

# Technical Manual

## Fan Coil Actuator



Fan Coil Actuator  
FCA-M-2.3.1 (6255/2.3)

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1	Notes on the instruction manual	3
2	Safety	4
2.1	Symbols used	4
2.2	Intended use	5
2.3	Improper use	5
2.4	Target group / Qualifications of personnel	5
2.5	Liability and warranty	5
3	Environment	6
4	Product description	7
4.1	Scope of supply	7
4.2	Overview of types	7
4.3	Function overview	8
4.4	Description of functions	9
4.5	2-pipe and 4-pipe blower convectors (fan coil units)	9
4.6	Device overview	12
5	Technical data	13
5.1	FCA-M-2.3.1	13
5.2	Dimensions	15
5.3	Connection	16
6	Mounting	19
6.1	Safety instructions for mounting	19
6.2	Installation/mounting	21
6.3	Dismantling	21
7	Commissioning	22
7.1	Allocation of devices and specifying channels	23
7.2	Setting options per channel	27
7.3	Linking	30
7.4	Behaviour of the fan coil actuator	31
7.5	Faults	31
8	Updating options	32
9	Maintenance	33
9.1	Cleaning	33

# 1 Notes on the instruction manual

Please read through this manual carefully and observe the information it contains. This will assist you in preventing injuries and damage to property, and ensure both reliable operation and a long service life for the device.

Please keep this manual in a safe place.

If you pass the device on, also pass on this manual along with it.

If you require additional information or have questions about the device, please contact ABB STOTZ-KONTAKT GmbH or visit our Internet site at:

[www.abb.com/freeathome](http://www.abb.com/freeathome)

## 2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent hazards of this kind.

ABB STOTZ-KONTAKT GmbH accepts no liability for failure to observe the safety instructions.

### 2.1 Symbols used

The following symbols point to particular hazards involved in the use of the device or provide practical instructions.

#### NOTE

A notice indicates useful information or references to additional topics.  
This is not a signal word for a dangerous situation.

#### Examples

Examples for application, installation and programming

#### Important

This safety notice is used as soon as there is the danger of malfunction without the risk of damage to property or risk of injury.

#### Attention

This safety notice is used as soon as there is the danger of malfunction without the risk of damage to property or risk of injury.



#### Danger

This safety notice is used as soon as there is a threat to life and limb due to improper handling.



#### Danger

This safety notice is used as soon as there is a serious threat to life due to improper handling.

## 2.2 Intended use

The device must only be operated within the specified technical data.

The fan coil actuator is a rail mounting device for installing in distributors.

The fan coil actuator serves for activating blower convectors (2-pipe and 4-pipe systems).

The integrated bus coupler makes possible the connection to the free@home bus.

## 2.3 Improper use

The device is dangerous if used improperly. Any non-intended use is deemed improper use. The manufacturer is not liable for damages resulting from such improper use. The associated risk is borne exclusively by the user/operator.

The device must never be used outdoors or in bathroom areas. Do not push objects through the openings in the device. Only the available options for connection are to be used in accordance with the technical data.

## 2.4 Target group / Qualifications of personnel

Installation, commissioning and maintenance of the product must only be carried out by trained and properly qualified electrical installers. The electrical installer must have read and understood the manual and follow the instructions provided. The operator must adhere to the valid national regulations in his country governing the installation, functional test, repair and maintenance of electrical products.

## 2.5 Liability and warranty

Improper use, non-observance of this manual, the use of inadequately qualified personnel, as well as unauthorized modification excludes the liability of the manufacturer for the damages caused. It voids the warranty of the manufacturer.

### 3 Environment

Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.

(EU Directive 2006/95/EC, 2004/108/EC and 2011/65/EC RoHS)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

## 4 Product description

The device is designed for installing on a mounting rail. The device can activate a three-level fan via a two-way circuit or step switch, as well a maximum of two thermoelectric valves or a three-point valve.

### Advantages:

- » Support of 2-pipe systems for heating and cooling operating modes or heating and cooling with changeover object.
- » Support of 4-pipe systems (only for the use of thermal valve actuators) for heating and cooling operating modes.
- » Support of silent mode for low-noise operation during night time.

### NOTE

Basic information about system integration is contained in the system manual. It is available for downloading at [www.abb.com/freeathome](http://www.abb.com/freeathome).

### 4.1 Scope of supply

The scope of supply contains the device including bus terminal for coupling to the free@home bus.

### 4.2 Overview of types


Type	Product name	Actuator channels	Device
FCA-M-2.3.1	Fan coil actuator	1	

Table 1: Overview of types

### 4.3 Function overview

The following table provides an overview of the possible functions and applications of the device:





Icon in the user interface	Information
 <p data-bbox="373 544 587 577">Fan Coil Heating</p>	<p><b>Name:</b> Fan with heating actuator  <b>Function:</b> For the activation of a thermal or motor-driven (3-point) valve actuator for 2-pipe systems in "heating" operating mode</p>
 <p data-bbox="384 719 579 752">Fan Coil Cooling</p>	<p><b>Name:</b> Fan with cooling actuator  <b>Function:</b> For the activation of a thermal or motor-driven (3-point) valve actuator for 2-pipe systems in "cooling" operating mode</p>
 <p data-bbox="347 898 614 931">Fan Coil Heating or ...</p>	<p><b>Name:</b> Fan with actuator for heating or cooling  <b>Function:</b> For the activation of a thermal or motor-driven (3-point) valve actuator for 2-pipe systems in "heating or cooling" operating mode (dependent on changeover object)</p>
 <p data-bbox="347 1070 614 1104">Fan Coil Heating and...</p>	<p><b>Name:</b> Fan with actuator for heating and cooling  <b>Function:</b> For the activation of two thermal valve actuators for 4-pipe systems in "heating and cooling" operating mode</p>

Table 2: Function overview



#### 4.4 Description of functions

The control of heating or cooling circuits of a blower convector is illustrated in Fig. 1. The object of such control is the adjustment of the actual temperature to the desired set-point temperature in a room. The set-point temperature for the room can be set by means of a free@home room temperature controller. It also measures the actual temperature. Depending on the difference between both temperatures (control deviation) the room temperature controller creates a control value that is transmitted to the fan coil actuator (FCA-M-2.3.1). The fan coil actuator controls one or more valve drives and the fan of the blower convector in dependence of the control value.

