ABB i-bus® KNX
Fan Coil Actuator, MDRC
FCA/S 1.2.2.1, 2CDG 110 084 R0011

2CDC 071 003 S0012

The Fan Coil Actuator FCA/S 1.2.2.1 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 addresses as well as the parameterization is carried out with ETS.

The device is powered via the ABB i-bus® and does not require and additional auxiliary voltage supply. The FCA/S 1.2.2.1 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 W*
*The maximum power consumption of the device results from the following specifications:	KNX connection	0.25 W
	Relay 16 A	1.0 W
	Relay 6 A	0.6 W
	Analog outputs	0.15 W
Connections	KNX	via bus connection terminals
	Inputs/Outputs	via screw terminals
Connection terminals	Screw terminal	Screw terminal with universal head (PZ 1)
		0.2…4 mm² stranded, 2 x (0.2…2.5 mm²)
		0.2…6 mm² single core, 2 x (0.2…4 mm²)
	Ferrules without/with plastic sleeves	without: 0.25…2.5 mm²
		with: 0.25…4 mm²
	TWIN ferrules	0.5…2.5 mm²
		Contact pin length min. 10 mm

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Operating and display elements	Button/LED	zur Vergabe der physikalischen Adresse
	Button /LED	For toggling between manual operation/ operation via ABB i-bus® and displays
	LED ON (green)	Display Ready for operation
	Button *Output A* /Switch	For switching and display
	Button Fan speed	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 *Valve V1* HEATING	For opening/closing valve V1
	LED *Valve V1* HEATING	For display of valve position V1
	Button *Valve V2* COOLING	For opening/closing valve V2
	LED *Valve V2* COOLING	For display of valve position V2
	Button /LED	For switching and display
	Button /LED	For switching and display
	Button /LED	For switching and display
Enclosure	IP 20	To EN 60 529
Safety class	II	To EN 61 140
Isolation category	Overvoltage category	III to EN 60 664-1
	Pollution degree	2 to 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
	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	108 x 72 x 64.5 mm (H x W x D)
	Mounting width in space units	6 modules at 18 mm
	Mounting depth	64.5 mm
Installation	On 35 mm mounting rail	To EN 60 715
Mounting position	as required	
Weight	0.3 kg	
Housing/colour	Plastic housing, grey	

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Device type	Application program	Max. number of Communication objects	Max. number of group addresses	Max. number of associations
FCA/S 1.2.2.1	Fan Coil Actuator 0…10V/…*	70	254	255

* … = 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 1.2.2.1* 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 0-10.*

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.

Outputs Valve V1/2

Rated values	Number	2, non-isolated, short-circuit proofed
	Setting signal	0…10 V DC
	Signal type	Analogue
	Output load	> 10 kΩ
	Output tolerance	+/- 10 %
	Current limited	Up to 1.5 mA

Inputs

Rated values	Number	3
	Scanning current	1 mA
	Scanning voltage	10 V
	Contact scanning	Floating
Cable length	Between sensor and device input	Maximum 30 m, one-way

Fan rated current 6 A

Rated values	Number	3 contacts
	U_{n1} rated voltage	250/440 V AC (50/60 Hz)
	I_{n1} rated current (per output)	6 A
Switching currents	AC3* operation (cos φ = 0.45) EN 60 947-4-1	6 A/230 V
	AC1* operation (cos φ = 0.8) EN 60 947-4-1	6 A/230 V
	Fluorescent lighting load 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 endurance	> 10^7
	Electronic 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 x 10^4
	AC5a* (240 V/cos φ = 0.45)	> 1.5 x 10^4
Switching times[2]	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.

Output rated current 20 AX

Rated values	Number	1
	U_{n2} rated voltage	250/440 V AC (50/60 Hz)
	I_{n2} rated current	20 A
Switching currents	AC3* operation (cos φ = 0.45) to EN 60 947-4-1	16 A/230 V
	AC1* operation (cos φ = 0.8) to EN 60 947-4-1	20 A/230 V
	Fluorescent lighting load AX to EN 60 669-1	20 A/250 V (140 µF)[1]
	Minimum switching performance	100 mA/12 V 100 mA/24 V
	DC current switching capacity (resistive load)	20 A/24 V=
Service life	Mechanical service life	> 10^6
	Electrical endurance to IEC 60 947-4-1	
	AC1* (240 V/cos φ = 0.8)	> 10^5
	AC3* (240 V/cos φ = 0.45)	> 3 x 10^4
	AC5a (240 V/cos φ = 0.45)	> 3 x 10^4
Switching times[2]	Maximum relay position change per output and minute if only one relay is switched.	93

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

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Output lamp load 20 AX

Lamps	Incandescent lamp load	3680 W
Fluorescent lamp T5/T8	Uncorrected	3680 W
	Parallel compensated	2500 W
	DUO circuit	3680 W
Low-voltage halogen lamps	Inductive transformer	2000 W
	Electronic transformer	2500 W
	Halogen lamp 230 V	3680 W
Dulux lamp	Uncorrected	3680 W
	Parallel compensated	3000 W
Mercury-vapour lamp	Uncorrected	3680 W
	Parallel compensated	3680 W
Switching performance (switching contact)	Maximum peak inrush-current I_p (150 µs)	600 A
	Maximum peak inrush-current I_p (250 µs)	480 A
	Maximum peak inrush-current I_p (600 µs)	300 A
Number of electronic ballasts (T5/T8, single element)[1]	18 W (ABB EVG 1 x 18 SF)	26[2]
	24 W (ABB EVG-T5 1 x 24 CY)	26[2]
	36 W (ABB EVG 1 x 36 CF)	22
	58 W (ABB EVG 1 x 58 CF)	12[2]
	80 W (Helvar EL 1 x 80 SC)	10[2]

[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.

