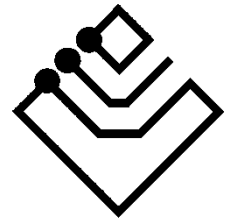


Gateway

BUSing-PNAC-D



ingenium

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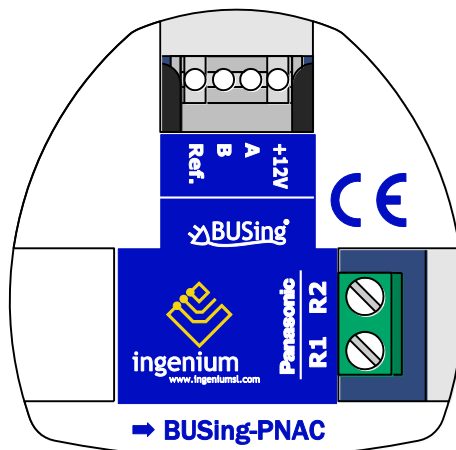
1 GENERAL DESCRIPTION

The BUSing-PNAC-D gateway allows direct communication from a BUSing® protocol installation with compatible Panasonic® climate units from series ECOi and PACi. This makes it easy to control the machine from BUSing screens, web servers or the Ingenium app available for mobile devices (iOS and Android) with a fully graphical and visual interface.

Apart from reading ambient temperature, set point temperature may be consulted and modified, as well as indicating to the machine its mode of operation and fan speed.

Each gateway will allow the control of an internal Panasonic® climate unit, to which is connected directly through 2 wires with polarity.

To ensure compatibility of the gateways, contact the technical service or consult the compatibility table.

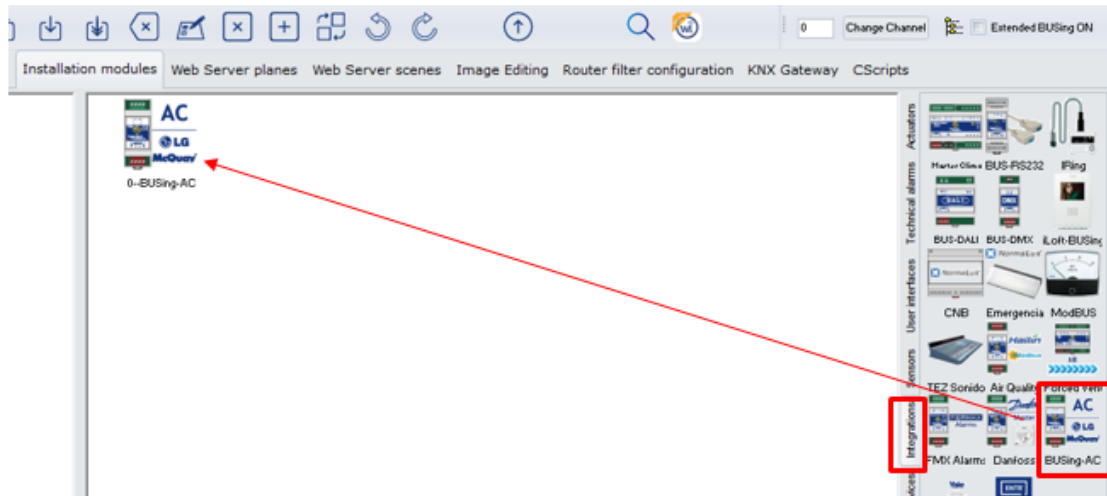


2 TECHNICAL DESCRIPTION

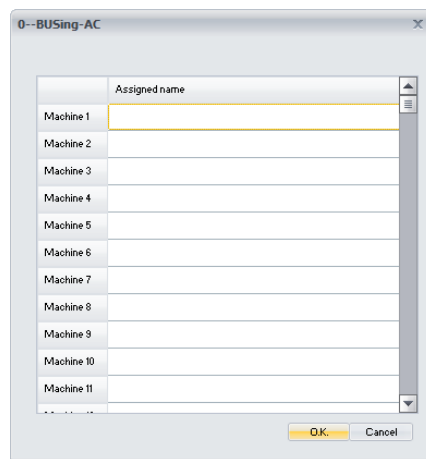
- Gateway for integration of Panasonic AC® air conditioning system and BUSing® protocol.
- Allows control of one indoor Panasonic unit from ECOi and PACi series.
- Direct communication through 2 wires with polarity.
- Control and monitoring of the status and operating modes of the Panasonic climate machine.
 - On/Off machine
 - Ambient temperature
 - Consignment temperature
 - Modes of operation
 - Machine speed
- Mounting next to the climate unit or integrated into the ceiling.
- Voltage of Panasonic indoor unit should be checked (between R1 and R2) in order to determine the polarity and connect the wires between the gateway and indoor unit correctly.
- Compatible with any indoor unit with remote controller, with it is connected in parallel to.
- It allows control from BUSing® screens, web servers or the free Ingenium App.

