes to communication with BMS systems. On the hardware side, all commonly used building management system interfaces are integrated as standard. The required protocol can be flexibly selected at any time via a permanent licence which is either installed at the factory or can be subsequently activated. Complex hardware upgrades or missing interfaces therefore do not slow down construction progress. BMS communication can subsequently be clarified with ease.

Access via a web browser



The integrated and free of charge Webserver provides access both via the network (each board is equipped with a built-in switch) and wirelessly via the Wi-Fi interface. Thus, the system can be conveniently operated via laptop, tablet, or smartphone. This ensures simple programming (e.g. during commissioning with guided step-by-step quick configuration), recording and visualisation of live data during operation, and an overview of the trend data for up to four weeks.

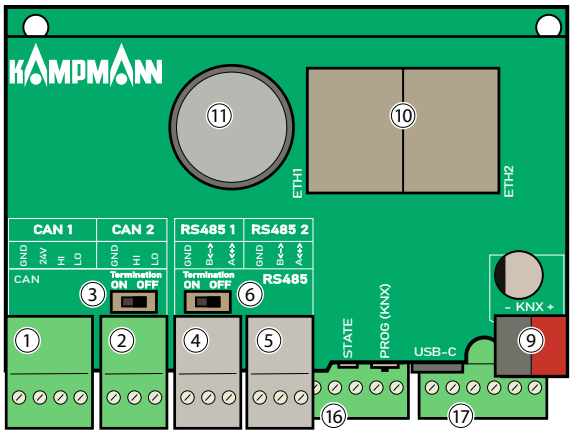
Multifunctional inputs and outputs



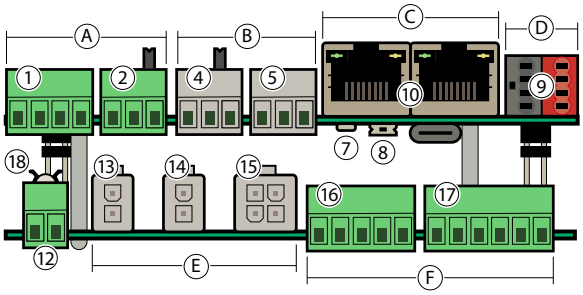
Two different versions of the Smartboard M* controller are built into the secondary air units. Both versions include five multifunctional inputs that can be used to record temperatures, window contacts, presence detectors, card readers and similar components, for example. They can be connected to any unit within the control group. Different fault message outputs are available, depending on the controller used. The exact identification is provided by the article number of the unit.

*MC1: continuous fan control and open/close valve control
*MC2: continuous fan control and continuous valve actuation

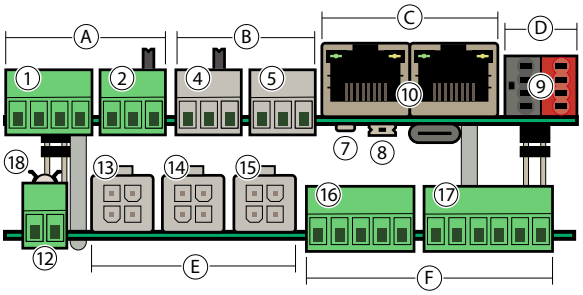
Design of the two Smartboard M controllers



View of mainboard from above
(included with every SmartBoard M controller)



Front view of Smartboard M FCU 2P (xxxM1)



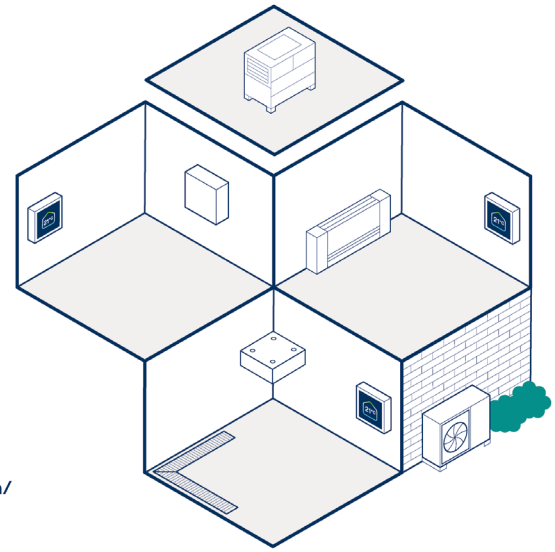
Front view of Smartboard M FCU cont (xxxM2)

