MAXinBOX FC 0-10V VALVE

2-pipe or 4-pipe fan coil controller with 0-10VDC valve and up to 4 fan speed
ZCL-FC010V **Technical Documentation**

FEATURES

- 2 x 0-10VDC individual outputs for valve control.
- 4 individual outputs (suitable for capacitive loads, maximum 140µF) capable of controlling up to 4 fan speeds.
- 4 analog/digital inputs.
- Manual output operation in 0-10VDC and individual outputs with push button and status indicator LED.
- Logical functions.
- Output timing facilities.
- Total data saving on power failure.
- DIN rail unit assembly (EN 50022), with snap fit clamp.
- Size 67 x 90 x 80 mm (4.5 DIN units).
- KNX BCU integrated
- Possibility to connect different phases in adjoining outputs.
- Conformity with the CE directives (CE-mark on the right side).

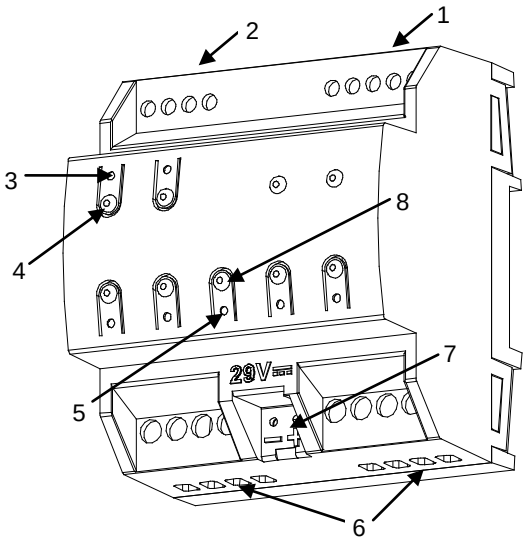


Figure 1. MAXinBOX FC 0-10V VALVE

1. Analog/Digital inputs	**2**. 0-10VDC outputs	**3**. Output status LED indicator	**4**. Output control button
5. Programming/Test LED	**6**. Lower outputs	**7**. KNX connection	**8**. Programming/Test button

Programming/test button: short press to set programming mode. If this button is held while plugging the device into the KNX bus, it enters the safe mode. If this button is held for more than 3 seconds, the device enters the test mode.

Programming/Test LED: programming mode indicator (red). When the device enters into safe mode, it blinks (red) every half second. The manual mode is indicated by the green color. During the start-up (reset or after KNX bus failure) and if the device is not in safe mode, it starts a blue blinking sequence.

GENERAL SYSTEM SPECIFICATIONS				
CONCEPT			**DESCRIPTION**	
Type of device			Electric operation control device	
KNX supply	Voltage (typical)		29VDC	
	Voltage range		21…31VDC	
	Consumption	Voltage	mA	mW
		29VDC (typical)	11	319
		24VDC [(1)]	15	360
	Bus connection		Typical TP1 bus connector for rigid cable 0.80mm Ø	
External power supply			No	
Operation temperature			from 0ºC to +55ºC	
Storage temperature			from -20ºC to +70ºC	
Operation humidity			5 to 95% RH (no condensation)	
Storage humidity			5 to 95% RH (no condensation)	
Complementary characteristics			Class B	
Safety class			II	
Operation type			Continuous operation	
Device action type			Type 1	
Electrical stress period			Long	
Degree of protection			IP20, clean environment	
Assembly			Independent device to be mounted inside electrical panels with DIN rail (EN 50022).	
Minimum clearances			Not required	
Response on KNX bus failure			Data saving according to parameterization	
Response on KNX bus restart			Data recovering according to parameterization	
Operation indication			Programming LED indicates programming mode (red) and test mode (green). Output status LED indicators show current output state.	
Weight			248g	
PCB CTI index			175V	
Housing material			PC FR V0 halogen free	

[(1)] Maximum consumption in the worst case scenario (KNX Fan-In model)

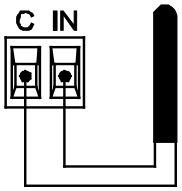
INDIVIDUAL OUTPUT SPECIFICATIONS AND CONNECTIONS		
Contact type		Potential free outputs through bistable relays with tungsten pre-contact.
Disconnection type		Micro-disconnection
Rated current by output		~16A (6) * 250VAC (4000VA) ⎓16A (6) * 30VDC (480W)
Maximum Power	Resistive load	4000W
	Inductive load	1500VA
Maximum inrush current		800A/200µs 165A/20ms
Outputs per common (channel)		1 individual output
Different phase connection		Possibility to connect different phases in adjoining outputs
Maximum current		40A
Connection type		Screw terminal block
Recommended cable section		0.5mm² to 4mm² (26-10 AWG)
Cable type		Stranded or solid wire
Maximum response time		50ms
Expected life	Mechanical (min)	3 million operations (60cpm)
	Electrical (min.)	100.000 cycles at Max. current (6cpm and resistive load)

