

## DFDALI: DALI gateway

DFDALI module allows to manage up to 32 DALI ballasts (or similar devices) through the **Domino** bus. DFDALI module can be successfully employed in domestic and professional lighting applications, where systems communicating by the DALI protocol are used.

DFDALI module offers the following main features:

- x all timing functions are accomplished by the module and it may be controlled by any real or virtual input of the system, by supervisor or by video terminal
- x it can operate without DFCP controller
- x possibility of control from one or more pushbuttons connected to **Domino** bus
- x Up/Down and Single commands may be defined for the manual regulation of lighting level
- x automatic brightness regulation (also without DFCP)
- x programmable ramp, in the range 0 to 60 seconds
- x setting of minimum and maximum output levels
- x dynamic lights scenes can be easily implemented through DFCP
- x the current brightness level may be stored and then recalled; up to 16 presets are available to create "real time" lighting scenes; the preset will be stored in the non-volatile memory of the ballasts
- x if a **Domino** or DALI bus failure occurs, the output level will be automatically set to a user-defined level
- x diagnostics of short circuit on the DALI line and lamp failure
- x galvanic insulation between DALI and **Domino** buses

The 32 devices for each line can be controlled as follows:

**Broadcast:** each command sent on the DALI line will be executed by all the connected devices, therefore all the related devices will behave in the same way.

**Individually:** the commands will be individually sent to each device, therefore each single device will behave independently; for this operation, the DALI devices must be addressed as described in the following paragraphs.

**Groups:** the command will be sent to groups, therefore each group of devices will behave independently; for this operation, DALI devices must be addressed and the groups must be defined as described in the following paragraphs.

DFDALI module can operate in systems with or without DFCP controller. In all cases, the module can perform Up, Down and Single Command functions by real or virtual inputs (see in the following of this manual); moreover, saving and recalling of sceneries can be accomplished by the module.

The power supply needed for DFDALI module operation is derived from the **Domino** bus itself and from an auxiliary power supply for the DALI section.

Three fixed 2-way terminal block allow the connection of the module to the Domino bus, to the auxiliary power supply and to the DALI bus.



Near to the **Domino** bus terminal block, the module features a small pushbutton for the assignment of the address and a green LED that shows the operating status; this green LED normally flashes every 2 seconds about to signal that the module is properly supplied and operating.

Near to the DALI bus terminal block, the module features a small pushbutton for the manual command of the connected devices; the function performed by this button are the continuous regulation of the brightness level and the one-touch switching on and off. Near to this button, a yellow LED reports the communication activity on the DALI line or the diagnostic.

Removing the cover of the bus terminal block, a small connector (PRG) can be accessed; this one allows the connection to DFPRO optional tester/programmer.

DFDALI module is housed in a standard DIN 4M box for rail mounting.

**Note:** this technical sheet applies to DFDALI modules equipped with firmware 3.0 or higher.

## Address programming

DFDALI module takes one output address and, if enabled, one input address. A white label on the front panel allows the writing of the assigned address for an immediate visual identification. For details about address programming refer to the related documentation.

## Wiring diagram

The schematic diagram in Figure 1 shows the connections to be made between DFDALI module and the **Domino** bus, the auxiliary power supply and the DALI line, using cables as described in the table in the following of this same paragraph. As said above, DFDALI module performs galvanic insulation between DALI section and **Domino** bus by means of photo couplers inside the module.

The auxiliary power supply (AUX SUPPLY in the schematic) can be a transformer with 12V~ secondary winding (at full load) 3VA, or it can be a stabilized dc power supply having output voltage in the range 15V to 24V (MAX), capable to deliver 0.5A; in this last case the polarity is automatic, so the positive pole can be connected indifferently to the terminal 19 or 20.

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**Warning:** voltage over 24V could damage the connected DALI devices.

It is suggested to use, for the DALI line, a normal 2-core cable with double insulation. It's allowed to lay these cables in the same pipe in which there are power cables, provided that they have double isolation too.

It is recommended to avoid the using of multi core cables carrying both the two DALI signals and ballast supply, because the capacitive coupling between the signal wires and the power lines may cause very dangerous conditions for the human safety.

The following table gives some rules for the MINIMUM cable section. As said above, no special cables are required for the DALI line, provided that they have double insulation. In any case, the distance between DFDALI module and the farthest ballast must not be more than 300m.

Connection	Suggested cable
Domino bus	2 x 0.8 mmq unshielded
DALI SUPPLY	1 mmq (if the power supply is near to the module)
DALI line	Up to 120m: 2 x 0.50mmq Up to 175m: 2 x 0.75mmq Up to 230m: 2 x 1.00mmq Up to 300m: 2 x 1.50mmq

**Information on the bus**

DFDALI takes, inside the **Domino** bus, 1 output address and, if enabled, 1 input address. The meaning of the data field of the two sections will be described in the following.

**Input section**

On the input address, if enabled, 16 bits are available for the diagnostics of DALI system, as described in the following table:

Point	Description
1	Current brightness or Regulation Status of the 8 zones
2	
3	
4	
5	
6	
7	
8	
9	-
10	-
11	Polling disabled
12	Power supply loss on DALI side
13	Test button pressed
14	Lamp failure
15	DALI line broken
16	DALI line short circuit

The first available information (points 1÷8 of the channel) can be chosen by the option "Regulation Status" in the configuration panel featured by DCP IDE or BDTools; the two possibilities are:

*Case 1 (unchecked option):*

the brightness level of the ballast having address 1 which is assumed as reference for all the other ballasts. Thus, to use this function, the ballasts have to be addressed starting from address 1.

