



DALI-2 IoT

Datasheet

DALI-LAN Interface



Central control module and
DALI-LAN Interface
DALI Cockpit Interface
suitable for DALI and DALI-2

Standard version Art.Nr. 89453886
Node-RED version Art.Nr. 89453886-NR

DALI IoT Central Control Device & Interface

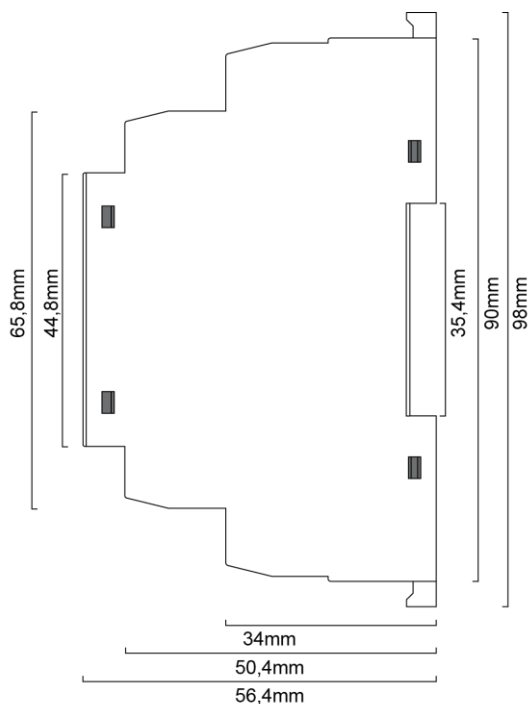
Overview

- Interface module to connect a DALI network and a LAN network
- IoT (LAN) interface to DALI: addressing, status queries, monitoring, etc. of DALI ballasts
- RESTful API endpoints and WebSocket with JSON syntax, encrypted (optionally unencrypted) for custom integrations
- Connect and control separate DALI circuits via several DALI gateways via LAN
- Integration with local network-based third-party systems.
- Node-RED support: Lunatone Node-RED module for simple integration in Node-RED automations (supported from firmware version 1.7.0 on)
- DALI-2 IoT Node-RED version available: DALI-2 IoT with integrated Node-RED server (Art. No. 89453886-NR)
- DIN rail mounting
- Supply 24VDC (e.g.: with 24V / 300mA Art.Nr. 24166012-24HS)

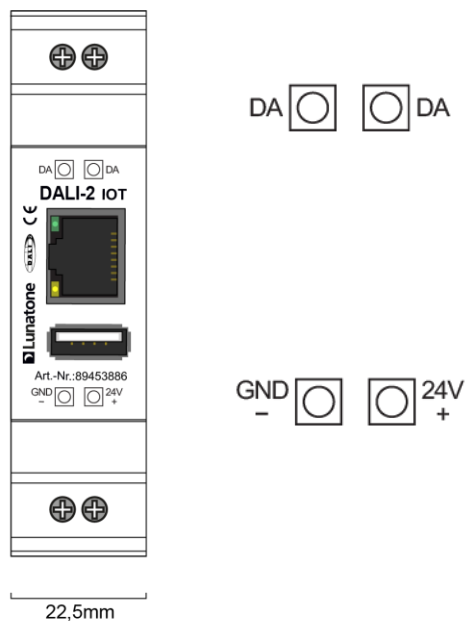


Specification, Characteristics

type	DALI-2 IoT
article number	89453886 and 89453886-NR
GTIN	9010342013607
electrical data:	
power supply	24V-48V DC
typ. current consumption	90 mA at 24V
Ethernet	1xEthernet 10/100Base-T, electrically isolated, isolation voltage 1500VAC, RJ45-connector
DALI	1 x DALI, electrically isolated
technical data:	
storage and transportation temperature	-20°C ... +75°C
operational ambient temperature	-20°C ... +60°C
protection class	IP20
max. connecting wire cross section	2,5 mm ²
mounting	DIN rail (1.5 DU)
dimensions	98 x 23 x 56 mm

