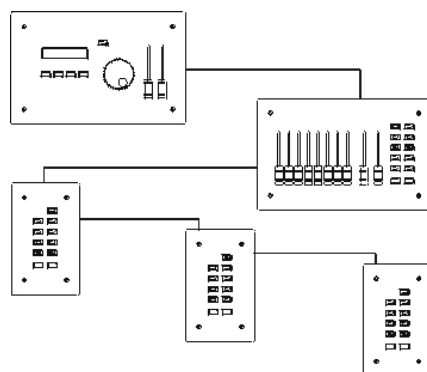


ARQ SYSTEM



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1. General description

The ARQ is thought for controlling lights in: halls , technical zones, etc , in buildings as theaters , hotels, etc

The ARQ combines several elements of different types distributed through all the building

It's necessary to mount in every installation one element , and only one , called ARQ Master. This is the element encharged to control all other elements and make the generation of the dmx signal that goes to the dimmers. The rest of elements in every installation could be up 32 maximum, it doesn't matter what type each of them.

It's possible to change the programming of the system in any moment giving a great flexibility to all system.

2. Specifications

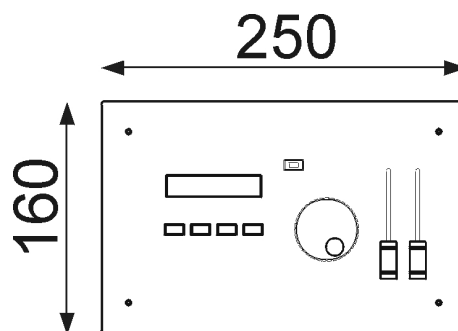
- Control through microprocessor.
- Programming the system through LCD, rotative encoder and 4 function keys .
- Individual addressing of each element .
- Communication among the system elements through CAN bus.
- DMX protocol for communication with the dimmers.
- Only one power supply for all elements.
- Multiple assignation of one preset to several keys.
- Blocked function of the system (from ARQ Master).
- Blackout in each modul. **BLK**
- Presets launch through a key.
- Direct DMX channels regulation by potentiometers (with ARQ Faders).
- Inside or surface mounting.
- Different types for front panels.

Technical data

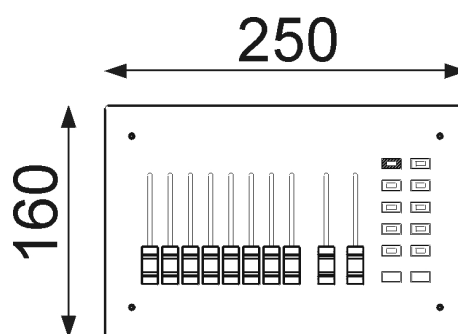
Power supply	12v 1Amp DC
Connection	By terminals
Communication protocol	CAN
Signal for dimmers	DMX 512
DMX connector	XLR 5 pins
Addressing	Mini Dips (und-dec)
Nº Max. of elements total:	32 + 1 ARQ Master
Nº Max. of ARQ Master	1
Nº Max. of ARQ Faders	4
Nº Max. of ARQ Keys	32

3. Dimensions

03200121 ARQ Master



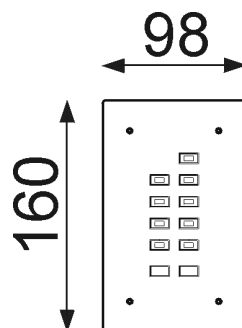
03200138 ARQ Faders



03200108 ARQ 8 Keys

03200104 ARQ 4 Keys

03200102 ARQ 2 Keys



Surface case depth : 50mm

Inside case depth: 60mm

4. Pre - Installation.

In installations of ARQ systems, it's important to know where should be installed each one of the remotes , before to start . In that way we can:

- Calculate the length of the cable needed
- Optimize the way how to pass the cables
- Find the first place for the remote ,according with the zone to be controlled.

First of all, it's convenient to clarify the following questions:

Where to install ARQ Master?

From the ARQ Master the system is programmed and controlled and at same time the DMX signal is generated to be send to the dimmers.

It's convenient install the ARQ Master in a zone where the access is controlled , avoiding in that way that somebody without knowing all the secrets of the system can manipulate anything, specially regarding the programming.

Where to install ARQ Key ?

With any of the ARQ keys you can launch (by pressing a key) the different presets previously recorded from the ARQ Master.

It's convenient that from the place you install a remote , you can control visually the lights to turn on or turn off.

Where to install ARQ Fader ?

This is a module equal to ARQ key but with 10 potentiometers for controlling directly DMX channels .From ARQ Fader you can record 8 different presets.

The considerations for installation could be the same mentioned for ARQ Keys.