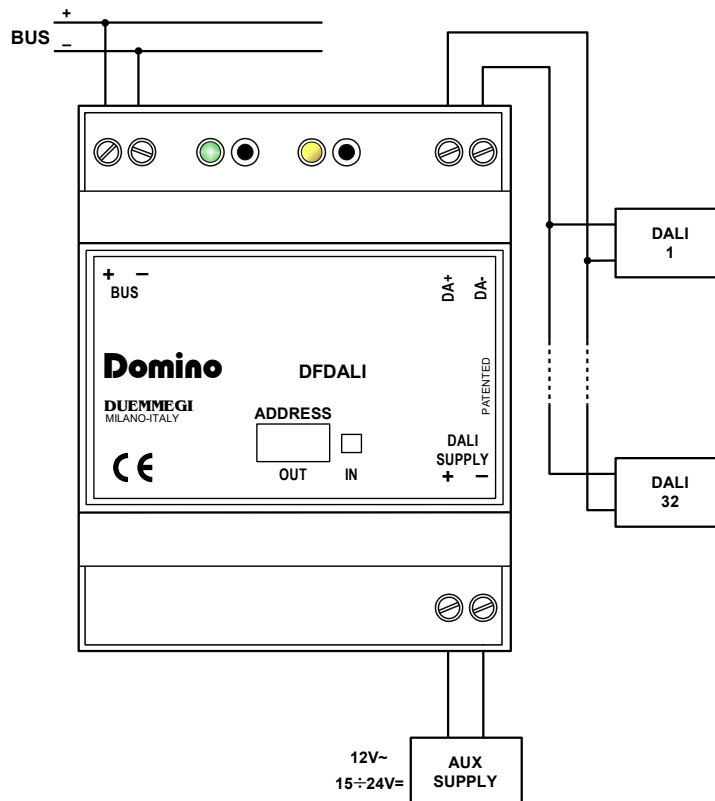


Figure 1: DFDALI wiring diagram

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The value of the current brightness level is in the range 0 to 100; if no ballast has been addressed as 1, then the reported value will be 255. A lamp failure condition will be instead reported by the value 128; if the answer from the ballast will not be understood the value 129 will be reported.

If the brightness level of each ballast on the DALI line is required by the application, a script for DFCP is available for this purpose; contact **DUEMMEGI** for more information.

**Case 2 (checked option):**

In this case, each point 1,8 reports the status of the automatic brightness regulation of the relevant zone. For instance, point 1, when activated, reports that the automatic brightness regulation is currently activated for zone 1.

**Output section**

The related data field (16-bit) for the execution of the commands on the ballasts, has the following meaning:

Point	Data field at output address
1	Function
2	
3	
4	
5	
6	
7	
8	
9	Destination
10	
11	
12	
13	
14	
15	
16	

The *destination* can assume different values depending on the typology of the addressed target, identified by the value of the high byte of the channel, as in the following table:

Written data		Destination
HEX	DEC	
0x00	0	All the ballasts on the line (broadcast)
0x01 ÷ 0x20	1 ÷ 32	single ballast (1÷32)
0x81 ÷ 0x90	129 ÷ 144	single group (1÷16) of ballasts
0x91 ÷ 0x98	145 ÷ 152	Set the setpoint value for the automatic brightness regulation for zones 1 ÷ 8

When the destination is broadcast or single ballast or single group, the function executed by the module depends on the value written on the low byte of the output data field, as described in the next table.

If instead the destination is in the range 0x91 to 0x98, then the value specified by the low byte (Function) assumes the meaning of "setpoint value" **divided by 10** used for the automatic brightness regulation; for instance, to send 300 as setpoint value on group 3, the value 0x931E has to be set (0x93 means the setpoint setting for group 3 and 0x1E = 30 is the wanted setpoint value: 30 x 10 = 300).

Written data		Function
HEX	DEC	
0x00 ÷ 0x64	0 ÷ 100	Set the brightness to 0÷100% according to the current ramp
0x70	112	Disable polling
0x71	113	Enable polling
0x7D	125	Up command without one-touch function
0x7E	126	Down command without one-touch function
0x7F	127	Single command without one-touch function
0x80	128	No operation ( <i>in this case the value of the destination must be zero</i> )
0x87	135	Set the current brightness a MIN value
0x88	136	Set the current brightness a MAX value
0x89	137	Reset MIN value to default (1%)
0x8A	138	Reset MAX value to default (100%)
0x8B	139	Save the current brightness as level to be loaded during bus failure condition
0x8C ÷ 0xAA	140 ÷ 170	Set the current ramp to 0 ÷ 30 seconds (1s step)
0xAB ÷ 0xAD	171 ÷ 173	Set the current ramp to 40 ÷ 60 seconds (step 10 s)
0xB5 ÷ 0xC4	181 ÷ 196	Save the current brightness to Preset 1÷16
0xC9 ÷ 0xD8	201 ÷ 216	Recall brightness from Preset 1÷16 according to current ramp
0xDD	221	enable the automatic brightness regulation ( <i>the destination must be a group in the range 1 to 8</i> )
0xDE	222	Disable the automatic brightness regulation and switch OFF the lamps ( <i>the destination must be a group in the range 1 to 8</i> )
0xDF	223	Disable the automatic brightness regulation ( <i>the destination must be a group in the range 1 to 8</i> )

The value to be written in the output data field to perform a given function to a given destination will be thus:

- x in hexadecimal: 0xYYZZ where YY is the destination in hexadecimal format (HEX) and ZZ is the code of the function in hexadecimal format (HEX)
- x in decimal: K where K is given by [(256 x YY) + ZZ], where YY is the destination in decimal format (DEC) and ZZ is the code of the function in decimal format (DEC)

**Notes:**

- x DFDALI module, normally, polls all the ballasts connected to the line; this polling can be disabled sending the code 112 (of course losing all information about the diagnostic and the current level). The code 113 will enable again the polling; the current status of the polling is reported by the point 11 of the input section (if enabled). At the module power up or after a reset the polling is always enabled by default.

- x The code 128 is required only to inform DFDALI when interrupt a running function. For instance, to perform an Up function, the code 125 must be sent: the brightness will increase until the sending of code 128.
- x The code 139 saves, in the non volatile memory of the ballasts, the brightness level which will be automatically recalled when a DALI or **Domino** bus failure occurs.
- x The change from a brightness level to another one will be executed according to a ramp that can be set as desired by the codes 140 to 173. The ramp value will be stored in the non volatile memory of the ballasts, therefore a power failure does not affect it.

