

WiFi SERVER BRIDGE FOR THE MANAGEMENT OF HOME AUTOMATION SYSTEMS

WiFi Server Bridge 433 MHz designed and supplied by *Loren Controls*, is a control unit management device that can easily be hooked up to your home WiFi network. It is equipped with intelligent software capable of providing a familiar and intuitive graphic representation for state acquisition and execution of commands using popular web browsers as “Firefox”, “Chrome” and “Opera”.

It is compatible with *Loren Controls* control units, such as “Roll Shutter”, “Smart Switch” and “Flood Alarm” that operate in the 433 MHz band. In addition to manual commands, it is able to manage automatic opening and closing in each room or in the entire house and to transmit alarm messages using Telegram. It is also equipped with the software update procedure for managing new devices.



fig.1

CONTENTS

1 - SERVER INSTALLATION

2 - WIFI CONNECTION

3- WIFI DICONNECTION

4 - COMMAND PAGES

5 - SERVER SETTING

6- DEVICE REGISTRATION PROCEDURE

7 - OPENING AND CLOSING TIMES SELECTION

8 - SYSTEM SETTINGS

9 - PASSWORD

10 - SHUTTERS STATE AND SWITCH STATE

11 - TIMER PAGES

12- SYSTEM PAGES

13 – LOGO PAGE

14 - LED

15 - SHUTTER COMMANDS

16 - REGISTRATION PROCESS ON SERVER FOR CLONING COMMANDS REGISTERED ON KEYFOB

17 - REGISTRATION PROCESS ON KEYFOB FOR CLONING COMMANDS REGISTERED ON SERVER

18- SENDING ALARMS

19 - SOFTWARE UPDATE

20 - CANCELLATION OF REGISTERED DEVICES

21- ACCESS TO THE SERVER FROM THE PUBLIC NETWORK

22 - TECHNICAL DATA

23 - WARRANTY

1 - SERVER INSTALLATION

In order to function, the server requires only to be connected to a 5Vdc power supply unit.

To this purpose, it comes equipped with a USB cable that can be connected to common power supplies for smartphones or to any USB port.

It should be placed in an open area, in a central position with respect to the devices to be operated and, in any case, within the reach of the WiFi network to which it will connect.



2 - WIFI CONNECTION

The server comes programmed to operate as “access point” (AP) with the IP address **198.168.4.1**.

Before starting any procedure, you need to connect to the AP network of the server in order to enable the connection to the local WiFi network.

The name of the AP network is **LC_AP_NET** and the password for the connection is **12345678**.

Once connected, the user interface displayed by the browser is shown in Figure 2 and it comprises two sections: the first allows you to choose the network name to connect to and to enter the corresponding password, while the second allows you to give an identifying name to the device and to select the way of allocating the addresses (**DHCP** or **Static**).

If **DHCP** is selected, the network addresses (*device, gateway, DNS and subnet mask*) are allocated automatically, if **Static** is selected, it is necessary instead to set the values. Any changes made to section 2 are saved only after pressing the “*Update Name & Address*” key, and their acquisition is reported in the textbox associated with the “*Data Saved*” key.

When you first start up the device, the two sections are loaded with default values shown in Figure 2.

To start the connection procedure, it is necessary to press the “*Connect Device*” key, after selecting the WiFi network and entering the network password, and wait a maximum of 30 seconds. During this time, the procedure is reported in the textbox of the “*Data Saved*” key with the scrolling of the characters “>>>>>>>”. If the connection is successful, the blue led stops flashing at 1-second intervals and it performs some fast flashes before remaining permanently lit.

In this case, the address allocated to the device by the router is loaded into the browser address bar and the browser tries to load the user interface at the “**COMMAND PAGE**” (Figure 3). It is possible to read the address allocated to the server by the router on the router active connections page where it is associated with the name given to the server during the compilation of section 2.

If the WiFi connection is established with the **Static** option, the address allocated to the server is the one set-up in section 2. You can carry out connection by writing the server IP address into the browser address bar. However, it is of advantage to save the address in the form of a link to have immediate access to the “**COMMAND PAGE**”.