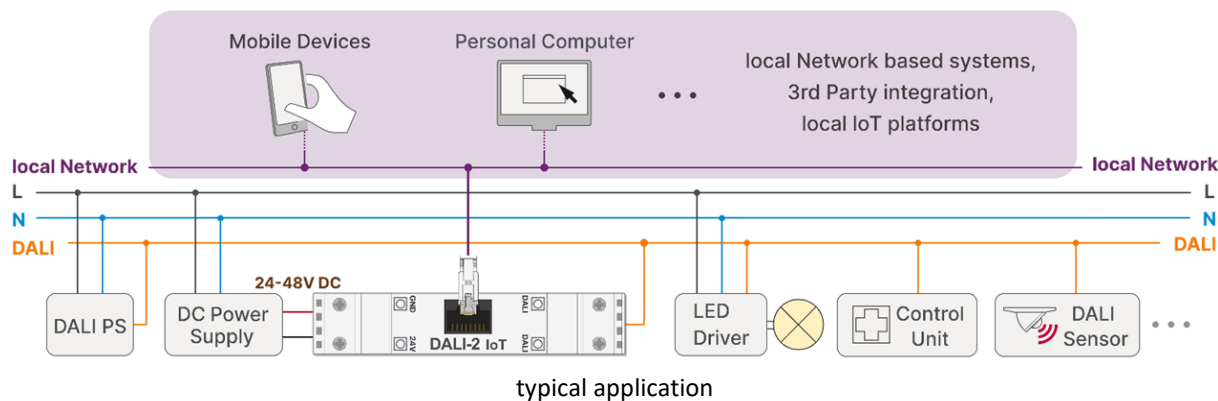


dimensions
DALI-2 IoT and DALI-2 IoT NodeRED



connection plan
DALI-2 IoT and
DALI-2 IoT NodeRED

Typical Application





typical application

Installation

- supply voltage 24VDC - the DALI-2 IoT device requires a 24 V supply, which is connected to the terminals provided for this purpose (suitable power supply unit: PS 24V, 300mA, article nr.: 24166012-24HS).
- The DALI-2 IoT is connected directly to the DALI bus. The supply of the DALI circuit must be ensured by a suitable DALI bus power supply (e.g. DALI PS article nr.: 24033444).
- The connection to the DALI terminals can be made regardless of polarity. The bus input is protected against overvoltage (mains voltage).

- The wiring should be carried out as a permanent installation in a dry and clean environment.
- Installation may only be carried out in a voltage-free state of the system and by qualified specialists.
- National regulations for setting up electrical systems must be followed.
- The DALI wiring can be realized with standard low-voltage installation material. No special cables are required.
- Only 1 wire may be connected to each terminal. When using double wire end ferrules, the connection capacity of the terminal must be considered.

 **Attention:** The DALI-signal is not classified as SELV circuit (Safety Extra Low Voltage). Therefore, the installation regulations for low voltage apply.

 The voltage drop on the DALI line must not exceed 2V at maximum length (300m) and maximum bus load (250mA).

Functionality

The DALI-2 IoT Gateway is an interface for connecting the DALI system with smart devices to the Internet of Things (IoT) via the local network.

Thereby, a simple implementation of an intelligent system is possible with the DALI-2 IoT gateway. Devices can be controlled and monitored via smartphones, PCs, etc.

The DALI-2 IoT includes functionalities such as a time switch, circadian control and a sequencer (to recall sequences of DALI commands).

Basic services and API documentation are available at http://<IP_ADDRESS of the DALI-2 IoT>/docs.

The API documentation and IoT functionalities are further explained in the manual: [DALI IOT API documentation](#)

The USB port on the device does currently not support any functionality.

Network Connection

The DALI-2 IoT is configured to automatically obtain an IP address using the DHCP protocol. If the DALI-2 IoT is unable to reach a DHCP server (e.g. when the DALI-2 IoT is directly connected to a PC) it falls back to the static IP address 169.254.0.1, and the subnet mask 255.255.0.0. after 1min.

