AURORA: Touch keypad for home automation with RGBW LEDs

The AURORA home automation keypad offers an unparalleled control experience. The capacitive touch technology allows delicate and precise navigation, while the integrated RGBW LEDs illuminate it in a suggestive way. Luminous feedback and backlighting improve the visibility and usability of the keypad, making interaction with it easier.
It is possible to choose between the standard version or the special one with integrated temperature and humidity probe (/TH), in order to adapt to specific needs.
AURORA is available with several finishes: glass, metal, up to various material effects.
This product combines the practicality of home automation with a refined design, offering a complete solution for intelligent and convenient home control.

Each key is back-lighted by an RGBW LED, which allows to choose from several colors separately for each key and for each ON-OFF state.
Furthermore, 4 rear RGBW LEDs (ambient backlighting) are available, allowing to create an eye-catching scenographic effect by projecting a halo of light onto the wall adjacent to the AURORA.
Both the button and rear LEDs are managed via DALI-2 bus, according to IEC62386-332 specifications (Feedback, in manufacturer mode).
An internal transducer can be configured to emit a beep with each touch of the keys.

The keyboard can be powered by the bus or by an external 24Vdc voltage, in which case the current absorbed by the DALI bus becomes minimal.

The terminal block for connecting the bus and the auxiliary power supply is of the removable type. The AURORA keypad takes a single DALI-2 address.

AURORA for the DALI-2 system is available in versions with 6, 4 and 2 keys.

The housing of AURORA keypad is suitable for flush mount boxes mod. 503 and 502.

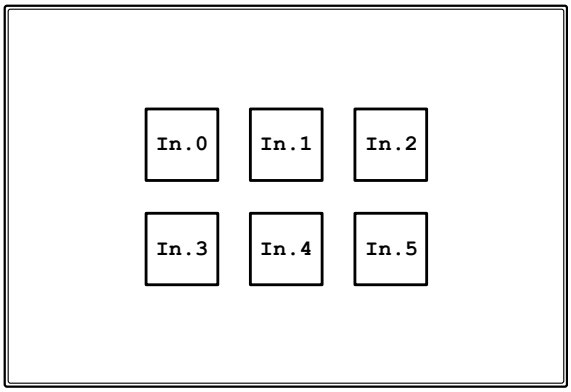
Note 2: *this technical sheet refers to AURORA Domino equipped by firmware 1.0 or higher.*
Note 2: *AURORA needs a DALI-2 controller compliant to IEC 62386-332; in the* **DUEMMEGI** *range of products, use DLCP-4CH controller.*

Operation

The AURORA keyboard takes a single DALI address with instance of type 1 for the keys and instance of the type 0 for T/H (if any); the following figures show the assignment of the instance number to the relevant key for the different versions available (with keyboard oriented as per the rear label).

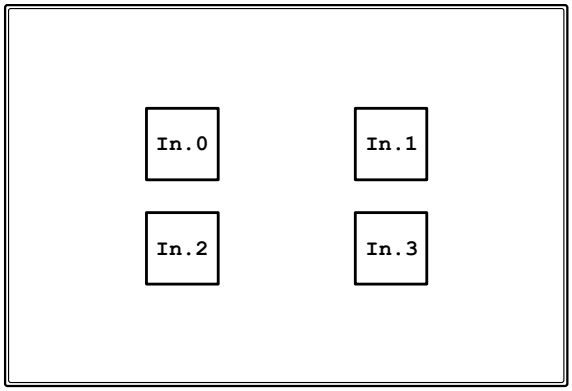
6 keys:

In	Type	Funzione
0	1	Key 1
1	1	Key 2
2	1	Key 3
3	1	Key 4
4	1	Key 5
5	1	Key 6
6	0	Temperature (for /TH option only)
7	0	Humidity (for /TH option only)



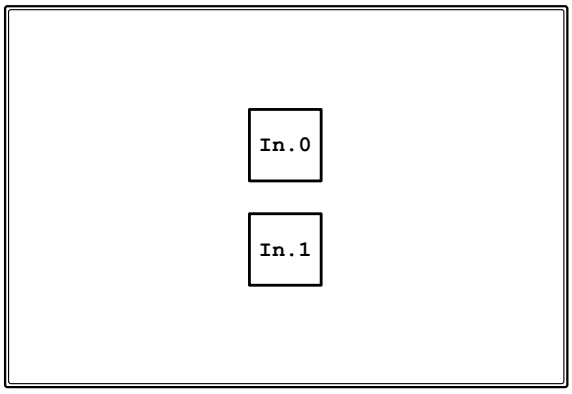
4 keys:

