

# CASE STUDY

## Meet Intercom Integration with Yeastar P-Series PBX

### Description

Describes how to configure the Meet outdoor panel and the Yeastar P-Series SIP PBX to route calls from the panel to any SIP extension.

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## INTRODUCTION

In offices and companies it is common to connect the video door entry panel to the telephone switchboard in order to receive the call on a specific extension, simplifying the work of the employees. For this purpose, a telephone interface is used that connects the outdoor panel to an analogue input of the switchboard. With the evolution of PBXs, and their deployment in the cloud, a world of previously unimaginable advantages is now available, such as receiving the call on any extension located in different locations or even on a smartphone, and receiving video on the call, which is not available on an analogue telephone interface. You therefore have the same features as in a video door entry monitor if the terminal receiving the call has a screen: two-way conversation, visualisation of the visit and door opening.

The Fermax outdoor panel has also evolved to adapt to this environment, and a clear example is the MEET panel, with IP technology, which supports SIP protocol, necessary in this type of integration. In this application, the outdoor panel must register in the SIP switchboard with a user name and password and route calls to the required extension(s).

Let's see, in the specific case of the Yeastar PBX, how the MEET outdoor panel and the Yeastar PBX should be configured so that they can work together.

Yeastar provides 3 types of P-series control units:

- Cloud: Hosted by Yeastar on its cloud: `xxxxx.frycm.yeastarcloud.com`
- Software (P-series SE): hosted on a client server (AWS, Alibaba Cloud, vmware, MS Hyper-V, ...)
- Hardware: hardware is provided, e.g. P550.

This document explains how to start up the Yeastar PBX for any of the above cases, as the user interface is practically the same, except for some slight differences.

The PBX supports integration with SIP Trunk providers to make phone calls to non-SIP devices, and other extra features such as video conferencing meetings.

Yeastar provides a softphone (Linkus) for mobile phones, desktop (Windows) or browser that allows implementing a SIP client, but does not support video, except for the web client.

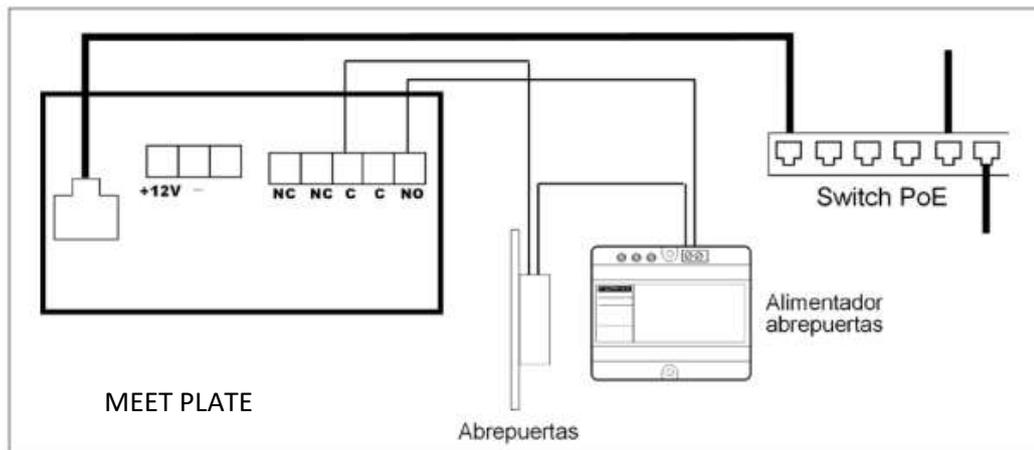
## MATERIAL REQUIRED

Any Fermax MEET outdoor panel can be used for this integration, as all of them support SIP protocol. If you want to call a single extension, it is advisable to use the one-way MILO panel (a single push button). If you want to call different extensions to locate different people, you can use the MILO panel or, if an electronic directory is required, the KIN or MARINE panel.

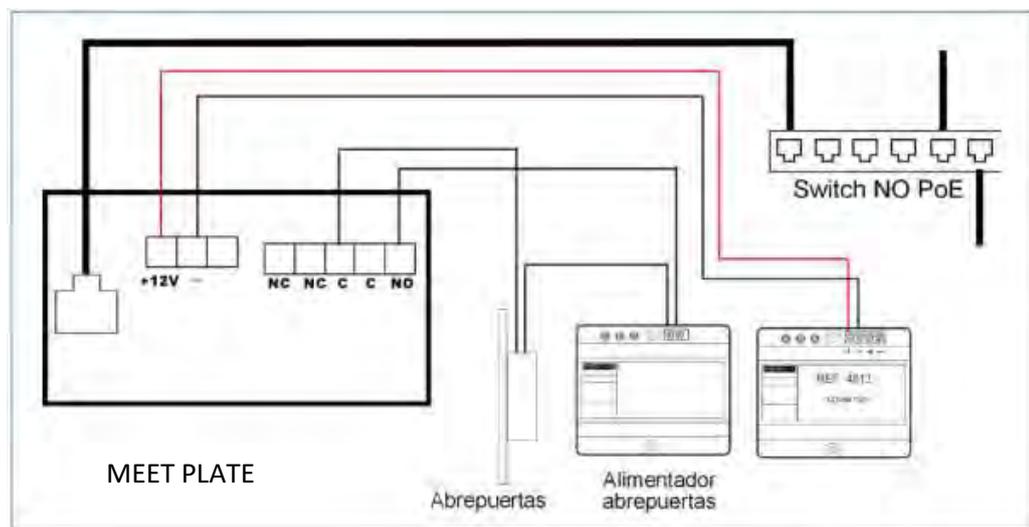
The outdoor panel may require a power supply if it does not support PoE, as well as the electric strike.

