




## Operating instructions

### 1 Safety instructions

To avoid possible damage, read and follow the following instructions:

-  **Installation only by persons with sound knowledge and experience in the following areas:**
- 5 safety regulations and standards for the installation of electrical systems
  - Selection of suitable tools, measuring devices, installation materials and, if necessary, personal protective equipment
  - Installation of the installation material
  - Connection of devices to the building installation under consideration of local connection conditions

Improper installation endangers your own life and the lives of users of the electrical system and there is a risk of serious damage to property, e.g. through fire. You are at risk of personal liability for personal injury and damage to property.

**Contact an electrical contractor!**

Even a lamp that is visibly switched off is permanently supplied with mains voltage. Therefore, switch off the circuit breaker before replacing the lamp. Otherwise there is a risk of electric shock when touching live parts.

**Fire hazard.** For operation with inductive transformers, each transformer must be fused on the primary side in accordance with the manufacturer's instructions. Only safety transformers according to EN 61558-2-6 may be used.

**Risk of destruction** if the set operating mode and load type do not match. Set correct operating mode when connecting or exchanging the load.

The device must not be used in connection with consumers that could lead to danger to life or limb or damage to property, e.g. heaters or electrical machines.

Read the instructions in full, observe them and keep them for future reference.

### 2 Device components

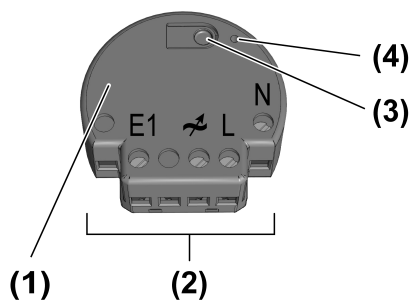


Figure 1

- (1) Dimming actuator mini
- (2) Terminals
- (3) Button **Prog.**
- (4) LED

### 3 Intended use

- Zigbee actuator to switch and dim lighting

- Zigbee transmitter to operate Zigbee-compliant lamps, luminaires, dimming and switch actuators
- Operation of Zigbee-compliant transmitters or connected push-buttons (normally open contact)
- Use in conjunction with Zigbee gateways from different manufacturers
- Mounting in appliance box according to DIN 49073 with a suitable cover

## 4 Product characteristics

- Zigbee Certified Product
- Device works according to the leading edge phase control or trailing edge phase control principle
- Automatic or manual setting of the dimming principle suitable for the load
- Display of the set operating mode by means LED
- Switch-on via bulb-preserving soft start
- Switching on with last saved brightness
- Minimum brightness can be saved permanently
- Electronic short-circuit protection with permanent switch-off after 7 seconds at the latest
- Electronic over-temperature protection
- Operation without neutral conductor possible
- Input to connect a push-button
- Assigning the input to other Zigbee devices via app
- Parameterising via app
- Updating via app

## 5 Operation

### Operation with connected push-button

#### Switching the light

- Press the push-button briefly: Light switches off or light switches on at the last brightness level set.

#### Adjusting the brightness

- Long press on the push-button: Adjust the brightness. The dimming direction is changed with each new long actuation.

#### Switch light on with minimum brightness

- Long press on the push-button: Light switches on at minimum brightness and gets brighter.

#### Transmitter function

Additional Zigbee lamps or devices for controlling lighting can be connected to the actuator. This function is set with the NEXENTRO Config App. The devices are then operated in the same way as the actuator when a push-button is pressed.

#### Radio operation

The operation is done with Zigbee transmitters or Zigbee gateways that comply with Zigbee Standard 3.0. The scope of functions and the type of operation depends on the transmitter or gateway used.

## 6 Fitting and electrical connection



### DANGER!

Electrical shock when live parts are touched.

Electrical shocks can be fatal.

Before carrying out work on the device or load, disengage all the corresponding circuit breakers, secure against being switched on again and check that there is no voltage!

To ensure good transmission quality, keep a sufficient distance from any possible sources of interference, e.g. metallic surfaces, microwave ovens, hi-fi and TV systems, ballasts or transformers.

