Actuator all/nothing

2E2S / 2E2S-C30A
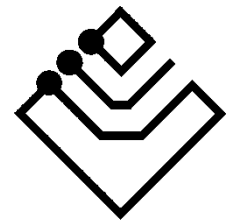
ingenium

Index

1   GENERAL DESCRIPTION

It is an actuator with 2 digital inputs and 2 digital outputs each from 10 A. It is used for the control of 2 electric loads (2 lighting points or sockets) or one blind.

This actuator is equipped with 2 free potential relay outputs, with a cut-off power of 10 A per output and 2 low voltage inputs related to the mass of the BUS.

From SIDE, it is possible to allocate chains of 15 characters to identify each of the outputs and inputs. It is also possible to assign the operating mode of each of the inputs (pushbuttons, switch or blinds), and two BUS events for each of the inputs (one activation event and one deactivation event), thus allowing action to be taken on any element of the installation from the device's inputs.

Inputs:

- Low voltage inputs 5 V, 5 mA activation minimum current.
- Active when connected to bus mass.
- Maximum wiring distance to switch or push-button: 30 meters.
- Hardware and software filter configurable from the development system (SIDE).

Outputs:

- Disabled: Open relay.
- Activated: Closed relay.
- Maximum switching current 10 A per output, in 2E2S version and 30 A per output in 2E2S-C30A version. To control circuits of higher power, insert a contactor.
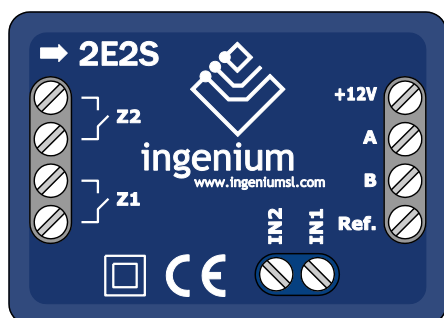
2E2S   2E2S-C30A

2 TECHNICAL DESCRIPTION

- 2 digital voltage inputs SELV (SELV) referring to the mass of the bus.
- 2 digital relay outputs, free of potential.
- Output relays' cut-off capacity 10 A at 230 V AC.
- Memory of the last position against power failure.
- Programmable inputs in order to work with a switch or push-button.
- 2 programmable BUS events for each input.
- Mounting in a register box.
- 2E2S has 2 logic gates integrated and programmable through SIDE: OR and AND gate.
- Available in version of 30 A relays, ref: 2E2S-C30A, which has no logic gates.
- Version 2E2S-C30A is 2 DIN rail modules.

2E2S may be controlled from several control points: MECing, MECBUS, Smarttouch, PPL, etc.

Its control depends on the programming that has been downloaded to it, as an actuator to control electric loads or for blinds control. In case of blinds, one output is for upwards movement and the second output is for downwards movement.

This device can only be programmed from the development system (SIDE).

3 DEVICE PROGRAMMING

The first step is to incorporate 2E2S device into the project so that it is possible to work on it. In order to do so, deploy the side bar of devices (putting us on the right margin) and the actuators, they are enough to click on the 2E2S to automatically add it to the project in the first open position. This is either to 2E2S and 2E2S-C30A.
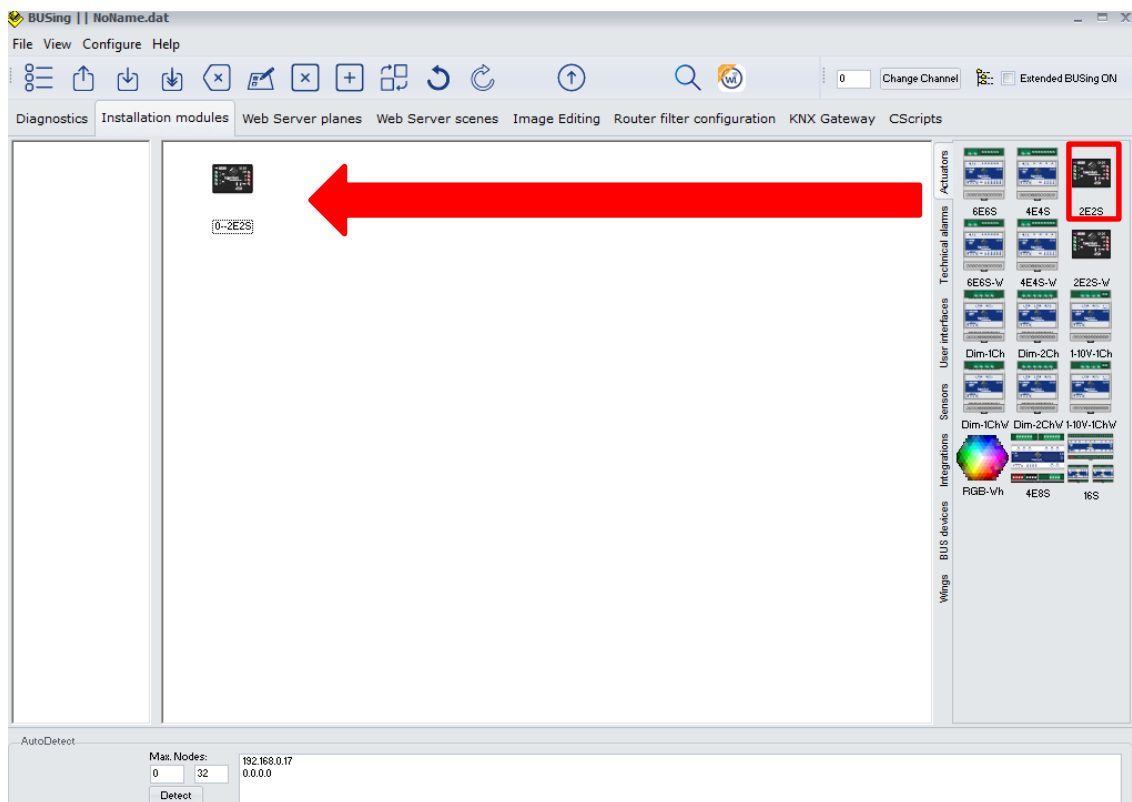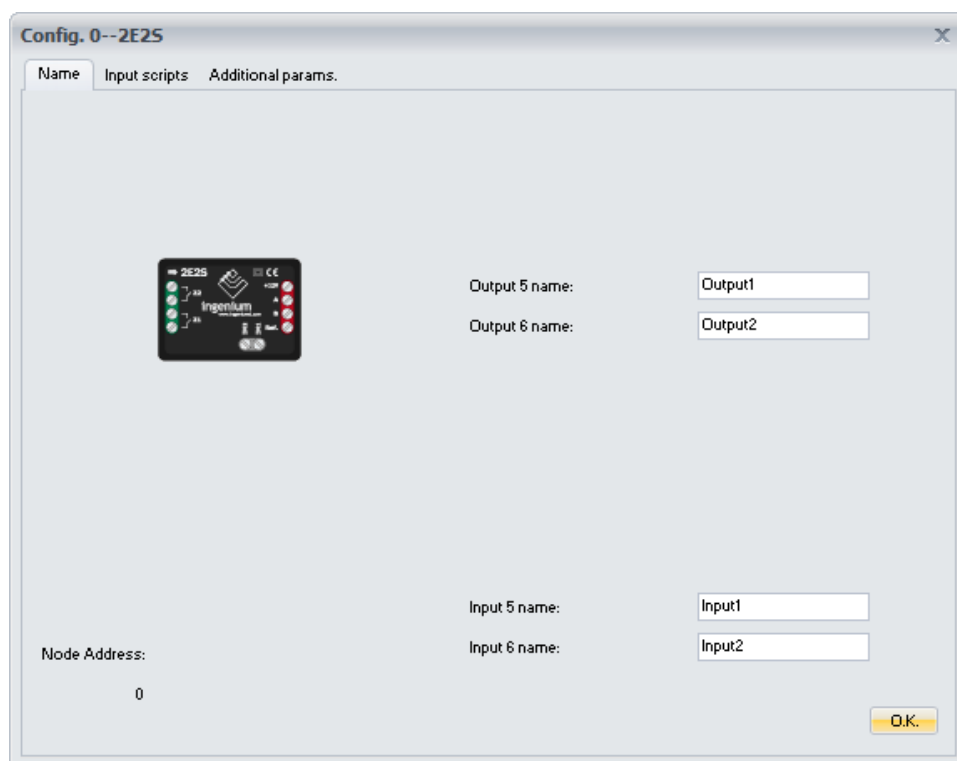

Once the new node has been included in the project, the program process starts.

Double-click on the 2E2S or, as already said, click on the 2E2S with the right mouse button and choose the option: edit properties:
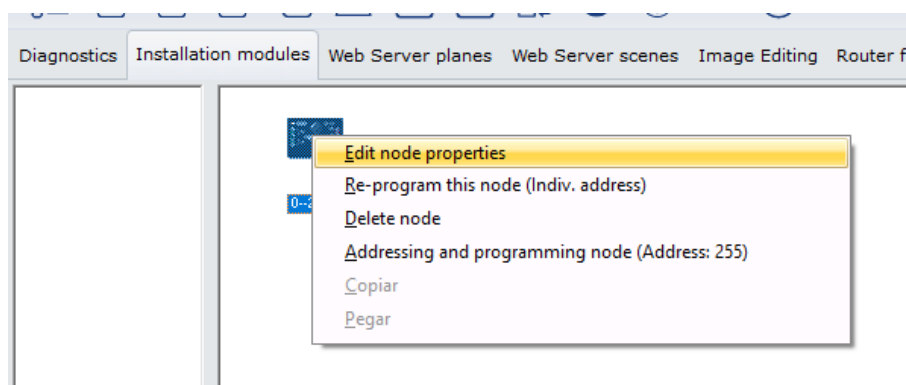
Once this is done, the 2E2S programming screen appears.

It has three tabs on 'Name', 'Input scripts' and 'Additional parameters', which will be described below.

3.1 NAMING OF NAMES

It can be observed at the bottom left (under the photograph) the address of the node in which the 2E2S (Address 0) is located (It is reminded that in the complete SIDE there are no predefined addresses for any device, but that, as they are done, they are taking the respective addresses, starting in 0). This direction can be used, in a next step, in order to check the status of the 2E2S in the diagnostic tab.

In this tab, you can change the default name assigned by default (output1, output2...) at each of the outputs.

How can it be programmed or configured, 2E2S, for the control of electrical loads (lighting, plugs, etc.) and of blinds (or awnings, slats, etc.) will be explained on the next section. Depending on the type of load connected to the outputs, different names can be given to the outputs. For lighting control, for example if first output of 2E2S (Z1) is connected to the room lights, when scheduling names, can be named output1 as "living".
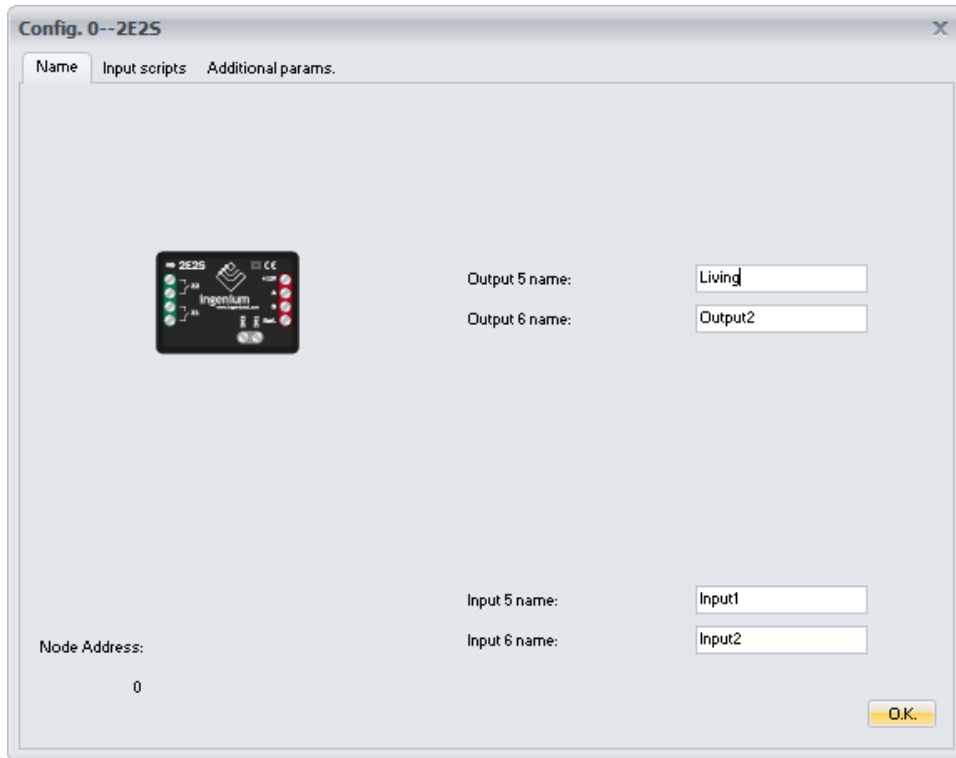
NOTE 1: ALLOWS MAXIMUM 15 CHARACTERS; NO SPACES, LETTER "Ñ", ACCENTS, OR OTHER CHARACTERS OF A KIND, CANNOT BE ADDED: *, #......