In order to connect to the Cloud version of the PBX, an internet connection with sufficient bandwidth (10Mbit minimum) will be required to access it.

## BASIC SCHEME



Power supply to the panel via PoE switch.



Power supply to the panel via an additional power supply. A single power supply can be used if the lock is 12 Vdc and the power supply provides sufficient power.

## INSTALLATION

Once the outdoor panel is installed, it must be connected to a switch or directly to the installation's router. The connection of the electric lock release will be wired to the outdoor panel or, if maximum security is required, a reference 1490 module with 2 relays will be used to open the door from indoors, wiring the module to the panel using 3 wires (Cat-5 recommended). Finally, the panel is wired to the power supply.

It is possible to connect a MEET monitor to simultaneously receive the call inside the office, as a backup to the call through the PBX.

## CONFIGURATION

Yeastar PBX

Once we have a PBX, either by means of a licence or a physical PBX, we must access to configure it through its web server, using a browser.

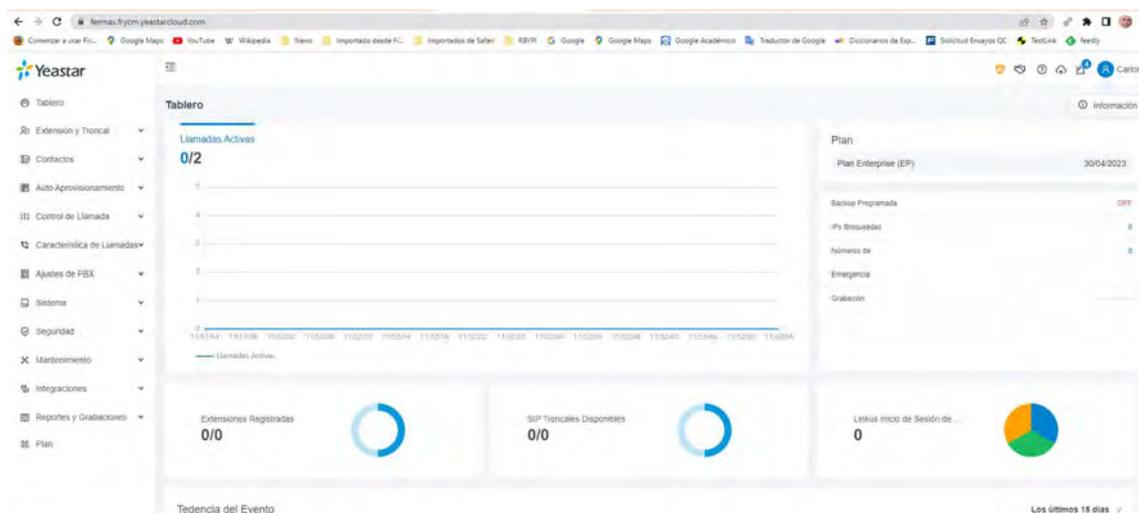
In the case of cloud PBX, the Yeastar partner will have created an FQDN domain to access the server, such as <https://fermax.frycm.yeastarcloud.com/admin>. In the case of a software or hardware PBX, it must be accessed through the IP of the computer where it is hosted.

The first time you log in, you will be prompted to fill in the administrator's details, including the login password:

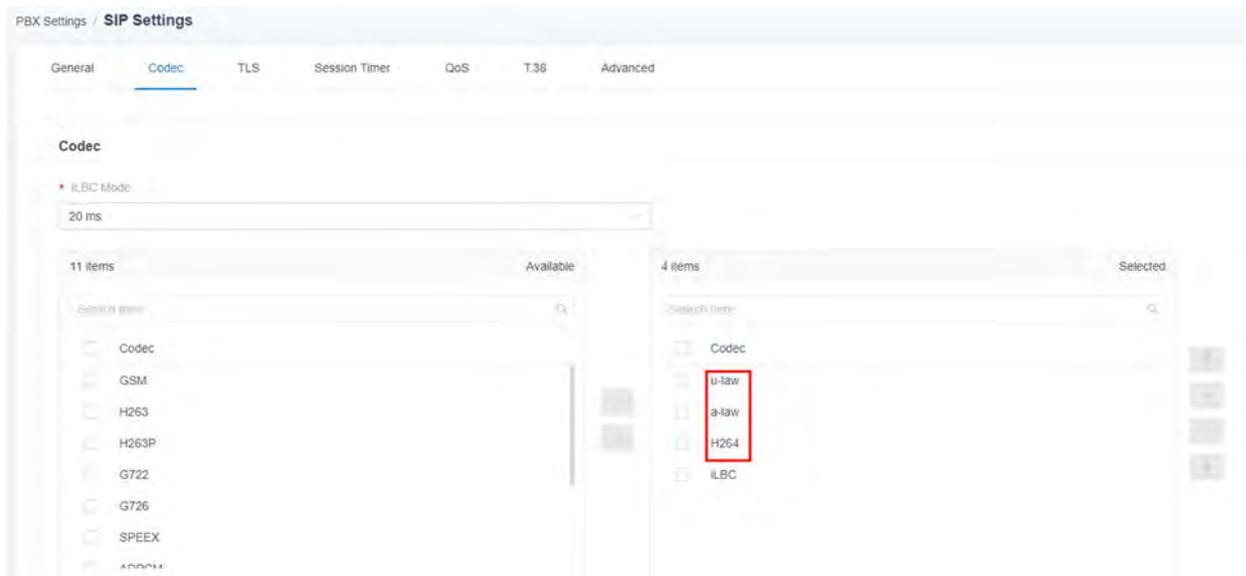
The screenshot shows the 'Basic' configuration page. At the top, a blue box contains the text: 'Please remember the administrator username and password, otherwise you will not be able to log in the system.' Below this, there are several input fields: 'Username' (containing 'Carlos gmail'), 'Password' (with a strength indicator), 'Repeat the password', 'Email Address' (containing 'carlos.ra@gmail.com'), 'Prefix', and 'Mobile Number' (containing '611241247'). Under the 'Event Notifications' section, there is a checked checkbox for 'Send Event Notifications to PBX Administrator', a 'Contact Name' field (containing 'Carlos'), and a 'Notification Level' dropdown menu (set to 'Information'). At the bottom, there are checkboxes for 'Notification Method' with 'Email Address' checked and 'Call Mobile' unchecked.