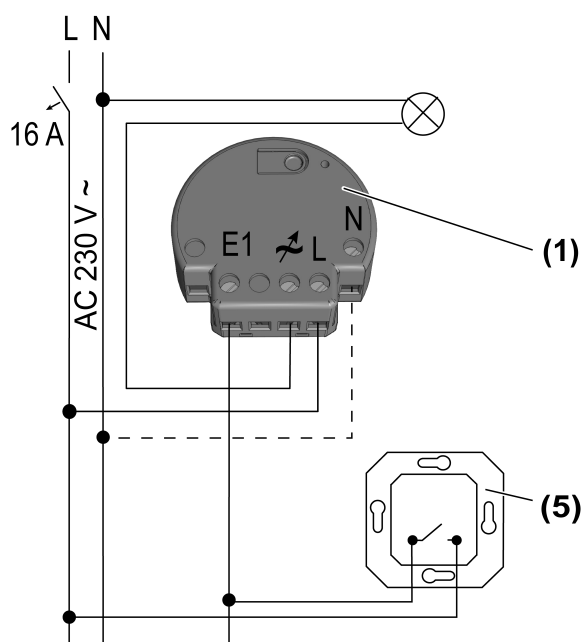


Figure 2: Connection diagram

- (1) Dimming actuator mini
- (5) Push-button, NO contact

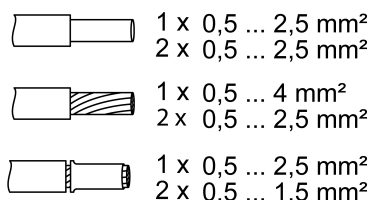


Figure 3: Clampable conductor cross-section

- i** Connect 600 Watt LED lamps or compact fluorescent lamps at most per 16 ampere circuit breaker. When connecting transformers, observe the data of the transformer manufacturer.
- i** The actuator takes into account the different electronic characteristics of most dimmable LED lamps on the market. However, it cannot be guaranteed that in individual cases the desired results may not be achieved.

Operation without neutral conductor possible.

Lit push-buttons must have a separate N terminal.

- Make the connection according to the connection diagram. In doing so, note the clampable conductor cross-section (Figure 3).
- Insert the actuator in the appliance box in such a way that the Prog. button and status LED are visible.
- ❗ The light can be switched by briefly pressing the **Prog.** button.
- Mount a suitable cover or push-button.
- Perform commissioning.

#### Reset the overheating protection / short-circuit protection

If the electronic overheating or short-circuit protection has been triggered, disconnect the actuator from the mains. After cooling the actuator is ready for use again.

## 7 Commissioning with app

The requirement for commissioning via app is a mobile end device (smartphone, tablet) with Bluetooth interface, running the Android or iOS operating system. The app guides you step by step through the commissioning process.

- Download and install the NEXENTRO Config App from the App Store (iOS) or Google Play Store (Android).

#### App functions

- Joining an existing network
- Setting up your own network
- Assigning device names
- Setting device parameters: operating mode, minimum brightness
- Connecting the actuator with Zigbee transmitters or gateways
- Connecting the input to Zigbee devices
- Displaying the switching status: On, Off, brightness value
- Displaying device information: Device type, software version, hardware version
- Performing a software update
- Resetting to default setting
- Operating the actuator for test purposes

#### Coupling and registering new devices

- ❗ The coupling of new devices is always only possible for approx. 1 minute after mains voltage return to prevent unauthorised access. Coupling is possible at any time with devices registered in the app.
- Couple the mobile end device via Bluetooth with the device.
- Add the new device to the list of registered devices.
- Assign a device name.

#### Performing Zigbee configuration

The actuator can be added to an existing Zigbee network to control the Zigbee devices present there or to be controlled by transmitters present there.

If no Zigbee network exists, the actuator can create its own Zigbee network by calling it in the app.

#### Adding an actuator to the Zigbee network of a gateway

- ❗ With certain gateways, adding to a network is done via the Touchlink function.
- Start search mode for new devices in the Zigbee system. The function call depends on the gateway, e.g. "Search devices".
- Select the **Join Network** function.  
The actuator is displayed in the app of the gateway.

The NEXENTRO Config App displays all available Zigbee devices to which the actuator can be connected.

- Further actions in the NEXENTRO Config App follow.

#### Using the actuator without an existing Zigbee network, the actuator forms its own network

- Select the **Create Network** function.

The NEXENTRO Config App displays all available Zigbee devices to which the actuator can be connected.

- Further actions in the NEXENTRO Config App follow.

#### Connecting the actuator to devices via Touchlink

To connect the actuator to another Zigbee device via Touchlink, e.g. a hand-held transmitter or gateway, Touchlink must be first activated on the actuator.

Requirement: The distance between the devices to be connected is 10 to 50 cm.

- Select the **Touchlink** function.  
The actuator is ready to be connected to a device via Touchlink.
- Trigger Touchlink on the other Zigbee device.  
The actuator is connected to the device.
- Further optional actions in the NEXENTRO Config App follow.

