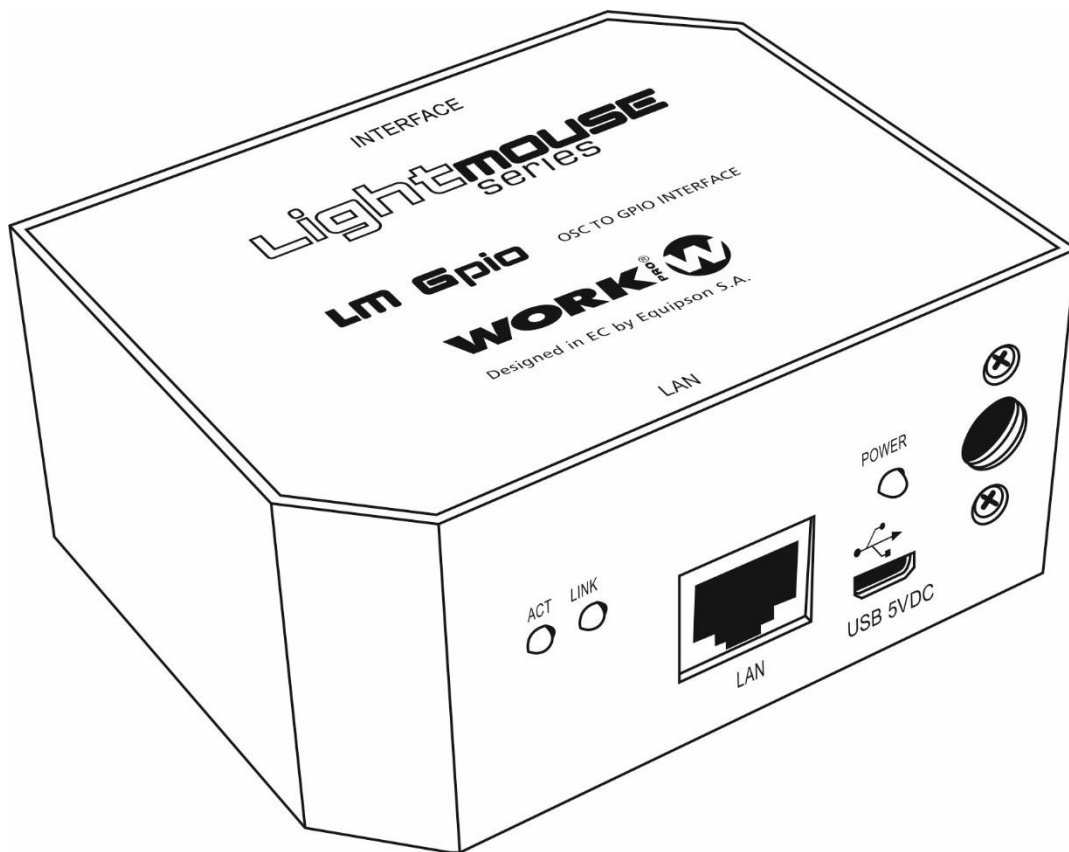# Lightmouse series

# WORK PRO

LM GPIO

nov 2016

# Overview

## LM GPIO overview

LM GPIO is a programmable UDP-GPIO interface (In & Out ) . This guides describes the LM GPIO features and functions.

It is possible to send control instructions including them inside the own OSC command. It is possible to store different memory banks.

Those memories can provoke the execution of one or several UDP/OSC commands as muc as open or closed contacts through GPIO ports.

Ports:

RJ 45
SUB-D15

Contacts:

It has 10 GPIO programable contacts.