Next, date format and time zone must be selected. The country of the tone dialling is chosen, confirmed and the device is restarted.

Log in again and accept the terms of use, and you will be taken to the dashboard:

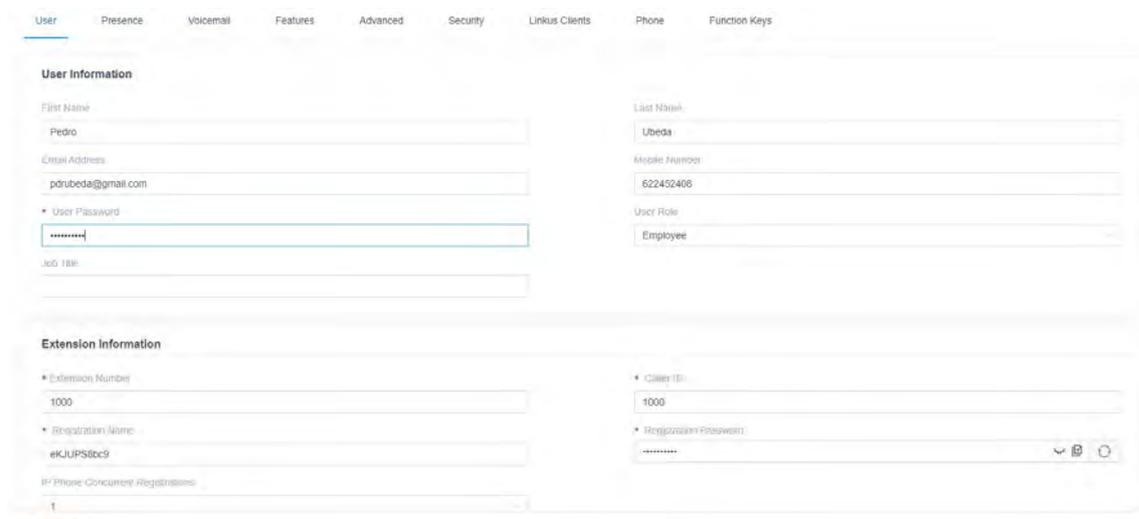


In section PBX Settings you must select at least the codecs used by MEET panel:



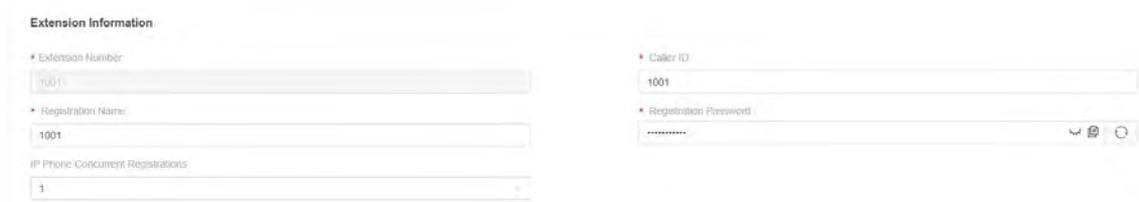
### Configuration of extensions in the PBX.

You must access the option: Extension and Trunk>Extension>Add



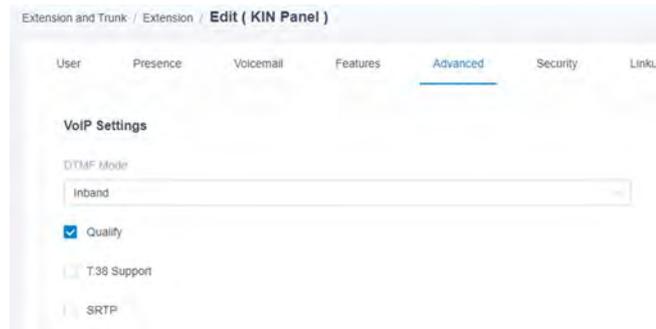
In the case of registering a softphone, desktop or web Linkus extension, an email account must be provided in order to send the extension configuration credentials.

In the case of registering an extension for a door station, the email account is not necessary and the same number as the extension must be assigned as 'Registration Name'. It is important to copy the registration password for the configuration of the outdoor panel.



Other details:

- Choose the Inband option for sending DTMF tones.