IF THE 2E2S IS CONFIGURED (SEE "INPUTS SCRIPTS") FOR BLINDS CONTROL, THE NAMES TO BE ASSIGNED HAVE TO BE AS SHOWN.

NOTE 2: IT IS REMINDED THAT 2E2S CAN CONTROL ONE BLIND, 2 OUTPUTS PER BLIND ARE NEEDED, ONE FOR UPWARDS MOVEMENT AND ONE FOR DOWNWARDS MOVEMENT. THEREFORE, THE NAMES OF THE OUTPUTS HAVE TO BE TWO TO TWO, CONSIDERING THE ODD OUTPUT (1) AS A RISE AND THE EVEN OUTPUT (2) AS A DECREASE. AS SHOWN IN THE IMAGE BELOW.
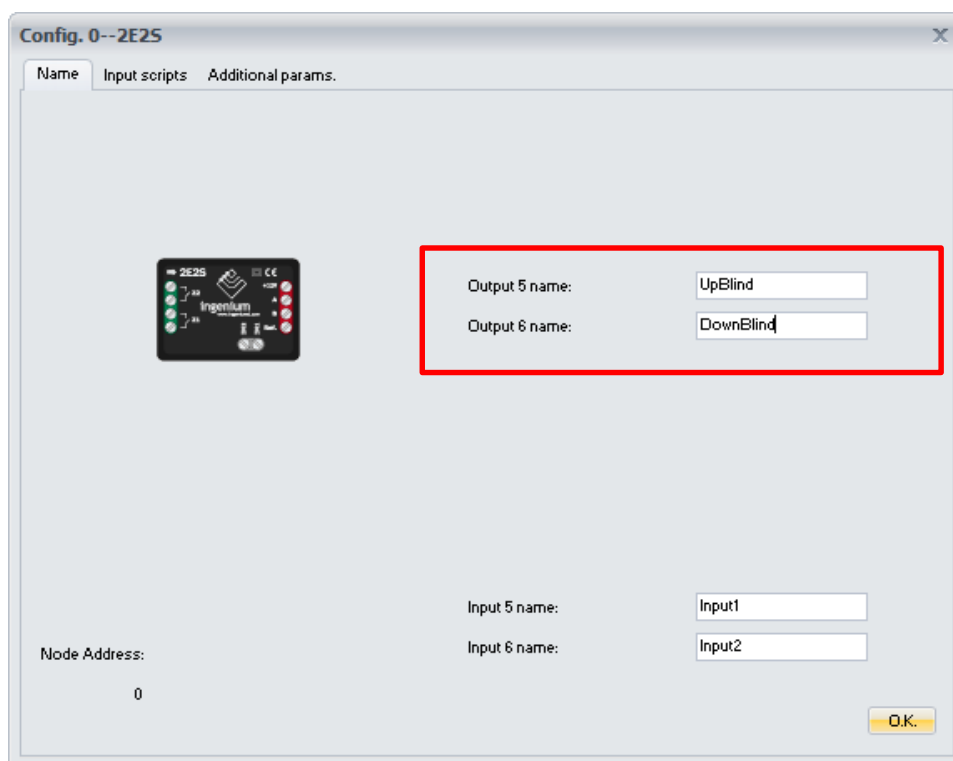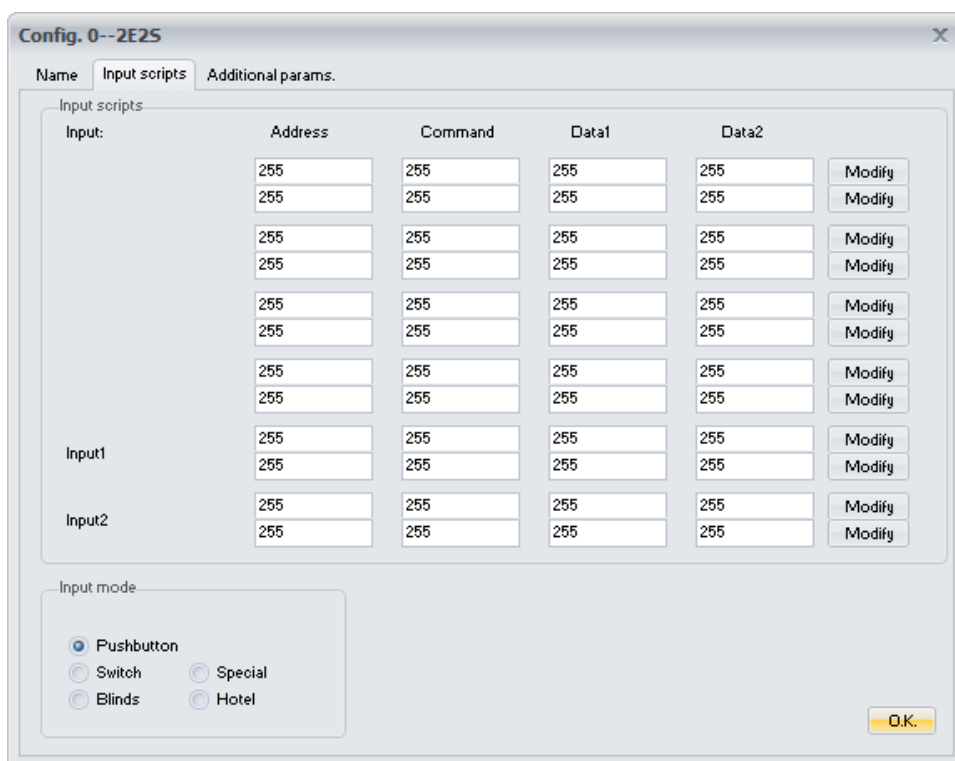
It is not normally possible to assign names to the inputs, only to the outputs in order to identify in the programming which output controls which lighting.

3.2 INPUTS SCRIPTS

In this tab, look at two sections: 'inputs scripts' and 'input mode'.

In "input mode", it is allowed to modify the mode of operation of the inputs which, by default, are configured to work as pushbuttons. It can be changed to switch or special mode (if you want to configure some inputs as push-button and some as switches. Another mode is blinds, which is selected if 2E2S is programmed to act on them, as well as the hotel mode which are not in used anymore.

On the next image, "Input scripts" are identified with 255 numbers on each gap. This means, the device inputs has no programming.

Four parts can be observed and are:

- **Address:** In this column you can write the address of the device programming.
- **Command:** In this column number 4 is assigned, corresponding to the 'Write' command.
- **Data 1:** In this section, depending on the type of programming that is to be allocated, either for the control of blinds or illumination, or for the mode of operation of the input (push, switch...), one type of data or any other type shall be indicated in order to act in one form over the relay indicated in the column reserved for Data 2.
- **Data 2:** In this section, the relay is assigned the relay to be checked (opening/closing) by some numbering, according to registers manual.

3.2.1 PROGRAMMING FOR LIGHTING CONTROL:

If in the 'installation modules' tab is included a 2E2S in address 0 and will be programmed for lighting controlled. Next steps should be followed.

In the 'inputs scripts' tab, there are "Modify" buttons on the right side of the screen, through which it will be able to program the actuator, in this case, to act on the illumination.
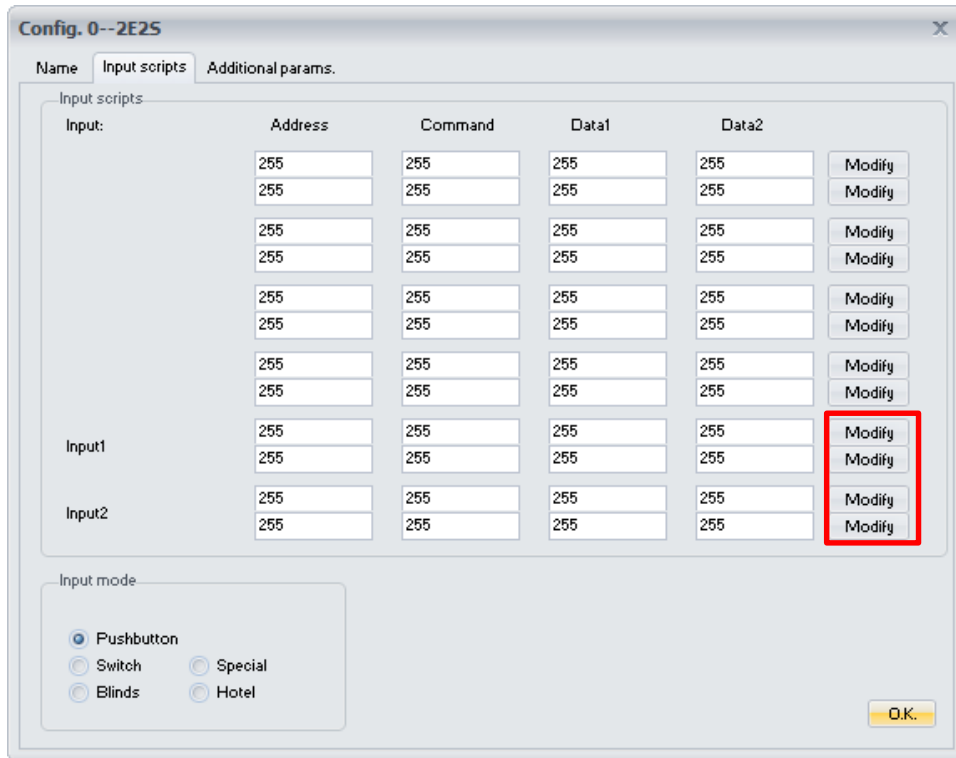
Each of the "Modify" button corresponds to the corresponding row where it is located.

At the left-hand side of the screen there are two lines for commands for each input (input 1 and input 2). On the first one, opening of the output relay will be programmed and the other for closing the relay. A small example is explained:

In input 1, has to control the opening and closing of the relay from output 1 (relay 0) as follows.
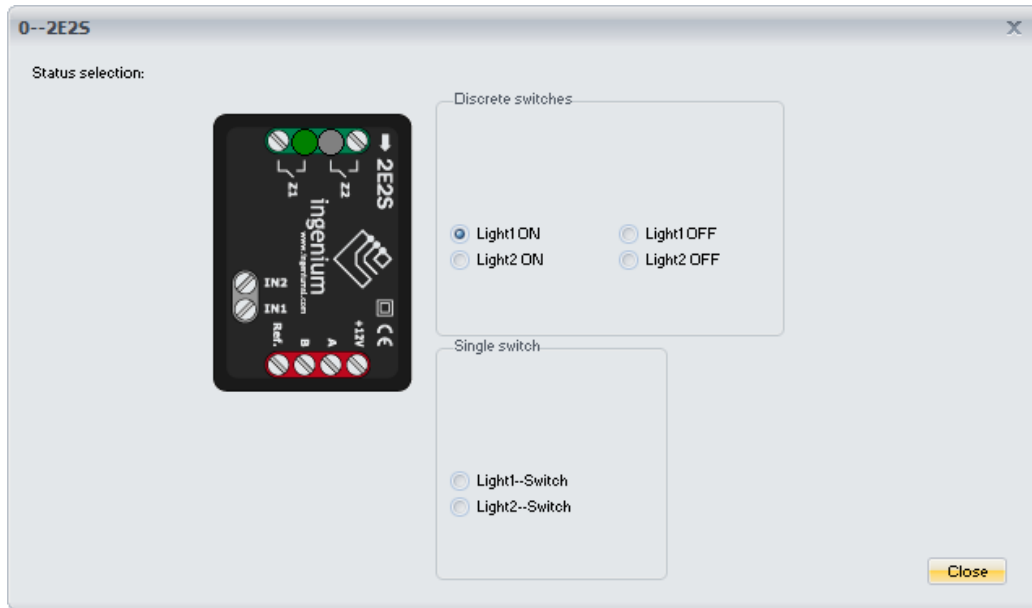
Click on the "Modify" button on the first row.
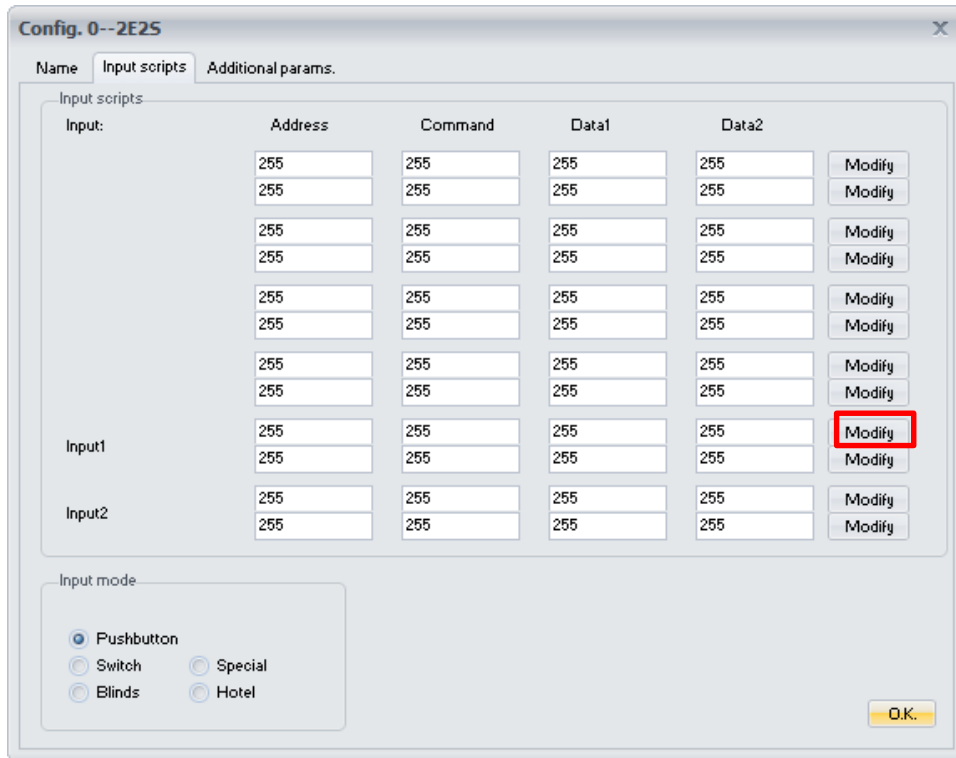
It then appears a node selection screen, where it can be chosen the device itself on which it is acting, in this case the 2E2S.
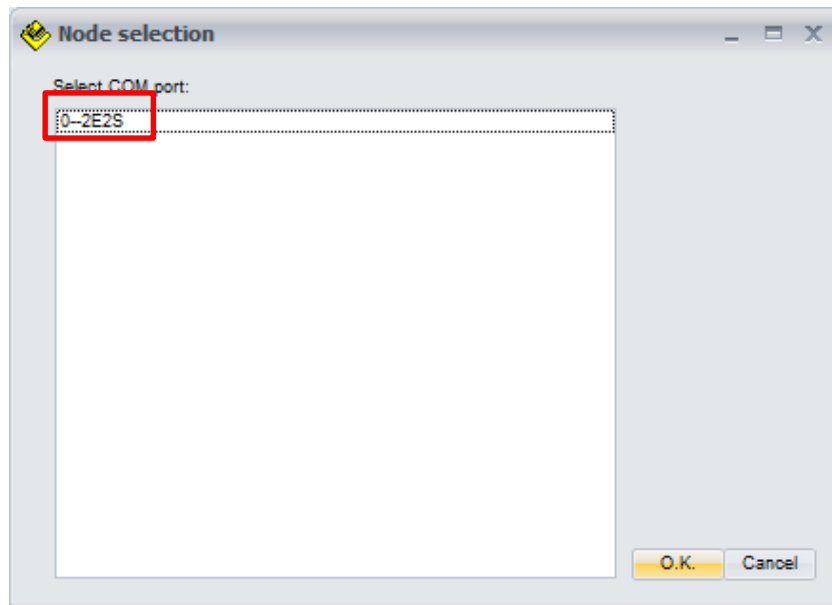
When click OK, next screen will be shown.

Look at two sections:

• **Switched on/ off:**
  In this section there are two columns for action, one for opening (left column) and one for closing (right column).
• **Switch an output:**
  In this section there is only one column to choose the corresponding output for the Switch or change of status.

In this case, the option shown below is chosen.
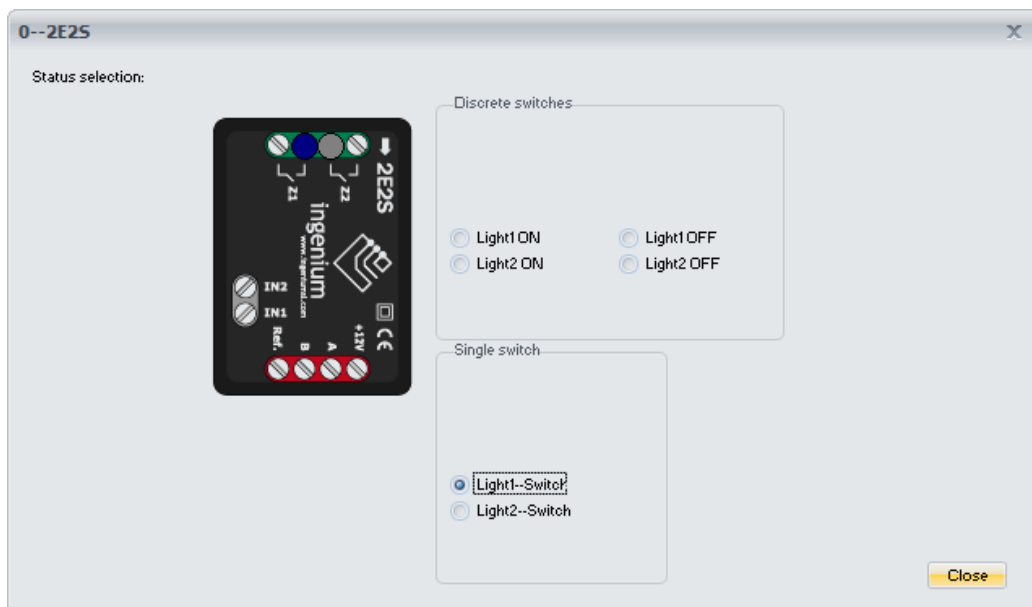
Click on Close, and observe that in the 'input scripts' tab, the row has changed.
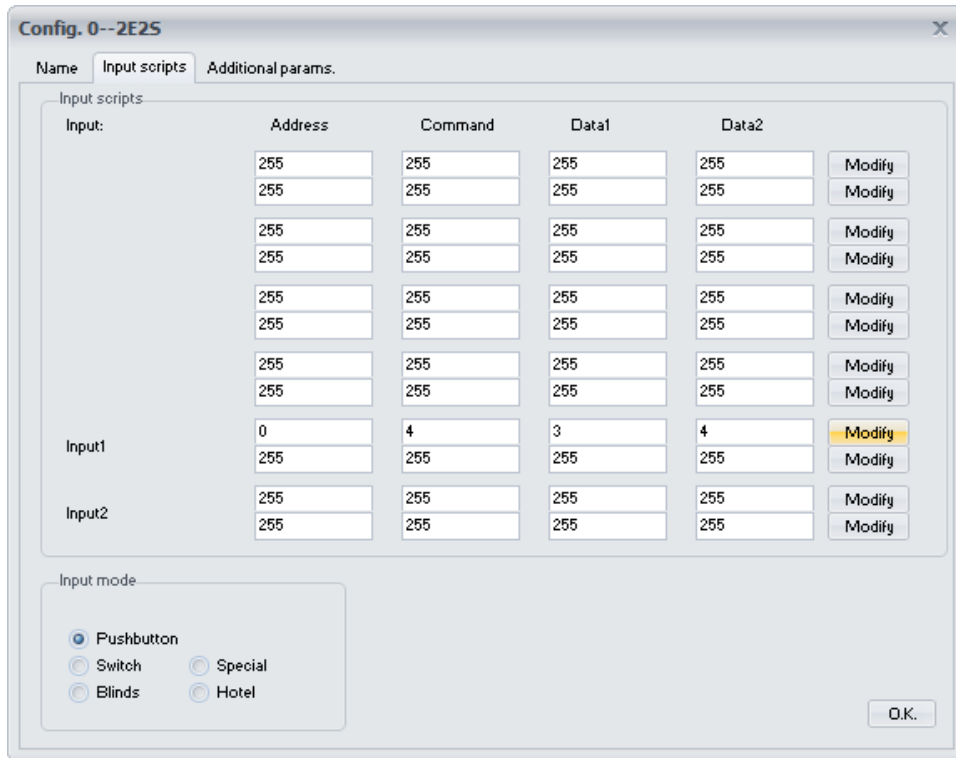
Click on the "Modify" button on the second row by selecting again the 2E2S on the node selection screen and choosing the next configuration.

Press Close and note that the second row has new commands, and that they are exactly the same as those of the first row.

EXPLANATION:

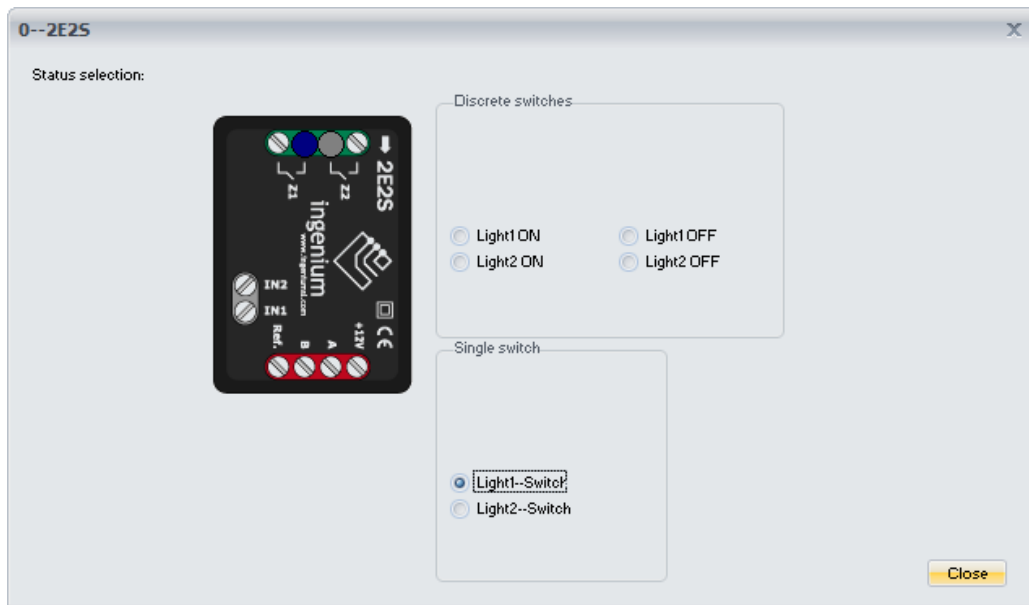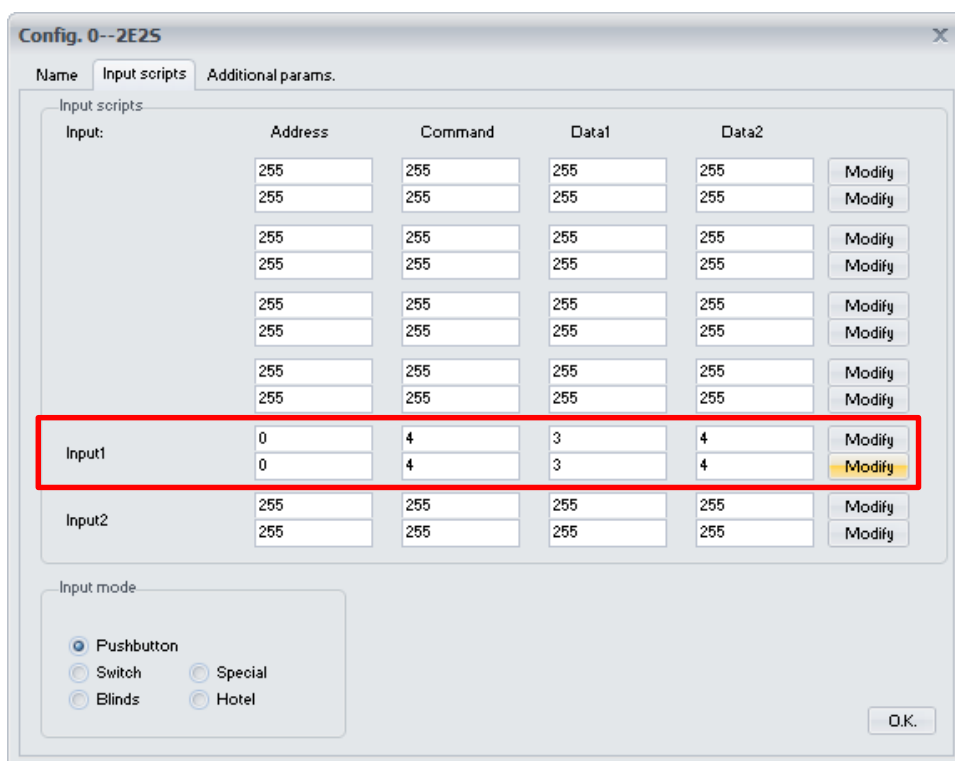It was programmed a Switch or change of status on output 1 (relay 0). The script is the following:

- Address: 0 It is the address of the 2E2S itself.
- Command: 4, Write command is the command that allows to take an action on the outputs.
- Data 1: 3 makes a Switch on the relay indicated in Data2.
- Data 2: 4 Indicates the relay on which it is being doing the Switch. This number can be checked on the registers manual.