The server also handles the **mDNS** protocol that allows the access without knowing the IP address, simply by writing in the address bar the name given to the server followed by “*local*”.

It should be noted that not all smartphones or PCs handle the **mDNS** protocol, thus the only secure way to connect remains that of writing the IP address.

3 - WIFI DISCONNECTION

It is possible to make WiFi disconnection with a special command that can be found in the “SETTING MENU” (Figure 4). If the page is not accessible, due to the loss of the password, you can obtain the “hardware” disconnection with the procedure described below:

power off the server, press the tactile switch, which is near the small hole on the back of the enclosure, with a pin and power the device again. Press and hold at least 5 seconds after recharging. The first flash of the blue led indicates network disconnection and the subsequent reactivation of the server in the AP mode.

WiFi connection data settings page

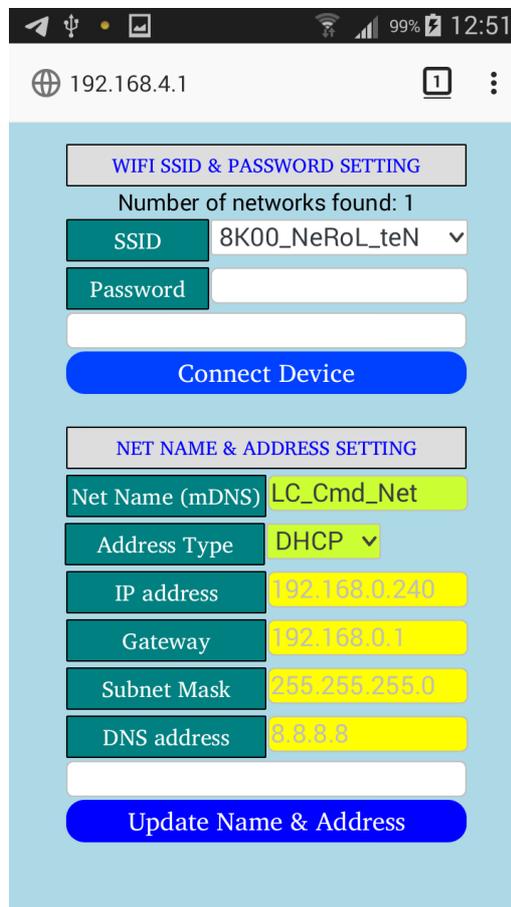


fig. 2

4 - COMMAND PAGES

Shutters and *switch* command pages are in the highest hierarchical position and can be reached by other pages with the RETURN key.

As regards the *systems*, the main page is the one of the *registered systems list* (Figure 13).

Figure 3a and 3b are screenshots of the *shutters* and *switch* command pages, respectively.

The keys at the top of the screen (SHUTTERS, SWITCH, SYSTEMS) allow the transition between the main pages.

Shutter command page



fig. 3a

Switch command page



fig. 3b

5 - SERVER SETTINGS

From the main page, you can access the server settings page using the “SETTING” key (Figure 4). The 3 keys below the page title allow access to as many pages: the first is dedicated to the registration/cancellation of the devices to be operated, the second allows you to select automatic opening and closing times, and the third allows you to select the system parameters. The red key at the bottom of the page carries out the WiFi disconnection.

Shutter settings page



fig 4.

6 - DEVICE REGISTRATION PROCEDURE

After the first connection to the WiFi network, it is necessary to proceed with the registration of the shutters control units for their insertion in the server list and, therefore, ensure their management. The registration procedure shall be carried out by entering the “SETTINGS MENU” page (Figure 4), and then the “ENTRY/DELETION” page (Figure 5) with the “login/logout shutters” key. Next, you have to write the room name where the shutter is located (or select it if it already exists), and the shutter’s name in the dedicated textboxes. The maximum length of the names is 10 characters; the longest names are truncated starting from the 11th character. At this point, you have to put the shutter control unit in the registration status (see the “Roll Shutter witch_IT” instruction manual) and then press the “Register” key. The success of the control unit registration is briefly signaled with the writing “REGISTERED” on green background in the register key textbox.