## Management by DFCP or by I/V table

The sending of commands or values to DALI devices can be performed through a supervisor simply writing the memory locations of DFCP related to the output of the installed DFDALI modules.

As option, or in addition, it is possible to send commands or value from DFCP to the DALI module through proper equations as in the following example:

```
V1 = !(I1.1 | I1.2 | I1.3)
AO2 = P(128)V1 & \
      P(125)I1.1 & P(126)I1.2 & \
      P(50)I1.3
```

where **I1.1** and **I1.2** are, for instance, the Up and Down inputs and **AO2** is DFDALI module with address 2; **I1.3** will set the brightness to 50%. The specified value, at each variation, will be transferred to the DALI output (**AO2**). At the releasing of each pushbutton, the value is always set to 128 (no operation, but needed to inform the module about the releasing of the buttons). In this case the described Up, Down and Preset functions acts on all connected ballasts (broadcast commands).

To get the same result on a ballast individually addressed, it is easiest (even if not mandatory) to use the hexadecimal format to write the equations, because the address of the ballast has to be specified in the high byte of the channel:

```
V1 = !(I1.1 | I1.2 | I1.3)
AO2 = P(0x0180)V1 & \
      P(0x017D)I1.1 & P(0x017E)I1.2 & \
      P(0x0132)I1.3
```

where **I1.1** and **I1.2** are the Up and Down inputs and **AO2** is DFDALI with address 2; **I1.3** will set the brightness to 50%. The specified value, at each variation, will be transferred to the DALI ballast addressed 1. At the releasing of each pushbutton, the value is always set to **0x0180** (no operation, but needed to inform the module about the releasing of the buttons).

A similar example follows to send command to a group of ballasts:

```
V1 = !(I1.1 | I1.2 | I1.3)
AO2 = P(0x8180)V1 & \
      P(0x817D)I1.1 & P(0x817E)I1.2 & \
      P(0x8132)I1.3
```

The specified value, at each variation, will be transferred to the DALI devices assigned to group 1. At the releasing of each pushbutton, the value is always set to **0x8180** (no operation, but needed to inform the module about the releasing of the buttons).

Of course the commands to DALI devices can be also sent by DFCP through the using of the Scripts.

DFDALI module can however work without DFCP controller, simply linking the desired commands to bus input points (both real and virtual ones); for details about this possibility, refer to the paragraph I/V Table.

## Manual commands by the module pushbutton

Near to the terminal block of DALI line, a pushbutton allows the following functions: a short pulse will cause the complete switching ON and OFF, while holding down the button the brightness increases or decreases depending on previous action (every next continuous pressing will invert the previous one).

This pushbutton is useful during the setting up of the plant.

## Diagnostic of DALI line by yellow LED

The yellow LED, located near the just described pushbutton, continuously flashes during normal operation. Since the DALI line is continuously polled in a sequential way, thus the LED flashes in the same way, even if DFCP controller is not connected.

The yellow LED will be fixed lighted when one or more of the following events will occur on the DALI line:

- Lamp failure
- DALI line broken or no ballast connected
- Short circuit on DALI line

In the case of short circuit, an automatic procedure will try to restore the line, thus allowing to module to return to the normal operation with a maximum 15 sec delay after the short circuit condition has been removed.

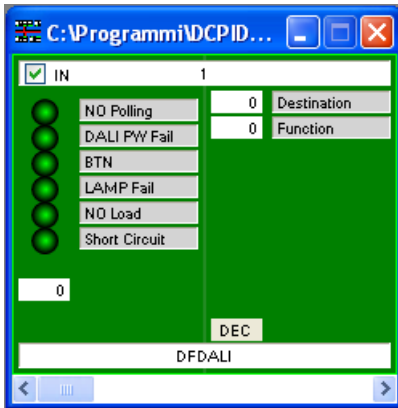
The LED will be instead switched off if the DALI section of the module is not supplied or if the polling has been disabled. In any case, the occurred problem can be discriminated by the map of DCP IDE or BDTools or by a supervisor or video-terminal connected to DFCP (reading input channel as described in the related paragraph).

### Note:

- x In lamp failure condition, it is not possible to know on which DALI device this event occurred.

**Mapping**

DFDALI module is shown into the map of DCP IDE or BD-Tools like in the following figure. As for all **Domino** modules, the background of the module will be in green color if the module is connected and properly working, otherwise the background will be in red color.



The portion on the left side is related to the input section and it reports the diagnostic information and the brightness level of ballast 1 (text box on the bottom); if the option “Regulation status” has been checked in the configuration panel, then this text box reports the automatic regulation status of the 8 zones (in decimal format to be interpreted in binary mode). The portion on the right side is related to the output section and it features two text boxes for entering the destination and command values.

**Setting up**

DCP IDE and BDTools allow to set the operating parameters of the DALI line during the system setting up and to perform some diagnostic functions. DFDALI module can be adapted to any specific application. The setting up is performed via the **Domino** bus and DFCP (or DFRS or DF-PRO) through a specific configuration panel that can be accessed from the menu of DCP IDE or BDTools.

From the menu, select Programming, Modules Configuration and then DFDALI. The window shown in Figure 2 will be opened; the main parameters and options can be here defined as it will be described in the following of this paragraph.

Before to proceed with any action, the communication between the PC and, for instance, DFCP has to be opened. The top side of the configuration panel reports the section for the addresses management.

After having entered the address of the DFDALI to be managed, it is possible to enable the input address of the module through the check box named “Input Address” and then clicking on the button Program; by the button Read it is instead possible to check the current setting.

It is also possible to activate the “Regulation Status” information related to the 8 zones by checking the related option and then pressing the button Program. This option, of course, requires that the input section have been enabled.

Six tabs in the window allow some well defined functions as described in the following.

The button ID & Ver. on the lower side allows to read the firmware version of the selected DFDALI module.