5. Mounting and connection

The way for connecting the different elements in a system is explained in the figure 5.1

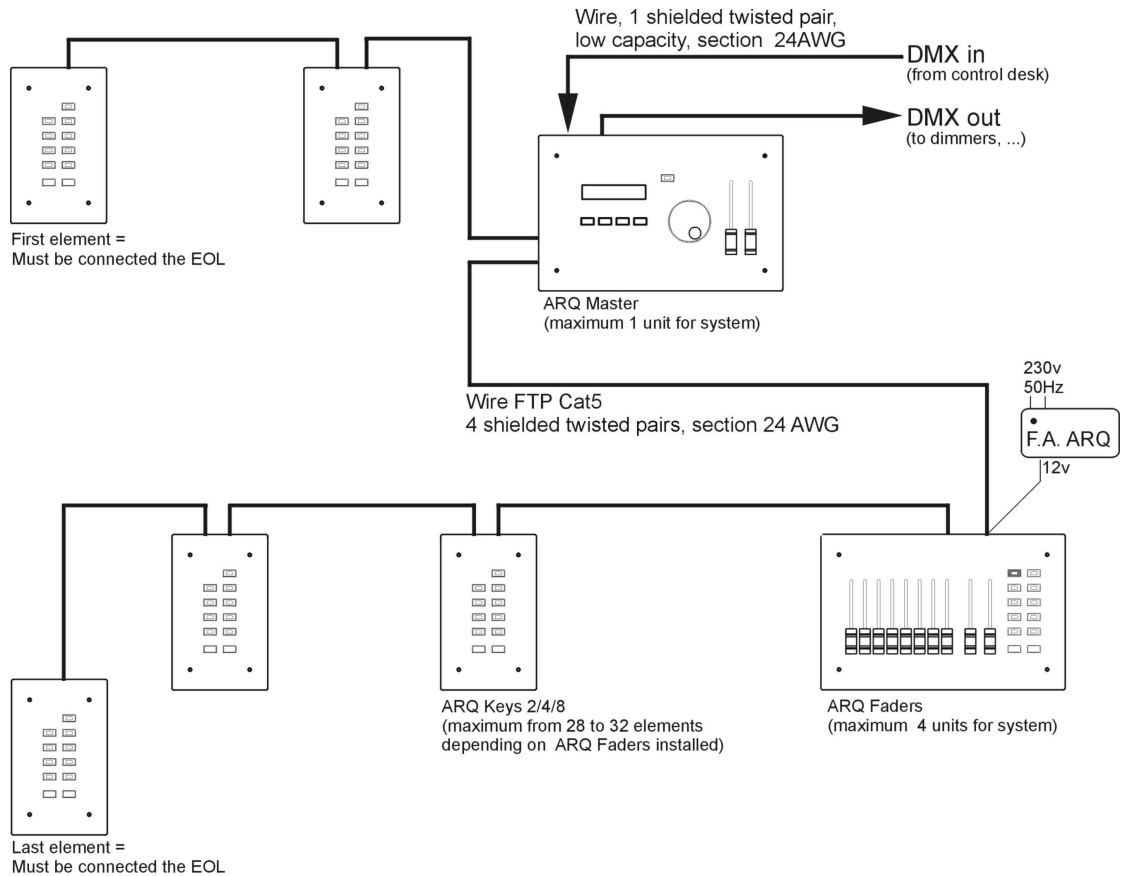
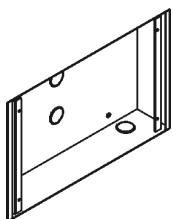


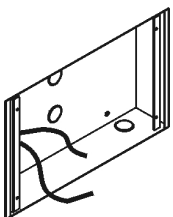
Fig. 5.1.

5.1 Mounting and preparing

The mounting of the ARQ modules can be done in any surface where you can fix the case.



Depending on the option choose: surface or inside you should fix the case by screws or making a hole on the wall to install the module inside.



After mounting the case, it's necessary to pass the bus cable input and the bus cable output.

Fynally in the ARQ Master we should have a bus cable input and output too. Table 1 shows the type of cable necessary in each case.

Tipo de conductor	
CAN signal	FTP CAT-5 4 twisted and shielded pairs, 24AWG
DMX signal	One twisted and shielded pair low capacity, 24 AWG.
Power supply	3 x 1mm2 section

Tabla 1

5.2 Power supply connection

It's convenient to connect the ARQ Power Supply join to the element located, more or less, in the middle of the bus . The connection is shown in figures 5.2 and 5.3

The ARQ Power Supply should be connected to 230V 50 Hz

Note:

***Depending on the length of the cables and the number of elements on the bus could be necessary to add a second Power Supply in other point of the bus
This second power supply could be connected in any part of the bus , in parallel with the first one and taking in consideration to distribute the power along the line.***

5.3 Modules connection

For connecting all the elements to the bus it's necessary to go from one to another until the last element.

As it was mentioned the cable should be FTP Cat 5 four pairs and the connection should be according the figure 5.2 and 5.3.