3 PROGRAMMING OF THE DEVICE

From the Development System (SIDE) BUSing-AC node must be inserted in the integrations tab, in the address wanted the gateway to have.

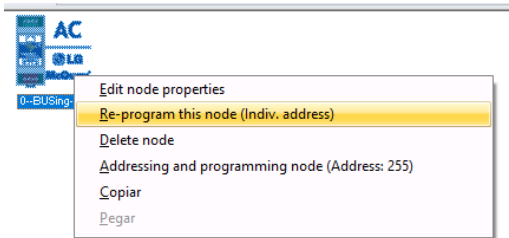


By double-clicking or right-clicking on the icon, and accessing its properties, a window will open like the following:



The only thing that needs to be programmed in this part, is to name the machine 1, which will be the one appearing, when linking it, on the graphical interfaces. The rest of the machines will not be used, as this gateway can only control one climate unit.

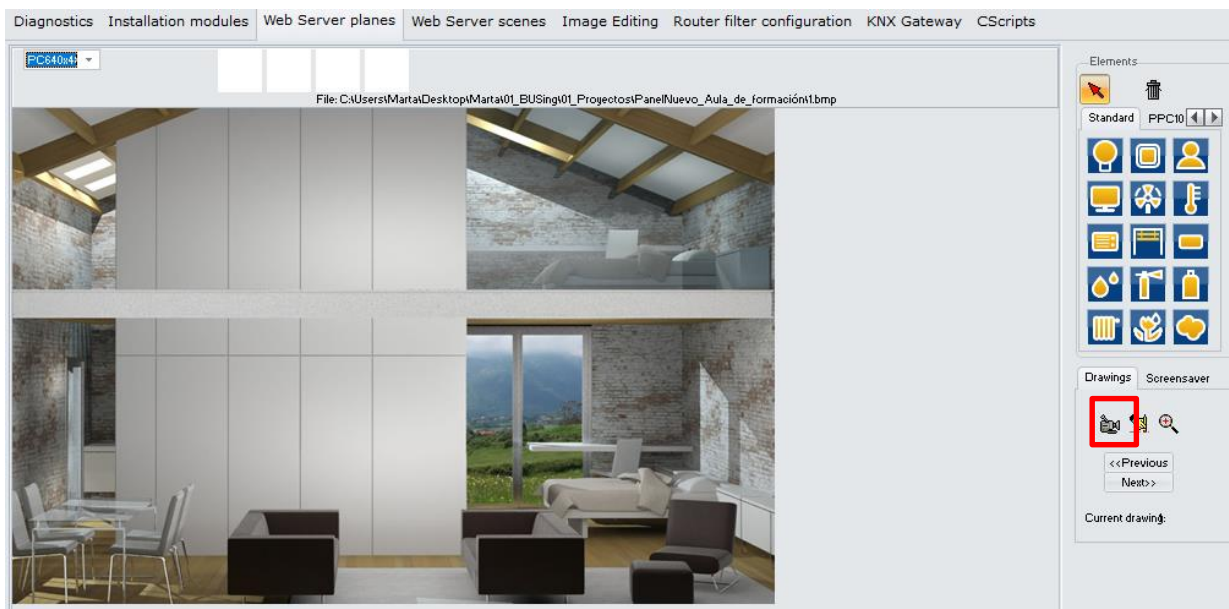
Once entered in the BUSing project and having only connected to the BUS this computer, the device should be addressed, right click on it and select *Program this node by appearing the property screen on which you must click on programming*. You can also right-click: *Direct and program node*.



