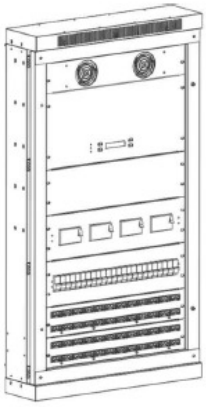
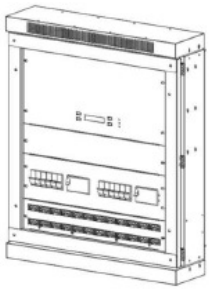
USER MANUAL

POWER 24-3 TR-M and E-M

POWER 12-3 TR-M and E-M





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1. General description

POWER 24-3 and POWER 12-3 are created to satisfy requirements of large installations which need high capacity in small space. It is specifically designed to be mounted on a wall, which reduces the space occupied by them without using rack boxes.

Output channels can be, in function of your demands, connected through internal terminals or external ones. The latter consists of a patch situated on the front side for connecting the installation lines.

They can be controlled by means of DMX-512 digital signal or be integrated through CAN protocol in an ARQ system (For more information about architectural system, visit Strong's website: www.strong.es)

They also include a PANIC function which is a pre-programmed function which activates in case of emergency.

Each channel is protected by an independent breakdown and optionally they can be protected in groups of 6 channels without having to install an external electric panel.

1.1. Characteristics

- DMX-512 digital control or CAN bus (for ARQ system).
- Automatic temperature control by forced ventilation system.
- Independent breaker protection per channel.
- 6-channel circuit breaker protection (optional).
- Protected against overvoltage.
- Automatic mains frequency control.
- LCD display to visualize the dimmer parameters.
- Charge curves that can be applied to each channel: Lineal with voltage, lineal with light, fluorescent and on/off.
- Test function for checking signal and control power.
- Starting function to increase lamps life span.
- PANIC function.

1.2. Technical data

Common data:

Power supply	400V 50Hz
PANIC connector	Jack stereo
DMX connectors	XLR 5 pins
Charge connections	Guide terminals or external patch (Wieland 3 poles 16A)

Specific and protection data:

Models	**24-3 TR-M**	**24-3 E-M**	**12-3 TR-M**	**12-3 E-M**
Minimum charge per channel	100 W			
Maximum charge per channel	3000 W			
Total maximum charge	72000 W		36000 W	
Rise time filters	250µs	150µs	250µs	150µs
Output breaker	16 A / channel			
6-channel circuit breaker	40A 30mA			
Weight	48 Kg.	38 Kg.	27 Kg.	20 Kg.
Reference	03000063	03000068	03000064	03000069

2. Dimensions

All the dimmers of this family have the following dimensions:

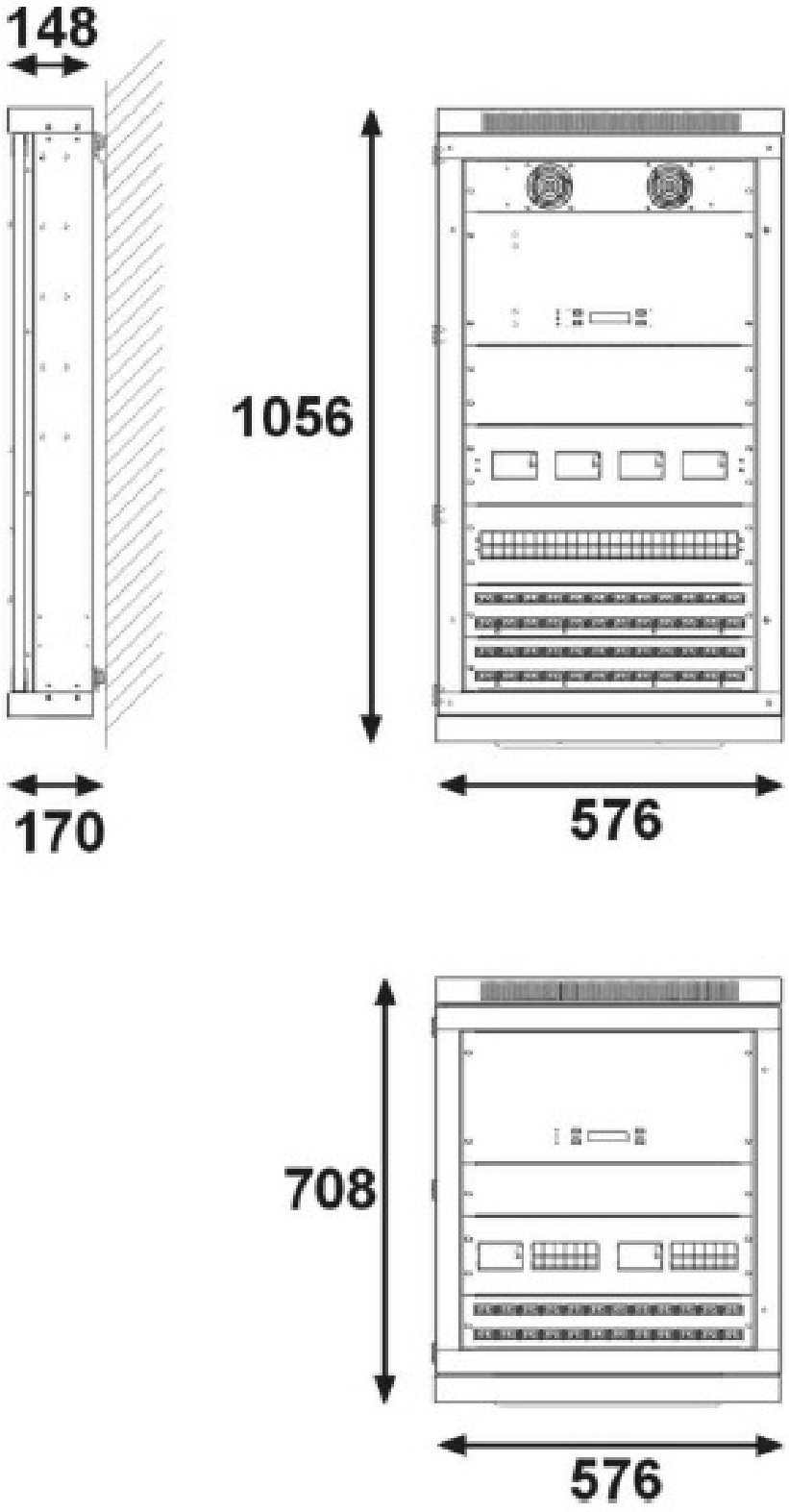


Fig.1: Dimmer dimensions

3. Installation

To hang the dimmer on a wall, first of all, we must be sure that there is enough space to mount it. Moreover, dimensions and canalization circuit of electrical cables must be taken into account.

There must be some distance between the dimmer and other elements around it in order to improve the ventilation of the device.

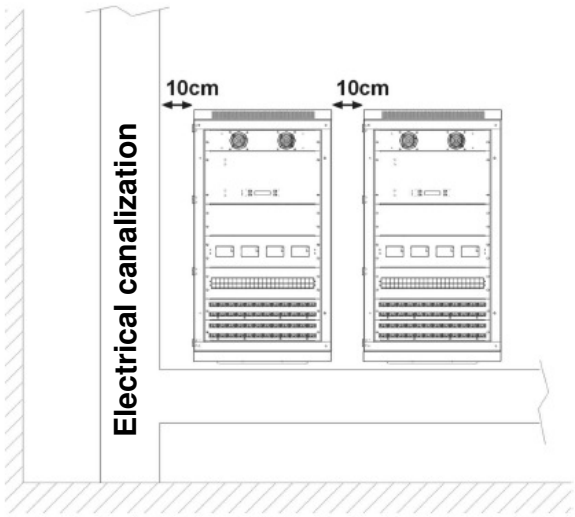


Fig.2: Distances among devices

First, the upper support must be fixed on the wall considering the height at which the dimmer is going to be installed, as it is shown in figure 3.

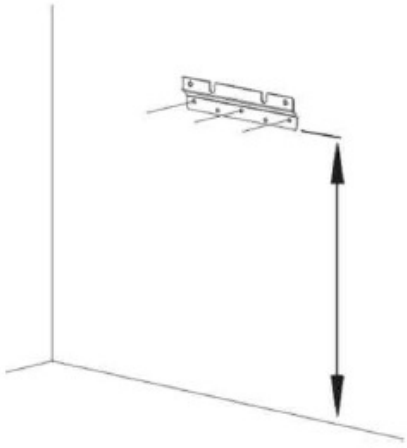


Fig.3: Distance from floor to the support

Then, the dimmer must be hung by the support by the rear side. See figure 4.