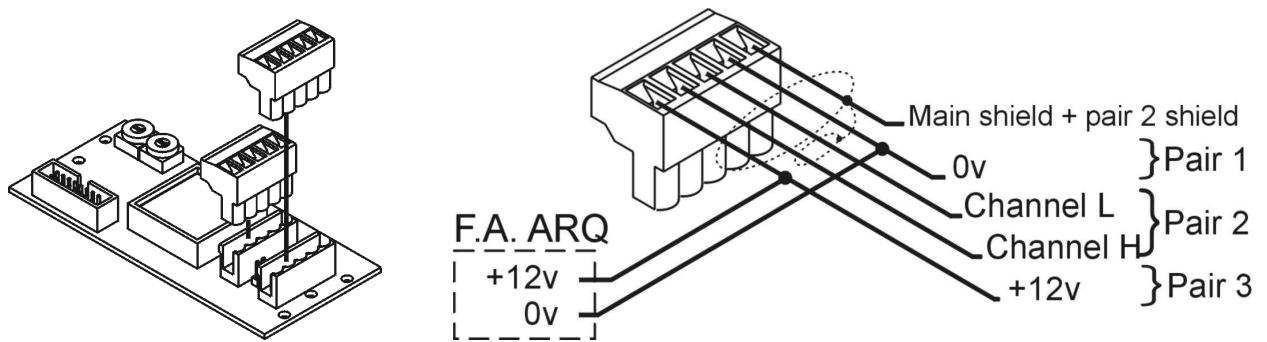


Figure 5.2. Connection ARQ Keys and ARQ Fader

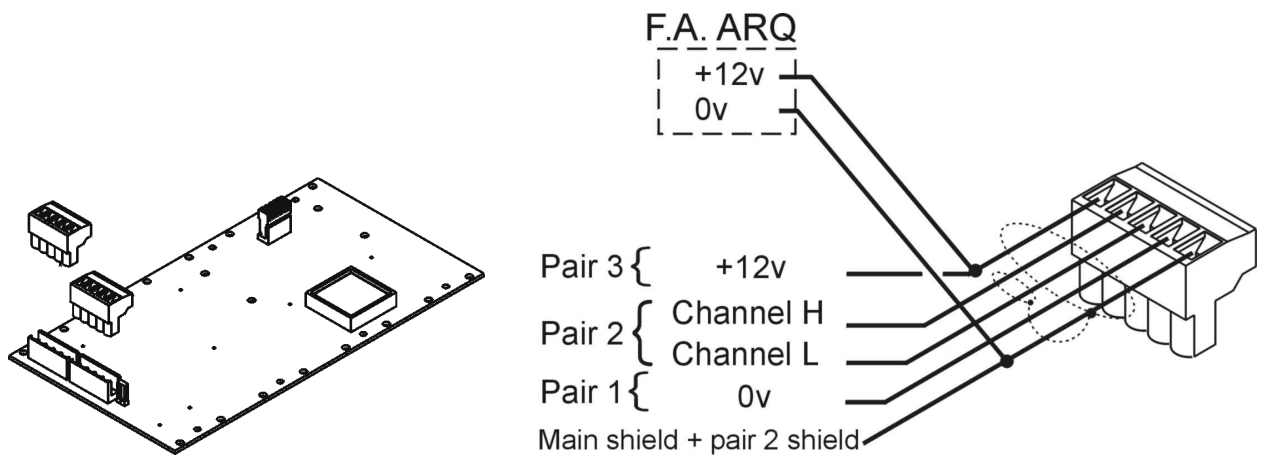
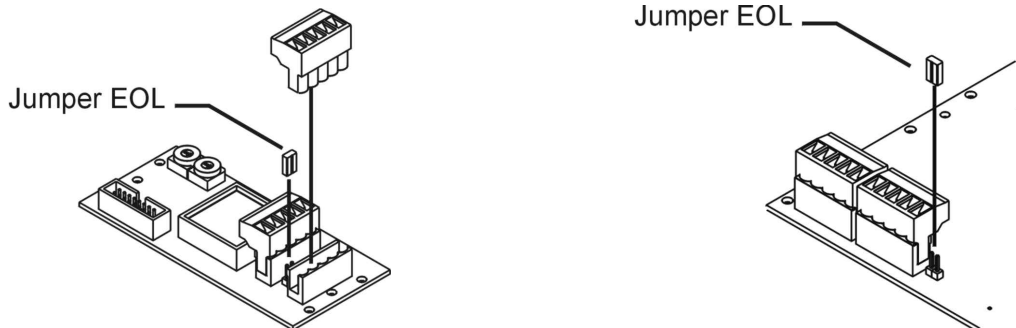


Figure 5.3. Connection ARQ Master

5.4 End of line EOL

In the first and in the last elements of the line, should be implemented a EOF. The way for doing this is to connect the jumper located, depending on the module, in the place shown in figures below

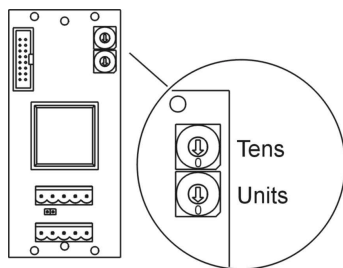


Connection EOL for ARQ Keys and ARQ Fader ; Connection EOF for ARQ Master

Figura 5.4.

5.5 Addressing for remote modules

All remote modules should have an address that goes from 0 al 31 .In the rear partof each module there are two rotative switches corresponding to units and tens.See Figure 5.5



If you assign the same address to two different elements both of them will work in the same way as there was only one module instead of 2.

Figura 5.5.

Attention:

If the address assigned to one module is higher than 31, when you turn on the system, the module keyleds will make a flickering continuously.

5.6 Connection to a DMX line

Finally you should connect the DMX lines (IN and OUT) that goes from the console of control up to ARQ Master and from the ARQ Master up to the dimmers.

The first one is optional and depends on whether you have console of control or not.

The DMX signal is connected in a connector located one the rear part of ARQ Master as it's shown in figure below.

