

How do I know if my lights can be controlled with Zennio Dimmers?

① Configure the Zennio Dimmer as follows:

Both channels (only for DIMinBOX DX2):

- Independent Channel Control: if both channels are going to be used jointly for the control of a higher load, you should select *No* and join electrically both dimming outputs.

Channel Cn:

Load Type: LED or CFL (depending on the load).

- Dimming Pattern: Linear.
- Dimming Mode: Trailing Edge.

Dimming Speed

- Precise Dimming: At Once.
- Relative Dimming: Smooth 1

Maximum Dimming Value: 100%

Low Dimming Limit: 0%

Enable the **error objects** and link them to group addresses.

The screenshot displays the configuration interface for a Zennio dimmer. On the left, a navigation menu shows 'MAIN CONFIGURATION' expanded, with 'Both channels' selected. Below it, 'Channel C1' is highlighted, followed by 'Channel C2', 'CHANNEL C1 FUNCTIONS', and 'CHANNEL C2 FUNCTIONS'. The main configuration area on the right is divided into sections: 'Load Type' (LED), 'Dimming Pattern (Characteristic Curve)' (Linear), and 'Dimming Mode' (Trailing Edge). The 'Dimming Speed' section includes 'Precise Dimming' (At Once), 'Relative Dimming' (Smooth 1), and 'On/Off' (At Once). The 'Memory function: On Light Level' is set to 'Maximum'. The 'Maximum Dimming Value' is set to 100% (with a note: 'Maximum recommended value 80%'). The 'Enable Minimum' option is set to 'Yes', and the 'Low Dimming Limit' is set to 0%.

② Link the communication objects, which will be used for testing the different dimming modes and dimming patterns, to the test group addresses as shown below.

| Group Addresses | Object | Device | Sendi... | ACK (P... | Data Types | ... | R | W | T | U | Length | Priority |
|--|--|--------------------|----------|-----------|----------------------|-----|---|---|---|---|--------|----------|
| Dynamic Folders | 0/0/1 TEST - DIMMING MODE | | | | | | | | | | | |
| 0 DIMinBOX 2Ch | 43: [C1] Edge Select (Only for Test Purposes) - 0=Automatic; 1=Leading; 2=Trailing | 1.1.1 DIMinBOX 2Ch | S | No | load type | | C | - | W | - | 1 Byte | Low |
| 0/0 LOADS TEST | 0/0/2 TEST - DIMMING PATTERN | | | | | | | | | | | |
| 0/0/1 TEST - DIMMING MODE | 45: [C1] Dimming Pattern (Only for Test Purposes) - 0=Linear; 1=Curve 1; 2=Curve 2 | 1.1.1 DIMinBOX 2Ch | S | No | | | C | - | W | - | 1 Byte | Low |
| 0/0/2 TEST - DIMMING PATTERN | 0/0/3 TEST - PRECISE DIMMING | | | | | | | | | | | |
| 0/0/3 TEST - PRECISE DIMMING | 5: [C1] Precise Dimming - 1 byte dimmer ctrl | 1.1.1 DIMinBOX 2Ch | S | No | percentage (0..100%) | | C | - | W | - | 1 Byte | Low |
| 0/0/4 TEST - RELATIVE DIMMING | 0/0/4 TEST - RELATIVE DIMMING | | | | | | | | | | | |
| 0/0/5 TEST - ERROR Open Circuit | 3: [C1] Dimming - 4 bits dimmer ctrl | 1.1.1 DIMinBOX 2Ch | S | No | dimming control | | C | - | W | - | 4 bit | Low |
| 0/0/6 TEST - ERROR Power Supply | 0/0/5 TEST - ERROR Open Circuit | | | | | | | | | | | |
| 0/0/7 TEST - ERROR Overheating | 9: [C1] Open Circuit - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |
| 0/0/8 TEST - ERROR Overvoltage | 0/0/6 TEST - ERROR Power Supply | | | | | | | | | | | |
| 0/0/9 TEST - ERROR Anomalous Frequency | 11: Power Supply Fault - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |
| 0/0/10 TEST - ERROR Wrong Load Type Selec... | 0/0/7 TEST - ERROR Overheating | | | | | | | | | | | |
| 0/0/11 TEST - ERROR Short Circuit | 16: Overheating - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |
| | 0/0/8 TEST - ERROR Overvoltage | | | | | | | | | | | |
| | 17: [C1] Overvoltage - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |
| | 0/0/9 TEST - ERROR Anomalous Frequency | | | | | | | | | | | |
| | 21: Anomalous Frequency - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |
| | 0/0/10 TEST - ERROR Wrong Load Type Selection | | | | | | | | | | | |
| | 22: [C1] Load Type parameterization error - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |
| | 0/0/11 TEST - ERROR Short Circuit | | | | | | | | | | | |
| | 12: [C1] Short Circuit - 0=No error; 1=Error | 1.1.1 DIMinBOX 2Ch | S | No | alarm | | C | R | - | T | 1 bit | Low |

③ Connect the lamps to the Dimmer safely by disconnecting the main power supply.

It is important to do the test with the number of lamps that will be controlled from a given circuit, as this may affect to the dimming limits.

④ Download application to the Dimmer to program the configuration made. **Connect the main power supply to the Dimmer.**

⑤ Dimming Mode and Dimming Pattern selection

Use the ETS group monitor (Diagnostics – Group Monitoring) to send the values corresponding to each one of the 6 configurations shown on the next table to the Dimmer. These values could also be sent from a touch panel with two control boxes configured to send the integer values: 0, 1 and 2.

| Configuration | Dimming Mode | | Dimming Pattern | | Low Dimming Limit | Maximum Dimming Value |
|---------------|--------------|-------|-----------------|-------|-------------------|-----------------------|
| | Mode* | Value | Pattern | Value | | |
| 1 | Trailing | 2 | Linear | 0 | | |
| 2 | Trailing | 2 | Curve 1 | 1 | | |
| 3 | Trailing | 2 | Curve 2 | 2 | | |
| 4 | Leading | 1 | Linear | 0 | | |
| 5 | Leading | 1 | Curve 1 | 1 | | |
| 6 | Leading | 1 | Curve 2 | 2 | | |

*** Important note:** *When testing LED or CFL loads with transformer, select a trailing edge dimming mode for capacitive transformers, and a leading edge dimming mode for inductive transformers.*

⑥ Check the dimming with the Dimmer:

- A. **SMOOTH RELATIVE DIMMING from 0% to 100%** to check if the dimming is stable within the whole range.
- B. **SMOOTH RELATIVE DIMMING from 100% to 0%** to check if the dimming is stable within the whole range.
- C. **Switch on at 100% with PRECISE DIMMING AT ONCE.**

Observe for about two minutes if flickering or errors appear at this dimming level.

If you observe flickering or errors at 100%, repeat the test by switching on the lights at 95%, and so on until you find the percentage value by which flickering or errors stop. This will be the **Maximum Dimming Value** that should be configured in the ETS parameter.

- D. **Switch on at 1%, 2%,... with PRECISE DIMMING AT ONCE.**

Observe if the lamps are switched on simultaneously and there is no flickering.

If you observe undesired effects, increase the precise dimming value until you find the percentage value by which these effects disappear. This will be the **Low Dimming Limit** that should be configured in the ETS parameter.

Switch off the load and go back to the point 5 to continue testing the next configurations.