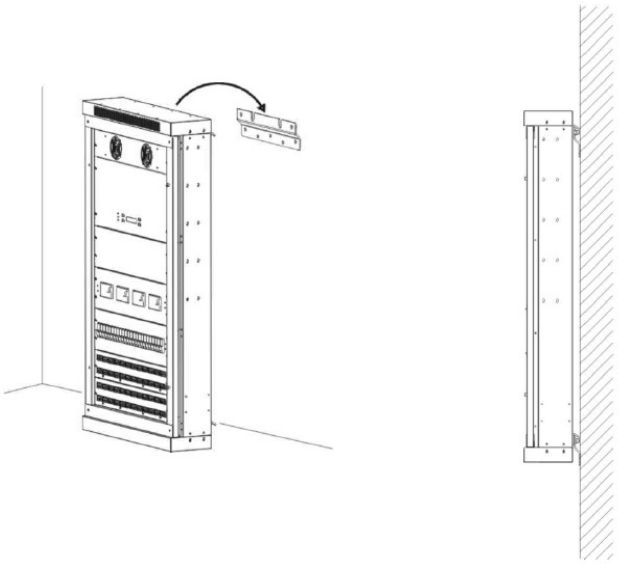


Fig.4: Upper dimmer support

Once the dimmer is hung by the support, the door of the dimmer must be opened for screwing the dimmer to the upper wall support and afterwards the lower wall support must be hung and bolted to the dimmer (as shown in figure 5).

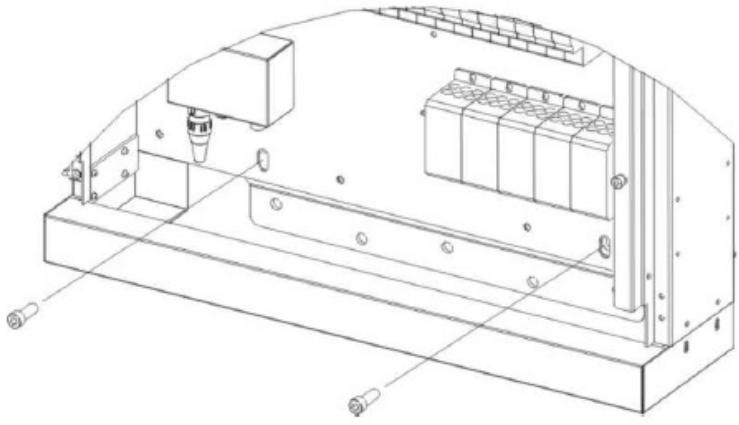


Fig.5: Lower dimmer support

Next, you must mark the lower support screws on the wall. Eventually, the lower wall support can be screwed on the wall. See figure 6.

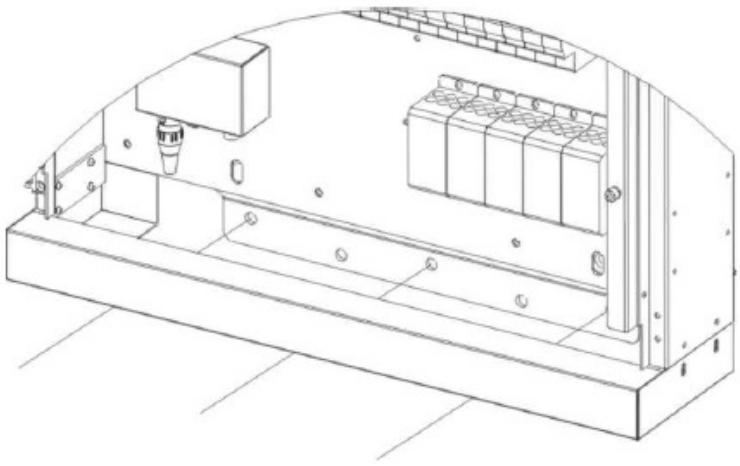


Fig.6: Lower dimmer support

Once mounted, if you want to take down the dimmer, you only will have to unscrew the two bolts of the upper and lower support which screw the dimmer to the support (see figure 5).

4. Connection

All the dimmer connections are in the lower side of the dimmer.

Inside the dimmer, there is a connection box for control signal connectors and in the opposite side there are terminals for connecting the power supply.

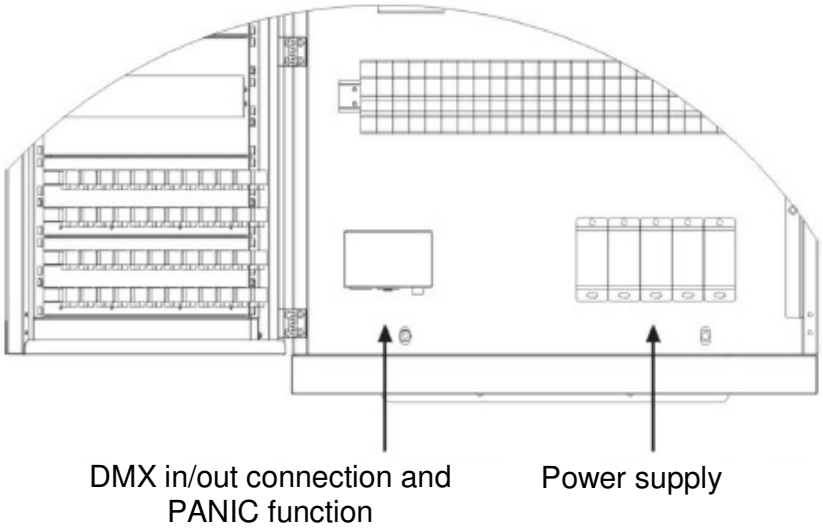


Fig.7: Connections

4.1. Power supply connection

The power unit must be connected to a three-phase power supply with neutral (R, S, T and N) and earth with 400V between phases and 230V between any phase and neutral.