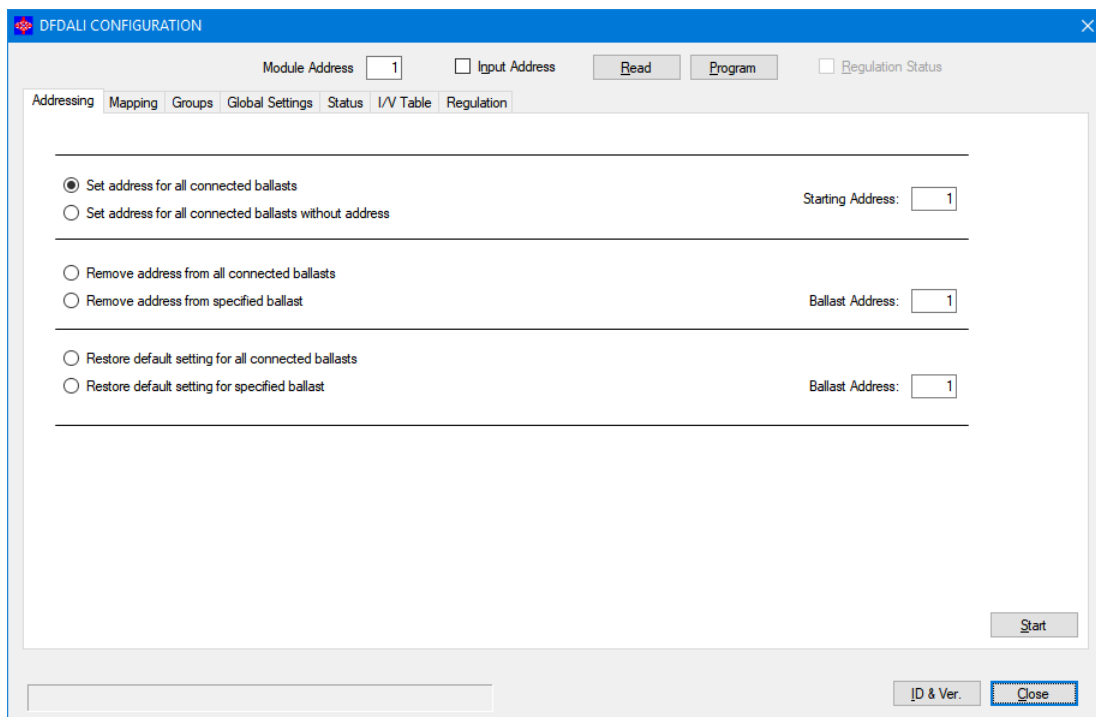


Figure 2: Configuration panel – Addressing TAB

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**Addressing**

3 mutually exclusive functions are available:

**Set address.** In the first case, an address will be assigned to all the connected ballasts, and the starting address can be chosen (the typical value is 1).

This type of addressing assigns consecutive values, in the range 1 to 32, to the ballasts in a random order.

If some ballasts on the line have been previously addressed and some other ballasts have to be added, the addressing procedure can be performed without any modification to the previously assigned addresses. Mainly in this case, a starting address other than 1 can be useful. A timer icon will inform that the operation is running.

At the end of the procedure, the normal mouse icon will be restored. The time required for this procedure is about:

$$T = 5\text{sec} + (6\text{sec} \times \text{nr. of ballasts})$$

**Remove the address.** If some addressing or reconfiguration errors occurred, it can be useful removing the address of all the ballasts on the line or of a well specified ballast.

**Restore the factory setting.** The DALI ballasts are factory set without any address and with a basic configuration for the main parameters; the following table shows a typical default configuration:

Parameter	Value
Minimum brightness level	1%
Maximum brightness level	100%
Brightness level in failure conditions	100%
Ramp value	0 seconds
Preset	None

These settings can be restored both for all ballasts connected to the line and for a single ballast.

Restoring of the settings does not imply the reset of the ballast address. The visible result of the factory setting restoring is the switching on of the lamps at the bus failure default level, that is typically 100%.

**Mapping**

Once the ballasts have been random addressed, it can be useful to reorder the assigned addresses, thus simplifying the supervision and the management of ballasts, Figure 3.

The address 1 to 32 of each ballast can be changed to a new desired value (always in the range 1 to 32). For each address, the program shows a line similar to the following one:  0  1  1 →  23

The button 0 allows to switch off the ballast with address specified in the gray text box (1 in this example) while the button 1 allows the switching on; this function is useful to see where the ballast addressed 1 (in this example) is physically located. In the white text box the new desired address must be entered (23 in this example) for the ballast whose current address is 1.

The execution of the mapping procedure (pressing the button Start) will take place only for the ballasts selected by the related checkbox. A timer icon will inform that the operation is running. At the end of the procedure, the normal mouse icon will be restored. The time require by the mapping procedure is about 1sec per ballast.

If the procedure has not been successfully executed, a window reporting "Error during mapping" will appear.

