

## DFIGLASS: Glass keypad with 6 touch commands and backlight

DFIGLASS is a “touch” keypad available in the version with 6, 4 and 2 commands, specifically developed for the **Domino** bus system. The front panel is made by glass.

The available standard colors are white with white backlight and black with blue backlight; under request, different colors can be provided.

Each keypad, regardless of the number of buttons, features an array of 6 LEDs; these LEDs are seen as generic output points of the **Domino** bus, therefore the operation of the backlight can be freely defined using the functions of the **Domino** system. The keypad can be configured to generate a beep at any touch of the buttons.

The housing of keypad DFIGLASS is suitable for the mounting in standard wall boxes (mod. 503 or similar); it is recommended to check the compatibility with boxes for plasterboard walls.

The power supply needed for the module operation is carried by the bus itself. On the rear side of the keypad, a fixed terminal block allows the connection to the **Domino** bus; a small pushbutton near to this terminal block allows the address programming and a green LED shows when the module is ready to receive the address itself; the same LED normally flashes every 2 seconds about to signal that the module is properly operating. A small connector (PRG) allows the connection to the optional DFPRO tester/programmer.

DFIGLASS keypad takes 1 input and 1 output address with the same value. A label on the rear side allows the writing of the assigned address for an immediate visual identification. For more details about the address assigning, refer to the related documentation.

**Note:** this technical sheet refers to DFIGLASS equipped by firmware 2.0 or higher; this firmware is not back-compatible with the previous versions 1.x.

## Operation

DFIGLASS keypad takes 1 input address and 1 output address having the same value. The input points report the status of the keys (I.1 ÷ I.6), while the output points control the LEDs (O.1 ÷ O.6) and some other functions that as described later.

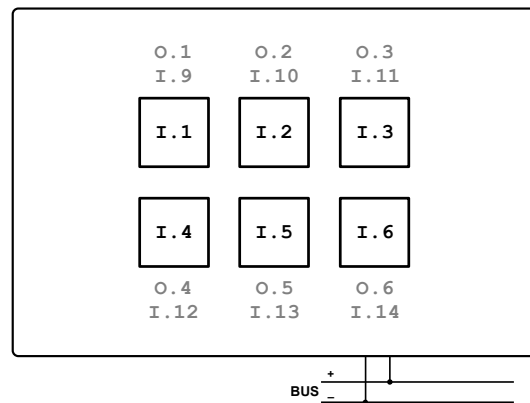
The status of the 6 LED is also reported in the input section by points I.9 ÷ I.14 so that the status of the LEDs can be used by other equations of the **Domino** bus system. The point 15 of the input section will be activated when a failure of the keypad occurs.

Regarding to the output section, in addition to points O.1 ÷ O.6 related to the LEDs, the points O.14 and O.15 are available respectively to activate the backlight and the internal buzzer.



For details on the backlight and the buzzer, refer to the related paragraph.

The following figure shows the relationship between the keys and the related bus points (the view is with terminal block on the bottom).

