Technical Documentation

FEATURES

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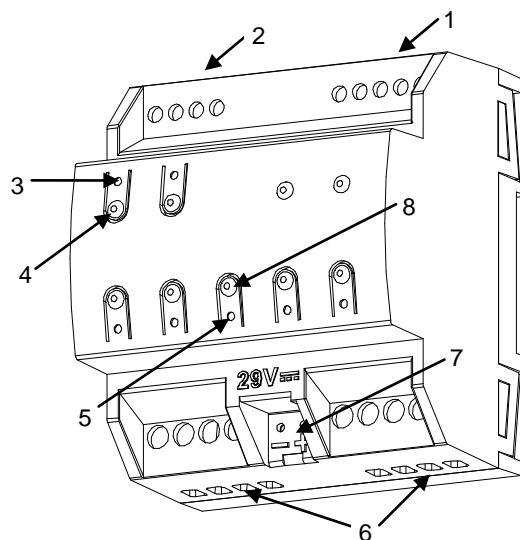- CE directives compliant.

Figure 1. MAXinBOX FC 0-10V FAN

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 button press to set the programming mode. If this button is held while plugging the device into the KNX bus, it goes into safe mode. If this button is held more than 3 seconds, the device goes into manual mode (test mode)

LED: programming mode indicator (red). When the device goes into safe mode, it blinks (red) every half second. The manual mode is indicated by the green color. During start up (after reset or power failure) and if the device is not in safe mode, LEDs indicators blink blue for a few seconds

GENERAL SYSTEM SPECIFICATIONS

CONCEPT		DESCRIPTION
Type of device		Electric operation control device
KNX supply	Voltage	29VDC SELV
	Voltage range	21…31VDC
	Power consumption	360mW (max)
	Bus connection	Typical bus connector TP1, 0.50 mm² section
External power supply		No
Ambient temperature		from 0ºC to +55ºC
Storage temperature		from -20ºC to +70ºC
Ambient humidity		30 to 85% RH (no condensation)
Storage humidity (relative)		30 to 85% RH (no condensation)
Complementary characteristics		Class B
Safety class		II
Operation type		Continuous operation
Device action type		Type 1
Electrical solicitations period		Long
Type of protection		IP20, clean environment
Assembly		Independent control assembly device to be mounted inside of electrical panels with DIN rail (EN 50022).
KNX bus failure response		Data saving
Response when restarting KNX bus		Data recovering and output status change according to programming when recovering.
Operation indication		Programming LED indicates programming mode (red) and test mode (green). Output status LED indicators show current output state.
Weight		240 gr.
PCB CTI index		175 V
Enclosure		PC FR V0 halogen free

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 * 250V AC (4000 VA) ⎓16A * 30V DC (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		Terminal block (screw)
Recommended cable section		0.25 mm² to 4 mm² (26-10 AWG)
Cable type		Stranded or solid wire
Maximum response time		50 ms
No. of automatic cycles (A) per automatic action	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	Terminal block (screw)
Recommended cable section	0.15 mm² to 2.5 mm² (26-12 AWG)
Cable type	Stranded or solid wire

INPUT SPECIFICATIONS AND CONNECTIONS

| CONCEPT	DESCRIPTION
Number of inputs per common	4
Input voltage	+3.3V DC for the common
Input current	1.0mA @ 3.3V DC (each input)
Input impedance	Aprox. 3.3kΩ
Switching type	Dry voltage contacts between input and common
Connection method	Cable screw terminal
Max. cable length	30 m.
NTC probe length	1.5 m. (max. 30m.)
NTC accuracy (@ 25ºC)	0.5ºC
Temperature measure precision	0.1ºC
Cable cross-section	0.15 mm² to 2.5 mm² (26-12 AWG)
Response time	Max 10ms.

WIRING AND ASSEMBLY DIAGRAMS
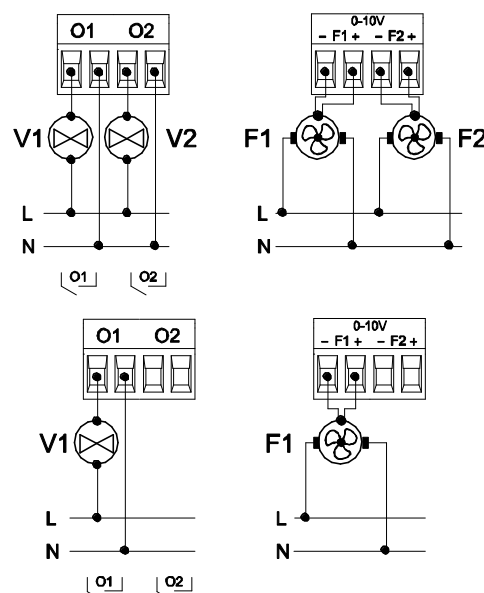
Figure 2: (From up to down and from left to right) Terminal block 1 and 0-10V outputs wiring examples for two valves, two fans, one valve and one fan.

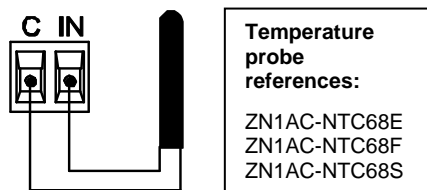**Attaching MAXinBOX FC 0-10V FAN to DIN rail:**
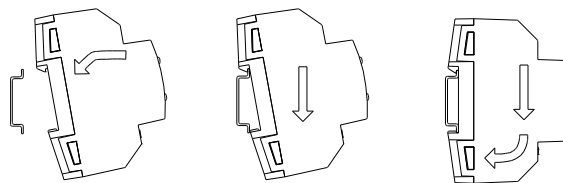
Removing MAXinBOX FC 0-10V FAN from DIN rail:
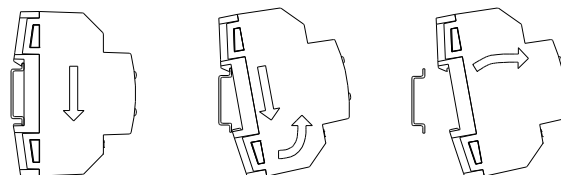
Any combination of the next **accessories** is allowed in the inputs:

Temperature Probe

Temperature probe references:

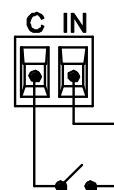ZN1AC-NTC68E
ZN1AC-NTC68F
ZN1AC-NTC68S

Motion Sensor

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

Motion sensor cable screw terminal.
Motion sensor references:
ZN1IO-DETEC-P[1]
ZN1IO-DETEC-X

Switch/Sensor/ Push button

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

⚠ SAFETY INSTRUCTIONS

- Do not connect Main Voltage (230 V) or any other external voltages to any point of the BUS.
  Connecting an external voltage might put the entire KNX system at risk.
- Make sure during the installation that there is always sufficient insulation between the mains voltage 230V and the bus, the inputs or the 0-10VDC outputs.
- Once the device is installed, the output terminal should not be accessible.