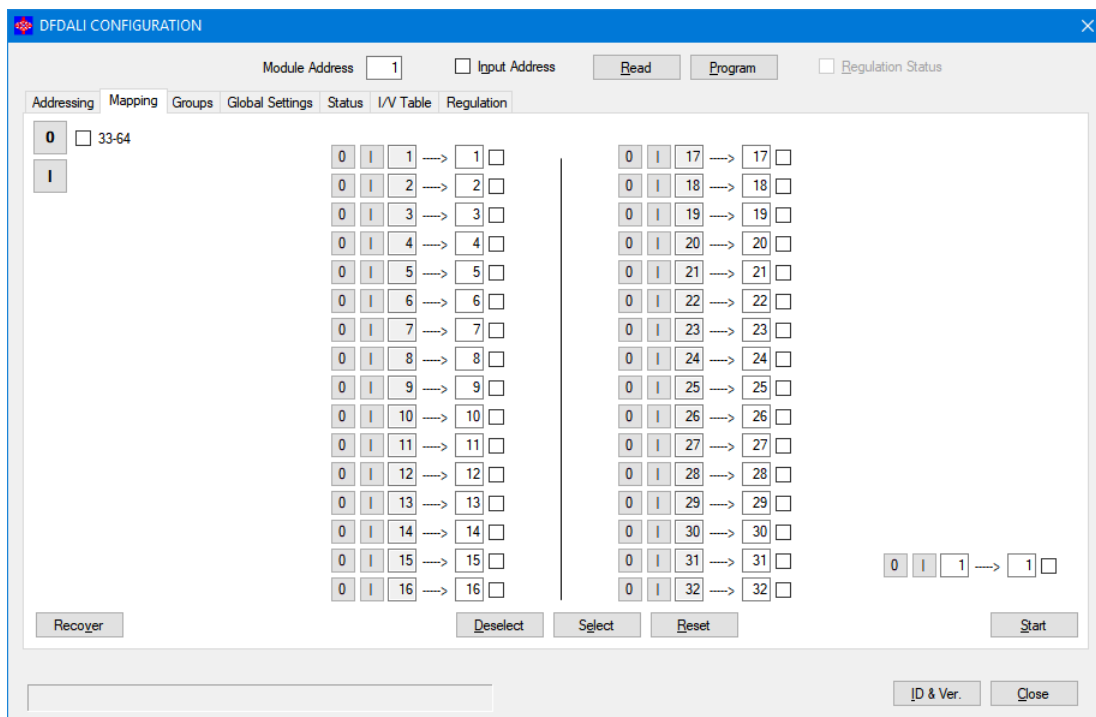


Figure 3: Mapping

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In this case, follows these steps:

- click on the button "Recover" to remove the address of each ballast for which the mapping procedure has not been successfully completed
- address again the ballasts without address selecting as starting address a free value followed by a sufficient number of free addresses (see the Status TAB)
- execute again the mapping procedure

The correctness of the changes made can be checked by switching on and off the ballasts using the buttons identified as 0 (off) and 1 (on).

The two big buttons 0 and 1 on the left side allow to switch off and to switch on all the ballasts connected to the line.

The buttons Select (select all) and Deselect (deselect all) and Reset (restore the address value in the consecutive order) complete this TAB.

**Groups**

This TAB, Figure 4, features a grid where each ballast can be assigned to one or more groups. This choice can be done by clicking on each cell located at the intersection between the desired ballast (the columns) and the desired group (the rows). A X symbol will be shown in the related cell.

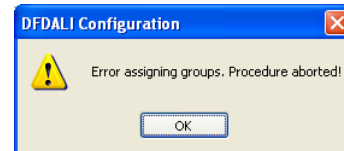
In the example of the figure here on the right side, the group 1 contains the ballasts 1-2-5, the group 2 the ballasts 1-3 and the group 3 the ballasts 2-4-5.

The button Deselect remove all the X symbols on the grid.

0	Ballast	0	0	0	0	0
1		1	1	1	1	1
0	1					
0	2	X	X			X
0	3	X		X		
0	4		X		X	X
0	5					

The execution of the assignment of the groups (clicking on the button Start) will take in account only the ballast selected by the X symbol. A timer icon will inform that the operation is running. At the end of the procedure, the normal mouse icon will be restored.

If the procedure has not been successfully executed, the warning in following window will be shown:



In this case the procedure has to be repeated.

The correctness of the changes made can be checked by switching on and off the ballasts using the buttons identified as 0 (off) and 1 (on); the buttons on the top side act on the single ballast, the buttons on the left side act on the groups and the two big buttons 0 and 1 switch off and on all the ballast on the line.

The buttons From File and To File allow to store and recall the settings of the groups; take in account that it is not possible to read, from DFDALI module, the current settings of the groups, therefore it is strongly recommended to save them into a file for future modifications.

The time required by this procedure is about:

$$T = 8\text{sec} + (0,5\text{sec} \times \text{"nr. of X in the window"})$$

**Global Settings**

In this TAB, Figure 5, it is possible to set, for all ballasts on the DALI line, the following parameters:

