

Description

The ekinex EK-GD2-1-HV device is a single-channel phase cut dimmer, which allows the brightness control of LED and halogen sources with voltage 90 - 230 Vac at 50/60 Hz for a maximum of 220 W. The control it can be carried out by means of a local command, consisting of a normally open button (N.O.).

Functional characteristics

- Single-channel dimmer with MOSFET phase cut output
- Soft on and off
- Brightness adjustment until completely switched off (dim-to-dark)
- Minimum brightness level: 1%
- Control input: N.O push button not isolated
- Optimized output curve
- Screw terminals for command, power supply and load
- Maximum internal frequency of the microcontroller: 24 MHz

Technical data

Inputs

- Power supply voltage: min: 90 Vac .. max: 230 Vac ~ 50 Hz
- Nominal input power: 0.4 W
- Control input: N.O push button not isolated

Output

- Max output current: 1 A
- Max power supplied for resistive loads (incandescent and halogen lamps): 230 W
- Max. power supplied for electronic and / or LED loads: 115 W

Dimming

- Direct phase cut (leading edge)

Environmental conditions and other characteristics

- Operating temperature: -20 ° C ... + 50 ° C
- Storage temperature: - 40 ° C ... + 60 ° C
- Transport temperature: - 40 ° C ... + 60 ° C
- Relative humidity: 93% non-condensing
- Degree of protection IP10 (luminaire installed)
- Local control wiring: 0.05 mm² (single wire) - 2.5 mm² (stranded wire), 12 - 30 AWG
- Power and load wiring: 1.5mm² (single wire) - 2.5 mm² (stranded wire), 12 - 15 AWG
- Stripping: 5.0 - 6.0 mm
- Plastic casing
- Execution for mounting on 35 mm profile rail (according to EN 60715), using the support included, or for free installation in junction or flush mounting wall boxes
- Safety class II
- Weight 25 g
- Dimensions 53 x 61 x 29 mm (LxHxP)



Note: values for output current and nominal power have to be intended as maximum values, depending on the ventilation conditions. The reported values are measured with a room temperature of 40 °C

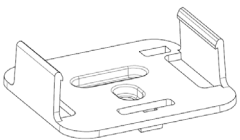
Protections

- OVP Over voltage protection¹
- OCP Open circuit protection

Accessories

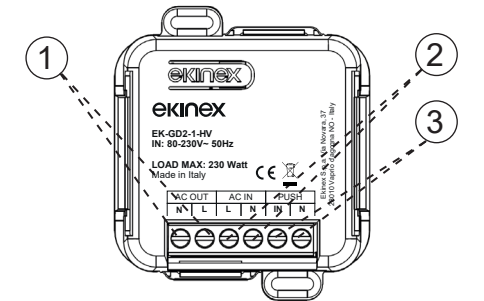
Rail-mounting support

The device can be mounted on 35 mm rail (according to EN 60715) with the plastic support included in the delivery.



Control, signaling and connection elements

The device is equipped with a screw terminal for connecting the 90-230 Vac input power supply (2), the N.O. local control button (3) and the output loads (1).

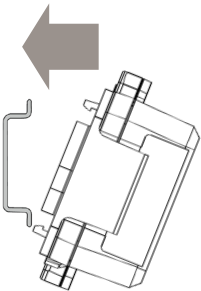


EK-GD2-1-HV

Nr.	Label	Connection
1	AC OUT (N)	Output load (pole N)
	AC OUT (L)	Output load (pole L)
2	AC IN (L)	Input power supply (pole L)
	AC IN (N)	Input power supply (pole N)
3	PUSH (IN)	Local command (IN)
	PUSH (N)	Local command (N)

Mounting

The device has an IP10 degree of protection and is therefore suitable for use in dry indoor environments. The plastic support allows mounting on a profile rail according to EN 60715 inside electrical distribution panels and cabinets.