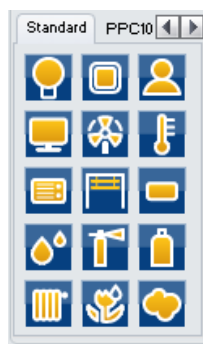
3.1 POINT TO POINT CONTROL IN PPL

To be able to control the machine it will be necessary to include a thermostat icon on one of the graphical interfaces or web server of BUSing®, and make a point-to-point link. The following example is about Ethbus3 or PPL.

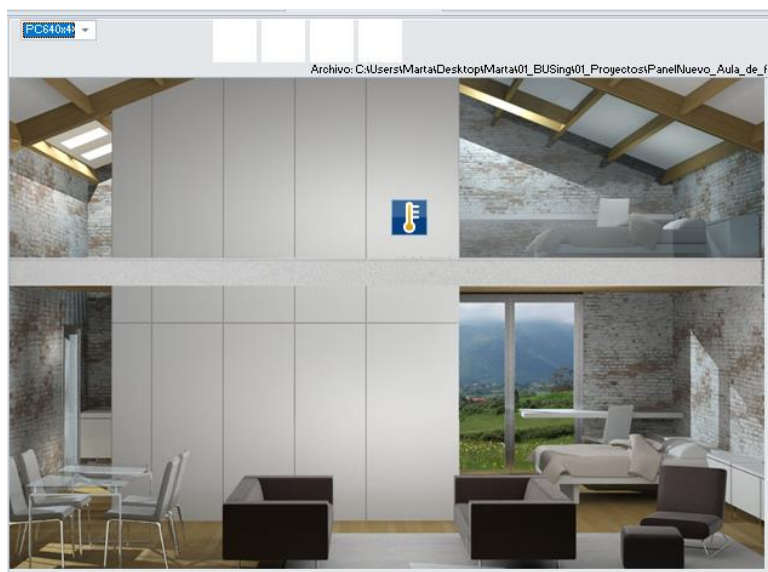
In the *Web Server Planes* tab, with a previously added plane, through the red icon, located on the right side:



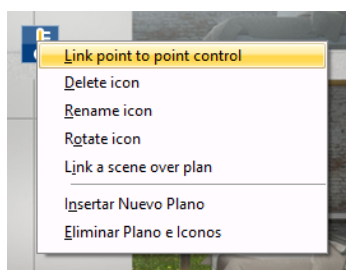
Click on a thermometer icon, available in the icon battery on the right. Next, with the mouse you click on the part of the plane you want to incorporate this icon:



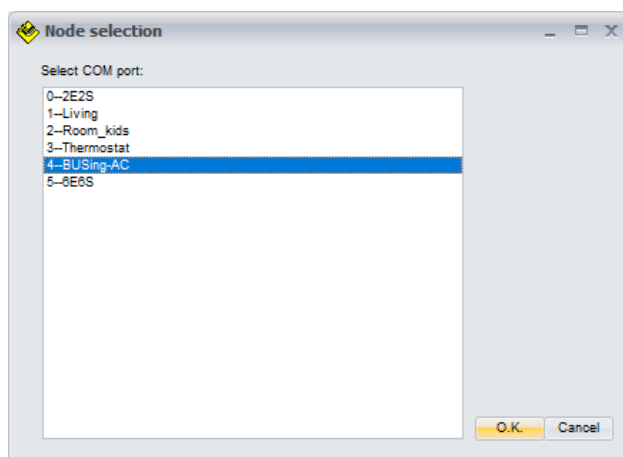
And the map would look like:



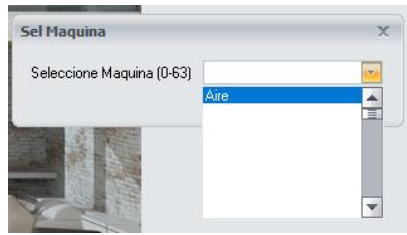
The next step will be to make a point-to-point link of the thermostat icon with the AC gateway. To do this, you must right click on the icon and select the option *Link control point-to-point*.



When clicking on this option, a window will appear like the next one, with all the nodes added to our *project (in Installation Modules)*. Select the corresponding node for AC gateway, in the case of the example, node 4 and press Ok.