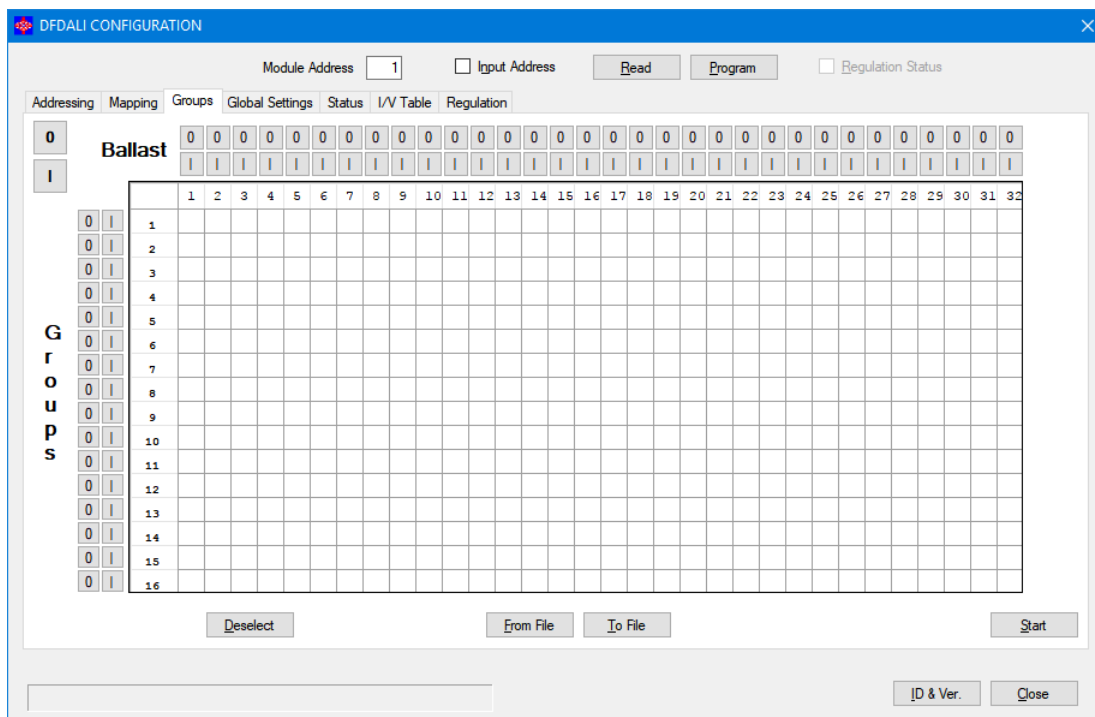


Figure 4: Groups

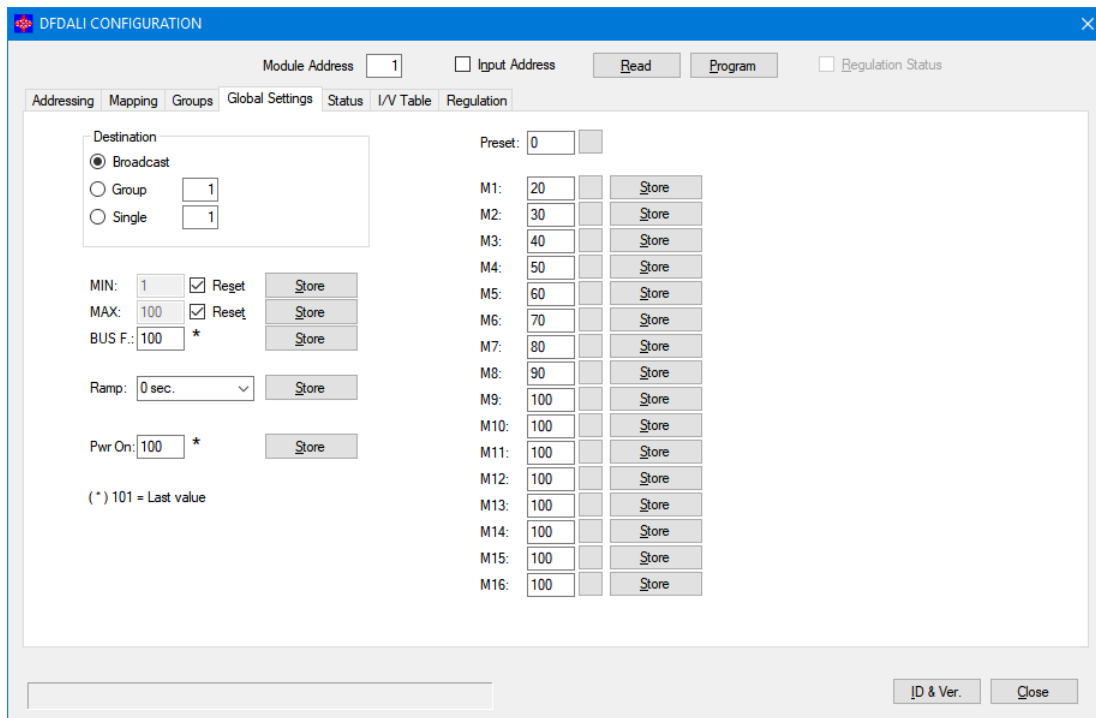


Figure 5: Global Setting

*MIN*: minimum brightness value (%); enabling the Reset check box, the default value will be restored (1%).

*MAX*: maximum brightness value (%); enabling the Reset check box, the default value will be restored (100%).

*BUS F.*: the brightness value (0-100%) to be recalled by ballasts during failure of **Domino** and/or DALI bus; the value 101 means that the outputs will keep the last value.

*Ramp*: the ramp value in seconds.

*Pwr On*: the brightness value (0-100%) to be recalled by ballasts at their power up; the value 101 means that the value outputted before the power off will be recalled.

*Preset*: writing a value (0 to 100) and clicking on the button on the right side, the brightness will be forced to that value.

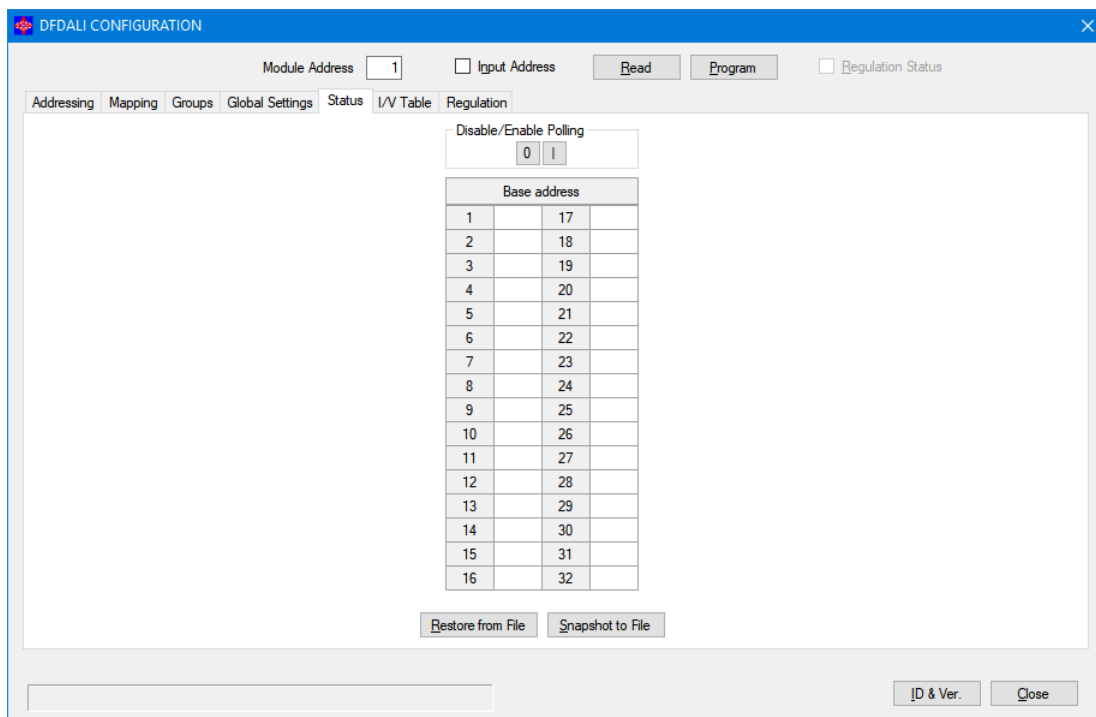


Figure 6: Status



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*M1 ÷ M16*: the value to be loaded into the 16 presets; the button on the right side allows to recall the related preset stored into the ballast.