Therefore, when it is acted on the 2E2S, from a push-button or switch, a MECing, a touch screen... the following it is done:

1º Switch or position 1 of the switch: The first row is executed. If first relay (output 1) is open (light off) comes to be closed (light on), i.e. change status (switch).
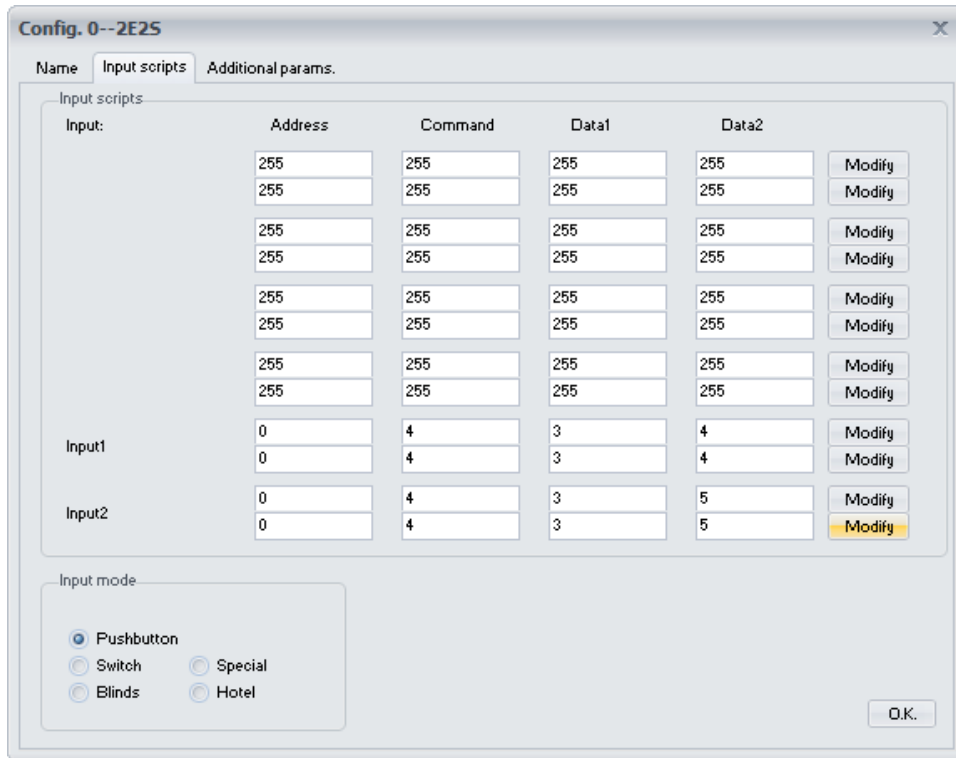
2º Switches or position 2 of the switch: The second row is executed. If first relay (output 1) is closed (light on), it is switched to opening (light off), i.e. changes to status (switch).

3nd speech: The first row would be executed again. Changing the state of the relay.

4nd speech: The second row would be executed again. Changing the state of the relay.

And so on. In that case, what would be able to achieve with this is that with one pulsation, the light is turned on and with the next one is switched off (by changing the previous state), in the next turn on…

For the next input, 2, the same should be done. Choosing on each individual case the corresponding output, as shown below:

NOTE: THE PREVIOUS PROCEDURE CAN BE PERFORMED BY TYPING THE COMMANDS (NUMBERS FROM EACH SECTION) DIRECTLY ON THE CORRESPONDING BOXES, WITHOUT SIMPLY DELETING 255 AND WRITING THE RIGHT THING.

NOTE: AS SHOWN IN THE UPPER IMAGE, THE FIRST EIGHT COMMANDS, CORRESPONDING TO THE OTHER FOUR/TWO INPUTS USED ON 6E6S AND 4E4S, WHICH ARE NOT USED IN A 2E2S.

3.2.2 PROGRAMMING FOR BLINDS CONTROL

In this case programming would be as shown below.

Click on "Modify" button in the first row with the "Edit node" selection screen, selecting the 2E2S, for configuration on the next screen.
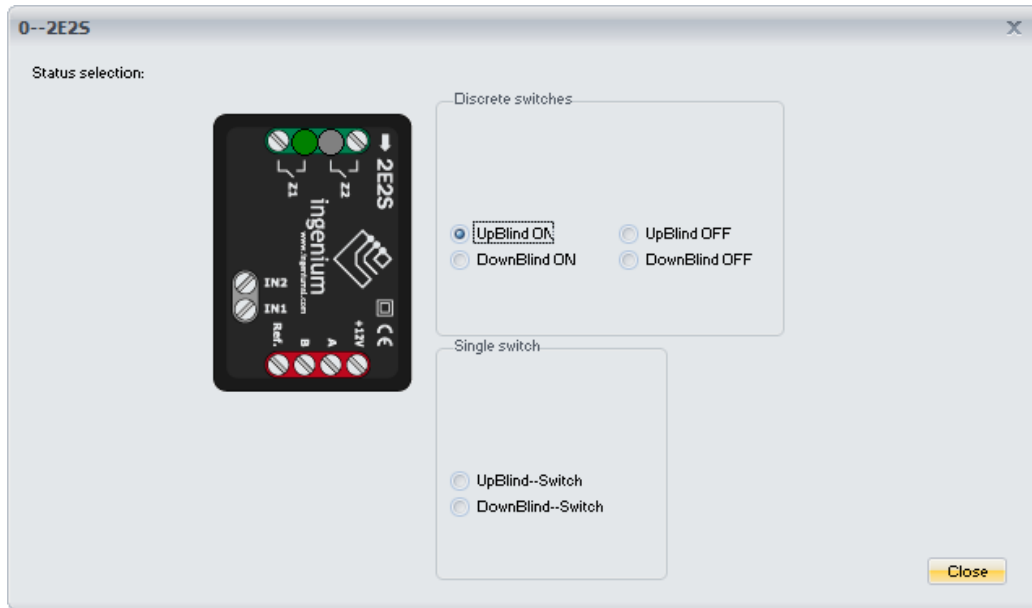
Closing first relay is chosen (output 1 ON).

Click on Close and the following is shown:
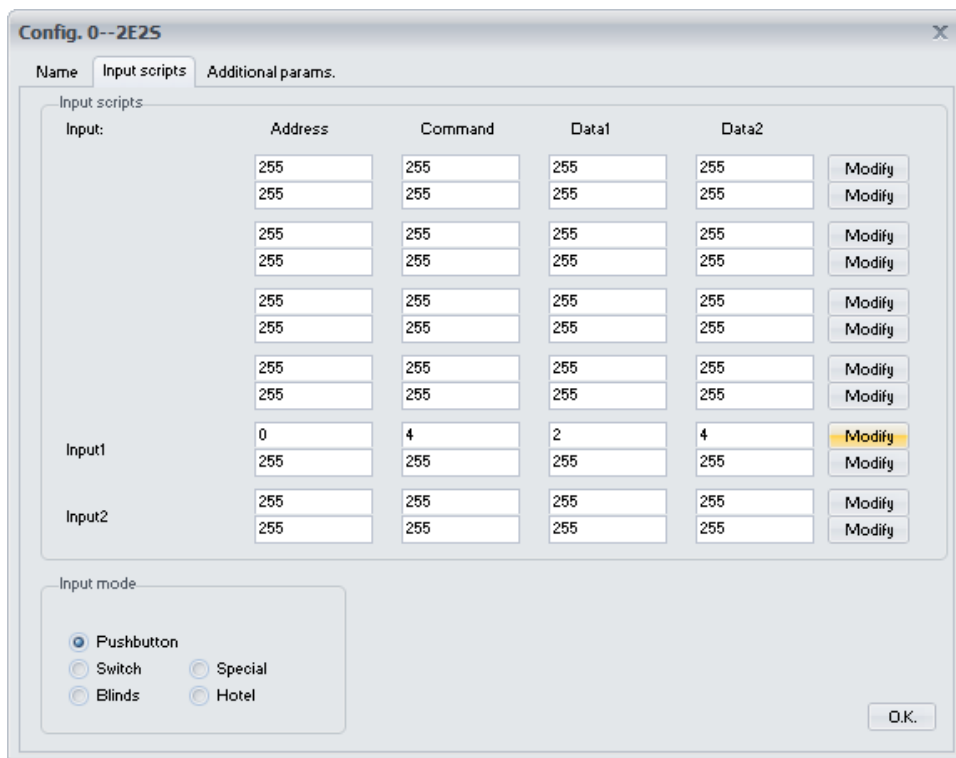
Then click on "Modify" button on the second row. Performing the same above operation, but selecting the opening of the first relay (output 1 OFF)
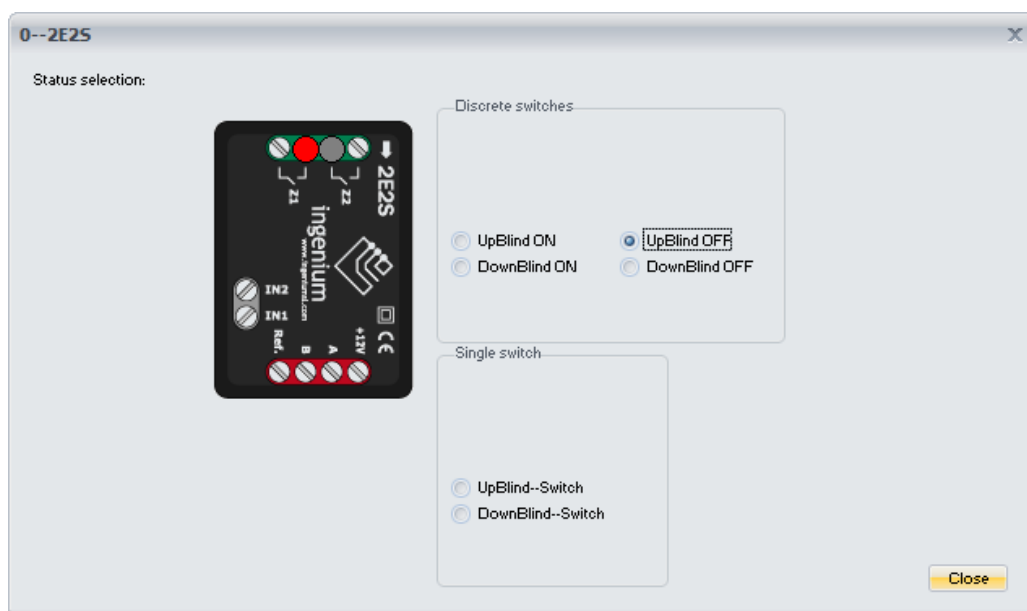
Click on Close and clicking on the following commands in the second row.
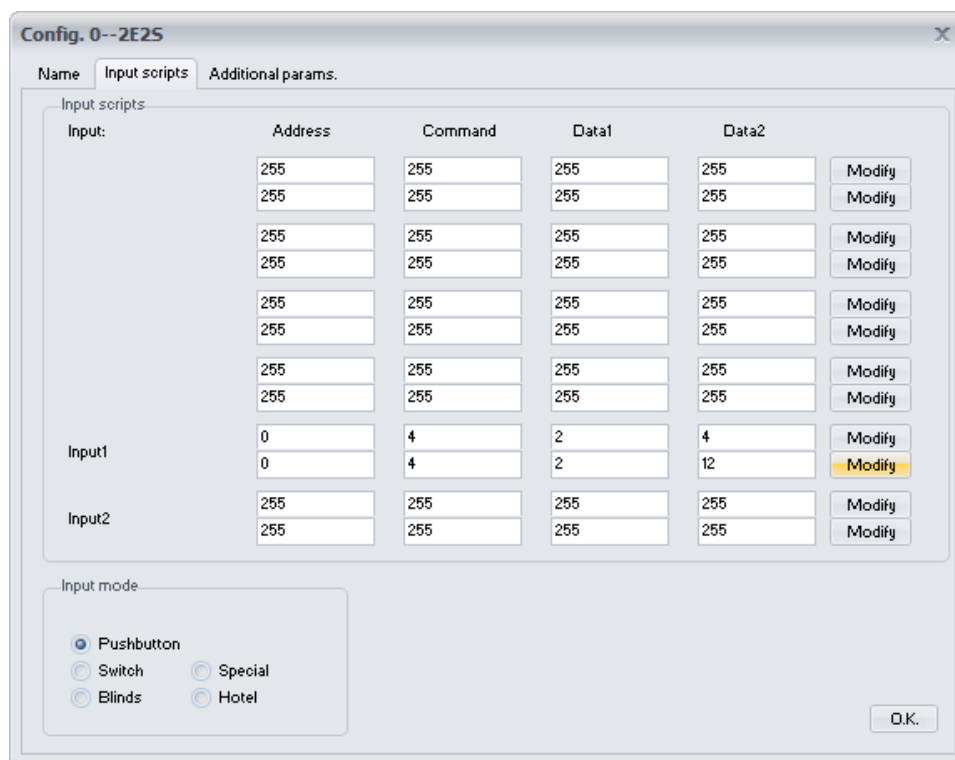
EXPLANATION: the following was done:

It has been scheduled the activation/deactivation of the output (1) (relay 0). Note that the script is the following:

- Address: 0 It is the address of the 2E2S itself.
- Command: 4, the Write command is the command that allows action to be taken on the outputs.
- Data 1: 2 it acts on the relay indicated in Data 2.