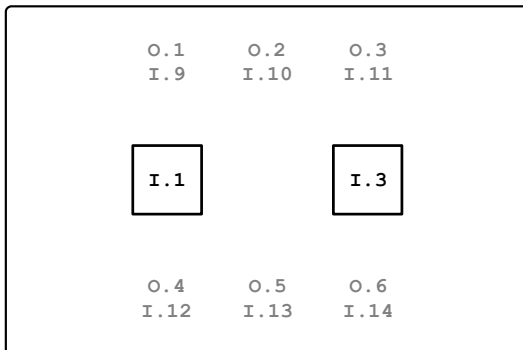
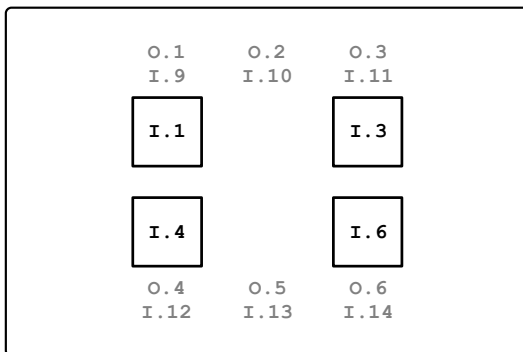
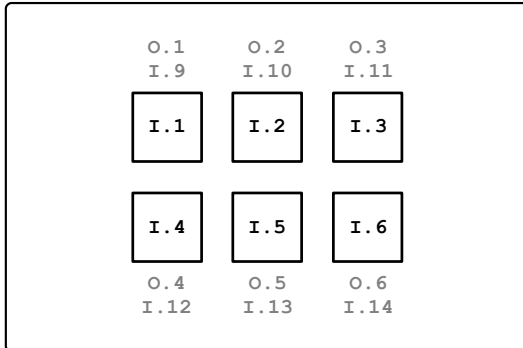


Regarding point O.11 (Cleaning) and point O.13 (Proximity), refer to the specific paragraphs.

In summary, the available input and output points are the following:

Point	Inputs	Outputs
1	Key 1	Command LED 1
2	Key 2	Command LED 2
3	Key 3	Command LED 3
4	Key 4	Command LED 4
5	Key 5	Command LED 5
6	Key 6	Command LED 6
7	-	-
8	-	-
9	Status of LED 1	Reserved
10	Status of LED 2	Reserved
11	Status of LED 3	Cleaning
12	Status of LED 4	-
13	Status of LED 5	Proximity
14	Status of LED 6	Backlight
15	Keypad failure	Buzzer
16	Reserved	-

The following figures show the assignment of the input and output points for the different available versions in 6, 4 and 2 keys; in all versions, the number of LEDs is always 6.



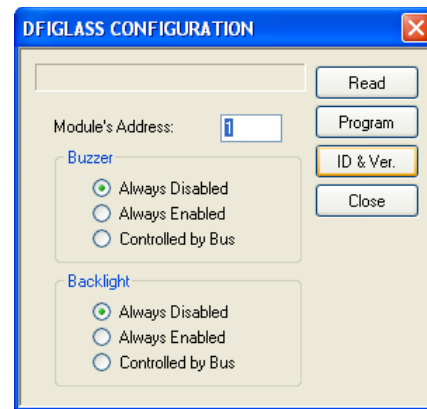
As said before, the operation of the 6 LED outputs can be freely defined by equations using the functions of Domino system.

In addition, it is also possible to program by equations the output points related to the proximity and to the backlight, while the equations are not allowed for the output points related to cleaning and buzzer.

## Backlight and Buzzer

The square outline of each key of DFIGLASS can be illuminated by a LED (or two LEDs in the case of 2 keys version). There are 2 levels of backlight, a very low level and common to all 6 LEDs and one of much higher level independent for each one of the 6 LEDs.

The “common” backlight keeps illuminated all the keys so that, for example, they can be easily identified in the darkness; this type of backlight is controlled by the DFIGLASS configuration panel available in BDTools or DCP Ide. To access to this panel, select Programming from the main menu, then Module's Configuration and finally DFIGLASS; the following window will be shown:



Module's Address is the address of DFIGLASS to be configured; for the backlight, like for the buzzer, 3 options are available:

**Always Disabled:** this means that the backlight (or the buzzer) is always turned off and it cannot be activated not even by acting on the output point 14 (15 in the case of the buzzer) that will be always OFF

**Always Enabled:** this means that the backlight (or the buzzer) is always turned on and it cannot be deactivated not even by acting on the output point 14 (15 in the case of the buzzer) that will be always ON

**Controlled by Bus:** this means that the backlight (or the buzzer) can be controlled (turned on and off) by acting on the output point 14 (15 in the case of the buzzer)

**Note:** the output point 14 (Backlight) can be controlled by equations (pointed that the option “Controlled by Bus” in the configuration panel has been activated). The output point 15 (Buzzer), on the contrary, CANNOT be controlled by equations.