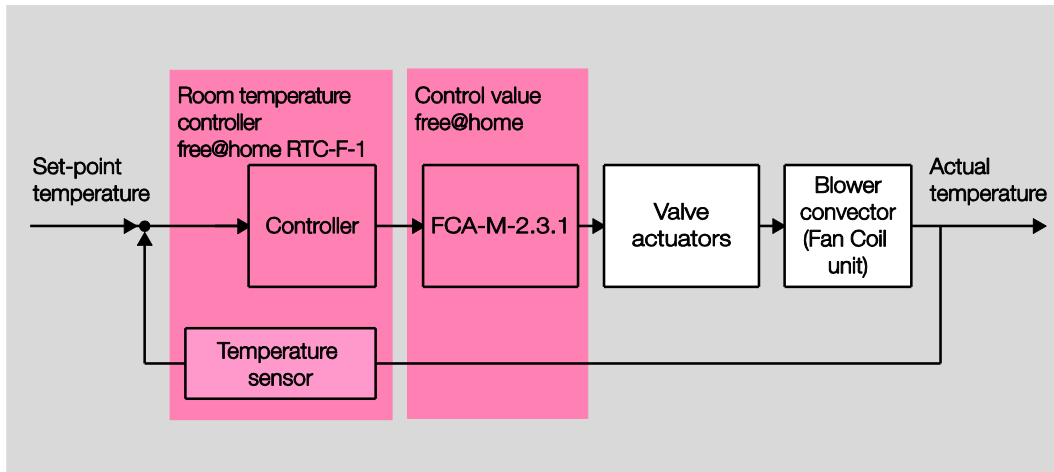


Fig. 1: Control of the room temperature with a fan coil actuator and a room temperature controller

#### 4.5 2-pipe and 4-pipe blower convectors (fan coil units)

Blower convectors consist of a fan and a heat transfer unit. The air in the room circulates through the blower convector with the aid of the fan. The heat can be transferred to or with drawn from the circulating room air via the heat transfer unit. Blower convectors (fan coil units) are available in 2-pipe and 4-pipe design. Fig. 2 schematically displays an example of a 2-pipe blower convector in cooling operating mode (left), as well as an example of a 4-pipe blower convector in heating operating mode.

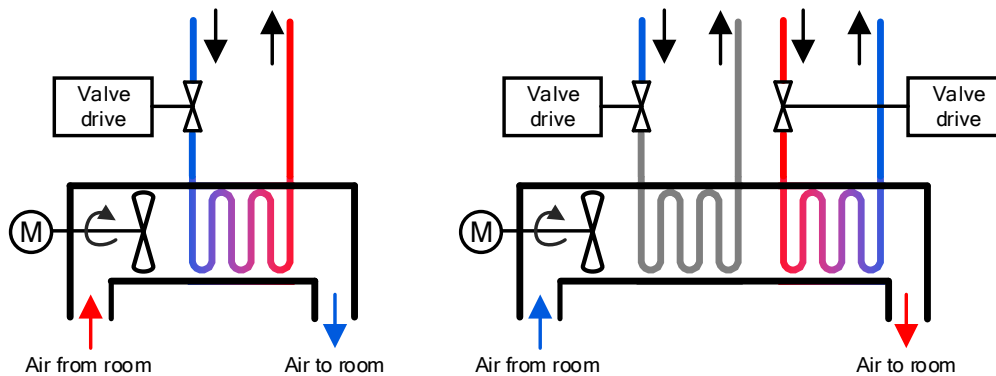


Fig. 2: Diagram of a 2-pipe blower convector in cooling operating mode (left), diagram of a 4-pipe blower convector in heating operating mode (right)

### 4.5.1 2-pipe blower convectors

With a 2-pipe blower convector the room air is blown through the blower convector with an own fan (air flow). In this way, depending on the circular flow (heating or cooling circuit), the flow-through air and the room is either heated or cooled.

#### Heating

In this operating mode the blower convector is connected to a circuit which is linked with a heating unit (heating circuit). The heating circuit transfers the heat to the air flow which heats the room.

The room temperature controller can actively heat the room via the fan coil actuator. This operating mode is selected via the function icon "Fan coil heating" in the "Allocation" menu of the System Access Point (sub-menu temperature regulation) (see Table 2: Function overview) and is to be linked with the room temperature controller in menu "Linking" in the main menu of the System Access Point. For 2-pipe blower convectors the fan coil actuator controls one valve actuator.

#### Cooling

In this operating mode the blower convector is connected to a circuit which is linked with a cooling unit (cooling circuit). The room air transfers the heat to the cooling circuit which cools the room.

The room temperature controller can actively cool the room via the fan coil actuator. This operating mode is selected via the function icon "Fan coil cooling" in the "Allocation" menu of the System Access Point (sub-menu temperature regulation) (see Table 2: Function overview) and is to be linked with the room temperature controller in menu "Linking" in the main menu of the System Access Point. For 2-pipe blower convectors the fan coil actuator controls one valve actuator.

#### Heating or cooling with changeover object

In this operating mode the blower convector is connected to a circuit which is linked mechanically via valves and switchable either with a heating or a cooling unit. In this way heat is transferred from the heating circuit to the airflow or heat from the airflow to the cooling circuit. The room temperature controller can either actively cool or actively heat the room via the fan coil actuator. Whether to heat or cool is decided via the changeover object. This operating mode is selected via the function icon "Fan coil heating or cooling" in the "Allocation" menu of the System Access Point (sub-menu temperature regulation) (see Table 2: Function overview) and is to be linked with the room temperature controller in menu "Linking" in the main menu of the System Access Point. Normally, with switchable units the status (heating or cooling) is made available via a floating contact. This, for example, can be requested with the Free@Home binary inputs BI-F-2.0.1 (6241/2.0 U) or BI-F-4.0.1 (6241/4.0 U). If instead of a floating contact it is a 230 V AC contact, then the Free@Home binary input BI-M-4.0.1 (6241/4.0) can be used for the request. Operating mode cooling is active when the contact is closed for contact type "NO contact". For contact type "NC contact" cooling mode is active when the contact is open. For this only the function "Switchover heating/cooling" of a binary input needs to be added in user interface "Allocation". The link with the associated function "Fan coil heating or cooling" of the fan coil actuator is carried out automatically. For 2-pipe blower convectors the fan coil actuator controls one valve actuator.