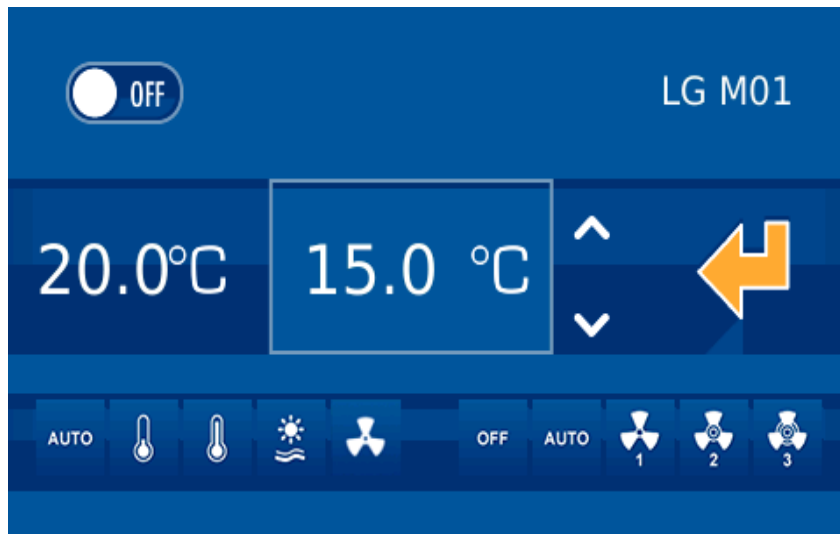


Again, a window will appear to select the Panasonic machine to add. It is reminded that this gateway only controls 1 indoor climate unit, so only the first machine should be selected, though 0 to 63 machines are available. This is because that BUSing-AC icon added in *Installation Modules* serves to program other BUSing AC gateways that can control more than one AC unit.



Once pressed Ok, the point-to-point control of the gateway would already be linked with its corresponding icon on the PPL. For further information regarding programming a PPL, check its programming manual.

Once downloaded the programming to the screen or webserver, the graphic interface for this device would look like the following:



On the left side, the ambient temperature can be read, the next value in the rectangle is the setpoint temperature. Finally, at the left bottom are the available modes of the AC unit, and on the right side the speed.

4 TABLE OF COMPATIBILITY

Compatible models always refer to indoor units, not references to outdoor plus indoor units.

Serie	Type	Indoor Unit Model	
ECOi y ECOiEX	Casette	S-_MD1E5	
		S-_ML1E5	
		S-_MU1E5(A)	
		S-_MU2E5(A)	
		S-_PU1U6	
		S-_MY1E5	
		S-_MY2E5A	
	Conductos	S-_MF1E5(A)	
		PS-_MF2E5(A)	
		S-_PF1U6	
		S-_MM1E5(A)	
		S-_ME1E5	
		S-_ME2E5	
	Techo	S-_MT1E5	
		S-_MT2E5A	
		S-_PT1U6	
	Pared	S-_MK1E5(A)	
		S-_MK2E5A/B	
	Suelo	S-_MP1E5	
		S-_MR1E5	
	PACi	Casette	S-_PU1E5(A)
S-_PU2E5A/B			
S-_PU1R5A			
S-_PU1U6			
S-_PU2U6			
S-_PY1E5			
S-_PY2E5A/B			
Techo		S-_PT1E5	
		S-_PT2E5(A)/B	
		S-_PT2R5A	
		Techo	S-_PT1U6

PACi	Pared	S_PT2U6
		S-_PK1E5(A)/B
		S-_PK1U6
		S-_PK2U6
	Conductos	S-_PF1E5(A)/B
		S-_PF1R5(A)
		S-_PF1U6
		S-_PF2U6
		CS-E_SD3UAW
		S-_PN1E5(A)/B
		S-_PE1E5
		S-_PE2E5
		S-_PE1E8
		S-_PE1R5A
		S-_PE1R5B
		S-200PE2R5
		S-140PE2R5B
		S-_PE3R5

Any AC model not included on this list, might not be compatible.

Ingenium cannot guarantee that this document has no writing or composition errors, as well as similar problems.

