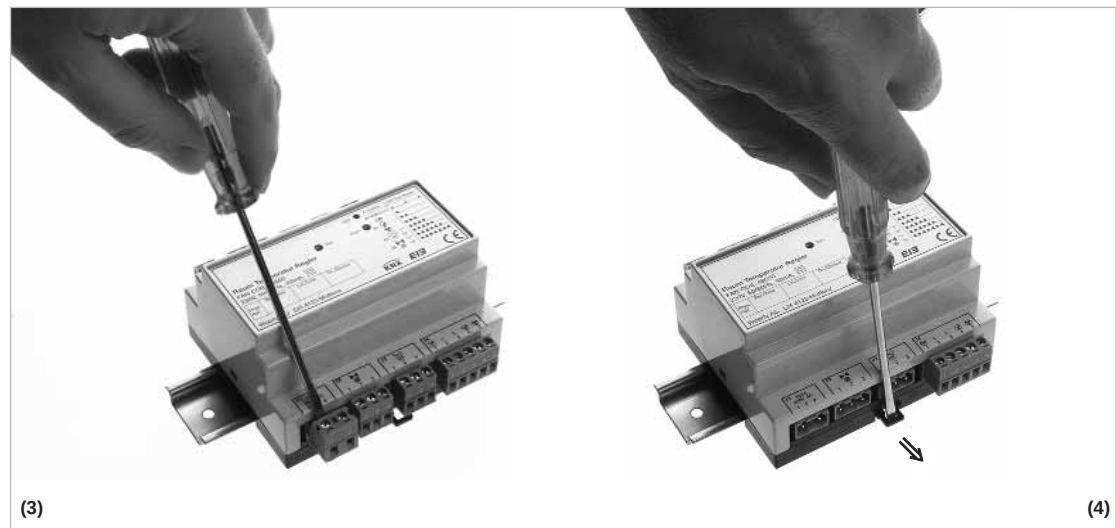
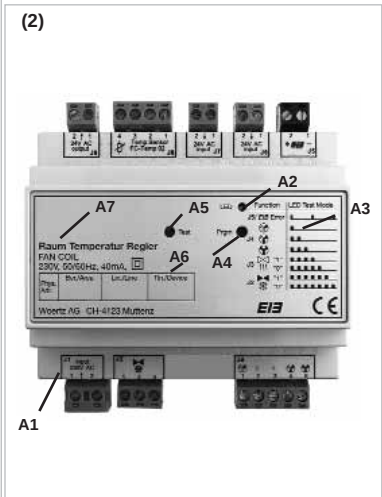
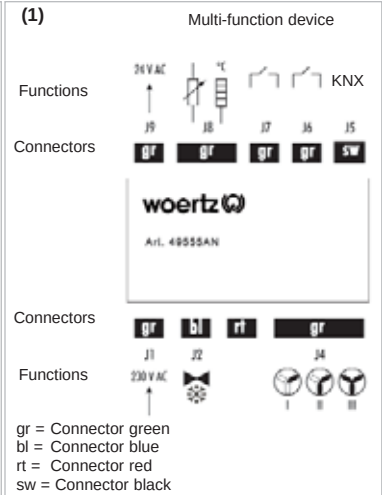
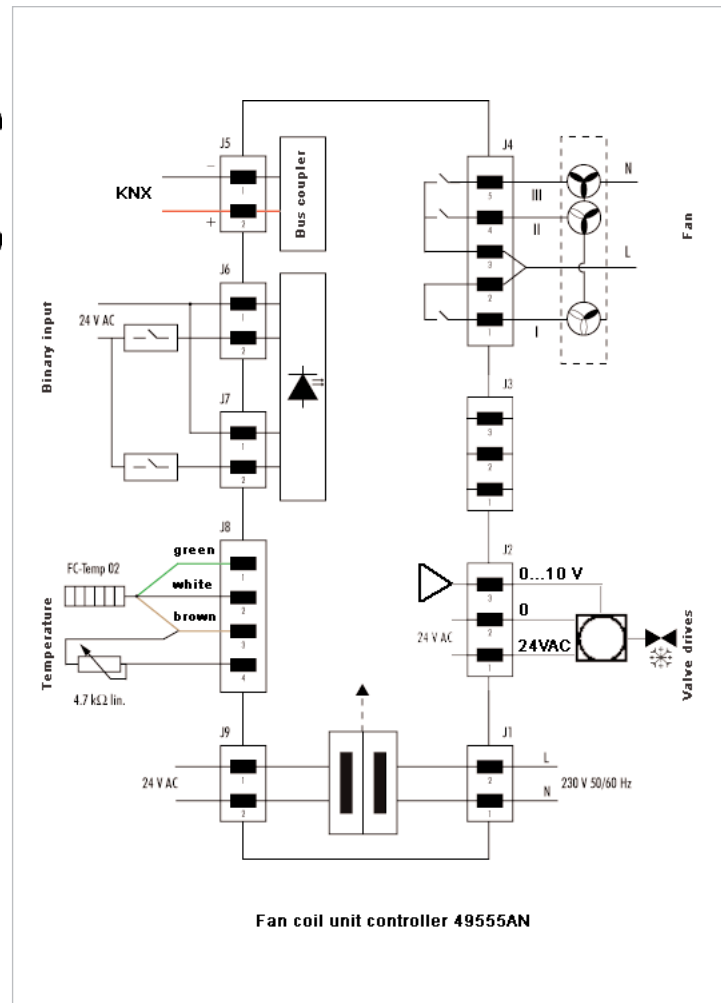


