Blu2Light

# BUILT-IN MODULE FOR CONVERSION TO BLUETOOTH® WIRELESS TECHNOLOGY

## Blu2Light CONNECT ZERO PLUS / -DC

**Blu2Light – The intelligent wireless lighting control solution**

The Blu2Light Connect Zero Plus / Zero Plus DC is a module for installation in operating devices which are have to receive Bluetooth® control. The module consists of the radio module with Bluetooth® wireless technology, an antenna and the B2L controller. This means that the integration of the radio module is simple and pre-certified.

**Connect Zero Plus / -DC**
Turns a standard control gear into a control gear with with Bluetooth® wireless technology.

Blu2Light Connect Zero Plus / -DC

- **BLUETOOTH MODULE FOR BLU2LIGHT ECOSYSTEM**
- **BLUETOOTH MESH OPERATION**
- **OTA MESH- AND FIRMWARE UPDATES**
- **SMALL FORM FACTOR 12,7 x 20,0 x 2,5 mm**
- **HORIZONTAL OR VERTICAL MOUNT**
- **EASY TO USE PWM OUTPUTS (187070)**
- **COMMUNICATION VIA TTL-DALI (187273)**

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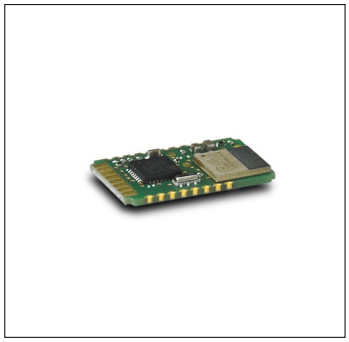
# Blu2Light Connect Zero Plus / -DC



**Installation module for conversion to Bluetooth® wireless technology**
Module for installation in LED control gear or controllable LED modules
**Important**: Contains not only pure Bluetooth communication, timers and time controls can also be set from home. The mesh software and the evaluation are already preinstalled on the Blu2Light Connect Zero Plus.

**Onboard Controllers**
The Module is built with 2 microcontrollers:
1. Murata MBN52832 with nRF52 core for Bluetooth Mesh communication
2. Microchip SAMD21 for Blu2Light operation firmware

**Safety instructions**
This Blu2Light product is to be used exclusively as an OEM installation module. The usual ESD protection measures for electronic components must be observed.

**Additionally required components for the end device**
(not included in the scope of delivery)
- LED for status indication (not necessary)

**Bluetooth® wireless technology**
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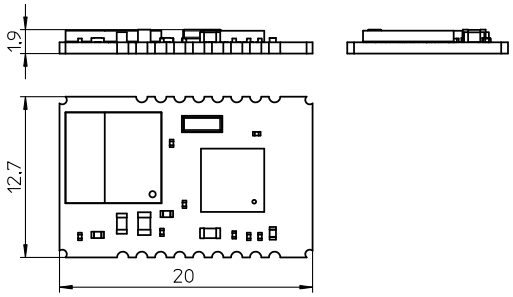
**Technical data**
Communication: 4 PWM outputs / digital settings
Communication takes place according to the current module specifications
Power supply: 3.0–3.3 V DC
Ambient temperature $t_a$: –5 to 85 °C
Protection class: IP00
Dimensions (LxWxH): 20x12.7x2.5 mm
Mounting: soldered
Weight: 3 g
**Best.-Nr.: 187070 / 187273**




**Electrical data**
The signals necessary for proper operation of the module can be taken off at the soldering points provided for this purpose on the underside of the module. The corresponding contacts on the underside can be soldered.

**Note:**
The host product must provide 3.2 V DC (+3.0 V to +3.3 V). An external Liner regulator is required. Necessary bypass capacitors on the input and output of the linear regulator must be used. An electrolytic capacitor of minimum 100 µF on the input of the linear regulator must be used. Both power ground pins must be connected.

**Soldering notes:**
The Blu2Light Connect Zero Module has to be soldered according to IPC/JEDEC J-STD-020C standard.
Preheat phase max time from minimum preheat temperature to maximum preheat temperature: 60-180 s
Preheat phase minimum temperature: 150 °C
Preheat phase maximum temperature: 200 °C
Maximum time from begin of preheat (25 °C) to peak: 480 s
Ramp up maximum rate: 3 K / s
Time above 217 °C : 60–150 s
Peak temperature 260 °C
Time within 5 K of peak temperature: 20-40 s
Ramp down maximum rate: 6 K / s

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.



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The Blu2Light Connect Zero Pluse shall be handled according to Moisture Sensitivity Level MSL 3 which means a floor time of 168 h. The Blu2Light Connect Zero Plus may only be soldered once, as one time is already used up in the manufacture of the module itself.
Once the dry pack bag is opened, the desired quantity of units should be removed and the bag resealed within two hours. If the bag is left open longer than 30 minutes the desiccant should be replaced with dry desiccant. If devices have exceeded the specified floor life time of 168 h, they may be baked according IPC/ JEDEC J-STD-033B at max. 90 °C for less than 60 h. Devices packaged in moisture-proof packaging should be stored in ambient conditions not exceeding temperatures of 40 °C or humidity levels of 90% r.H. Opposite side reflow is prohibited due to the module's weight. The Blu2Light Connect Zero Plus modules have to be soldered within 6 months after delivery! We recommend a no clean flux process.