# CONNECTIONS

## Device connections

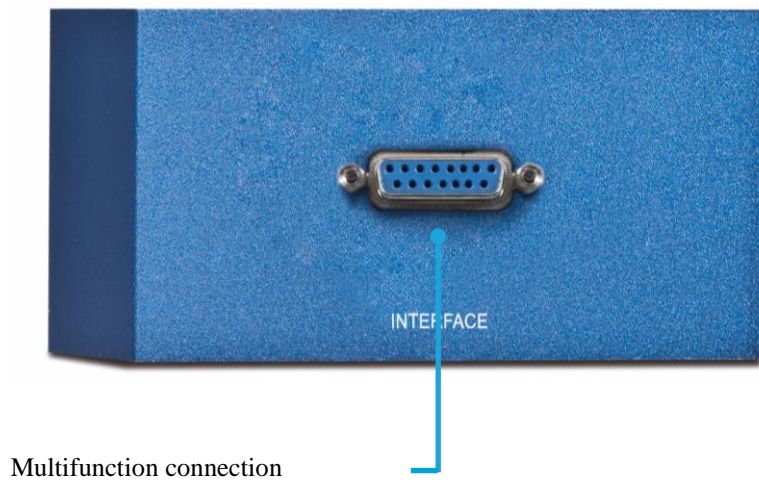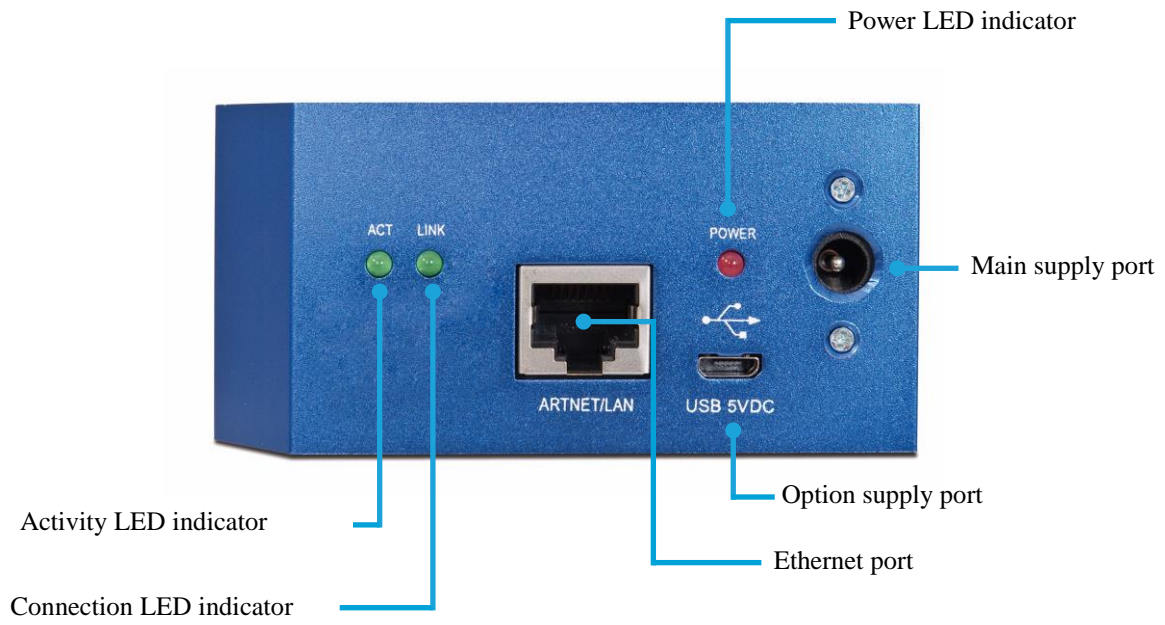Ethernet port, for the LM GPIO connection to local network. The connection is made through RJ-45.

Take into account that for direct connection to PC is it necessary a croosover cable (In case of your PC is no Auto-MDIX compatible).

Main supply port, to connect the external power supply (included with the device).

Supply optional port, to feed the device through USB.

Multifunction connection port, it is a SUB-D15 used to connect the multiconnection PCB included with the device.5

| PIN | Contact |
|----:|---------|
| 1 | GPIO 1 |
| 2 | GPIO 2 |
| 3 | GND |
| 4 | GPIO 3 |
| 5 | GPIO 4 |
| 6 | GND |
| 7 | GPIO 5 |
| 8 | GPIO 6 |
| 9 | GPIO 7 |
| 10 | GPIO 8 |
| 11 | GND |
| 12 | GPIO 9 |
| 13 | GPIO 10 |
| 14 | A 1 |
| 15 | A 2 |

Power LED indicator

Main supply port

Activity LED indicator

Connection LED indicator

Option supply port

Ethernet port

ARTNET/LAN

USB 5VDC

ACT    LINK

POWER

INTERFACE

Multifunction connection

# Adapter PCB

LM GPIO includes an adapter. This adapter has a SUB-D15 male connector in order to connect to SUB-D15 female connector (labeled as " INTERFACE " ).

# WORKCAD CONNECTION

## WorkCAD Operation

All advanced control fuctions must be made through WorkCAD, it can be download from WorkPro website.

