Programming manual

V1.0

Mechanical Control

MECing

ingenium

Index

1. MECing:

1.1. General Description:

Converts common mechanisms into smart mechanisms.

Enables digital signals to be entered in the bus, sensor or detector signals.

Its main function is to store events.

It has 3 low voltage (SELV) digital outputs , referred to the bus ground.

The MECing is designed to distribute the installation and installed behind mechanisms in mechanism boxes.

This device is included in the following KITS:

- KI1-6, KI1-10
- Ki1-D6
- KP1-6, KP1-D6
- KR1, KR1-D300
- KR2, KR2-D300

1.2. Technical Description:

Supply at 12Vdc
Consumption at 12Vdc: 40mA
3 potential free inputs.
Size: 45x45x10mm to install in universal mechanism box.

1.3. Operation Mode:

The MECing converts common mechanisms (switches and pushbuttons) to smart mechanisms.

Its operation mode is very simple, you only need to press on the switch or pushbutton connected to the MECing to execute programmed events.

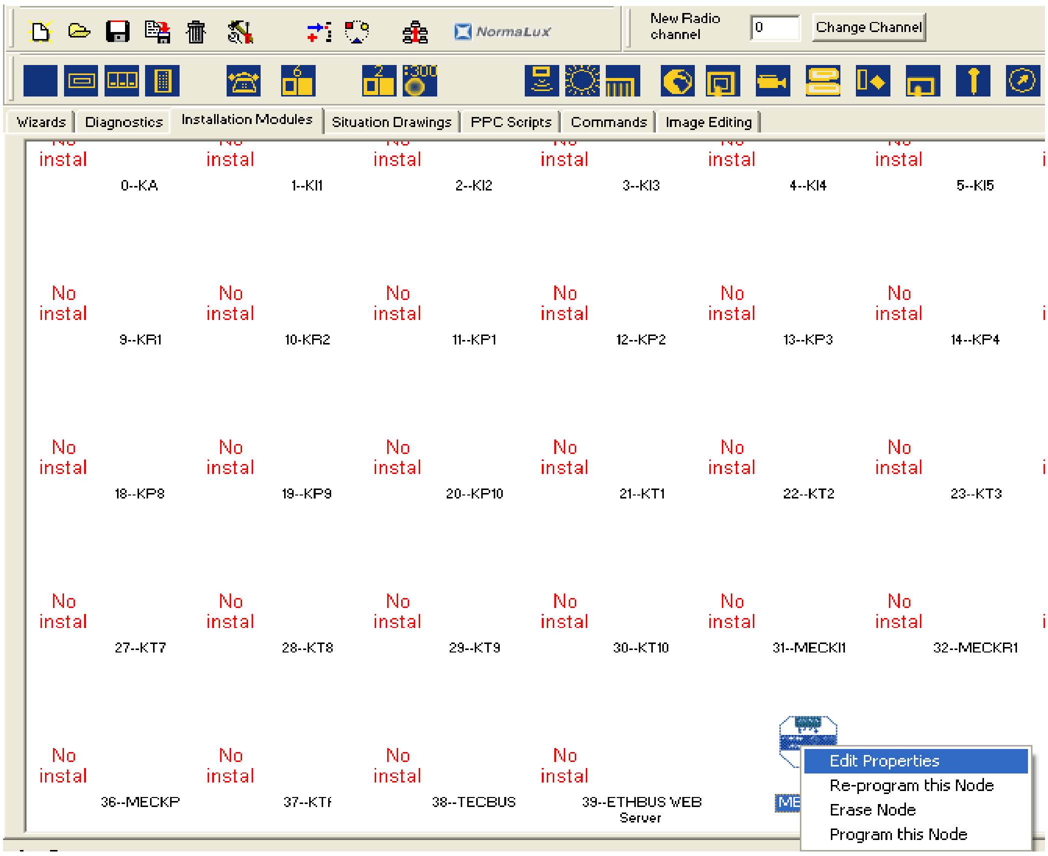
1.4. Programming the Device:

As seen in the description of the Installation Modules, program the MECing by double clicking on it (or select and right-click on it ▪ Edit Properties).

Steps to follow:

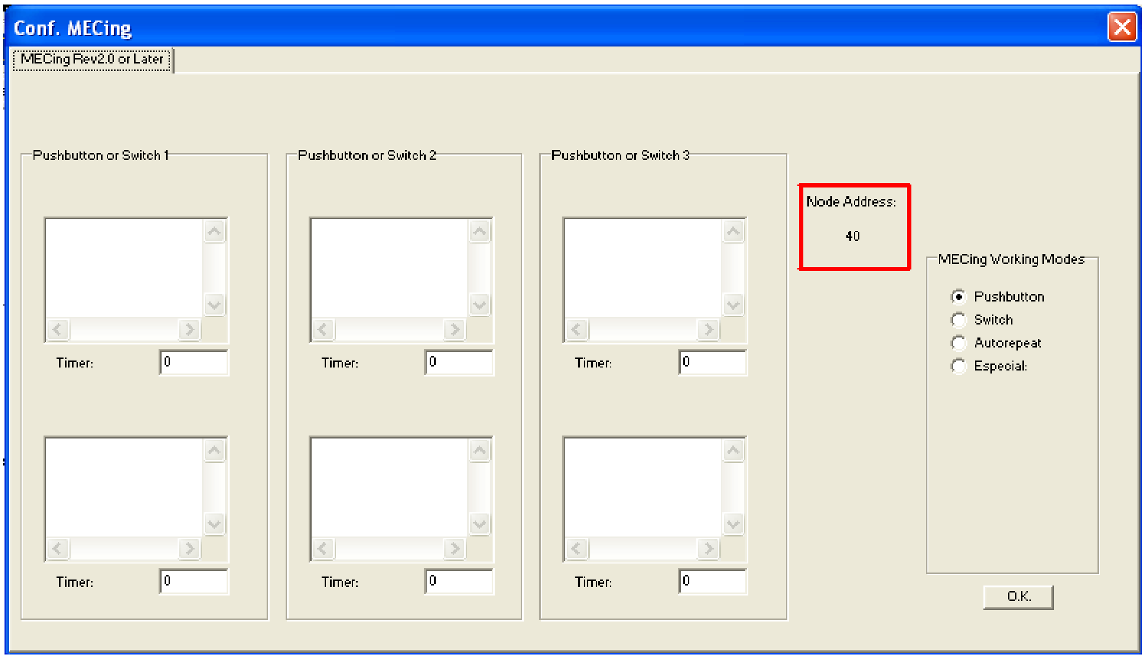
Double click on the MECing or, right-click on the MECing and select the following option: Edit Properties:

NB: If you add a lighting KIT, the MECing is called a MECKI1.
If you add a blinds KIT, the MECing is called a MECKP1.
If you add a dimmer KIT, the MECing is called a MECKR1.



Once this has been done, the MECing programming window appears.

NB: The MECing operates according to the KIT included and how it is programmed; see the corresponding KIT Help Manual.



Timer: 0

Node Address: 40

MECing Working Modes: ● Pushbutton ○ Switch ○ Autorepeat ○ Especial

The node address for the MECing is given as shown on the right, in red, (address 40 in the image). You can use this address later to check the state of the MECing in the Diagnostics tab after the project has been finished.

There are two buttons at the top of the screen:

🗋	New Program: Not applicable in the KITS Development System Software.
SP	Check Program: When you change a program it checks that what has been programmed is correct. This command is executed by default when new data is uploaded to devices.

In the MECing Working Modes section, you can configure it as a pushbutton or as a switch.

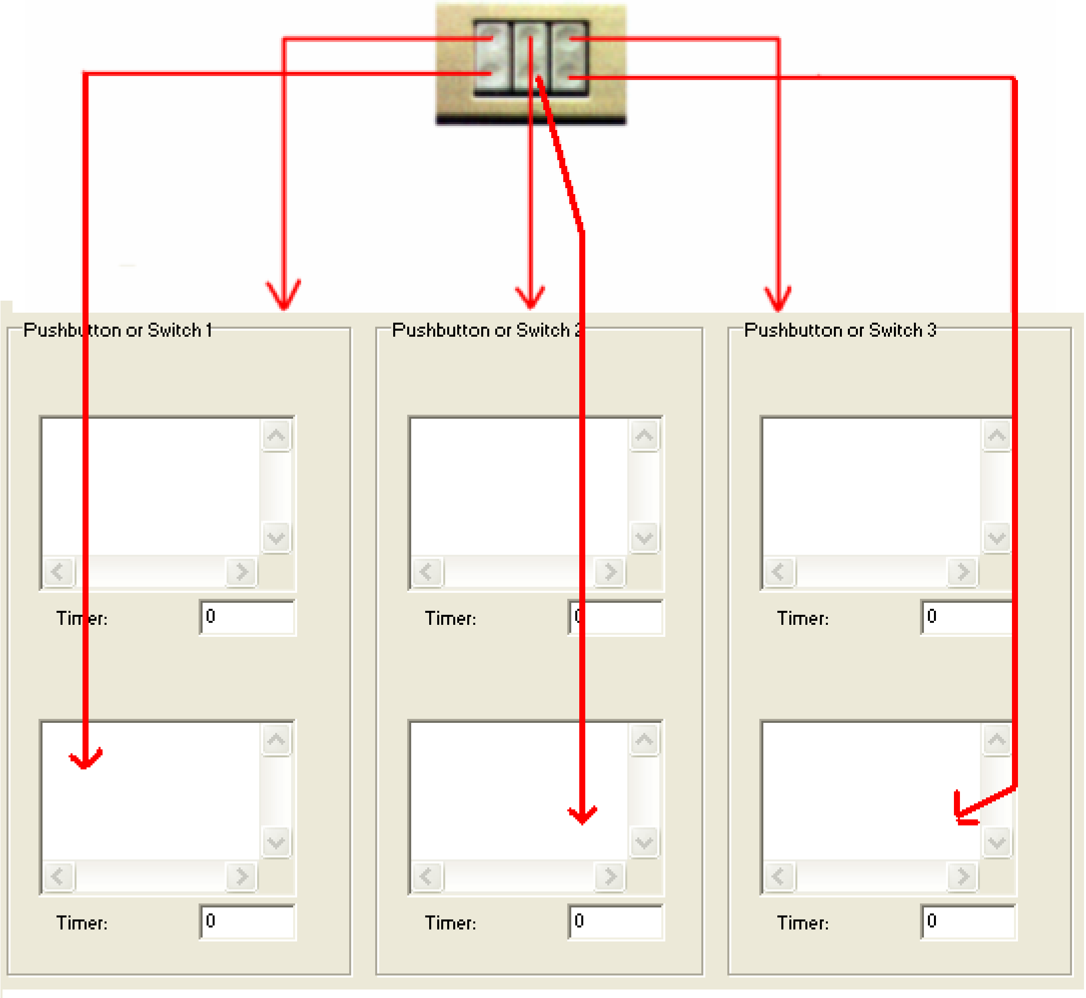
The execution of programmed events is carried out by pressing the switch, or the pushbutton connected to the MECing.

The MECing Working Modes appear on the right-hand side. They can be:

- Pushbutton: This option configures the three inputs as pushbuttons, i.e., they respond when an up flank and another down flank are produced. In this example, the Scripts in the top programming box correspond to the first time you press the button and the Scripts in the bottom programming box of each input correspond to the second time you press the button.
- Switch: This option configures the three inputs as switches, i.e., they respond when a single flank is produced. In this example, the Scripts in the top programming box correspond to the up flank and the Scripts in the bottom programming box for each input correspond to the down flank.

- Autorepeat: This option configures the three inputs as pushbuttons in repetition mode. In this example, when one input is short-circuited to Reference (closed contact), it consecutively and repeatedly sends the programming which appears in the top and bottom boxes. In other words, it sends the programming in the top box and then the programming in the bottom box. While the input remains closed it will repeat this process.
- Special: This mode allows the user to configure each input independently as a pushbutton, switch or repetition.

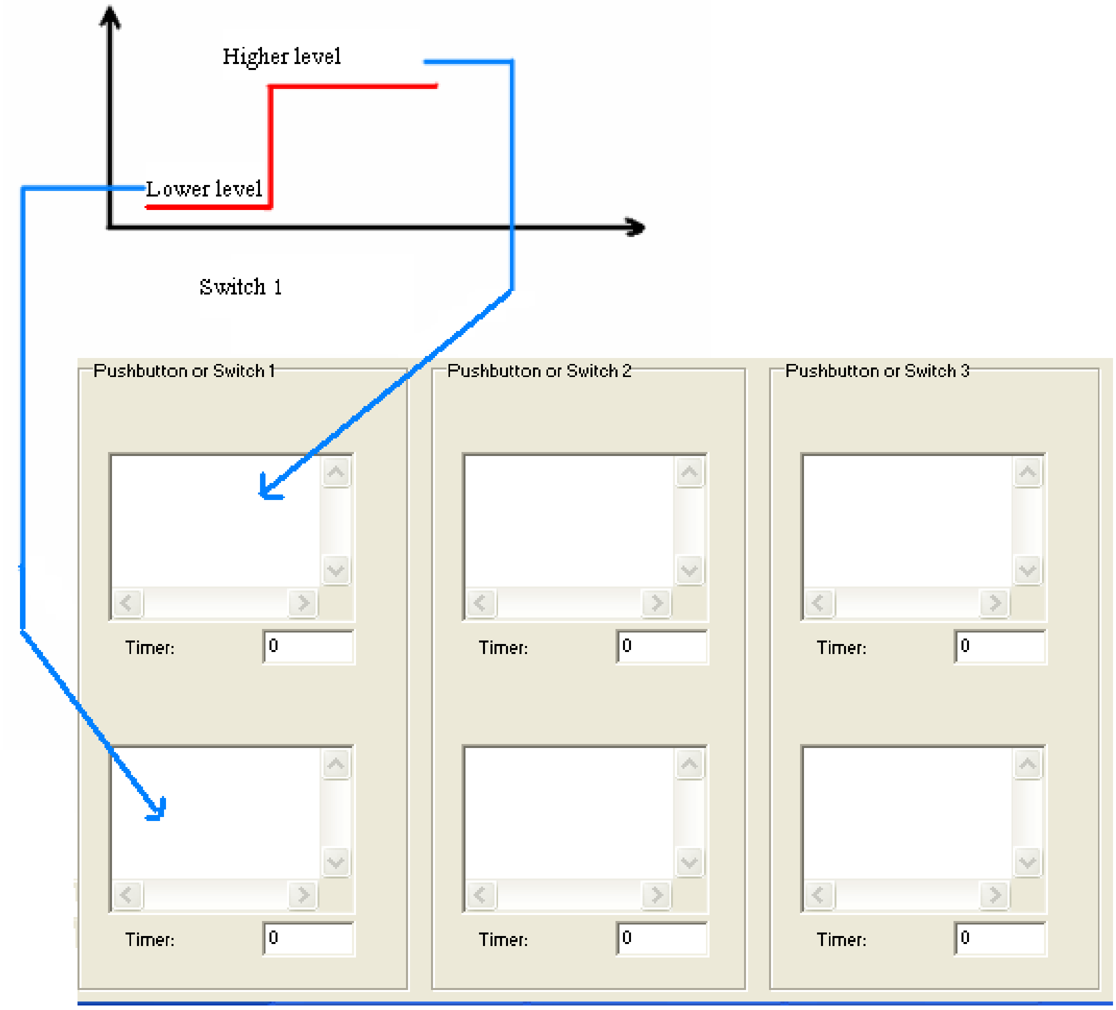
The programmed events are executed when the switch or pushbutton connected to the MECing is pressed and are organised as follows:



There are 3 switches (2 positions for each switch) or 3 pushbuttons.

Switch Mode: Each position of the switch executes the corresponding event.

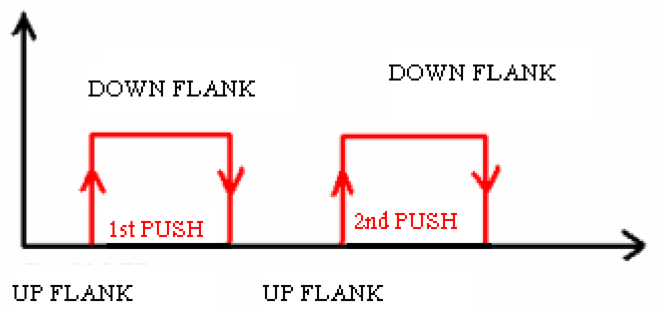
The Switch Mode can distinguish between high and low levels. In high level (position 1 in the switch) for example, each one of the three switches execute the events programmed in the top boxes and in low level (position 2 in the switch) it executes the events programmed in the bottom box.



Pushbutton Mode: In this mode, there are two flanks:

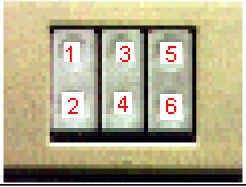
- One up flank (top box in the same column): If you press once (if it is a pushbutton, and if it is a switch when you put it in one position), an up flank is made and the events programmed in the top box are executed.

- A down flank (bottom box in this column): When you release (for pushbuttons) or you change position (for switches), a down flank is produced and the events programmed in the bottom box are executed.

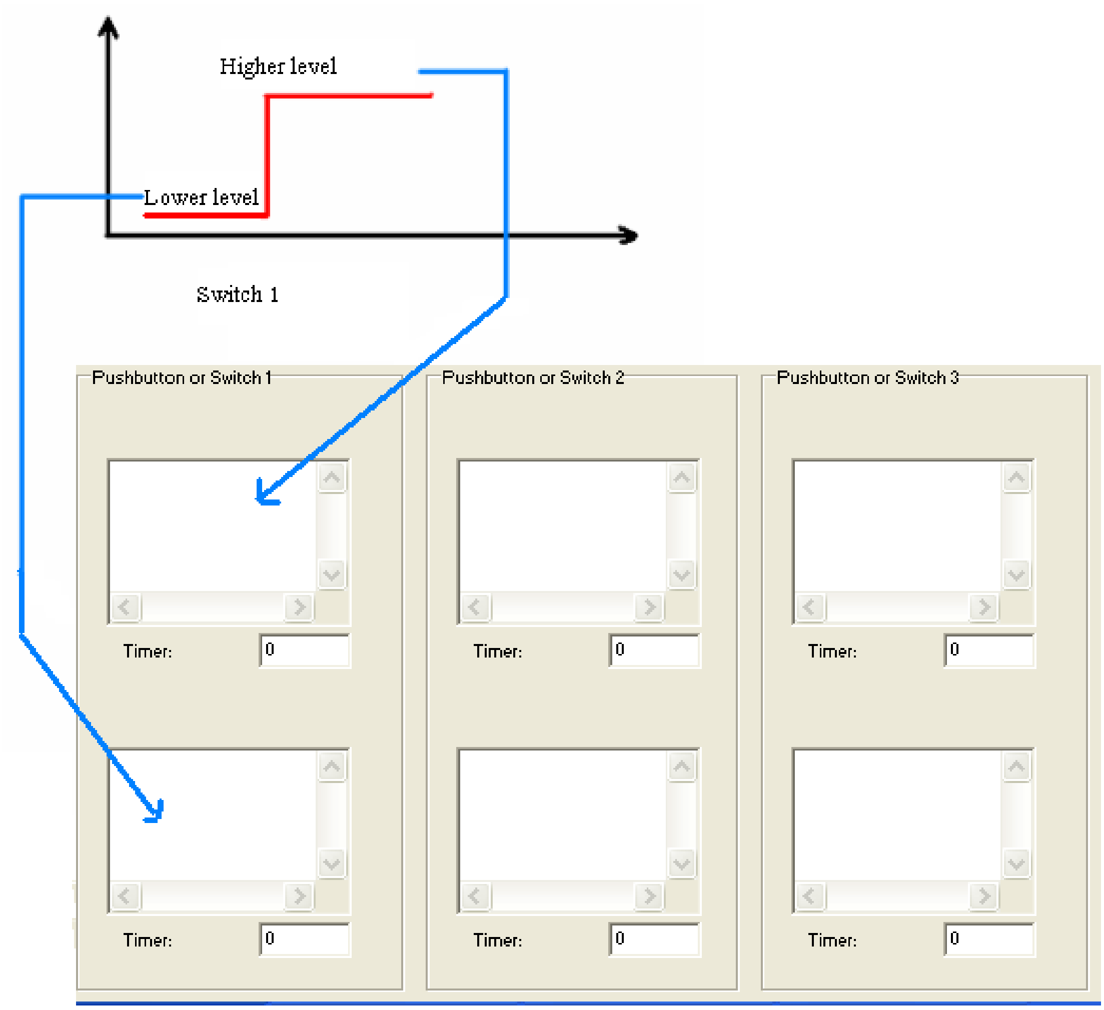


Summary:

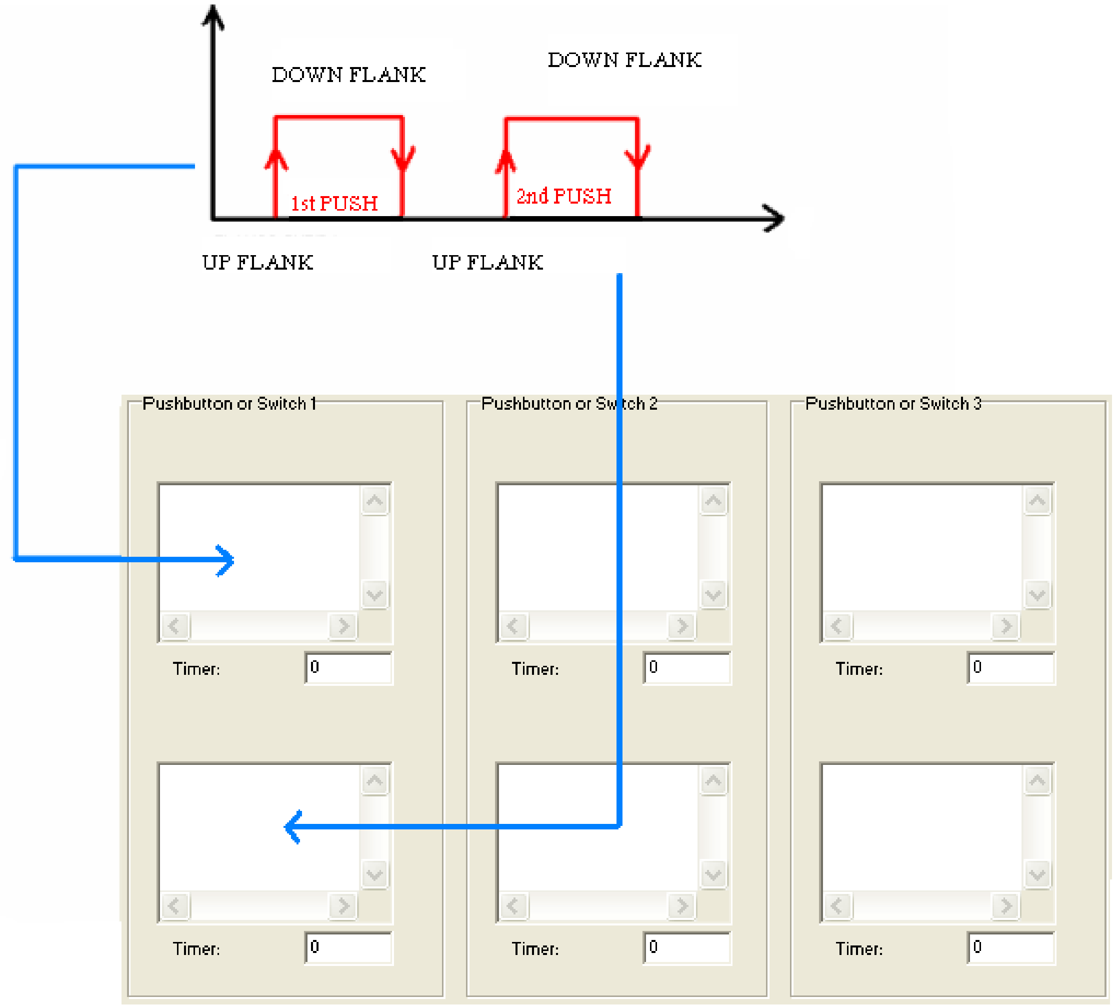
Mode / Device	pushbutton	switch
pushbutton	The first time you press, the events in programming box 1 are executed, and the second time the pushbutton is pressed it executes the events in programming box 2. In box 1 and 2 you can have different events. No more than 6 events	The first time you press the pushbutton, it executes the events in programming box1 and on releasing it, those in programming box 2. In programming box 2 you should have the same Scripts as in box 1, or none at all. No more than 3 events.
switch	When the top part of the switch is pressed, the events programmed in box 1 are executed and when the bottom part is pressed it does nothing. When the top part of the switch is pressed again, the events in programming box 2 are executed. When the bottom part is pressed, it does nothing. This combination is not admitted.	When the top part of the switch is pressed, the events programmed in box 1 are executed and when the bottom part is pressed it executes the events in programming box 2. No more than 6 events.


As mentioned before, when events are executed they are done so in pairs per column: 1 and 2, 3 and 4, 5 and 6. Following the explication given in this table, this is completely valid for boxes 1 and 2, for 3 and 4 and/or 5 and 6.