FAN COIL 49555AN

INSTALLATION AND OPERATING INSTRUCTIONS

G00114 v01
No. 01416

woertz



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Product and functional description
Brief description

This fan coil unit controller has been specially developed to control fan convectors with fan motors that have a maximum of three speeds. It is also used for the simultaneous control of a small valve (DDC controller) with input voltage 0-10 V and auxiliary voltage 24 V AC. The latter will be used in the control of cooling circuit. Binary inputs for isolated contacts and temperature sensors can be connected like all other

Block diagram of the fan coil unit controller (Diagram 1)
Individual functional description

Three channels are available for controlling the fan, each with an isolated contact which is triggered via a separate relay.

Three fan speeds can be freely selected according to requirements e.g.:

OFF, speed I / speed II / speed III, or any possible variant such as: OFF, speed III / speed I / speed II / speed III.

Contacts of the individual speeds (I, II III) are never closed at the same time due to a software-controlled interlock.

The lock-out time and the closing behaviour can be set via the parameters. The corresponding values are based on both the electrical properties and the starting characteristics of the fan.

Each output of speed I, II and III has its own communication object so that the switching state ON "1" or OFF "0" can be queried. The operating voltage of the contacts is applied at the contacts via the connector J4 (green (gr)).

The valve output J2 is intended for the control of cooling valves (cooling). The DC valve drive may be connected to the 3 terminals. Those valves are controlled with an auxiliary voltage of 24 V AC and a control signal which is provided by the fan coil unit controller.

The connecting cable between the controller and the valve (J2) should not be longer than 20 m with a conductor cross-section of 1.5 mm².

With the 230 V AC power supply connection J1, the multifunctional device becomes independent of the bus voltage.

This also means that the device operates independently as its own room temperature controller without an interface to the communication bus. If the 230 V AC supply voltage fails, the controller is no longer able to function.

The connection J5 for the communication bus KNX is required in systems with a KNX installation or building management technology. If the voltage fails, the controller continues to function.

For security and improved energy management, 2 binary inputs J6 and J7 are provided to which external contacts such as window contacts, dew point detectors etc. can be connected. A 24 V AC external voltage is required for this.

An important feature of the fan coil unit controller is input J8 for temperature detection which offers the possibility of connecting 2 sensors.

The temperature sensor No. 49570 is required to record the actual temperature value. If required, a potentiometer (4.7 k linear 10%) can be connected for setpoint temperature adjustment. The actual temperature sensor has 3 cores, whose terminal assignment may not be interchanged or reversed: green (+)=1, white (S)=2, brown (-)=3.