- Mark Allow remote registration:



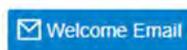
- Once you click on save, the extension is created, but you must click on the APPLY icon for the changes to be reflected in the PBX:



One by one, all the necessary extensions for outdoor panels, SIP terminals and softphones are created:

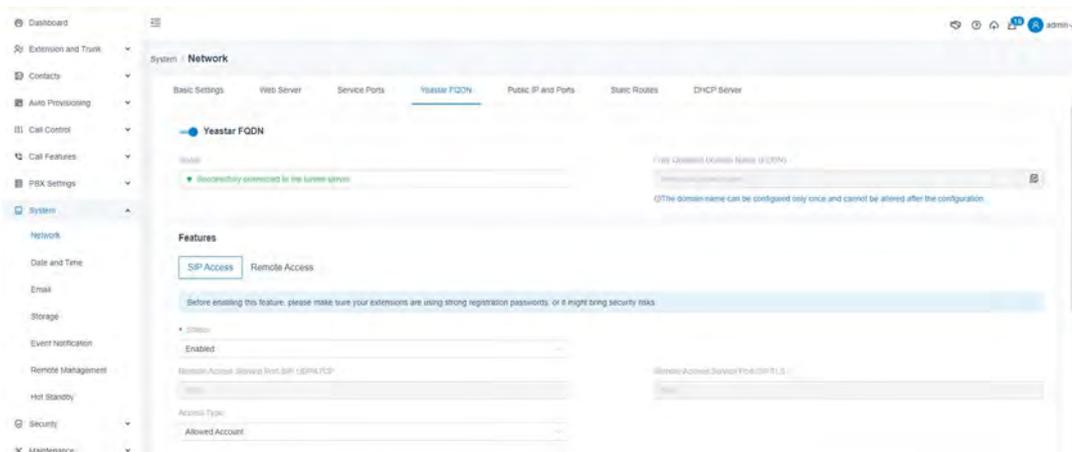
Online Status	Presence	Extension Number	Caller ID Name	User Role	Email Address	Mobile Number	Operations
Available	Available	1000	Pedro Ubieda	Employee	pdrubeda@gmail.com	622452408	Send Mail, Edit, Delete
Available	Available	1001	KIN Panel				Send Mail, Edit, Delete
Available	Available	1002	MIL0 1W Panel				Send Mail, Edit, Delete
Available	Available	1003	Desktop Client		clerrer@fermax.es		Send Mail, Edit, Delete
Available	Available	1004	Carlos Android		clerrer@fermax.eu		Send Mail, Edit, Delete
Available	Available	1005	Linphone app				Send Mail, Edit, Delete
Available	Available	1006	WIT Monitor				Send Mail, Edit, Delete

Select the extensions corresponding to softphones, desktop or web and click on the send mail option:

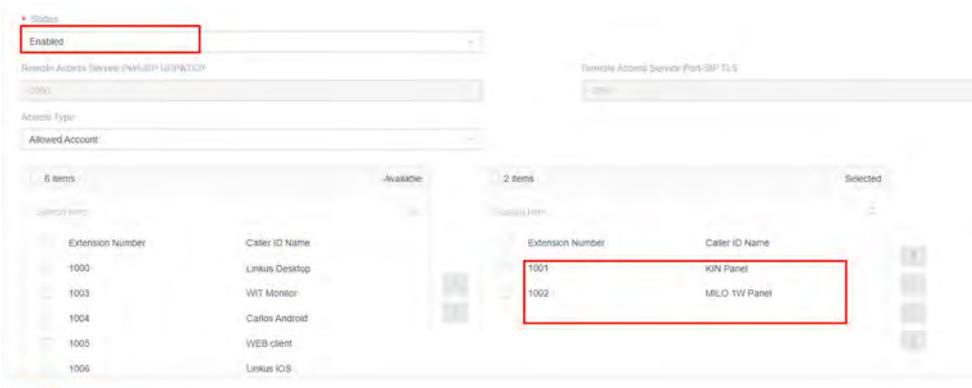


When you receive the email, click on the corresponding link (App, Desktop or web) and the account will be auto-configured. In the case of the app you can scan the QR code received. The first thing you will be asked to do is to change your password.

In the case of the software PBX (P-series SE) and Hardware device, if extensions are connected from outside the Lan, the Yeastar FQDN option for SIP access must be activated in the System>Network section:



And the extensions corresponding to the outdoor panels must be selected:



## OUTDOOR PANEL CONFIGURATION

To configure the outdoor panel, use a browser and access the IP address assigned to it, by default 10.1.0.1 (building entrance panel) or 10.1.1.2 (one-way panel) and enter the user admin and default password 123456.

The following steps will be followed:

### 1) General configuration

#### a. One-way panel

You must configure the panel as an Individual Panel, assign a block (default 1), a dwelling (1, although the default is 101), and a panel number (default 1).

The Device Tag is important to identify the origin of the call on SIP extensions. The resolution of the camera shall be adjusted to the needs of the terminals used to receive the call.

DEVICE	GENERAL SETTINGS	
<b>GENERAL</b>	TYPE:	1W PANEL
NETWORK	BLOCK:	1
ACC	APARTMENT:	1
SIP	DEVICE NO.:	1
SIP TRUNK	DEVICE TAG:	MILO 1L (≤16 CHARACTERS)
SIP CALL	LANGUAGE:	ENGLISH
ADVANCED	PANEL VOLUME:	4
PINCODE	DOOR OPEN VOICE:	<input checked="" type="checkbox"/>
RESTORE	VIDEO RESOLUTION:	1280x720
	SIP DIVERT MODE:	PARALLEL CALL
	DATE FORMAT:	DD/MM/YYYY
	DATE:	01 / 01 / 2018
	TIME:	08 : 42 : 11
	TIME ZONE:	GMT+01:00
	SAVE	

b. Building Panel

In this example we have used a KIN building entrance panel. The panel must be configured as a Block Panel, assigned a block (default 1) and a panel number (default 1).