- Data <u>2</u>: 4 indicates the relay on which it is being acting. Recall that the relay 0 corresponds to output 1.

Therefore, when it is acted on the 2E2S, from a push-button or switch, a MECing, a touch screen... the following is done:

<u>Switches and/or position 1 of the switch</u>: The first row is implemented. The relay 0 is closed (output 1 activated).
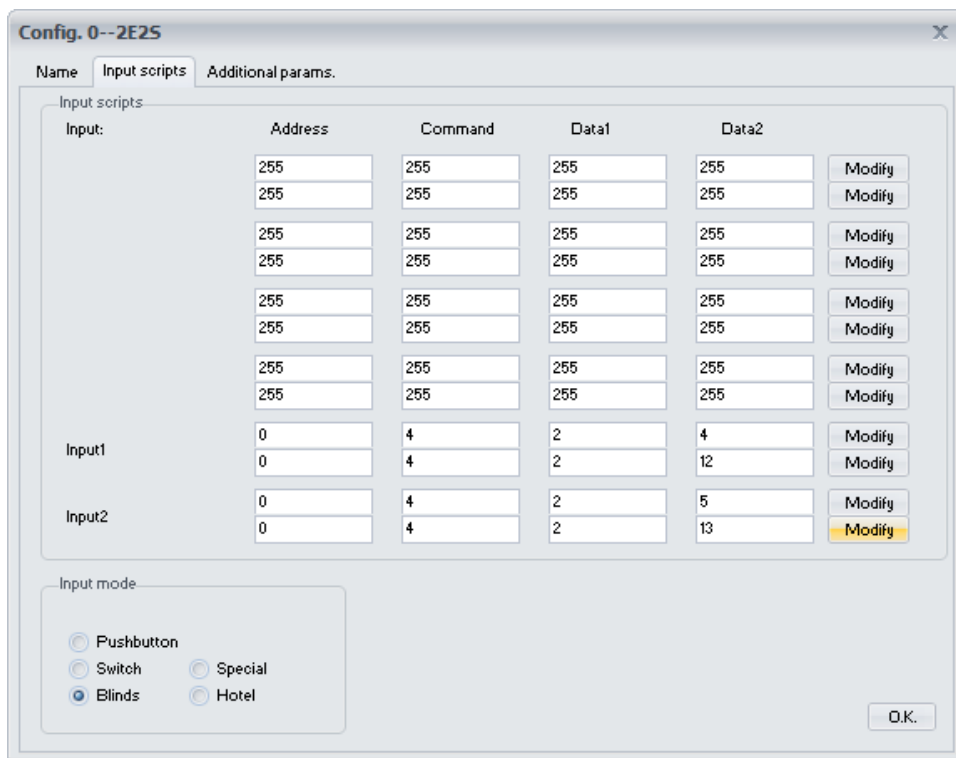
<u>Switches and/or position 2 of the switch</u>: The second row is implemented. The 0 relay is opened (output 1 disabled).

<u>3nd speech</u>: The first row would be reinstated.

<u>4nd speech</u>: The second row would be reinstated.

And so on. In the first event output 1 would be activated and then deactivate, in the next activated...

For the next (input 2) it would be done in the same way by choosing on each individual case the corresponding output, which was scheduled as shown.


NOTE 1: THE PREVIOUS PROCEDURE CAN BE PERFORMED BY TYPING THE COMMANDS (NUMBERS FROM EACH SECTION) DIRECTLY ON THE CORRESPONDING BOXES, WITHOUT SIMPLY DELETING 255 AND WRITING THE RIGHT.

NOTE 2: HAVE A LOOK TO THE COLUMN FOR DATO2, NOTE THAT FOR THE ACTIVATION OF OUTPUTS 1 AND 2, USE NUMBERS 4 AND 5 (LEAVING 1... → 4... LEFT 2→), AND FOR DEACTIVATION TOGETHER 8, USING THEREFORE NUMBERS 12 AND 13 (LEAVING 1 + →5 + 8 = 12..... LEAVING 2 + 8 + →4 = 13).

NOTE 3: AS CAN BE SEEN, THIS OPTION COULD ALSO HAVE BEEN CHOSEN TO ACT ON LIGHTING. MUST BE CAREFUL TO 'INPUT MODE' TAB. BLINDS TYPE MUST BE CHOSEN ALWAYS WHEN ACTING ON BLINDS.

Below is a table summarizing the mode of operation of the inputs using the two most common devices for action on lighting and blinds, switches and push-buttons.

For illumination, when programming with a Switch (Dato1 = 3) or by opening/closing relay (Dato1 = 2; Dato2 = 4-5 (open); Dato2 = 12-13 (close)), it can be chosen:

Mode / Device	pushbuttons	switch
pushbuttons	During the first click, events from box 1 are executed and the second pulsation events from box 2. In box 1 and 2, can be different events. Maximum of 6 scenes	By clicking first time events from box 1 are executed and when releasing the events from box 2. In box 2 should be the same scripts as in box 1 or no scripts. A maximum of 3 scenes.
switch	When clicking on the first position of the switch, the events from box 1 are executed and when clicking on the second position of the switch, it does not perform anything. By clicking on the upper side of the switch, box 2 would be implemented. When clicking again the low part does not execute anything. This combination is not feasible.	When clicking on top of the switch, the events in box 1 are executed and when clicking the below position executes the events in box 2. A maximum of 6 scenes.

As has been discussed above, the implementation of the scenes is made two to two per columns: 1 and 2, 3 and 4, 5 and 6. For the table above, the explanation is fully valid instead of for boxes 1 and 2, for 3 and 4 or for 5 and 6.

It should also be borne in mind that, in addition to the boxes corresponding to 'inputs scripts', it is necessary to correctly program the input mode of the device, which in this case would be 'blinds':
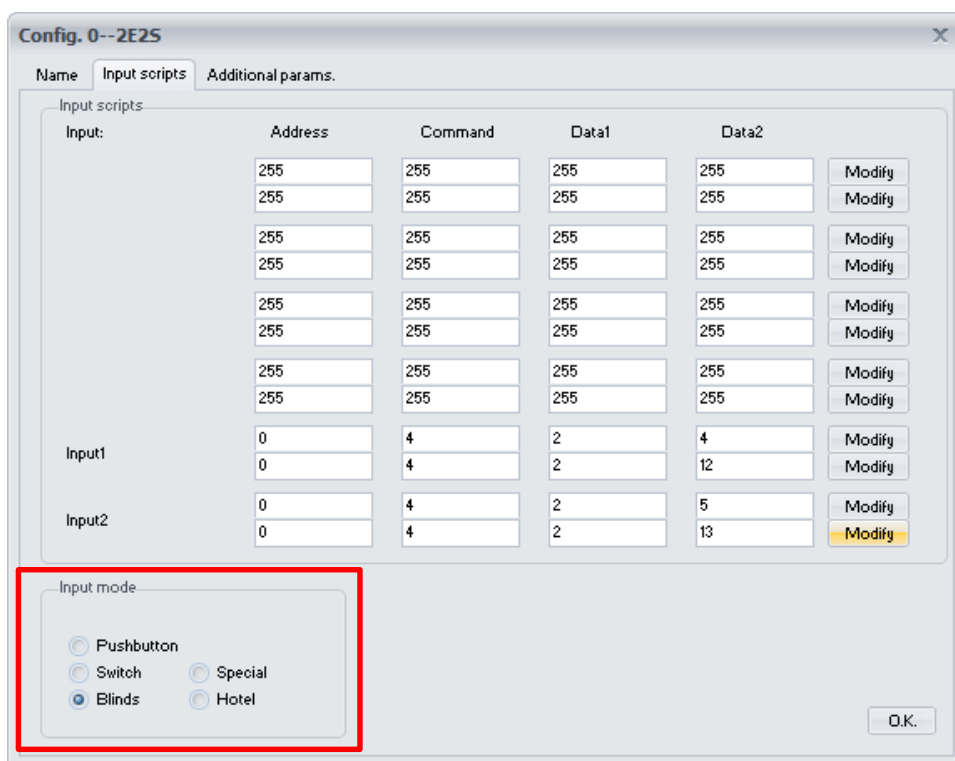
3.3 LOGIC FUNCTIONS

Actuators have 2 logic gates of 8 bits, fully programmable through SIDE: AND gate and OR gate. This feature is supports in all actuators references manufactured from 1st of May 2020, except 2E2S-C30A which does not supported them.
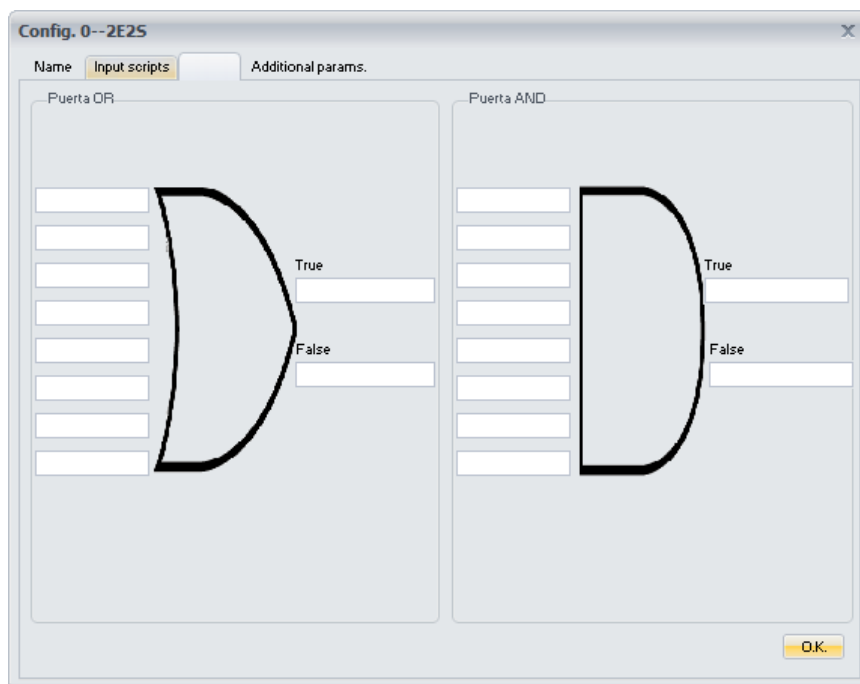
On the left side, there is an OR gate, whose truth table is:

Input A	Input B	Output A+B
0	0	0
0	1	1
1	0	1
1	1	1

On the left side, there are some gaps corresponding to the 8 input bits. A name will be assigned to each bit (that will be activated from the corresponding device).

The telegram to activate the input bits from the OR gate is:

Write   Address = BUSing address of the actuator   Data1 = 12   Data2 = 0 – 7 (bits from 0 to 7).