- Ⓐ CAN-Bus
- Ⓑ Modbus RTU
- Ⓒ Modbus (TCP) & BACnet IP
- Ⓓ KNX TP
- Ⓔ Ausgänge
- Ⓕ Multifunktionseingänge

- ① CANbus connector, 4-pin (TP 2 touch panel) or 3-pin previous unit
- ② CAN bus connector, 3-pin to the following unit
- ③ Switchable terminating resistor CAN bus
- ④ Modbus RTU connection previous unit
- ⑤ Modbus RTU connection next unit
- ⑥ Switchable terminating resistor Modbus RTU
- ⑦ Status LED
- ⑧ Buttons for WLAN (Wi-Fi) and KNX TP
- ⑨ KNX TP connecting terminals
- ⑩ Ethernet connector for the Webserver, Modbus TCP & BACnet IP with integrated switch
- ⑪ Battery (Typ CR2032)
- ⑫ 24 V power supply Smartboard M
- ⑬ Heating valve drive connection (for xxxM1 version -> 2-pin, for xxxM2 version -> 4-pin)
- ⑭ Cooling valve drive connection (for xxxM1 version -> 2-pin, for xxxM2 version -> 4-pin)
- ⑮ Fan connection
- ⑯ Multifunctional inputs 1 & 2 for unit-internal and external sensors/signals
- ⑰ Multifunctional inputs 3, 4 & 5 for unit-internal and external sensors/signals
- ⑱ Fuse

KaControl MC System Controller

Touch Panel TP 5



Building automation/ BMS system

- BACnet IP
- Modbus RTU
- Modbus TCP

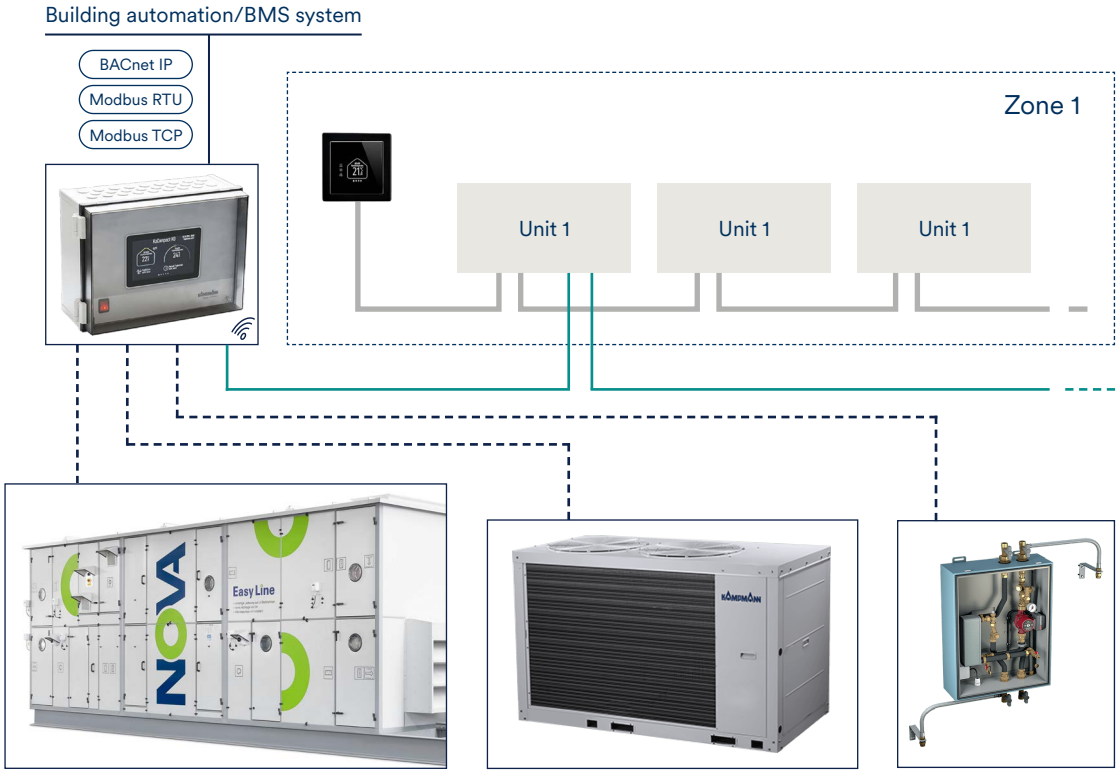
The KaControl MC System Controller consists of an IP54 housing with integrated TP 5 touch panel. The System Controller significantly expands the range of functionalities. The Modbus TCP protocol can be used to connect up to 25 rooms or groups, each with up to 10 units, thereby enabling central control of timer programs and setpoints etc. In addition, heat generators and various hydraulic circuits can be controlled.