In	Type	Funzione
0	1	Key 1
1	1	Key 2
2	1	Key 3
3	1	Key 4
4	0	Temperature (for /TH option only)
5	0	Humidity (for /TH option only)



2 keys:

In	Type	Funzione
0	1	Key 1
1	1	Key 2
2	0	Temperature (for /TH option only)
3	0	Humidity (for /TH option only)



In Operating Mode = 0x80 (Manufacturer Specific Mode), a luminous feedback (RGBW LED) is associated with the instance of each key, managed in accordance with IEC 62386-332. The main feedback commands are summarized in the table below:

Command	Function
Activate FDBK	LED in active state
Stop FDBK	LED in inactive state
FDBK timing	LED fixed or blinking
Active FDBK brightness	Brightness when in active state
Active FDBK colour	Color when in active state
Inactive FDBK brightness	Brightness when in inactive state
Inactive FDBK colour	Color when in inactive state

The 4 rear RGBW LEDs are also managed (in parallel mode) as feedback, but at device level. The commands implemented are the same as in the previous table.

To turn on and keep the rear LEDs on, it is necessary to set the relative “Inactive Brigthness” to a value other than zero and equal to the desired brightness; in the same way, to change its color (which by default is white), the relevant "Inactive Color" has to be set.

Two further functions are then available:

- beeper: the internal buzzer can be enabled to emit a beep each time the keys are touched
- proximity: “proximity” mode means the detection of the hand near the keyboard; without proximity the brightness of the LEDs (both front and rear ones) is at a low value (even off), while when proximity is detected the brightness goes to a higher value. Proximity, when the hand or finger is removed, is deactivated after a configurable time

Both the beeper and proximity are configured via parameters in Bank 2 of the device memory.

As per the DALI-2 standard, this bank contains, starting from byte 0x03, some parameters defined by the manufacturer; these parameters are listed in the following table.

	Description	Factory value	RESET value
Par. 1	Beeper configuration (a)	1	n.c.
Par. 2	Reserved	0	n.c.
Par. 3	Temperature correction, allowed values -128÷+127 (-12,8°C÷+12,7°C) (b)	0	n.c.
Par. 4	Humidity correction, allowed value -128÷+127 (-12,8°%÷+12,7%) (b)	0	n.c.
Par. 5	Proximity timer in seconds (1÷255)	2	n.c.
Par. 6	Brightness attenuation w/o proxy (c)	0	n.c.
Par. 7	Brightness attenuation with proxy (c)	0	n.c.

Note: “n.c.” in the table means “no change”, therefore a RESET command do not modify the set value.

(a) Beeper setting:

Value	Beeper
2	OFF
3	ON

(b) two's complement value

(c): the attenuation parameter reduces the brightness of the LEDs; allowed values 0 to 8 in steps of 1. The brightness is reduced by increasing the attenuation parameter; attenuation=9 means LEDs OFF. Setting the attenuation with proxy and without proxy to the same value, the proxy function will be disabled. When supplied by DALI bus, attenuation will be forced >= 3.

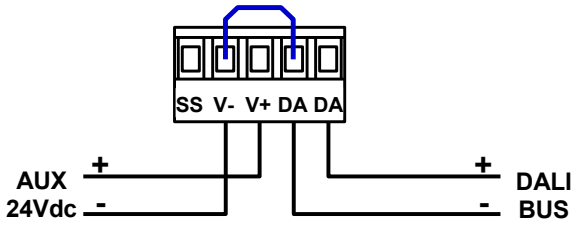
Module connection

The AURORA keypad can be powered in two ways: from a 24Vdc auxiliary power supply or from the DALI bus. Since the current required for the LEDs is not negligible, in the case of power supply from DALI bus the brightness of the LEDs is limited to a proper value value.

With 24Vdc auxiliary power supply

Connect a 24Vdc power supply to the V+ and V- terminals and make a jumper between DA- and V- (note that in this case the polarity of the DALI bus must be respected). In this way:

- the current absorbed by the DALI bus is less than 2mA
- the brightness of the LEDs is the maximum
- if the auxiliary power supply is disconnected or switched off, the LEDs are switched off and the module stops communicating on the DALI bus; the maximum absorption from the DALI bus in these conditions is 4mA

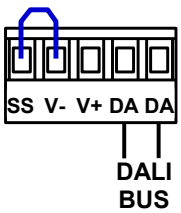


NOTE: when connecting an external power supply, it is mandatory to make the jumper between DA- and V- as shown in the diagram above; otherwise, the floating ground associated with a long wiring between AURORA keypads and power supply can cause reception errors from the DALI bus.