### LM GPIO detection in WorkCAD

Start WorkCAD and select the "Network" tab to check all devices connected in the network.



Sliding the mouse over "LM GPIO" could be showed 3 different icons:

∧ : It indicates that the device is not updated.

＋ : Pushing on it, we add the device to the project. Take into account that if the device is not updated, we cannot add to the project.

i :  Sliding the mouse over it, we can see the device information: (Static IP, Auto IP, Name, Version …)

## Getting information about LM GPIO in WorkCAD

To get information about any device, place the mouse pointer over **"i"** icon of each device
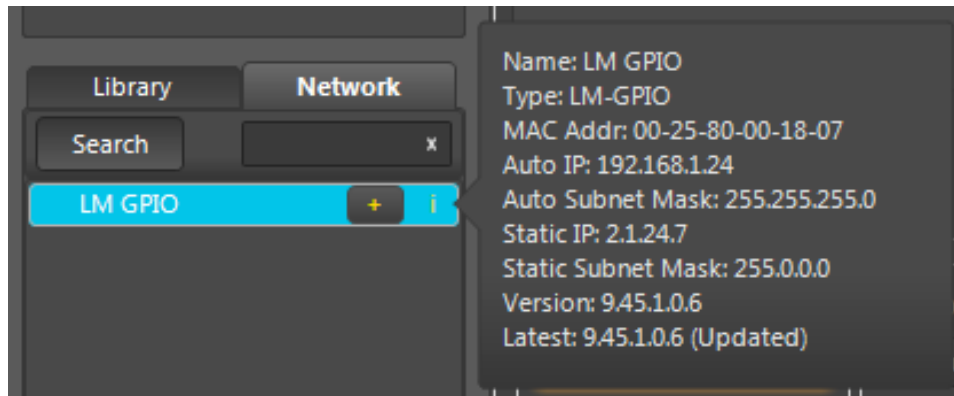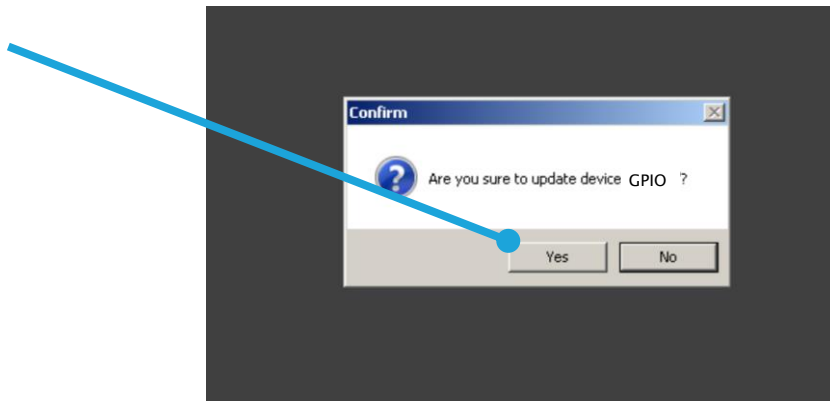


## Updating the LM GPIO in WorkCAD

Before to install the LM devices is recommended to update all of them to a recent software version, they include bugs corrections and new functionalities. The steps for device updating are the following:

1.Start WorkCAD and press"Network" tab, there you can find all LM family devices available in the network.

2. Sliding the mouse pointer over the name of the device, you can see different icons, if it appear the  ^  icon, it means we need to update the device.
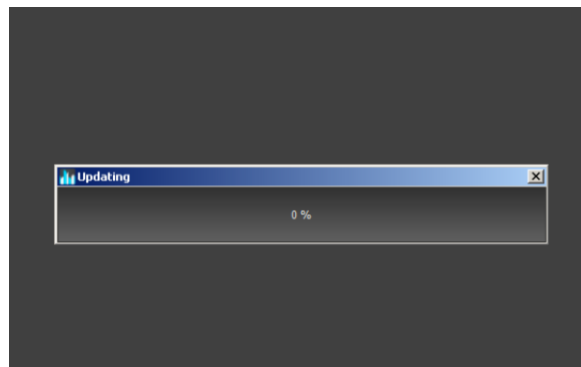
3. Click on ^ icon ( in case of it is showed ) to update the device.