#### 4.5.2 4-pipe blower convectors

4-pipe blower convectors function the same as 2-pipe blower convectors, the difference being that they can heat and cool the room due to the two circuits. For this one circuit is connected to the heating unit, the other circuit to a cooling unit. The room temperature controller can actively heat and actively cool the room via the fan coil actuator. This operating mode is selected via the function icon "Fan coil heating or cooling" in the user interface of the System Access Point (see Table 2: Function overview). For 4-pipe blower convectors the fan coil actuator controls two valve actuators.

NOTE
The fan coil actuator only supports the activation of 4-pipe blower convectors which use thermal valve actuators.

4.6 Device overview

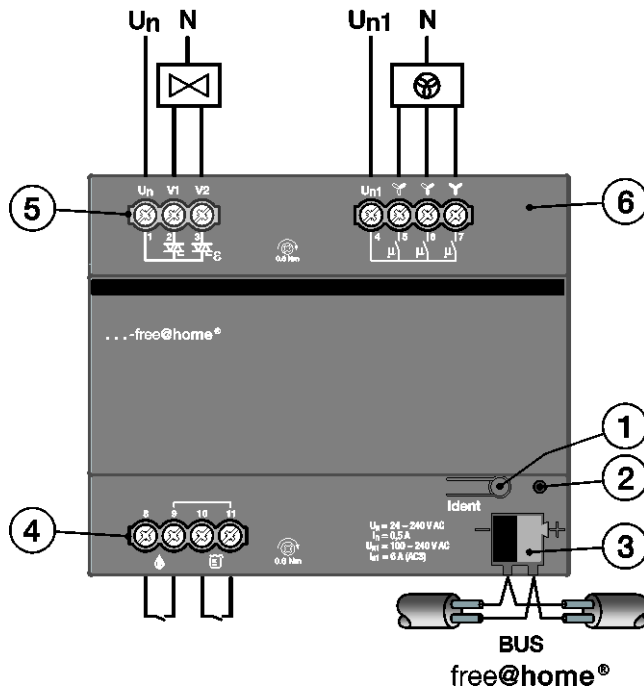


Fig. 3: Overview of fan coil actuator devices

- [1] Device identification during commissioning
- [2] Identification LED
- [3] Bus connection terminal
- [4] Connecting terminals of sensors
- [5] Connecting terminals of valve actuators
- [6] Connecting terminals of fans

## 5 Technical data

### 5.1 FCA-M-2.3.1

Parameter	Value	
<b>General</b>		
Power supply	21 - 30 V DC (via the bus)	
Bus subscribers	1 (12 mA)	
Connection (free@home)	Bus connection terminal: 0.4 - 0.8 mm	
Line type	J-Y(St)Y, 2 x 2 x 0.8 mm	
Air pressure	Atmosphere up to 2,000 m	
Power loss	2 W max.	
Connecting terminals	Combi-head screw-type terminal (PZ 1)	Connection cross section: 0.2 - 4.0 mm <sup>2</sup> fine-wire, 2 x 0.2 - 2.5 mm <sup>2</sup> 0.2 - 6.0 mm <sup>2</sup> single-wire, 2 x 0.2 - 4.0 mm <sup>2</sup>
	Tightening torque	0.6 NM
Ambient temperature	Operation	-5°C - +45°C
	Storage	-25°C - +55°C
	Transport	-25°C - +70°C
Environmental characteristics	Maximum humidity	93%, no dew permissible
Protection	IP20	According to DIN EN 60 529
Protection class	II	According to DIN EN 61 140
Insulation category	Overtoltage category	III according to DIN EN 60 664-1
	Degree of contamination	2 according to DIN EN 60 664-1
Mounting	On 35 mm mounting rail	According to DIN EN 60 715
Built-in position	Any	
Design	Rail mounting device (MDRC)	Modular installation device, Pro <i>M</i>
	Installation width	6 modules à 18 mm
	Installation depth	64.5 mm
	Housing, colour	Plastic, basalt grey (RAL 7012)
Dimensions	108 x 90 x 64.5 mm (W x H x D)	
Weight	0.3 kg	
CE marking	According to EMC and low-voltage guidelines	

<b>Binary inputs</b>	
Quantity	2
Polling voltage	10 V DC
Polling current	1 mA
<b>Valve outputs</b>	
Type	Semiconductor output for valve actuators, short-circuit-proof and overload-protected
Quantity	2
Rated voltage $U_n$	24 - 240 V AC, 50/60 Hz
rated current $I_N$ (for both outputs)	0.5 A
Minimum load	0.5 VA per output
Continuous current	0.5 A resistive load at $T_u = 20^\circ\text{C}$ 0.3 A resistive load at $T_u = 60^\circ\text{C}$
Maximum inrush current	1.6 A for 10 s at $T_u \leq 45^\circ\text{C}$
<b>Fan output</b>	
Quantity	One with three relays
Rated voltage $U_{n1}$	24 - 240 V AC, 50/60 Hz
Switching capacity according to DIN EN 60 947-4	6 A (AC3) per relay

Table 3: Technical data

5.2 Dimensions

<b>NOTE</b>
All dimensions are in mm.