For safety reasons, the control unit registration procedure uses a low power signal, and in the case that connection errors are recorded during the operation, it is necessary to temporarily move the server into a position close to the central unit.

7 - OPENING AND CLOSING TIMES SELECTION

It is possible to command the shutters opening or closing in each room or in the entire house at fixed times. From the time selection page, which is accessed through the “SETTINGS MENU” page (Figure 4) by clicking the “Timer settings” key, select the relevant room and then the opening and closing instants in hours and minutes. It is also possible to select only the opening time or only the closing time. If time commands are not required, the hour selector is put in the “OFF” position (in that case, the minute selector will also be deleted). It is possible to select opening and closing

times for each room or group with weekly programming. In the example of picture 6, the individual opening and closing of the living room are scheduled for Tuesday and Wednesday at 7.30 and at 19.00, respectively; instead, on Friday and Saturday, the group programming time with the opening at 8.00 and the closing at 20.00 is used. If at the minute indicated for the opening and closing there is no power input or the server clock is in error, the programmed command is deleted and, in any case, not performed at the correct operating condition return. Figure 11 represents the summary page of the opening and closing time scheduling for all relevant rooms, and can be viewed from the command page (Figure 3) with the *Timer* key.

Shutter entry/deletion page



fig. 5

Selection page for opening and closing times



fig. 6

8 - SYSTEM SETTINGS

The “SERVER SETTINGS” key, in the “SETTINGS MENU” page, allows the access to the “SYSTEM SETTINGS” page (Figure 7). The page contains 7 server operating modes described below.

1 - USED DEVICES SELECTION

The representation of control and acquisition graphical interfaces provided by the server are of 3 types, which are suitable for the management of the following control units:

- a - *Roll shutter* for shutters, awnings or overhead doors.
- b- *Smart Switch* for switches or diverters.
- c- *Flood Alarm* for anti-flood system and others in the design phase.

With the server you can manage all three types, a combination of two types, or just one type according to your needs by using the above-mentioned mode selector.

2 - TIME ZONE

It allows you to select the time zone index of belonging, which in Italy's case is + 1.

3 - DAYLIGHT SAVING TIME

It allows you to select the time to add to the solar time for energy saving. It is selectable with a 10-minute interval.

4 - ON/OFF SHUTTER TIMER

It enables the programmed opening and closing function of the shutters.

5 - ON/OFF SWITCH TIMER

It enables the programmed on/off command function of the switches.

6 - PW

It allows you to save in E2 the password to access the settings, written in the adjacent textbox.

7- LANGUAGE

It allows you to save the selected language with the adjacent selector.

Operating modes 1, 2, 3, 4 and 5 are saved in permanent memory at the time of selection. Operating modes 6 and 7 are saved by clicking the designated key.

9 - PASSWORD

You can set a password to enter the changing server settings page. The first user that enters a password prevents other from accessing the server settings. The password entry textbox can be found on the "SETTING MENU" page. The password can only be numeric and must be saved with the key associated with the "Save the password" textbox (Figure 8). If the textbox is left empty, the access to the server settings is always allowed.

If you lose your password, it is necessary to disconnect the server from the WiFi network with the hardware procedure in order to restoring access to the server settings. Once the disconnection procedure (described in paragraph 3) has been implemented, you must connect to the WiFi network again until the server is reactivated, thus allowing access to the server settings without a password.