Power supply terminals must be connected in the right order as shown in figure 8.

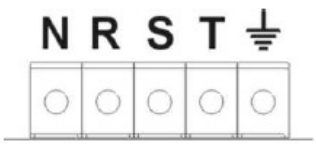


Fig.8: Power supply terminal order

Conductor section has to be chosen following these instructions:

Models	Section* [mm^2]	Type of conductor
Power 24-3 TR-M and E-RM	35	Cable
Power 24-3 TR-M and E-RM	16	Cable or multiconnector

*With 400V 50Hz power supply and charges of cosØ=0,8. For more information about charge consumption and their variations look up the low tension standards of your country.

These dimmers are protected against wrong connections as it should be to supply 400V between a phase and neutral. In this case, power unit wouldn't start up and it will display the message OVERVOLTAGE during a few seconds before disappearing. Then, you could proceed to connect the unit in the right way and turn it on again.

NOTE: It is very important for right working of the power units, to have a good earth connection. In other case, there could be voltage differences that would damage the dimmer.

4.2. DMX connection

In the signal connection box (see figure 7) there are input and output DMX connections.

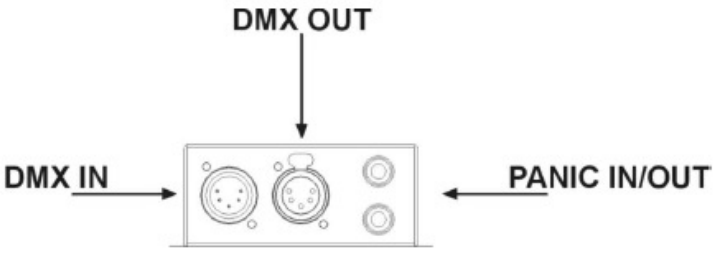


Fig.9: Signal connection box

The signal connectors are XLR of 5 pins. The signal control from the control unit must be connected to the DMX IN and the output signal to other

elements in the DMX OUT. You must connect an end-of-line resistance in the output of the last serial device in order to avoid signal interferences (see figure 10).

The cables should be braided pair, shielded and low capacity, with a type 24AWG (0,2047mm^2) minimum calibre and an impedance of 120 Ohms. Please remember that the type of cable significantly conditions any problem that may arise due to parasites coming through the line.

Similarly, DO NOT USE shielded cables usually used for connecting microphones.

The cables should be connected in such a way that pin 1 of the male connector coincides with pin 1 of the female one, and in the same way for pins 2 and 3. Pins 4 and 5 are not used.

The screen connected to pin 1 should NOT come in contact with the casing of the connector.

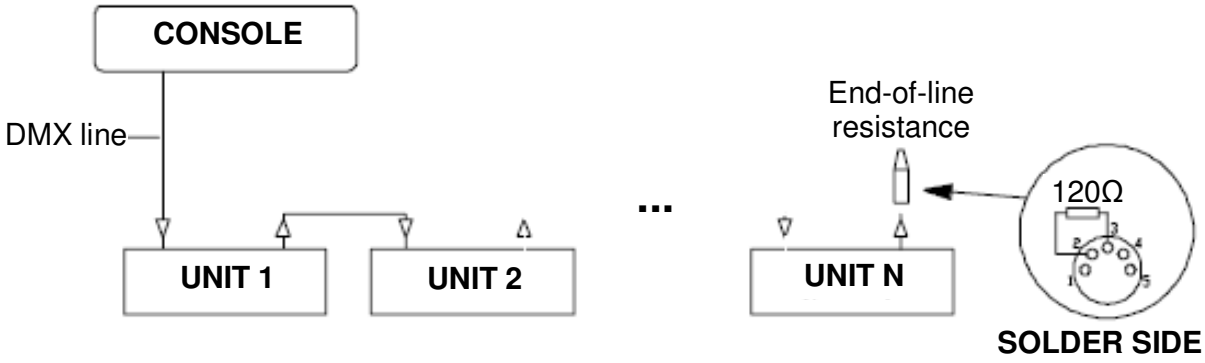


Fig.10: Signal connection net

The connection should be made exactly as shown in figure 10. You will see that a resistance of 120 Ohms 1/4W has been installed at the end of the line between pins 2 and 3. This corresponds to the end-of-line connector supplied with all projectors.