Fan Coil actuator FCA-M-0.6.1

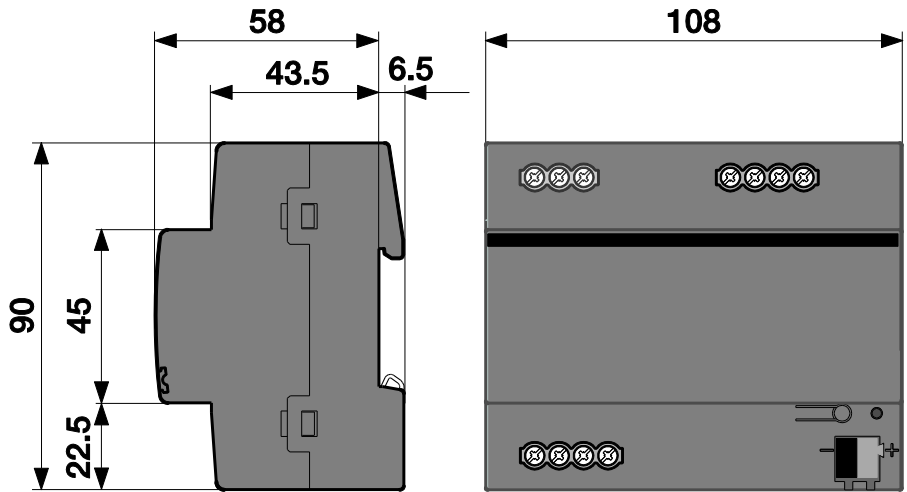


Fig. 4: Dimensions of 6 gang fan coil actuator

## 5.3 Connection

### 5.3.1 Electrical connection

- » The electrical connection is made via screw terminals. The bus connection is established by means of the enclosed bus connection terminal. The terminal designation is located on the housing.
- » The bus line connection is established by means of the enclosed bus connection terminal (red/black).
- » The technical data of the actuating drive and fan must be observed!
- » The device is ready for operation after the bus voltage has been applied.
- » The data of the actuating drive and fan must be observed!

Mounting and commissioning must only be carried out by qualified electrical installers. When planning and setting up electrical systems and security-related systems for the detection of intrusion and of fires, the relevant standards, guidelines, rules and regulations of the respective country are to be observed.

- » Protect the device against humidity, dirt and damage during transport, storage and operation!
- » Operate the device only within the specified technical data!
- » Operate the device only in a closed housing (distributor)!
- » Prior to performing installation work the device is to be deactivated.



### **Danger**

#### **Danger to life**

To prevent dangerous contact currents due to feedback from different external conductors, an all-pole deactivation is to be carried out when extending or changing the electric connection.



### 5.3.2 Connecting valve actuators

The fan coil actuator can, depending on the operating mode, activate a maximum of two thermal valve actuators or one motor-driven (3-point) valve actuator. Supported are valve actuators which require a valve power supply of 24 V AC to 240 V AC at 50/60 Hz. The phase of the valve supply voltage is to be fed to the valve actuator through the fan coil actuator via terminals 1 ( $U_{N1}$ ) and 2 ( $V1$ ), 3 ( $V2$ ). The proper connection is illustrated in Table 4:

1. The thermal valve actuator of a 2-pipe blower convector is always to be connected to terminal 2 ( $V1$ ) irrespective of the operating mode.
2. In case of a motor-driven valve actuator (3-point) of a 2-pipe blower convector the contact for closing the valve is always to be connected to terminal 2 ( $V1$ ). The contact for opening the valve is to be connected to terminal 3 ( $V2$ ).
3. In case of 4-pipe blower convectors the thermal valve actuator of the heating circuit is to be connected to terminal 2 ( $V1$ ). The thermal valve actuator of the cooling circuit is to be connected to terminal 3 ( $V2$ ).

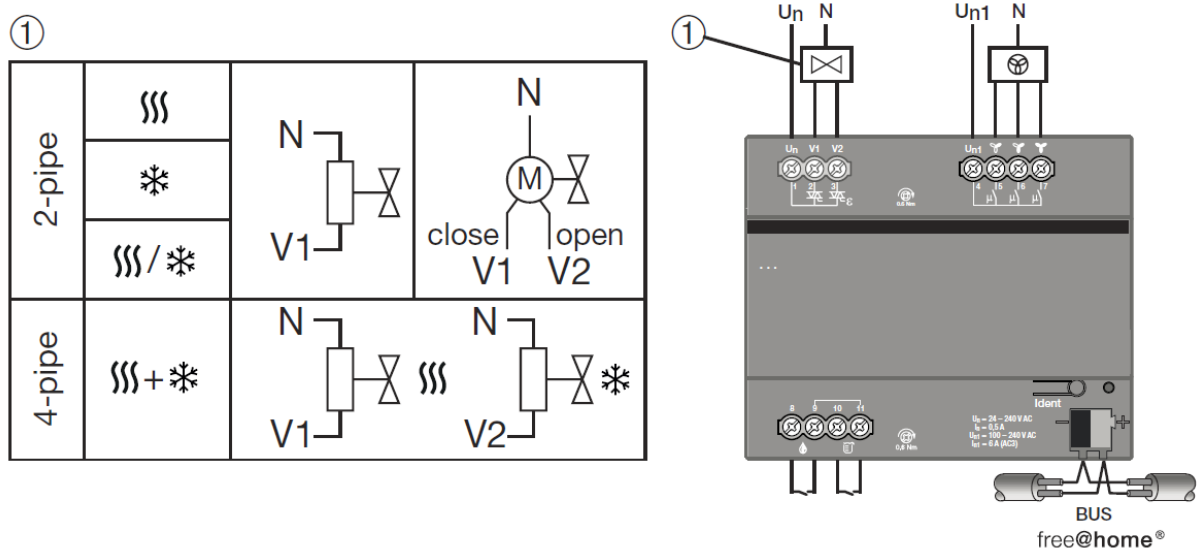


Table 4: Connection of thermal and motor-driven valve actuators

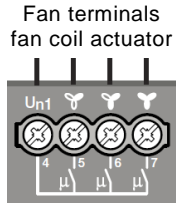
#### NOTE

Please observe especially the correct method of connecting motor-driven or thermal valve actuators for 4-pipe blower convectors to avoid later re-wiring. An incorrectly connected blower convector (incorrect connection of valves for heating and cooling) cannot be corrected later with the software application.