fig. 7

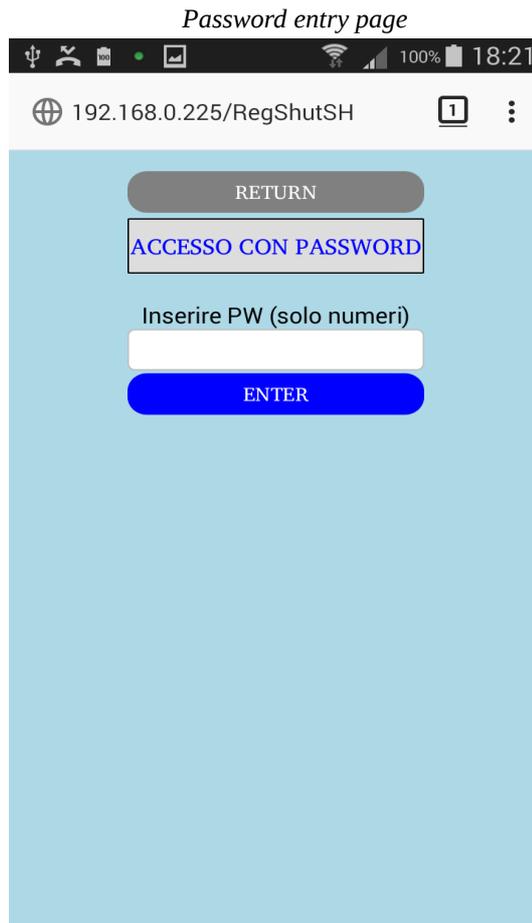


fig. 8

10 - SHUTTER STATE AND SWITCH STATE

By pressing the “STATES” key on the *command page*, you can access the shutter or switch states display page. At the bottom of the page, the adopted graphic symbolism is shown (Figures 9 and 10). You can click on the shutter and switch symbols to return to the command page where the required shutter or the required switch appears preselected.

11 - TIMER PAGES

By pressing the “TIMER” key on the *command page*, you can access the list of rooms programmed for the opening and closing at fixed times. By clicking on the rooms, you can access the “OPENING AND CLOSING TIMES SELECTION” of the room (Figure 10). In case the password is present, the procedure requires its insertion to enter the page.

The internal clock of the server is synchronized with the time provided by the internet services. In the absence of internet connection, the clock of the server will continue to function while keeping the internal quartz oscillator accuracy. In the event of power off, the clock resets and, at the next power on, reruns the synchronization using the internet dedicated service. If there is no synchronization at the power on, all the automatic opening and closing are canceled.

The textbox at the top of the page (Figures 11, 12) shows the time in hours and minutes and the day of the week calculated by the server clock. In case of an error, the textbox remains empty. Furthermore, the enabled/disabled state of the timers is specified with ON/OFF.