The telegram to deactivate the input bits from the OR gate is:

Write   Address = BUSing address of the actuator   Data1 = 11   Data2 = 0 – 7 (bits from 0 to 7).
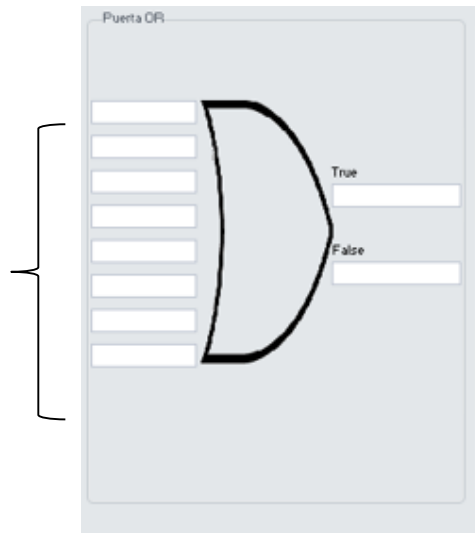
On the right side: *True* and *False.* Each one admits only one telegram on the gap, and it will be executed when the result of the logic gate is 1 = true or 0 = false.

On the other hand, the other gate is an AND gate:
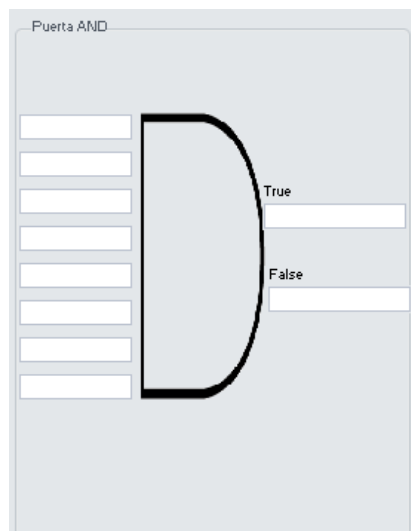
Whose truth table is:

Input A	Input B	Output AB
0	0	0
0	1	0
1	0	0
1	1	1

Input A * Input B = Output AB

On the right side, there are some gaps corresponding to the 8 input bits. A name will be assigned to each bit (that will be activated from the corresponding device).

The telegram to activate the input bits from the AND gate is:

Write   Address = BUSing address of the actuator   Data1 = 12   Data2 = 8 – 15 (bits from 8 to 15).

The telegram to deactivate the input bits from the OR gate is:

Write   Address = BUSing address of the actuator   Data1 = 11   Data2 = 8 – 15 (bits from 8 to 15).
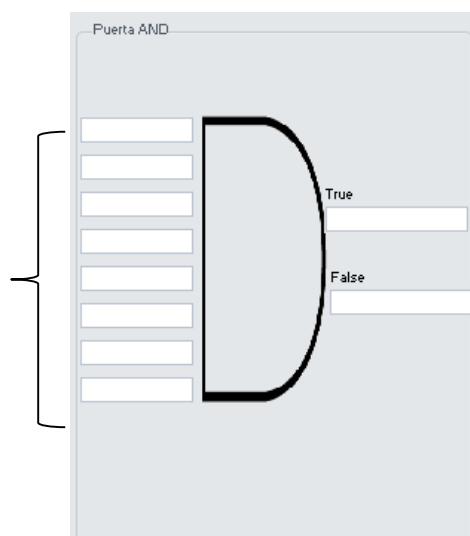
On the right side: *True* and *False.* Each one admits only one telegram on the gap, and it will be executed when the result of the logic gate is 1 = true or 0 = false.

It is worth mentioning that, in any of the 2 logic gates the 8 bits of the input are used to obtain the result of the logic operation. Therefore, the inputs bits not used must be in a fixed status, according to the logic gate, in order to obtain the correct result of the operation. These values are fixed by default at factory, but it must be taken into account in any modification made on any bit:

- OR gate: input bits not in used must be with a fixed value of 0, so they do not interfere at any moment in the result of the operation. That is, if only the first 3 bits of the inputs (0, 1 and 2) are used and bits 4, 5, 6, 7 and 8 aren't, these last must have a 0 value. This ensures that the truth table of an OR gate is always fulfilled: if a bit takes a value of 1, the result is 1; and if all bits are 0, the result is 0.
- AND gate: input bits not in used must be with a fixed value of 1, so they do not interfere at any moment in the result of the operation. That is, if only the first 3 bits of the inputs (0, 1 and 2) are used and bits 4, 5, 6, 7 and 8 aren't, these last must have a 1 value. This ensures that the truth table of an AND gate is always fulfilled: the result is 1 in case the 3 used bits have a value of 1; and the result will be 0 in any other case.

3.3.1 EXAMPLE

In a home, there are 3 thermostats controlling the heating through a boiler, which is connected to output 1 of the 2E2S actuator. It is wanted to turn on the boiler if any of the thermostats are demanding heat, that is, to turn on the boiler the result of the logic gate must be 1. To do this, at least one of the thermostats must be demanding heat (a bit of a thermostat with a value of 1), so just with one bit being 1, the result of the logic gate is 1. This is achieved with an OR logic gate:

Input A	Input B	Output A+B
0	0	0
0	1	1
1	0	1
1	1	1

The first step is to add 3 thermostat icons and an actuator to *Installation Modules* tab.

In the Name tab of the actuator, Boiler name is indicated to Output1:

On the Logic gates tab, a name to each input of the OR gate will be also assigned:
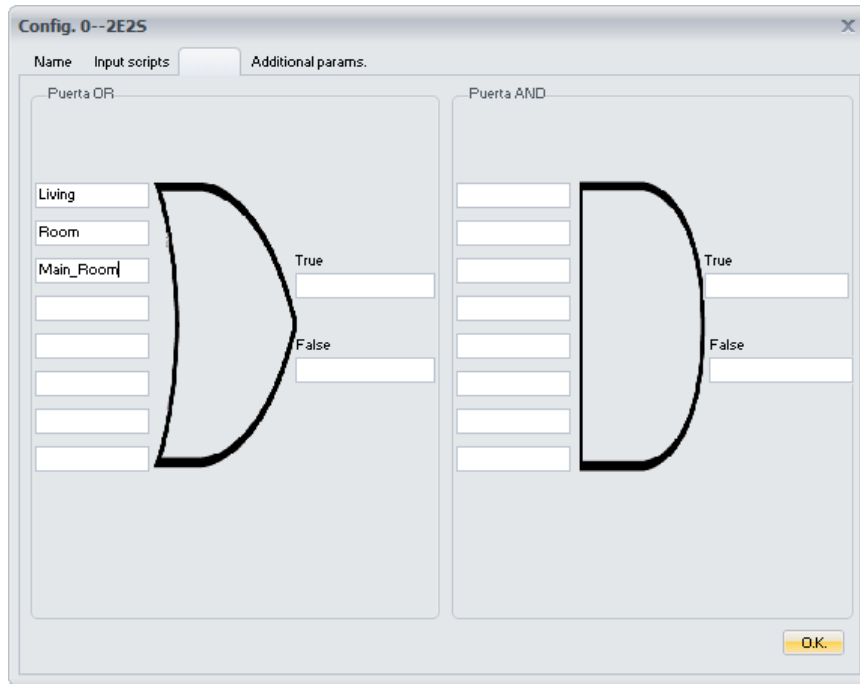
The following names correspond to the following input bits of the OR logic gate:

- Bit 0 = Living
- Bit 1 = Room
- Bit 2 = Main_room

In this case, when the result of the operation is true, the result is 1, the boiler must be turned on. Otherwise, if the result of the operation is false, the result is 0, the boiler must be turned off.

As the boiler is connected to output 1 of the 2E2S with BUSing address 0, the telegram to turn on the boiler is:

Write   Address = 0   Data 1 = 2   Data 2 = 4

To turn off the boiler, the following telegram must be sent:

Write   Address = 0   Data 1 = 2   Data 2 = 12

So, the OR gate would be like:
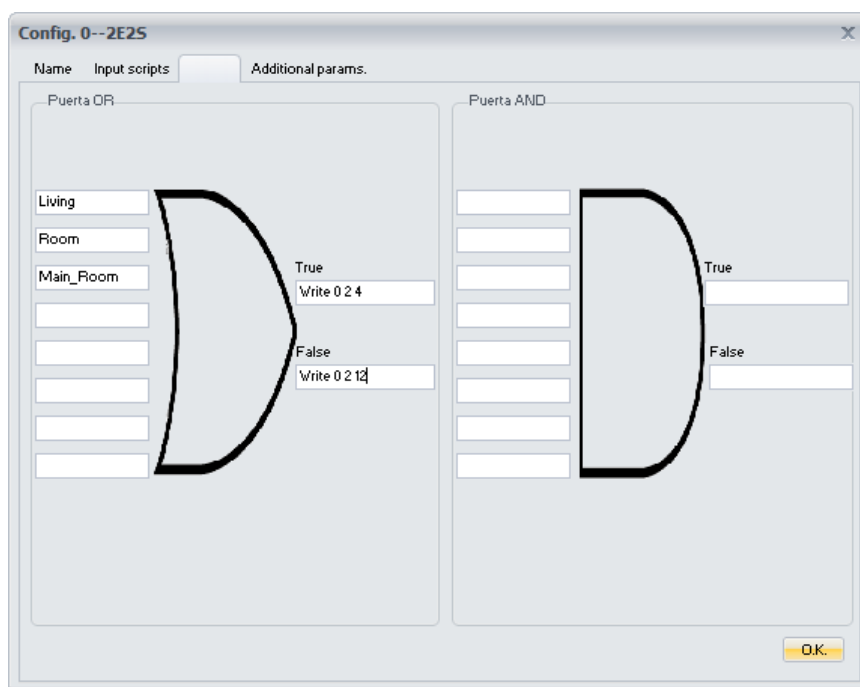
Now, the input bits of the OR gate must be activated from each of the thermostats. Remember that when at least one of the 3 thermostats is in heat demand mode the boiler will be turned on. Therefore, it must be sent, from each one of the thermostats, a telegram to activate its corresponding bit on the OR gate, when it is in Heat ON mode and deactivate its corresponding bit of the OR gate when the thermostat is in Heat OFF mode.