### 5.3.3 Connection of fan

The fan coil actuator supports three-level fans in two-way as well as step switching which require a fan supply voltage ( $U_{N1}$ ) of 24 V AC to 240 V AC at 50/60 Hz. The phase of the fan supply voltage is to be fed to the fan through the fan coil actuator via terminals 4 ( $U_{N1}$ ) and 5 (fan speed level 1), 6 (fan speed level 2), 7 (fan speed level 3). Depending on the circuit, terminals 5, 6 and 7 for the three fan speed levels are fed differently with supply voltage  $U_{N1}$ . The connection is illustrated in Table 5.

Internal $U_{N1}$ connection for two-way and level switching		
Fan speed level	Voltage $U_{N1}$ → terminals 5,6,7 fan coil actuator	
	Two-way circuit	Level switching
Level 1	$U_{N1} \rightarrow 5$	$U_{N1} \rightarrow 5$
Level 2	$U_{N1} \rightarrow 6$	$U_{N1} \rightarrow 5, 6$
Level 3	$U_{N1} \rightarrow 7$	$U_{N1} \rightarrow 5, 6, 7$



The diagram shows a fan coil actuator with terminals 4, 5, 6, and 7. Terminal 4 is connected to  $U_{N1}$ . Terminals 5, 6, and 7 are connected to fan speed levels 1, 2, and 3 respectively. The connections are shown as follows:  $U_{N1}$  to 4, 5 to 5, 6 to 6, and 7 to 7.

Table 5: Connection of 3-level fans in two-way circuit or level switching

### Attention

Please observe that fans which require activation via a two-way circuit can be damaged or lose their proper function due to level switching. Please make sure which fan activation is the correct one for your blower convactor before you set the two-way circuit or level switching in the wizard of the fan coil actuator in the System Access Point.

### 5.3.4 Connection of sensors

The fan coil actuator supports the connection of floating binary dew point or fill level sensors. The dew point sensor can detect whether condensate forms in the intermediate ceiling. The danger of the overflow of an existing condensate tray of the fan coil actuator can be detected in time with the aid of the fill level. A sensor must be connected to either sensor 8 and 9 or 10 and 11 (see Table 4).

Sensors are configured in the wizard in the System Access Point for configuring the fan coil actuator. When a sensor is triggered, the fan is switched off and valves are closed.

## 6 Mounting

### 6.1 Safety instructions for mounting



#### Danger

##### **Risk of death due to electrical voltage**

Dangerous currents flow through the body when coming into direct or indirect contact with live components. This results in electric shock, burns or even death.

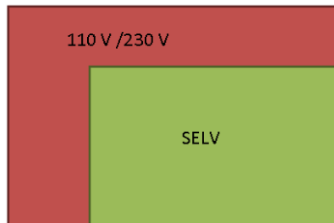
Work improperly carried out on electrical systems is a hazard to one's own life and that of the user. Also fires and serious damage to property can result.

- » Observe the relevant standards.
- » Apply at least the "five safety rules" (DIN VDE 0105, EN 50 110):
  1. Disconnect
  2. Secure against being re-connected
  3. Ensure there is no voltage
  4. Connect to earth and short-circuit
  5. Cover or barricade adjacent live parts
- » Install the device only if you have the necessary electrical engineering knowledge and experience (see chapter 2.4).
- » Use suitable personal protective clothing.
- » Use only suitable tools and measuring devices.
- » Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

**Danger****Risk of death due to short-circuit**

Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.

- » During mounting observe the spatial division (> 10 mm) of SELV electric circuits to other electric circuits.
- » Observe the spatial division of SELV electric circuits and other electric circuits. Otherwise short-circuits can occur.



- » If the minimum distance is insufficient, use electronic boxes or insulating tubes.
- » Observe the correct polarity.

## 6.2 Installation/mounting

The device is a rail mounting device for installing in distributors for easy installation on 35 mm mounting rails according to DIN EN 60 715.

The device can be mounted in any position.

The stick-on label is to be removed and glued into the list (see system manual System Access Point).

The bus connection is established by means of the enclosed bus connection terminal.

The device is ready for operation after the bus voltage and, if required, an auxiliary voltage has been applied.

The description of the terminals is located on the housing.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs according to DIN VDE 0100-520.

### Requirements for commissioning

A System Access Point is required to make the device operational. The device is ready when the bus voltage is applied.

## 6.3 Dismantling

Dismantling is carried out in the reverse order.

## 7 Commissioning

Commissioning is always carried out via the Web-based surface of the System Access Point.

The System Access Point establishes the connection between the free@home participants and the smartphone, tablet or PC. It is used to identify and program the participants during commissioning.

Devices which are physically connected to the free@home bus, log themselves automatically into the System Access Point. They transmit information about their type and supported functions (see Table 2: Function overview, chapter 4.3).

During initial commissioning all devices are given a generic name (e.g. switch actuator 1, etc.). The user must change this name to a name practical for the system (Example: "Living room light" for an actuator in the living room).

Commissioning of the fan coil actuator is described in the following chapters. Here it is assumed that the basic commissioning steps of the overall system have already been carried out. General knowledge about the Web-based commissioning software of the System Access Point is assumed.

### NOTE

General information about commissioning and parameterization is available in the system manual and the online Help of the "System Access Point" ([www.abb.com/freeathome](http://www.abb.com/freeathome)).

## 7.1 Allocation of devices and specifying channels

The devices connected to the system must be identified, i.e. they are allocated to a room according to their function and are given a descriptive name.



The allocation is made via the allocation function of the Web-based user interface of the System Access Point.

