luxCONTROL

basicDIM Wireless

Technical Design-In Guide

Table of Contents

Table of contents

Scope of documentation

Validity

These operating instructions are valid for the basicDIM Wireless system. The system consists of different components that belong to either the luminaire or the entire system. If a reference is made to one of the components, the descriptions are only valid for these components.

TRIDONIC GmbH & Co KG is constantly striving to develop all its products. This means that there may be changes in form, equipment and technology.
Claims cannot therefore be made on the basis of information, diagrams or descriptions in these instructions.
The latest version of these operating instructions is available on our home page at
http://www.tridonic.com/com/en/operating-instructions.asp

Copyright

We are always open to comments, corrections and requests. Please send them to info@tridonic.com

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General safety instructions

The instructions in this section have been compiled to ensure that operators and users of the net4more system from Tridonic are able to detect potential risks in good time and take the necessary preventative measures.
The operator must ensure that all users fully understand these instructions and adhere to them. This devices may only be installed and configured by suitably qualified personnel.

Intended use

Proper use

Operation and control of LED light modules via ethernet. The system may only be used for this intended purpose.

Improper use

Outdoor use. Extensions and modifications to the product.

⚠ WARNING!

Improper use could result in injury, malfunction or damage to property.
It must be ensured that the operator informs every user of existing hazards.

Dangers associated with the operation of the system

⚠ DANGER!

Danger of electrocution
Disconnect the power to the entire lighting system before working on the lighting system!

Environment

⚠ DANGER!

Not to be used in corrosive or explosive environments.

General safety instructions

⚠ CAUTION!

Risk of damage caused by humidity and condensation

_ Only use the system components in dry rooms and protect them against humidity!

_ Prior to commissioning the system, wait until the control device is at room temperature and completely dry!

Additional instructions

⚠ CAUTION!

Electromagnetic compatibility (EMC)
Although the device meets the stringent requirements of the appropriate directives and standards on electromagnetic compatibility, it could potentially interfere with other devices under certain circumstances!

Installation notes

NOTICE

The cabling, wiring and mounting for a basicDIM Wireless luminaire varies depending on the LED module and the operation mode (analog/digital).
The following description should therefore not be viewed as comprehensive installation instructions but merely as important general information.

To obtain further information, proceed as follows:

_ Read the documentation provided by the driver manufacturer. Follow the guidelines and instructions of the driver manufacturer!

_ Observe all relevant standards. Follow the instructions given in the standards!

Safety information

WARNING!

_ Comply with the general safety instructions (see General safety instructions, p. 4) !

_ To avoid failures due to ground faults protect the wiring against mechanical loads from sharp-edged metal parts (e.g. cable penetrations, cable holders, metal frames, etc.)

_ Electronic LED Driver from Tridonic are protected for a maximum of 48 hour against overvoltage of up to 320 V.

_ Make sure that the LED Driver is not exposed to overvoltages for long periods!

Routing the wires

Tests

NOTICE

The performance of the prescribed tests and compliance with relevant standards are the responsibility of the luminaire manufacturer.
The following descriptions merely indicate the most important tests and are no substitute for a full research of the relevant standards.

Insulation and dielectric strength testing of luminaires

LED Driver for lamps are sensitive to high-voltage transients. This must be taken into consideration when subjecting luminaires to routine testing during manufacture.

According to IEC 60598-1 Annex Q (for information only!) and ENEC 303-Annex A, each luminaire should be subjected to an insulation test for 1 second at 500 V DC. The test voltage is applied between the linked phase/neutral conductor terminal and the protective earth terminal. The insulation resistance must be at least 2 MOhm.

As an alternative to measuring the insulation resistance, IEC 60598-1 Annex Q describes a dielectric strength test at 1500 V AC (or 1.414 x 1,500 V DC). To avoid damaging electronic LED Driver, this dielectric strength test should be performed exclusively for type testing. This test should certainly not be used for routine testing.

NOTICE

Tridonic recommends performing an insulation test because a dielectric strength test may damage the device irreparably.

Type testing

Type testing of the luminaire is performed according to IEC 60598-1 Section 10.