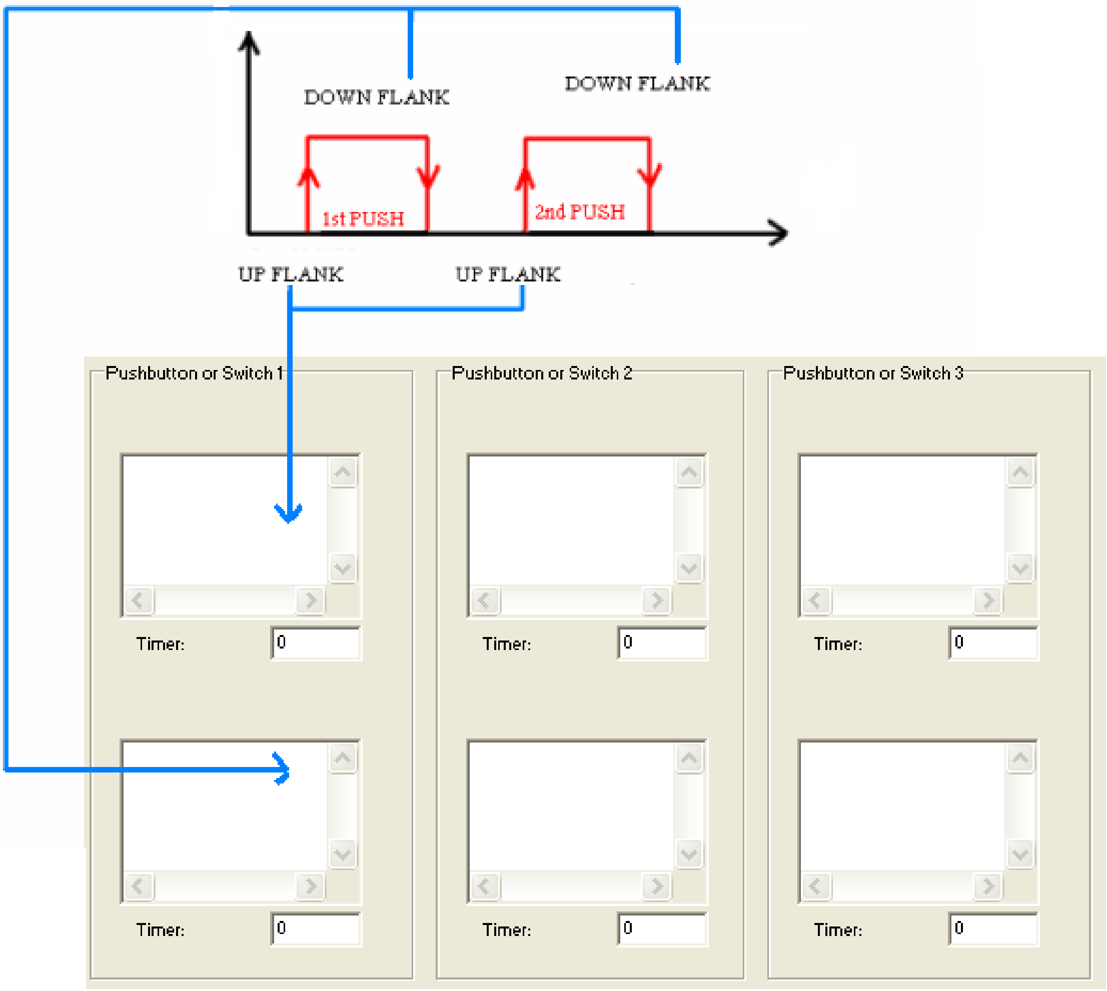
SWITCH IN SWITCH MODE



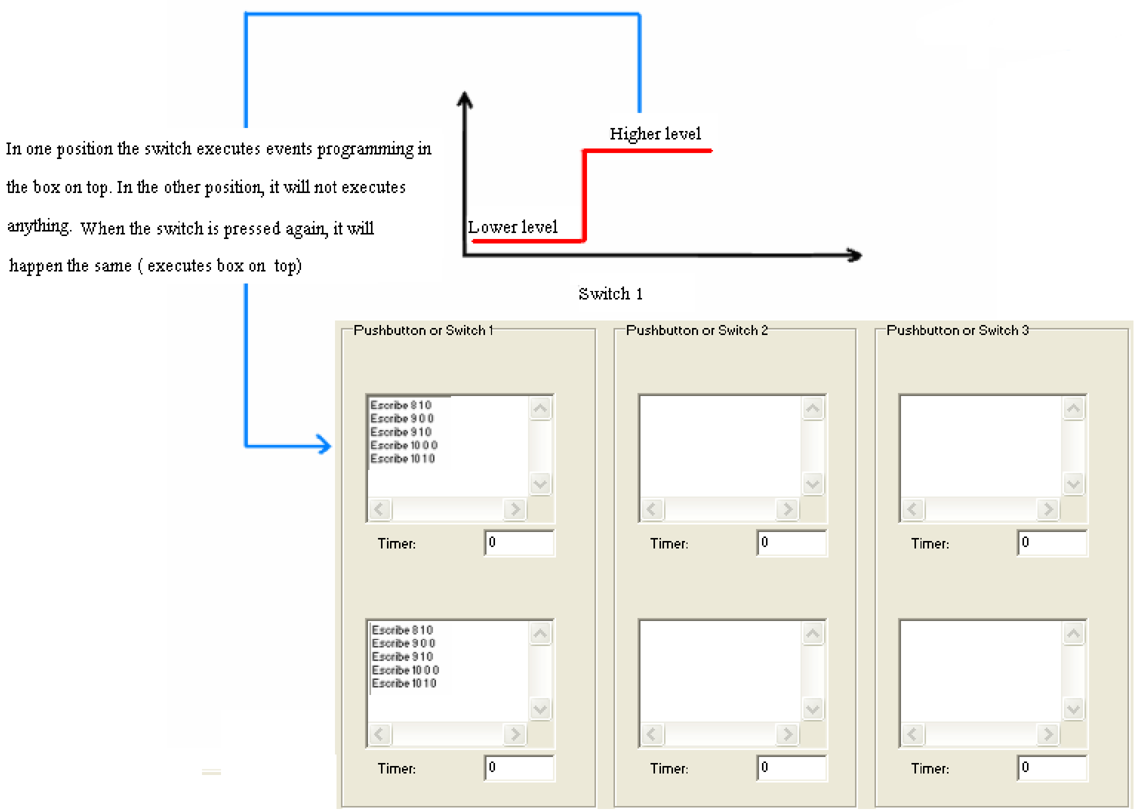
PUSHBUTTON IN PUSHBUTTON MODE



PUSHBUTTON IN SWITCH MODE



SWITCH IN PUSHBUTTON MODE



In one position the switch executes events programming in the box on top. In the other position, it will not executes anything. When the switch is pressed again, it will happen the same (executes box on top)

Pushbutton or Switch 1

Escribe 8 1 0
Escribe 9 0 0
Escribe 9 1 0
Escribe 10 0 0
Escribe 10 1 0

Timer: 0

Escribe 8 1 0
Escribe 9 0 0
Escribe 9 1 0
Escribe 10 0 0
Escribe 10 1 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

You can program each box in two different ways:

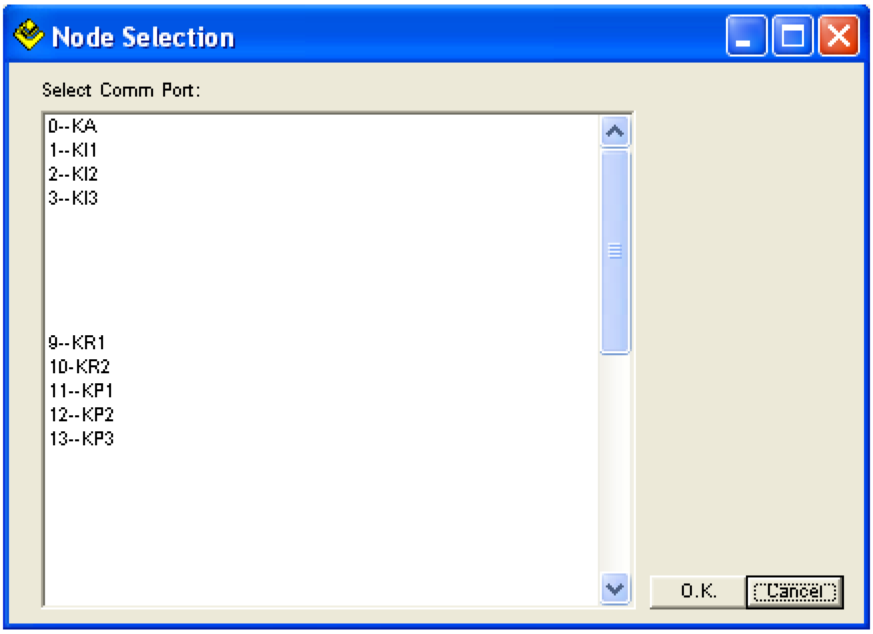
- Assisted programming (not valid for KA, which is programmed by Scripts).
- Programming by Scripts.

1.4.1. Assisted Programming.

Programming events in different programming boxes is all done in the same way, as described below:

Double click on a programming box to assign the event you want.

Once done, the Node Selection window appears as shown below.



Select Comm Port:

```
0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3
```

All the devices that have been added to the project appear in this window, but you can only select devices that belong to the group of actuators. (If you try to select a different device type, the Development System Software will not respond). In other words, if you click on a device that does not belong to the group of actuators (KI, KP, KR, KA...) like a MECBUS, CGBUS, MECing, LDRBUS, the system will not respond.

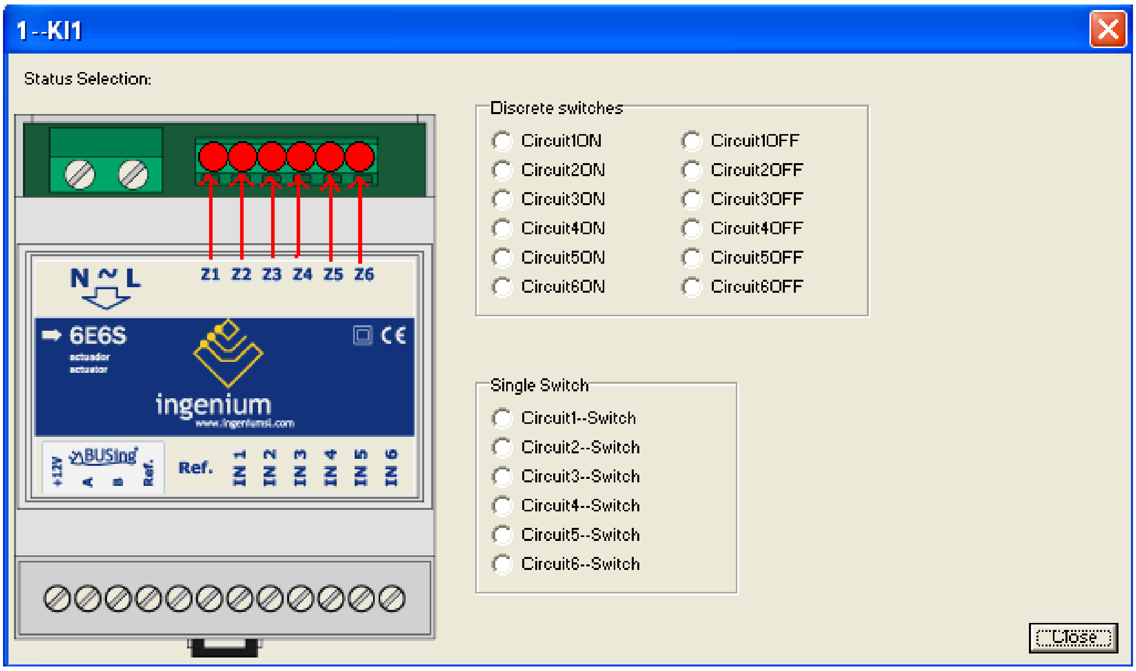
Double click on the actuators to access their outputs.

***NB*: The KI, KP, KR are programmed by default (see the KI, KP and KR Help Manuals). To avoid confusion, the default programming has been erased in the examples given in this manual.**

If you select…

KI1-KI8:

The following window appears:



NB: Outputs Z1 to Z6 correspond exactly to the arrows shown in the image above.

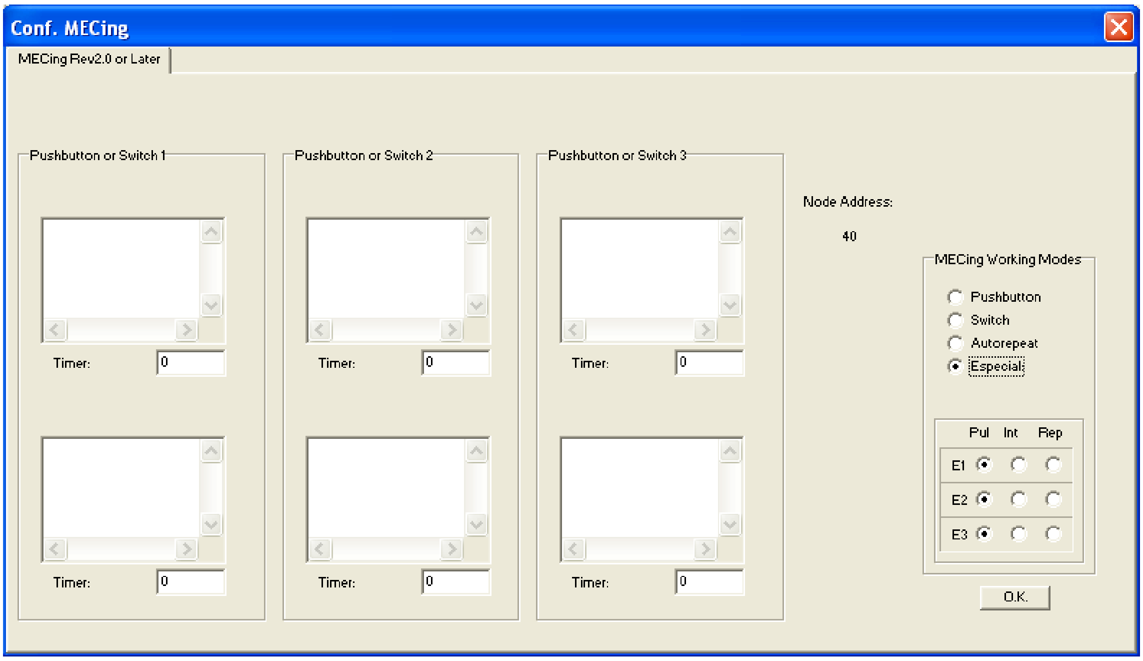
You can modify these outputs.

On the right side of the screen you have the following sections:

Discrete switches: You can select an output to activate (on the left column) or deactivate (right column). The on/off of an output does not affect the rest of the device outputs. In other words, when you select Circuit1ON, it activates output Z1 and the remaining outputs continue as they were, whether on or off (lights on/off) and represented as grey circles in the image.

Example: You want to activate the lights associated to outputs Z1, Z5 and Z6 and leave the rest as they were (on or off):

Double click on this programming box.



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1 — Timer: 0 — Timer: 0

Pushbutton or Switch 2 — Timer: 0 — Timer: 0

Pushbutton or Switch 3 — Timer: 0 — Timer: 0

Node Address: 40

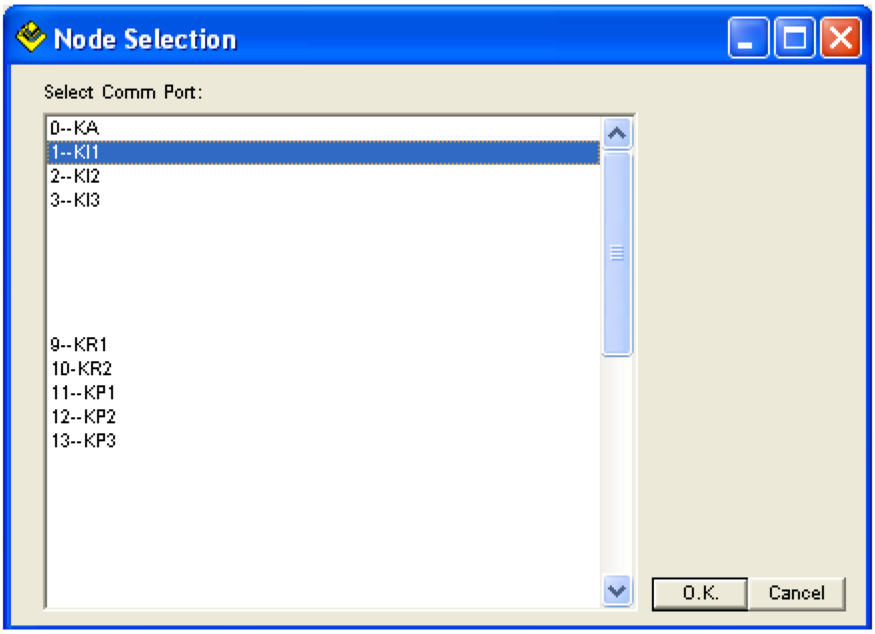
MECing Working Modes

- ○ Pushbutton
- ○ Switch
- ○ Autorepeat
- ● Especial

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

***<u>NB</u>*: Remember that all default programming has been erased, hence the boxes are empty.**

Double click on the corresponding actuator, for example, KI1.

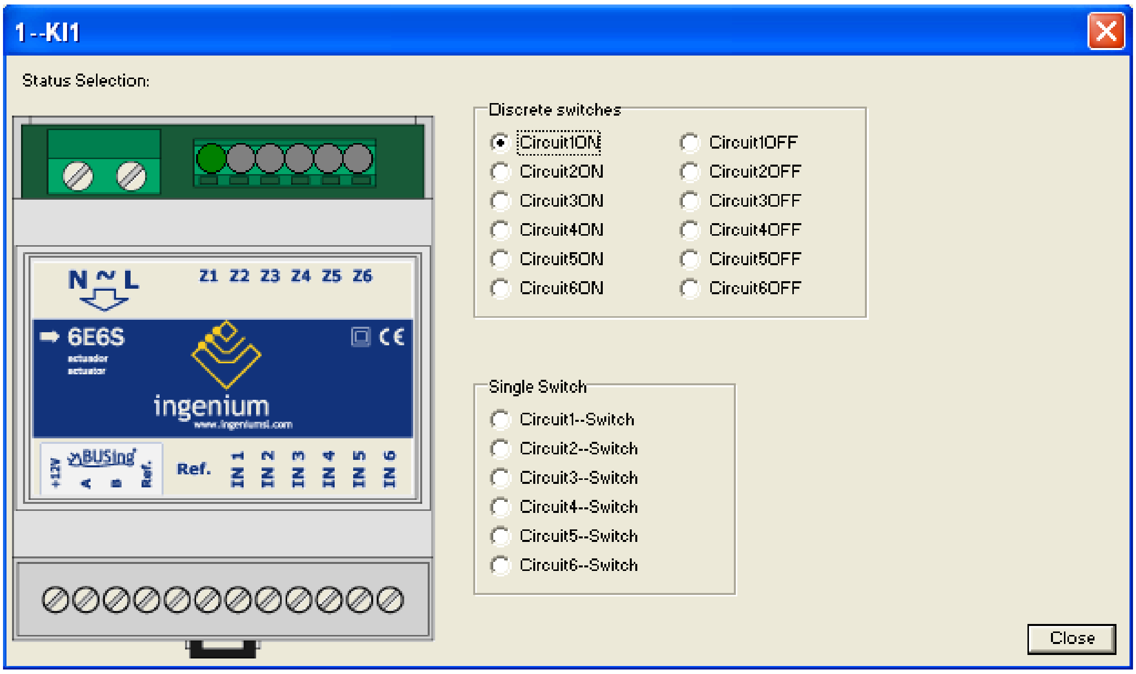


Node Selection

Select Comm Port:

0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3

Then, click on each output you want to activate (this action is not applied to the remaining outputs you do not select).



1--KI1

Status Selection:

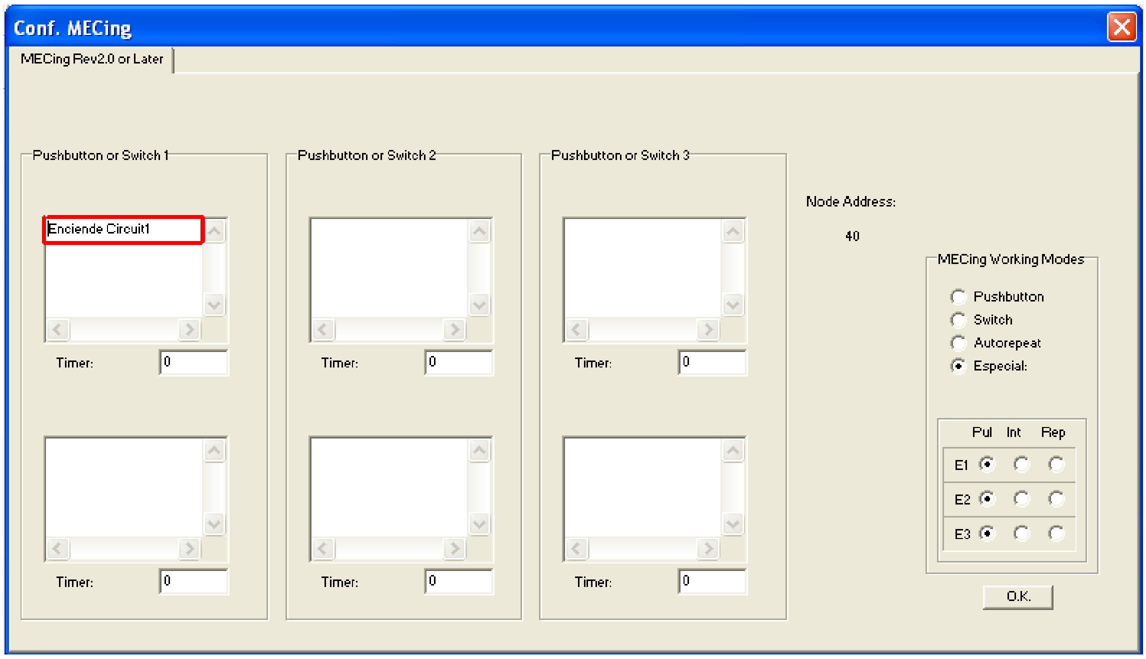
Discrete switches

● Circuit1ON ○ Circuit1OFF
○ Circuit2ON ○ Circuit2OFF
○ Circuit3ON ○ Circuit3OFF
○ Circuit4ON ○ Circuit4OFF
○ Circuit5ON ○ Circuit5OFF
○ Circuit6ON ○ Circuit6OFF

Single Switch

○ Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

Click on Close to generate the following Script:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1

Enciende Circuit1

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

Node Address:

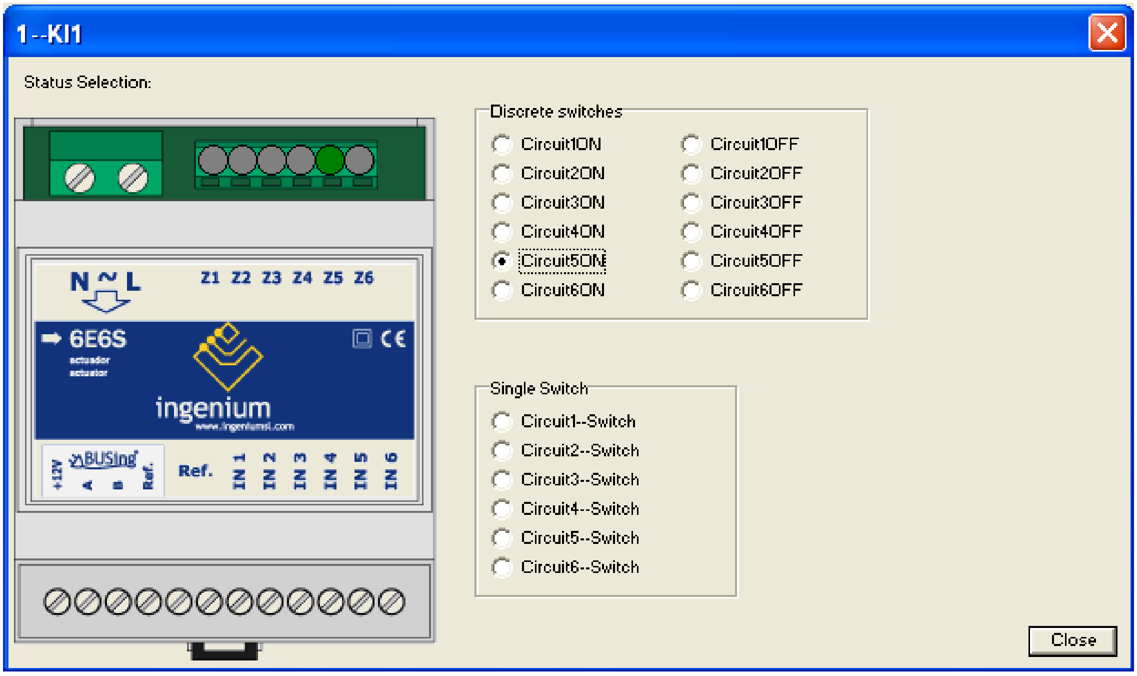
40

MECing Working Modes

○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

Double click again on the same programming box and activate Z5:



1--KI1

Status Selection:

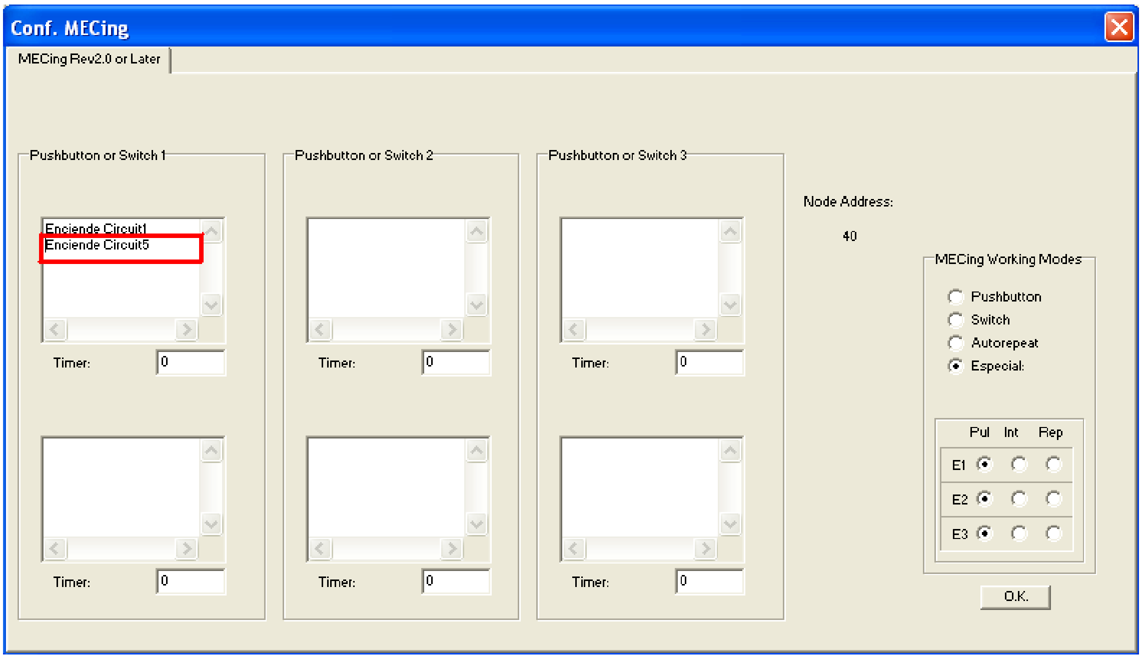
Discrete switches

○ Circuit1ON	○ Circuit1OFF
○ Circuit2ON	○ Circuit2OFF
○ Circuit3ON	○ Circuit3OFF
○ Circuit4ON	○ Circuit4OFF
● Circuit5ON	○ Circuit5OFF
○ Circuit6ON	○ Circuit6OFF

Single Switch

○ Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

Click on Close to generate the following Script:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1
Enciende Circuit1
Enciende Circuit5
Timer: 0
Timer: 0

Pushbutton or Switch 2
Timer: 0
Timer: 0

Pushbutton or Switch 3
Timer: 0
Timer: 0

Node Address: 40

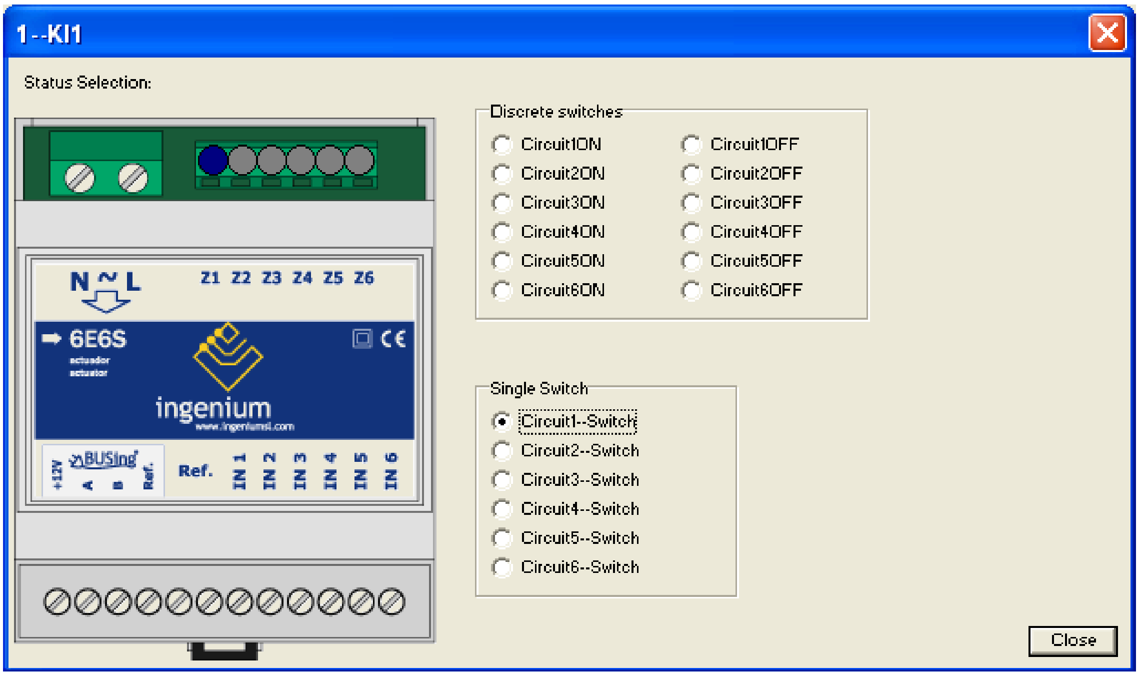
MECing Working Modes
○ Pushbutton
○ Switch
○ Autorepeat
● Especial

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

Repeat the same steps for Z6.

<u>Toggle an output (or single switch)</u>:

Toggles a selected output, i.e., the output state is changed: if its state is shown as activated then when it is pressed it will deactivate and vice versa (the control device is a MECing in this example). A blue circle is shown in the window as shown below:



1--KI1

Status Selection:

Discrete switches

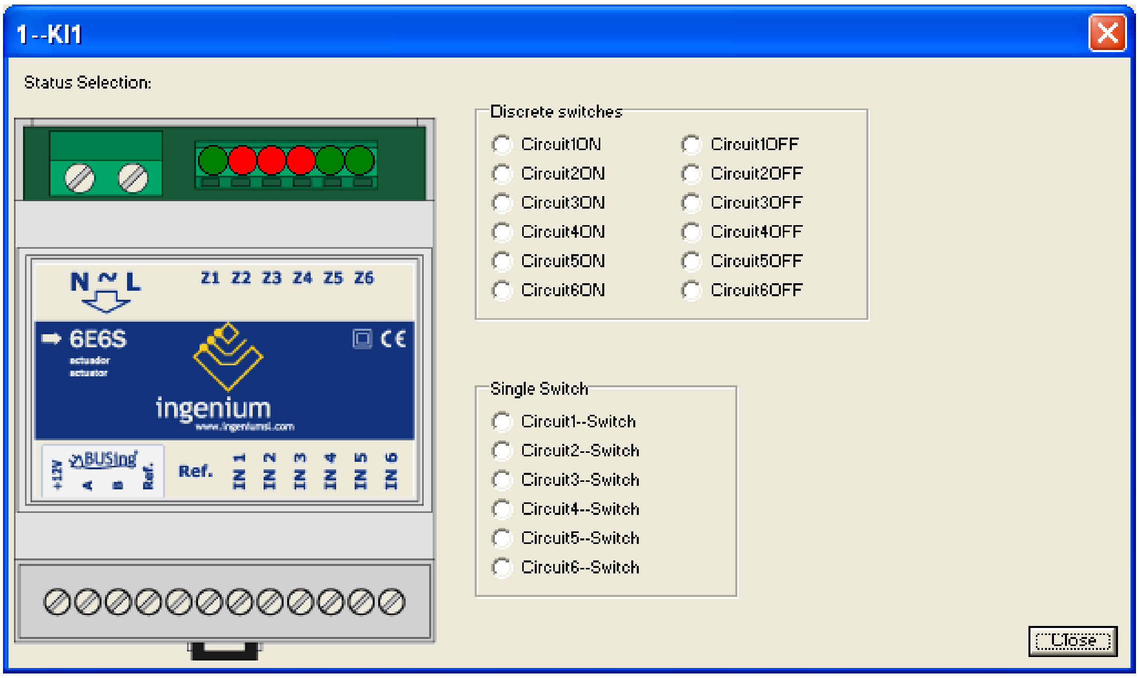
○ Circuit1ON	○ Circuit1OFF
○ Circuit2ON	○ Circuit2OFF
○ Circuit3ON	○ Circuit3OFF
○ Circuit4ON	○ Circuit4OFF
○ Circuit5ON	○ Circuit5OFF
○ Circuit6ON	○ Circuit6OFF

Single Switch

● Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

Figure: the circles indicate specific on/off executed by the device. If the circle is red, the output is deactivated (relay open, lights connected to this output are off); if it is green, the output is activated (relay closed, lights connected to this output are on).

Clicking on the circles changes its state (red/green) enabling you to program the device as you require. Example: to activate the lights associated to outputs Z1, Z5 and Z6 while deactivating the rest (Z2, Z3 and Z4), click on the circles that correspond to those outputs only.



1--KI1

Status Selection:

Discrete switches

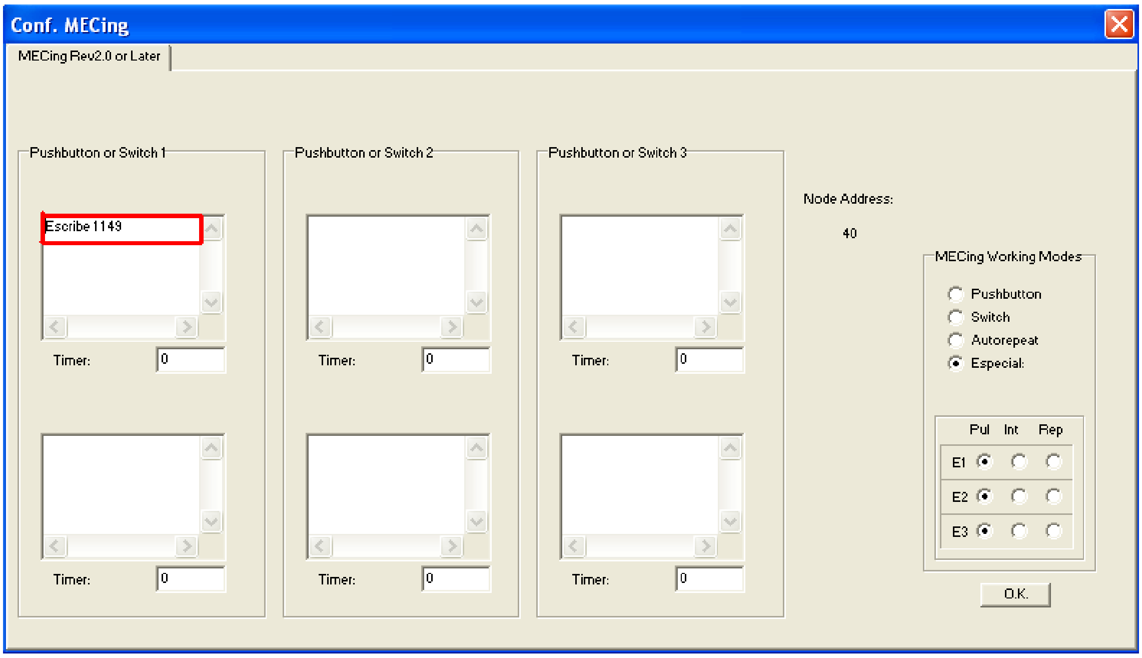
○ Circuit1ON ○ Circuit1OFF
○ Circuit2ON ○ Circuit2OFF
○ Circuit3ON ○ Circuit3OFF
○ Circuit4ON ○ Circuit4OFF
○ Circuit5ON ○ Circuit5OFF
○ Circuit6ON ○ Circuit6OFF

Single Switch

○ Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

Close

Once you have done this, click on Close to generate a Script which is the same as that generated by clicking on the circles as shown below:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1

Escribe 1149

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

Node Address:

40

MECing Working Modes

○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

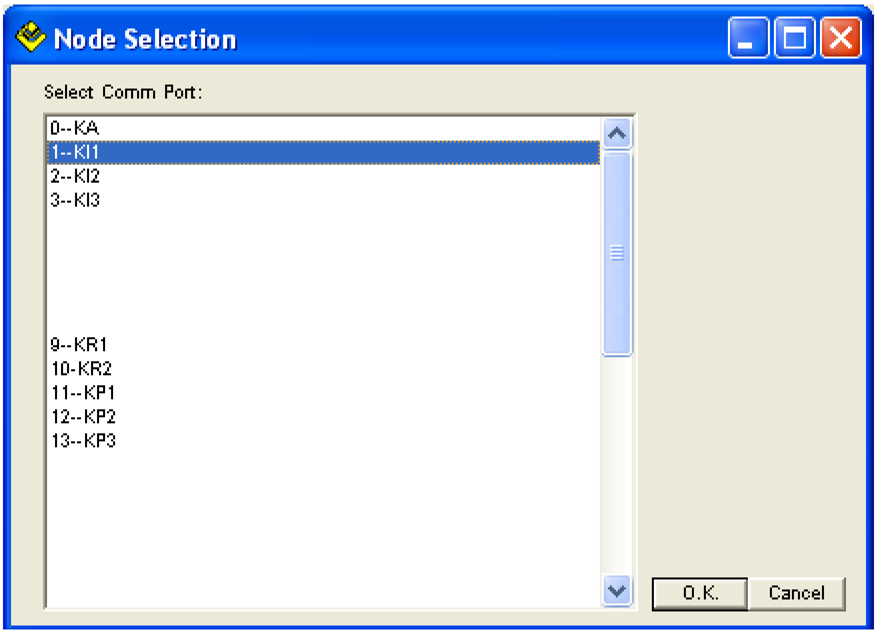
	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

O.K.

To create a new event, double click again on the corresponding programming box.

The previous example can also be done as follows:

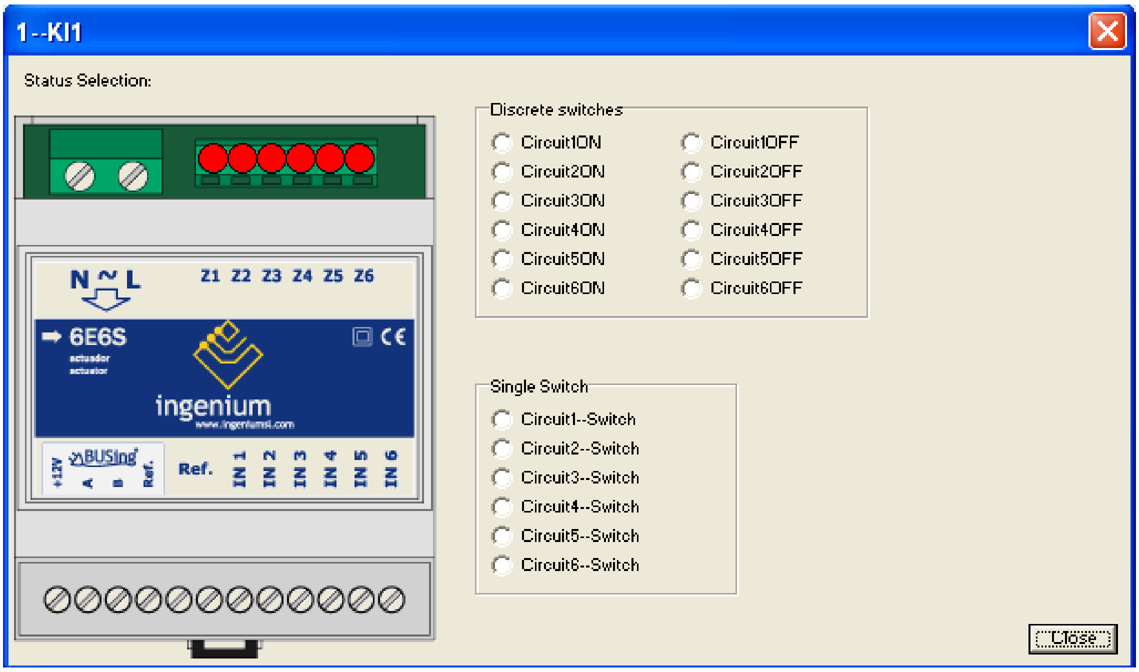
Double click on the selected programming box and select KI1; double click on it:


Node Selection

Select Comm Port:

0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3

A window appears as shown below:


1--KI1

Status Selection:

Discrete switches

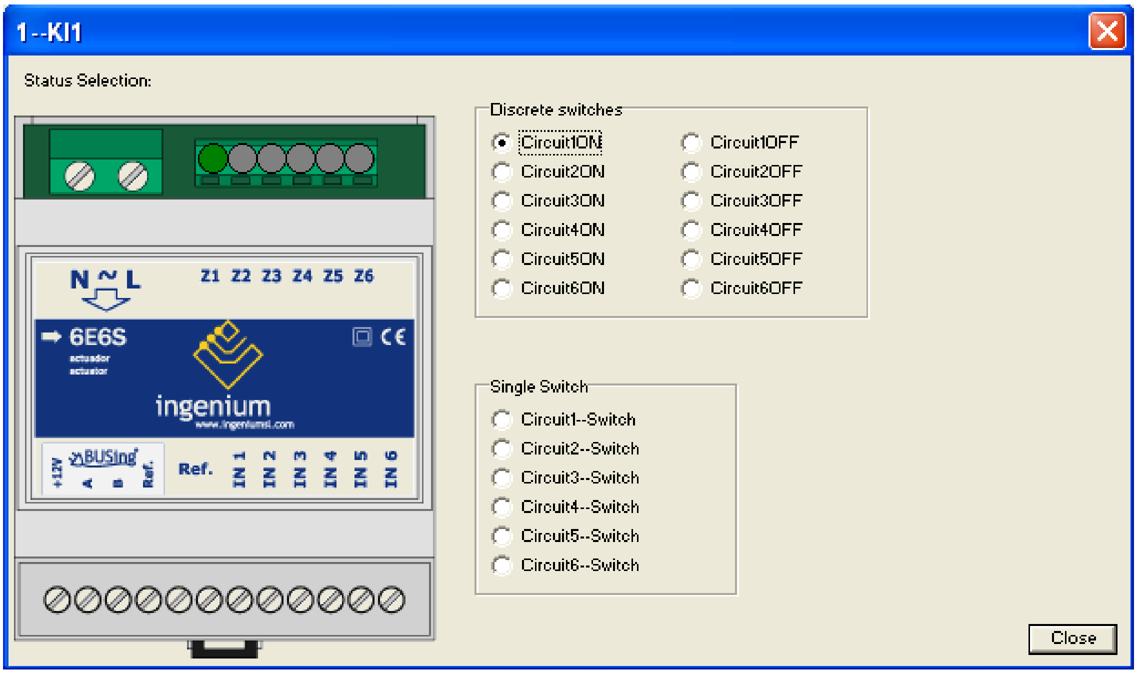
○ Circuit1ON	○ Circuit1OFF
○ Circuit2ON	○ Circuit2OFF
○ Circuit3ON	○ Circuit3OFF
○ Circuit4ON	○ Circuit4OFF
○ Circuit5ON	○ Circuit5OFF
○ Circuit6ON	○ Circuit6OFF

Single Switch

○ Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

To carry out the example given above by Discretes switches:

Double click on the programming box that you want and select KI1 (as you want to control lighting). A window appears where you select the light associated to Z1:



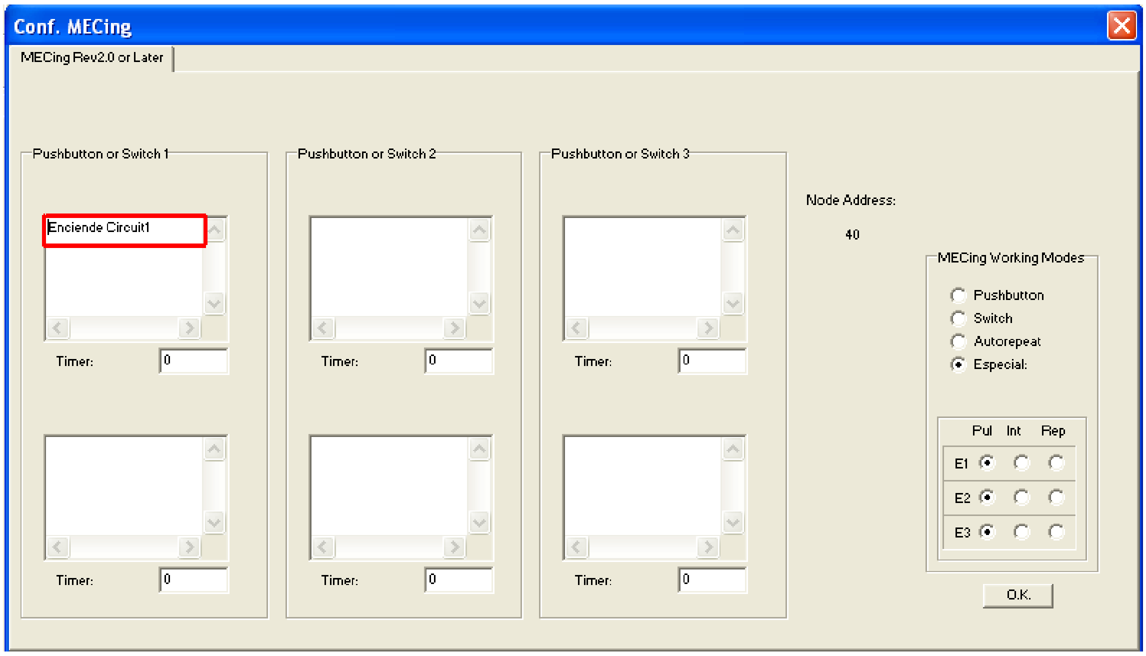
Discrete switches:

● Circuit1ON ○ Circuit1OFF
○ Circuit2ON ○ Circuit2OFF
○ Circuit3ON ○ Circuit3OFF
○ Circuit4ON ○ Circuit4OFF
○ Circuit5ON ○ Circuit5OFF
○ Circuit6ON ○ Circuit6OFF

Single Switch:

○ Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

Click on Close to generate the following Script:



Pushbutton or Switch 1: Enciende Circuit1

Timer: 0

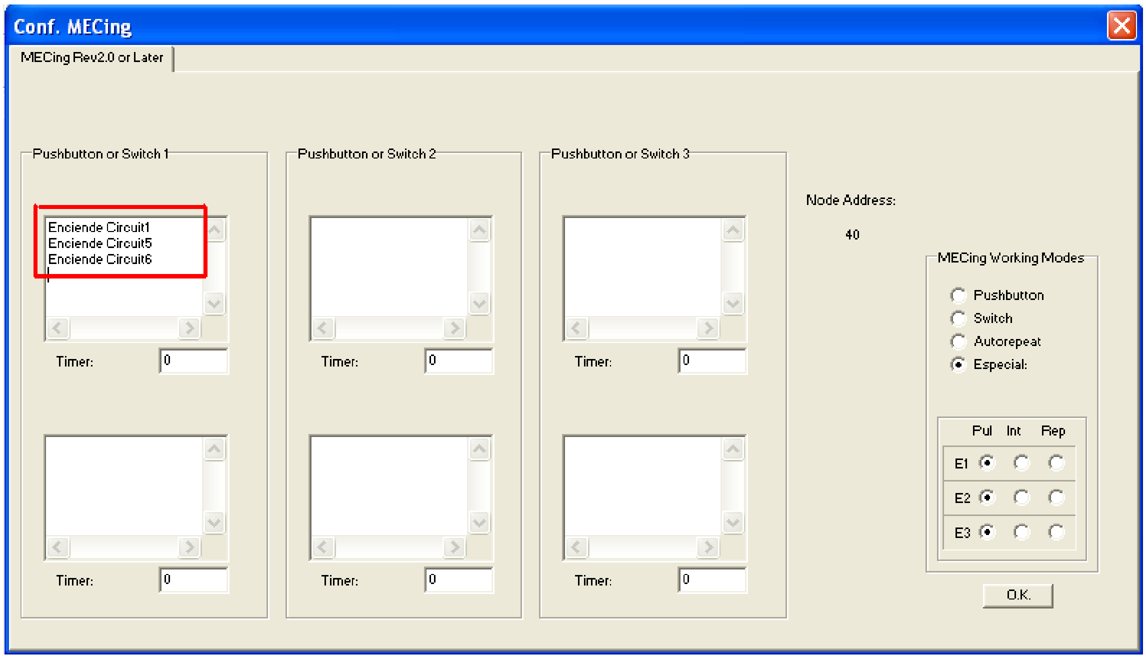
Node Address: 40

MECing Working Modes:

○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

Repeat the same steps for Z5 and Z6 to generate the following Scripts:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1

Enciende Circuit1
Enciende Circuit5
Enciende Circuit6

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

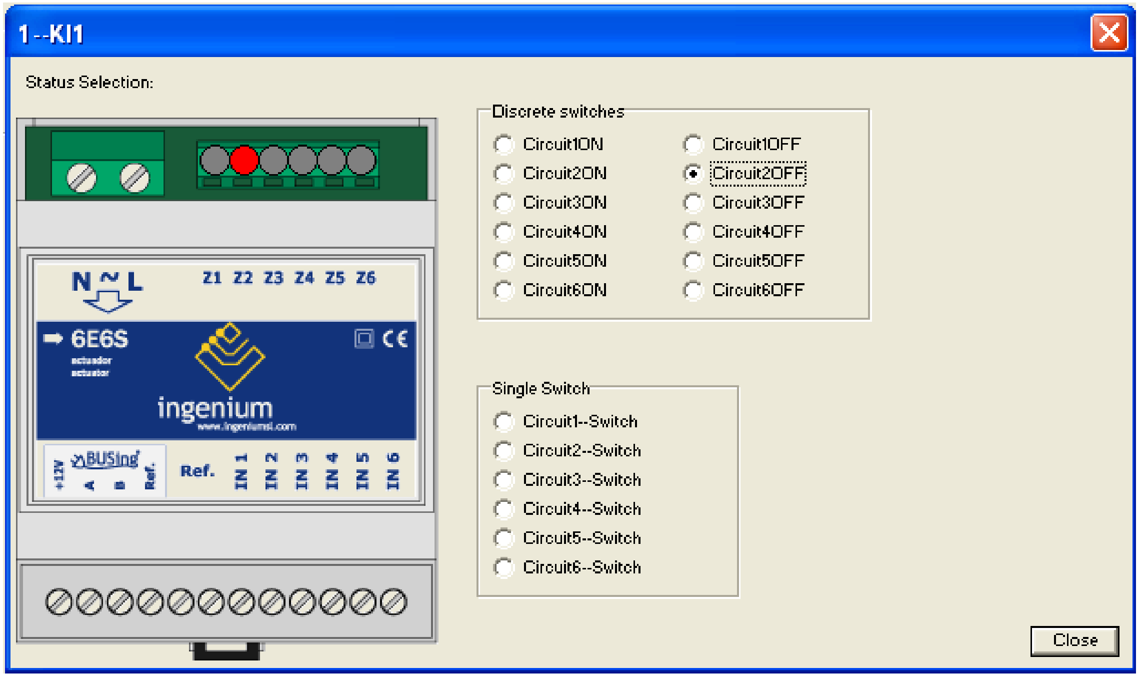
Node Address: 40

MECing Working Modes

○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

Repeat the same steps for Z2, Z3 and Z4 but instead of activating, deactivate the outputs.
Deactivate Z2:



1 --KI1

Status Selection:

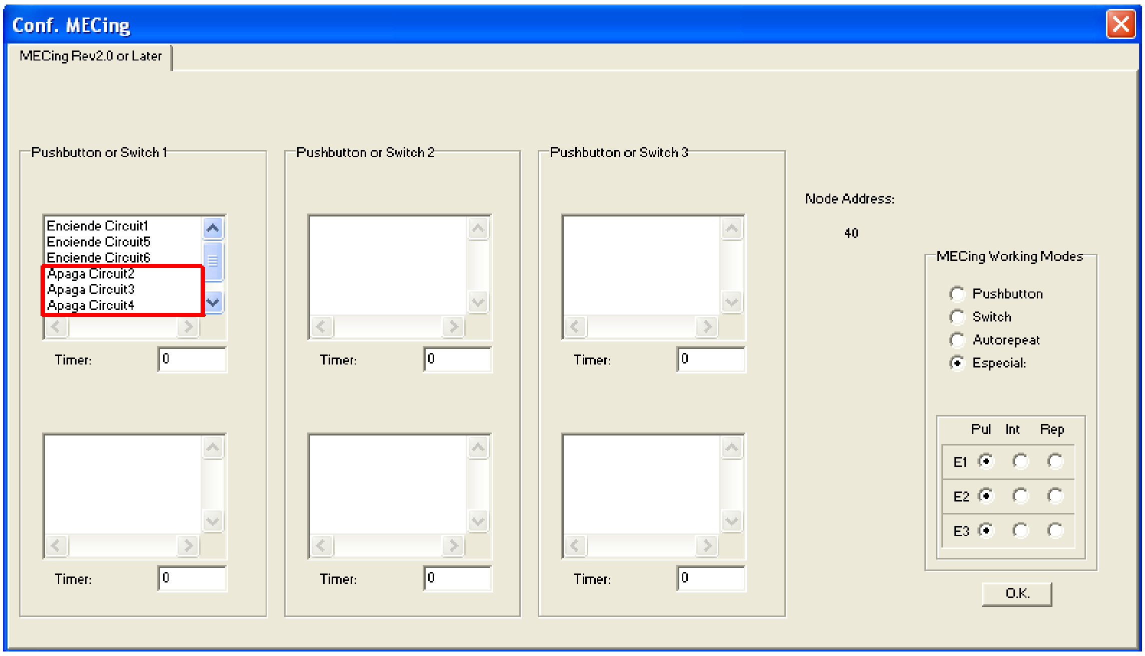
Discrete switches

○ Circuit1ON	○ Circuit1OFF
○ Circuit2ON	● Circuit2OFF
○ Circuit3ON	○ Circuit3OFF
○ Circuit4ON	○ Circuit4OFF
○ Circuit5ON	○ Circuit5OFF
○ Circuit6ON	○ Circuit6OFF

Single Switch

○ Circuit1--Switch
○ Circuit2--Switch
○ Circuit3--Switch
○ Circuit4--Switch
○ Circuit5--Switch
○ Circuit6--Switch

Repeat the same steps for Z3 and Z4 to generate the following Scripts:



Pushbutton or Switch 1
Enciende Circuit1
Enciende Circuit5
Enciende Circuit6
Apaga Circuit2
Apaga Circuit3
Apaga Circuit4
Timer: 0
Timer: 0

Pushbutton or Switch 2
Timer: 0
Timer: 0

Pushbutton or Switch 3
Timer: 0
Timer: 0

Node Address: 40

MECing Working Modes
○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	●	○	○

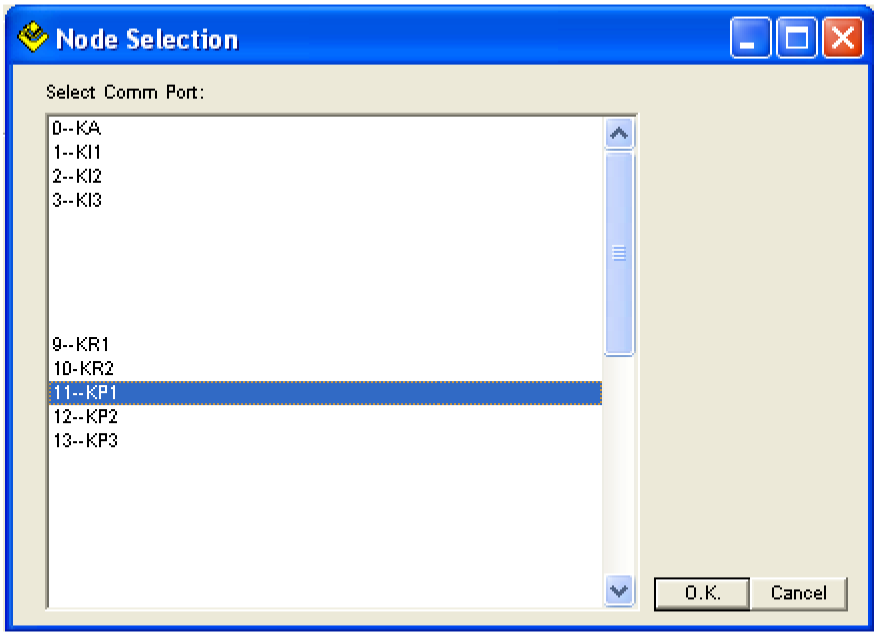
Click on OK to finalise programming.

<u>KP1-KP10</u>:

It is not possible to control only one blind using the MECing because if this were the case it can be controlled from the actuators inputs. However, it is possible to have an up/down control for various blinds.

Example: Control the up/down for 3 blinds using an event. You need a KP1 in your project. (Remember that two outputs per blinds is required to control the up/down for blinds. See the KP Help Manual).

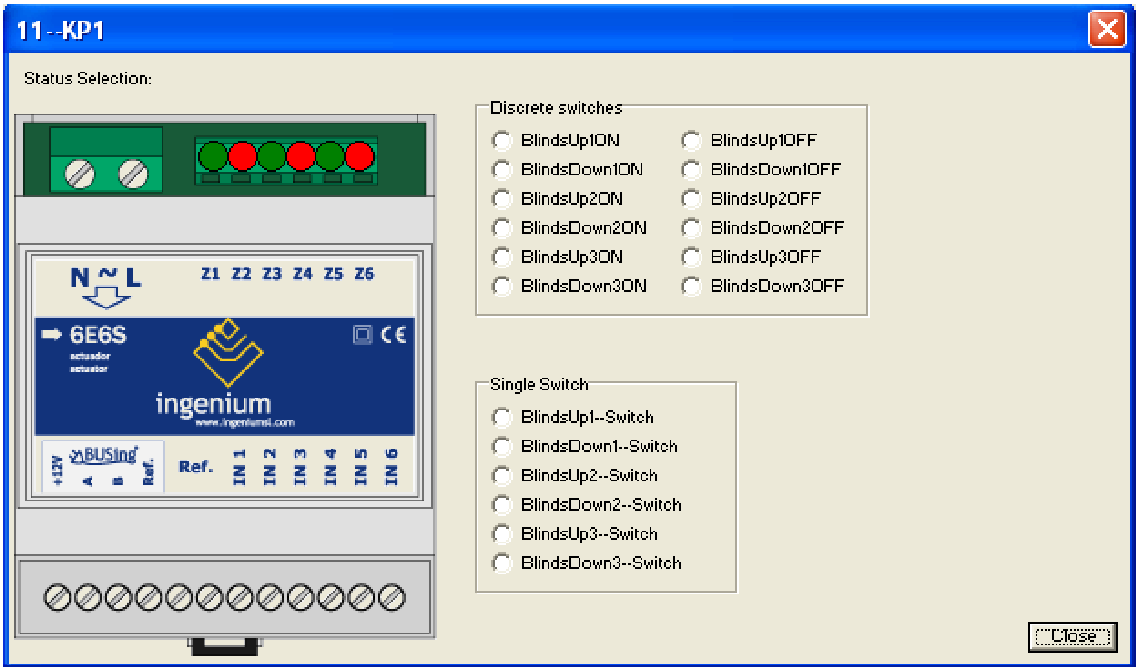
Double click on the programming box you want to execute the event. A window appears where you double click on the blinds control device, the KP1.



Select Comm Port:

0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3

Click on the circles to configure it as shown below:



Status Selection:

Discrete switches

○ BlindsUp1ON	○ BlindsUp1OFF
○ BlindsDown1ON	○ BlindsDown1OFF
○ BlindsUp2ON	○ BlindsUp2OFF
○ BlindsDown2ON	○ BlindsDown2OFF
○ BlindsUp3ON	○ BlindsUp3OFF
○ BlindsDown3ON	○ BlindsDown3OFF

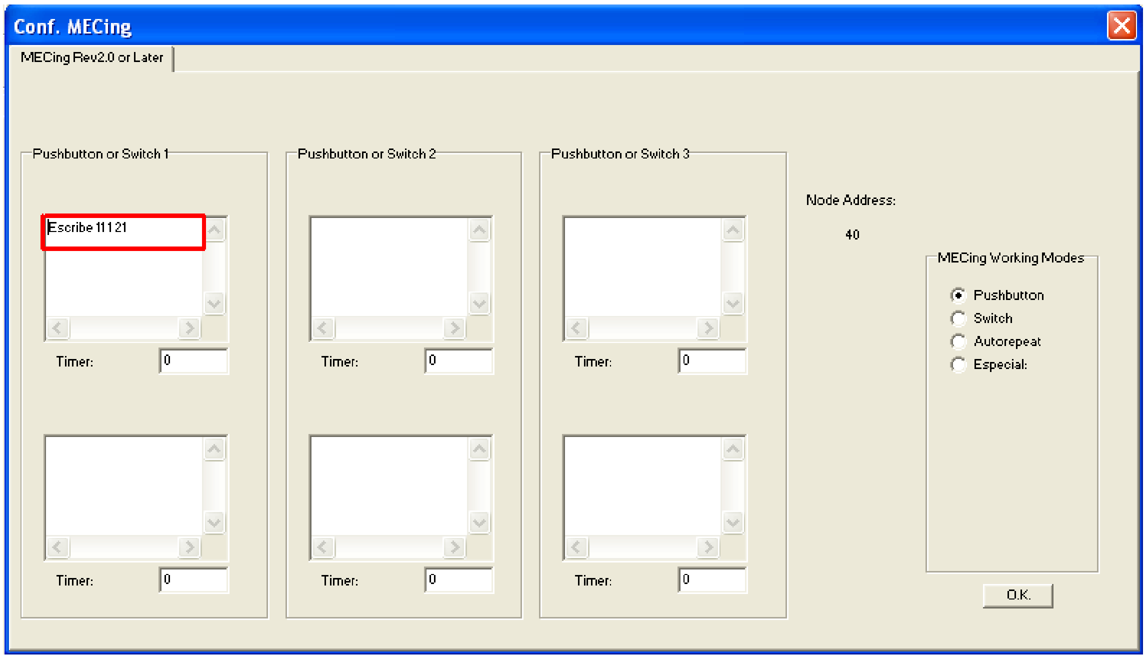
Single Switch

○ BlindsUp1--Switch
○ BlindsDown1--Switch
○ BlindsUp2--Switch
○ BlindsDown2--Switch
○ BlindsUp3--Switch
○ BlindsDown3--Switch

Z1, Z3 and Z5 are the outputs that modify the motor on the three blinds to open them. Z2, Z4 and Z6 close the blinds. Z1, Z3 and Z5 are in green and the rest are in red.

The combination seen above is to open three blinds.

Click on “Close” to generate the following Script:



Pushbutton or Switch 1

Escribe 11121

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

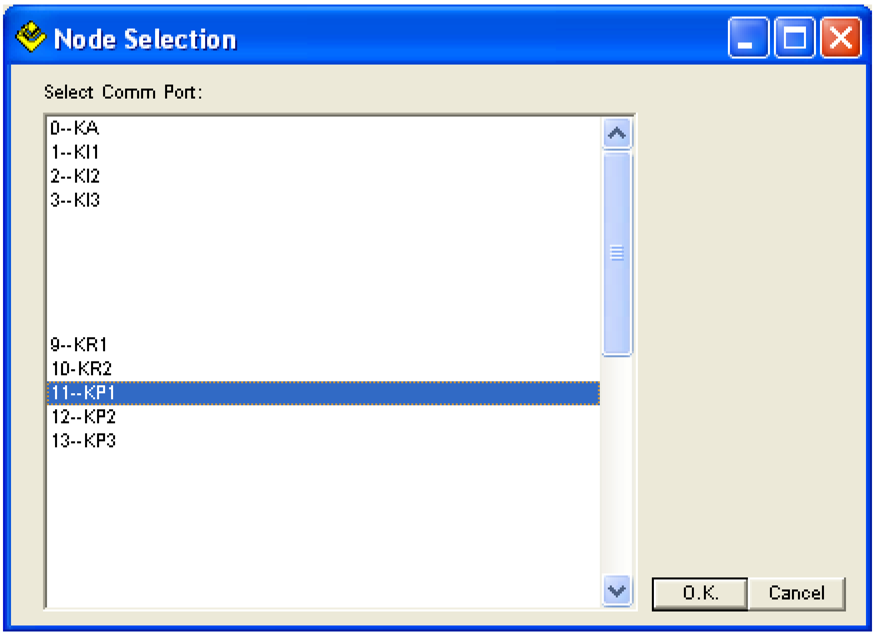
Timer: 0

Node Address: 40

MECing Working Modes

● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

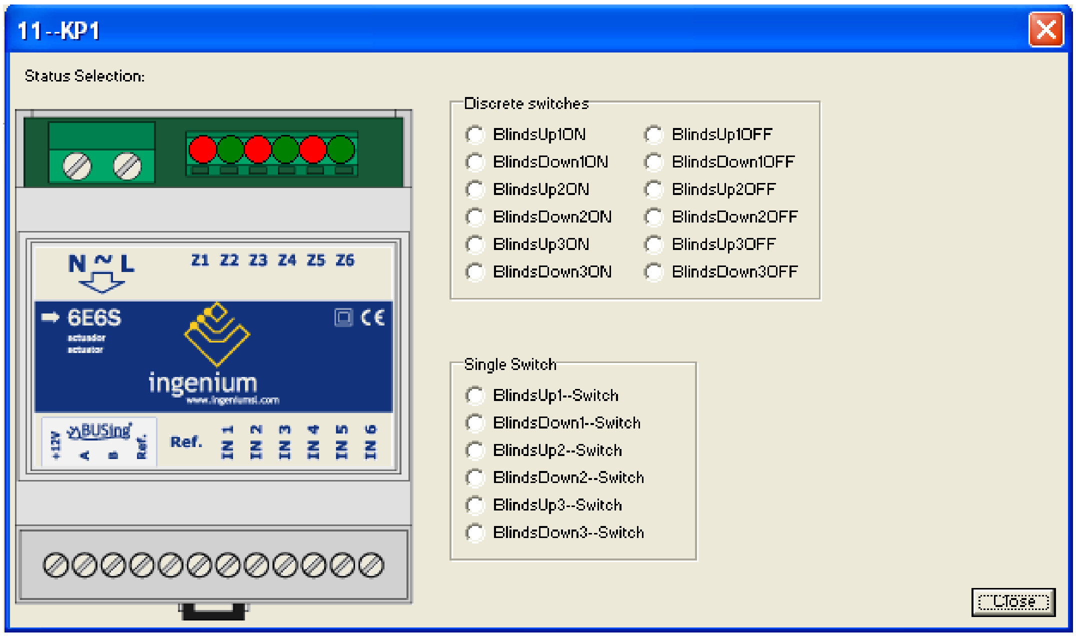
To create a second event to close the blinds, double click on a different programming box to that which opens them.



Select Comm Port:

0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3

Click on the circles to configure it as shown below:



11--KP1

Status Selection:

Discrete switches

○ BlindsUp1ON	○ BlindsUp1OFF
○ BlindsDown1ON	○ BlindsDown1OFF
○ BlindsUp2ON	○ BlindsUp2OFF
○ BlindsDown2ON	○ BlindsDown2OFF
○ BlindsUp3ON	○ BlindsUp3OFF
○ BlindsDown3ON	○ BlindsDown3OFF

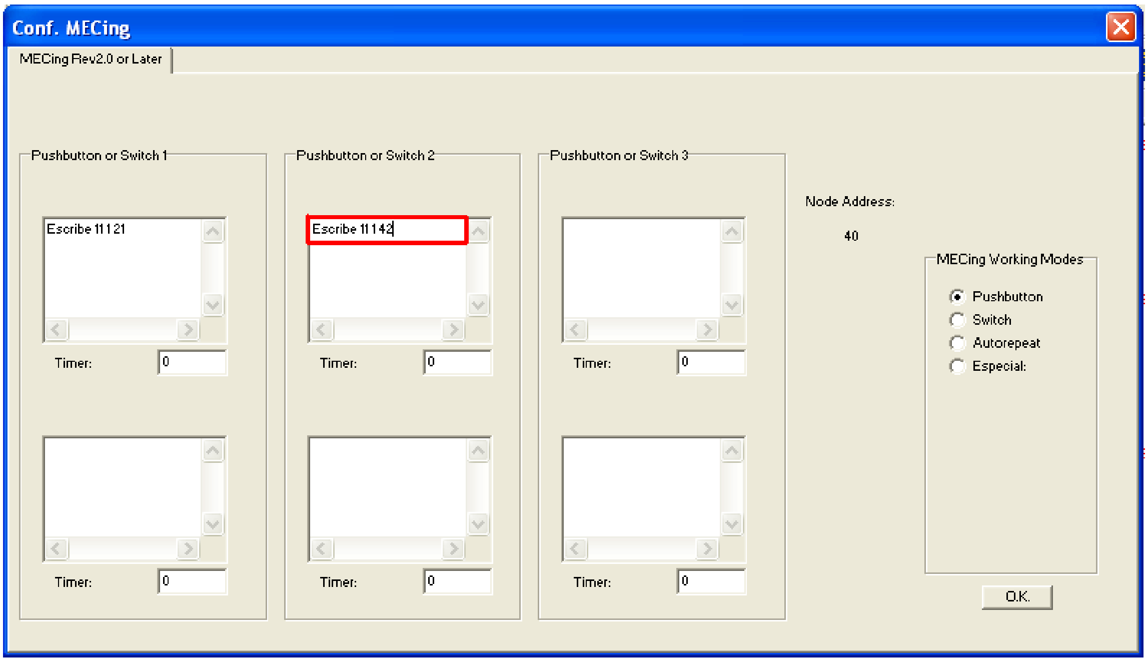
Single Switch

○ BlindsUp1--Switch
○ BlindsDown1--Switch
○ BlindsUp2--Switch
○ BlindsDown2--Switch
○ BlindsUp3--Switch
○ BlindsDown3--Switch

Z1, Z3 and Z5 are the outputs that modify the motor on the three blinds to open them. Z2, Z4 and Z6 close the blinds. Z2, Z4 and Z6 are in green and the rest are in red.

The combination seen above is to close three blinds.

Click on "Close" to generate the following Script:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1
Escribe 11 1 21
Timer: 0
Timer: 0

Pushbutton or Switch 2
Escribe 11 1 42
Timer: 0
Timer: 0

Pushbutton or Switch 3
Timer: 0
Timer: 0

Node Address: 40

MECing Working Modes
● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

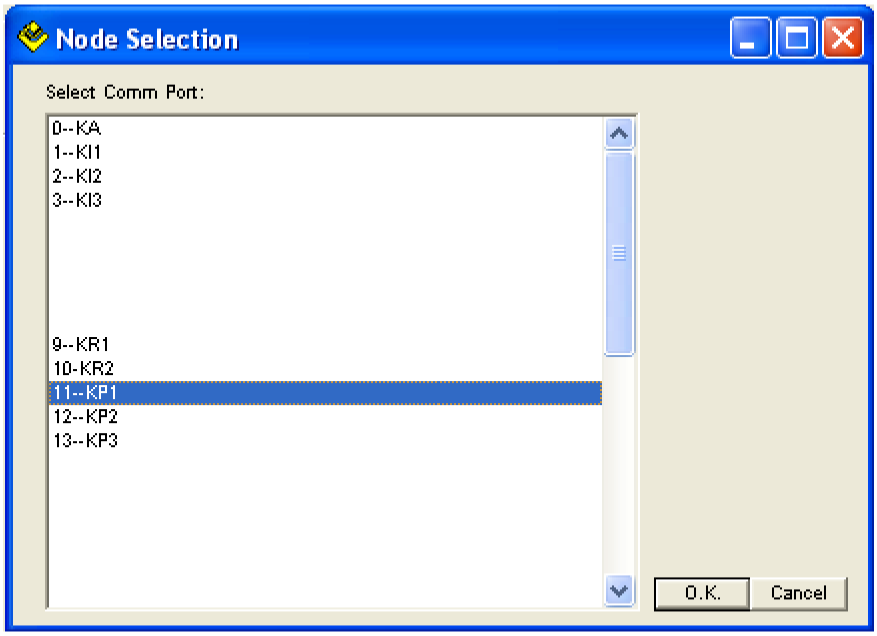
Click on "OK" to finalise the up/down programming for blinds.

To carry out the example given above by “specific up/down for blinds":

NB: *For specific on/off, before opening or closing blinds, ALWAYS remember to check that it is not activated in reverse. In other words, to activate the blinds to open (up), the close (down) command must be deactivated to avoid errors (for example: if you do not deactivate the relevant up or down configuration, then when you press on the 'up' pushbutton for the blinds and then the ‘down’ pushbutton, the latter will not respond). This will also be the case for when you want to close the blinds.*

To open (up) the blinds:

Double click on the programming box you want and select KP1:

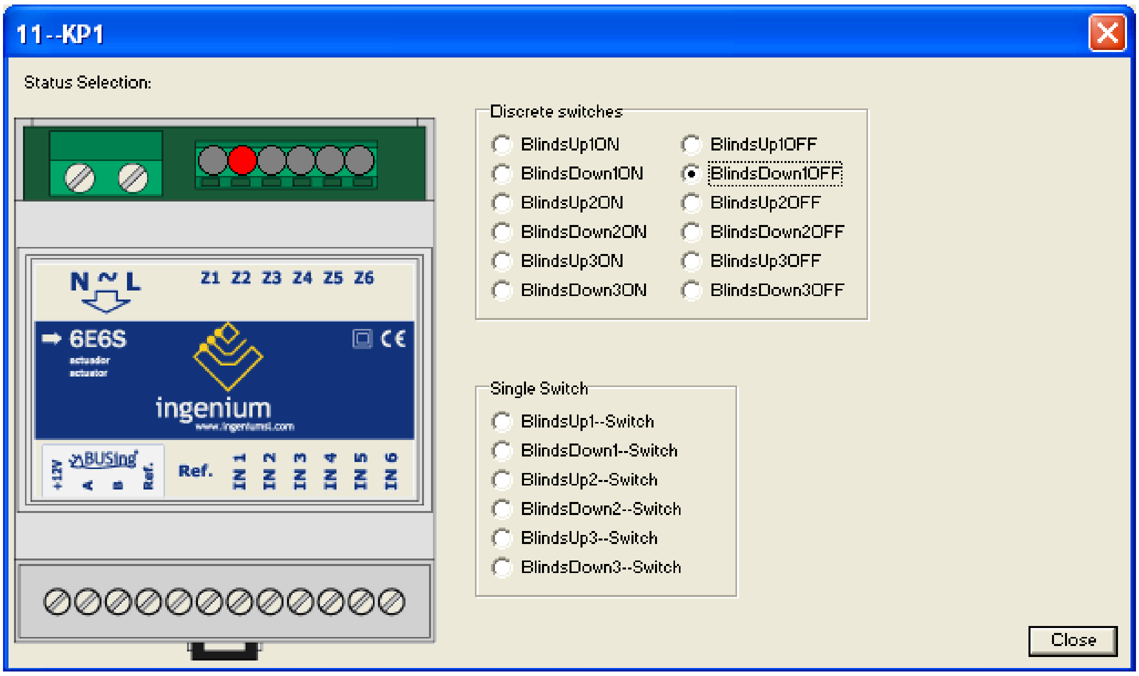


Node Selection

Select Comm Port:

0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3

To open blind 1, deactivate the down configuration and activate the up configuration. This is done as shown in the following images:



11--KP1

Status Selection:

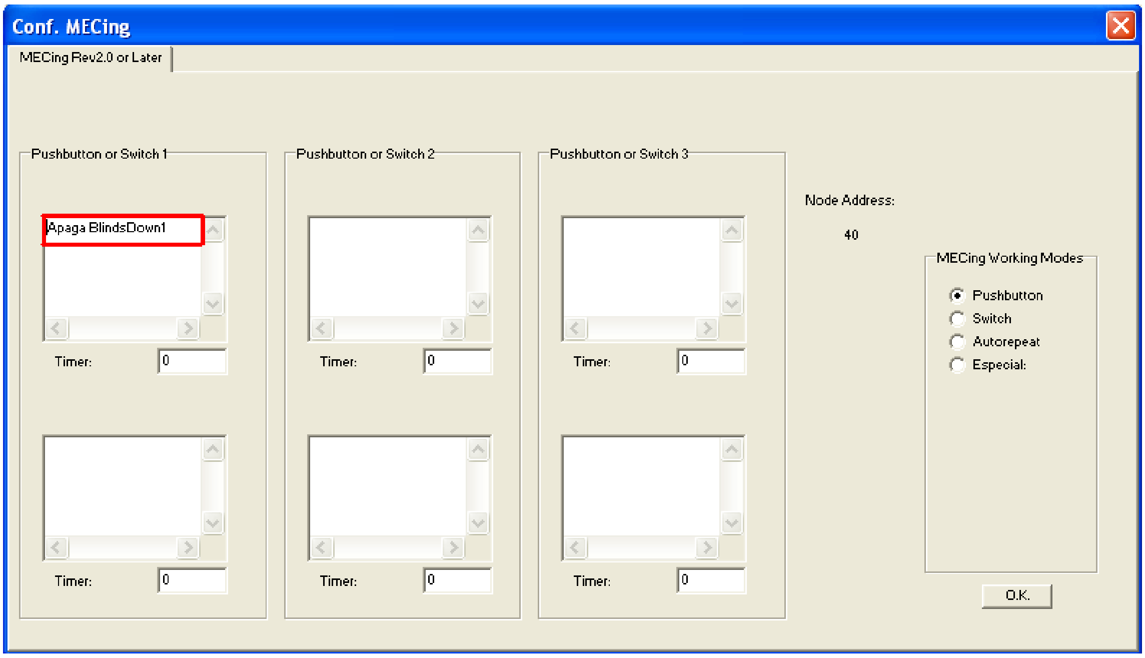
Discrete switches

○ BlindsUp1ON ○ BlindsUp1OFF
○ BlindsDown1ON ● BlindsDown1OFF
○ BlindsUp2ON ○ BlindsUp2OFF
○ BlindsDown2ON ○ BlindsDown2OFF
○ BlindsUp3ON ○ BlindsUp3OFF
○ BlindsDown3ON ○ BlindsDown3OFF

Single Switch

○ BlindsUp1--Switch
○ BlindsDown1--Switch
○ BlindsUp2--Switch
○ BlindsDown2--Switch
○ BlindsUp3--Switch
○ BlindsDown3--Switch

Click on Close to deactivate the ‘down’ configuration and to generate the following Script:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1: Apaga BlindsDown1 — Timer: 0 — Timer: 0

Pushbutton or Switch 2: Timer: 0 — Timer: 0

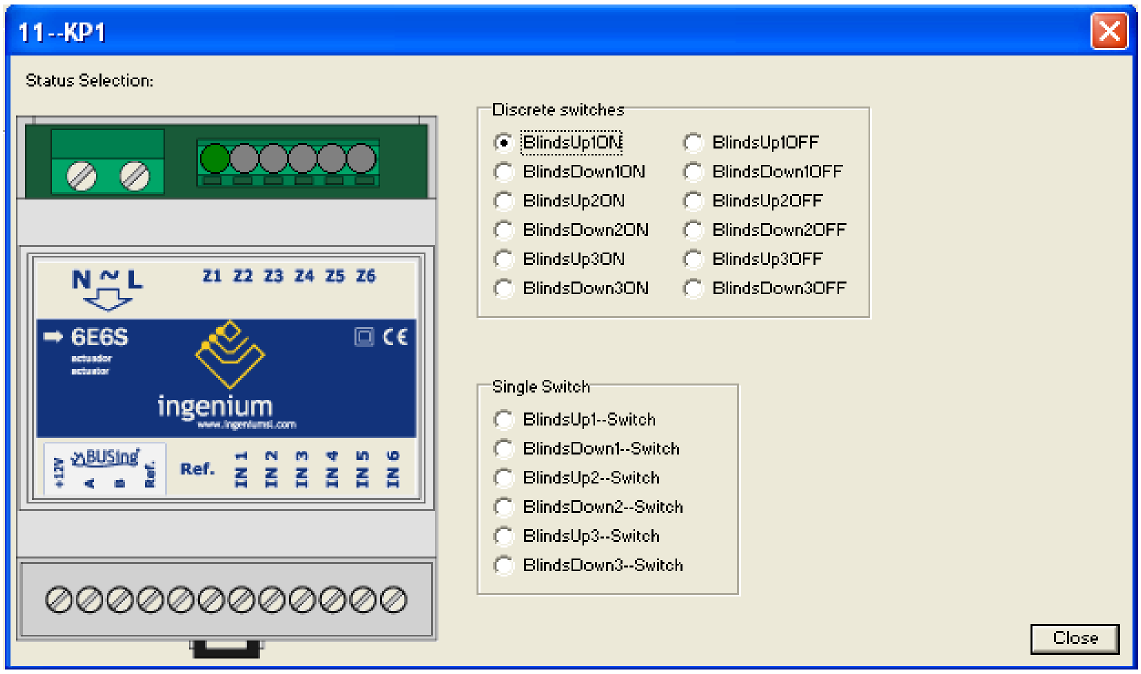
Pushbutton or Switch 3: Timer: 0 — Timer: 0

Node Address: 40

MECing Working Modes

● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

Open the blinds by double clicking on the programming box and select up blinds, as shown below:



11--KP1

Status Selection:

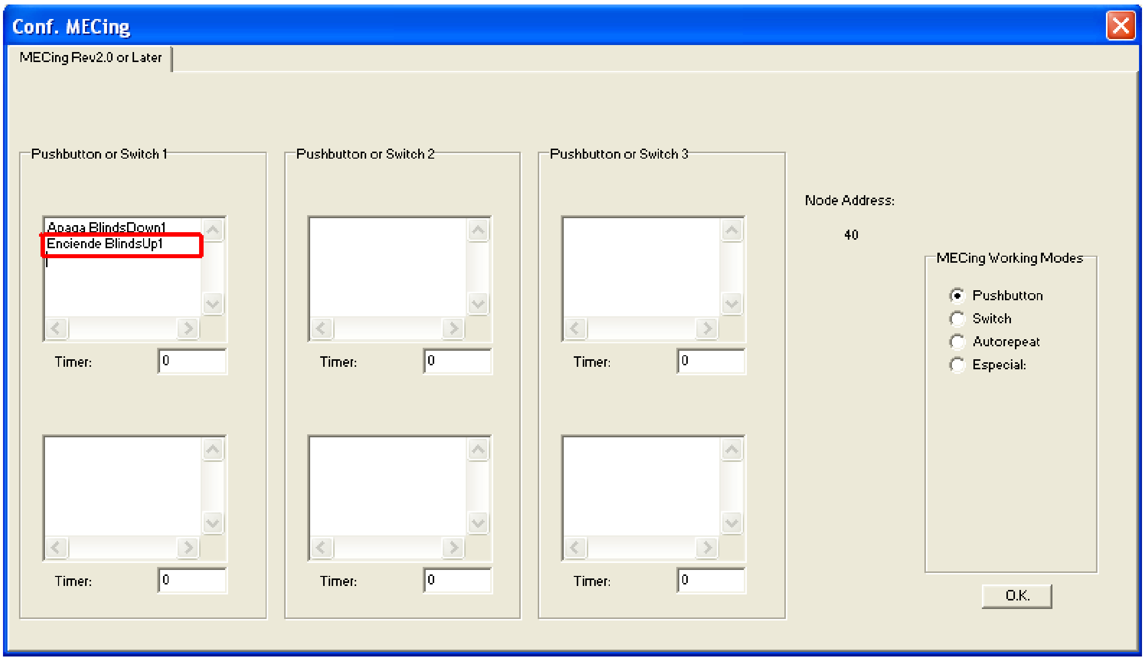
Discrete switches

- ● BlindsUp1ON
- ○ BlindsDown1ON
- ○ BlindsUp2ON
- ○ BlindsDown2ON
- ○ BlindsUp3ON
- ○ BlindsDown3ON
- ○ BlindsUp1OFF
- ○ BlindsDown1OFF
- ○ BlindsUp2OFF
- ○ BlindsDown2OFF
- ○ BlindsUp3OFF
- ○ BlindsDown3OFF

Single Switch

- ○ BlindsUp1--Switch
- ○ BlindsDown1--Switch
- ○ BlindsUp2--Switch
- ○ BlindsDown2--Switch
- ○ BlindsUp3--Switch
- ○ BlindsDown3--Switch

Click on Close to generate the following Script:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1

Apaga BlindsDown1
Enciende BlindsUp1

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

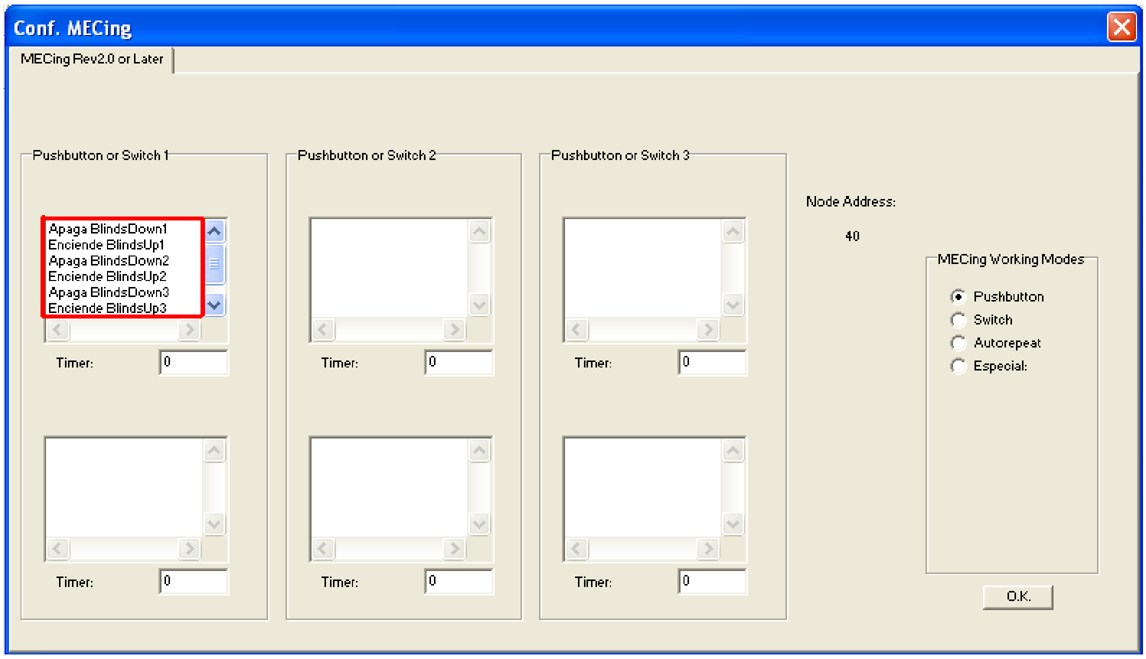
Node Address: 40

MECing Working Modes

- ● Pushbutton
- ○ Switch
- ○ Autorepeat
- ○ Especial

Repeat the same steps for blind 2 (click on BlindsDown2OFF and then on BlindsUp2ON) and in blinds 3 (BlindsDown3OFF, BlindsUp3ON).

Once you have done this, the following Scripts are generate to open (up) three blinds:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1

Apaga BlindsDown1
Enciende BlindsUp1
Apaga BlindsDown2
Enciende BlindsUp2
Apaga BlindsDown3
Enciende BlindsUp3

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

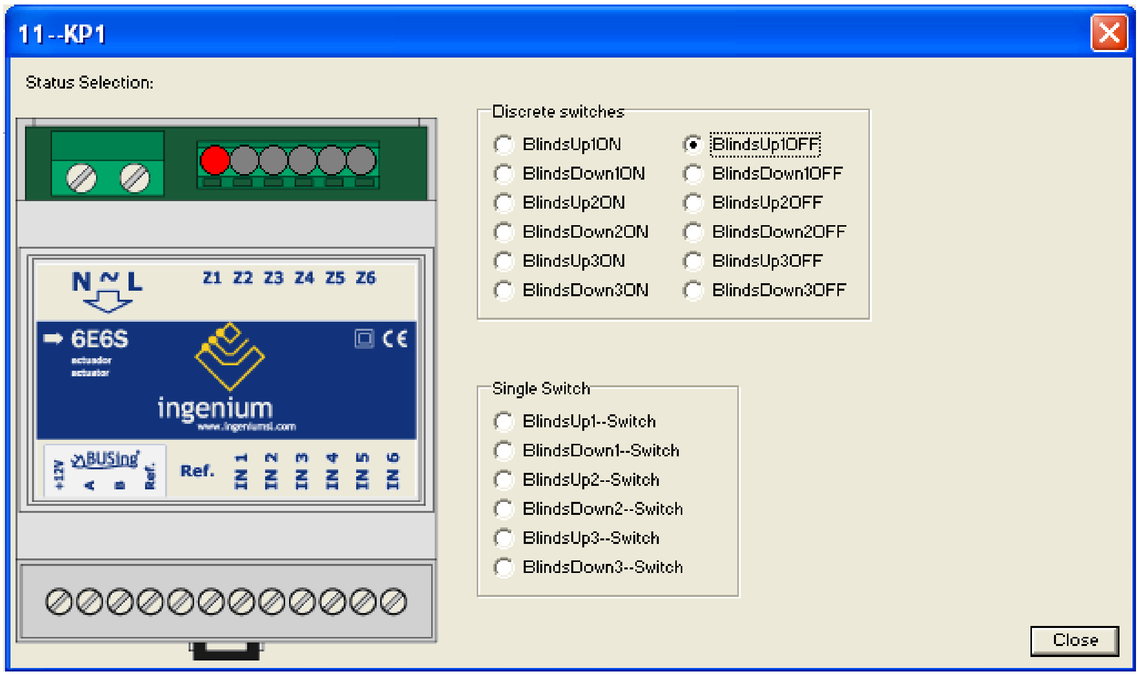
Node Address: 40

MECing Working Modes

● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

<u>To close (down) the blinds</u>:

Repeat the same steps as before. Remember that before you have deactivated the ‘up’ configuration.



11--KP1

Status Selection:

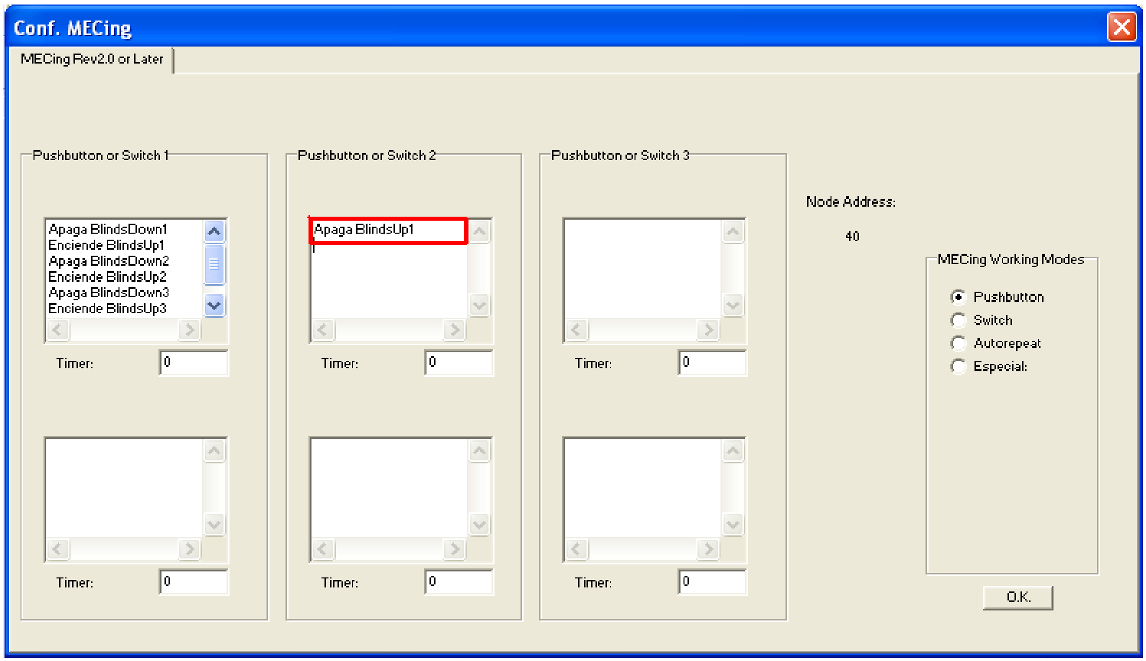
Discrete switches

○ BlindsUp1ON	● BlindsUp1OFF
○ BlindsDown1ON	○ BlindsDown1OFF
○ BlindsUp2ON	○ BlindsUp2OFF
○ BlindsDown2ON	○ BlindsDown2OFF
○ BlindsUp3ON	○ BlindsUp3OFF
○ BlindsDown3ON	○ BlindsDown3OFF

Single Switch

○ BlindsUp1--Switch
○ BlindsDown1--Switch
○ BlindsUp2--Switch
○ BlindsDown2--Switch
○ BlindsUp3--Switch
○ BlindsDown3--Switch

Click on Close to generate the following Script:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1: Apaga BlindsDown1, Enciende BlindsUp1, Apaga BlindsDown2, Enciende BlindsUp2, Apaga BlindsDown3, Enciende BlindsUp3 — Timer: 0; Timer: 0

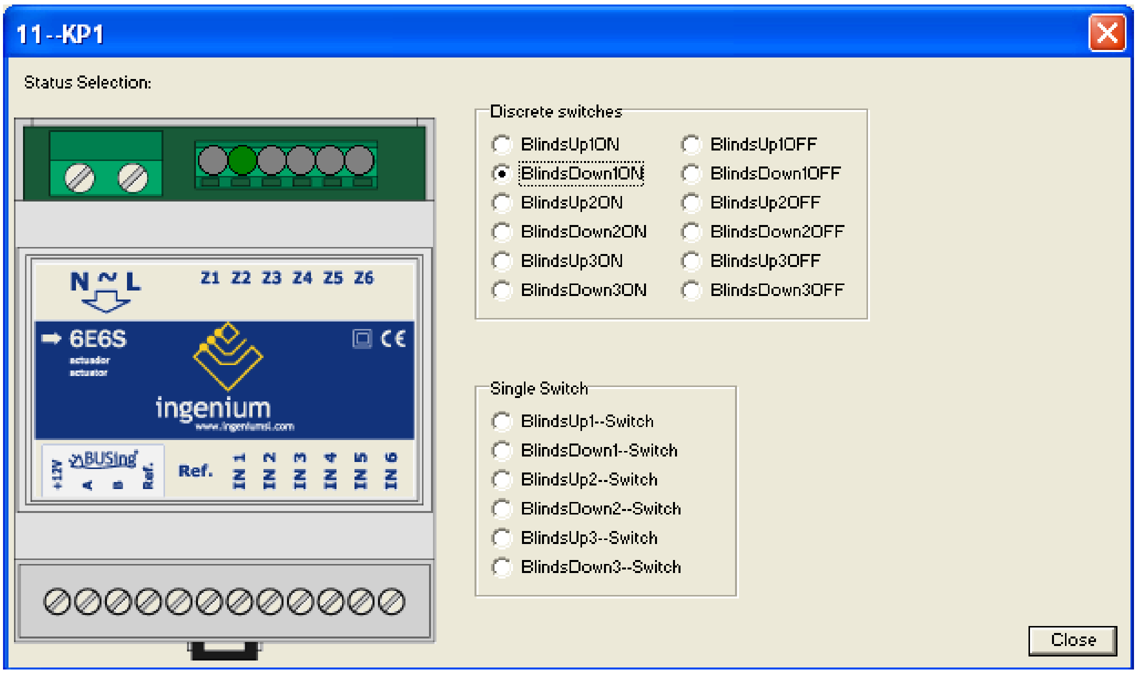
Pushbutton or Switch 2: Apaga BlindsUp1 — Timer: 0; Timer: 0

Pushbutton or Switch 3: Timer: 0; Timer: 0

Node Address: 40

MECing Working Modes: ● Pushbutton ○ Switch ○ Autorepeat ○ Especial:

Once you have deactivated the ‘up’ configuration for blind 1, activate the ‘down’ configuration.



11--KP1

Status Selection:

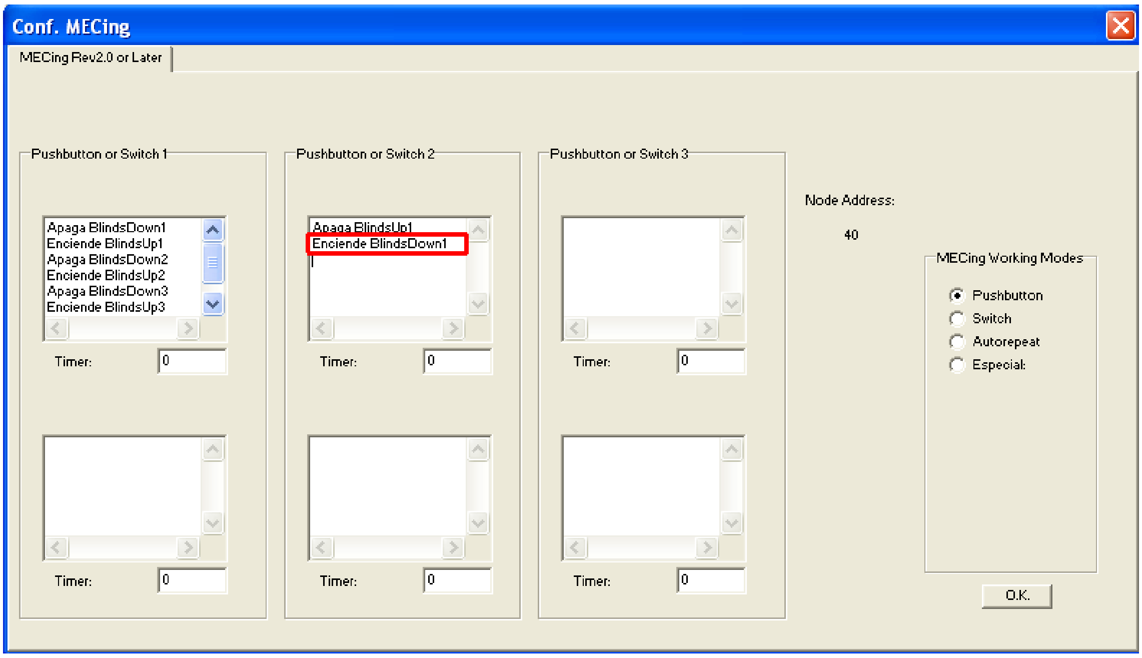
Discrete switches:

○ BlindsUp1ON ○ BlindsUp1OFF
● BlindsDown1ON ○ BlindsDown1OFF
○ BlindsUp2ON ○ BlindsUp2OFF
○ BlindsDown2ON ○ BlindsDown2OFF
○ BlindsUp3ON ○ BlindsUp3OFF
○ BlindsDown3ON ○ BlindsDown3OFF

Single Switch:

○ BlindsUp1--Switch
○ BlindsDown1--Switch
○ BlindsUp2--Switch
○ BlindsDown2--Switch
○ BlindsUp3--Switch
○ BlindsDown3--Switch

Click on Close to generate the following Script:



Pushbutton or Switch 1:
Apaga BlindsDown1
Enciende BlindsUp1
Apaga BlindsDown2
Enciende BlindsUp2
Apaga BlindsDown3
Enciende BlindsUp3
Timer: 0
Timer: 0

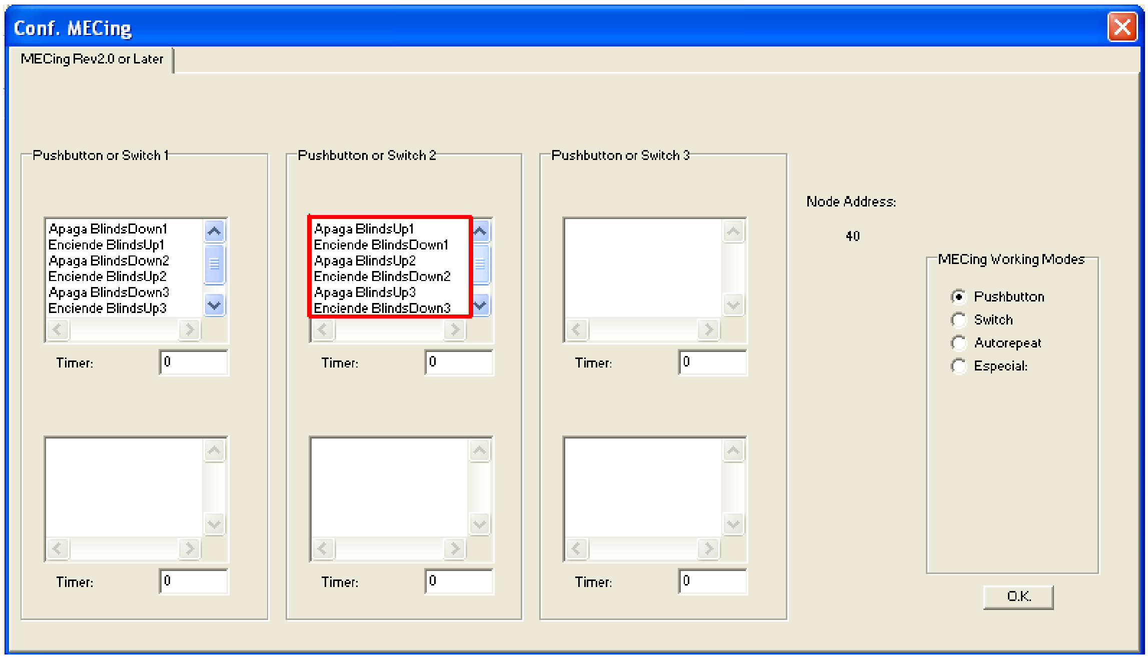
Pushbutton or Switch 2:
Apaga BlindsUp1
Enciende BlindsDown1
Timer: 0
Timer: 0

Pushbutton or Switch 3:
Timer: 0
Timer: 0

Node Address: 40

MECing Working Modes: ● Pushbutton ○ Switch ○ Autorepeat ○ Especial:

Repeat the same steps to close the second and third blinds, to generate the following Scripts:



Pushbutton or Switch 1:
Apaga BlindsDown1
Enciende BlindsUp1
Apaga BlindsDown2
Enciende BlindsUp2
Apaga BlindsDown3
Enciende BlindsUp3
Timer: 0
Timer: 0

Pushbutton or Switch 2:
Apaga BlindsUp1
Enciende BlindsDown1
Apaga BlindsUp2
Enciende BlindsDown2
Apaga BlindsUp3
Enciende BlindsDown3
Timer: 0
Timer: 0

Pushbutton or Switch 3:
Timer: 0
Timer: 0

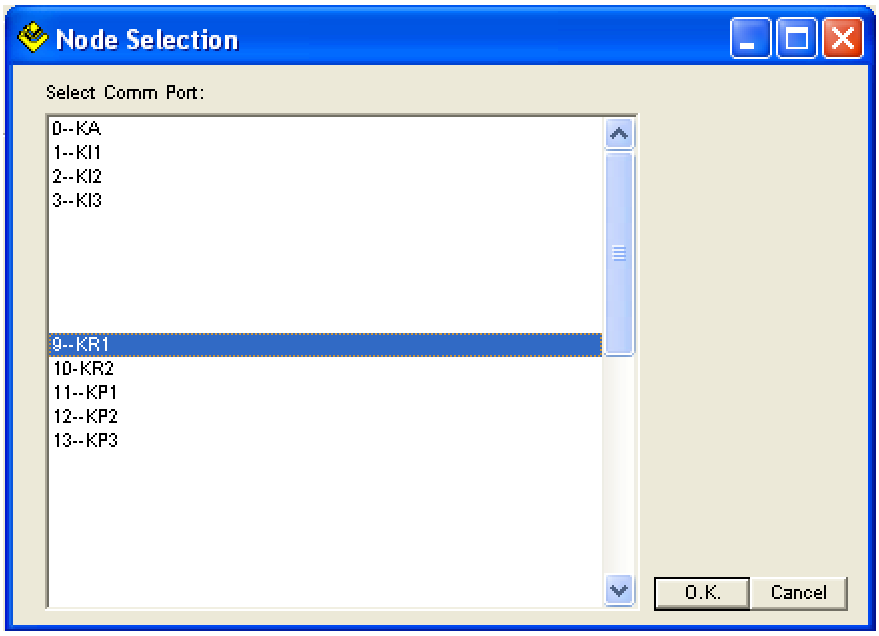
Node Address: 40

MECing Working Modes: ● Pushbutton ○ Switch ○ Autorepeat ○ Especial:

You now have programmed the events.