The Device Tag is important to identify the origin of the call on SIP extensions. The resolution of the camera shall be adjusted to the needs of the terminals used to receive the call.

DEVICE	GENERAL SETTINGS	
<b>GENERAL</b>	TYPE:	BLOCK PANEL-DIGITAL
NETWORK	BLOCK:	1
ACCESS	DEVICE NO.:	1
FACIAL RECOG.	DEVICE TAG:	DOOR ENTRY (≤16 CHARACTERS)
IP CAMERA	ALPHANUMERIC	<input type="checkbox"/>
SIP	KEYPAD:	<input type="checkbox"/>
SIP TRUNK	LANGUAGE:	ENGLISH
SIP CALL	PANEL VOLUME:	2
ADVANCED	BRIGHTNESS:	250
PINCODE	VOICE SYNTH.:	<input checked="" type="checkbox"/>
QR ACCESS	VIDEO	1280x720
RESET	RESOLUTION:	1280x720
LOG OUT	SIP DIVERT MODE:	PARALLEL CALL
	SCREENSAVER:	<input type="checkbox"/>
	HELP:	<input checked="" type="checkbox"/>
	STANDBY	CALL
	INTERFACE:	CALL

2) Network settings

An IP address compatible with the installation's computer network will be assigned and the Gateway or router address will be indicated to access the Internet. A DNS server is necessary if a URL is to be used to access the switchboard, as in our case.

The IP of the software will be left as the default because in this case it will not be used unless it is required to manage access control registrations and cancellations for employees (proximity cards or facial recognition). In this case, the IP address of the computer that has the MEET management software (MMS) installed shall be indicated.

DEVICE	
GENERAL	
<b>NETWORK</b>	
ACCESS	
FACIAL RECOG.	
IP CAMERA	
SIP	
SIP TRUNK	
SIP CALL	

NETWORK SETTINGS

---

IP: 192.168.1.214  
 MASK: 255.255.255.0  
 GATEWAY: 192.168.1.1  
 DNS: 8.8.8.8  
 SOFTWARE IP: 192.168.1.220  
 SW. PIN: .....

SAVE

### 3) Switchboard configuration

In the SIP Configuration section, enter the URL of the assigned Yeastar PBX, as shown in the screen below. Enter the user (extension number) and the password assigned to the outdoor panel extension (registration password). Next, check if the panel is correctly configured in the PBX by clicking on the VIEW SIP STATUS link. If REGISTERED does not appear, check the information entered.

DEVICE	
GENERAL	
NETWORK	
ACC	
<b>SIP</b>	
SIP TRUNK	
SIP CALL	
ADVANCED	
PINCODE	
RESTORE	

SIP SETTINGS

---

ENABLE SIP:  [SEARCH SIP STATUS](#)  
 SIP SERVER: sip.fermax.frycm.yeasta  
 DOMAIN: fermax.frycm.yeastarclo  
 STUN IP:  
 STUN PORT: 5060  
 H.264: 102  
 SIP USER: 1002  
 SIP PASS: .....

CONVERSATION: 120s  
 RING TIME: 30s

SAVE

In the console of the SIP PBX, the extension of the MEET board will appear as registered:



### 4) Call extensions configuration

#### a. One-way Panel

Go to the 'SIP CALL' section and enter the flat number indicated in the 'GENERAL' section (1 in our example) and as NUMBER the SIP extension you want to call (1005 in the example, with the format `sip:extension@url_server`, and click on 'SAVE'.

DEVICE	
GENERAL	
NETWORK	
ACC	
SIP	
SIP TRUNK	
<b>SIP CALL</b>	
ADVANCED	
PINCODE	
RESTORE	

SIP CALL

---

APARTMENT: 1  
 NUMBER: sip.1005@fermax.re  
 DELETE:

SAVE

APARTMENT	NUMBER	APARTMENT	NUMBER	APARTMENT
1	sip.1005@fermax.ras.yeostar.com			

#### b. Building plaque

A CSV file will be configured with the assignment of call codes to the extensions to be called. The CSV file format can be downloaded from the SIP CALL section of the board's web server, EXPORT option.

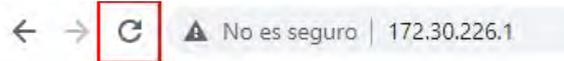
An example is the following:

```

APARTMENT,NUMBER,
1,sip:1000@fermax.frycm.yeostarcloud.com
2,sip:1003@fermax.frycm.yeostarcloud.com
3,sip:1004@fermax.frycm.yeostarcloud.com
4,sip:1005@fermax.frycm.yeostarcloud.com
5,sip:1006@fermax.frycm.yeostarcloud.com
    
```

The code to be dialled is indicated first and, separated by a comma, the extension of the switchboard that is to receive the call when this dialling code is dialled. In the example, dialling 1 will call the web client with extension 1000. It is possible to call more than one extension by listing several extensions in the same row separated by semicolons. One of these extensions can be a MeetMe licence to be able to call a smartphone via the MeetMe application.

