ABB i-bus® KNX
Fan Coil Actuator, MDRC
FCA/S 1.1M, 2CDG 110 084 R0011

2CDC 071 112 F0008

The Fan Coil Actuator FCA/S 1.1M is a modular installation device (MDRC) in pro *M* design. It is intended for installation in the distribution board on 35 mm mounting rails. The assignment of the physical address as well as the parameter settings is carried out with ETS 2 from version V1.3a or higher.

The device is powered via the ABB i-bus® and does not require and additional auxiliary voltage supply. The FCA/S 1.1M is operational after connection of the bus voltage.

Technical data

Supply	Bus voltage	21…32 V DC
	Current consumption, bus	< 12 mA
	Leakage loss, bus	Maximum 250 mW
	Leakage loss, device	Maximum 2.85 W*
* The maximum power consumption of the device results from the following specifications:	KNX bus connection	0.25 W
	Relay 16 A	1.0 W
	Relay 6 A	0.6 W
	Electronic outputs 0.5 A	1.0 W
Connections	KNX	Via bus connection terminals
	Inputs/Outputs	Via screw terminals
Connection terminals	Screw terminal	Screw terminal, slotted head
		0.2…2.5 mm² stranded
		0.2…4 mm² solid core
	Tightening torque	Maximum 0.6 Nm
	Grid	5.08

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Operating and display elements	Button/LED	For assignment of the physical address
	Button /LED	For toggling between manual operation / operation via ABB i-bus® and displays
	Button /LED	Programmable function
	Button	For switching through the individual fan speeds: 0 => 1 => 2 => 3 => 0 => 1 => 2 => 3 =>…
	LED	For display of fan speed 1
	LED	For display of fan speed 2
	LED	For display of fan speed 3
	Button /LED	For control and display of the valve HEATING
	Button /LED	For control and display of the valve COOLING
	Button /LED	For switching and display of the switch contact
	Button /LED	For switching and display of the binary input
	Button /LED	For switching and display of the binary input
Enclosure	IP 20	To DIN EN 60 529
Safety class	II	To DIN EN 61 140
Isolation category	Overvoltage category	III to DIN EN 60 664-1
	Pollution degree	2 to DIN EN 60 664-1
KNX safety extra low voltage	SELV 24 V DC	
Temperature range	Operation	-5 °C…+45 °C
	Transport	-25 °C…+70 °C
	Storage	-25 °C…+55 °C
	Storage at temperatures exceeding +45 °C reduces the service life!	
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Design	Modular installation device (MDRC)	Pro *M* modular installation device
	Dimensions	90 x 72 x 64.5 mm (H x W x D)
	Mounting width in space units	4 modules at 18 mm
	Mounting depth	64.5 mm
Installation	On 35 mm mounting rail	To EN 60 715
Mounting position	as required	
Weight	0.1 kg	
Housing/colour	Plastic housing, grey	
Approvals	KNX to EN 50 090-1, -2	Certification
CE mark	in accordance with the EMC guideline and low voltage guideline	

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Device type	Application program	Max. number of Communication objects	Max. number of group addresses	Max. number of associations
FCA/S 1.1M	Fan Coil Actuator/…*	70	85	85

* … = current version number of the application program. **Please observe the software information on our homepage for this purpose**.

Note

For a detailed description of the application program see "*Fan Coil Actuator FCA/S 1.1M*." product manual. It is available free-of-charge at *www.abb.com/knx*. The ETS and the current version of the device application program are required for programming.

The current version of the application program is available for download on the internet as *www.abb.com/knx*. After import it is available in the ETS under *ABB/Heating, Ventilation, Air conditioning/Fan coil actuator 1-fold.*

The device does not support the locking function of a KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU* code, it has no effect on this device. Data can still be read and programmed.

