MINiBOX 45 v3

Multifunction actuator with 4 outputs and 5 inputs with KNX Secure

ZIOMN45V3 **TECHNICAL DOCUMENTATION**

FEATURES

- 4 configurable outputs: fan coil, shutter channels (up to 2) and individual outputs (up to 4)
- Outputs suitable for capacitive loads, maximum 140 µF
- Supports KNX Data Secure
- 5 analog/digital inputs
- Manual output operation with push button and LED status indicator
- 10 logic functions
- Output timing
- 4 thermostats
- Total data saving on KNX bus failure
- Integrated KNX BCU (TP1-256)
- Dimensions 67 x 90 x 36 mm (2 DIN units)
- DIN rail mounting according to IEC 60715 TH35, with fixing clamp
- Possibility of connecting different phases in adjacent outputs
- Conformity with the CE, UKCA, RCM directives (marks on the right side)

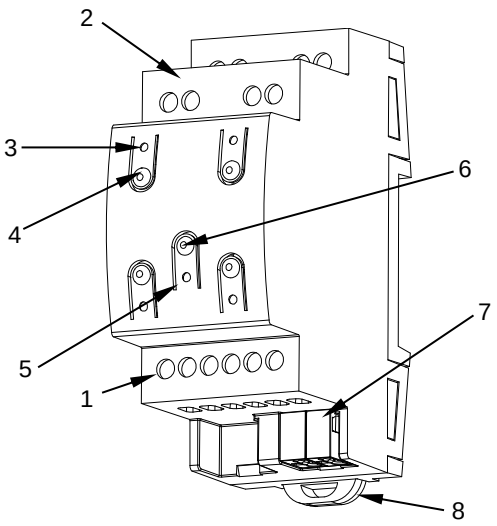


Figure 1: MINiBOX 45 v3

1. Analog/Digital inputs	2. Outputs	3. Output status LED indicator	4. Output control button
5. Programming/test LED	6. Programming/test button	7. KNX Connector	8. Fixing clamp

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. In order to perform a KNX Secure factory reset, while the device is in safe mode, press the button for 10 seconds until the programming LED changes its state.

Programming/Test LED: programming mode indicator (red). When the device enters the safe mode, it blinks (red) every half second. The test 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 SPECIFICATIONS

CONCEPT			DESCRIPTION	
Type of device			Electric operation control device	
KNX supply	Voltage (typical)		29 VDC SELV	
	Voltage range		21-31 VDC	
	Maximum consumption	Voltage	mA	mW
		29 VDC (typical)	4.9	142.1
		24 VDC[1]	10	240
	Connection type		Typical TP1 bus connector for 0.8 mm Ø rigid cable	
External power supply			Not required	
Operation temperature			0 .. +55 °C	
Storage temperature			-20 .. +55 °C	
Operation humidity			5 .. 95%	
Storage humidity			5 .. 95%	
Complementary characteristics			Class B	
Protection class / Overvoltage category			II / III (4000 V)	
Operation type			Continuous operation	
Device action type			Type 1	
Electrical stress period			Long	
Degree of protection / Pollution degree			IP20 / 2 (clean environment)	
Installation			Independent device to be mounted inside electrical panels with DIN rail (IEC 60715)	
Minimum clearances			Not required	
Response on KNX bus failure			Data saving according to parameterization	
Response on KNX bus restart			Data recovery according to parameterization	
Operation indicator			The programming LED indicates programming mode (red) and test mode (green). Each output LED indicates its status	
Weight			97 g	
PCB CTI index			175 V	
Housing material / Ball pressure test temperature			PC FR V0 halogen free / 75 °C (housing) - 125 °C (connectors)	