If the DALI-2 IoT device is in a network and receives its IP address via DHCP, the IP-address can be determined using a "Discovery" protocol: The DALI-2 IoT listens to UDP packets on port 5555, containing discovery and reacts by sending back {"type": "dali-2-iot"}. For detailed information see the DALI-2 IoT-API manual: [DALI IOT API documentation](#)

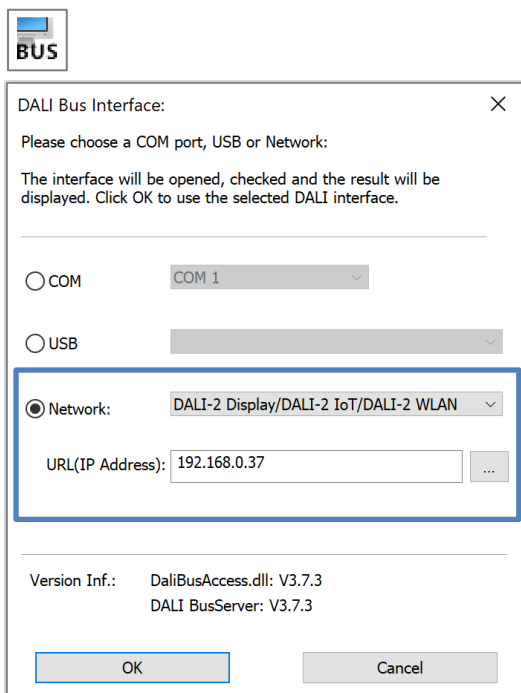
Network settings can be changed via the API documentation (http://<IP_ADDRESS of the DALI-2 IoT>/docs).

DALI Cockpit

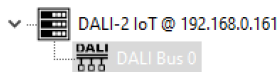
The DALI-2 IoT Gateway can be used as an Interface to the Windows desktop application [DALI Cockpit](#) (Cockpit Version 1.38 or higher), for configuration of the DALI devices on the connected DALI bus.

The Windows PC from which the DALI Cockpit is used and the DALI-2 IoT need to be in the same local network.

To select the DALI-2 IoT as the DALI bus interface in the DALI Cockpit: choose the option "Network" and "DALI-2 Display, DALI-2 IoT, DALI-2 WLAN" and specify the device's IP address. If the IP address is not known, the network can be searched for devices using the button next to the IP address input field:



By selection the DALI-2 IoT is listed as an interface in the device list and can be used for addressing, monitoring and controlling the DALI bus.



[DALI Cockpit Manual](#)

DALI-2 IoT Node RED

Art.Nr. 89453886-NR

<https://nodered.org/>

Node-RED is a programming tool to connect hardware devices, APIs and online services. Many device interfaces are available in the Node-RED library.

The DALI-2 IoT Node-RED serves as a Node-RED host, which means that no additional device is required for Node-RED automations. After installing the DALI-2 IoT Node-RED, the Node-RED Editor can be accessed in any browser at http://<IP_ADDRESS of the DALI-2 IoT>:1880

(If the Node-RED Editor cannot be reached, please check whether the PC and the DALI-2 IoT Node-RED are in the same network and address range.)

Nodes integrated in the DALI-2 IoT Node-RED (Art. Nr.: 89453886-NR) by default are:

- lunatone/node-red-dali
- node-red-dashboard
- node-red-contrib-modbus

Nodes can only be added by Firmware updates of the DALI-2 IoT. Integration of desired additional or other node such as e.g.:

- email
- string
- moment (datetime formatter)
- specific databases
- external services such as Zigbee, ifttt, homekit, aws, chatbots,...

<https://flows.nodered.org/>

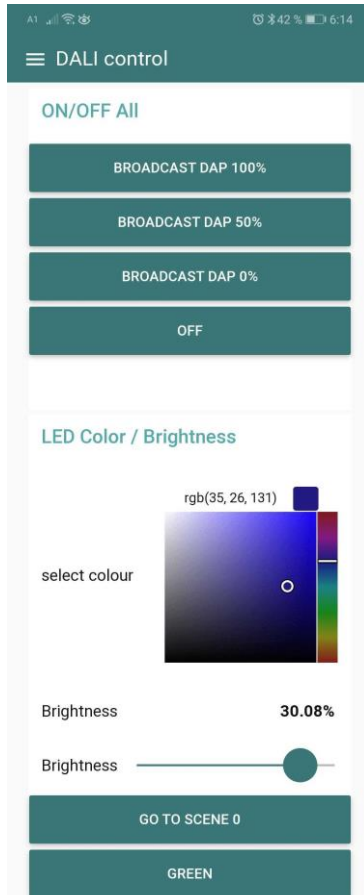
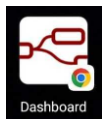
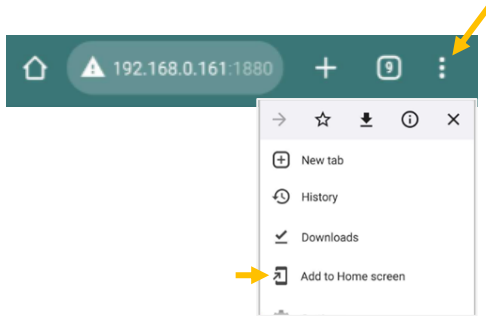
as delivery configuration or as firmware update on request.