Shutter state page

Switch state page

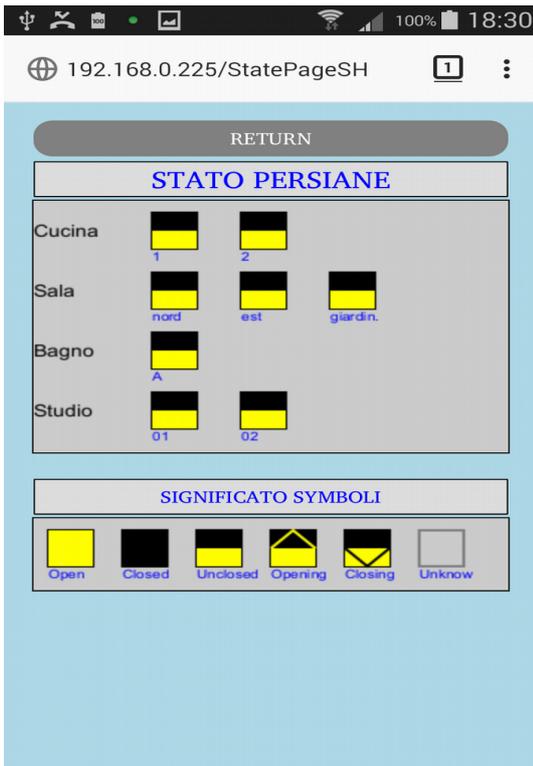


fig.9

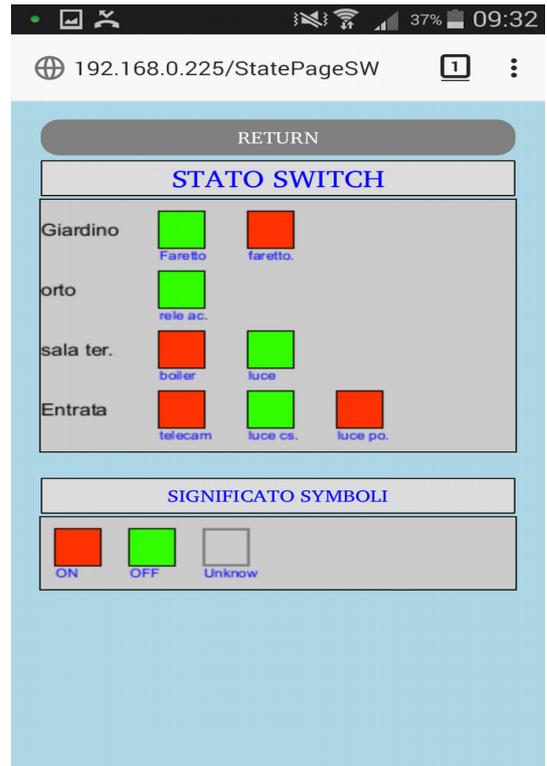


fig. 10

Opening and closing times page

On/off switch times



fig. 11

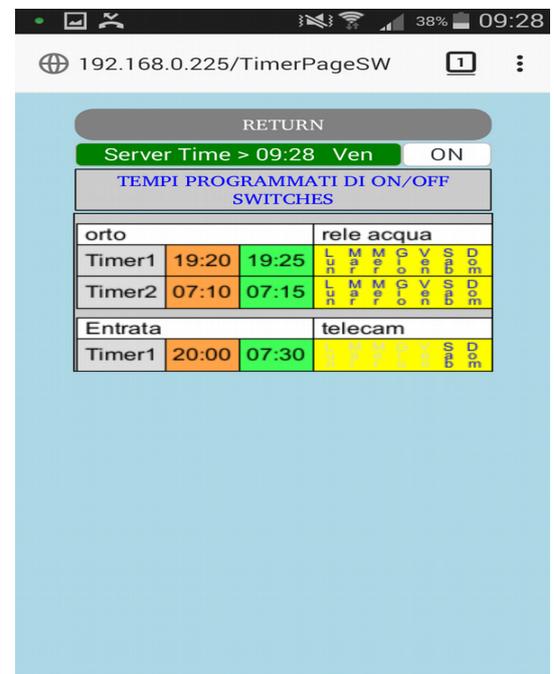


fig. 12

12 - SYSTEM PAGES

By pressing the “SYSTEMS” key on the *command page*, you can access the *registered systems list page*. “System” means a device or a set of devices that need a specific graphic representation of acquisition of state information and execution of the commands. Figure 13 is a screenshot of the *registered systems list page*, in which there is an anti-flood system. Figure 14 represents the valve and sensors state acquisition interface and the command keys for valve opening and closing. In case of closure of the valve due to an alarm, the remote commands are inhibited.