A nominal voltage of 24 V AC is applied at the connection J9 which should mainly be used as the power supply for J6 and J7.

Test functions can be carried out on the controller itself using a "Test" button A5, independent of the KNX status interrogation. The outputs are activated individually by pressing the "Test button". The flashing mode of the programming LED (red) indicates the active output. It is therefore possible to switch 7 functions ON or OFF in order. One long flash means fan speed I = ON, 5 flashes in sequence mean heating valve "0"/CLOSED.

See diagram 2: The LED always flashes if the bus coupler does not function or no bus voltage is present.

Software

The following are available:

Objects: 35

Group addresses: 80

Associations: 80

Following parameters can be set using the application program *000111 Multifunction controller master* which can be found in Woertz product database version A or under <http://www.woertz.ch>:

- Function mode
- Recording of actual temperature
- Setpoint temperature values
- Setpoint adjustment
- Valve adjustment
- Fan control
- Security functions
- Group error signal

roller) with input voltage 0-10 V and auxiliary voltage 24 V AC. The latter will be used in the control of cooling circuit. Binary inputs for isolated contacts and temperature sensors can be connected like all other

Technical data

*** Woertz fan coil unit controller**

*** Power supply**

Via an integrated power supply unit J1, independent of the bus voltage,
230 V AC +/- 10%, 50/60 Hz
Max. power consumption 9 VA

*** Outputs**

- J4 3 floating contacts
Rated voltage 230 V AC +/- 10%
Rated current 6A
- J2 Output for valve control (DDC controller)
Output voltage 24 V AC (auxiliary voltage)
Input voltage 0-10 V (input impedance min. 100 kOhm)
Cable length 20 m
- J3 Without function, not used
- J9 1 auxiliary voltage 24 V AC, 5 mA
(Designed for binary inputs J6 and J7)

*** Inputs**

- J6, J7 Binary inputs for signalling contacts
24 V AC nominal
Optocoupler
- J5 Bus connection
- J8 Temperature sensor
room temperature sensor No. 49570
setpoint temperature controller,
potentiometer 4.7 k , +/-10% linear

*** Operating elements**

- 1 programming button for toggling between normal mode and addressing mode
- 1 test button for local toggling of the individual output functions

*** Display elements**

- 1 red LED for monitoring the bus voltage, for displaying normal mode/ addressing mode, for displaying the output functions by flashing at various intervals and speeds

*** Connections**

All the connectors are plug-type connectors

*** Mechanical data**

- Housing: plastic
- Housing colour: grey / black
- Dimensions WxHxD: 105x107x58 mm;
DIN rail mounted device
- Weight: 0.4 kg
- Fire load approx. 6000 kJ +/-10%
- Mounting: snap-on fixing onto DIN rail
DIN EN 60715 TH 35-7.5 /
DIN EN 60715 TH 35-15

*** Electrical safety**

- Degree of pollution 2
- Type of protection IP 20
- Safety extra-low bus voltage SELV DC 24V
- Electrical safety EN 60950

*** Accessory**

- Room temperature sensor, No. 49570

*** EMC requirements**

- EN 50090-2-2
- EN 61000-6-2
- EN 61326-1997

*** Environmental conditions**

- Operating temperature: -5⁰ C to +50⁰ C, not condensing
- Storage/transport temperature: -25⁰ C to +70⁰ C

*** Reliability**

- Failure rate 815 fit at 40⁰ C

*** CE norm**

In accordance with the EMC guideline and low-voltage guideline (residential/functional buildings)

inputs and outputs via connectors from the modular wiring system. This multifunctional device is thus primarily used in the control of heating, ventilation and air conditioning systems (HVAC), whereby the system

Terminal assignment, display/operating elements (Diagram 2)

- * A1 Connector with screw terminals for the connection of

Terminal assignment	Function
J1	2-pole mains connection 230 V AC
J2	3-pole valve connection
J3	without function
J4	5-pole fan
J5	2-pole KNX
J6	2-pole binary input for signalling contact
J7	2-pole binary input for signalling contact
J8	4-pole temperature sensor
J9	2-pole auxiliary voltage 24 V AC

- * A2 LED display, normal operation off, addressing mode on, test mode flashes

- * A3 LED test mode, LED flashes each time the test button A5 is pressed according to the sequence shown.