In the below window, the thermostat properties can be seen (remember that Living corresponds to bit 0 of the inputs of the OR logic gate). For this reason, bit 0 must be activated when in Heat ON mode with the telegram from the image. On the contrary, bit 0 must be deactivated when the mode is Heat OFF, that is, no heat demanded. The window would be as follows:
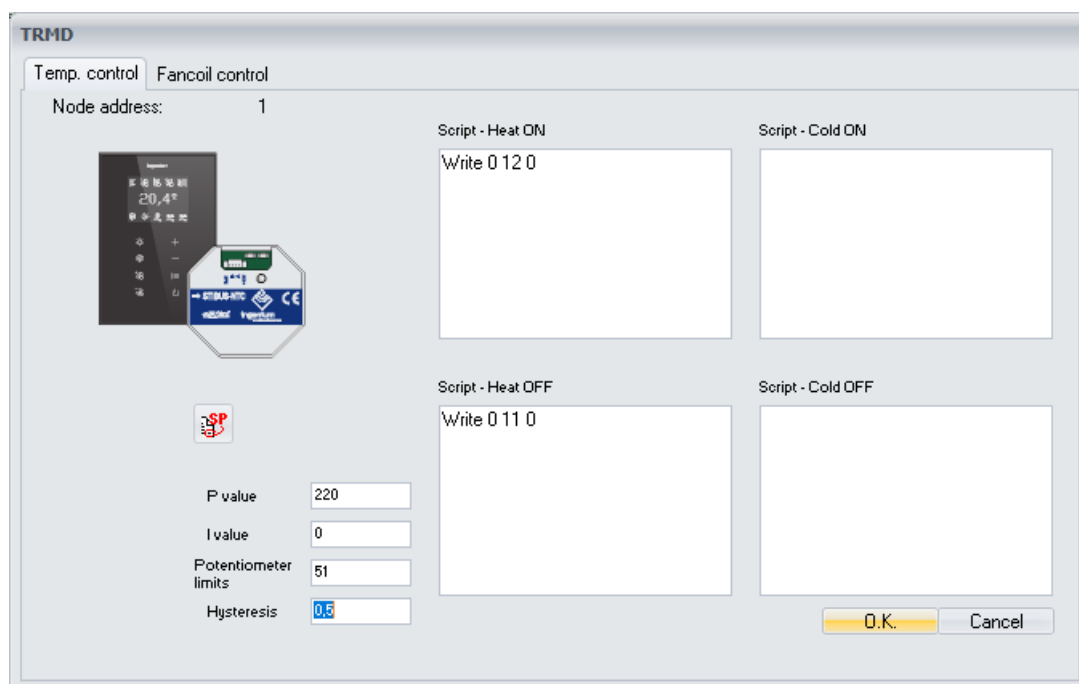
In the case of the second thermostat, the above applies. But it must be taken into account that, in this case, the room thermostat corresponds to bit 1 and therefore data 2 must vary.
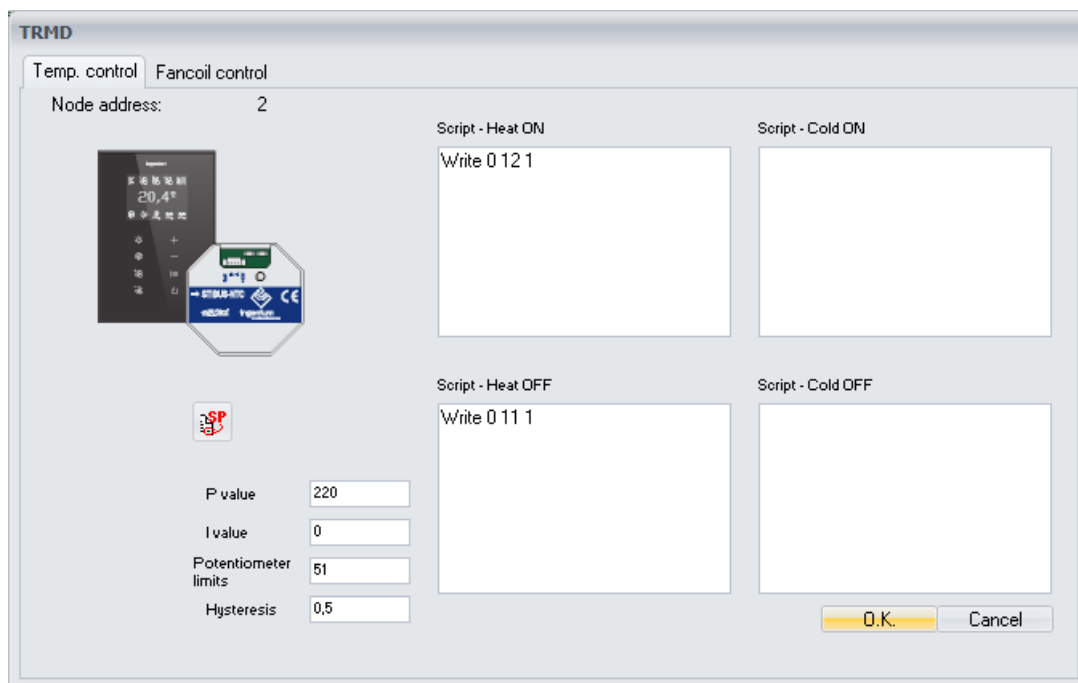
Last, the third thermostat, corresponding to bit 2 of the input of the OR logic gate, must send the following telegram:
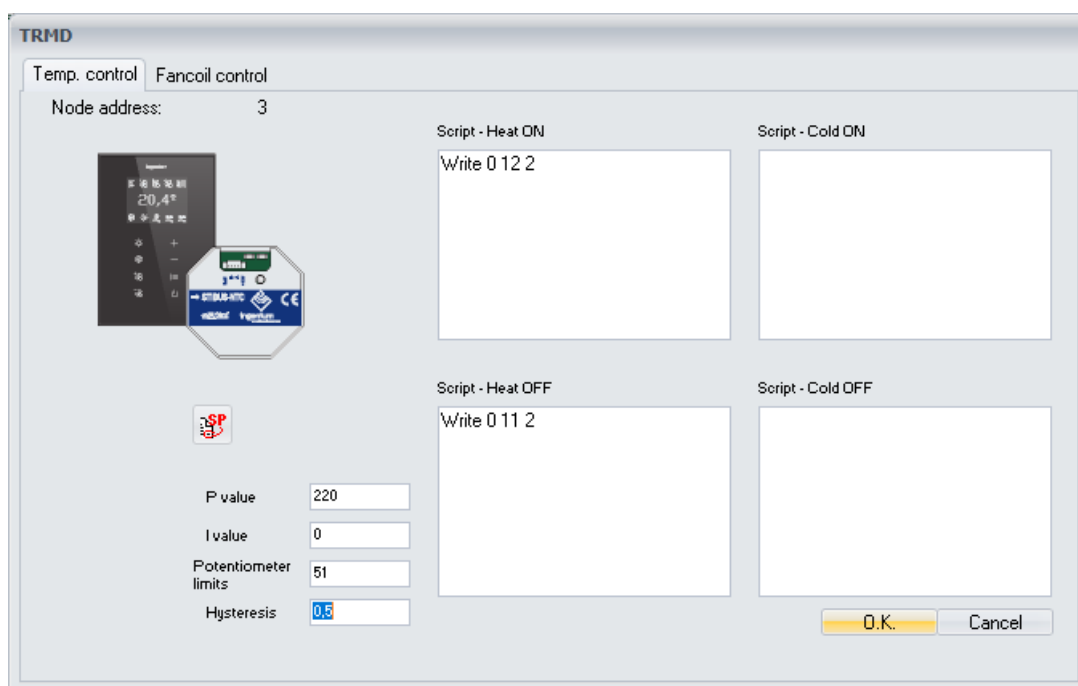
Finally, all the devices must be programmed.

3.4 ADDITIONAL PARAMETERS

Three parameters appear, which are described below.

Input filter: in this field time is introduced time in cycles, below to which pushbutton execution is not considered as such. I.e.:

- 1 cycle = 20 milliseconds
- By default: 6 cycles.
- 6 x 20 ms = 180 ms

In case of pushing the pushbutton and such pulsation would be extremely quick, less than 180 ms, the device would not perform any action.

The reason for this is to avoid false pulses and therefore executing events associated with these pulsations because of current or voltage (electrical noise). 6 cycles are sufficient time to avoid such cases.

Short pulsation: this parameter is pulsation time from blind would move to the highest position or the lowest. Check on "general description". NOTE: 30 tenths of a second = 3 seconds.

Blinds time: it is the time the relay remains closed, whether or not the blind has reached the limit. The value introduced here is the result of counting the time that takes a blind moving from the lowest position to the highest position, and vice versa. This can return a different value for rise time and down time. In this case, average should be calculated and introduce that value on the box.

Once the actuator is programmed and working, the blind time introduced on SIDE is the time of movement from 1% to 99%, or vice versa.

However, between 0 and 1%, and 99% and 100% there is an extra time, in order to assure the end of the blind, defined internally on the actuator.

4   DEVICE DIAGNOSTICS
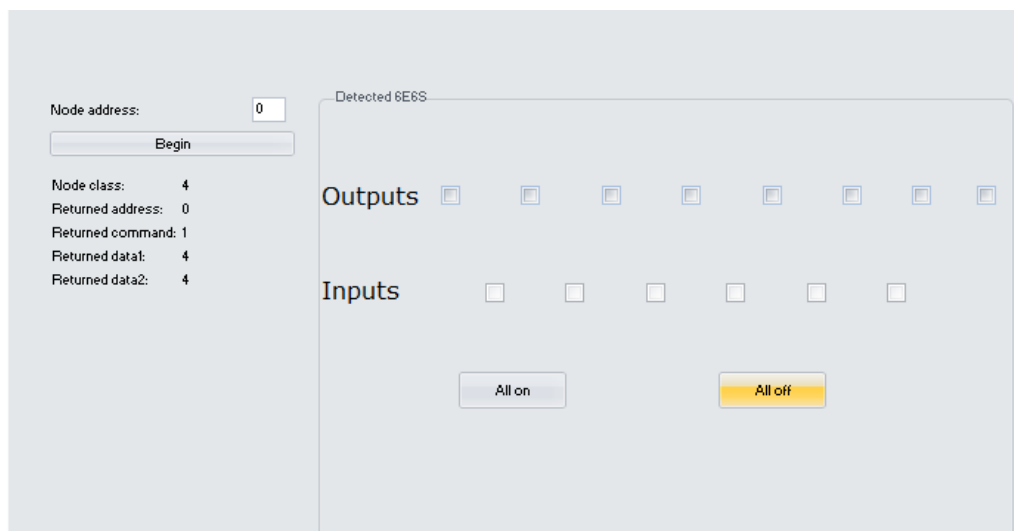
In the diagnostic tab, a communication with the device can be stablished and check its status.

In this case, it is a 2E2S with address 0. Take into account that all different actuators respond to diagnosis as in the image (with 8 outputs and 6 inputs).

NOTE: ALL DEVICES RESPONDS TO ADDRESS 255, IN ADDITION TO THE ONE THEY HAVE ADDRESSED. A SINGLE DEVICE, MAKE A DIAGNOSTIC TO ADDRESS 255, TO GET TO KNOW YOUR ADDRESS.

Known the address, it is written in the section "Node address", and clicking on "begin" button reveals the following data:

- **Type of node**: 4. Each device has a type of node, in the case of 2E2S, number 4.
- **Address returned**: 0. It returns the address of 2E2S, indicating that it is perfectly communicated.
- **Return command**: 1. It's a ACK, i.e. OK. The device communicates well. If it would be 2 means "NO ACK" and the device would have an error of communication.
- **Data 1** returned 4. it returns the node's reading.
- **Data 2** returned: not relevant.

Also on the right side of the screen:

- **Outputs**: it is possible to act (activate/deactivate) separately for each of the outputs just clicking on each of the boxes. Each box corresponds to an output from the device. If device is 6E6S, the outputs correspond to the outputs for each of the 6 outputs, the first of which is most to the left. For a 4E4S, only the 4 boxes on the right-hand side would be relevant (the first output would then be the third box, beginning on the left hand side). For 2E2S, outputs correspond to boxes 5 and 6 (starting on the very left side).
- **Inputs**: the status of the inputs can be checked, i.e. check that the input is activated for the control of 2E2S.
- **Activate all**: activate all the outputs.
- **Switch off All**: deactivate all the outputs.

To charge these values, click on "Begin" every time you want to update.

5 REGISTERS

5.1 RAM

Command	Data 1	Data 2	Description
Read	0	0	Read the state of inputs. The result is answered in data1 of the ACK telegram. Decimal value encoded according to Table5.2 Bit = 0 input activated. Bit = 1 input deactivated.
Read	1	0 - 255	Read the state of outputs. The result is answered in data1 of the ACK telegram. Decimal value encoded according to Table5.3. Bit = 1 output activated. Bit = 0 output deactivated.
Write	1	0 - 255	Set the state of every output at the same time according to the decimal value indicated in data2, encoded as Table5.3.
Write	2	0 - 7 8 - 15	Actuate over each output independently. 4E8S: data2 = 0 to 7 activate outputs 1 to 8. data2 = 8 to 15 deactivate outputs 1 to 8. 6E6S: data2 = 0 to 5 activate outputs 1 to 6. data2 = 8 to 13 deactivate outputs 1 to 6. 4E4S: data2 = 2 to 5 activate outputs 1 to 4. data2 = 10 to 13 deactivate outputs 1 to 4. 2E2S: data2 = 4 to 5 activate outputs 1 to 2. data2 = 12 to 13 deactivate outputs 1 to 2.
Write	3	0 - 7	Change the state of an output. The actual state is checked and it is internally changed automatically. 4E8S: data2 = 0 to 7 switch outputs 1 to 8. 6E6S: data2 = 0 to 5 switch outputs 1 to 6. 4E4S: data2 = 2 to 5 switch outputs 1 to 4. 2E2S: data2 = 4 to 5 switch outputs 1 to 2.
Read / Write	4	0 - 100	Opening percentage position of the blind. 4E8S: 1st blind (outputs 1 and 2). 6E6S: 1st blind (outputs 1 and 2).
Read / Write	5	0 - 100	Opening percentage position of the blind. 4E8S: 2nd blind (outputs 3 and 4). 6E6S: 2nd blind (outputs 3 and 4). 4E4S: 1st blind (outputs 1 and 2).
Read / Write	6	0 - 100	Opening percentage position of the blind. 4E8S: 3rd blind (outputs 5 and 6). 6E6S: 3rd blind (outputs 5 and 6). 4E4S: 2nd blind (outputs 3 and 4). 2E2S: 1st blind (outputs 1 and 2).

Read / Write	7	0 - 100	Opening percentage position of the blind. 4E8S: 4th blind (outputs 7 and 8).
Read / Write	11	0 – 15	Deactivate bit from the logic gate. 0 – 7 = bit 0 to bit 7 from OR gate. 8 – 15 = bit 0 to bit 7 from AND gate.
Read / Write	12	0 - 15	Activate bit from the logic gate. 0 – 7 = bit 0 a bit 7 from OR gate. 8 – 15 = bit 0 a bit 7 from AND gate.