KR:

Double click on the corresponding programming box and in the window that appears, select the KR1:

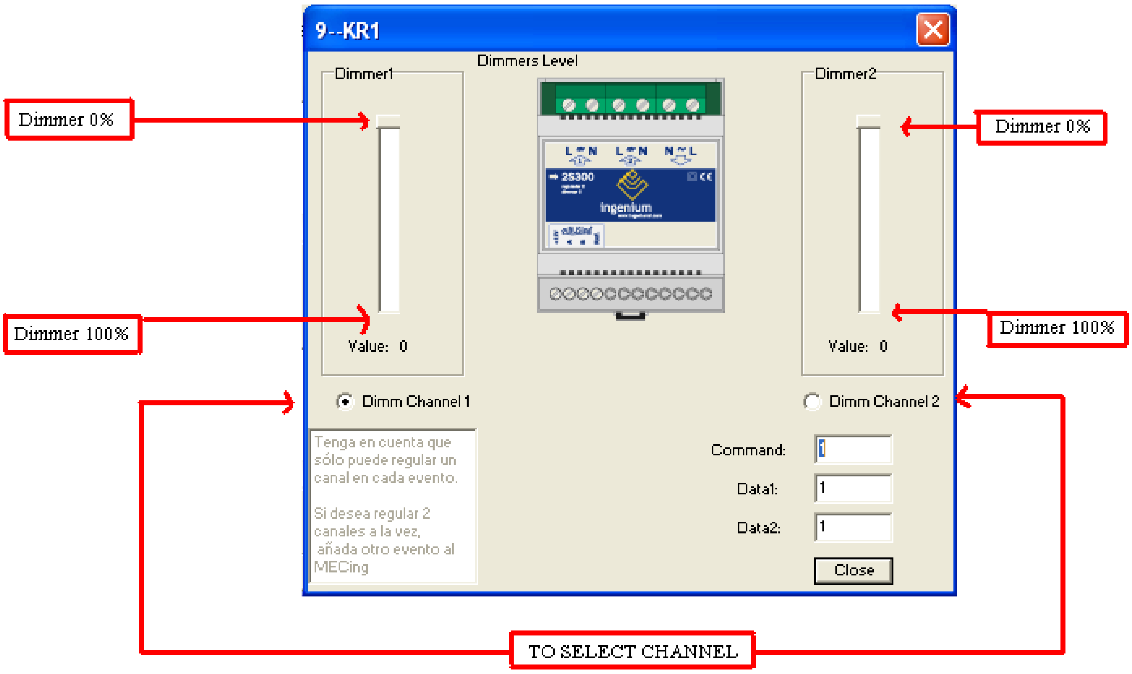


Node Selection

Select Comm Port:

0--KA
1--KI1
2--KI2
3--KI3
9--KR1
10-KR2
11--KP1
12--KP2
13--KP3

A window appears as shown below:



9--KR1

Value: 0

Value: 0

● Dimm Channel 1

○ Dimm Channel 2

Tenga en cuenta que sólo puede regular un canal en cada evento.

Si desea regular 2 canales a la vez, añada otro evento al MECing

Command: 1

Data1: 1

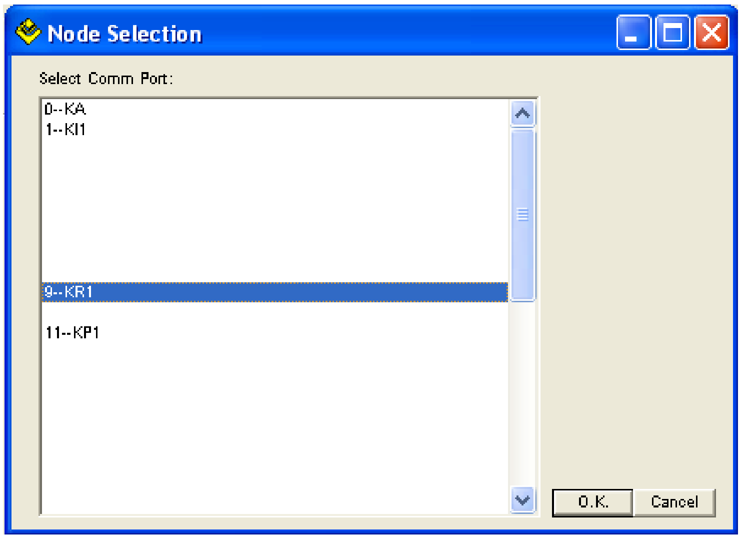
Data2: 1

There are two dimmer channels: Dimm Channel1 and Dimm Channel2. Each one has two vertical slide bars where you select the load power percentage value (i.e., greater or less light supplied to lightbulbs connected to each dimmer channel).

Below on the right there are three fields to enter the following: Command, Data1 and Data2. You can enter parameters in each of them, although this is not necessary when using assisted programming.

Example: Create two events: sitting-room lights to half power and hall lights to 75%. (You need a KR1).

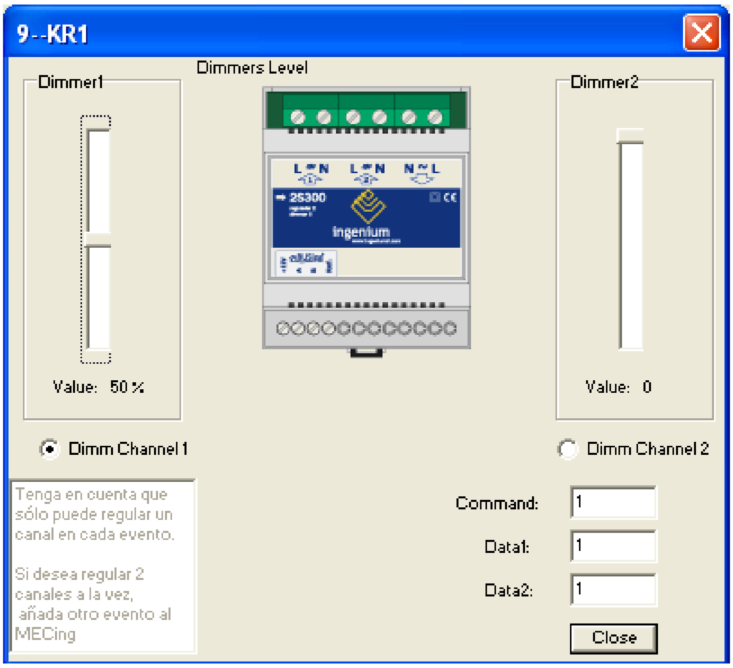
Double click on one of the programming boxes and select KR1.



Select Comm Port:

0--KA
1--KI1
9--KR1
11--KP1

Once you have done this, the following window appears where you create the first scene, (lights to 50%) as follows:



Value: 50 %

Value: 0

● Dimm Channel 1 ○ Dimm Channel 2

Tenga en cuenta que sólo puede regular un canal en cada evento.

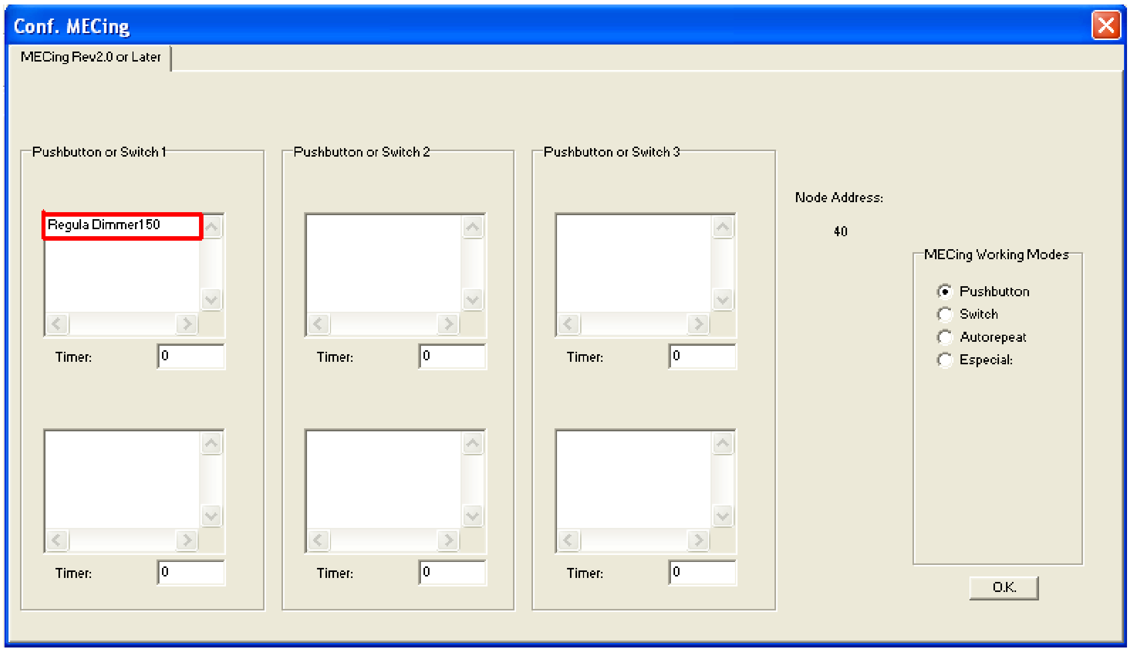
Si desea regular 2 canales a la vez, añada otro evento al MECing

Command: 1
Data1: 1
Data2: 1

You will note that the parameters have changed (see section "Registers Admitted"):

Command: 4 (Write)
Data1: 0 (refers to dimmer channel 1).
Data2: 125 (where 0=0% and 250=100%).

Click on 'Close' to generate the following Script:



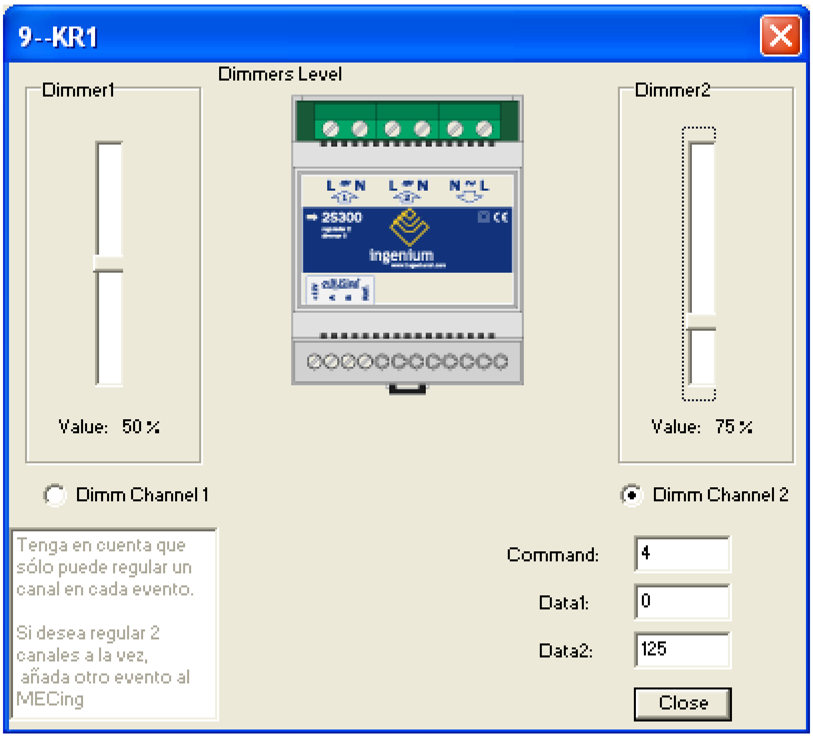
Pushbutton or Switch 1: Regula Dimmer1 50

Timer: 0

Node Address: 40

● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

Repeat the same steps for the second scene. Double click on a different programming box (Remember that in pushbutton mode, the boxes in the same column must be the same or else the bottom programming box should be empty).
Select KR1 and assign 75% to dimmer channel 2 as shown below:



○ Dimm Channel 1
● Dimm Channel 2

Tenga en cuenta que sólo puede regular un canal en cada evento.

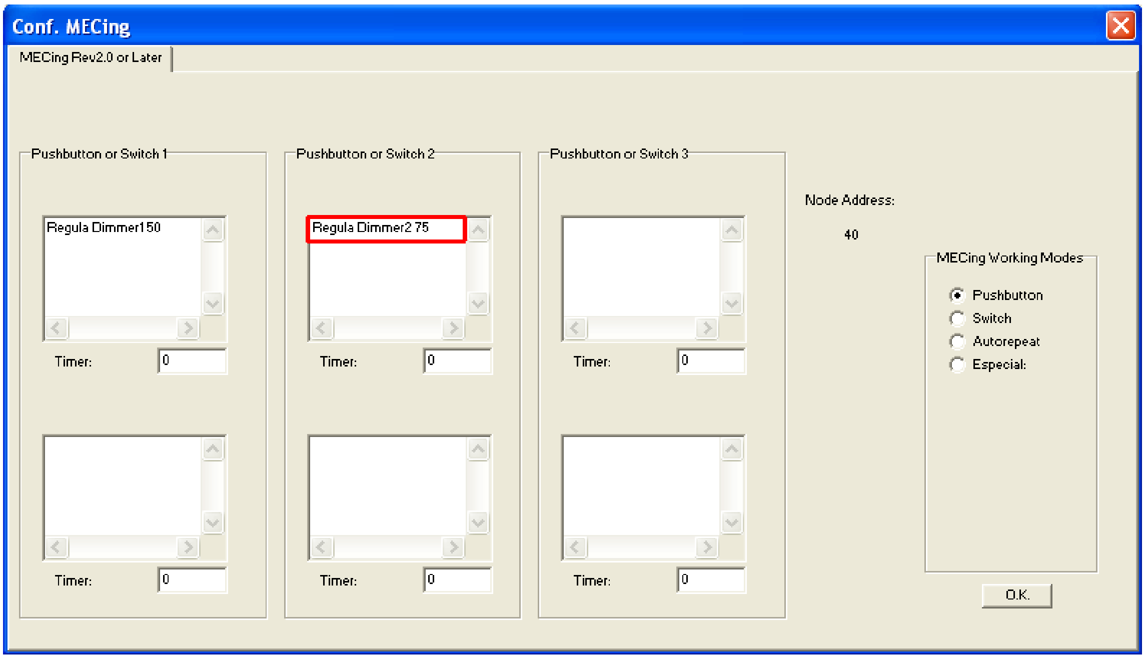
Si desea regular 2 canales a la vez, añada otro evento al MECing

Command: 4
Data1: 0
Data2: 125

You will see new parameters:

Command: 4 (Write)
Data1: 1 (refers to dimmer channel 2).
Data2: 187 (0=0% and 250=100%).

Click on “Close” to generate the following Script:



Pushbutton or Switch 1: Regula Dimmer1 50 — Timer: 0; Timer: 0

Pushbutton or Switch 2: Regula Dimmer2 75 — Timer: 0; Timer: 0

Pushbutton or Switch 3: Timer: 0; Timer: 0

Node Address: 40

MECing Working Modes: ● Pushbutton ○ Switch ○ Autorepeat ○ Especial

The two scenes are now programmed.

<u>Timer</u>: Under each programming box there is a section where you enter the time, in seconds, when you want the corresponding event to be executed. Example: if you enter in the top left programming box: 10 seconds. The event programmed in that box will run 10 seconds after the command is executed. Example: to activate the outside light of your home 10 seconds after you hit the switch, program the scene to activate the outside light and then in Timer, write 10 seconds.

1.4.2. Programming by Scripts:

You can write the commands directly in the programming boxes instead of doing so with the assisted programming, by double clicking inside the programming box and modifying each corresponding component as described above.

<u>Available Scripts</u>:
The Scripts programming language is an interpreted language, which all BUSing devices recognise. The aim of this language is to help the programmer with the elaboration of events and/or complex actions. The defined Scripts are described below:

Enciende (Activate)*:*

Syntax: Enciende *Name* (Activate Name)

Example: *Enciende sitting-room* (Activate sitting-room) (activates the output called sitting-room).

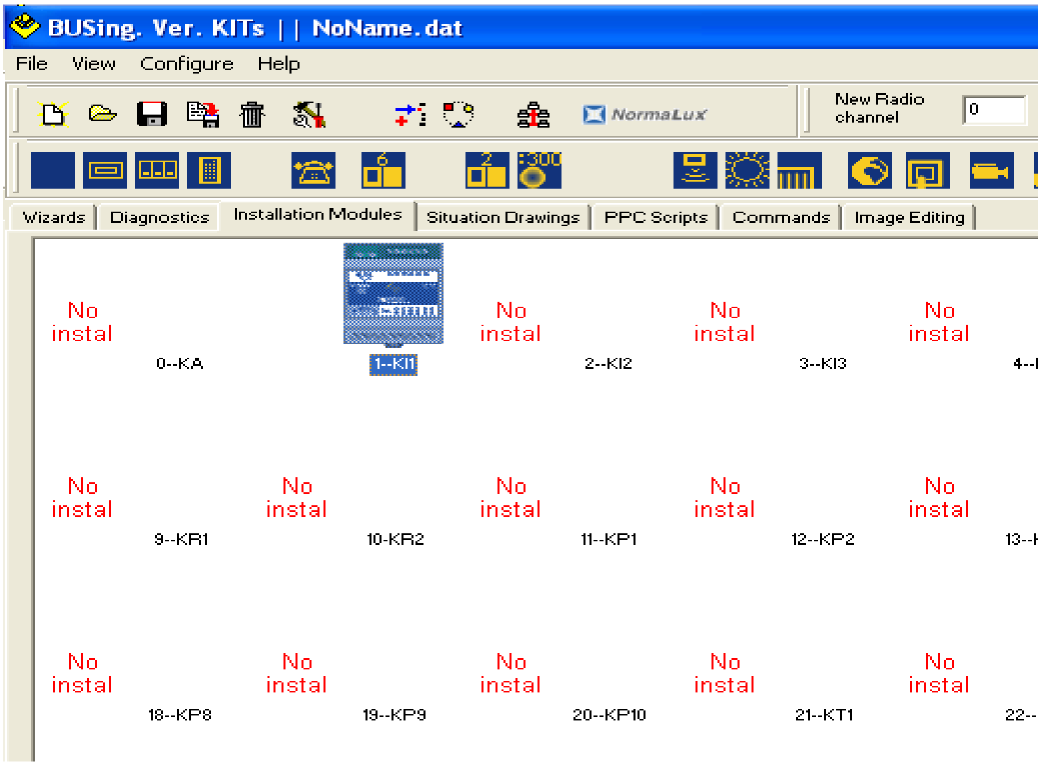
The devices that respond to this command are: CONTROL6E6S, CONTROL4E4S, CONTROL2E2S, KA.

With this simple command, the Development System Software searches for the particular output of a particular node, which is named sitting-room and sends the required BUSing command to it to activate the output.

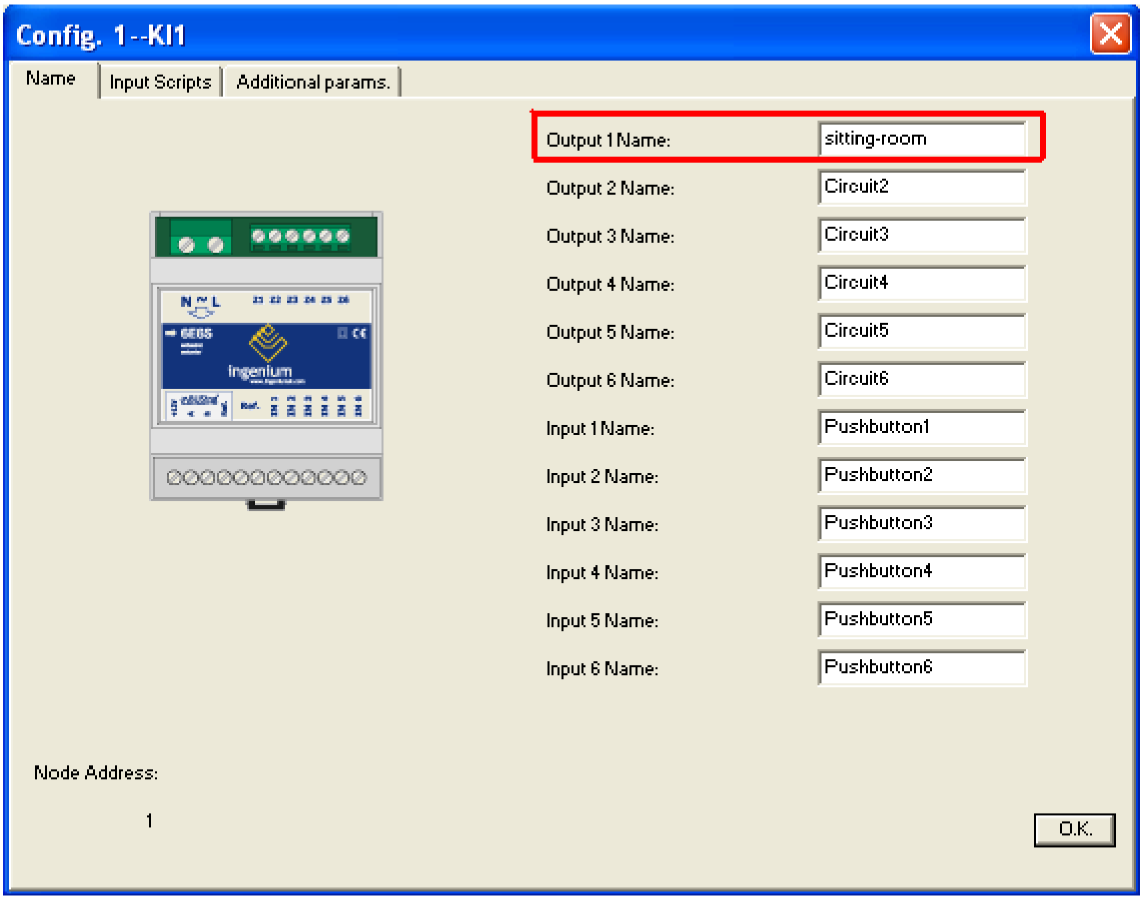
Programming example: Program a scene to activate the sitting-room lights.

You need to add a KI1 to the project (it is programmed by default. For this example, the programming boxes have been erased). See "Development System Software Help Manual · Assistant tab", to learn how to include a KI1 in the project.

Double click on the KI1.



Assign the name sitting-room to the output you have connected to the sitting-room lights (Z1).