A maximum of 32 projectors may be linked up to a single line without using an amplifier. And the maximum cable length as far as the last projector is 1 Km, although it is advisable to use an amplifier for cables every 500 meters.

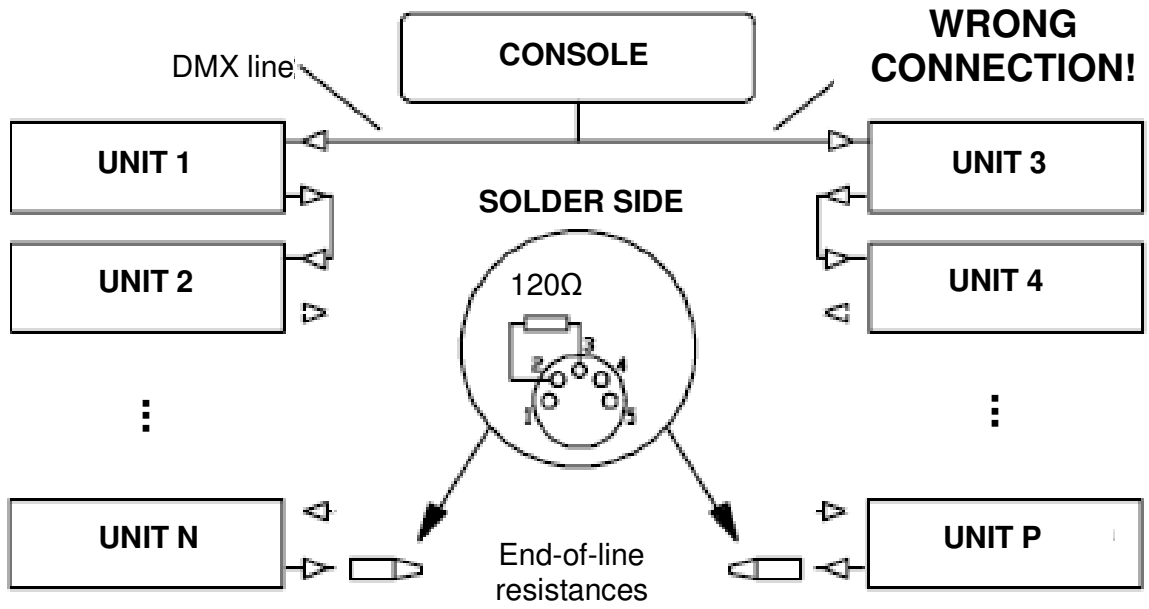


Fig.11: Wrong connection

Connection shown in figure 11 is INCORRECT. If an installation divided into several branches is required, splitters must be used. They distribute and amplify a single signal into several identical ones in different lines (see Figure 12).

