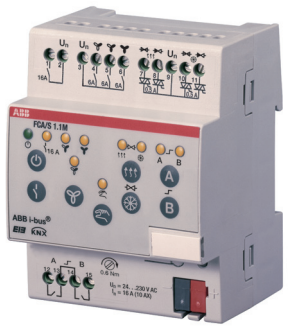
Fan Coil Actuator, MDRC
FCA/S 1.1M, 2CDG 110 084 R0011



2CDC 071 112 F0008

The Fan Coil Actuator FCA/S 1.1M is a modular installation device (MDRC) in proM 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 ETS2 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
	Relay 0.5 A	1.0 W
Connections	KNX	Via bus connection terminals
	Inputs/Outputs	Via screw terminals
Operating and display elements	Programming button/LED	For assignment of the physical address
	Button /LED	For toggling between manual operation/ operation via ABB i-bus® and displays
	Button ON/OFF /LED	Programmable function
	Fan speed button	For switching through the individual fan speed
	LED fan speed 1	For display of fan speed 1
	LED fan speed 2	For display of fan speed 2
	LED fan speed 3	For display of fan speed 3
	Valve heating button /LED	For control and display
	Valve cooling button /LED	For control and display
	Button switch contact /LED	For switching and display
	Button binary input /LED	For switching and display
	Button binary input /LED	For switching and display
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)	Modular installation device, Pro*M*
	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 DIN 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	

Electronic outputs

Rated values	Number of	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_u up to 20 °C 0.3 A resistive load at T_u up to 60 °C
	Inrush current	Maximum 1.6 A, 10 s at T_u up to 60 °C
		T_u = ambient temperature

Binary inputs

Rated values	Number of	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

Fan rated current 6 A

Nominal values	Number of	3 contacts
	U_n rated voltage	250/440 V AC (50/60 Hz)
	I_n rated current (per output)	6 A
Switching currents	AC3* operation (cos φ = 0.45) DIN EN 60 947-4-1	6 A/230 V
	AC1* operation (cos φ = 0.8) DIN EN 60 947-4-1	6 A/230 V
	Fluorescent lighting load to DIN EN 60 669-1	6 A/250 V (35 µF)[2]
	Minimum switching performance	20 mA/5 V 10 mA/12 V 7 mA/24 V
	DC current switching capacity (ohmic load)	6 A/24 V=
Service life	Mechanical endurance	$> 10^7$
	Electronical endurance to DIN IEC 60 947-4-1	
	AC1* (240 V/cos φ = 0,8)	$> 10^5$
	AC3* (240 V/cos φ = 0,45)	$> 1.5 \times 10^4$
	AC5a* (240 V/cos φ = 0,45)	$> 1.5 \times 10^4$
Switching times[1]	Maximun relay position change per output and minute if all relays are switched simultaneously. The position changes should be distributed equally within the minute.	60
	Maximum relay position change per output and minute if only one relay is switched.	240

[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.

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***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 ohmic/resistive loads)

AC3 – Squirrel-cage motors: Stating, switching off motors during running (relates to (inductive) motor load)

AC5a – Switching of electric discharge lamps

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

Rated current output 16 A

Nominal values	Number of	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) DIN EN 60 947-4-1	8 A/230 V
	AC1* operation (cos φ = 0.8) DIN EN 60 947-4-1	16 A/230 V
	Fluorescent lighting load AX to DIN EN 60 669-1	16 A/250 V (70 µF)[2]
	Minimum switching performance	100 mA/12 V 100 mA/24 V
	DC current switching capacity (resistive load)	16 A/24 V=
Service life	Mechanical endurance	> 3 x 10^6
	Electronical endurance to DIN IEC 60 947-4-1	
	AC1* (240 V/cos φ = 0.8)	> 10^5
Switching times[1]	Maximun relay position change per output and minute if all relays are switched simultaneously. The position changes should be distributed equally within the minute.	60
	Maximum relay position change per output and minute if only one relay is switched.	120

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Lamp load output

Lamps	Incandescent lamp load	2300 W
Fluorescent lamp T5 / T8	Uncorrected	2300 W
	Parallel compensated	1500 W
	DUO circuit	1500 W
Low-volt halogen lamps	Inductive transformer	1200 W
	Electronic transformer	1500 W
	Halogen lamp 230 V	2300 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 ballast's (T5/T8, single element)[1)]	18 W (ABB EVG 1 x 58 CF)	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

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

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Application program	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Fan Coil-Aktor/1	70	85	85

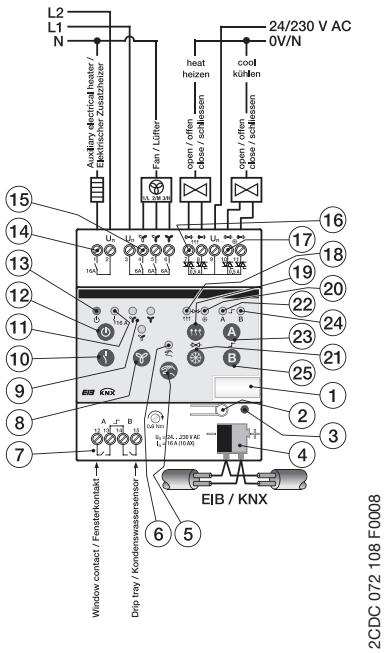
Note

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.de/KNX.

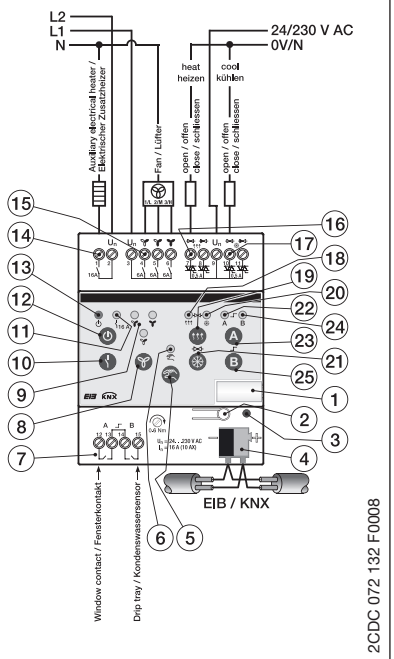
The programming requires EIB Software Tool ETS2 V1.3a or higher.

If ETS3 is used a *.VD3 or higher type file must be imported. The user program can be found in the ETS2 / ETS3 at ABB/Heating, Cooling, Blower/Fan Coil Actuator 1-fold.

Circuit diagrams



FCA/S 1.1M
with electromotor valve drives



FCA/S 1.1M
with electro-thermal valve drives

1 Label carrier
2 Programming button
3 Programming LED
4 Bus terminal connection
5 Button
6 LED
7 Binary inputs (A, B)
8 Button fan speed
9 LED fan speed 1-3
10 Button switch contact
11 LED switch contact
12 Button ON/OFF
13 LED ON/OFF
14 Output switch contact
15 Fan
16 Valve heating
17 Valve cooling
18 LED valve heating
19 Button valve heating
20 LED valve cooling
21 Button valve cooling
22 LED binary input A
23 Button binary input A
24 LED binary input B
25 Button binary input B

Dimension drawing