Node-RED application examples

Various applications for DALI-2 IoT and DALI 4Net are available, including:

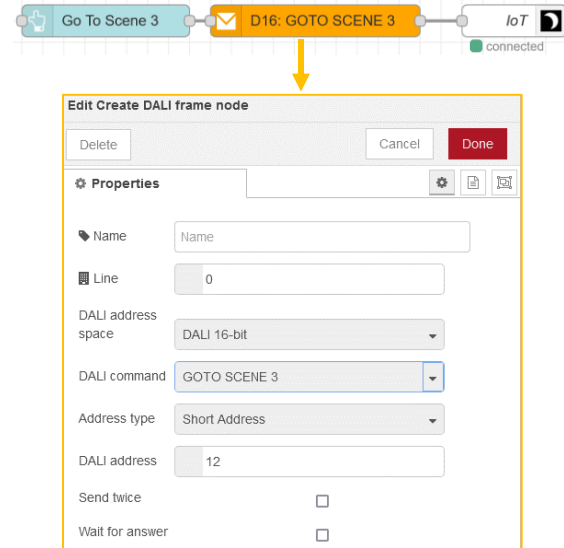
Node RED Dashboard: for control and overview of sensor values.

The dashboard page can be opened via any browser, see example for dashboard in Figure 1, page 7. The dashboard can also be used for control via a smartphone, by selecting "Add to start screen" in the browser menu, the dashboard page can be called up like any other application:



Example 1. - DALI control commands:

The creation of the buttons for sending control commands to the DALI bus is possible with the available Lunatone nodes.



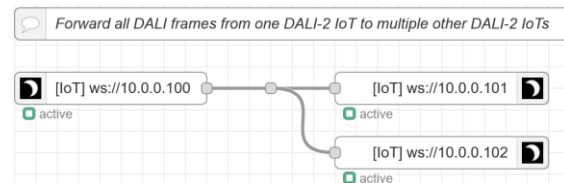
General DALI commands, Queries and more including DALI and DALI-2 are available by drop down – also including DALI-2 event messages.

With the additional function blocks in the application examples also DALI control macros can be easily implemented e.g.

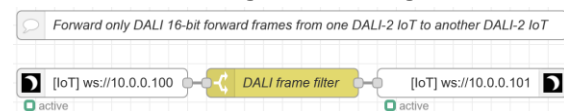
- control of color temperature
- control of color via colour picker

Example 2 - network bridge: forwarding between multiple DALI-2 IoTs for cross-bus control.

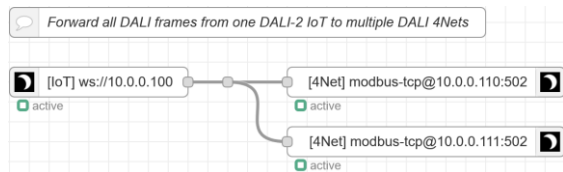
Forwarding between multiple DALI-2 IoTs:



Selective forwarding with filtering:



Forwarding from a DALI-2 IoT to a DALI4Net:

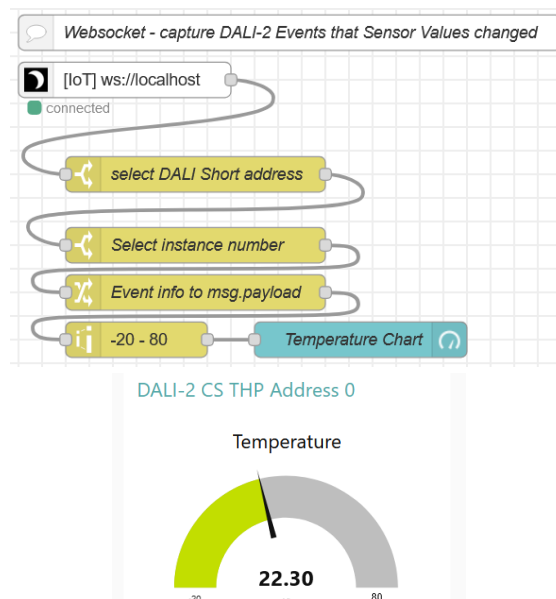


Example 4 - query device status: The light status of DALI devices can be queried and answers can be captured to display the status in the dashboard or add a following action.