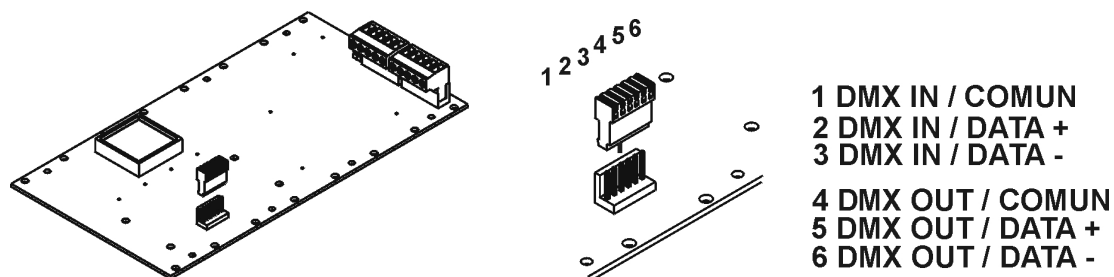
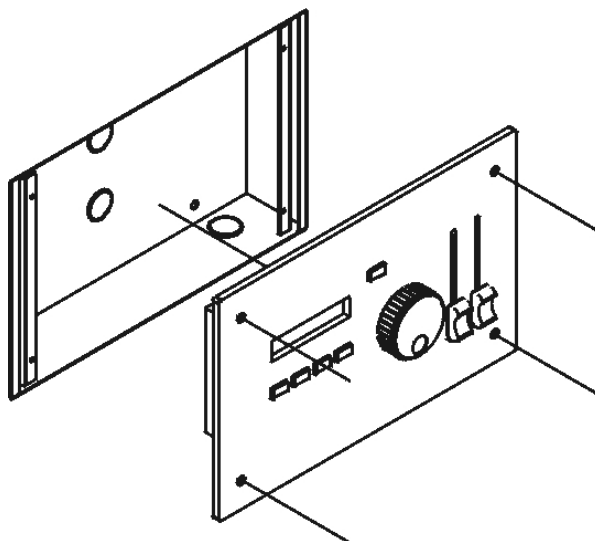


Figure 5.6.

After the connection you should fix the module in the case by 4 screws.



6. Turn on

Once you finish the installation you have to turn on the system and check the communications among all the modules.

6.1 Checking of the Power Supply and CAN signal.

Connect the Power Supply to 230v 50Hz. All the leds of the system will blink during some seconds and then they will turn off remaining only the **BLK** led blinking .

With this operation we'll know if the module is well connected, but:

- If the module makes nothing you should check the power supply See part 5.2

Attention:

The Power Supply is 12V DC, so it's necessary to keep the polarity in connections .

- If the module has the led's blinking continuously you should check the address assigned or the CAN connection :CHANNEL L and CHANNEL H. See part 5.3
- **Warning:**

If more than one module doesn't gives any answer, check the verification of the cabling from the module closer to the Power Supply.

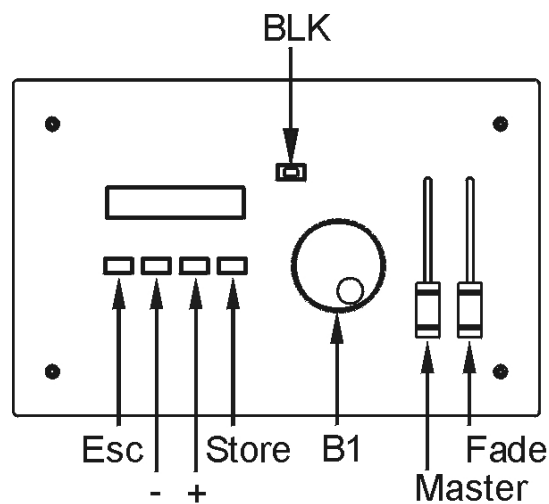
7. Way of working

After the installation and the first checking of the system it's necessary to program the presets and assign these presets to remotes.

For making this programming we have to work with ARQ Master only .

7.1 ARQ MASTER

Following we give some description of the elements of the ARQ Master and the different menus that appear on the display for access to the all the functions.



For going through the different menus and options you must use the **+ / -** keys or the rotative button **B1**.

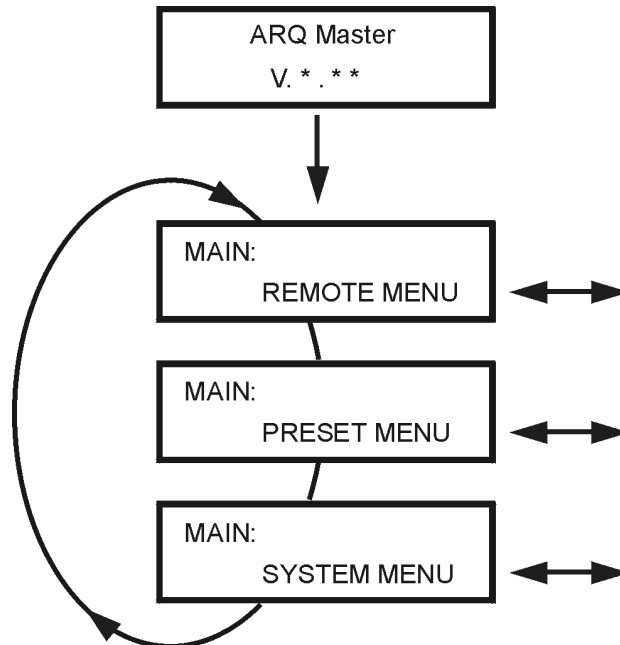
The selection of different options is made through the **Store** key and the output of teh menus through the **Esc** key.