If an error mistake appears pressing "Yes", please, check the IP range in the PC with WorkCAD, it must be the same as the LM device.
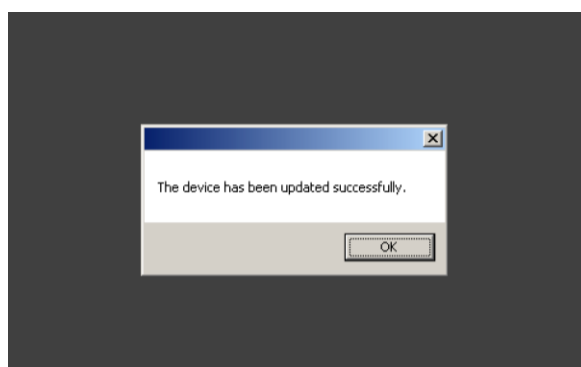
4.Click on "YES" and the updating process will start.



5.During the updating process the progress bar will stop some seconds during the auto-reset, please, keep some seconds and do not disconnect the device until the process finishes
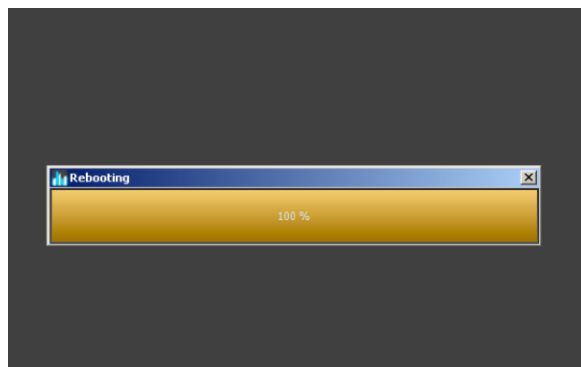


6.Once finished the updating process, WorkCAD will show a window indicating that the process must be finished successfully.
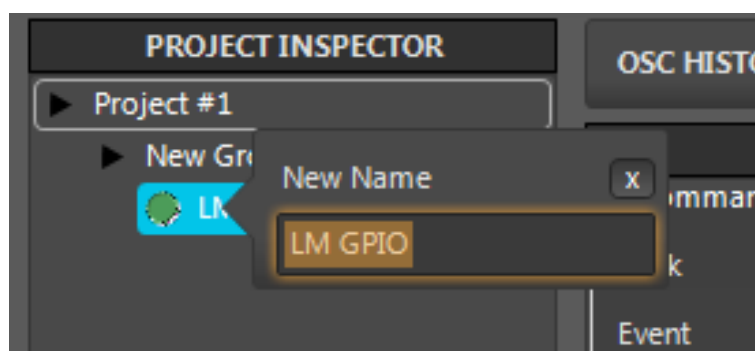
## Changing the LM GPIO name in WorkCAD

1-In order to change the name of the device, it is necessary to add it to a project, therefore, press "+" icon in a device will be showed in "Network" tab. The device will be inside "Project inspector" (Upper/left side).