To mount the device, insert the mounting support into the appropriate shaped profile of the interface, then hook the teeth to the profiled guide starting from the bottom. Finally, push the upper part towards the guide for final coupling.

To disassemble the device, make sure you have disconnected the input power, the output load and the local control. Using a screwdriver, slide the locking device down and remove the device from the profile rail.



Note. When mounting the device in boards and cabinets it shall be provided the necessary ventilation so that the temperature can be kept within the operating range of the device.

Setup and installation

The steps to setup the device are as follows:

- Connect the load to the device's "AC OUT" output terminals
- Connect the local control to the "PUSH" input
- Connect the 90-230 Vac power supply to the AC IN terminals of the device

Local command connections

The connection to the local control command is made by means of the pair of screw terminals (3).

The length of the connection cables between the local commands (N.O. Pushbutton where available) and the product must be less than 10m; the cables must be dimensioned correctly and they should be isolated from every wiring or parts at different voltage. The length and type of the connection cables must be compliant with the protocol specification and with the present regulations.

Characteristics of the local command terminal block

- Screw tightening of the conductors
- Command & bus wiring: 0.05 mm² solid – 2.5 mm² stranded – 12 - 30 AWG
- Conductor stripping recommended: 5.0 - 6.0 mm
- Max torque 0.5 Nm



- INSTALLATION TECHNICAL NOTES**
- Installation and maintenance must be performed only if the power supply has been turned off.**
 - Installation and maintenance must only be performed by qualified personnel in compliance with current regulations.**
 - The device must be installed inside an electrical panel, or with free installation in junction or flush mounting wall boxes.**
 - It is recommended to install a surge protector in the electrical panel of the system.**
 - The product must be protected by a fuse or a suitably sized magnetothermic switch on the main input line.**
 - The product must be installed in a vertical position with the front / label facing the front. Other product installation positions are not allowed.**
 - Do not connect inductive loads.**
 - Do not connect to UPS with an output other than Pure Sine Wave.**
 - The device is not grounded. Protection from accidental contacts is guaranteed by the casing.**
 - Keep separated the circuits at 90-230 Vac (LV) and the circuits not SELV from circuits to low voltage (SELV) and from any connection with this product. It is absolutely forbidden to connect, for any reason whatsoever, directly or indirectly, the 90-230 Vac mains voltage to the local control terminals or to the load terminals.**
 - Use double insulated cables.**

Connection of power supply and load

For the connection of power supply and output load, take into account the following characteristics.

Characteristics of the supply and load terminal block

- Screw tightening of the conductors
- Power & LEDs wiring: 1. 5mm² solid – 1.0 mm² stranded – 16 - 17 AWG
- Power and LEDs stripping recommended approx.: 5.0 - 6.0 mm
- Max torque 0.5 Nm

Outputs

The output cables must be sized correctly and must be isolated from any wiring or parts at different voltage. The length and type of connection cables must comply with the specifications of the respective protocol and the regulations in force.

Configuration and commissioning

Configuration and commissioning activities of the device must be carried out according to the design of the building automation system done by a qualified planner.



Warning! The electrical connection of the device can be carried out only by qualified personnel. The incorrect installation may result in electric shock or fire. Before making the electrical connections, make sure the power supply has been turned off.

For commissioning the device the following activities are required:

- make the electrical connections as indicated in the previous sections;
- power up the supply.

At this point, the device is ready for operation:

- Short press of the local control button: soft start or stop;
- Long press of the button: adjustment of the dimming intensity, with increase or decrease in toggle.

Minimum brightness dimming level setting

Some 230 Vac voltage LED loads require calibration of the minimum brightness level, in order to avoid flickering or flashing.

This device allows to set the minimum brightness level through a menu accessible by repeatedly pressing the

control button.