Función BLK

With the BLK key the output of all channels go to zero , until the BLK key is pressed again.

7.2 Main menus

When you turn on the system , appears on the screen the actual program version and after some seconds appears the REMOTE MENU. With the + and – keys you can change to PRESET MENU and SYSTEM MENU.

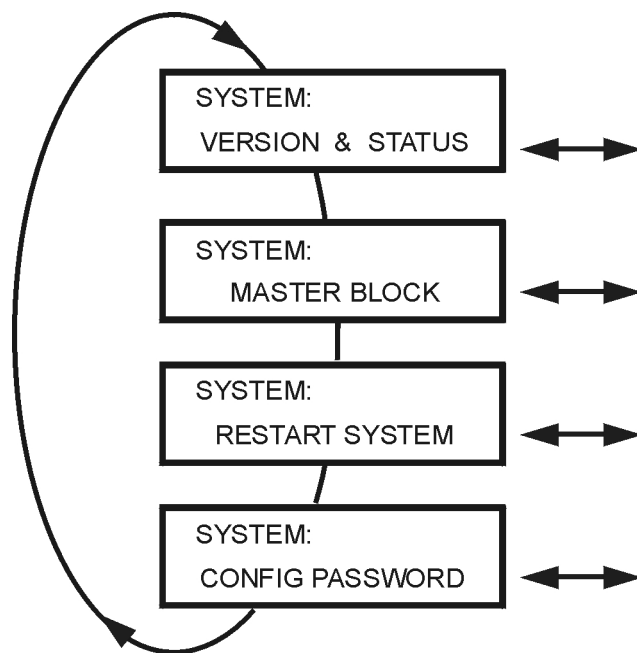


REMOTE MENU has information and functions for controlling the remote modules

PRESET MENU is used for making the presets and assign them to the remote keys.

SYSTEM MENU has general functions of the system , information and reset functions.

7.3 SYSTEM MENU



Versión & Status

Shows the software version installed and the origin of the DMX signal.

If the DMX signal is local (generated by the ARQ Master), the **Bypass**: function will show **OFF**, in other case if the control signal comes from a external console the **Bypass** function will show : **ON**.

When the system detects and external DMX signal in the DMX input, makes a bypass to this signal directly to the DMX output , so the ARQ system works but without generating DMX so the control is made by the external console. When the DMX input signal disappears the ARQ generate automatically DMX signal to the output and has the control again.

Master block

Selecting this function the ARQ Master is blocked avoiding that any unauthorized person can manipulate the system.

Once selected this function the message on the display will be :

ARQ MASTER
SYSTEM BLOCKED

For unblock the system is necessary to press the: **Esc, - , + and Store** keys at same time .

Restart system

Selecting this function all system makes a reset including the remote modules).

With this function you **don't** miss information of the recorded presets but any of them that could be launched will stop.

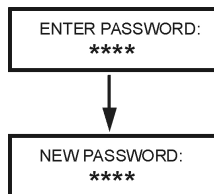
Config password

Gives the option for a password to access at the system programming and edition

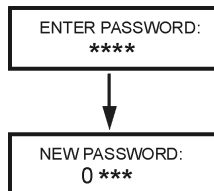
As defect the password is disabled. The first time we introduce the password appears ton the display the message asking for it:

NEW PASSWORD:

With the rotative button B1 you can change the password but from this point on, every time we want to change the password , first we have to introduce the old one and later the new one.



If you want to disable the password again you have to introduce the actual password and later introduce the cod: **0****** .

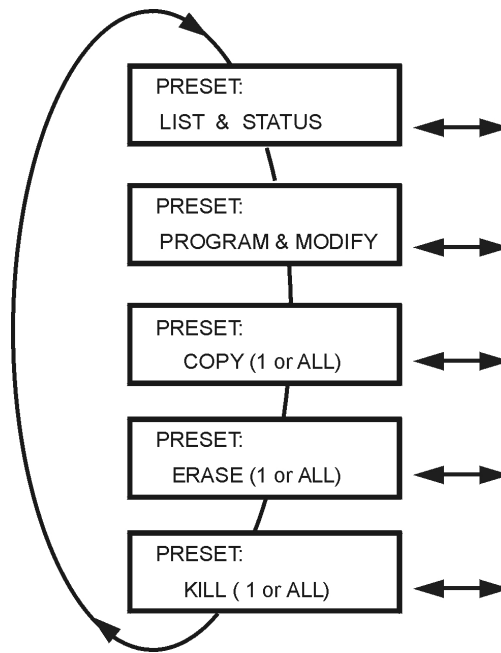


In that way the password function is disabled and you can move through the functions without the need of password.

Password Master

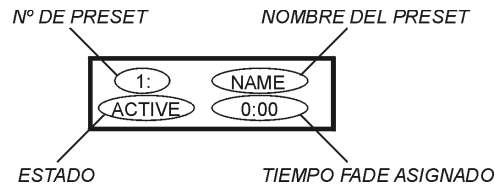
There´s a laster password that goes over all other passwords and is the code: **1111**. That´s useful if you forget the password you introduced some days ago.