[2] Limited by protection with B16 automatic circuit-breakers.

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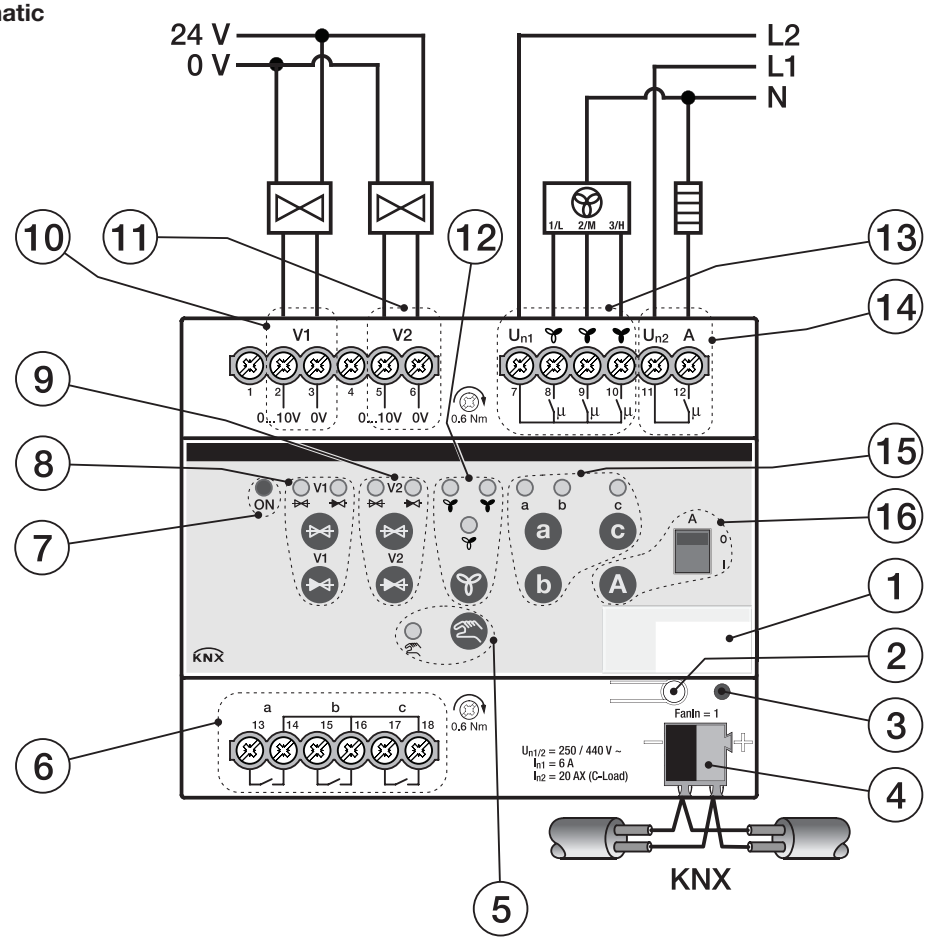
Connection schematic



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FCA/S 1.2.2.1

1 Label carrier
2 Button *Programming*
3 LED *Programming* (red)
4 Bus connection terminal
5 Button/LED *Manual operation* (yellow)
6 Inputs a, b, c
7 LED ON (green)
8 Buttons/LEDs valve V1 HEATING (yellow)
9 Buttons/LEDs valve V2 COOLING (yellow)
10 Valve V1 HEATING
11 Valve V2 COOLING
12 Button/LEDs Fan speed (yellow)
13 Fan
14 Output A
15 Buttons/LEDs Inputs a, b, c (yellow)
16 Button/display output A

Note
Terminals 1 and 4 are not internally assigned with FCA/S 1.2.2.1.

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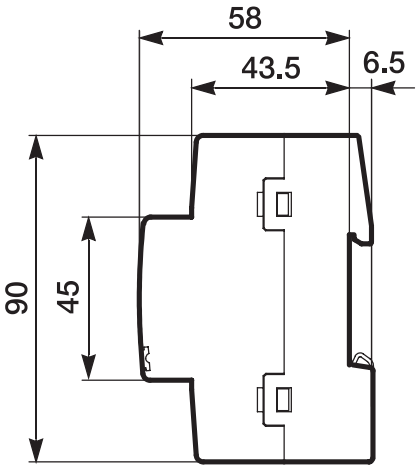
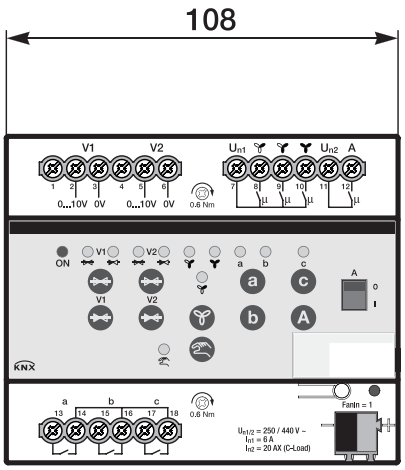
Dimension drawing





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