5.2   EEPROM

Command	Data 1	Data 2	Description
ReadEeprom	0	0 - 255	BUSing® address of the device.
ReadEeprom / WriteEeprom	2	0 - 22	Inputs digital filter.
ReadEeprom / WriteEeprom	3	0 - 255	6E6S, 2E2S, 4E8S: blind time of 1ºst blind (in sec). Devices previous to 15/04/2016 counted the same time in all blinds. On Rejibus-Z: time = data2/2. If data 2 = 2, it is equivalent to 1 sec. Data 2 = 0 – 80 (max. time 40 sec, corresponding to data 2 = 80)
ReadEeprom / WriteEeprom	4	0 - 255	Short pulsation time in blind mode measured in seconds. Pulsation shorter than time = open / close step by step. Pulsation longer than time = open / close completely.
ReadEeprom / WriteEeprom	5	0 - 255	6E6S, 4E8S: Blind time of 2º blind (in seconds). 4E4S: Blind time of 1º blind (in seconds).
ReadEeprom / WriteEeprom	6	0 - 255	4E8S: Blind time of 3º blind (in seconds). 6E6S: Blind time of 3º blind (in seconds). 4E4S: Blind time of 2º blind (in seconds).
ReadEeprom / WriteEeprom	7	0 - 255	4E8S: Blind time of 4º blind (in seconds).

ReadEeprom / WriteEeprom	9	0 - 255	Set the working mode of the inputs. Data 2 = 0 Inputs in pushbutton mode. Data 2 = 1 Inputs in switch mode. Data 2 = 2 Blind mode. Data 2 > 3 Special mode. Some inputs in pushbutton mode and others in switch mode. According toTable5.2 Bit = 1 corresponding input in switch mode. Bit = 0 corresponding input in pushbutton mode.

TABLE5.1

5.3 TABLE OF INPUTS

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
6E6S	E6	E5	E4	E3	E2	E1	—	—
4E4S	E4	E3	E2	E1	—	—	—	—
2E2S	E2	E1	—	—	—	—	—	—

TABLE5.2

Bit = 0 activated input.
Bit = 1 switched input off.

Example: If 6E6S (Address 1) whose inputs 2 and 4 are activated is sent with a data1 reading = 0, the device is answered as follows:

254 for 1.3, Dato1: 0, Dato2: 0
1 for 254.1, Dato1: 212, Dato2: 212

The device responds to the status of its inputs to the ACK (command 1), with a value of 1 which is a decimal and is passed binary according to Table 2.3:

	E6	E5	E4	E3	E2	E1	—	—
212 =	1	1	0	1	0	1	0	0

5.4 OUTPUT TABLE

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
6E6S	—	—	Z6	Z5	Z4	Z3	Z2	Z1
4E4S	—	—	Z4	Z3	Z2	Z1	—	—
2E2S	—	—	Z2	Z1	—	—	—	—

TABLE5.3

Bit = 1 the corresponding output activated.
Bit = 0 output switched off.

Example: If you want to activate outflows 3 and 5 of a 6E6S (Address 1) and deactivate the rest, the following telegram must be sent:
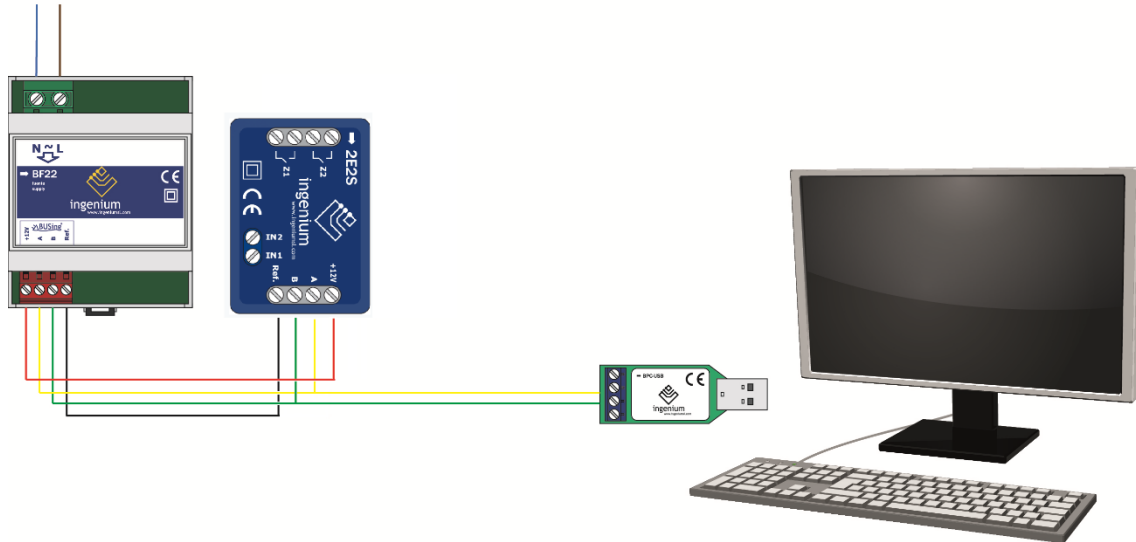
254 for 1.4, Dato1: 1, Dato2: 20

When sending dato1 = 1, the device sets out the condition of all of its outputs at the same time as the decimal point indicated in data2, which is passed binary according to Table 2.4:

|	—	—	Z6	Z5	Z4	Z3	Z2	Z1
20 =	0	0	0	1	0	1	0	0

6   DATA LOADING TO DEVICE

6.1   WIRING DEVICE

It is needed to have the 2E2S correctly connected as follows:

NOTE:IT IS NOT NECESSARY TO PLACE THE POWER SUPPLY IF THERE IS SUFFICIENT VOLTAGE IN THE INSTALLATION TO FEED IT. IT MAY BE THAT THE FEED COMES FROM OTHER DEVICE SUCH AS 6E6S, 4E4S... ETC.
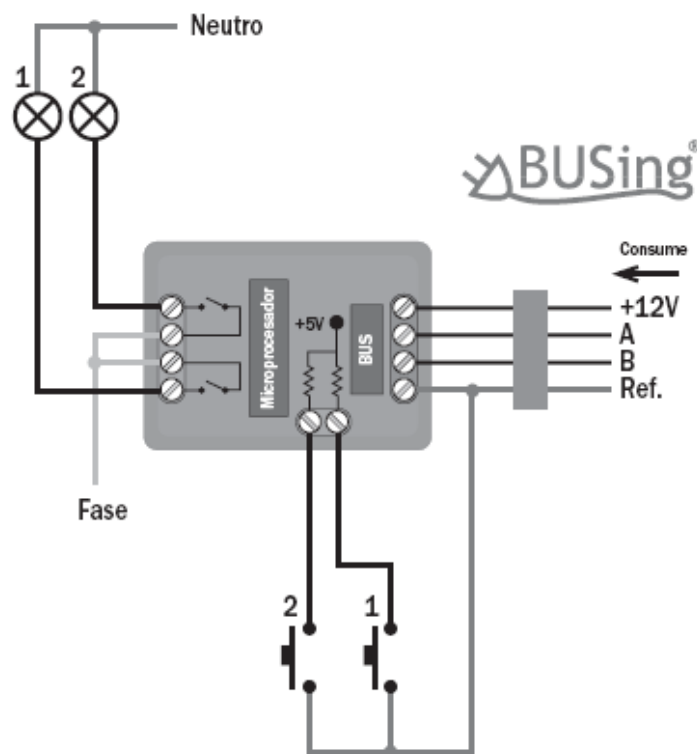
The device is located in the modules of the installation of SIDE. Right click on it and choose to re-program this node, using the following screen where click on "Program".
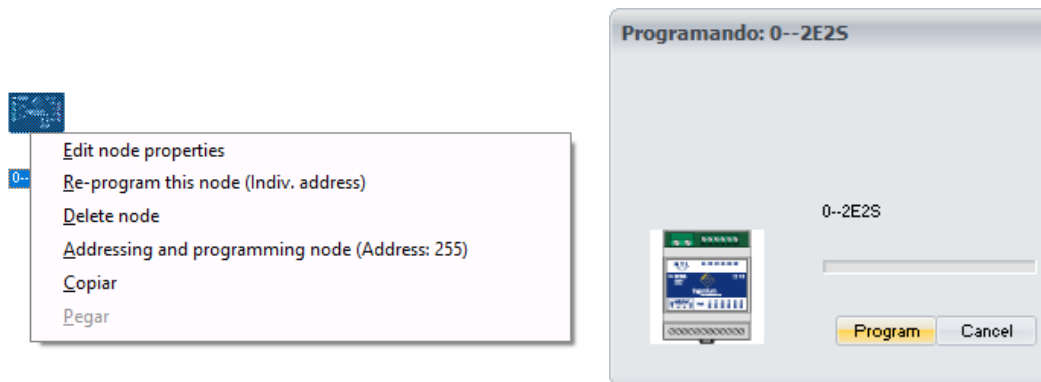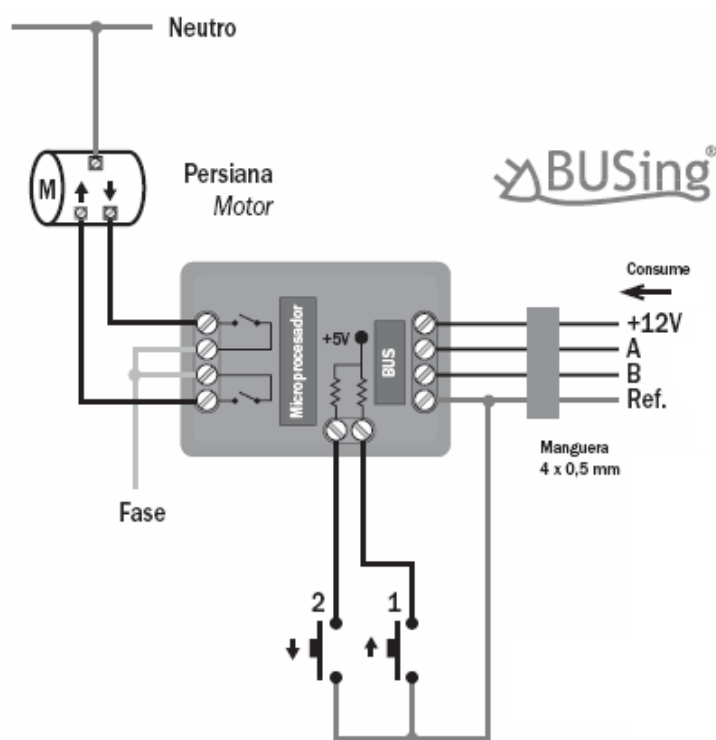

Wait until the bar on top Program button reach the end so the device has the data downloaded.
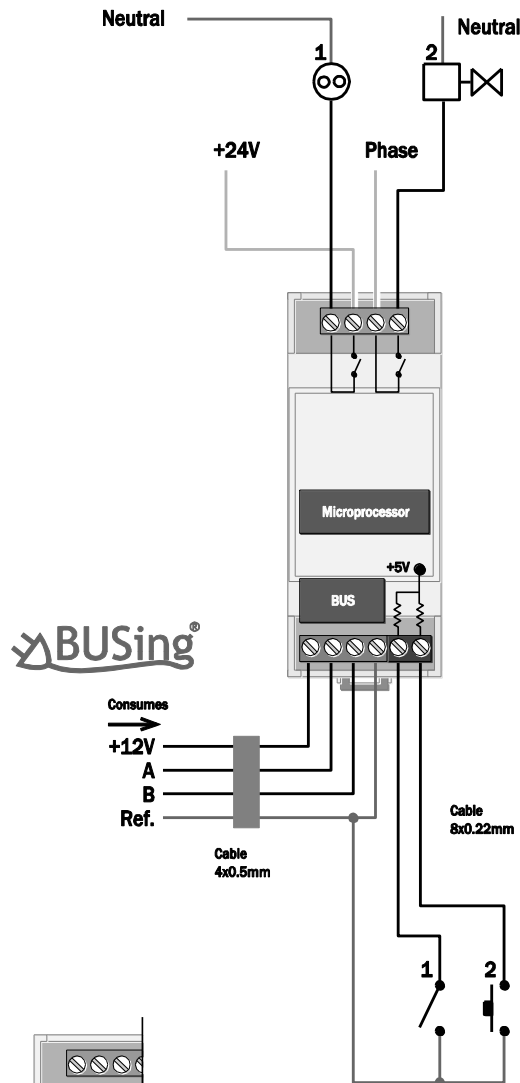
7 WIRING

7.1 2E2S FOR LIGHTING
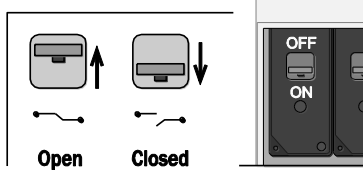

7.2 2E2S FOR BLINDS

7.3 2E2S-C30A

2E2S-C30A output wiring
Maximum power per output, 30A resistive load.

Manual reset
Lifting up the device cover you will find the relay switches, one per output

Open   Closed

2E2S-C30A input wiring
All inputs are SELV.
They are internally referred to 5V and they are activated when connected to Ref.

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