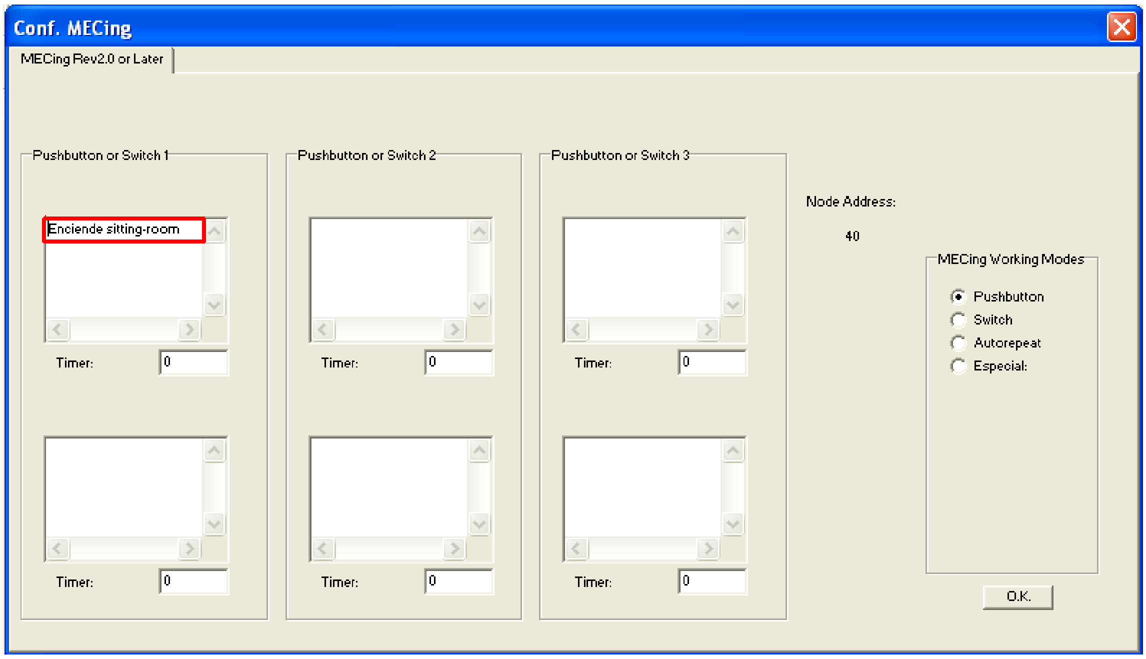


Output 1 Name:	sitting-room
Output 2 Name:	Circuit2
Output 3 Name:	Circuit3
Output 4 Name:	Circuit4
Output 5 Name:	Circuit5
Output 6 Name:	Circuit6
Input 1 Name:	Pushbutton1
Input 2 Name:	Pushbutton2
Input 3 Name:	Pushbutton3
Input 4 Name:	Pushbutton4
Input 5 Name:	Pushbutton5
Input 6 Name:	Pushbutton6

Node Address:

1

Click on “OK” and double click on the MECing and write the following Script: *Enciende sitting-room* (Activate sitting-room).



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1: Enciende sitting-room; Timer: 0; Timer: 0

Pushbutton or Switch 2: Timer: 0; Timer: 0

Pushbutton or Switch 3: Timer: 0; Timer: 0

Node Address: 40

MECing Working Modes

● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

It is now programmed.

Apaga (Deactivate):

Syntax: *Apaga Name* (Deactivate Name)

Example: *Apaga sitting-room* (Deactivate sitting-room) (switches off the output named sitting-room).

The devices that respond to this command are: CONTROL6E6S, CONTROL4E4S, CONTROL2E2S, KA.

With this simple command, the Development System Software searches for the particular output of a particular node which is named sitting-room and sends the necessary BUSing command to execute the ‘deactivate' command.

Switch (Toggle):

Syntax: *Switch Name* (Toggle Name)

Example: *Switch sitting-room* (Toggle sitting-room) (checks the state of the output called sitting-room and changes its state, i.e., it will activate the output if it is off and it will deactivate it if it is on).

The devices that respond to this command are: CONTROL6E6S, CONTROL4E4S, CONTROL2E2S.

With this simple command, the Development System Software searches for the particular output of a particular node which is named sitting-room and checks its state. It then changes its state, i.e., it will activate the output if it is off and it will deactivate it if it is on.

Regula (Dim):

Syntax: *Regula Name Percentage* (Dim Name Percentage)

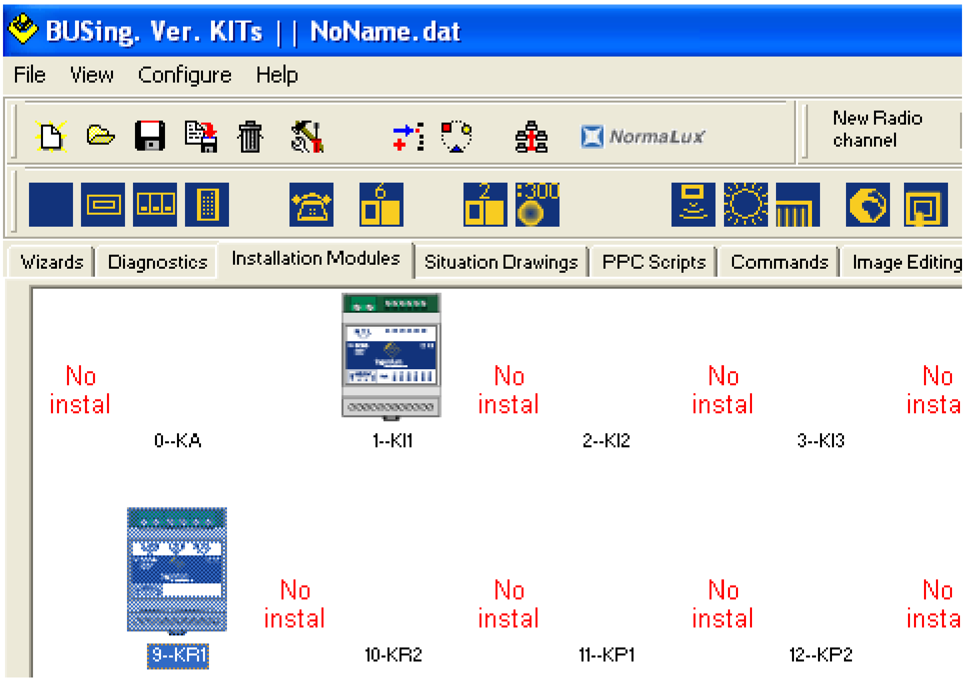
Example: *Regula Dining-room* (Dim dining-room) 50 (dims the output named dining-room to 50%)

The devices that respond to this command are: 2S300, RB300, RBF10A, RB1500.

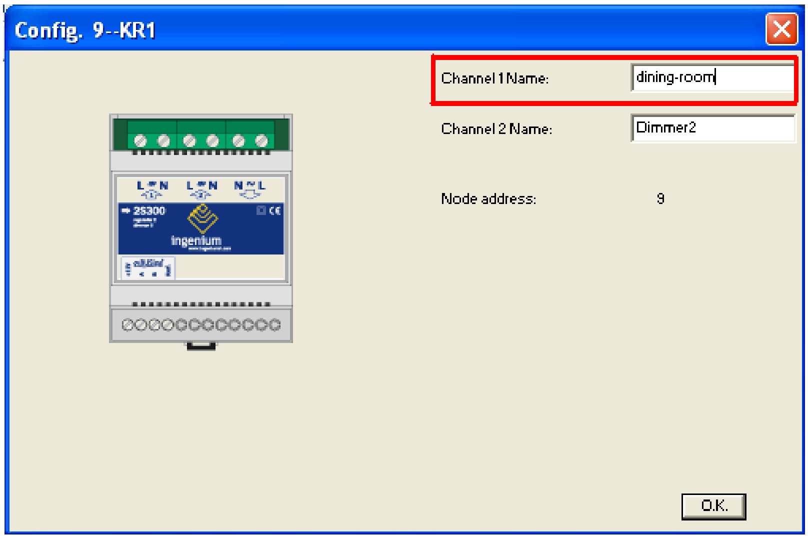
With this simple command, the Development System Software searches for the particular output of a particular node which is named dining-room and sends the necessary BUSing command to dim the output to 50%. The Percentage value can range between 0 (corresponding to the 'off' state of the device) and 100 (corresponding to 100% power of the device).

Programming example: Dim the dining-room lights to 50% (half power).
You need a KR1 in the project.

Once added, double click on it.



Give it the name dining-room in Channel1Name.



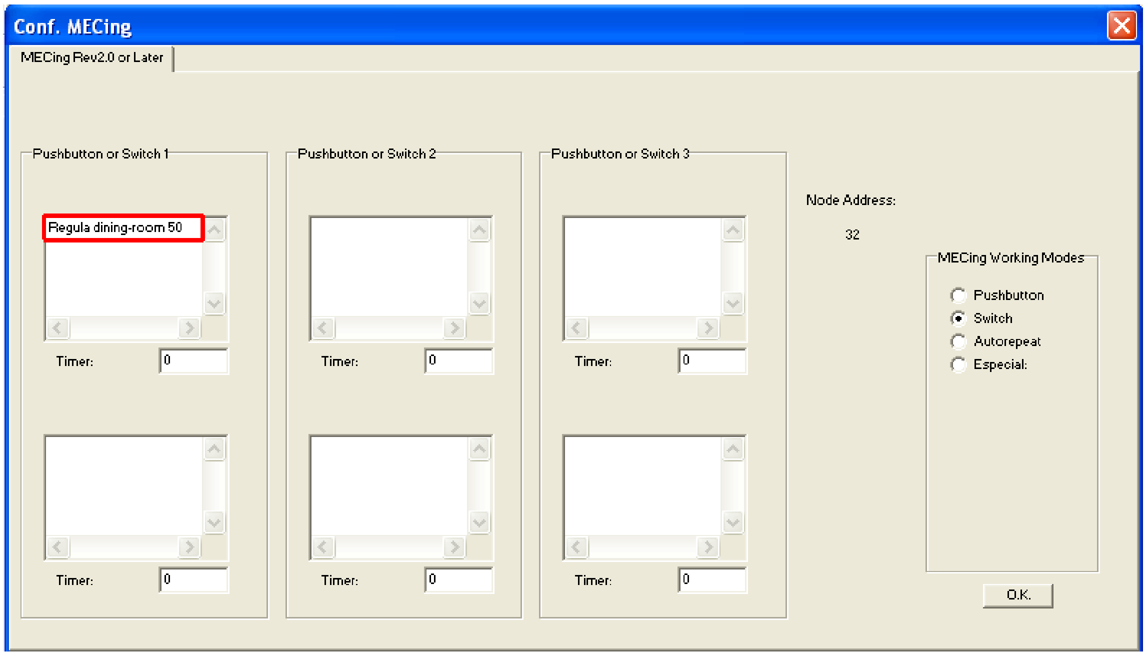
Channel 1 Name: dining-room

Channel 2 Name: Dimmer2

Node address: 9

Do not write a name in Channel 2 Namebecause you are not going to use it for this example, where you only need one.

Click on OK and then double click on the MECKR1 (remember that for these examples, the default programming has been erased) and then write the following Script in the corresponding programming box: *Regula dining-room* (Dim dining-room) 50



Pushbutton or Switch 1: Regula dining-room 50

Timer: 0

Node Address: 32

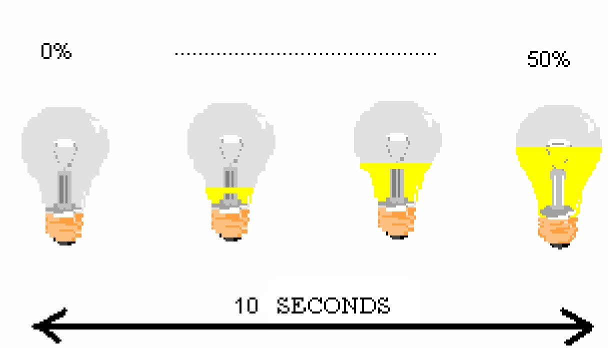
It is now programmed.

Rampa (Ramp):

Syntax: *Rampa Name Value* (Ramp Name Value)

Example: *Rampa dining-room*(Ramp dining-room) 10
Regula dining-room (Dim dining-room) 50

Rampa dining-room (Ramp dining-room) 10: This gives the ramp output calleddining-room) a value of 10.
Regula dining-room (Dim dining-room) 50: Dims the output dining-room to 50% at a transition speed of 10.



In other words, when you activate this switch, the light increases from 0 to 50% in 10 seconds.

The devices that respond to this command are: 2S300, RB300, RBF10A, RB1500.

With this command, the Development System Software searches for the particular output for a particular node which is named dining-room and sends the required BUSing command to assign the required ramp value to this output. At value 0, this command instantly modifies the dimmer output. At values over this (10, 15, 20), it modifies the output at slower speeds, creating attractive lighting effects.

The Value parameter can range between 0 (instant dimming) and 255 (very slow dimming). It is recommended that this value be always below 30.

Once a ramp value has been assigned to an output, this output responds to all the transitions with the assigned ramp value. To change the ramp value, send the ramp command again with a different value.

***Espera* (Wait):**

Syntax: *Espera Value* (Wait Value)

Example: *Espera* (Wait) 30 (Waits for 30 seconds)

Devices which implement this command: MECing, Thermostats, IRBUS, LDRBUS, CGBUS, SRBUS, TECBUS, BUS Sensors, KA, PPC10, MECBUS.

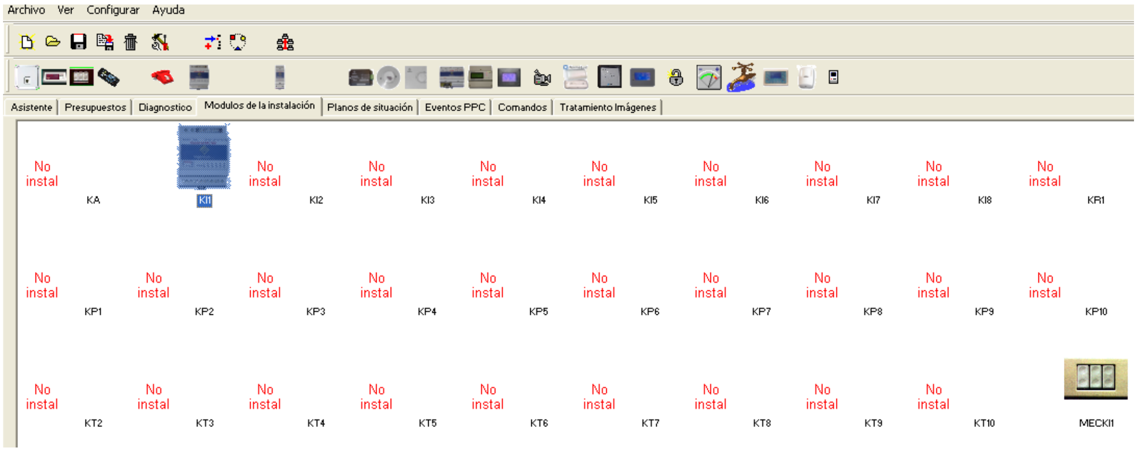
With this command, the device running it waits for Value (30) seconds to run the next command. During this time, the device does not respond to any event, whether externally or internally.

The Value parameter can range between 0 (0 seconds) and 255 (255 seconds, i.e., 4 minutes and 15 seconds).

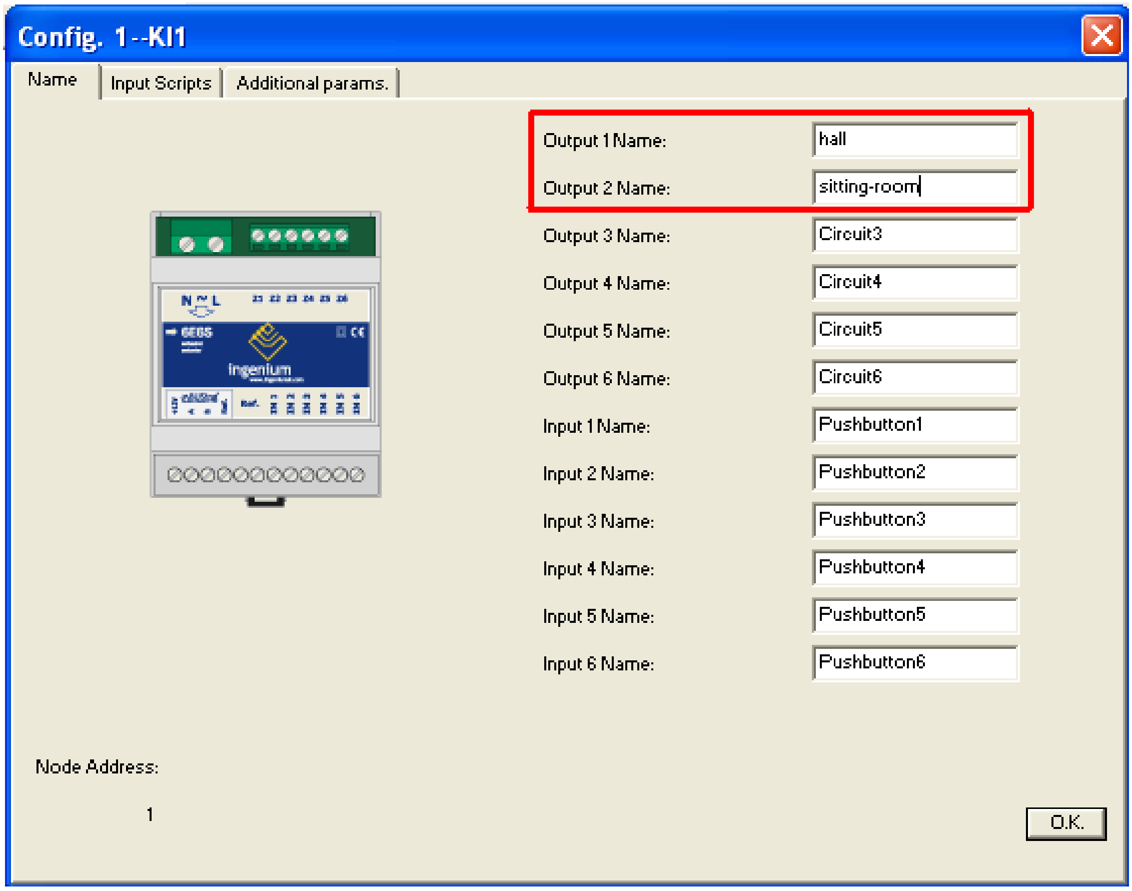
Programming example: Turn on a light in the hall and then turn on the sitting-room lights after 10 seconds.

You need a KI1 in the installation.

Double click on the KI1.



Assign the names hall and sitting-room to the first two outputs.



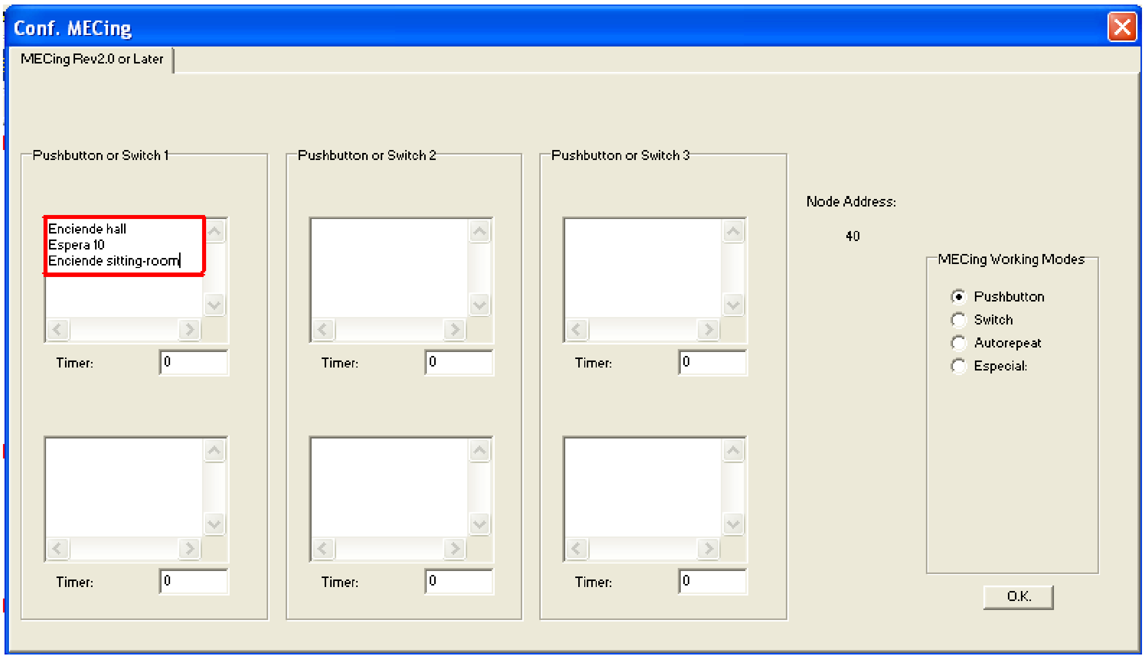
Output 1 Name:	hall
Output 2 Name:	sitting-room
Output 3 Name:	Circuit3
Output 4 Name:	Circuit4
Output 5 Name:	Circuit5
Output 6 Name:	Circuit6
Input 1 Name:	Pushbutton1
Input 2 Name:	Pushbutton2
Input 3 Name:	Pushbutton3
Input 4 Name:	Pushbutton4
Input 5 Name:	Pushbutton5
Input 6 Name:	Pushbutton6

Node Address:

1

Click on OK and then double click on the MECK1 and write the following Scripts:

Enciende hall (Activate hall)
Espera (Wait) 10
Enciende sitting-room (Activate sitting-room)



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1

```
Enciende hall
Espera 10
Enciende sitting-room
```

Timer: 0

Timer: 0

Pushbutton or Switch 2

Timer: 0

Timer: 0

Pushbutton or Switch 3

Timer: 0

Timer: 0

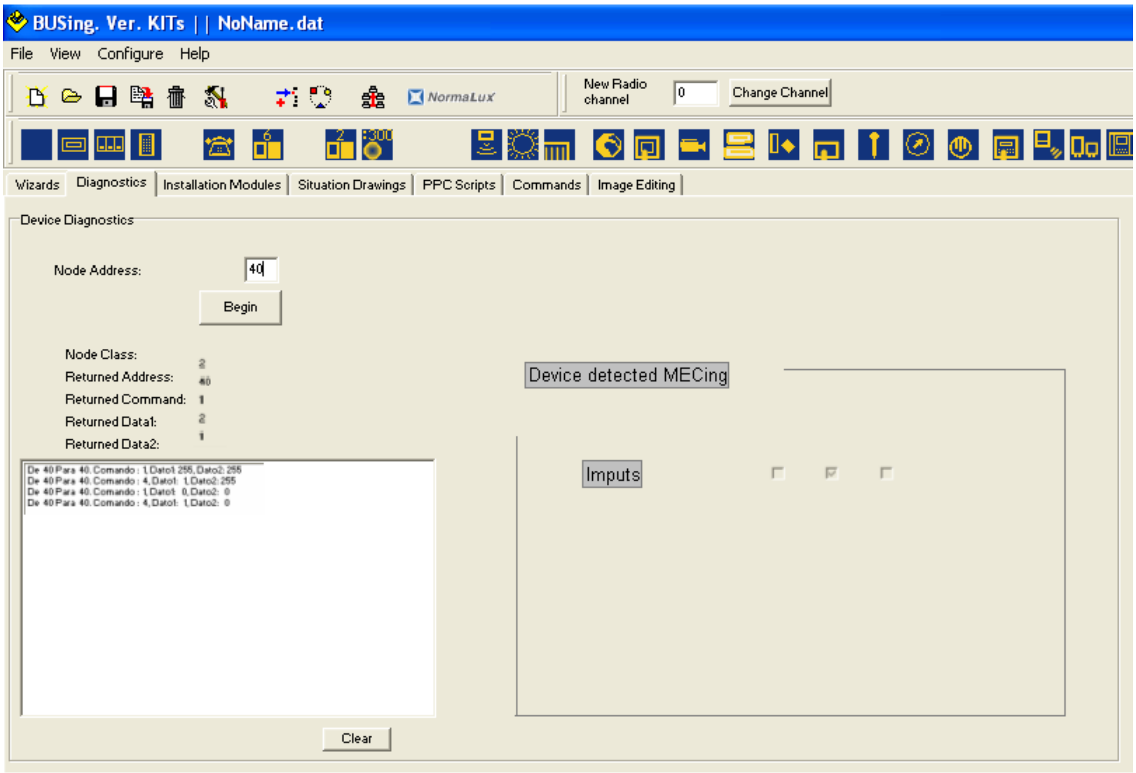
Node Address: 40

MECing Working Modes

● Pushbutton
○ Switch
○ Autorepeat
○ Especial:

It is now programmed.

1.5. Device Diagnostic:



Node Address: 40

Node Class: 2
Returned Address: 40
Returned Command: 1
Returned Data1: 2
Returned Data2: 1

```
De 40 Para 40. Comando : 1,Dato1 255, Dato2: 255
De 40 Para 40. Comando : 4,Dato1:  1,Dato2: 255
De 40 Para 40. Comando : 1,Dato1:  0,Dato2:  0
De 40 Para 40. Comando : 4,Dato1:  1,Dato2:  0
```

Imputs ☐ ☑ ☐

In the Diagnostics tab, you can communicate with the device and check its status.

In the example shown above, you have a MECing at address 40.

NB: *All the devices respond to address 255, including the one programmed. Connect a device and run the diagnostic on it at address 255 to find out its address.*

Once you know the address, you write it in the section Node Address. Then when you click on the Begin button, you will see a series of information feedback which is described below:

- Node Class: 2. Each device has a type of node, in the case of the MECing, number 2.

- Returned Address*:* 40. It returns the address for MECing, and shows that it communicates correctly.

- Returned Command: 1. This is an ACK, i.e., it returns an OK, meaning the device communicates correctly. If you had a 2 this would mean ‘NO ACK’ and would indicate a communication error.

- Returned Data1: 2. It returns a reading of the node type.
- Returned Data2: Not relevant.

On the right side of the screen you can also see:

- Inputs: You can check the state of the inputs, i.e., check which input is activated in the MECing.

To reload these values, press Begin every time you want to update.

1.6. Registers Admitted:

1.6.1. RAM

The registers in the RAM memory are created with the *escribe (write*) command. For EEPROM, use *escribre EEPROM* (*'write EEPROM'*).