2-Over the device name, press "left click" and a dropdown menu will be showed, then, select "Rename" option.
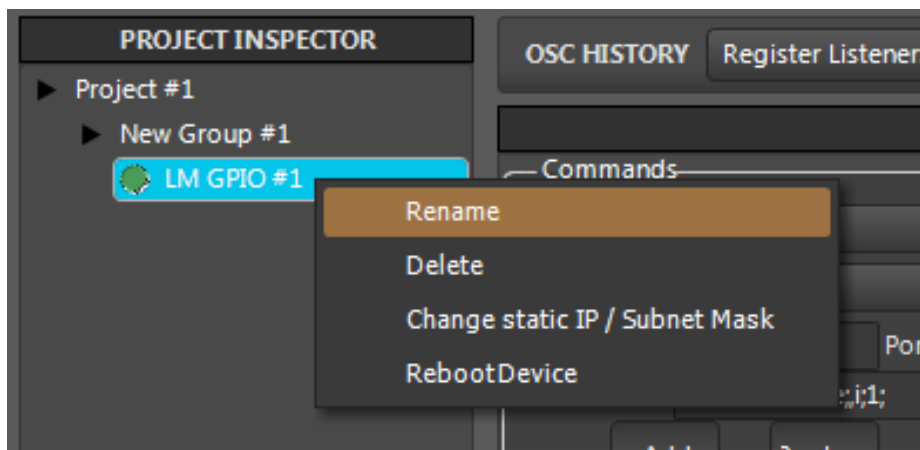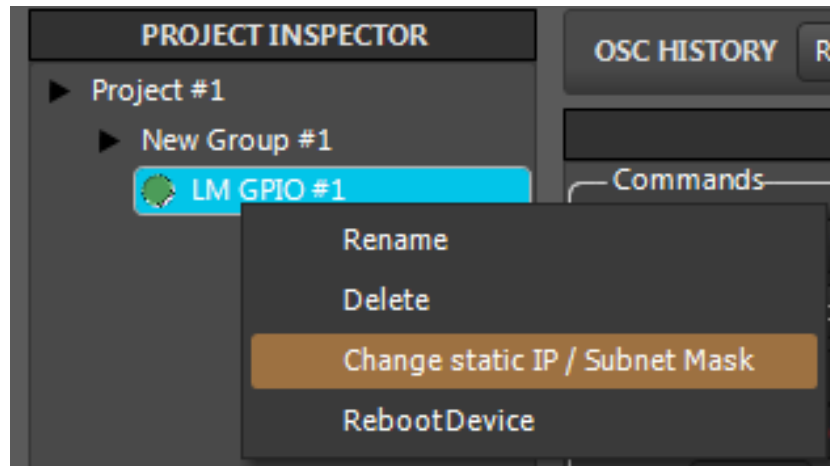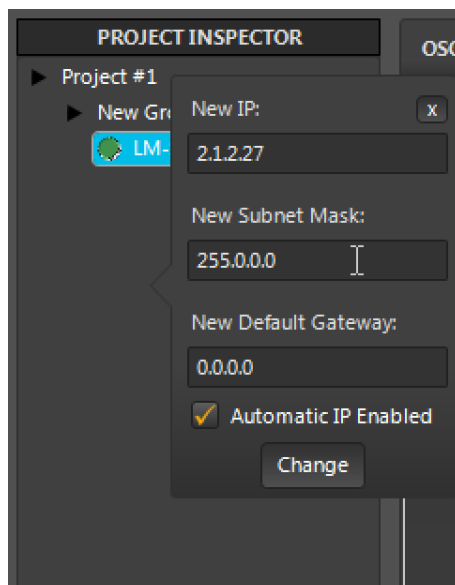


3-Assign a new name.



Ones modified the name and IP address, it is advisable to reset the device in order to store the data correctly.

## Changing the IP address LM GPIO using WorkCAD

1- Over the device name, press "left click" and a dropdown menu will be showed, then, select "Change static IP" option.
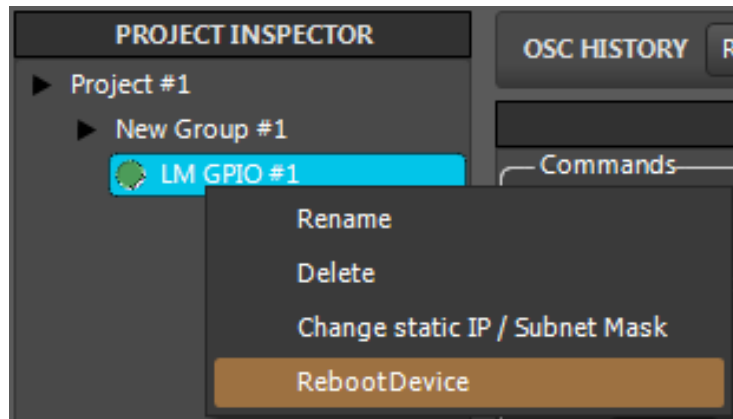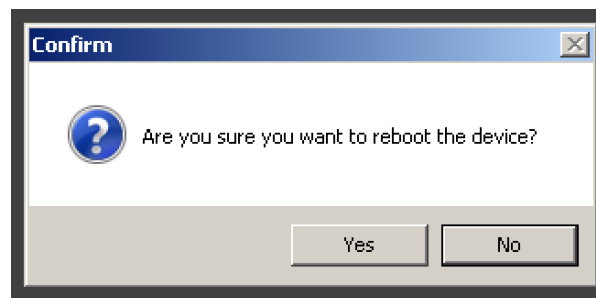


2-Assign a new IP address



Ones modified the name and IP address, it is advisable to reset the device in order to store the data correctly.

### Restart a LM GPIO using WorkCAD

1- Over the device name, press "left click" and a dropdown menu will be showed, then, select "RebootDevice" option



2-WorkCAD will require to us confirmation to restart the device.