Power supply from DALI bus only

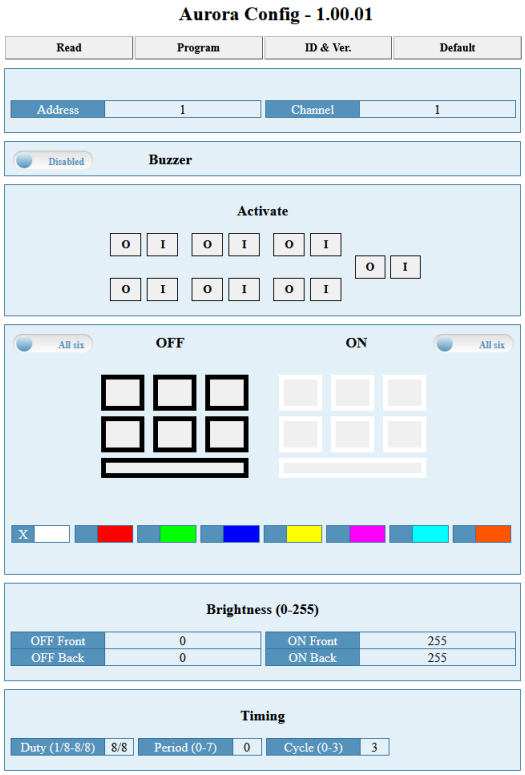
To activate the power supply from the DALI bus, a jumper must be made on the terminal block between the SS (Supply Select) and V- terminals; in this way:

- the maximum current absorbed by the DALI bus is 20mA
- the maximum brightness of the LEDs is limited to to a proper value in order to remain within the maximum absorption of 20mA from the DALI bus



Colors and brightness settings

The **DUEMMEGI** DLCP-4CH controller provides a useful and easy to use tool for the setting of RGB LEDs and other functions, see the following figure.



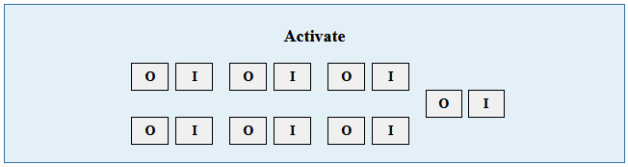
To access this tool, enter the IP address of DLCP-4CH followed by /aurora.htm in your browser. For example, if the IP address is 192.168.1.252, then enter:

http://192.168.1.120/aurora.htm

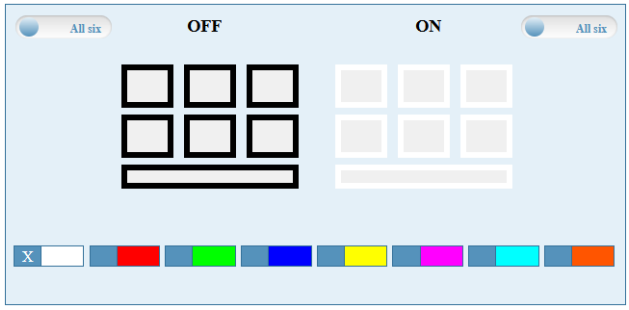
Once the tool is opened, enter, in the top section, the address of the AURORA device to be configured and the DLCP-4CH channel to which it is connected:

Choose whether to enable the buzzer or not:

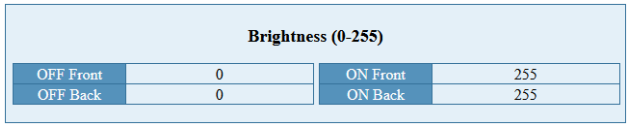
The Activate section allows to switch each LED ON/OFF (the 2 rightmost buttons refer to the rear LEDs):



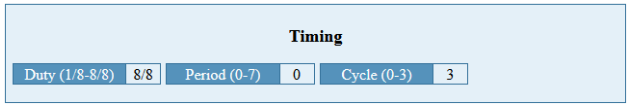
The next section allows to select the color of each LED by selecting it in the colored bar (white, red, green, yellow, magenta, cyan, orange) and applying it with a click to the desired LED (the rectangular bar refers to the rear LEDs); the colors can be applied to the OFF state and to the ON state ("All six" applies the color to all the front LEDs):