## 8 Commissioning without app

A simplified commissioning can also be carried out without the app.

Prerequisite: The actuator is in the default setting or the assignment to a Zigbee network has been deleted.

- Open the network of the gateway, see gateway app.
- Switch on mains voltage.  
The actuator searches for the gateway's Zigbee network for 1 minute.  
The light flashes two times, the actuator has found the network and joined it. The actuator is displayed in the app of the gateway.
- If the actuator is operated without a gateway, connect the actuator to a transmitter via Touchlink within 5 minutes after switching on the mains voltage.

 A more detailed configuration can only be carried out with the NEXENTRO Config App.

#### Setting operating mode and minimum brightness with the Prog. button



### **DANGER!**

Mortal danger of electric shock.

The following work must be carried out under mains voltage and therefore may only be carried out by an electrician!

Only use insulated tools for the work! Cover up live parts in the working environment.

#### Operating mode: Universal, R,L,C,LED (factory setting)

- Automatic calibration to the load, dimming principle, trailing edge phase control, leading edge phase control or LED leading edge phase control

#### Operating mode: LED trailing edge phase control, LED

- Loads can be dimmed according to the trailing edge phase control principle.

 The connection of inductive transformers is not permitted.

**Operating mode: LED leading edge phase control, LED  $\triangleleft$** 

– Loads can be dimmed according to the leading edge phase control principle.

**i** The connection of inductive transformers is not permitted.

LED	Dimm-Mode
GN (grün, green)	R,L,C,LED
RD (rot, red)	LED $\triangleleft$
BU (blau, blue)	LED $\triangleleft$

Figure 4: Assignment of LED colour to dimming principle

Precondition: Load is switched off.

- Press the button **Prog.** (3) until LED (4) lights up.  
The current operating mode is displayed.
- Keep briefly pressing button **Prog.** (3) until the necessary operating mode is selected.  
The LED (4) lights up in the colour of the selected operating mode (Figure 4).
- Press the button **Prog.** (3) for longer than 1 second and keep it pressed.  
On changing the operating mode to Universal, the first task is the calibration to the load.  
Keep the **Prog.** button (3) pressed.  
LED (4) flashes. Light switches on at the lowest brightness and slowly becomes brighter to set the minimum brightness.
- Once the desired minimum brightness is reached, release the button **Prog.** (3). In the lowest dimming position, a lamp light must be visible.
- Optionally change the minimum brightness again: Press the button **Prog.** (3) for longer than 1 second. Light switches again to the lowest brightness and slowly becomes brighter.
- Save the settings: Press the button **Prog.** (3) for less than 1 second or do not press for 30 seconds. The LED (4) goes out.  
LED (4) lights up in the colour of the set operating mode, operating mode and minimum brightness are set.

## 9 Reset device

### Deleting assignment to the Zigbee network and Bluetooth coupling

- Switch off the supply supply to the device three times in quick succession and switch it on again. The pause between switching operations must be less than two seconds.  
The actuator acknowledges the deletion of the network assignment and the Bluetooth coupling to mobile end devices by flashing the light twice.

### Restoring the device to factory settings

The device deletes the assignment to a network and all connections to Zigbee lamps and devices. The operating mode **Universal** is set. Alternatively, the device can also be reset with the NEXENTRO Config App.



## DANGER!

Mortal danger of electric shock.

The following work must be carried out under mains voltage and therefore may only be carried out by an electrician!

Only use insulated tools for the work! Cover up live parts in the working environment.

Precondition: Load is switched off.

- Press the **Prog.** button (3) for longer than 20 seconds.  
After approx. 20 seconds, the LED flashes rapidly alternately red and green.
  - Within 10 seconds, release the button and actuate it briefly once again.  
The LED flashes more slowly alternately red and green, the device is reset to the default settings and is restarted.
- i** After resetting the device to the default settings or deleting the Bluetooth coupling, the device must be removed from the NEXENTRO Config App. On iOS equipment, the device also has to be removed from the list of paired Bluetooth devices (Settings/Bluetooth). Otherwise, re-pairing will not be possible.