The wiring for protection class 1 luminaires is tested at a voltage of 2xU + 1,000 V. In order not to overload the LED Driver all the inputs and outputs of the LED Driver are connected to one another.
U_{out} is used for measuring the voltage for luminaires with LED Driver with U_{out} > 250 V:

For U_{out} 480 V the voltage for the type test is 2000 V. (Routine testing is always performed at 500 V DC)

Wiring

NOTICE

The wiring procedure is device specific. Further information about wiring, wire cross sections and the length of stripped off insulation can be found in the data sheet.

Routing the wires

Wiring guidelines

_ The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.

_ The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit), this applies for LED output as well as for I-select and temperature sensor.

_ Depending on the design of the luminaire it may be possible to improve the radio interference properties by earthing the device at the earth connection.

_ The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.

Wiring the plug-in terminal

_ Use solid wire or stranded wire with the correct cross-section

_ Strip off correct length of insulation; you may need to twist the tool slightly

_ If stranded wire is used: push onto the terminal from above to be able to insert the wire

_ Insert the bare end into the terminal

Components

basicDIM Wireless

Description

basicDIM Wireless is a wireless control unit for dimmable LED Drivers with 0 - 10 V, 1 - 10 V or DALI dimming interface.

The device is intended to be integrated into a luminaire. The control output can be configured either as analog 0 - 10 V (and 1 - 10 V) or digital Standalone DALI control interface.

When the output is configured as Standalone DALI, basicDIM Wireless acts both as a controller and as a power supply making it possible to connect directly to an LED Driver with DALI interface without the need for an external DALI power supply. This so called Standalone DALI makes it possible to implement multi-channel luminaires with adjustable colour (RGB) or colour temperature, while keeping the wiring and number of components at their minimum.

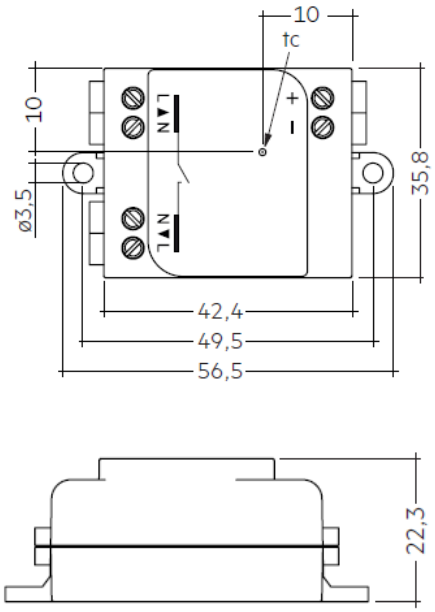
basicDIM Wireless does not comply with IEC 60929 and therefore is not designed to be connected to an existing DALI network. The module can be used only in a closed system, i.e. inside a luminaire which does not have an external DALI interface. basicDIM Wireless is controlled wirelessly by a smartphone or tablet with control app.

Devices form automatically a secure wireless mesh network so that a large number of fixtures can be controlled from any point. No external gateway module is needed. basicDIM Wireless can be controlled also from standard on/off wall switches.

Setup and wiring of a basicDIM Wireless luminaire

Technical data

Parameter	Value
Rated supply voltage	220 - 240 V
Mains frequency	50 / 60 Hz
Radio transceiver operating frequencies	2.4 - 2.483 GHz
Max. output power radio transceiver	+4 dBm
Bus voltage DC DALI output	12 V
Shortcircuit current DALI output	7 mA
Max. DALI wiring length	1 m at 1 mm² cross section
Operating temperature	-20 ... +50 °C
tc point	70 °C
Storage temperature	-25 ... +75 °C
Dimensions L x W x H	56.5 x 35.8 x 22.3 mm
Type of protection	IP20



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM Wireless	28002212	100 pc(s).	0.048 kg

Setup and wiring of a basicDIM Wireless luminaire

Setup of a basicDIM Wireless luminaire

This chapter describes different wiring variants of a basicDIM Wireless luminaire.

⚠ CAUTION!

_ The max. permissible cable length of the un:c bus must not be exceeded

_ Always observe the installation guidelines for LED Drivers!