To load the CSV file on the panel, select the file created and click on the IMPORT button. The list of calls of the file will appear on the screen. Sometimes it is necessary to refresh the browser screen by clicking on the corresponding icon:



DEVICE				
GENERAL				
NETWORK	<input type="button" value="Seleccionar archivo"/> <input type="button" value="Nin...lec."/> <input type="button" value="IMPORT"/> <input type="button" value="EXPORT"/>			
ACCESS	APARTMENT	NUMBER	APARTMENT	NUMBER
FACIAL RECOG.	1	sip:1000@fermax.frycm.yeostarcloud.com	2	sip:1003@fermax.frycm.yeas
LIFT	4	sip:1005@fermax.frycm.yeostarcloud.com	5	sip:1006@fermax.frycm.yeas
IP CAMERA				
SIP				
SIP TRUNK				
SIP CALL				
ADVANCED				
PINCODE				
WECHAT QR				
RESET				

If we want to be able to call by means of the agenda in the case of a KIN or Marine panel, the agenda will be created in a CSV file (different from the previous one). The CSV file format can be downloaded from the ADVANCED section of the panel's web server, EXPORT option.

One row is filled in per phonebook item, indicating the call code, Name to be displayed, blank, Y,. Example:

APARTMENT,	NAME,	MAPPING CODE,	WHITELIST(Y),
19,	CARLOS FERRER,,	,Y,	
12,	PEPE GARCIA,,	,Y,	
13,	ANDRES LOPEZ,,	,Y,	
14,	ALICIA MARTINEZ,,	,Y,	

The file is loaded via the IMPORT option.

- DEVICE
- GENERAL
- NETWORK
- ACCESS
- FACIAL RECOG.
- IP CAMERA
- SIP
- SIP TRUNK
- SIP CALL
- ADVANCED
- PINCODE

ADVANCED SETTINGS

---

QUICK DIAL:

URL:

ONU(GPON):

MAPPING CALL:

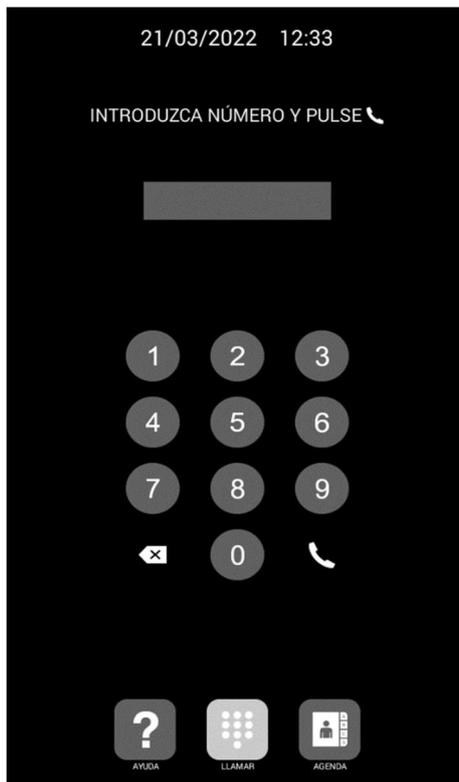
WHITE LIST:

DIRECTORY:

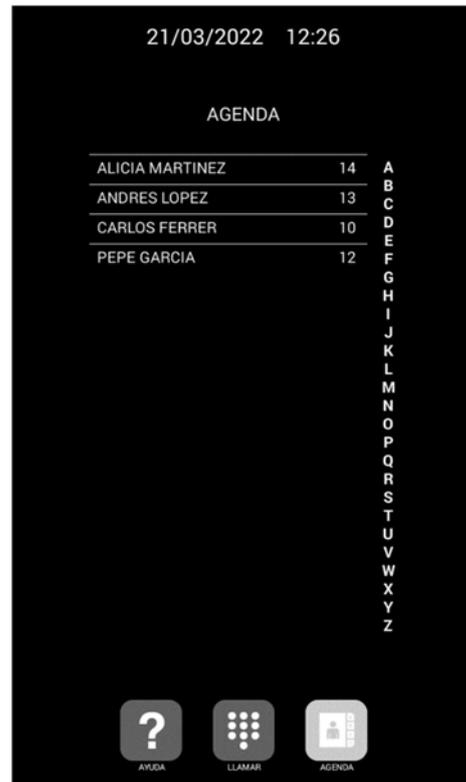
The AGENDA option is enabled so that this option appears on the board.

## OPERATION

To call a specific extension, press the call button (1-line panel) or enter the associated call code (building panel) and confirm with the bell button (Milo, Marine) or the off-hook icon (KIN). In the case of the KIN or MARINE panel, you also have the option of making the call via the Phonebook, by searching for the name of the resident and pressing on it.



Direct call by code.



Call via phonebook.

The panel will generate the call as if it were a house:



The called station will receive the ringing tone and call origin information by displaying the Tag defined on the outdoor panel and the camera image (depending on whether the receiving device has a video receiving option). The call will ring for a maximum of 30 seconds.

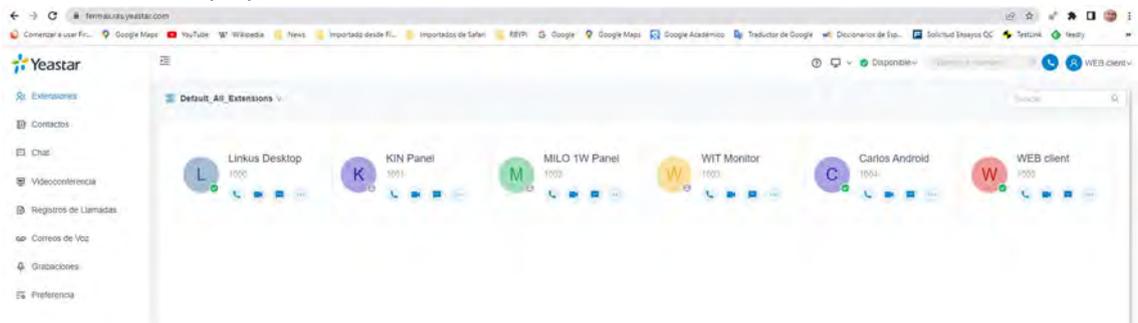
When the call is accepted, two-way audio communication shall be established and may last up to a maximum of 120 seconds.