Electronic outputs

Rated values	Number	4, non-isolated, short-circuit proofed
	U_n rated voltage	24…230 V AC (50/60 Hz)
	I_n rated current (per output pair)	0.5 A
	Continuous current	0.5 A resistive load at T_{amb}* up to 20 °C
		0.3 A resistive load at T_{amb}* up to 60 °C
	Inrush current	Maximum 1.6 A, 10 s at T_{amb}* up to 60 °C

*T_{amb} = ambient temperature

Binary inputs

Rated values	Number	2
	U_n scanning voltage	32 V, pulsed
	I_n scanning current	0.1 mA
	Scanning current I_n at switch on	Maximum 355 mA
	Permissible cable length	≤ 100 m one-way, at cross-section 1.5 mm²

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Fan rated current 6 A

Rated values	Number	3 contacts
	U_n rated voltage	250/440 V AC (50/60 Hz)
	I_n rated current	6 A
Switching currents	AC3* operation (cos φ = 0.45) to EN 60 947-4-1	6 A/230 V
	AC1* operation (cos φ = 0.8) to EN 60 947-4-1	6 A/230 V
	Fluorescent lighting load AX to EN 60 669-1	6 A/250 V (35 µF)[1]
	Minimum switching performance	20 mA/5 V 10 mA/12 V 7 mA/24 V
	DC current switching capacity (resistive load)	6 A/24 V=
Service life	Mechanical service life	> 10^7
	Electrical endurance to IEC 60 947-4-1	
	AC1* (240 V/cos φ 0.8)	> 10^5
	AC3* (240 V/cos φ 0.45)	> 1,5 x 10^4
	AC5a (240 V/cos φ 0.45)	> 1,5 x 10^4
Switching times[1]	Maximum relay position change per output and minute if only one relay is switched.	2,683

[1] The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. Typical delay of the relay is approx. 20 ms.

[2] The maximum inrush-current peak may not be exceeded.

*** What do the terms AC1, AC3 and AC5a mean?**

In Intelligent Installation Systems, different switching capacity and performance specifications, which are dependent on the special application, have become established in industrial and residential systems. These performance specifications are rooted in the respective national and international standards. The tests are defined so that typical applications, e.g. motor loads (industrial) or fluorescent lamps (residential) are simulated.

The specifications AC1 and AC3 are switching performance specifications which have become established in the industrial field.

Typical application:

AC1 – Non-inductive or slightly inductive loads, resistive furnaces (relates to switching of oh-mic/resistive loads)

AC3 – Squirrel-cage motors: Starting, switching off motors during running (relates to (inductive) mo-tor load)

AC5a – Switching of electric discharge lamps

These switching performances are defined in the standard EN 60947-4-1 *Contactors and motor-starters - Electromechanical contactors and motor-starters.* The standard describes starter and/or contactors that previously were preferably used in industrial applications.

Fan rated current 16 A

Rated values	Number	1
	U_n rated voltage	250/440 V AC (50/60 Hz)
	I_n rated current	16 A
Switching currents	AC3* operation (cos φ = 0.45) To EN 60 947-4-1	8 A/230 V
	AC1* operation (cos φ = 0.8) To EN 60 947-4-1	16 A/230 V
	Fluorescent lighting load AX to EN 60 669-1	16 A/250 V (70 µF)[1]
	Minimum switching performance	100 mA/12 V 100 mA/24 V
	DC current switching capacity (resistive load)	16 A/24 V
Service life	Mechanical service life	> 3 x 10^6
	Electrical endurance to IEC 60 947-4-1	
	AC1* (240 V/cos φ 0.8)	> 10^5
Switching times[1]	Maximum relay position change per output and minute if only one relay is switched.	313

[1] The maximum inrush-current peak may not be exceeded.

[2] The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. Typical delay of the relay is approx. 20 ms.

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Output lamp load 16 A

Lamps	Incandescent lamp load	2500 W
Fluorescent lamp T5 / T8	Uncorrected	2500 W
	Parallel compensated	1500 W
	DUO circuit	1500 W
Low-voltage halogen lamps	Inductive transformer	1200 W
	Electronic transformer	1500 W
	Halogen lamp 230 V	2500 W
Dulux lamp	Uncorrected	1100 W
	Parallel compensated	1100 W
Mercury-vapour lamp	Uncorrected	2000 W
	Parallel compensated	2000 W
Switching performance (switching contact)	Maximum peak inrush-current I_p (150 µs)	400 A
	Maximum peak inrush-current I_p (250 µs)	320 A
	Maximum peak inrush-current I_p (600 µs)	200 A
Number of electronic ballasts (T5/T8, single element)[1)]	18 W (ABB EVG 1 x 18 SF)	23
	24 W (ABB EVG-T5 1 x 24 CY)	23
	36 W (ABB EVG 1 x 36 CF)	14
	58 W (ABB EVG 1 x 58 CF)	11
	80 W (Helvar EL 1 x 80 SC)	10

[1)] For multiple element lamps or other types the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts.