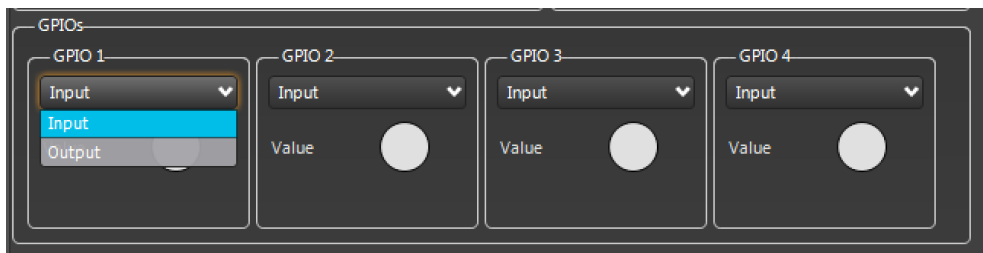# CONFIGURATION

## GPIO ports configuration

The10 ports GPIO can be configuread as much as input as output.
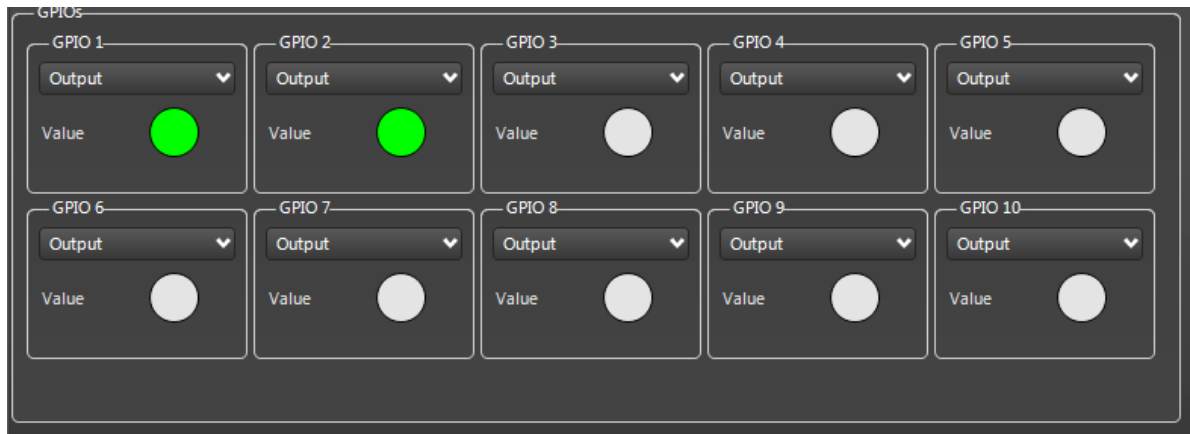


Using the dropdown menu, we can select the behaviour (input or output).



In the downside is located a state indicator, if the contact is being used, it will lit in Green color. When is configured as output, it is possible to act over the contact manually, clicking over the indicator.
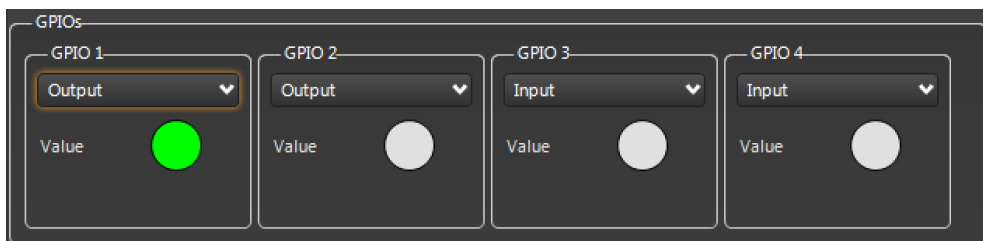
# USING EXAMPLES

**Closing / opening a GPIO port through OSC**

1º-In the control device adjust the IP target according to the IP of the LM GPIO.

2º-In the control device adjust the port as 9000

3º-From the control device we send the command:

*/gpio1/mode*

With a value "1" to configure the GPIO as output.

4º-From the control device we send the command:

*/gpio1/value*

With a value "1" to activate GPIO 1 port

5º- From the control device we send the command:

*/gpio1/value*

With a value "0" to deactivate GPIO 1 port

## Closing a GPIO port once another GPIO port is closed

1º-Connect the LM-GPIO to the network and using  WorkCAD we add it to a project.