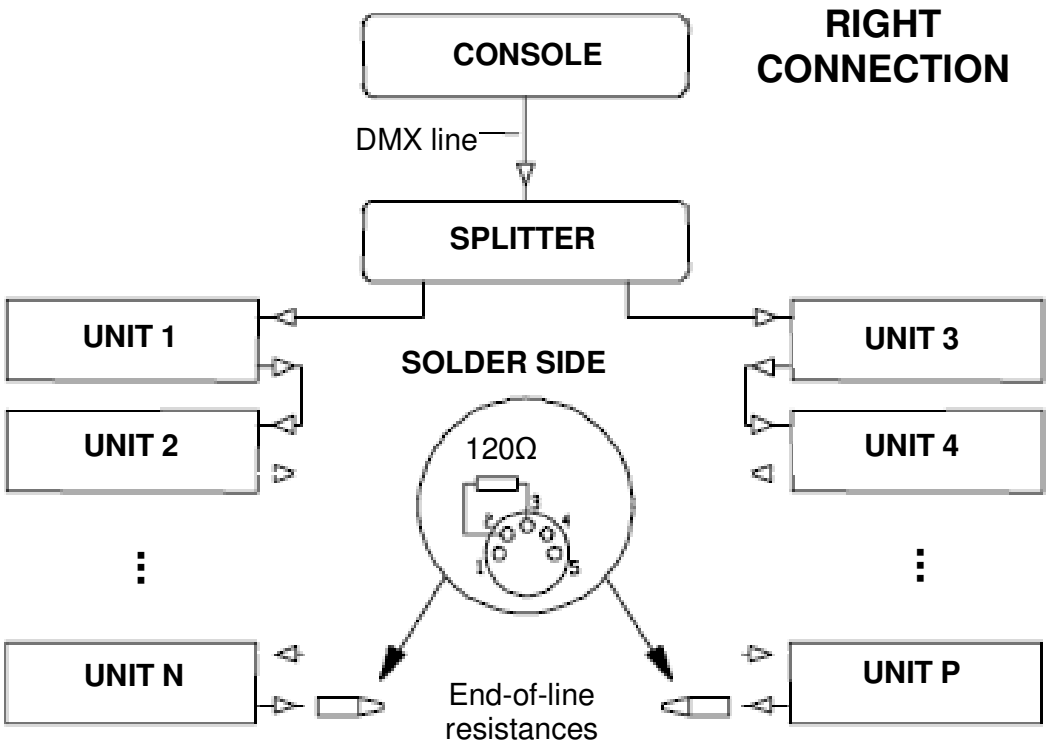


Fig.12: Right connection

4.3. PANIC connection

PANIC function connection is carried out through a Jack stereo connector situated near DMX connectors (see figure 9).

Its connection only requires two cables connected to Jack connector as shown in figure 13.

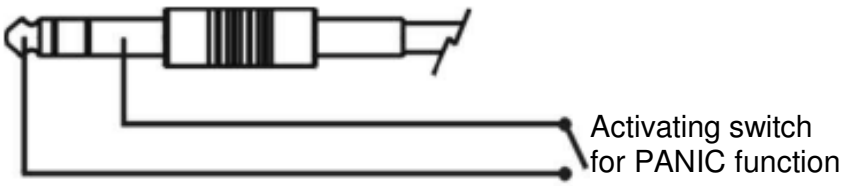


Fig.13: Jack connection (PANIC function)

PANIC function is available by means of a free tension circuit. Thus, connecting PANIC signal to a switch, function will be activated when pressing it.

IMPORTANT: Activation of this function has to be by means of a switch, not with a button.

There is an input and output Jack connector to propagate the signal to other units.

4.4. Charge connection

Depending on your choice, charge can be connected inside or outside the power unit.

Externally, connection is by means of Wieland connectors. There are two outputs per channel which can be connected to different charges. For this fact, a patch with the dead lines of the installation can be made.

Internally (this connection is more appropriate for small installations where charge lines are defined beforehand), charges are directly connected inside the power unit. Subsequently, connections are hidden inside the dimmer.