Once selected the desired options, press the Program button; the Read button allows to see the current settings of the specified DFIGLASS, while the button ID & Ver. allows to read the firmware version (which can be updated via bus).

The activation of an output point from 1 to 6 will switch on to a high level the corresponding LED, regardless of how the common backlight has been set; it is thus possible to have an indicator light by means of appropriate programming of the LEDs.

## Cleaning mode

The “cleaning” mode allows to clean the glass avoiding the risk to cause a unwanted detection of the keys, and thus a consequent possible actuation of some outputs.

To enter the cleaning mode, press at the same time the keys 1-2-3 or 4-5-6 for 2.5 seconds, or activate point 11 of the output section. For keypad versions without middle key (2 and 4 keys), the same rule applies, in the sense that the “blank” area between the two outside buttons has to be touched.

When the cleaning function is activated, the backlight blinks (0.5s ON and 0.5s OFF). The output point 11 reports the status of the cleaning function (activated when the function is ON).

To exit the “cleaning” mode, the same operation must be performed (pressing three points for 2.5 seconds at the same time or disabling the point 11 of the output section). The cleaning mode will be however automatically deactivated after 2 minutes.

**Note:** *output point 11 (Cleaning) CANNOT be controlled by equations.*

## Proximity mode

In some applications, for instance in bedrooms, the backlight always ON is not appreciated, even if at very low level; on the other hand, acting on the keys in the darkness may be a problem.

To answer to this need, the proximity mode can be activated: a first touch” on any key will cause the lighting of the keypad backlight, without any unwanted activation, thus allowing to see the keys in the darkness.

The point 13 of the output section controls the proximity mode: in this case the first detection of any keys will be interpreted as proximity detection and the effect will be the lighting of the keypad.

The backlight of the keypad will remain ON for 2 seconds after the key release; during this time, any other “touch ” of the keys will be accepted and processed.

The just described proximity mode will be however bypassed when:

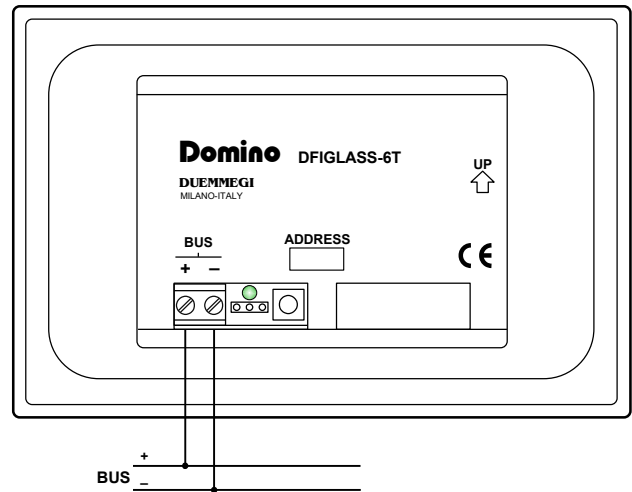
- it is disabled in the configuration panel
- the backlight is already ON
- at least a LED is ON

In this case, the “touched” key will be immediately detected and processed.

**Note:** *output point 13 (Proximity) can be controlled by equations.*

## Module connection

DFIGLASS keypad requires only the connection to the **Domino** bus as shown in the following schematic diagram.



## Programming examples

As said before, the status of output points related to the 6 LEDs is replicated in the input section (points 9 ÷ 14). This architecture allows to easily create commands for lighting as shown in the following example.

Suppose to have assigned the address 1 to DFIGLASS keypad and that you want to control a lamp (connected for instance to the output O42.1) by the key 1 of DFIGLASS. Also assume that the LED related to the key 1 has to follow the status of the lamp.