## 10 Technical data

Rated voltage	AC 230 / 240 V ~
Mains frequency	50 / 60 Hz
Standby power	max. 0.2 W
Power loss	max. 1.7 W
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
Dimensions (LxWxH)	approx. 48 x 45 x 20 mm

Connected load at 35 °C, see Figure (Figure 5)

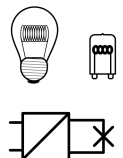

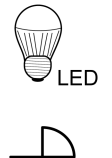
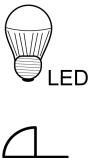
			
W 20...140	W/VA 20...140	W typ. 3...20	W typ. 3...200

Figure 5: Connected load

Mixed load  
capacitive-inductive not permitted

- i** Power specifications including transformer dissipation.
- i** Operate inductive transformers with at least 85% nominal load.
- i** Ohmic-inductive mixed load: Max. 50% proportion of ohmic load. Otherwise, an incorrect measurement is possible.
- i** Operation without neutral conductor: Minimum load 50 W. Does not apply to loads with HV-LED lamps.

Power reduction	
per 5 °C in excess of 35 °C	-5%
when installed in wooden or dry construction walls	-15%
when installed in multiple combinations	-20%

Total line length	
pwr cable	max. 100 m
Extension	max. 3 m



Zigbee	
Communication protocol	Zigbee 3.0 (router)
Radio frequency	2.400 ... 2,483 GHz
Transmission capacity	1 mW
Bluetooth	
Radio frequency	2.402 ... 2.480 GHz
Transmission capacity	max. 2.5 mW, Class 2
Transmitting range	typ. 10 m

## 11 Troubleshooting

### **Connected LED lamps switch off in the lowest dimming position or flicker**

Cause: The set minimum brightness is too low.  
Increase minimum brightness.

### **Connected lamps do not switch on in the lowest dimming position or only after a delay**

Cause: The set minimum brightness is too low.  
Increase minimum brightness.

### **Connected LED lamps flicker or buzz, proper dimming not possible, device buzzes**

Cause 1: Lamps are not dimmable.

Check manufacturer's instructions.  
Exchange lamps for another type.

Cause 2: Operating mode (dimming principle) and lamps do not optimally match.

Check operation in another operating mode, reduce connected load as well if necessary.  
Set the operating mode manually.  
Exchange lamps for another type.

Cause 3: Actuator is connected without neutral conductor.

If possible, connect neutral conductor or insert compensation module parallel to the luminaire, otherwise exchange lamp for another type.

### **Connected LED lamps in the lowest dimming position are too bright; dimming range is too small**

Cause 1: The set minimum brightness is too high.  
Reduce minimum brightness.

Cause 2: Operating mode (dimming principle) does not optimally match the connected HV-LED lamps.

Check operation in another operating mode, reduce connected load as well if necessary.  
Set the operating mode manually.  
Exchange HV-LED lamps for another type.

### **The actuator switches the load off briefly and then on again.**

Cause: short-circuit protection has tripped but now there is no longer a fault.

### **The actuator has switched off and cannot be switched on again.**

Cause 1: overheating protection has tripped.

Disconnect the actuator from the mains by switching off the circuit breaker.  
LED trailing edge phase control: Reduce the connected load. Exchange lamps for another type.  
LED leading edge phase control: Reduce the connected load. Check operation in the LED trailing edge phase control setting. Exchange lamps for another type.  
Let the actuator cool down for at least 15 minutes.  
Switch circuit breakers and dimmer on again.



Cause 2: Surge protection has triggered.

LED trailing edge phase control: Check operation in the LED leading edge phase control setting, reduce connected load as well if necessary.

Exchange lamps for another type.

Cause 3: short-circuit protection has tripped.

Disconnect the actuator from the mains by switching off the circuit breaker.

Eliminate short-circuit.

Switch circuit breakers and dimmer on again.

**i** Short-circuit protection is not based on a conventional fuse, no metallic separation of the operational current.

Cause 4: load failure.

Check load, replace light bulb. For inductive transformers, check primary fuse.

### **LED lamp is dimly lit when the actuator is switched off**

Cause: LED lamp is not suitable for this actuator.

Use a compensation module.

Use another type of LED lamp or an LED lamp of another manufacturer.

## **12 Declaration of conformity**

Insta GmbH hereby declares that the radio system type art. no. 57006000 meets the directive 2014/53/EU. You can find the full article number on the device. The complete text of the EU Declaration of Conformity is available under the Internet address:

[www.insta.de/instastorefront/services/downloads](http://www.insta.de/instastorefront/services/downloads)

## **13 Warranty**

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the unit postage-free with a description of the defect to our central customer service office:

**Insta GmbH**  
Service Center  
Hohe Steinert 10  
58509 Lüdenscheid  
Germany

**Insta GmbH**  
Postfach 1830  
58468 Lüdenscheid  
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Telefon +49 (0) 2351 936-0

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