You have the option of opening the door by pressing the '\*' or '#' key on the keypad, which will activate the first external relay of ref. 1490 (if installed). The '0' key activates only the second relay of ref. 1490.

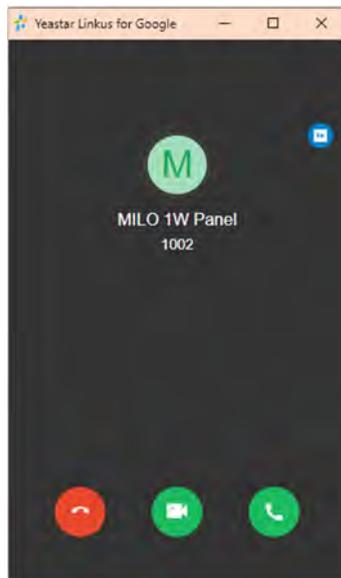
Examples of incoming calls:

- Yeastar web client:

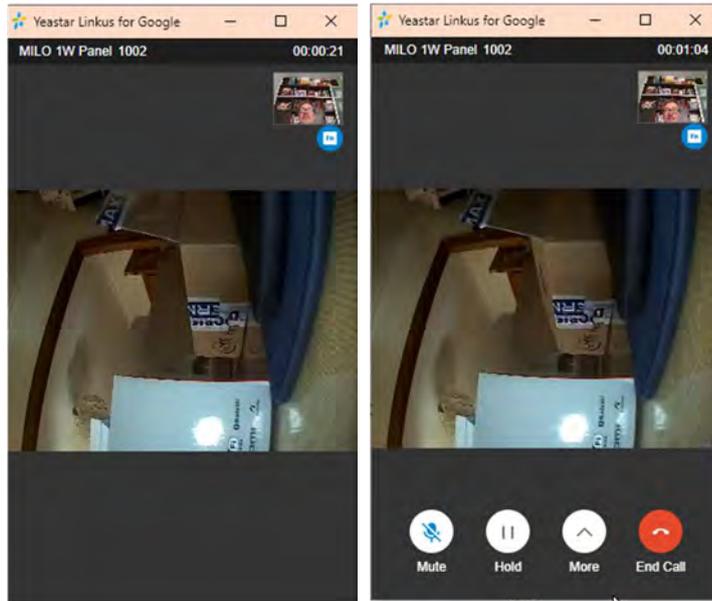
Environment. Displays the extensions available for calls.



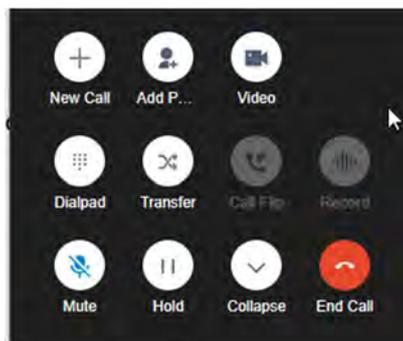
When a call is received from an extension, a window opens with the user interface to answer the call:



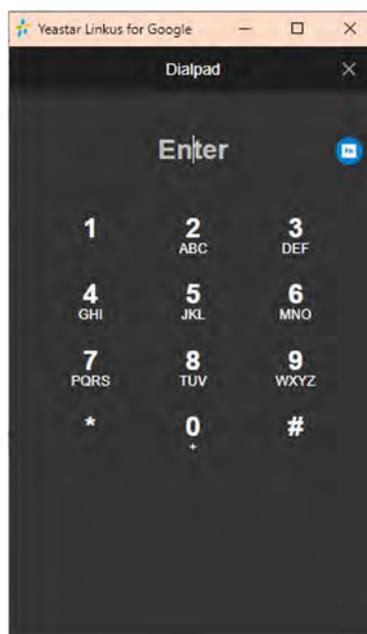
You have to pick it up to accept it: audio only - on phone icon, audio and video - on camera icon.



Audio in both directions and video is obtained from the outdoor panel. To activate the lock release, move the cursor over the lower area of the window and the options will appear (right view). Click on More to display the options and select the one for the keypad:

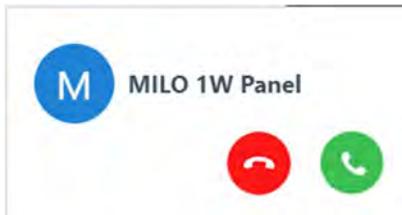


And click on the \* or # icon.

