1-Channel Universal Dimmer for DIN rail mounting (350W@230VAC/200W@110VAC)

ZDIDBDX1

FEATURES

- 1 channel for R L C loads and for dimmable CFL and LED lamps.

- Automatic detection of R L C load type.

- Automatic frequency detection.

- Dimming pattern selection for CFL and LED lamps.

- Optional manual dimming control.

- Total data saving on KNX bus failure.

- Integrated KNX BCU.

- Dimensions 67 x 90 x 36mm (2 DIN units).

- DIN rail mounting (EN 50022), through pressure.

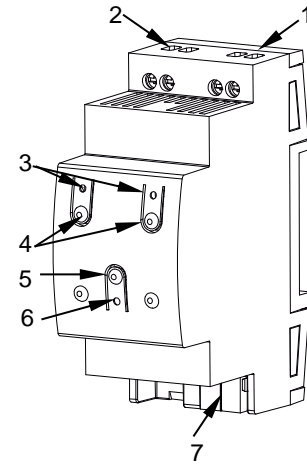- Conformity with the CE directives (CE-mark on the right side).

Figure 1: DIMinBOX DX1

1. Output channel	2. Power supply input	3. Output status LEDs	4. Manual control push buttons
5. Programming/Test push button		6. Programming/Test LED	7. KNX connector

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 the 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 emits a red flash.

GENERAL SPECIFICATIONS

CONCEPT			DESCRIPTION	
Type of device			Electric operation control device	
KNX supply	Voltage (typical)		29VDC SELV	
	Voltage range		21..31VDC	
	Maximum consumption	Voltage	mA	mW
		29VDC (typical)	7.05	204.45
		24VDC[1]	10	240
	Connection type		Typical TP1 bus connector for 0.80mm Ø rigid cable	
External power supply			110/230VAC 50/60Hz	
Operation temperature			0°C .. +55°C	
Storage temperature			-20°C .. +55°C	
Operation humidity			5 .. 95% (No condens.)	
Storage humidity			5 .. 95% (No condens.)	
Complementary characteristics			Class B	
Protection class			II	
Operation type			Continuous operation	
Device action type			Type 1	
Electrical stress period			Long	
Degree of protection			IP20, clean environment	
Installation			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 recovery according to parameterization	
Operation indicator			The programming LED indicates programming mode (red) and test mode (green). The output LED indicates its status (fixed = active output; flashing = error in the output)	
Weight			105g	
PCB CTI index			175V	
Housing material			PC FR V0 halogen free	

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

OUTPUTS SPECIFICATIONS AND CONNECTIONS

CONCEPT	DESCRIPTION
Number of outputs	1
Output type	Solid state switching device
Short-circuit protection	YES
Overload protection	YES
Connection method	Screw terminal block
Cable cross-section	0.5-4mm² (IEC) / 20-12AWG (UL)
Maximum response time	-

LOADS AND ALLOWED POWER (@ 35°C ambient temperature around the device)

		230VAC	110VAC
RLC	Individual channel	Up to 350W	Up to 200W
CFL and LED [1]	Individual channel	Up to 350W	Up to 200W

[1] For leading edge, the maximum load could change depending on the load type. Please refer to the document "Technical Note – Testing lamps" on the web page of the product.

EXTERNAL POWER SUPPLY SPECIFICATIONS AND CONNECTIONS

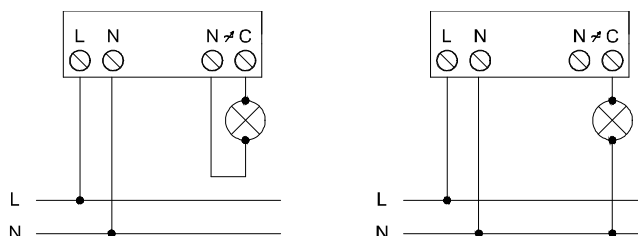| CONCEPT		DESCRIPTION
Power supply protection fuse	Voltage	250V
	Current	10A
	Response type	F (Fast acting)
Connection method		Screw terminal block
Cable cross-section		0.5-4mm² (IEC) / 20-12AWG (UL)

WIRING DIAGRAMS

Figure 2: Wiring examples

⚠ **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.
- The facility must be equipped with a device that ensures the omnipolar sectioning. Installation of a 10A mini-circuit-breaker is recommended. To prevent accidents, it must remain open in case of manipulation of the device.
- The device has a short-circuit protection fuse that, in case of activation, should only be rearmed or replaced by the Zennio technical service.
- 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.