7.4 PRESET MENU

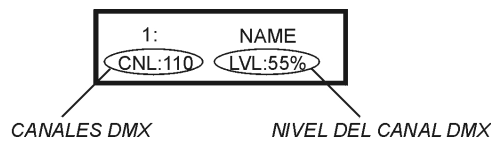


List & Status

Shows information and state of the presets on the display:



Pressing **Store** over each preset you see information of it : channel and DMX signal).



Press **Esc**, to return to the previous menu .

Program & Modify

Lets the programming and modification of any preset . You can prepare up to 128 presets maximum.

If the password function is enabled you´ll have to introduce it.

Following the information of the first preset appears on the screen By the + / - keys or the rotative button B1 you can go up to the preset 128 watching the information of each one of them.

If the preset is empty appears on the display the word: **(FREE)**, in other case , it will appear the assigned name.

11:	(FREE)
FADE:	0:00

11:	LUZ SALA
FADE:	1:20

For editing a preset you have to make the following steps:

- Select the preset to edit and press **Store**.
- Introduce the preset name.
(By + /- the cursor moves through each position and B1 selects the characters)
- Introduce a FADE time or leave it to 0.
(By the FADE potentiometer)
- Press the Store key to confirm and enter to channels edition.

11:	LUZ SALA
CNL:110	LVL:55%

- Select the channels (one by one) you want edit .
(Through B1 wheel)
- Introduce the level needed.
(By Master potentiometer)
- Once all channels are modified confirm by **Store** key for recording and return to main menu. Press **Esc** to escape without recording.

Copy (1 – 1 or ALL)

Let to copy a preset , already recorded, to another still free.

PRESET:
COPY (1-1 or ALL)

If the password is enabled you should introduce it to access the function.

By the + / - keys or the button B1, select the preset to copy , press **Store** and select free preset. If we want to make a copy of all presets,select **ALL** option by the wheel B1.

FROM: 11 LUZ SALA
TO: 22 (FREE)

FROM: 11 LUZ SALA
TO: ALL

Erase (1 or ALL)

Lets erase one preset or all.

PRESET:
ERASE (1 or ALL)

If the password is enabled you should introduce it to access the function

By the + / - keys or the button B1, select the preset to erase, press **Store**, appears a second display asking to confirm the erase or escape.Press Store or ESC.

If we want to erase all the presets it's necessary to select the option **ALL** by the wheel B1 .

PRESET ERASE: 11
LUZ SALA

PRESET ERASE: ALL

PRESET ERASE: 11
ESC:NO STORE:YES

PRESET ERASE: ALL
ESC:NO STORE:YES

Kill (1 or ALL)

Stops the launch of one or all presets. This function doesn't erase the information of the presets, as it happens with the Erase function.

PRESET: KILL (1 or ALL)

By the keys **+ / -** or the wheel B1 select the preset to stop and press **Store**, appears a second display asking to confirm. Press Store or Esc.

If we want to make a stop of all presets we have to select the option **ALL** with the wheel B1.

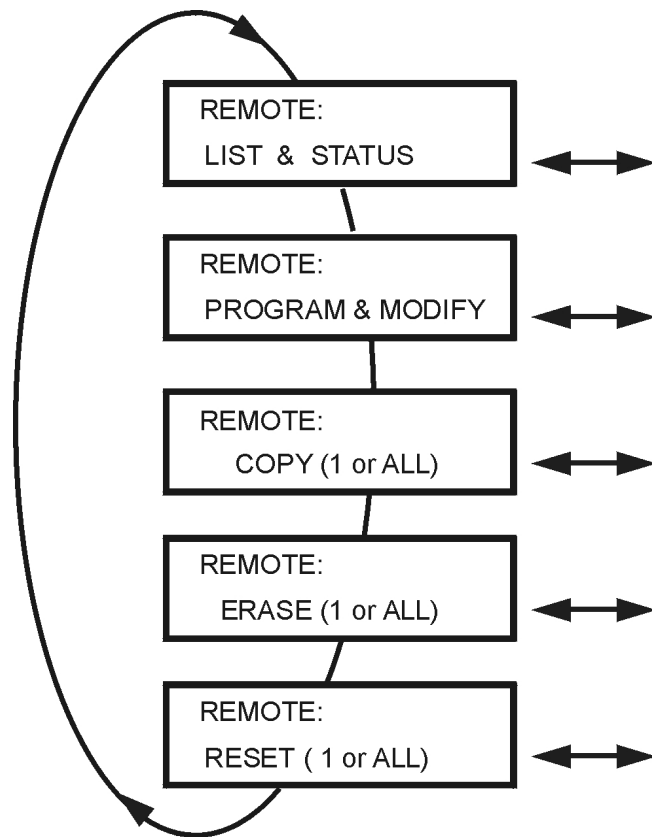
11: LUZ SALA
ACTIVE 0:00

ALL: -----
--

PRESET KILL: 11
ESC:NO STORE:YES

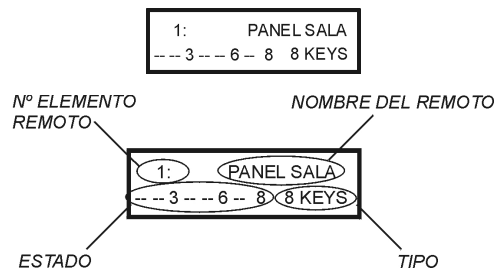
PRESET KILL: ALL
ESC:NO STORE:YES

7.5 REMOTE MENU



List & Status

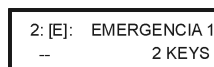
Shows one by one all the remote modules of the system and information of the actual status.