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

OUTPUTS SPECIFICATIONS AND CONNECTIONS		
CONCEPT		**DESCRIPTION**
Number of outputs		4
Output type / Disconnection type		Potential-free outputs through bistable relays with tungsten pre-contact / Micro-disconnection
Rated current per output		AC 16(6) A @ 250 VAC (4000 VA) DC 7 A @ 30 VDC (210 W)
Maximum load per output	Resistive	4000 W
	Inductive	1500 VA
Maximum inrush current		800 A/200 µs 165 A/20 ms
Connections in adjacent outputs		Possibility of connecting different phases. It is not allowed to connect power supplies of different order, SELV with NO SELV, in the same block.
Total maximum current in device		40 A
Short-circuit protection		NO
Overload protection		NO
Connection method		Screw terminal block (0.5 Nm max.)
Cable cross-section		0.5-4 mm² (IEC) / 20-12 AWG (UL)
Outputs per common		1
Maximum response time		10 ms
Mechanical lifetime (min. cycles)		3 000 000
Electrical lifetime (min. cycles)[1]		100000 @ 8 A / 25000 @ 16 A (VAC)

[1] Lifetime values could change depending on the load type.

INPUTS SPECIFICATIONS AND CONNECTIONS	
CONCEPT	**DESCRIPTION**
Number of inputs	5
Inputs per common	1
Operation voltage	+3.3 VDC in the common
Operation current	1 mA @ 3.3 VDC (per input)
Switching type	Dry voltage contacts between input and common
Connection method	Screw terminal block (0.4 Nm max.)
Cable cross-section	0.5-2.5 mm² (IEC) / 26-12 AWG (UL)
Maximum cable length	30 m
NTC probe length	1.5 m (extensible up to 30 m)
NTC accuracy (@ 25 °C) [2]	±0.5 °C
Temperature resolution	0.1 °C
Maximum response time	10 ms

[2] For Zennio temperature probes.

WIRING DIAGRAMS

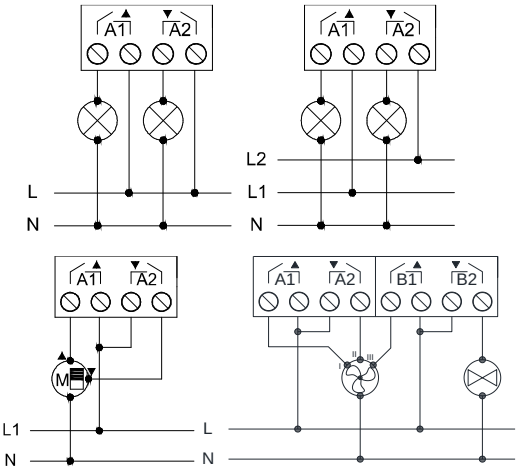
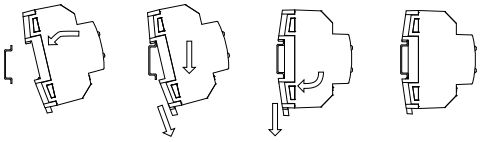


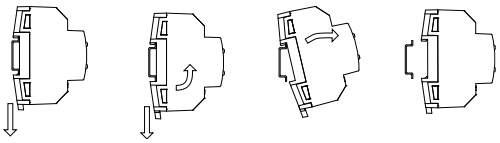
Figure 2: Wiring example (from left to right, and up to down): 2 loads, 2 loads connected to different phases, shutter and fan coil

⚠ 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 MINiBOX 45 v3 to DIN rail:



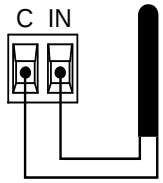
Removing MINiBOX 45 v3 from DIN rail:



INPUTS CONNECTION

Any combination of the following accessories is allowed in the inputs:

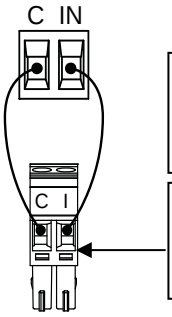
Temperature Probe**



Zennio temperature probe.

⚠ Commons of different devices must not be connected together.

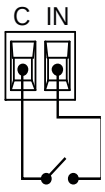
Motion Sensor



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

Screw terminal for connecting Zennio motion sensors*

Switch/Sensor/ Push button



* In case of using ZN1IO-DETEC-P sensor, its micro switch number 2 must be in **Type B position.**

** Zennio temperature probe or any NTC with known resistance values at three points in the range [-55, 150 ºC].

⚠ SAFETY INSTRUCTIONS AND ADDITIONAL NOTES

- 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 (condensation over the device included) 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 https://www.zennio.com/en/legal/weee-regulation.
- This device contains software subject to specific licences. For details, please refer to https://zennio.com/licenses.