0-10V OUPUT SPECIFICATIONS AND CONNECTIONS	
Output voltage	From 0 to 10VDC
Output current	Maximum 1.5mA per output
Outputs per common	1
Connection type	Screw terminal block
Recommended cable section	0.5mm² to 2.5mm² (26-12 AWG)
Cable type	Stranded or solid wire

INPUT SPECIFICATIONS AND CONNECTIONS	
CONCEPT	**DESCRIPTION**
Number of inputs per common	4
Input voltage	+3.3VDC for the common
Input current	1.0mA @ 3.3VDC (each input)
Input impedance	Aprox. 3.3kΩ
Switching type	Dry voltage contacts between input and common
Connection method	Screw terminal block
Max. cable length	30m
NTC probe length	1.5 m (max. 30m)
NTC accuracy (@ 25ºC)	0.5ºC
Temperature measure precision	0.1ºC
Cable cross-section	0.5mm² to 2.5mm² (26-12 AWG)
Response time	Max. 10ms

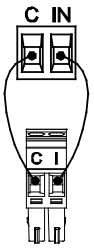
Any combination of the next **accessories** is allowed in the inputs:

Temperature Probe



Zennio Temperature Probe

Motion Sensor

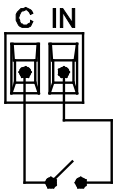


Up to two motion sensors can be plugged into the same device input (parallel wiring)

Motion sensor screw terminal.

Motion sensor references:
ZN1IO-DETEC-P(2)
ZN1IO-DETEC-X

Switch/Sensor/ Push button



(2) The micro switch number 2 in the ZN1IO-DETEC-P sensor **must be in Type B position** to work properly.

WIRING AND ASSEMBLY DIAGRAMS

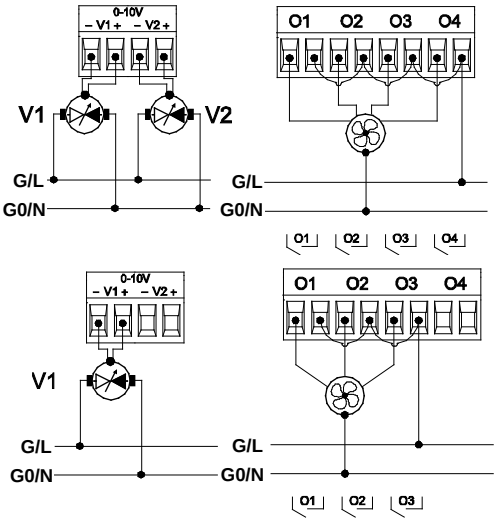


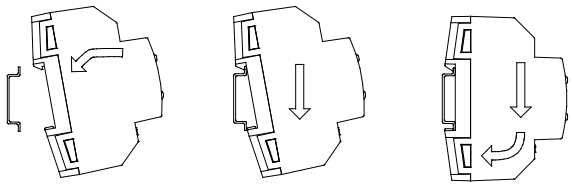
Figure 2: wiring example for 4-pipe fan coil with 4-speed fan (up) and for 2-pipe fan coil with 3-speed fan (down).

0-10V outputs according to the number of fan coil pipes**:**

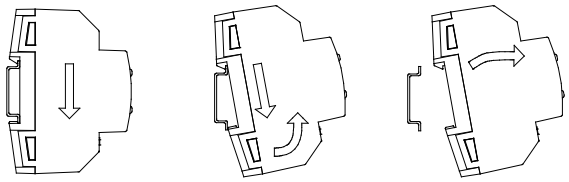
Fan Coil	0-10V output	Valve function
4 pipes	V1	Cooling valve
	V2	Heating valve
2 pipes	V1	Cooling and/or heating valve

⚠ In order to ensure the expected status of the relays, please check that the device is connected to the KNX bus before energizing the power circuit.

Attaching MAXinBOX FC 0-10V VALVE to DIN rail:



Removing MAXinBOX FC 0-10V VALVE from DIN rail:



SAFETY INSTRUCTIONS

- Installation should only be performed by qualified professionals according to the laws and regulations applicable in each country.
- Do not connect the mains voltage nor any other external voltage to any point of the KNX bus; it would represent a risk for the entire KNX system. The facility must have enough insulation between the mains (or auxiliary) voltage and the KNX bus or the wires of other accessories, in case of being installed.
- Once the device is installed (in the panel or box), it must not be accessible from outside.
- Keep the device away from water and do not cover it with clothes, paper or any other material while in use.
- The WEEE logo means that this device contains electronic parts and it must be properly disposed of by following the instructions at http://zennio.com/weee-regulation.