The control system integrated into the System Controller also offers the option of controlling a ventilation system. Therefore, the identical control is also used directly in the KaCompact KG, retaining the full range of functions of the System Controller.

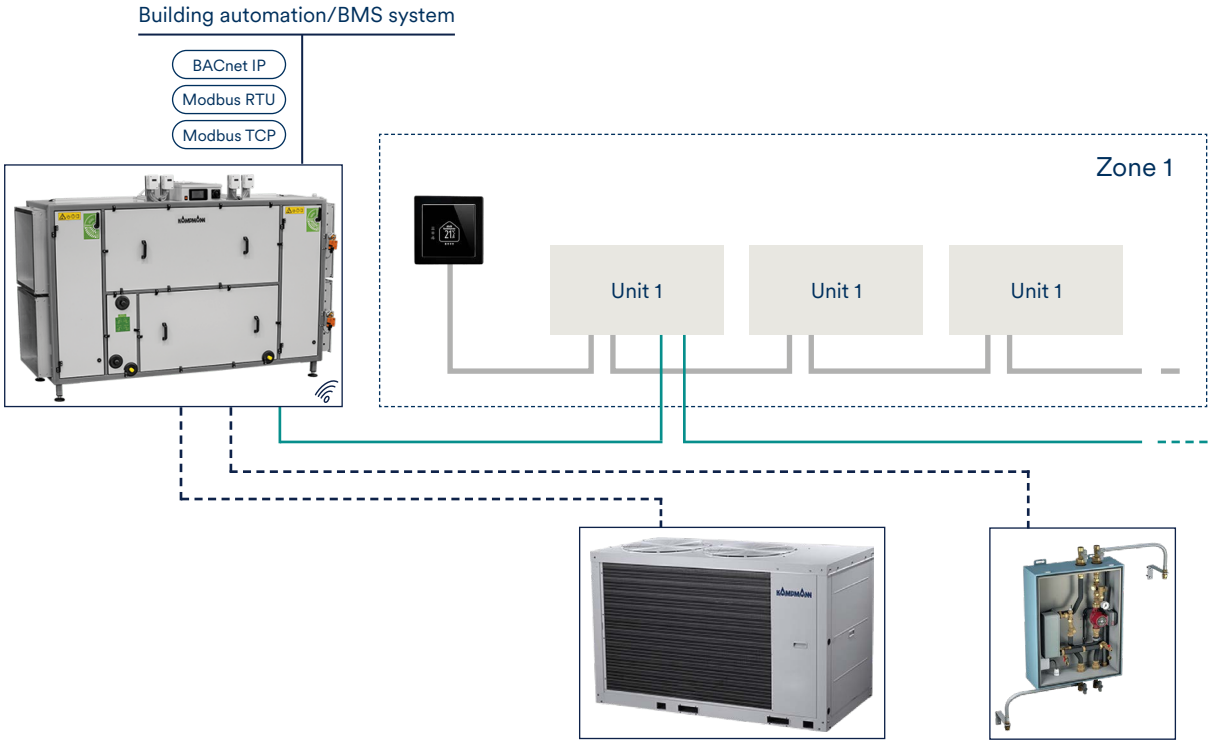
Thanks to the option of an external remote control, all settings can be entered either directly on the System Controller or at any location. All operating functions are mirrored on the remote control. Of course it goes without saying that a Webserver is also available here.