**Blu2Light Software (187070)**
The software will use the standard Blu2Light software stack, which can be configured during installation. A new node types will be provided.
The software will provide a 1-4 PWM output according Blu2Light standard. No additional functions are provided.

| FC4 | FC3 | FC2 | FC1 | SW Funktion |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | PWM 1ch on Out 1 |
| 0 | 0 | 0 | 1 | PWM 2ch on Out 1+2 |
| 0 | 0 | 1 | 0 | PWM 4ch on Out 1+2+3+4 |

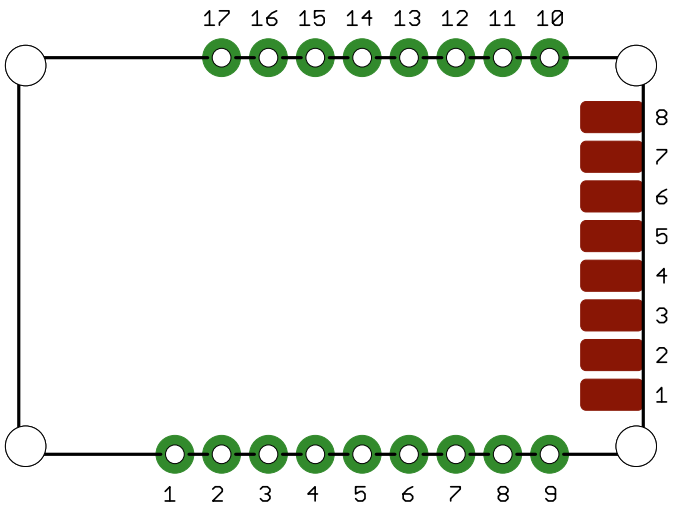
**PWM Output Configuration (187070)**
The amount of available PWM outputs can be configured with external resistors to Vcc or GND on the device's PCB.
The configuration will only be read once during Power Up of Vcc.
PWM frequency is 1250 Hz (flicker free), Min. dimming level is 1%.

**Configuration of the Zero Plus DC Module (187273)**
The digital interface of the Blu2Light Zero Plus DC module makes it easy to control devices that have an interface according to IEC 62386-102 and following, but there is no physical voltage conversion as described in IEC62386 and there is a direct microcontroller to microcontroller (on a 3.3 V TTL basis) communication.
The defined baud rate and idle states are unaffected.
The Blu2Light Zero Plus DC sends to FC 3 (pin 4), the idle state is HIGH.
The Blu2Light Zero Plus DC receives at FC 4 (pin 5), the expected idle state is HIGH.

**Antenna**
The internal antenna of the Murata MBN 52832 Module is used.
The Bluetooth® range will be influenced by the installation location within the casing.
The module has a maximum output power of approximately +3.5 dBm (PEP).
A VS range-test has already been defined and the maximum range will be compared to modules build earlier. With that reference setup a range up to 50 m at free line of sight is possible.

**Structure and position of the connections**
The pins are assigned as follows
(see technical drawing):

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | GND | 14 | N/C |
| 2 | FC 1 | 15 | N/C |
| 3 | FC 2 | 16 | N/C |
| 4 | FC 3 / TX | 17 | N/C |
| 5 | FC 4 / RX | | |
| 6 | +3.2V Supply | | |
| 7 | N/C | | |
| 8 | N/C | | |
| 9 | GND | | |
| 10 | OUT 1 / IN 1 | | |
| 11 | OUT 2 / IN 2 | | |
| 12 | OUT 3 / IN 3 | | |
| 13 | OUT 4 / IN 4 | | |

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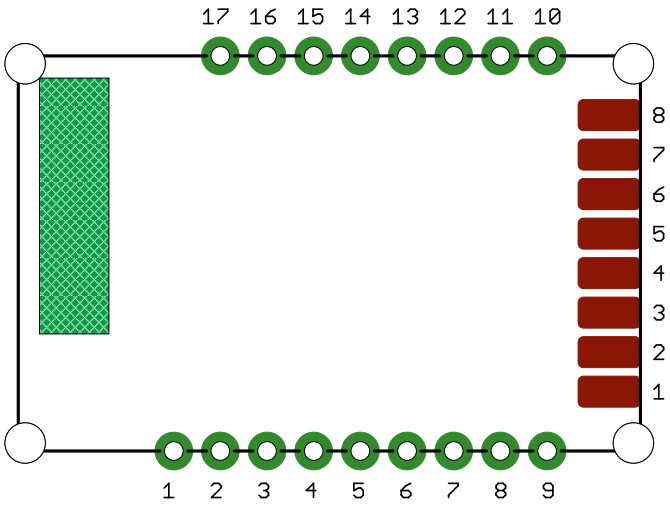
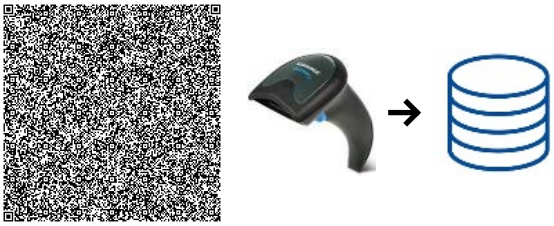
All layers of the customer circuit board should be free of metal objects around the antenna area (green shaded area). In particular, there should be no earth surfaces, conductor tracks or metallic shielding housings.




## Blu2Light Zero Plus QR Code

This QR code is device-specific and unique. To generate it, you need the **B2L_LabelPrinter_ZeroPlus_DC_V11** programme, which can be downloaded from the VS website https://www.vossloh-schwabe.com/service-downloads/software. After unpacking the file, you will find all the necessary information on operating the software and the technical requirements in the readme text file.



Our customer will scan the big QR Code, the information will be stored in his database.

**BQ2W6**

At the assembly station for the final product housing, he scans the DataMatrix on the device and can use the information from his database to generate the B2L QR code, including the product name, and print it on a label.
Customer can stick the B2L label on the device.

**BQ2W6**



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