VCB

Control units, VCB series

REMAK

SOLUTION FOR A BETTER ENVIRONMENT

Control units, VCB series for air

The VCB control unit is an ideal device for controlling small and medium-sized air-handling equipment without being coupled to super-imposed MaR systems. It enables the use of one or two control sequences - with analog (stepless control) or two-position (ON/OFF control) character, or a combination of both (i.e. separate heating, heating + cooling, heating + heat recovery etc.). It is possible further to connect components with autonomous control (for example, a rotational heat exchanger with controlled operation).

Over-view of functions			Manner of control			Settings (range) *	
Possibilities	mark	controlled (regulated) component	on / off	in steps	stepless	factory settings	user
Regulation functions							
inlet air temperature							
Comfortable temperature			❍	❍	❍	23 °C	-50 to +150 °C
Suppressed temperature			❍	❍	❍	18 °C	-50 to +150 °C
control of water heating	+	water heater			❍		
control of electric heating	+	electric heater	❍	❍	❍		
control of cooling – condensation unit	−	primary evaporator	❍	❍		1–2	no
control of cooling – water mixing section	−	water cooler			❍		
control of revolutions of rotational heat exchanger	⟳	rotational heat exchanger	❍		❍		
Control of fan revolutions							
air flow							
control of two-speed motors		motor		❍		lower / higher	lower / higher
control of voltage controllers		controller		❍		I–II (1–5)	I–II (1–5)
control of frequency converters		frequency converter		❍		I–II (1–5)	I–II (1–5)
Protective functions							
Protection of heaters							
anti-freeze protection of water heater in air	+	water heater	❍			5,0 °C (fall)	no
anti-freeze protection of water heater in water	+	water heater, pump	❍			+8 °C (1–19)	no
opening and closing of dampers	+	230V (24V optional)	❍				
delayed fan start / opening of dampers	+	water / electric heater			❍	30s	no
fore-heating of water heater during switching on	+	water heater			❍	20s (0–180)	no
delayed switching off of fans	+	electric heater	❍			60s (0–300)	no
temperature control of heater, standby mode (P-control)	+	water heater			❍	+30 °C (18–45)	no
check of maximum temperature	+	electric heater	❍				
control of bypass damper of plate heat exchanger	◈	plate heat exchanger	❍				
defect of temperature sensor	+	water / electric heater					
Protection of fans							
expanding of thermo contacts	◔	fan	❍				
switching off of motor starter	◔	fan	❍				
sensing of excess currents of motors on frequency converters	◔	fan	❍				
defective airflow	◔	fan	❍			20s (0-90)	
Others							
clogging of filters	◔	filters	❍				
cooling defect	−	condensation units	❍				
external defect (fire etc.)		fire damper etc.	❍				
Time programs							
weekly real time			❍			Mo – Su	Mo – Su
number of daily program time slots						3 (0–8)	0–8 changes
Control							
unit control (local)		MENU + keypad	❍				fully
remote unit starting		ORe 1	❍				0–I–Program
remote temperture set-up		QAA 25			❍		+5 to +30 °C
remote unit starting and airflow control		ORe 2		❍			0–I–II–Program

* The possible setting range is listed in brackets.

r-handling installations

Basic components

1. Box of unit
2. SIEMENS RWD temperature controller
3. REMAK LORZJ2 control module
4. Fuses
5. Disconnecting switch
6. Main switch

Advantages

- High reliable, accurate and still budget-priced air-handling control of air-handling units
- Control of all functions
- All functions that operation demands
- Easy to operate
- Clear arrangement

Quality guarantee

- Components from leading companies of the world such as SIEMENS, ABB, SCHRACK etc. are used in the manufacture.
- SMD installation of the electronic elements ensures high quality, reliability and long service life.

Precision and comfort in the control process, intuitive control

The Siemens RWD OEM controller provides high precision of control. The LORZJ 2 control module provides easy controlling and setting of the parameters for automatic and manual operation.