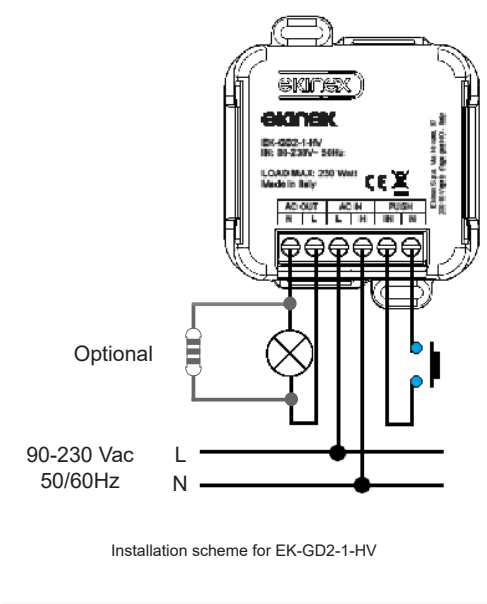
To enter this menu it is necessary to quickly press the control button 10 times within 3 seconds.

The load connected to the dimmer will confirm entry into the setup menu of the minimum with 4 flashes.

Within this menu, the minimum brightness level can be set with a short press of the control button.

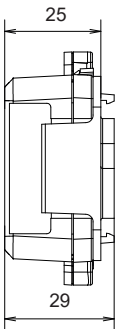
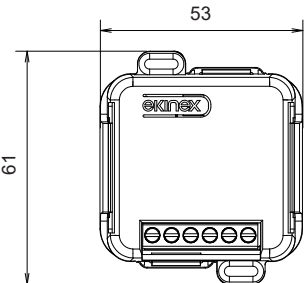
Each press will change the level (5% -10% -15% -20% -25% -30% -35% -40%)

Once the preferred configuration has been found, pressing and holding the local control button for at least 5 seconds will lead to the selection of two dimming curves. A further long press for 5 seconds will confirm the choice and the subsequent exit from the menu.



When using low-power loads (<10W) or if there is residual brightness on the load, we recommend using the load resistor supplied with the dimmer. This resistor eliminates any residual brightness when the dimmer is off. Please see the datasheet for more details.

Dimensions [mm]



Marks

- CE: the device complies with the Low Voltage Directive (2014/35/EU), the Electromagnetic Compatibility Directive (2014/30/EU) and the RoHS 2 Directive (2011/65/EU).
- Reference Standards: IEC 63044-3:2017, EN 63044-3, EN 62368-1:2014+A11:2017, EN 63044-5-1:2019; EN 63044-5-2:2019.

Maintenance

The device is maintenance-free. To clean use a dry cloth. It must be avoided the use of solvents or other aggressive substances.

Disposal



At the end of its useful life the product described in this datasheet is classified as waste from electronic equipment in accordance with the European Directive 2012/19/EU (WEEE recast), and cannot be disposed together with the municipal undifferentiated solid waste.



Warning! Incorrect disposal of this product may cause serious damage to the environment and human health. Please be informed about the correct disposal procedures for waste collecting and processing provided by local authorities.

Warnings

- Installation, electrical connection, configuration and commissioning of the device can only be carried out by qualified personnel in compliance with the applicable technical standards and laws of the respective countries
- Opening the housing of the device causes the immediate end of the warranty period
- In case of tampering, the compliance with the essential requirements of the applicable directives, for which the device has been certified, is no longer guaranteed
- ekinex® defective devices must be returned to the manufacturer at the following address: Ekinex S.p.A. Via Novara 35, I-28010 Vaprio d'Agogna (NO) Italy

Other information

- The instruction sheet must be delivered to the end customer with the project documentation
- For further information on the product, please contact the ekinex® technical support at the e-mail address: support@ekinex.com or visit the website www.ekinex.com
- Each ekinex® device has a unique serial number on the label. The serial number can be used by installers or system integrators for documentation purposes and has to be added in each communication addressed to the EKINEX technical support in case of malfunctioning of the device

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EN

Single-channel 90-230 Vac phase cut dimmer

Code: EK-GD2-1-HV



Instructions



EK-GD2-1-HV

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