fig. 13

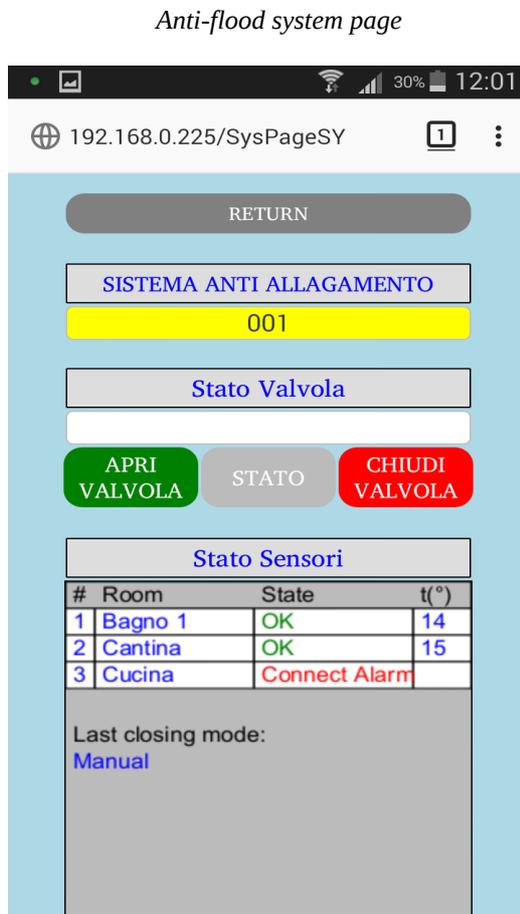


fig.14

13 - LOGO PAGE

If no operations are performed within approximately 2 minutes, the user’s navigation device enables the display of the logo page: “Loren Controls” (Figure 15). From this page, by pressing the “HOME” key, the system returns to the “COMMAND PAGE”.

Logo page

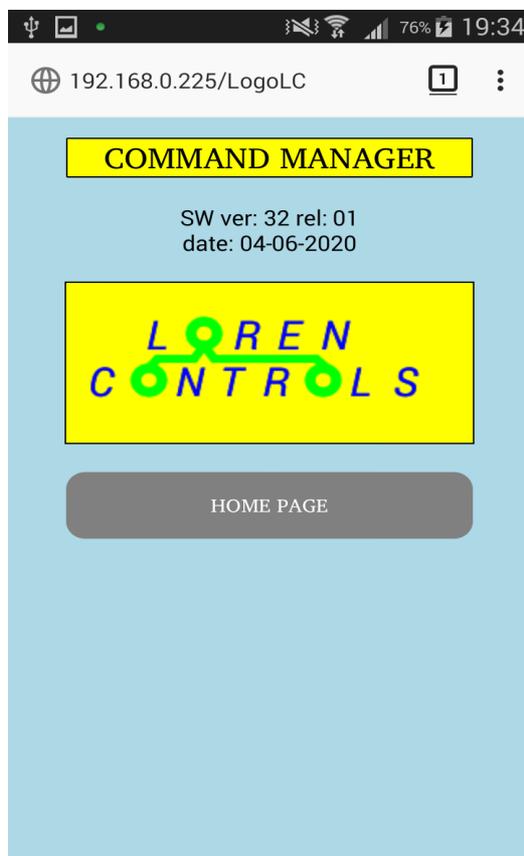


fig. 15

14 - LED

The server has 2 LED used to signal the operating states.

The dual LED, red and green, indicates the transmission of RF commands and the reception of replies; the blue LED shows the WiFi connection status.

The following table provides the meaning of the LED indications

Red/green LED indications	Stato o procedura in corso
Yellow	- functioning as STA: switched on only during the startup procedure - functioning as AP: always switched on.
Red followed by green, if the command is OKAY	Transmission of RF message to the device
Green	Reception of RF message by the device
Short green lights up	When the WiFi disconnection “hidden” button is released

Blue LED indications	
Flashing at a frequency of about 1 seconds ON/ 1 seconds OFF	Server functioning as AP with the IP address 192.168.4.1
Steady glowing	Server functioning as STA connected to the WiFi network
10 fast flashing	Signaling of WiFi connection (a short shutdown and restart with a fixed light follows)
3 fast flashing	Signaling of disconnection with “hardware” procedure
Flashing at a frequency of about 1 seconds ON / 3 seconds OFF	No WiFi signal after connection

15 - SHUTTERS COMMANDS

The server allows opening, closing or stop controls for single shutter, group of shutters or for all shutters of the home. The command (*single/room/home*) is selectable with the keys at the bottom of the page. The active mode is indicated by the key with orange background. In case of single command, the choice of the shutter to be controlled must be made by first selecting the name of the room, and then the name of the shutter using the appropriate 2 drop-down lists of the start page. Therefore, by clicking on the control function keys (OPENING, CLOSING, STOP) the opening, closing or stop action required is performed.