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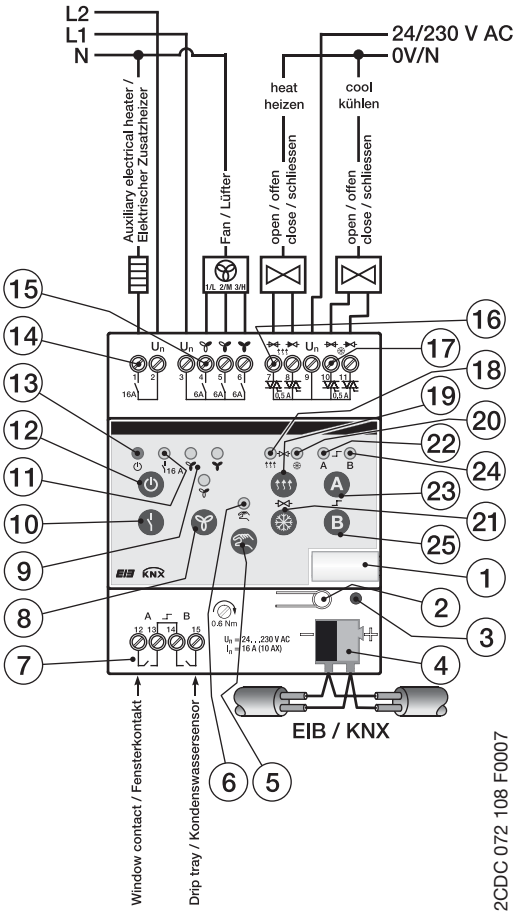
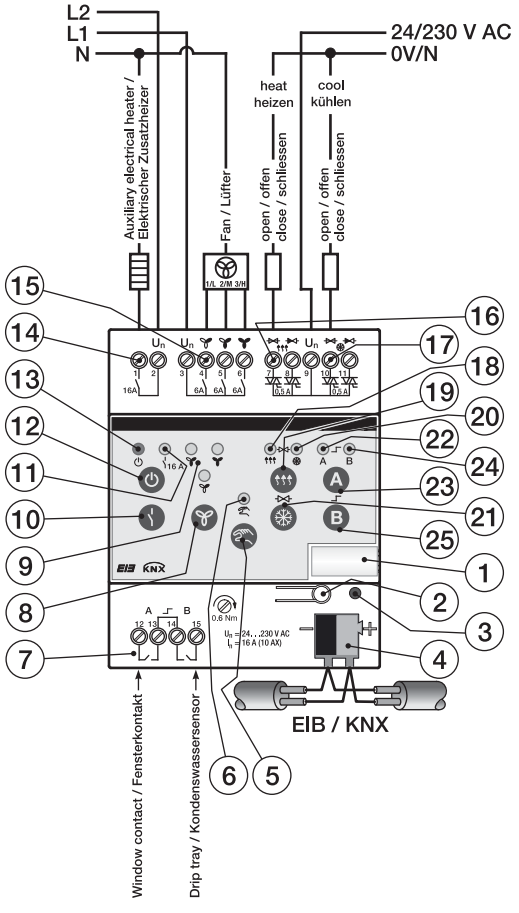
Connection schematics



FCA/S 1.1M
with electromotor valve drives



FCA/S 1.1M
with electro-thermal valve drives

1 Label carrier
2 Button *Programming*
3 LED *Programming* (red)
4 Bus connection terminal
5 Button
6 LED (yellow)
7 Inputs (A, B)
8 Button *Fan speed*
9 LED *Fan speed* 1…3 (yellow)
10 Button *Switch contact*
11 LED *Switch contact* (yellow)
12 Button ON/OFF
13 LED ON/OFF (green)
14 Output switching contact
15 Fan
16 Valve HEATING
17 Valve COOLING
18 LED *Valve HEATING* (yellow)
19 Button *Valve HEATING*
20 LED *Valve COOLING* (yellow)
21 Button *Valve COOLING*
22 LED *Input A* (yellow)
23 Button *Input A*
24 LED *Input B* (yellow)
25 Button *Input B*

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Dimension drawing