### Device selection

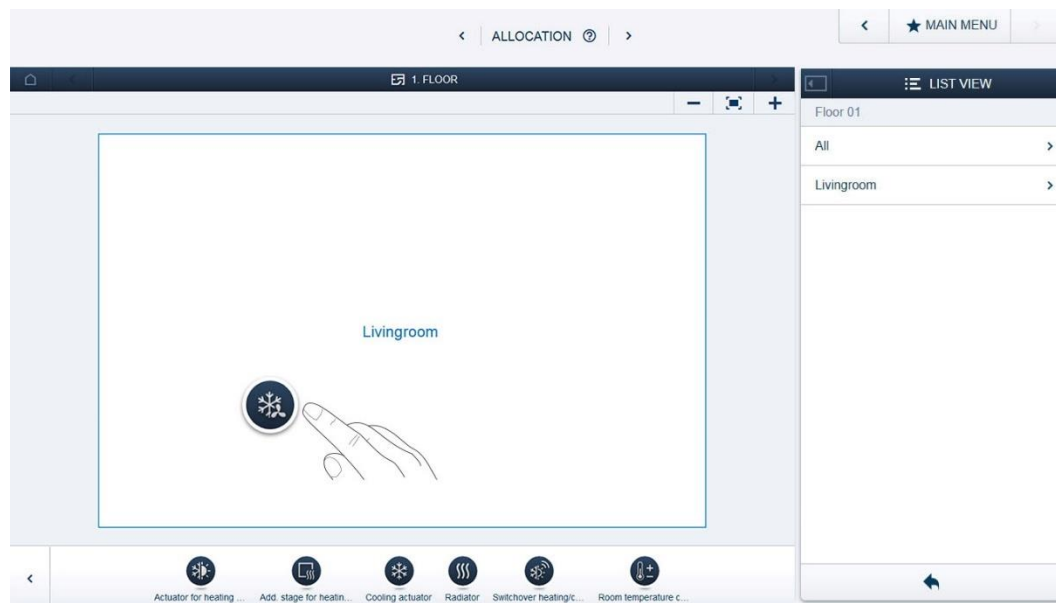


Fig. 5: Allocating devices

- » In the "Add device" bar select the desired application and pull it via drag-and-drop onto the floor plan in the working area.

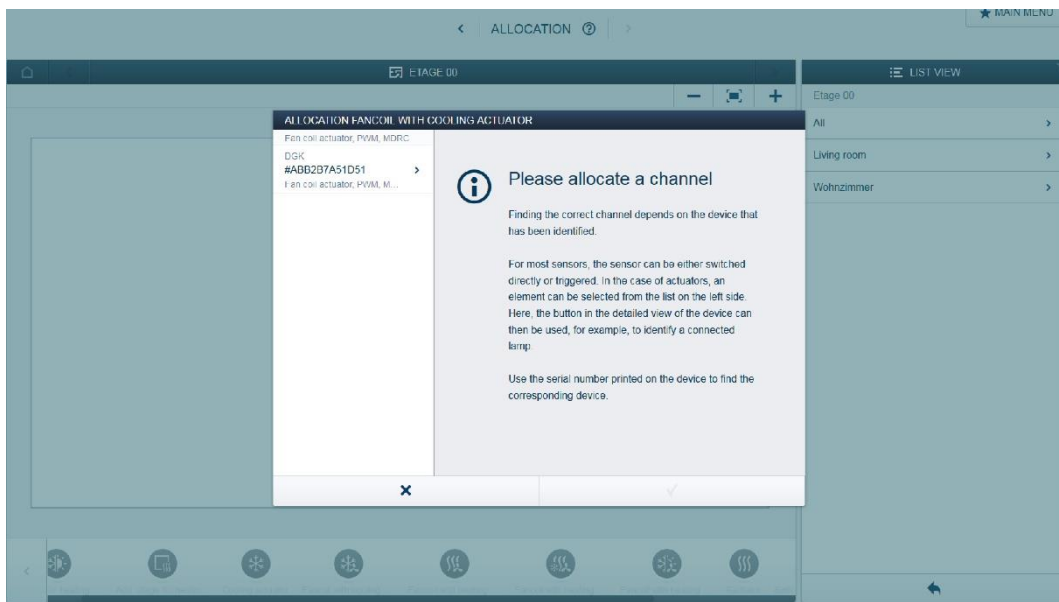


Fig. 6: Allocation

- A pop-up window opens automatically which lists all the devices suitable for the application selected.

The desired device can now be identified.



### Identification via serial number

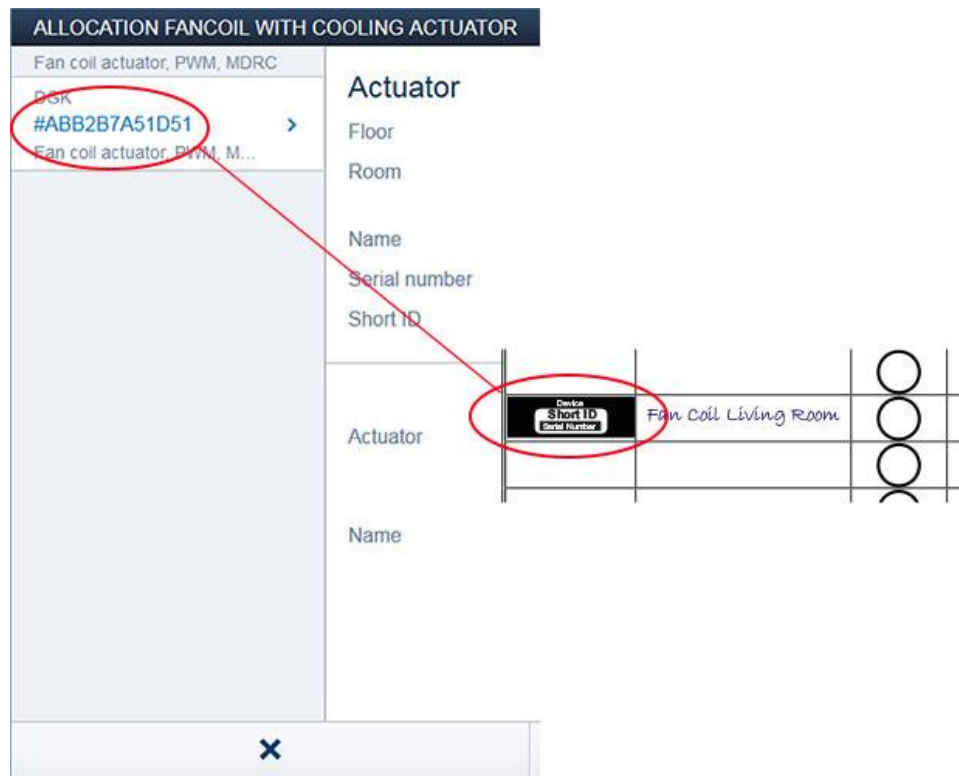


Fig. 7: Identification via serial number

- » Compare the short 3-digit number of the identification label with the numbers in the list and in this way identify the device you are searching for and, if necessary, also the channel.