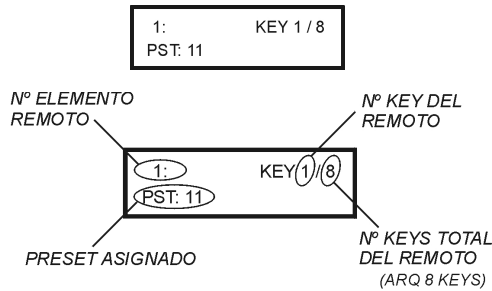
In case that any address was not assigned it will appear on the screen:



The remote modules ARQ 2 keys have the peculiarity of being configured in 2 different modes for working: normal and emergency (see part 7.6). In this case, appears :



Once selected the remote , pressing **Store** we can see the state of its keys.



By the keys + / - or the wheel B1 it's possible to move around all the remote keys.

Program & Modify

Lets the programming and modification of one remote module.

If the password is enabled you should introduce it to access the function.

Following it's shown the first remote module and information about it. By the keys + / - or the wheel B1, it's possible to move up to the remote 31, watching the information of each one of them .

If the remote selected is free, appears on the screen: **(FREE)**, in other case appears the assigned name.

6: PASILLO
4 KEYS

5: (FREE)
-FREE-

For edit a remote module the process is as follow:

- Select a remote and edit, press **Store**.
- If the remote is ARQ 2 keys it's necessary to define the way of working [], normal mode , [E], Emergency mode.
- If the remote is ARQ 8 keys it's necessary to define the way of working, [],normal mode, [P], Priority mode.
- Introduce the remote name.

(By the + /- keys you can move the cursor around the characters and with B1 choose the character)

- Press **Store** to confirm and start the edition of the keys. On screen will appear:

1: KEY 1 / 8
PST: 11

- By the keys + / -, select each one of the remote keys and with the B1 wheel assign the preset(PST) choose to each key.

In the case of ARQ Fader, after asigning the presets to the keys you should assign channels to potentiometers so on the display appears:

```
1:          POT 1 / 8
CHN: 102
```

- Press **Store** to confirm and go out from the menu.

Copy (1 – 1 or ALL)

Let to copy the configuration of a remote module to another.

```
REMOTE:
COPY (1-1 or ALL)
```

If the password is enabled you should introduce it to access the function

By the + / - keys or the B1 wheel, select the remote to copy and press **Store** and select another remote where to copy. If we want to make a copy to all remotes select t **ALL** with the wheel B1.

```
FROM: 6 PASILLO
TO: 7 (FREE)
```

```
FROM: 6 PASILLO
TO: ALL
```

Erase (1 or ALL)

Let to erase the configuration of one or all remotes.

```
REMOTE:
ERASE (1 or ALL)
```

If the password is enabled you should introduce it to access the function.

By the keys + / - or the wheel B1, select the remote to erase and press **Store**, appears a second display for confirm the erase of the module. Press Store or Esc according your needs.

If we want a make an erase of all remotes, select **ALL** option with the wheel B1.

```
REMOTE ERASE: 6
PASILLO
```

```
REMOTE ERASE: ALL
```

```
REMOTE ERASE: 6
ESC:NO STORE:YES
```

```
REMOTE ERASE: ALL
ESC:NO STORE:YES
```

Reset

Resets one or all the remotes of the system.

REMOTE :
RESET (1 or ALL)

By the **+** / **-** keys or the B1 wheel, select the remote to reset and press **Store**, appears a second display asking for confirmation, press Store or Esc according your needs.

If you want make a reset of all remotes , select the **ALL** option with the wheel B1.

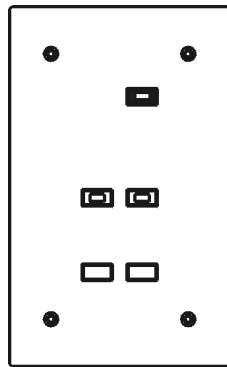
6: PASILLO
8 KEYS

REMOTE RESET: ALL

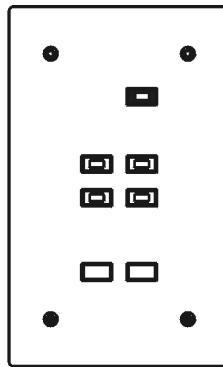
REMOTE RESET: 6
ESC:NO STORE:YES

REMOTE RESET: ALL
ESC:NO STORE:YES

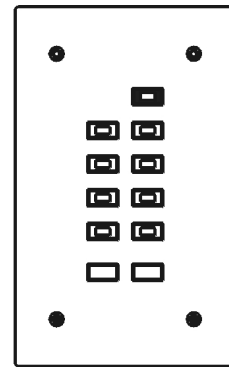
7.6 ARQ KEYS



ARQ 2 Keys



ARQ 4 Keys



ARQ 8 Keys

When you turn on or reset the system all the keys lit and after some seconds the light disappear. (If the keys remain with the led on , that means that exist an error in the connection of the system , see part 6.1).