2º-Configure GPIO1 as input

3º- Configure GPIO2 as output

4º-In "Commands" section select "Bank" GPIO1

5º-In "Event" select "On Activate"

6º-In IP enter: 127.0.0.1

7º-In Port enter: 9000

8º-In Command enter the command:

//gpio2/value;,i;1;

9º-"click" on "Add" button

10ª- "click" on "Apply" button to store changes.


Now when the GPIO1 ( GND+Pin1) is activated, the GPIO2 will active

## Close several GPIO ports once another port is closed

1º-Connect the LM-GPIO to the network and using WorkCAD we add it to a project.

2º-Configure GPIO1 as input

3º- Configure GPIO2, GPIO3, GPIO4 as outputs

4º-In "Commands" section select "Bank" GPIO1

5º-In "Event" select "On Activate"

6º-In IP enter: 127.0.0.1

7º-In Port enter: 9000

8º-In Command enter the command:

//gpio2/value;,i;1;

9º-"click" on "Add" button

10ª- "click" on "Apply" button to store changes.

//gpio3/value;,i;1;

11º-"click" on "Add" button

12º- "click" on "Apply" button to store changes.

//gpio4/value;,i;1;

13º-"click" on "Add" button

14º- "click" on "Apply" button to store changes.


Now when the GPIO1 ( GND+Pin1) is activated, the GPIO2, GPIO3 & GPIO4 will active

## Close several GPIO ports once one port is opened

1º-Connect the LM-GPIO to the network and using  WorkCAD we add it to a project.

2º-Configure GPIO1 as input

3º- Configure GPIO2, GPIO3, GPIO4 as outputs

4º-In "Commands" section select "Bank" GPIO1

5º-In "Event" select "On Deactivate"

6º-In IP enter: 127.0.0.1

7º-In Port enter: 9000

8º-In Command enter the command:

//gpio2/value;,i;1;

9º-"click" on "Add" button

10ª- "click" on "Apply" button to store changes.

//gpio3/value;,i;1;

11º-"click" on "Add" button

12º- "click" on "Apply" button to store changes.

//gpio4/value;,i;1;

13º-"click" on "Add" button

14º- "click" on "Apply" button to store changes.


Now when the GPIO1 ( GND+Pin1) is deactivated, the GPIO2, GPIO3 & GPIO4 will active

## Close several GPIO ports of a remote LM GPIO

1º-Connect both LM-GPIO´s to the network and using WorkCAD we add them to a project.

2º-Configure GPIO1 as input local device

3º- Configure GPIO2, GPIO3, GPIO4 as output remote device

4º-In "Commands" section select "Bank" GPIO1

5º-In "Event" select "On Activate"

Where:

-*IP* to enter IP address of the remote device that we want to send the message.

- Port to enter the destiny port of the message (9000 in this case)

6º-In Command enter the command:

//gpio2/value;,i;1;

7º-"click" on "Add" button

8º- "click" on "Apply" button to store changes.

//gpio3/value;,i;1;

9º-"click" on "Add" button

10º- "click" on "Apply" button to store changes.

//gpio4/value;,i;1;

11º-"click" on "Add" button

12º- "click" on "Apply" button to store changes.


Now when the GPIO1 port ( GND+Pin1) from local LM is deactivated, the GPIO2, GPIO3 & GPIO4 from remote LM GPIO will active

## Activate several ports when the device starts

1º-Connect the LM-GPIO to the network and using  WorkCAD we add it to a project.

2º-Configure GPIO1 as output

3º- Configure GPIO2 as output

4º-In "Commands" section select the "On Start" Bank

5º-In IP enter: 127.0.0.1

6º-In Port enter: 9000

7º-In Command enter the command:

//gpio2/value;,i;1;

8º-"click" on "Add" button

9º- "click" on "Apply" button to store changes.

//gpio1/value;,i;1;

10º-"click" on "Add" button

11º- "click" on "Apply" button to store changes.

Now, when LM-GPIO starts, the GPIO2 and GPIO1 will be activated.

# COMMANDS CHART

| | |
|---|---|
| Execute a memory | //memory3/exec;,; |
| Activate GPIO | //gpio1/value;,i;1; |
| Deactivate GPIO | //gpio1/value;,i;0; |
| Adjust one port as input | //gpio1/mode;,i;0; |
| Adjust one port as output | //gpio1/mode;,i;1; |

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