Example 3 - sensor values:

Via the web socket connection the DALI-2 Sensor events can be captured and evaluated (DALI-2 event messages of the sensor need to be activated, alternatively the sensor needs to be queried periodically). The sensor values can be extracted from the bus traffic by filtering for the DALI-2 Sensor address and the DALI-2 Event message.

The received sensor values can be used for automations, triggering other actions, or simply to be displayed in the dashboard.



Download Examples:

Different application examples can be downloaded [here](#) as a Node-RED project and opened in the Node-RED Editor.

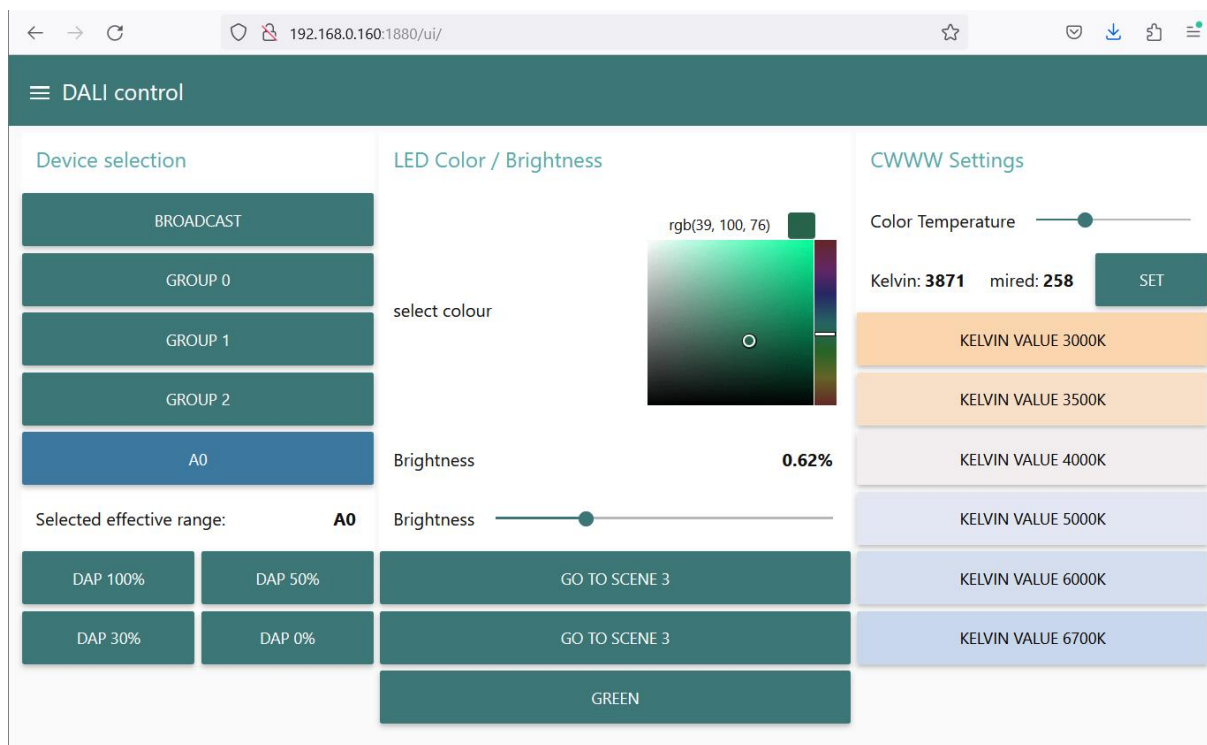


Figure 1 Example for DALI IoT Node RED Dashboard – Tab DALI Control

Web Interface

The DALI IoT web interface allows uploading of macros or loading firmware updates. The web interface can be accessed via a web browser, by entering the IP address of the display in the browser.

Information on the network settings and the IP address of the DALI IoT are in section "Network Connection", page 4.

The PC, phone or tablet and the display must be in the same network and address range.