A possible program can be the following:

```
DFIGLASS = ( 1 ) // address 1 is DFIGLASS
O1.1 = TI1.1 // toggle LED1
O42.1 = I1.9 // lamp output
```

The key **I1.1** of DFIGLASS changes, at each touch, the status of the corresponding LED; the status of the LED1, reported by **I1.9**, is then copied to the output **O42.1** connected to the lamp.

In this way there is the assurance that the lamp and the LED are always aligned because the status of the LED will be always reported to the lamp.

Note the statement **DFIGLASS = ( 1 )** specifying that address 1 is a DFIGLASS keypad; this statement (one for each DFIGLASS keypad) is mandatory and, if omitted, some errors may occur during the program compiling or when attempting to transfer the program to the device.

If the application requires to switch ON the LED when the light is OFF (for example, to locate the key in the darkness), simply modify the previous program as follows:

```
DFIGLASS = ( 1 ) // address 1 is DFIGLASS
O1.1 = T11.1 // toggle LED1
O42.1 = !I1.9 // lamp output
```

The status of an LED, of course, can be reported on another LED; this is useful in the case of keypads with 2 keys to turn on both the LEDs below and above that key (however according to the preferences of the user).

**Mapping**

DFIGLASS keypad is shown in the map of BDTools or DCP Ide as a mixed input/output module, like shown in the following figure.

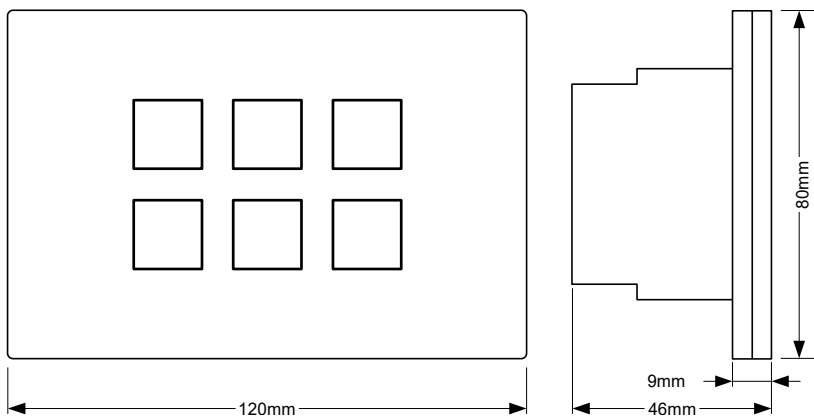


**Technical characteristics**

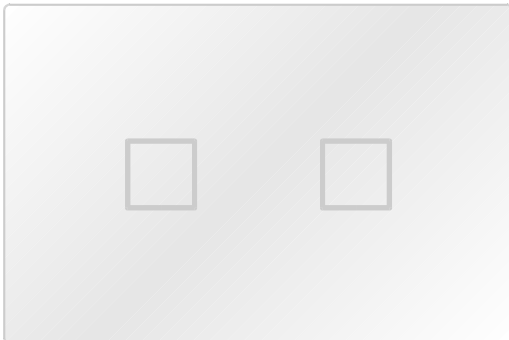
Power supply (bus side)	By specific centralized power supply mod. DFPW2
Current consumption bus side	Equivalent to 3 standard modules
Number of keys	6, 4 and 2 with LED backlight
Buzzer	Internal, it can be disabled
Colors	Black with blue LEDs White with white LEDs
Operating temperature	-5 ÷ +50 °C
Storage temperature	-20 ÷ +70 °C
Protection degree	IP20

As for all other **Domino** modules, the background is in green color if the module is connected and properly working, otherwise the background is in red color. The status of input and output points is shown on the map in red or green color depending on the status ON or OFF respectively. Output points BACKLIGHT and BUZZER allow the activation or deactivation of the common backlight and buzzer; these points can be controlled or less depending on how the keyboard has been set (see the paragraph Backlight and Buzzer).

**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 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.