16 - REGISTRATION PROCESS ON SERVER FOR CLONING COMMANDS REGISTERED ON KEYFOB

You can copy the command of a keyfob key with the same registration process described in paragraph 5. The keyfob’s cloning operation is described in the “SHUTTER’S CONTROL UNIT” document, in paragraph “Remote control’s cloning procedure”.

17 - REGISTRATION PROCESS ON KEYFOB FOR CLONING COMMANDS REGISTERED ON SERVER

If you press the “copy shutter command” key in the *entry/deletion* page (Figure 5), after selecting the room and the shutter, the server is put into a waiting state for the command cloning by a keyfob. The waiting state lasts 5 seconds and is marked by the writing “keycopy procedure activated” on a yellow background in the page textbox. If within the specified range the cloning procedure fails, the server returns to its previous state by reporting the writing “key copy procedure error”. If the cloning is performed, the server returns to its previous state by reporting the writing “keycopy done” on a green background.



18 - SENDING ALARMS

The server is designed to send alarm signals produced by the devices using the Telegram BOT service. To enable this feature, it is necessary to access the BOT codes and chat entry page with the “PUSH ALARM SETTING” key located in the server settings page (Figure 16). In this page should be entered also the title of the “header” message, which is reproduced at the head of the received message. The Telegram service is free; registration is required for activation. The Telegram site exhaustively documents the procedure for obtaining the “Telegram BOT” and “Chat ID” codes. The “save telegram Token&ID” key allows saving the inserted codes, while the “Send test BOT” key makes the immediate sending of a test message.

Telegram codes entry page

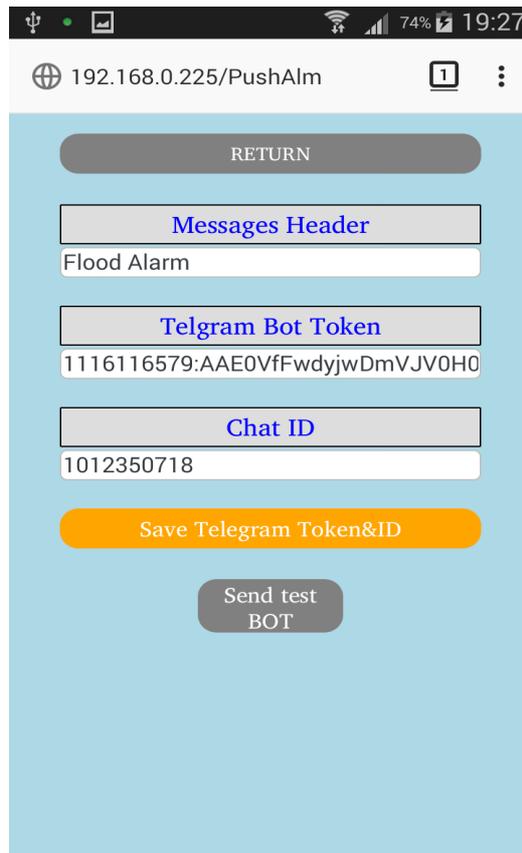


fig. 16

19 - SOFTWARE UPDATE

Figure 17 is the screenshot of the server upgrade page. To activate the upgrade, insert the file URL of type “bin” to upload. The file can be found on the download page of the website “<http://www.lorencontrols.eu>”.

The OTA update function can perform the operation both for “http” and for “https”. In the latter case, the site must be compiled with the “https” supplementary specification. In particular, it must be able to handle data exchange with MFL reduced-size packets. In any case, it is possible to update file on your PC, configure the PC as *http server* and then make the OTA update with the URL of the folder where it has been downloaded.