5 RECORDS THAT SUPPORTS

5.1 RAM

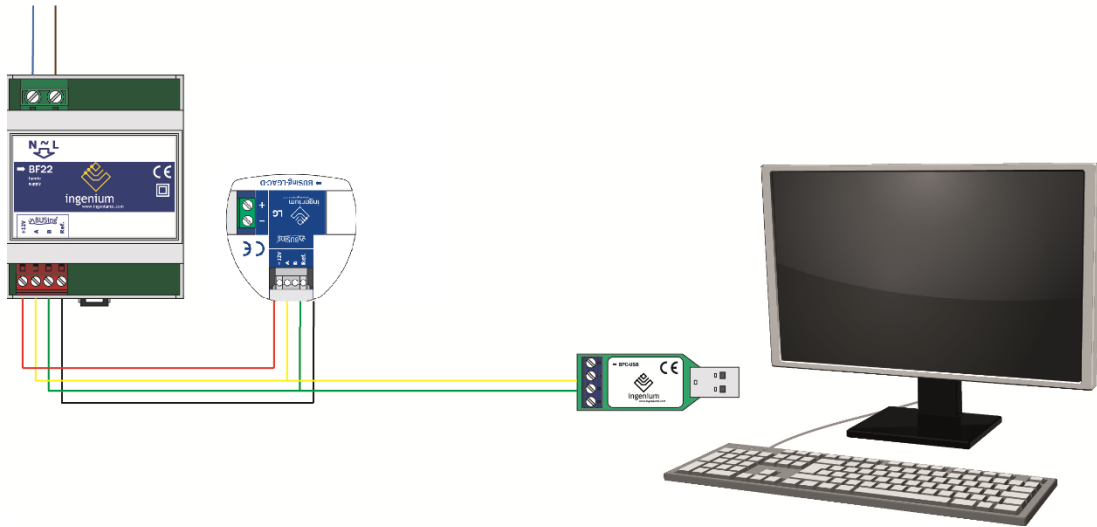
Command	Data 1	Data 2	Description
Read / Write	0	0-3	0 = Deactivate control of the machine. 3 = On machine. 2 = Off machine.
Read/ Write	1	0-68	Ventilation speed and operating mode. Data 2 = 0-4: Fan off. Data 2 = 16: Low ventilation (Low)/Cold mode (Cool). Data 2 = 17: Low ventilation (Low)/Dry mode. Data 2 = 18: Low ventilation (Low)/Ventilation-only mode (Fan). Data 2 = 19: Low ventilation (Low)/Auto mode. Data 2 = 20: Low ventilation (Low)/Heat mode. Data 2 = 32: Medium ventilation (Medium)/Cold mode (Cool). Data 2 = 33: Medium ventilation (Medium)/Dry mode. Data 2 = 34: Medium ventilation (Medium)/Ventilation-only mode (Fan). Data 2 = 35: Medium ventilation/automatic mode (Auto). Data 2 = 36: Medium ventilation (Medium)/Heat mode. Data 2 = 48: High ventilation (High)/Cold mode (Cool). Data 2 = 49: High ventilation (High)/Dry mode. Data 2 = 50: High ventilation (High)/Ventilation-only mode (Fan). Data 2 = 51: High ventilation (High)/Auto mode. Data 2 = 52: High ventilation (High)/Heat mode. Data 2 = 64: Automatic ventilation (Auto)/Cold mode (Cool). Data 2 = 65: Automatic ventilation (Auto)/Dry mode. Data 2 = 66: Automatic ventilation (Auto)/Ventilation-only mode (Fan). Data 2 = 67: Automatic ventilation (Auto)/Auto mode (Auto). Data 2 = 68: Automatic ventilation (Auto)/Heat mode.
Read / Write	2	1-16	Consignment temperature in °C = Data 2 + 15
Read	3	102-132	Temperature measured °C = (164 – data 2)/2

5.2 EEPROM

Command	Data 1	Data 2	Description
ReadEeprom	0	0 - 255	Device BUSING® address.