### Identification by pressing the "Identification button"

- » Press the identification button on the device you wish to add.
- The desired device is faded in automatically.
- » Select the desired channel.

### Assigning a name




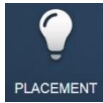
ALLOCATION FANCOIL WITH COOLING ACTUATOR	
Fan coil actuator, PWM, MDRC	
DGK #ABB2B7A51D51 > Fan coil actuator, PWM, M...	<b>Actuator</b>
	Floor 1. floor
	Room Living room
	Name Fan coil actuator, PWM, MDRC
	Serial number ABB2B7A51D51
	Short ID DGK
	Actuator  Fan coil actuator,...
	Name <input type="text" value="Fan coil actuator, PWM"/>
	

Fig. 8: Assigning a name

- » Enter a name that is easy to understand and under which the application is to be displayed later (e.g. "Living room blower convector").
- » Press the tick at the bottom right to take over the entry.

## 7.2 Setting options per channel

General settings and parameter settings can be made for each channel.



The settings are made via the allocation function of the Web-based user interface of the System Access Point.

### Device selection

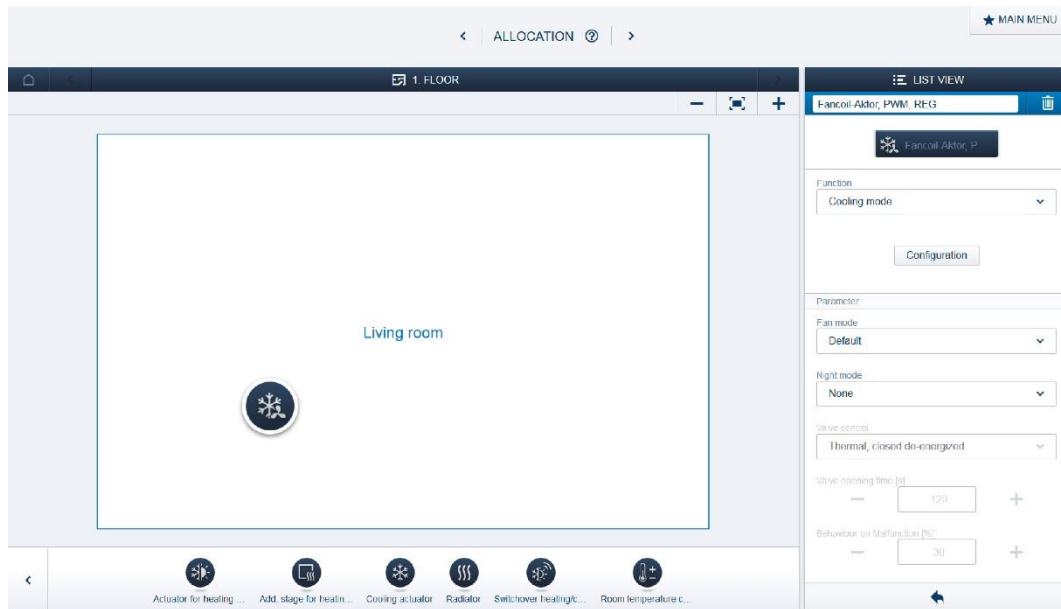


Fig. 9: Device selection

- » Select the device icon in the floor plan of the working area view.
- All setting options for the respective channel are displayed in the list view. The following settings are available.

7.2.1 Fan coil actuator settings

The screenshot shows a mobile application interface for configuring a fan coil actuator. At the top, there is a 'LIST VIEW' header and a channel name 'Fan coil actuator, PWM, MDRC'. A trash icon is next to the channel name. Below this is a 'Function' dropdown menu set to 'Heating mode' and a 'Configuration' button. The 'Parameter' section includes: 'Fan mode' (Default), 'Night mode' (None), 'Behaviour on Malfunction [%]' (30), 'Valve control' (Thermal, closed de-energized), 'Valve opening time [s]' (120), 'Fan mode' (Step switch), 'Fan start-up time with full power [ms]' (0), 'Fan changeover delay [ms]' (500), 'Fill level sensor' (Not configured), and 'Dew point sensor' (Not configured). A back arrow is at the bottom.

- [1] Changing the name
- [2] Deleting the channel
- [3] Selection of function (see section 4.3)
- [4] Call up the wizard to configure the fan coil actuator
- [5] Fan mode setting
- [6] Activation and setting of night mode
- [7] Setting the control value of the valve for errors

**The following parameters are visible only in wizard mode and can only be set via the wizard.**

- [8] Valve configuration (de-energized closed, de-energized open)
- [9] Settings of movement time necessary to completely open the motor-driven valve actuator used
- [10] For the selection of level switching/two-way circuit for the fan, see 5.3.3
- [11] Setting the time the fan must remain in the highest level to be able to start
- [12] Setting the time the fan must be deactivated between switchover of levels for the two-way circuit, to prevent damage to the fan
- [13] Selection of whether the fill level sensor is a floating NC contact or NO contact
- [14] Selection of whether the dew point sensor is a floating NC contact or NO contact

Fig. 10: Settings for the fan coil actuator

**Function****Important**

After changing the function the wizard must be called up again, all links must be checked manually and, if necessary, restored to ensure the fan coil actuator operates correctly.

**Fan mode**

The selection of the fan speed level depends on the respective current percentage value of the valve control value. Table 6 represents the dependencies.