SUPPORTED LOADS

- R = Resistive
- L = Inductive
- C = Capacitive
- CFL = Dimmable Compact Fluorescent Lamps
- LED = Dimmable LED lamps
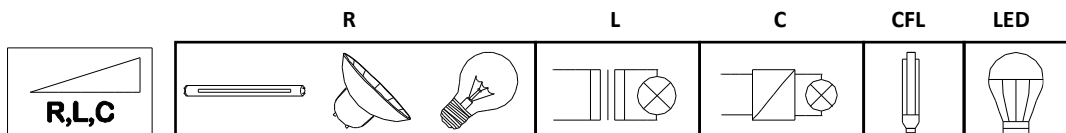
LOAD COMBINATION

- In case of combining resistive (R) with inductive (L) loads, the resistive loads must not exceed the 50% of the total power.

- In case of combining resistive (R) with capacitive (C) loads, the resistive loads must not exceed the 50% of the total power.

- **Combination of capacitive loads with inductive loads is NOT ALLOWED.**

- Do not combine CFL or LED lamps with R L C loads.

- It is not advisable to combine different models of CFL lamps, LED lamps or transformers in the same channel since correct operation can be affected.
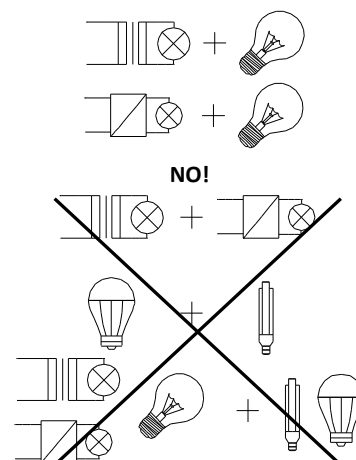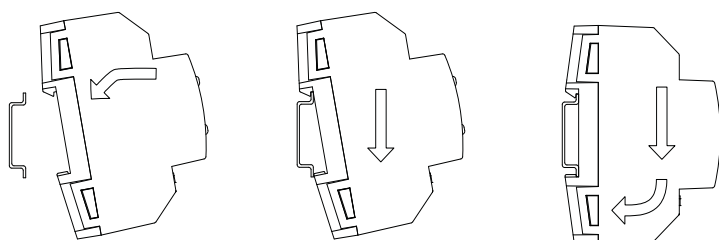

OVERHEATING PROTECTION

- When the ambient temperature is too high the dimmer actuator will regulate itself, at a maximum of 20%.

- Once the ambient temperature decreases, the dimmer actuator will resume its normal operation. Please, refer to user manual.
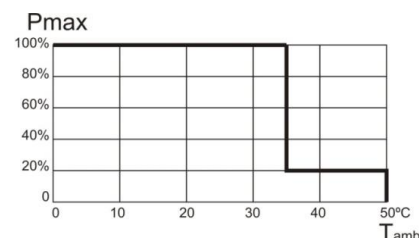
Attaching DIMinBOX DX1 to DIN rail:

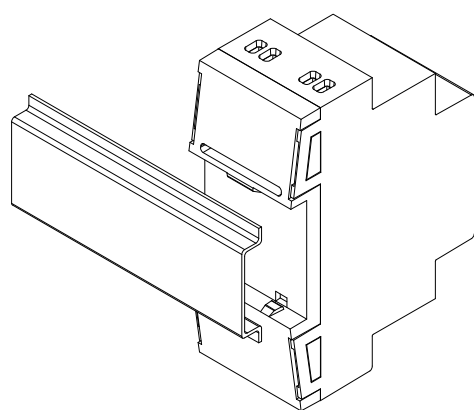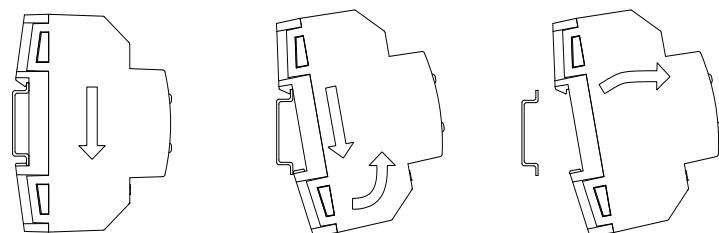Removing DIMinBOX DX1 from DIN rail:

Figure 3: Mounting DIMinBOX DX1 on DIN rail

ERROR NOTIFICATIONS

ERROR	LEDS DESCRIPTION	VISUAL NOTIFICATION
Short circuit	The two status LEDs blink alternately every 0.25 second. When the output is locked, the programming LED blinks in blue.	
Voltage Surge	The two status LEDs blink simultaneously every 0.25 second. When the output is locked, the programming LED lights in blue	
Overheating	The LEDs blink every second.	
Supply Voltage Failure	One LED blinks every second.	
Anomalous Frequency	Alternating blink of each LED during one-second, followed by a one-second switch off.	
Parameterization Error	One LED blinks every second while the other LED blinks every 0.25 second.	