Construction of the System Controller

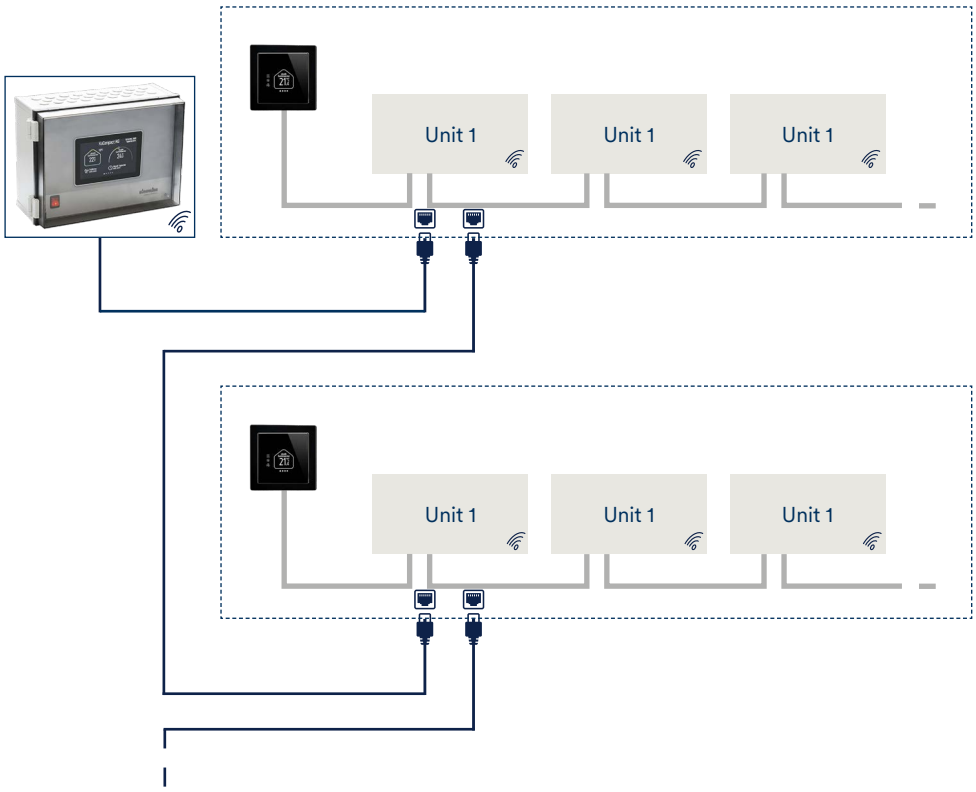
The diagram shows how the System Controller can be used to directly control an ad-hoc configuration of ventilation system, a heat pump and hydraulic system. Control zones are also controlled centrally by the System Controller via Modbus TCP.



The following diagram shows the design of a KaCompact KG with an integrated KaControl MC controller. This controller takes over all the tasks of a separate System Controller.
A decisive advantage of this design is that no external System Controller is required. All open and closed-loop control functions are integrated into the KaCompact KG. This means that all functions are available directly without having to install additional hardware or position external control components.



This diagram shows how up to 25 groups can be seamlessly networked with each other via Modbus TCP. Thanks to the integrated switch, a direct and efficient linear structure is possible which facilitates data communication based on a bus principle.



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