Software update page

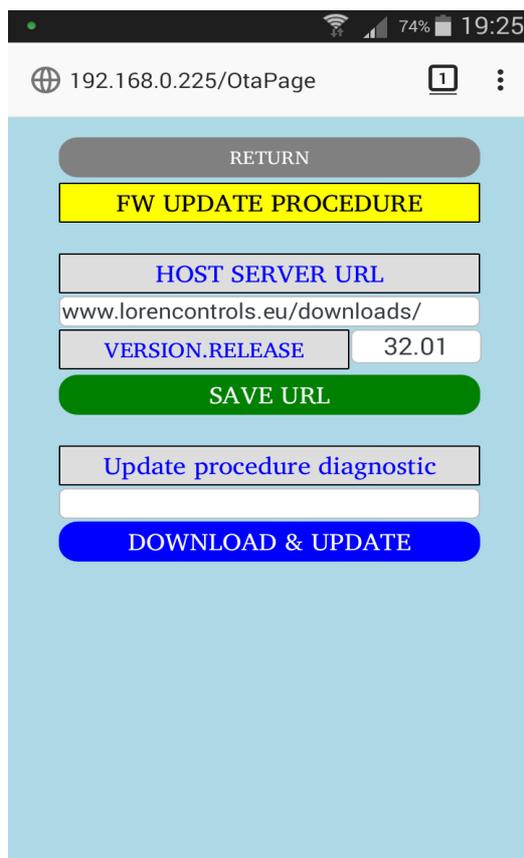


fig. 17

20 - CANCELLATION OF REGISTERED DEVICES

The cancellation of the registered shutters is set in the entry/deletion page (Page 5). There are 2 dedicated keys, the first one to cancel all the shutters of the room and the second for the single selected shutter of the drop-down lists. Before cancellation, a confirmation is required.

21 - ACCESS TO THE SERVER FROM THE PUBLIC NETWORK

The most convenient way to safely access the server from the public network is by using the VPN service. A VPN service creates a private network between the client and the server by entering data packets in a “virtual tunnel”, which is safe and inaccessible during the travel through the internet network.

Note:

* To return to the Home Page, press the RETURN key at the top of the screen. The browser “back” command is not an alternative to the RETURN key and it determines the server disconnection.

22 - TECHNICAL DATA

WiFi Server Bridge 433 MHz	
General characteristics	
Power supply	5V CC da USB
Standby power consumption	100 mA
Current supply max	140 mA
Container size	90x58x25 mm
Weight	~ 90 gr.
Protection of the container	IP54
Operating temperature	-10 — +50°C
Operating humidity range	10 — 80 % non-condensing
Conessione RF 433MHz	
Frequency band	ISM 433 MHz
Signal strength	< 10 dB mW
Radio range in lack of obstacles	100 m
RF communication protocol with high digital security	Owner
Number of available channels	28
WiFi connection	
Standard	IEEE802,11bgn
Protocols	HTTP / WebSocket
Security	WAP, WAP2
Max. client number in a contemporary issue	3
AP network	
Network name	LC_AP_NET
IP address	192.168.4.1
Network password	12345678
Shutter management	
Max. number of rooms	10
Max. number of shutters per room	4
Max. number of shutters	40
Maximum length of room and shutter names	10 characters (special characters are not acceptable)
Number of opening/closing timers available per room	2
Compatible keyfobs for cloning procedure	2/4 key LC_KEY
Switch management	
Max. number of zones	10

Max. number of switches per zone	4
Max number of switches	40
Number of timers available	20
Compatible keyfobs for cloning procedure	2/4 key LC_KEY
System management	
Anti- flood system	

23 - WARRANTY

The warranty period is 2 years from date of purchase.

The product warranty does not cover damage due to

- incorrect installation
- failure to respect the user instructions
- tampering, modifications or attempted repairs
- improper use
- failure to observe safety precautions
- force majeure (i.e. overvoltage, fires, etc.)

Direct or indirect damages brought about by defects on the instrument and costs arising from disassembly and installation, fall outside the warranty conditions.

In case of malfunctioning, it is up to us to decide whether to replace, to repair or to reimburse the cost of the device.