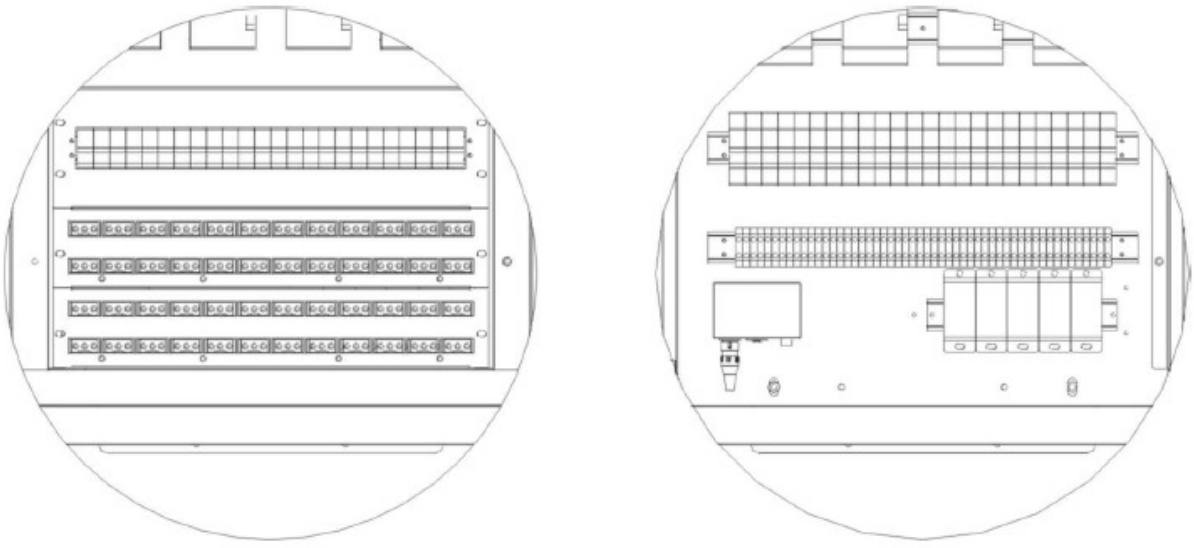
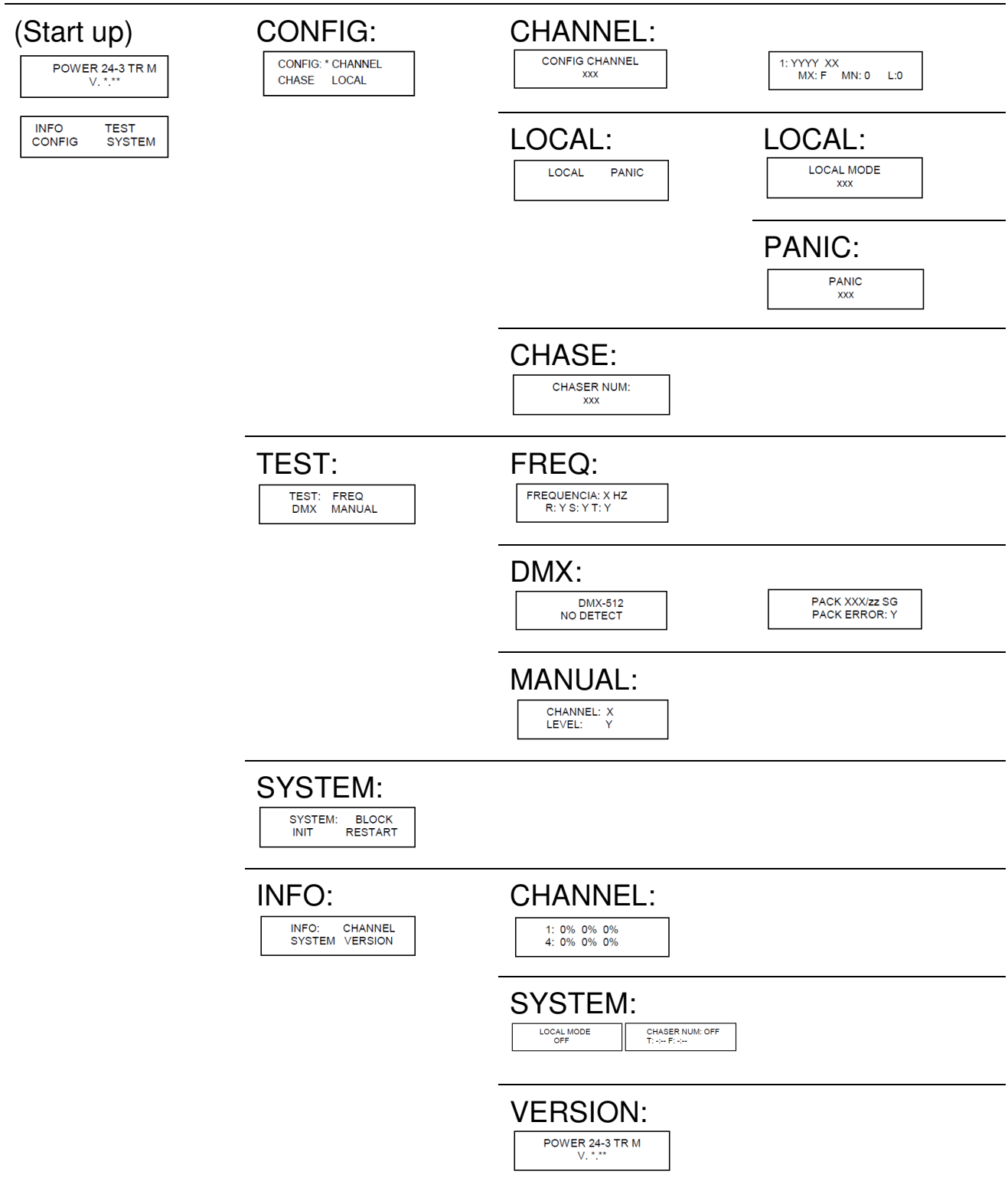


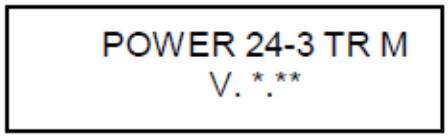
Fig.14: External and internal charge connectors

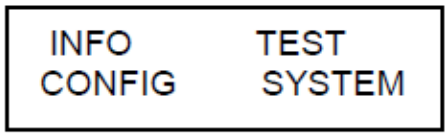
5. Programming

The following table shows a map of the dimmer menus and its options. You can move on the menus pressing “+” and “-” and select an option pressing “store”.



When the dimmer is starting up, it displays these messages:

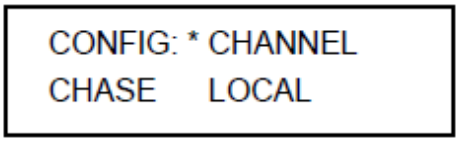




5.1. Configuration

To start with the configuration, you must enter to CONFIG menu. You can move on the menus pressing “+” and “-” and select an option pressing “store”.

Once there, you can select among three options: channels, chasers and local mode.