6 DATA DOWNLOADING

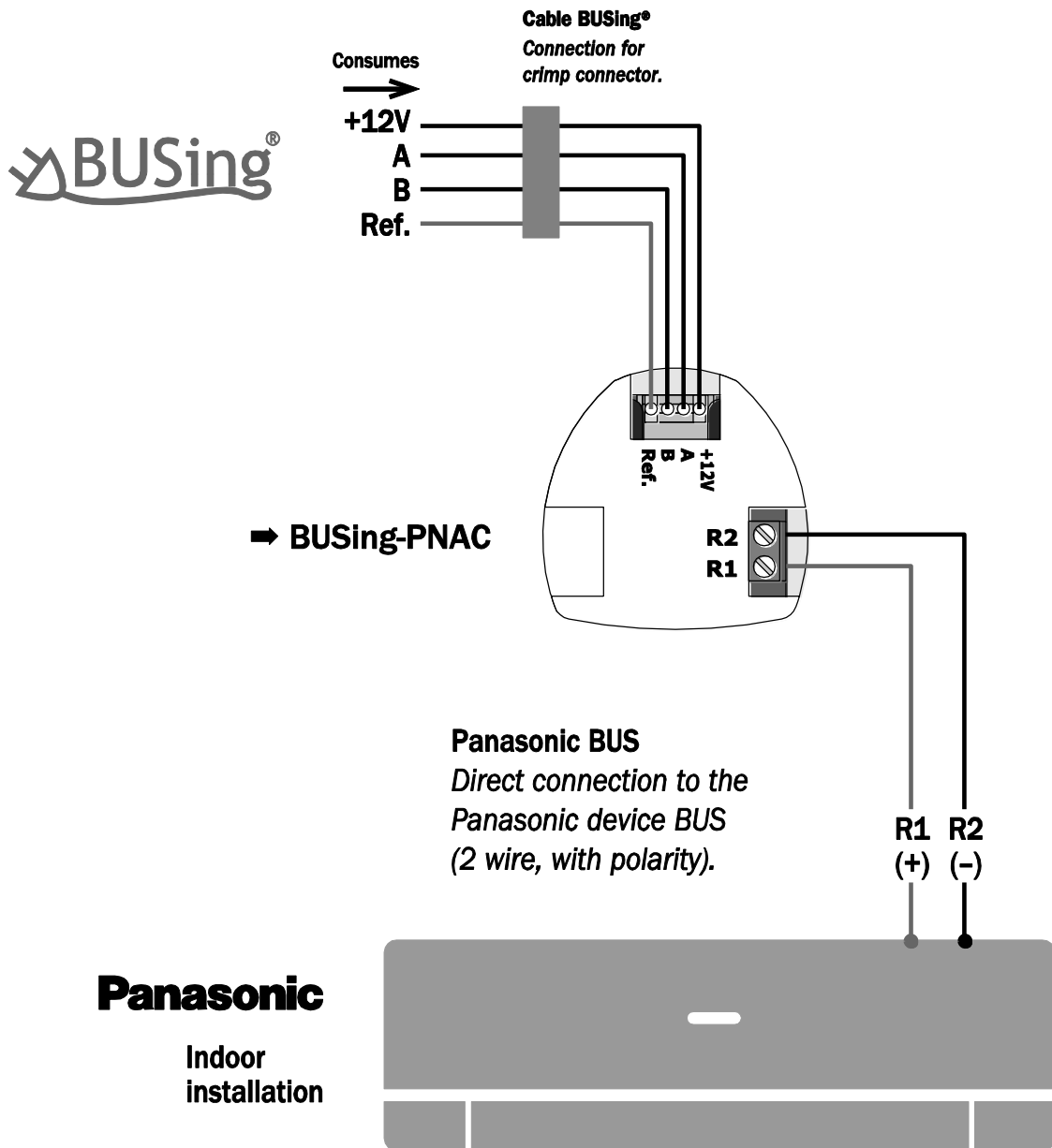
Previously we have to have the BUSing-PNAC-D gateway properly connected as follows:



NOTE: IT IS NOT NECESSARY TO PLACE THE POWER SUPPLY IF THERE IS SUFFICIENT VOLTAGE IN THE INSTALLATION TO POWER IT. IT COULD BE THAT THE POWER COMES FROM OTHER EQUIPMENT LIKE 6E6S, 4E4S... ETC.

The only information to be turned to the gateway is the BUSing address. If you click on the icon *to reprogramme this node*, no window will appear to confirm the programming, since the name assigned to machine 1 in the gateway properties is necessary for point-to-point control linking on a screen/web server.

7 WIRING





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