Fan mode	Level 0 → 1 (No hysteresis)	Level 1 → 2 (Hysteresis ± 5%)	Level 2 → 3 (Hysteresis ± 5%)
Quiet	>0%	30%	60%
Standard	>0%	50%	80%
Max. power	>0%	10%	40%

Table 6: Switchover of fan speed levels in dependence of the control value

**Night mode**

With setting "Quiet" the fan speed level is limited to level 2. With setting "Very quiet" the fan speed level is limited to level 1.

### 7.3 Linking

The fan coil actuator created via the allocation function can now be linked with a second device (e.g. room temperature controller).



The linking in the list view is made via the linking function of the Web-based user interface of the System Access Point.

#### Example: Linking fan coil actuator and room temperature controller

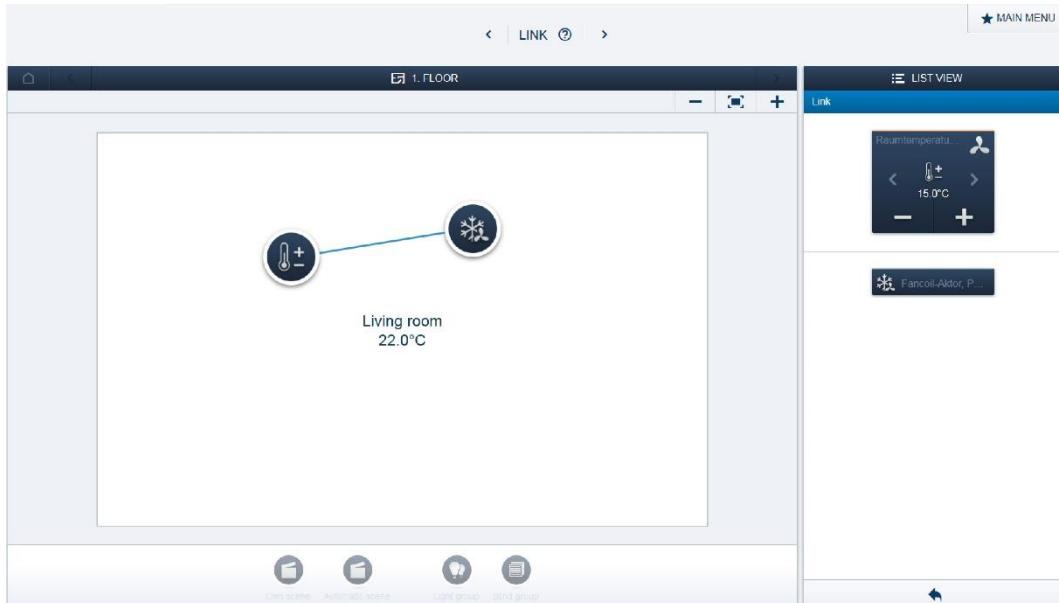


Fig. 11: Linking fan coil actuator and room temperature controller

- To link a fan coil actuator with a room temperature controller, add the fan coil actuator and the room temperature controller to the same room.
- The room temperature controller will be automatically linked with the fan coil actuator in the room.

#### NOTE

The links can be changed manually at all times.

## 7.4 Behaviour of the fan coil actuator

### 7.4.1 Bus voltage failure

The bus voltage failure closes the valve (for deactivated closed valves) or opens it (for deactivated opened valves). The fan is switched off. After the bus voltage recovery the fan switches back to the level that was valid prior to the bus voltage failure.

### 7.4.2 Automatic valve calibration

For motor-driven valve actuators the calibration takes place automatically. Important here is to set the correct movement time (see setting [8] in section 7.2.1).

## 7.5 Faults

If the fan coil actuator does not receive a control value from the room temperature controller for longer than 20 minutes, it switches into fault mode.

The following error message appears in the SysAp:

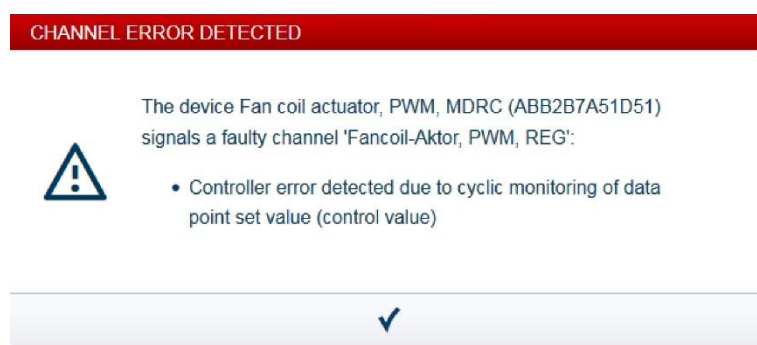


Fig. 12: Error message during missing control value

The fan coil actuator continues to function in fault mode and during faults it uses the control value defined in the settings (see parameter [7] in section 7.2.1). In automatic mode of the room temperature controller the fan speed level results from the control value (see section 7.2.1) and can be adjusted manually by the room temperature controller.

In case of overload or short-circuit, the activated valve outputs are deactivated. Valves that are in a closed in a deactivated state are then closed. The fan is switched off. In case of valves that are open in a deactivated state, the valve is then opened. The fan is switched to level 3, to prevent the formation of condensate, for example. In case of 3-point valves the valve position and the fan position remain unchanged.

If an overload or a short-circuit is detected, the valve output is deactivated for approximately 15 seconds and an overload message is issued. If more than 3 overloads or short-circuits are detected within a period of 72 hours, a short-circuit message is issued and the valve output is deactivated permanently.

After the cause of the fault has been rectified, this condition can only be neutralized by deactivating and re-activating the bus voltage or by re-starting the device.

## 8 Updating options

A firmware update is carried out via the Web-based user interface of the System Access Point. For this, visit the free@home website [www.abb.com/freeathome](http://www.abb.com/freeathome).



## 9 Maintenance

The devices are maintenance-free. In case of damage (e.g., during transport or storage), do not perform repairs. Once the device is opened, the warranty is void!

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

### 9.1 Cleaning

Dirty devices can be cleaned with a dry cloth. If this is not sufficient, a cloth slightly moistened with a soap solution can be used. Caustic cleaning agents or solvents must not be used.

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