Enter the desired parameters and then click on Start to send the configuration. The time required by this procedure is about 15 seconds. If the procedure has not been successfully executed, a warning window will be shown; in this case the procedure has to be repeated.

**Status**

This TAB, Figure 6, shows, if the ballasts have been addressed, the current brightness level of each ballast. These values are in the range 1 to 100; when a ballast does not answer to the polling, the reported value will be 255 (and the table will show "-"). If a lamp failure occurs, a X symbol on a pink background will be shown. In addition it is possible to force the brightness entering the value in the cell related to the desired device and confirming by the Enter key.

A pair of buttons on the top side of the table allow to enable and disable the polling on the DALI line. When the polling is disabled, the label "Base address" will be shown over a red background.

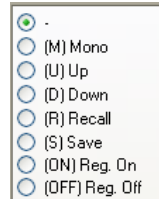
The buttons "Snapshot to File" and "Restore from File" allow respectively to save and recall a given configuration of brightness levels; in this way it is possible to save on the PC one or more sceneries (each scenery will be a file).

**I/V Table**

The TAB shown in Figure 7 allows to create up to 58 relationship between real or virtual inputs of the **Domino** bus and the following commands: Up, Down, Single Command, Save scenery and Recall scenery. For each command simply enter the input point (without I or V, with ! if negation is required), the function and the channel or the scenery.

These functions are managed directly by DFDALI module, thus without the need of any controller and any programming.

To compile the table, left click with the mouse on the first available cell on the Input column, enter address and point (without I or V, with ! if needed) and press Enter. The command list will appear: choose the desired function among Mono, Up, Down, Recall, Save; the other two options are related to the automatic brightness regulation, see next paragraph. The cell of the column Cmd will then show the symbol of the chosen function; to change the function, simply click again on the cell.



Select the desired function; the cell of the column Cmd will then show the symbol of the chosen function (U, D, M, R, S); to change the function, simply click again on the cell.

The next cell on the column B/G (Broadcast or Group) will be then automatically highlighted: enter the desired value, that is 0 for Broadcast or the desired group number number 1 to 15 (*note: group 16 cannot be used in the I/V table*) and press Enter. If instead the desired function is Save or Recall scenery, press Enter again: the related cell will be automatically highlighted in the column S (Scenery): enter the desired number, that is the number of the scenery (1 to 16) to be saved or recalled, then press Enter.

The buttons Start Prog. and Start Read. in the I/V Table TAB allow, respectively, to transfer the values currently shown in the I/V Table to DFDALI module and read the current configuration of DFDALI and report it into the table.

The buttons From File and To File allow, respectively, to open a file, with .TIV extension, containing a previously saved I/V table and to save the I/V table shown in the window to a file. The Default button clears the table.

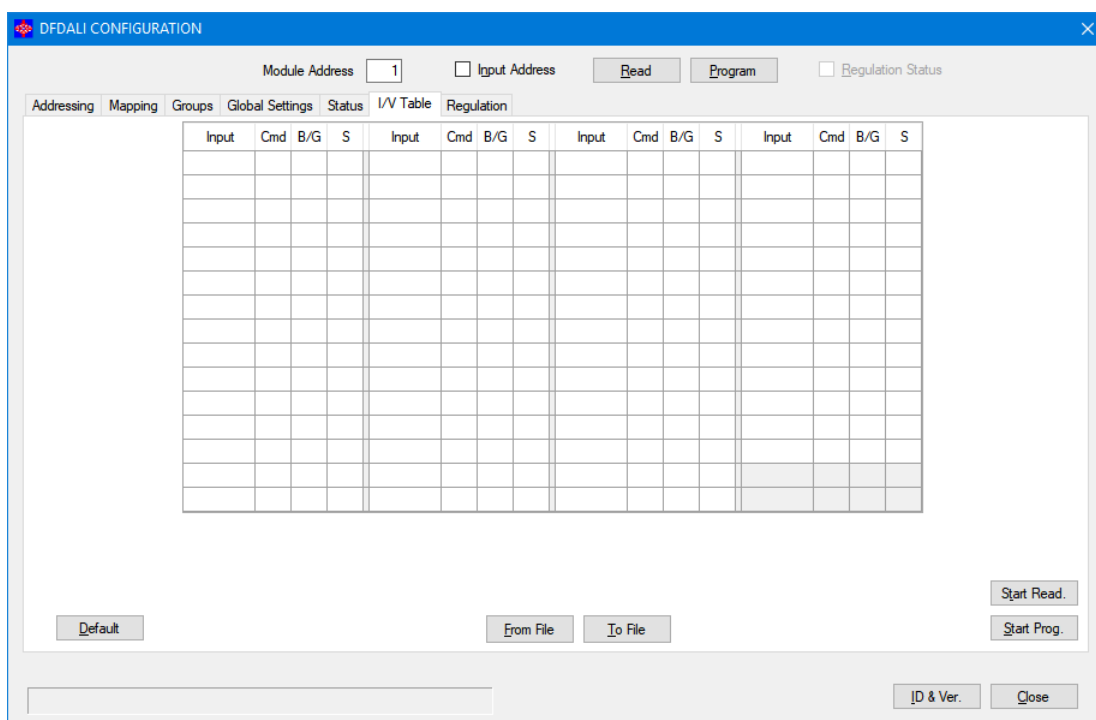


Figure 7: I/V Table

**DFDALI**

**Automatic brightness regulation**

DFDALI module, starting from firmware version 2.0, implements the automatic brightness regulation as function of a light sensor connected to the **Domino** bus (e.g. DFLUX). The TAB shown in Figure 8 allow to manage up to 8 zones (each one corresponding to a group in the range 1 to 8).

These functions are managed directly by DFDALI module, therefore no controller or specific programming is required.

To fill the table, double left click in the cell related to the zone to be set in the Sensor Address column, enter the address of the light sensor (e.g. DFLUX module) for that zone and press Enter. The cell related to Setpoint will be then automatically highlighted: enter the desired value and press Enter. The sequence is the same also for the next parameters: Hysteresis, T. Regulation, K and Start Value.