When one remote don't have any preset launched, the **BLK** led make blinking to make easy to find the module in a dark place.

To select a preset it's enough to press the key where is assigned. The blue led will light continuously and the led of **BLK** will turn off.

If we have more than one key working (more then one preset launched) only the last one to be pressed will make blinking.

To stop a preset you have to press one time the key (led blinking) and press it a second time to stop it.

BLK function

When you press the BLK function, the presets launched , stops immediately .
If you want to launch again the presets you have to press the keys again.

Modifying output levels

To modify the level of any launched preset you have to select the preset (pressing the key, led blinking) and by the keys ▲ ▼ , go up or go down the level.

This change in level is not recorded and as soon as you stop the preset will disappear.

Emergency mode in ARQ 2 Keys

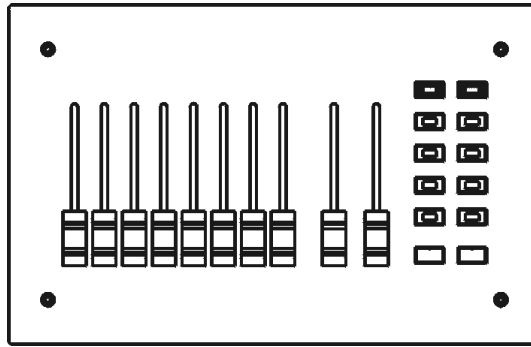
If during the configuration of the ARQ 2 Keys from ARQ Master, you select the option of Emergency mode, any preset that you assign to these keys can be launched from the module , pressing the key , but **can't** be stopped pressing again the key.

To stop the preset launched from an ARQ 2 keys in emergency mode, you should : press the **BLK** of the module, go to ARQ Master and with the **Kill** function stop the preset or press the key of another module not configured as emergency and who has assigned the same preset.

Priority mode in ARQ 8 Keys

If you configure an ARQ 8 Keys module as **priority** from the ARQ Master when you launch a preset from this module , any other presets launched from other modules (not with priority) will stop. This situation will continue until there's no preset launched from the priority module.

7.7 ARQ FADER



The ARQ Fader, has two parts : an ARQ 8 keys that works as the other modules and the potentiometers section.

It has 8 linear potentiometers to control in a direct mode 8 DMX channels, assigned previously from the ARQ Master.

The maximum level of all channels has the limit of the Master potentiometer.

The programming of ARQ Fader is made usually from ARQ Master but you can record presets in local mode. The assign of these presets is limited to the keys located in the module.

Recording presets in local mode

You can record up to 8 presets locally and assign them to the 8 keys of the module.

You can record new presets combining potentiometers and other presets .The way to do this is as follow:

- Press the **BLK** function to stop any possible activ presets launched.
- Press the **ManRec** key
- Make the preset combining the levels of potentiometers.
- Adjust the maximum level of the Master potentiometer
- Adjust the fade time by the **Fade** potentiometer
- Press the keys corresponding to the presets you want to add (if any) to the new one.
- Press again the **ManRec** key (starts blinking) .
- Press the key (in ARQ Faders) where you want to record the new preset (the key will start blinking)
- Press any of the keys: ▲ ▼ , to confirm the assignation and finish the recording.

Check that when you press the key the preset assigned is launched.

8. Maintenance

8.1 Regular cleaning

To prevent the build up of dust and dirt which may impair the proper operation of this equipment, it should be cleaned regularly using a soft, slightly damp cloth (if the machine is very dirty, apply a little liquid detergent to the cloth).

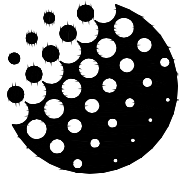
Warning: Do not use solvents or products containig alcohol. Make sure that no liquid gets inside the equipment.

9. Most common problems

Problem	Cause	Solutions
System don't answer	Power supply defective	Check the cabling. See Part 5.3
	communications fail	
One module don't answer .	wrong connection	Check the connection. See Part 5.3
	wrong addressing	Check the addressing of the module. See part 5.5
The system seems to work but the light doesn't lit.	The assigned presets not launched.	Press the keys corresponding to these presets.
	Presets not assigned.	Assign presets to keys. See part 7.5.
	The BLK function of ARQ Master pressed.	Press BLK function. See part 7.1.
	DMX signal input present.	The control of channels is through an external console. Check the console. See part 7.3
	DMX output not well connected.	Check the connection of the DMX signal. See part 5.6.
	Wrong DMX addressing of the dimmers	Check the DMX addressing of the dimmers
ARQ Fader don't shows the output level of the potentiometers	Master potentiometer is 0.	Move the Master to its higher position.

If the problem is not solved with the above solutions , contact with the Technical Service of FRESNEL S.A.

Telf 34 93 274 54 28
Telf 34 93 360 02 30
Fax 34 93 274 47 47



FRESNEL S.A.

DC-01

**STATEMENT OF
COMPLIANCE**

DATE: 01/10/02

We here by declare that the product::

Brand: **STRONG STAGE**

Model: **ARQ System**

Year of construction: **2006**

Conforms to directive 73/23 in respect of safety requirements for electrical material, to be used within specific voltage limits, and to directive 89/336 in respect of the electromagnetic compatibility of equipment, systems and installations.

Sole administrator

Ángel Torrecillas Redón

Barcelona, January 1st 2006

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