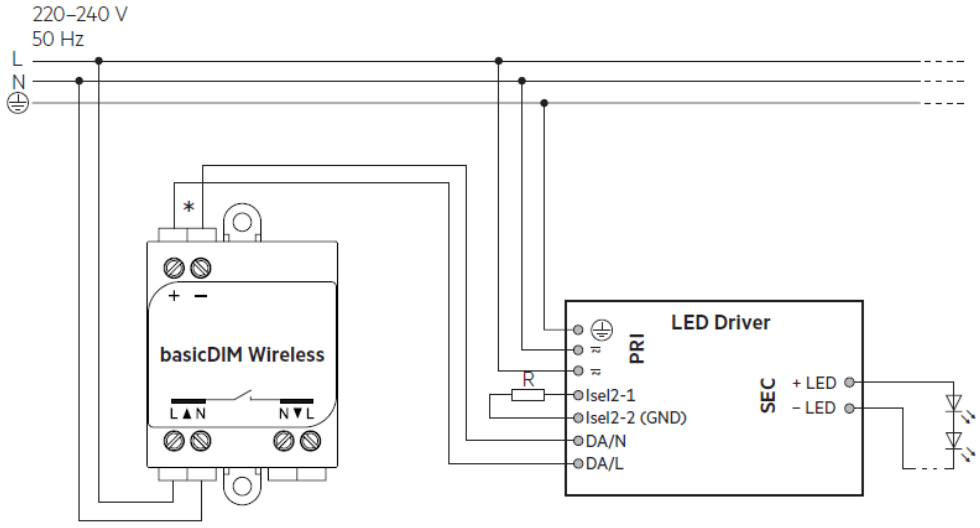
Required components

The following components are required for a basicDIM Wireless luminaire:

Quantity	Function + Description
1	DALI oder 0-10V LED-Treiber
1	basicDIM Wireless

Wiring DALI

The LED Driver and the basicDIM wireless module are connected via 2-wire bus line.
The power cables are connected to the basicDIM Wireless.



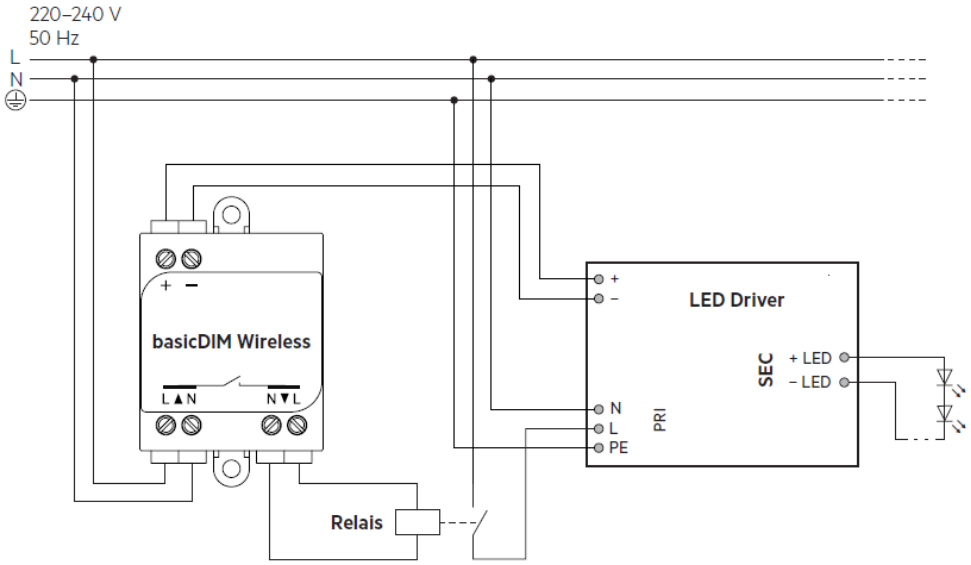
* Max. wiring length 1 m with a cross section of 1 mm².

Setup and wiring of a basicDIM Wireless luminaire

Wiring 0-10V

The LED Driver and the basicDIM wireless module are connected via 2-wire bus line.

The power cables are connected to the basicDIM Wireless. The power supply of the LED driver is switched by means of the relay output and an external relay.



Setup and wiring of a basicDIM Wireless luminaire

Placement

basicDIM Wireless has an integrated antenna. Certain materials can reduce the range of the antenna. During assembly, the following should be observed.

The antenna is located at the corner of the case, at the bottom of the PCB, just above the bottom of the device. By placing the antenna at this point, the influence of other components on the antenna performance is minimized. In addition, the device should be placed as far away as possible from vertical metal structures.

In addition, we recommend installing the device with a spacer > 1 cm in the housing.

The output wires of the device should not lead past the antenna