Setpoint is the brightness level that has to be kept. The regulation function works in order to keep the light value read from the sensor in the range (setpoint - hysteresis) to (setpoint + hysteresis).

The regulation time, in seconds, is the interval with which the module compares the light level read by the sensor to the setpoint.

K is a parameter which, multiplied by the error (defined as the difference between the setpoint and the brightness value measured by the sensor), defines the magnitude of the increase or the decrease, in respect to the previous value, to be sent to the ballasts. In practice, larger values of K increase the speed of the approaching to the set point.

Small values of K allow for greater stability of the regulation but a slower response, while large values of K make the response faster, but some oscillations can appear.

Start Value is the value from which the regulation starts when it is activated.

The Auto options, when checked, place that zone in automatic regulation mode at the power up of the ballasts or of the **Domino** bus; if the option is not checked, the lights will go to the value set in the ballasts (typically 100 %).

Figure 8 shows some typical value for the just described parameters.

The buttons Start Prog. and Start Read. allow, respectively, to transfer the values currently shown in the table to DFDALI module and read the current configuration of DFDALI and report it into the table.

The buttons From File and To File allow, respectively, to open a file, with .TRG extension, containing a previously saved regulation table and to save the table shown in the window to a file. The Default button clears the table.

To change the setpoint value of a group from a supervisor or similar devices, the destinations 0x91 ÷ 0x98 have to be used, as described in "Commands via bus" paragraph.

The functions 0xDD, 0xDE 0xDF allow to enable and disable the automatic regulation from the bus on the group specified by the Destination field (0x81 ÷ 0x88)

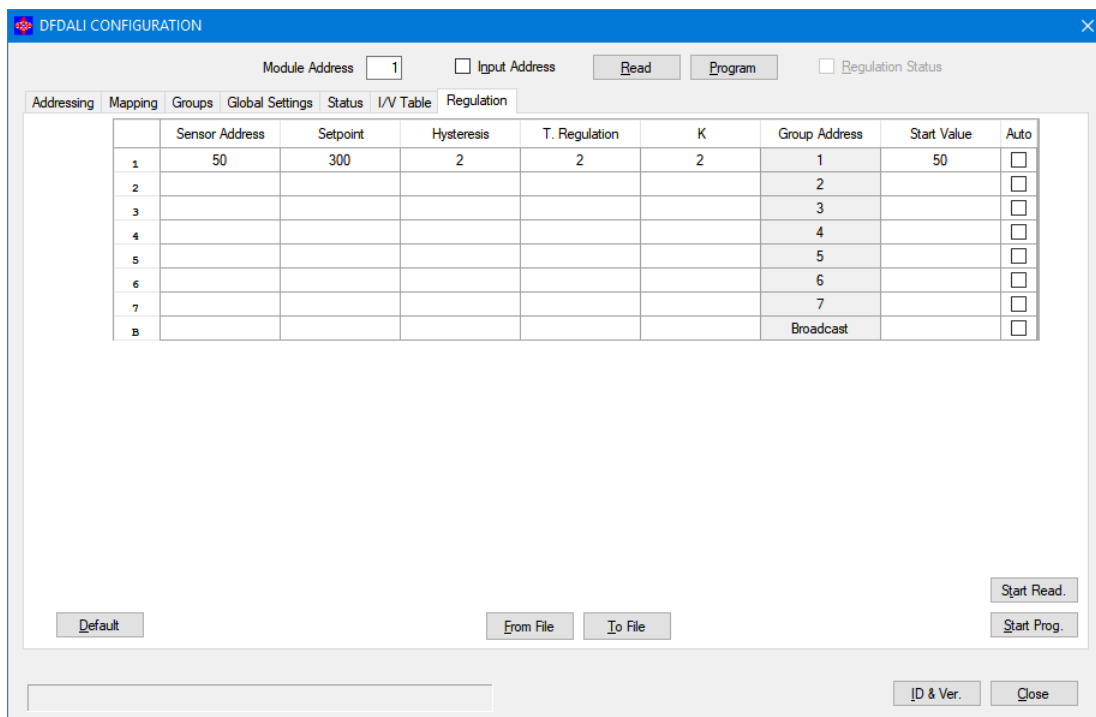
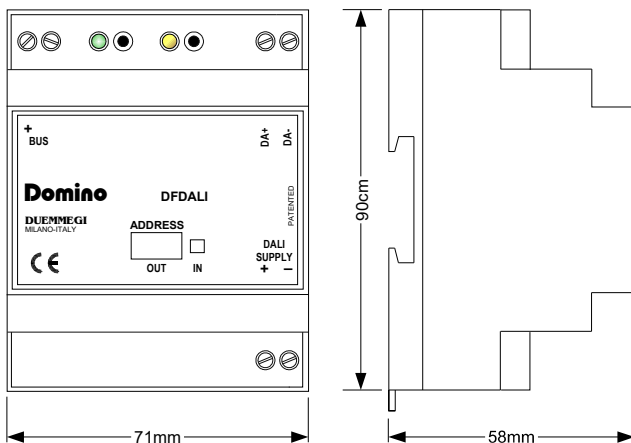


Figure 8: Automatic brightness regulation

**Technical characteristics**

Supply voltage <b>Domino</b> bus side	By specific centralized power supply mod. DFPW2
Supply voltage DALI bus side	12V~ (at full load) 3VA MIN or 15V ÷ 24V $\overline{\text{---}}$ 0.5A <i>Note: voltage over 24V <math>\overline{\text{---}}</math> could damage the connected DALI devices</i>
Current consumption on <b>Domino</b> bus side	Equal to 2 standard <b>Domino</b> modules
MAX current consumption DALI bus side	0.25A at 18V $\overline{\text{---}}$ , 3VA at 12V~
Number of managed DALI devices	32 MAX
Number of generic commands	58 (I/V Table)
Operating temperature	-5 ÷ +50 °C
Storage temperature	-20 ÷ +70 °C
Protection degree	IP20

**Outline dimensions**



**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 re-use 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 directives:

- 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.