The registers in the RAM for the thermostat are included in the following table:

Register address (Data1)	**Type**	**Range** (Data2)	**Description**
0	Read	0, 255	State of output1 (0: deactivated; 1: activated)
1	Read	0, 255	State of output2 (0: deactivated; 1: activated)
2	Read	0, 255	State of output3 (0: deactivated; 1: activated)
10	Write	0, 1	Activate input3 in repetition mode (0: deactivated; 1: activated)
100	Write	0-5	Activate a MECing event by BUS where: 0: activate input1 event 1: deactivate input1 event 2: activate input2 event 3: deactivate input2 event 4: activate input3 event 5: deactivate input3 event

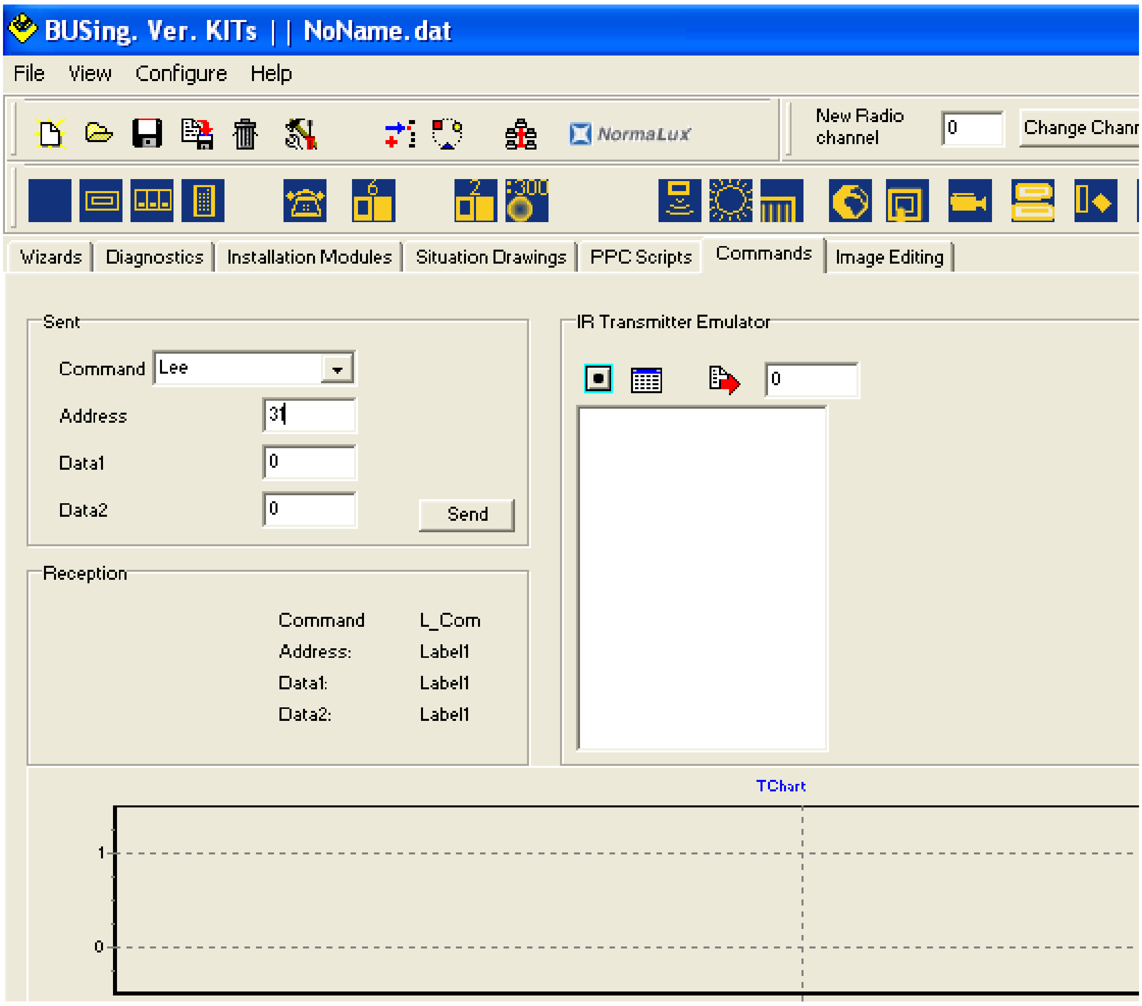
What is 'Address' in the Register Table is Data1 in the Development System Software. .

'Range' in this table is Data2 in the Development System Software.

Below are some examples of how to use some of these registers:

Address0: Reads the output1 state remotely (0=deactivated, 1=activated).

Once you have connected your computer to the MECing, click on the Commands tab in the Development System Software as shown in the image, to check whether the MECing is functioning correctly. See below.



Command: Lee
Address: 31
Data1: 0
Data2: 0

Command: L_Com
Address: Label1
Data1: Label1
Data2: Label1

In the Sent section you will see:

Command: Reads (because this is what you want to do: read if the MECing is functioning correctly (i.e., that it does what we command it to do when pressing the switch or pushbutton).

Address: 31 (node address which corresponds to the MECing, in *Módulos de la Instalación* (Installation Modules). Do not confuse this with the address given in the Registers Table Manual).

Data1: 0 (it is 0 because, as already explained, what is referred to in the Register Table as Address, in the software this corresponds to Data1 and as you are in address 0 ・ Data1 is 0).

Data2: 0 (in this case you can place any value between 0 and 255, which is the interval for this field. As you can see in the Register Table Manual 0=deactivated, and 255=activated. Since it is read-only, it does not matter what you put here because we cannot modify anything. If it were write-enabled, you would have to take it into account, as you will see later).
Once this has been done, click on Send and in the section Reception, the MECing will show its present state. Example: If MECing in Data2 returns 0, then output1 is deactivated; if it returns 1, it is activated. When you press the switch, it is functioning correctly when it returns 1 in Data2 and if it is not, it returns 0 in Data2.

Address1: Reads the output2 state remotely (0=deactivated, 1=activated).

Command: *Lee* (Read)
Address: 31
Data1: 1 (because you are in address 1.)
Data2: 0 (it does not matter what you enter between 0 and 255 because it is read-only)

When you click on Send, if in the Reception field Data2 returns 1, then the output2 is activated.

Address2: Reads the output3 state remotely (0=deactivated, 1=activated).

Address10: Activates input3 in repetition mode using the write command.

Command: *Escribe* (Write)
Address: 31
Data1: 3
Data2: 1 (1: the MECing activates input3 in repetition mode)

Address100: Activates a MECing event via BUS using the write command.

Command: *Escribe* (Write)

Address: 31
Data1: 4
Data2: 0

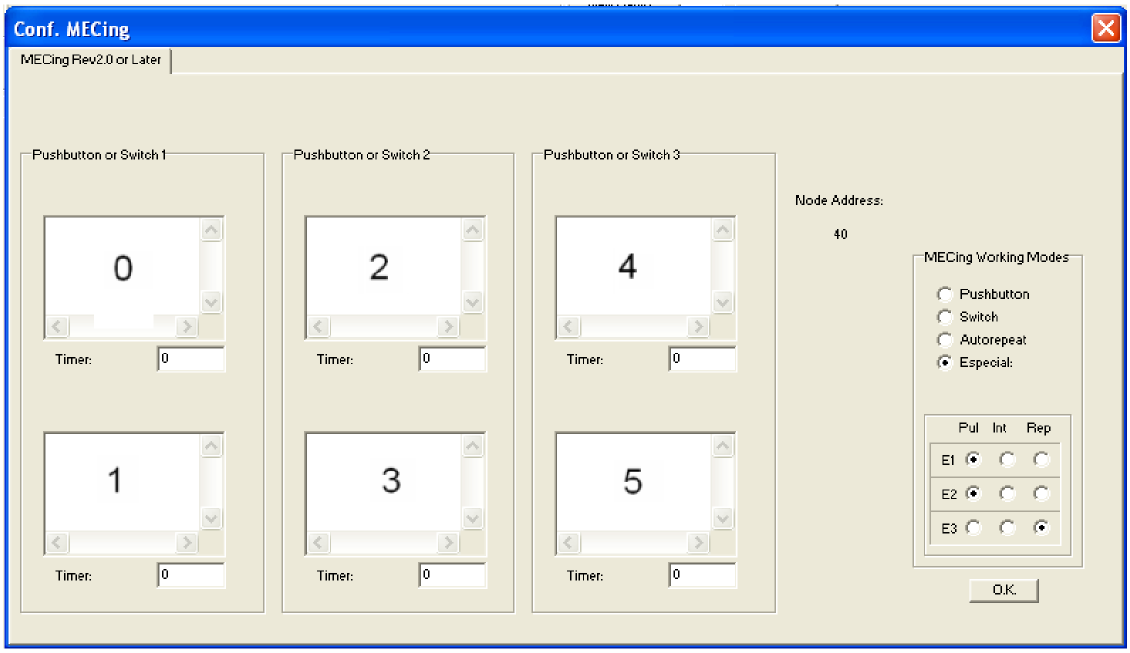
If in Data2 you enter:

- 0 the MECing activates input1 event.
- 1 the MECing activates input2 event.
- 2 the MECing activates input3 event.
- 3 the MECing activates input4 event.
- 4 the MECing activates input5 event.

Use this register to create programmed events in a control device (MECBUS, MECing, TECBUS) from other devices. i.e., to “call up (execute)” an event in the MECing from a MECBUS, the following Script is written in the latter:

Escribre (Write) *30 100 0*, where:

30: is the MECing address which you want to access.
100: is Data1 to activate the event shown in Data2.
0: is the top left event in the MECing. The remaining events are numbered as follows:



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1
0
Timer: 0
1
Timer: 0

Pushbutton or Switch 2
2
Timer: 0
3
Timer: 0

Pushbutton or Switch 3
4
Timer: 0
5
Timer: 0

Node Address:
40

MECing Working Modes
○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

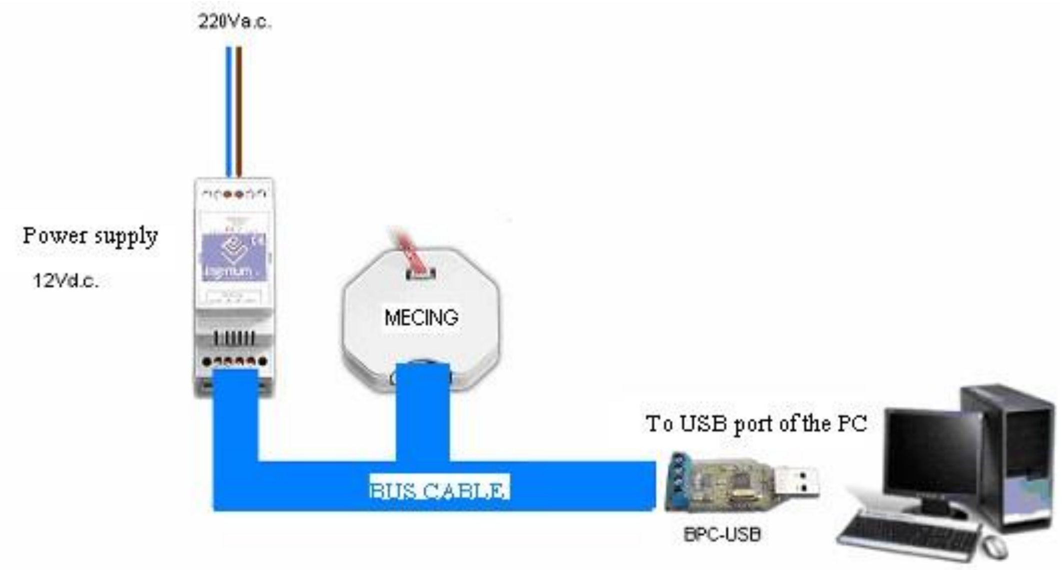
	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	○	○	●

1.6.2. EEPROM

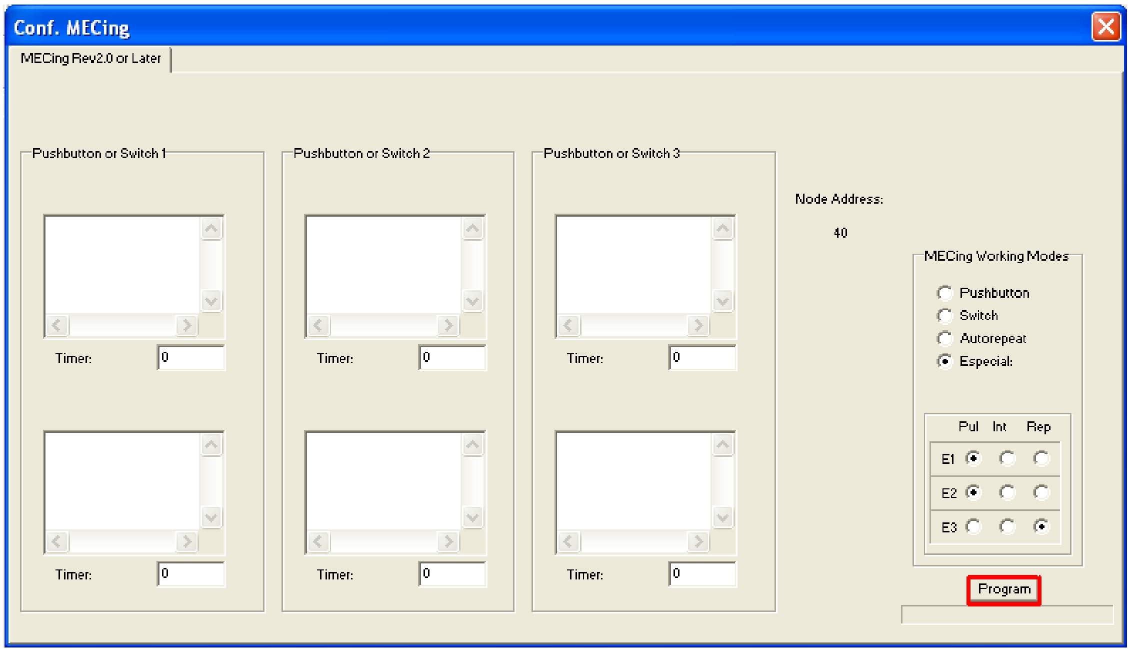
Address	Type	Range	Description
0	Read/ Write	0-255	BUSing device Address.
41	Read/ Write	0-255	Time in sec. to activate the input1 activation event
42	Read/ Write	0-255	Time in sec. to activate the input1 deactivation event
43	Read/ Write	0-255	Time in sec. to activate the input2 activation event
44	Read/ Write	0-255	Time in sec. to activate the input2 deactivation event
45	Read/ Write	0-255	Time in sec. to activate the input3 activation event
46	Read/ Write	0-255	Time in sec. to activate the input3 deactivation event
47	Read/ Write	0-255	Operation Mode where: Bits 0 and 1: Input1 Operation Mode (00: Pushbutton; 01: Switch; 10: Repetition) Bits 2 and 3: Input2 Operation Mode (00: Pushbutton; 01: Switch; 10: Repetition) Bits 4 and 5: Input3 Operation Mode (00: Pushbutton; 01: Switch; 10: Repetition)

1.7. Uploading Data to the Device:

First connect the MECing correctly as follows:



The device is in the Installation Modules tab in the KITS Development System Software. Right-click on the device and select Reprogram this Node and in the next window, select Program.



Pushbutton or Switch 1 — Timer: 0 / Timer: 0

Pushbutton or Switch 2 — Timer: 0 / Timer: 0

Pushbutton or Switch 3 — Timer: 0 / Timer: 0

Node Address:
40

MECing Working Modes

○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

	Pul	Int	Rep
E1	●	○	○
E2	●	○	○
E3	○	○	●

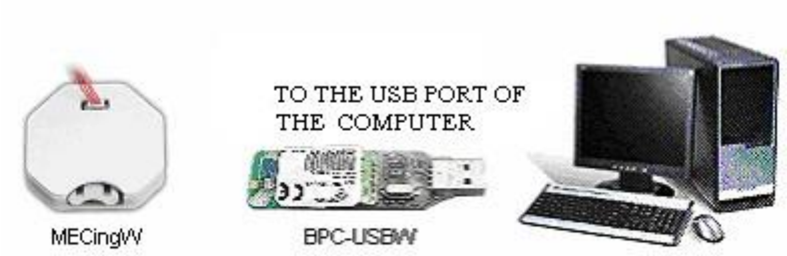
Then wait for the bar under the Program button to reach the end and you will have uploaded the data.

1.8. Wireless Device: MECingW:

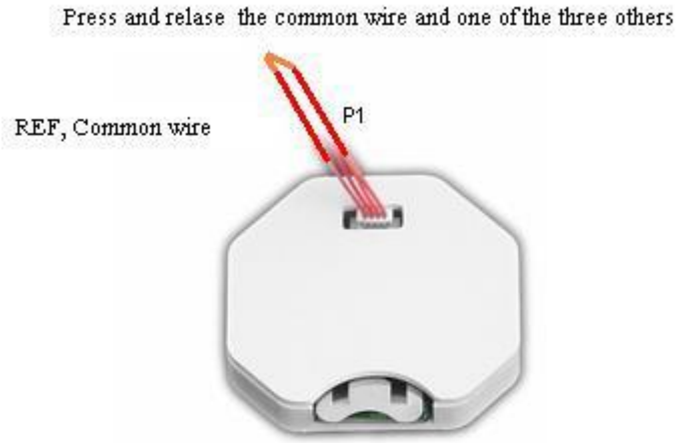
There are two ways to upload data to the MECingW which are as follows:

Uploading data 1(recommended):

1. Correctly connect the device as shown below:



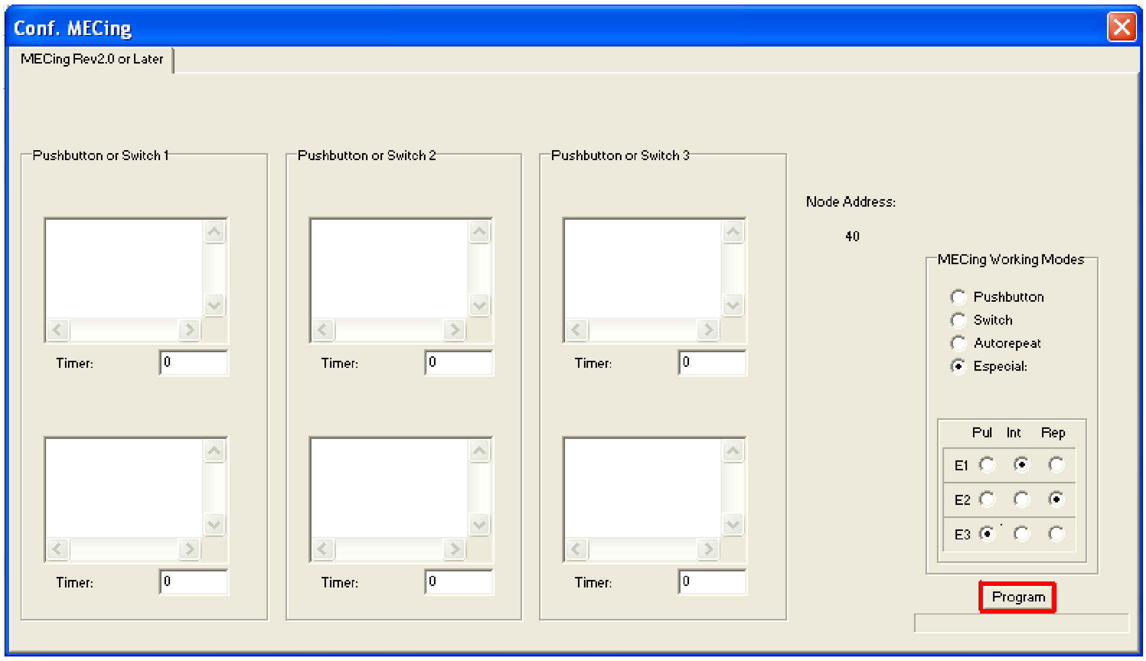
2. The internal condensers in the MECing might be charged, impeding the device to be programmed correctly. Therefore it is recommended to discharge previously by pressing the common wire and one of the three other cables together, as shown below:


Press and relase the common wire and one of the three others
REF, Common wire
P1

3. Insert the battery in the MECingW.

4. The device is in the Installation Modules tab in the KITS Development System Software. Right-click on the device and select Reprogram this Node and in the next window, select Program. You have 15 seconds to

do this from when you insert the battery, which is when the device is in low consumption mode and does not receive data.



Conf. MECing

MECing Rev2.0 or Later

Pushbutton or Switch 1
Timer: 0
Timer: 0

Pushbutton or Switch 2
Timer: 0
Timer: 0

Pushbutton or Switch 3
Timer: 0
Timer: 0

Node Address: 40

MECing Working Modes
○ Pushbutton
○ Switch
○ Autorepeat
● Especial:

	Pul	Int	Rep
E1	○	●	○
E2	○	○	●
E3	●	○	○

Then wait for the bar under the Program button to reach the end and you will have uploaded the data.

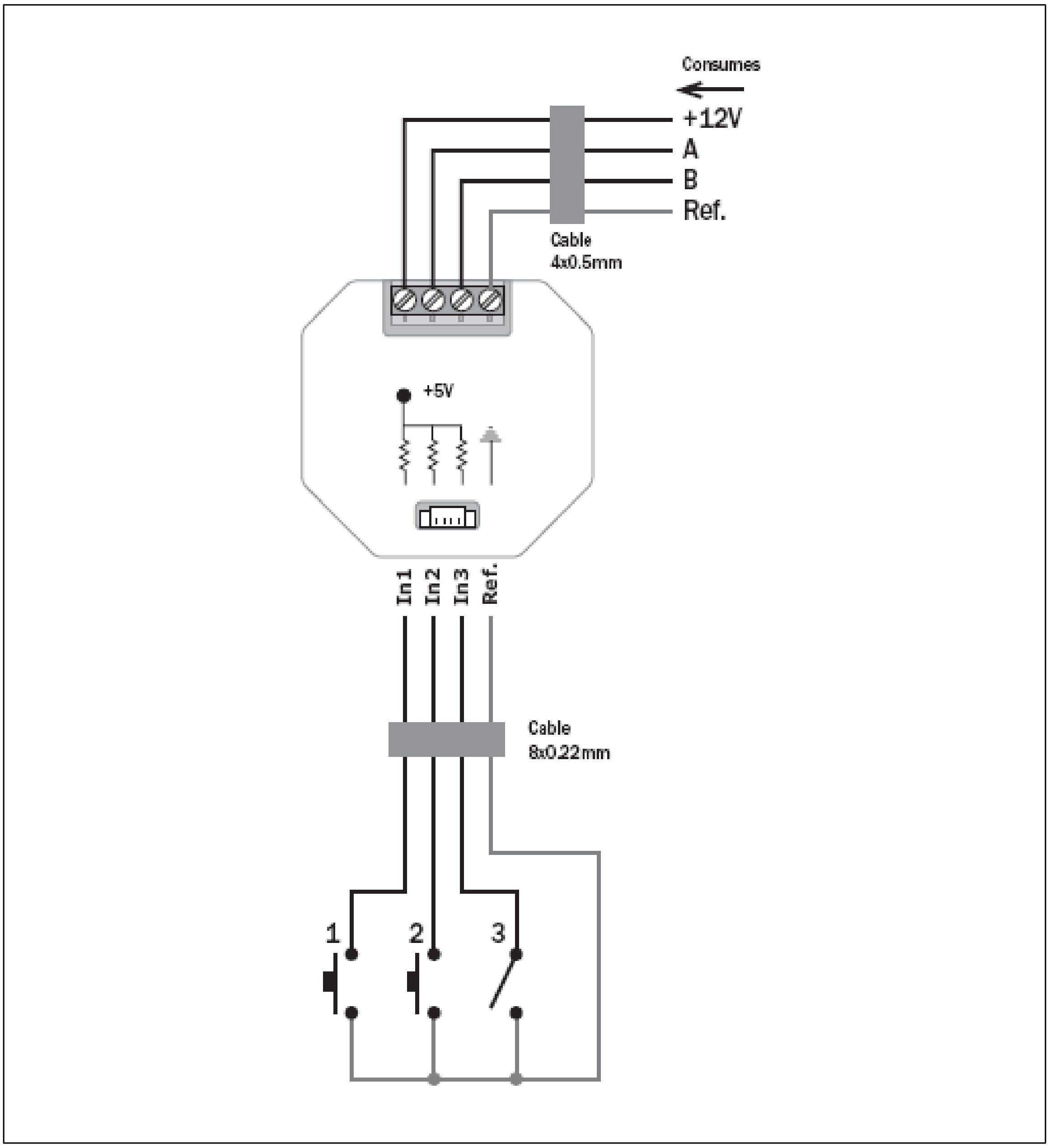
Uploading data 2

1. Connect the device as described above.
2. Insert the battery in the MECingW.
3. Repeat the same steps as before as in step 2, uploading data 1.
4. The device is in the Installation Modules tab in the KITS Development System Software. Right-click on the device and select Reprogram this Node and in the next window, select Program. You have 10 seconds to do this from when you insert the battery, which is when the device is in low consumption mode and does not receive data.

NB 1: *Remember that the operating radio channel of wireless devices can be changed to avoid interferences in adjacent installations. In this case, remember that if you want to change the radio channel, you must select the desired channel in the Change channel box (See the section on 'Wireless' in the Kits Development System Help Manual), remove supply to the entire installation (general circuit breaker switch) and press the Change channel button within 20 seconds.. Then carry out a diagnostic on the wireless devices supplied at 220V and check that they all respond correctly.*

NB 2: *When you change the channel in an installation or a device, the BPC-USBW also changes channel. In other words, to work on an installation for which you have already selected a channel, you need to program the BPC-USB so that it works in this channel. Then you must reprogram it in channel 0 to communicate with new devices that are programmed by default.*

1.9. Wiring:


Consumes
+12V
A
B
Ref.
Cable
4x0.5mm
+5V
In1
In2
In3
Ref.
Cable
8x0.22mm
1
2
3