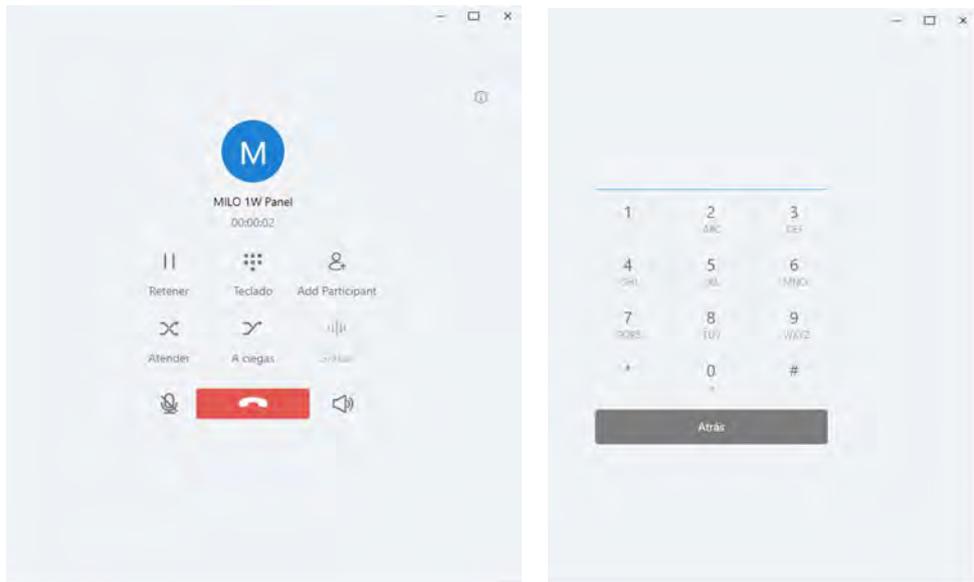


- Desktop client Linkus

The call is received via a pop-up:



Accepting the call opens a window with more options and establishes two-way audio communication:



To activate the lock release, access the keypad and press the \* or # key.

- SIP phone

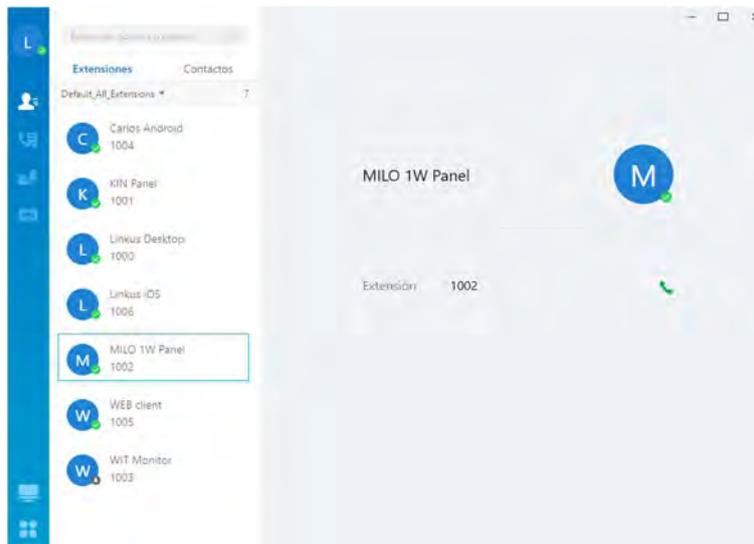
- You can choose the reception with video or audio only. Choose video to be able to visualise the visitor.
- Two-way audio and video conversation is established.



- Door opening by pressing \* or #.
- Talk time 120" regulated by the outdoor panel.

Auto-on:

The connection from a SIP terminal to the outdoor panel is made by a call to its extension number (1002 in our example). Conversation time is reduced to 30 seconds.



## OTHER CONSIDERATIONS

Compatibility with MEET monitor:

If a MEET monitor is available, the call can be received simultaneously at the called station and at the monitor. The monitor must be assigned the call code marked on the outdoor panel as the house number. The first one to answer the call will cut off the reception at the other one.

Another option is to configure the monitor as another extension of the switchboard, allowing it to be called from any extension (app, web client, SIP phones) or to call these extensions from the monitor

using the 'Extercom' option, by entering the extension number. **In this mode, the video display is lost until the call is answered by picking up the handset.**

For this mode, a new extension must be registered in the SIP PBX with the same configuration that was given to the outdoor panel.

Next, to configure the monitor, access the monitor's web server from a browser using its IP address, and configure the credentials of this extension in the SIP tab:

DEVICE	<b>SIP SETTINGS</b>
GENERAL	
NETWORK	
IP CAMERA	
<b>SIP</b>	
ADVANCED	
ACTUATORS	
VERIFICATION	
PINCODE	
RESTORE	

ENABLE SIP:	<input checked="" type="checkbox"/> <a href="#">SEARCH SIP STATUS</a>
SIP SERVER:	<input type="text" value="sip.fermax.frycm.yeastarcloud.cc"/>
DOMAIN:	<input type="text" value="fermax.frycm.yeastarcloud.com"/>
OUTBOUND:	<input type="text"/>
STUN IP:	<input type="text"/>
STUN PORT:	<input type="text" value="5060"/>
SIP USER:	<input type="text" value="1006"/>
SIP PASS:	<input type="password" value="*****"/>
CONVERSATION:	<input type="text" value="120S"/>

In the ADVANCED option, an opening DTMF tone must be configured in case you want to activate the outdoor panel door release.

DEVICE	<b>ADVANCED SETTINGS</b>
GENERAL	
NETWORK	
IP CAMERA	
SIP	
<b>ADVANCED</b>	
ACTUATORS	
VERIFICATION	
PINCODE	
RESTORE	

SIP EXT.:	<input type="text" value="DISABLE"/>
AUTO ANSWER:	<input type="checkbox"/>
ONU(GPON):	<input type="checkbox"/>
DTMF UNLOCK:	<input checked="" type="checkbox"/>
DTMF KEY:	<input type="text" value="#"/>
NUMBER OF DOORLOCKS:	<input type="text" value="0"/>
NUMBER OF CAMERAS:	<input type="text" value="0"/>