Functions, protections and control

Basic functions

- Putting the equipment into operation
- Control of fan output (revolutions)
- Control of closing dampers and the bypass damper of the plate heat exchanger
- Control of electric heating
- Control of water heating
- Control of cooling (primary and water)
- Connection of temperature feelers and operation sensors
- Operation and defect signalization

Anti-freeze protection of water heater

- Anti-freeze protection safeguards the heater from freezing as a result of a drop in outside temperature below the freezing point.
- Temperature sensing of the heater's return water
- Temperature sensing of the intake air behind the heater
- Temperature control of the exchanger when the unit is started
- Delayed starting of the fans
- Search for a defect of the temperature feelers and switching off of the pump's fuses
- Stopping the operation of the equipment when there is a danger of the heater's freezing

Protection of electric heater

- Switching off of heater when safe temperature is exceeded
- Cooling of electric heaters by delayed switching off of fans

Protection of fans' electric motors

- Evaluation of disconnection of thermo contacts (overheating or overloading) in the coils of the electric motor
- Subsequent stopping of unit
  When the motors are not equipped with thermo contacts, the protection is carried out by a motor switch.

Installation, starting up, operation

Installation

- The units are mounted directly onto the wall. In some cases, they can be partially imbedded under the stucco.
- The connection of the cabling to the marked terminals is very quick and easy, which saves time and installation costs.
- All settings are done directly on the control unit.
  Any further device is not needed.
  A difficult and expensive setting at the installation site is thus unnecessary.

Easy putting into operation

- The parameters of the units are set during manufacture according to the specifications of the customer.
  Thus they can be put into operation immediately after being connected up.

Economical operation

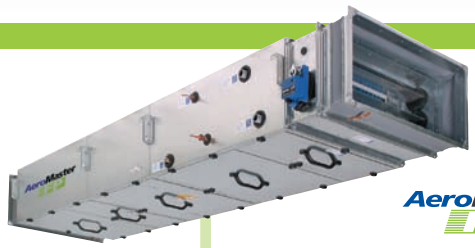
- The possibility of using a comfortable and reduced temperature mode and of making operation corrections provides not only an optimal environment but also saves operating costs.
- To ensure economical operation, the unit can be equipped, according to the requirement, with an output control for the fans (they have to be controllable).
- Reduced temperature and reduced running (revolutions) can be set independently of each other.

User-friendly operation

- Two clearly arranged displays and a keyboard with three press buttons or a quite simple remote control make easy and comprehensive control of the unit possible.
- By means of the remote controllers, the control units, or the air-handling equipment, can be operated (only in some parameters) directly by unqualified personnel in the various installations.

R08060705

VCB

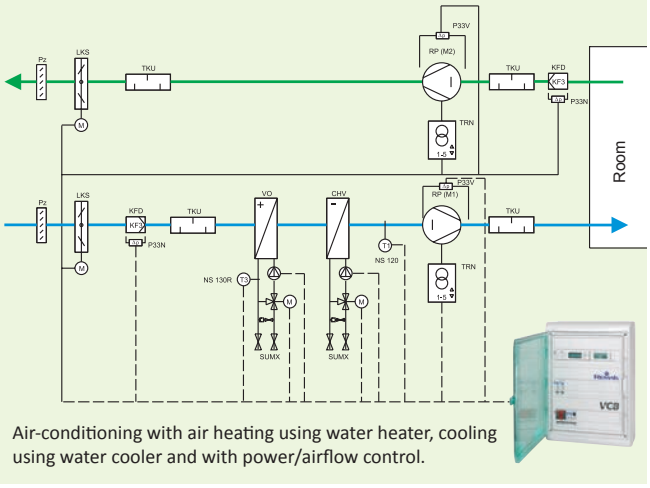


AeroMaster FP

Vento SYSTEM

AeroMaster XP

Regulation example



Air-conditioning with air heating using water heater, cooling using water cooler and with power/airflow control.