- * A4 Learning button toggles between addressing/normal mode for transferring the physical address

- * A5 Test button for local operation of the individual test functions

- * A6 Labelling field for the physical address

- * A7 Name plate

Test functions

The test functions listed below can be performed with or without loaded application program.

The first test function indicates whether the bus cable has been connected and whether the bus is operational. If the bus is not operational, this is indicated by the LED flashing at regular intervals with a frequency of approx. 0.3 Hz.

Explanation of the test mode of the flashing LED A2 when the test button A5 is pressed:

If the test button A5 is continually pressed for a minimum of 4 seconds, the device is switched to test mode. When the push button is pressed again, a further test step is carried out. The flashing mode indicates the active output.

Terminal assignment	Function	LED flashing mode
J5	KNX Error	

When the test button A5 is pressed for the first time continually for 4 seconds, the function of fan speed 1, the first speed, is tested.

The output remains closed until the next time the test button is pressed. If there is no test function after approx. 1 min., the device automatically reverts to the set program.

To reactivate the test mode, the test button must be pressed again for 4 seconds. The test then restarts from the beginning.

Terminal assignment	Function	LED flashing mode
J5	Fan speed I on	

The next test function checks speed II of the fan. The output is connected until a new test function is requested. It is not possible to skip through a test step (e.g. from J4 = speed 1 to J4 = speed III).

Terminal assignment	Function	LED flashing mode
J4	Fan speed II on	

integration is carried out via the KNX bus cable and the bus components are installed on DIN rail EN 60715 TH 35-7.5/15 in both flush-mounted and surface-mounted distribution boards.

The same applies to fan speed III.

Terminal assignment	Function	LED flashing mode
J4	Fan speed III on	

Installation and wiring

The device is installed on DIN rails EN 60715 TH 35-7.5 / EN 60715 TH 35-15 to the terminal device being controlled or mounted remotely if required. All the cable connections are placed on the screw terminals of the connectors. They are snapped together with the connector into the device with an audible click.

Installation of the fan coil unit controller

Two types of installation are available:

- 1.Snap the device onto the DIN rail complete with connectors or
- 2.Remove the connectors from the controller, clip the device onto the DIN rail and clip on the prefabricated connectors with integral cables.

Installation sequence

To mount the device on the DIN rail, clip on the upper edge and snap into place.

Remove the connector either manually or use a screwdriver and tilt the device (see picture 3).

Prepare the cables in accordance with the technical data outlined in the section "Connections" and fix the connector(s) in position in the sockets using screw terminals.

Insert the connectors into the sockets in the device and pay attention to the mechanical plug coding. The connectors must audibly click.

Putting into service

Before putting the device into service an application program which has been specially designed and parameterized for this use has to be transferred to it (see description of application program). The test mode can be carried out with no loaded application program (see test functions).

Dismantling (Diagram 4)

Disconnect the device from the supply (230 V AC). Remove the interlocking slide on the underside of the device with a screwdriver by tilting the screwdriver in the direction of the arrows. Lift the device from the DIN rail. Remove the connectors from the device.

Installation notes

The fan coil unit controller must always be installed within an enclosure such that all the cables are mechanically safeguarded and unloaded using a strain relief device.

A short circuit at the connector J5 (= bus) should be avoided when carrying out the installation with a live circuit. Reverse polarity at the connector J8 will damage the temperature sensor.

Warning

The device may not be opened. Any faulty devices should be sent to the relevant point of purchase (see www.woertz.ch).

The device may only be installed and commissioned by an approved electrician or controls engineer. The relevant safety and accident regulations must be observed.

The total of the switched currents may not exceed 6 A per output. Line protection must therefore be provided.

The 230 V AC power supply must be fused with a miniature circuit-breaker.