Cloud access

The DALI IoT interface can be accessed via cloud (tunneling of DALI commands, access to the node-RED host is not supported). Cloud support can be requested via cloudsupport@lunatone.com

Information can be found here: <https://www.lunatone.com/en/product/lunatone-cloud-service/>

Firmware Update

Firmware updates are possible via the web interface of the DALI IoT, see section "Web Interface" on page 8.

On the web interface on the tab "Firmware update" the firmware update file (.lfu) can be uploaded and the update can be started using the "Upload" button, see also Figure 2 below.

The update can take up to 15 minutes. After an automatic restart of the device, the update is complete.

Attention: The device should only be updated not downgraded, a downgrade will lead to data-loss.

Attention: With the browser "Microsoft Edge" problems can occur during updates. It is recommended to use a different browser for firmware updates.

The latest DALI-2 IoT software update file can be found [here](#)

The latest node-red software update file can be found [here](#)

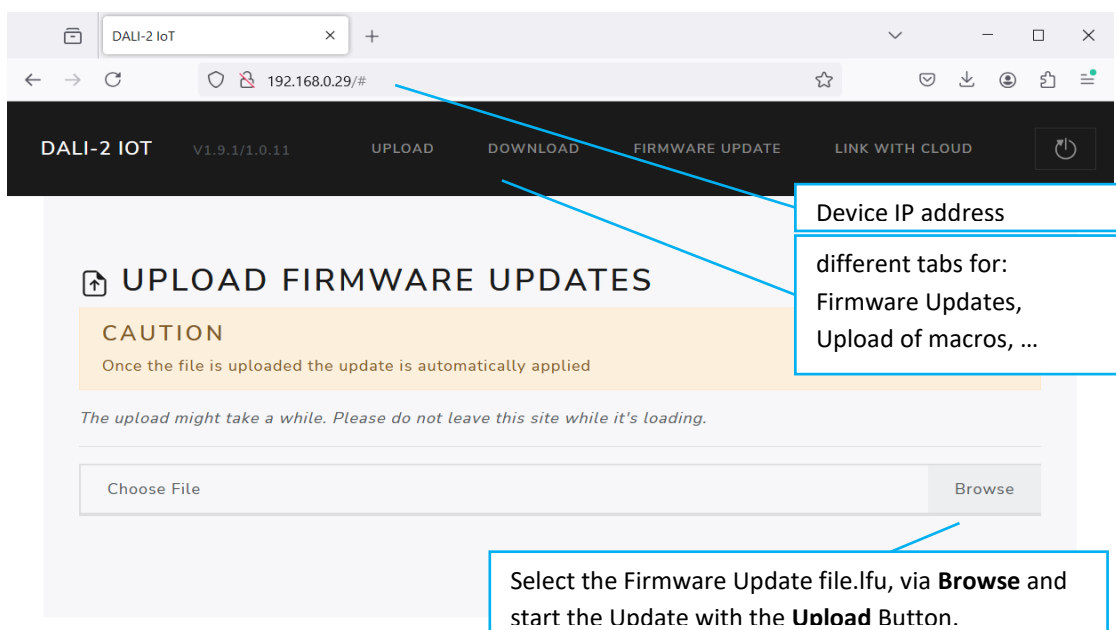


Figure 2 web interface - tab Firmware Update

Purchase Order Information

Art.Nr. 89453886: DALI-2 IoT, DALI – LAN interface.

Art.Nr. 89453886-NR: DALI-2 IoT & Node-RED host, DALI – LAN interface.

Accessories:

Art. Nr.: 24166012-24HS, 24VDC/300mA power supply, DIN rail

Additional Information and Equipment

DALI-2 IoT API manual

https://www.lunatone.com/wp-content/uploads/2021/08/89453886_DALI2_IOT_API_Dokumentation_EN_M0023.pdf

DALI-2 IoT Node Red examples

www.lunatone.at/projects/Display_and_IoT/IoT-Node-RED-examples.zip

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<https://www.lunatone.com/en/product/dali-cockpit/>

Lunatone DALI products

www.lunatone.com/en/

Lunatone datasheets and manuals

www.lunatone.com/en/downloads-a-z/

Contact

Technical Support: support@lunatone.com

Requests: sales@lunatone.com

www.lunatone.com



Disclaimer

Subject to change. Information provided without guarantee. The datasheet refers to the current delivery.

The compatibility with other devices must be tested in advance to the installation.