Alternate unit casing

Use

- VCB control units are compact control and power panels for the decentralized control of air-handling equipment. Sophisticated control algorithms ensure system stability, comfortable control and energy savings. These units have been developed especially for the control of REMAK air-conditioning units.
- VCB control units are intended for inside use in a dry, dust-free environment void of chemical agents.
- VCB control units are intended for controlling the temperature of the air fed into a room.
- With the exception of mixing and humidifying, they can be employed for most standard applications.

Basic characteristics

Decentralized control

- Control is conceived as decentralized, which makes the independence of the separate air-conditioning branches possible and reduces the costs for applications to a minimum where communication with other systems is not required.

Connection of the power and control parts

- The power and control parts are always custom made for a particular air-handing unit.
- The control and power parts are located in one box.
- Only one cable is needed to supply power to the control unit.

Complexity of the control process

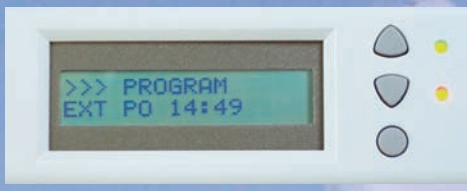
- Control units provide comprehensive protection and control of all controlled processes (heating, cooling, humidification, respectively heat recovery).

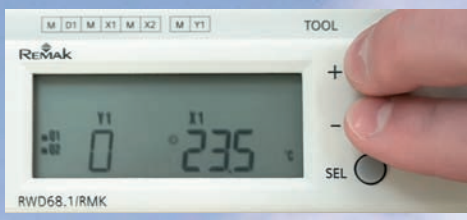
Possibility of user applications

- The unit is always manufactured precisely according to the customer's requirements or to the configuration of the air-handling device. This provides for optimal control of the air-conditioning unit.

Control units, VCB series

Communication with the user, programs





Display of modes and states

The VCB unit provides the user with high-quality information on the operating states of the air-conditioning unit. The individual modes and states are shown on two clearly arranged LCD displays. The states, selections and parameters are unmistakably defined by texts or numeric values. Illuminated signalization by a red LED diode and also acoustic signalization that can be switched off provide the user with information about a defect. A green LED diode indicates the power supply (turning on) of the control unit.

Language of communication

The individual parameters set are shown on the display of the control unit in Czech, English or Russian. Should it be required, other languages can be used for the display.

Daily and weekly program

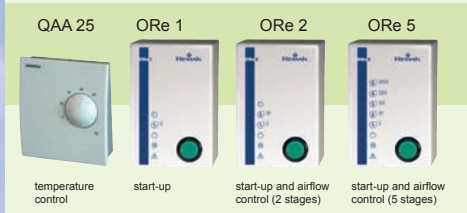
The unit makes it possible to set eight variable points for each day in which the user can set the required modes and values.
Within the frame of one time segment, you can set:

- The required temperature (comfortable / reduced)
- The running and/or required airflow (higher / lower fan revolutions)

Automatic starting up after power failure

The user can set the automatic starting up of the unit after a power supply failure.

Remote controllers



Design of the unit – save on costs for the project

Design of the VCB control unit

The unit is automatically designed by the most modern AeroCAD software for the design of air-handling equipment directly for the projected air-handling system.

The design encompasses: type of unit, connection diagram, design of cabling

Advantages: detailed foundations for the electro project, speed of design, optimal coupling, with control elements, comprehensiveness

REMAK
SOLUTION FOR A BETTER ENVIRONMENT

REMAK a.s.
Zuberská 2601, CZ–756 61 Rožnov pod Radhoštěm
tel.: 571 877 778, fax: 571 877 777
www.remak.eu

ISO 9001

THE EUROPEAN REGIONAL DEVELOPMENT FUND AND THE MINISTRY OF INDUSTRY AND TRADE OF THE CZECH REPUBLIC SUPPORT INVESTMENT IN YOUR FUTURE.