The next section sets the brightness between 0 and 255 for the OFF and ON states and for the front and rear LEDs:

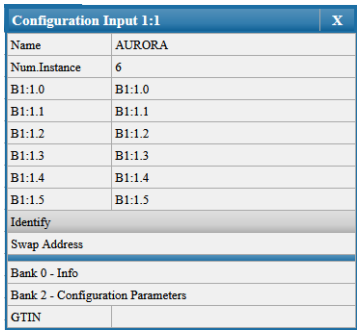


Finally, with Timing you can set different flashing modes:
-Duty is the ON time with respect to the flashing period, allowed values from 1/8 to 8/8
-Period is the flashing period, at 0.5s steps, from 0.5s (0) to 4s (7)
-Cycle is the number of flashes to choose between 1 (0), 2 (1), 3 (2) and infinite (3)

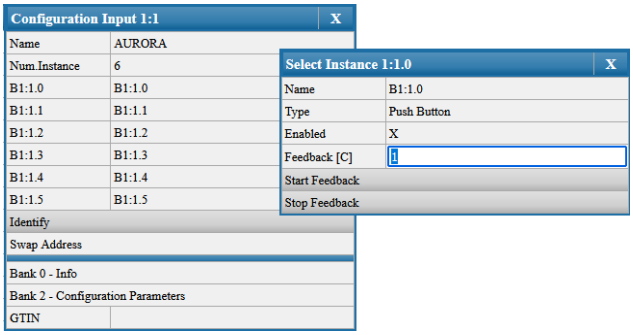


LED management from DLCP-4CH controller

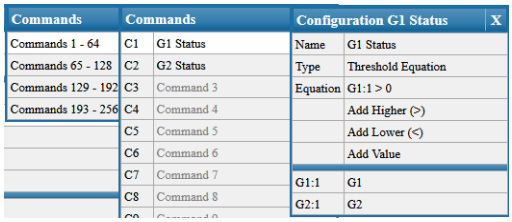
Using the DLCP-4CH controller it is possible to "link" the status of each front LED to a command; after having performed the discovery (or addressing) of the connected DALI devices, select, from the DLCP4Tools menu, Inputs → Channel x → CDx related to AURORA to view its configuration:



For example, click on the first instance (B1:1.1) to view its settings:



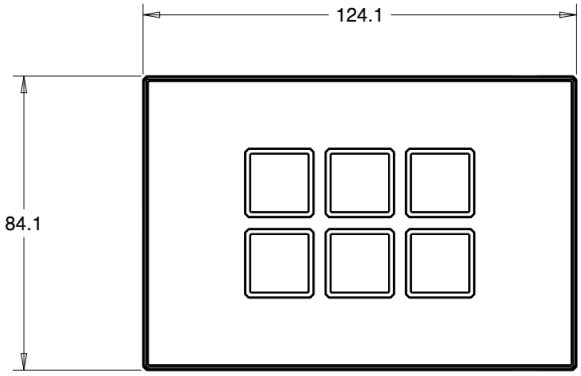
In the Feedback text box, enter the number of the command to which the LED for that button will be linked; at this point, it will be enough to define the Cx (C1 in the example) based on the desired logic.
For example, if you want the LED to be in the active state when a group of lamps is ON (e.g. G1), you will have to define C1 using a threshold equation as shown in the following screenshot:

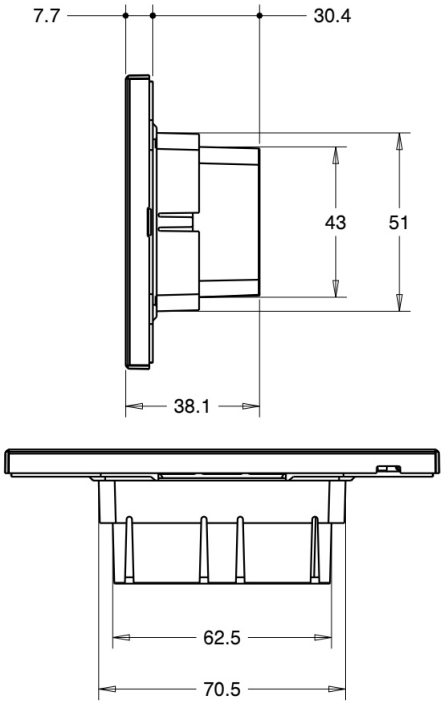


Technical characteristics

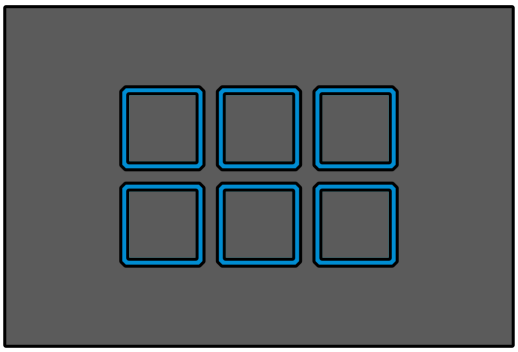
Power supply	By DALI bus or by 24Vdc aux power supply
Current consumption from DALI bus	20mA MAX without aux power supply 2mA with aux power supply 4mA with aux power OFF
Current consumption from 24Vdc aux	35mA MAX
Number of keys	6, 4 and 2 with RGBW LED backlight
Number of LED	1 RGBW for each key + 4 RGBW for ambient lighting, with configurable brightness
Beeper	Internal, it can be disabled
/TH Option Temperature Relative Humidity	 -5 ÷ +50 °C, resol. 0.1 °C, accuracy ±0.5 °C 0 ÷ 100%, resol. 1 point %, accuracy ±5 points %
Available Finishes	AURORA is available with several finishes: glass, metal, up to various material effects
Number of DALI addresses	1
Start-up time	1200ms MAX
DALI-2 compliant according to	IEC 62386-101-103-301-332
Operating temperature	-5 ÷ +50 °C
Storage temperature	-20 ÷ +70 °C
IP rating	IP20

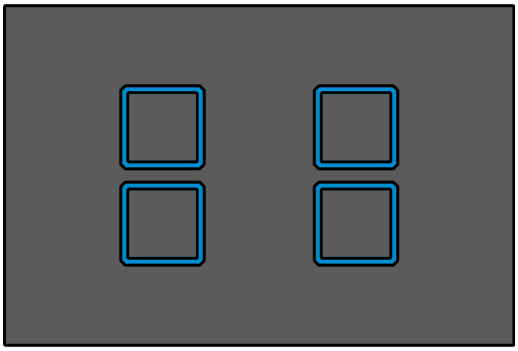
Outline dimensions

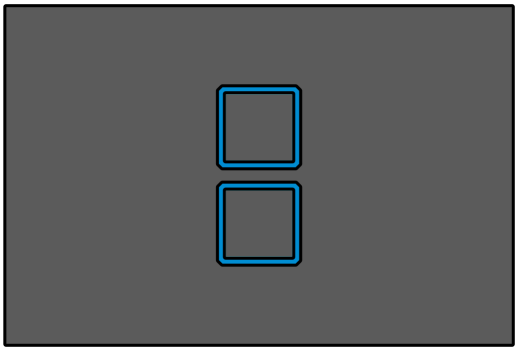




Available versions







Correct disposal of this product

(Waste Electrical & Electronic Equipment)
(Applicable in the European Union and other European countries with separate collection systems). This marking on the product, accessories or literature indicates that the product should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Installation and use restrictions

Standards and regulations

The design and the setting up of electrical systems must be performed according to the relevant standards, guidelines, specifications and regulations of the relevant country. The installation, configuration and programming of the devices must be carried out by trained personnel.
The installation and the wiring of the bus line and the related devices must be performed according to the recommendations of the manufacturers (reported on the specific data sheet of the product) and according to the applicable standards.
All the relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed.

Safety instructions

Protect the unit against moisture, dirt and any kind of damage during transport, storage and operation. Do not operate the unit outside the specified technical data.
Never open the housing. If not otherwise specified, install in closed housing (e.g. distribution cabinet). Earth the unit at the terminals provided, if existing, for this purpose. Do not obstruct cooling of the units. Keep out of the reach of children.

Setting up

The physical address assignment and the setting of parameters (if any) must be performed by the specific softwares provided together the device or by the specific programmer. For the first installation of the device proceed according to the following guidelines:

- Check that any voltage supplying the plant has been removed
- Assign the address to module (if any)
- Install and wire the device according to the schematic diagrams on the specific data sheet of the product
- Only then switch on the 230Vac supplying the bus power supply and the other related circuits

Applied standards

This device complies with the essential requirements of the following standards and directives:
IEC 62386-101-103-301-332
2014/30/UE (EMC)
2014/35/UE (Low Voltage)
2011/65/UE (RoHS)

Note

Technical characteristics and this data sheet are subject to change without notice.