Channel configuration

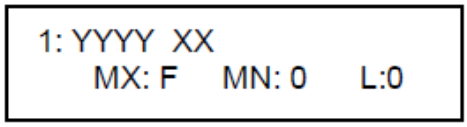
Select CHANNEL to configure the channels.

In this menu, you have two options: channel-per-channel configuration or all channels together.

XXX: It becomes “ALL” when configuring all the channels together or, alternatively, shows numbers from 1 to 24 (Power 24-3 models) or from 1 to 12 (Power 12-3 models).

In the former case, parameterization (maximum, minimum, response curves, etc.) will be equal for all the channels, which starting by the first channel will increase in one until the end of the total amount of channels of the dimmer.

When configuring the channels, either together or channel-per-channel, there will be this message:



YYY: Define the type of response curve.

LIN V – linear with voltage

LIN L - linear with light

FLUO – fluorescent

ON-OFF – Everything or nothing

XX: Address DMX channel to this dimmer channel.

MX: Maximum output value from 0 to F (100%).

MN: Minimum output value

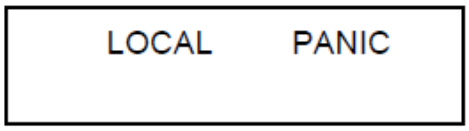
L: Channel value when working in local or PANIC mode.

For validating each option, you must press “store”.

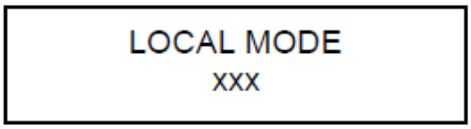
If you configure channel-per-channel, this process must be repeated for each channel. On the contrary, dimmer channels will be configured with the same options with the exception of the address.

Local mode configuration

To start this configuration, you must enter to LOCAL menu after selecting CONFIG.



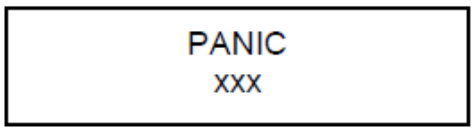
Then, select LOCAL again.



XXX: You can choose between “ON”, to activate, and “OFF”, to deactivate.

When working in local mode, channel values will be the ones configured before.

PANIC configuration



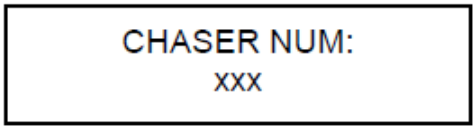
The sequence of selections to go to Panic menu is: CONFIG – LOCAL – PANIC. Then, pressing “ON” is activated.

From now on, if a Panic signal is received through the jack connector located in the lower internal side of the dimmer (see PANIC connection), automatically all the channels will be activated with the previously configured values in the local mode (see Local mode configuration).

Panic signal consists of a free tension contactor which opens or closes a circuit from an architectural lighting system or any other element which can carry out the same function (e.g. emergency stop).

Chaser configuration

First of all, you must enter to CHASER menu:



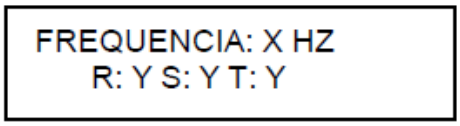
XXX: There are five options: “OFF” (chaser disconnected) or from 1 to 4 (different chasers).

Pressing “+” and “-”, you can select one of the 4 predefined chasers and then define FADE and TIME times which are from 0 to 8 minutes and 0 to 59 seconds, respectively.

5.2. Testing

This menu is for changing the output level of each channel and verifying the state of the inputs and outputs: DMX input and mains frequency.

Frequency test



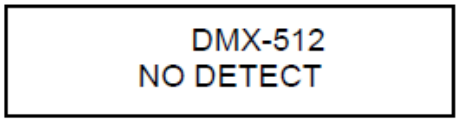
X: It indicates mains frequency value.

Y: It is “OK” if the signal is synchronised with the other phases and “Rf” for the phase used as reference. If there is no synchronism, it will be “?”.

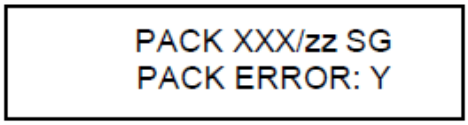
DMX test

This menu shows the DMX state and any data losing.

When DMX is not detected, it will show this message:



If DMX signal is received:



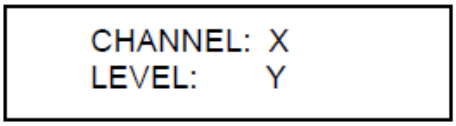
XX: Number of packs received.

ZZ: Total pack receiving time

Y: If there is any error when receiving the packs.

Manual test

This menu enables you to change manually channel level. The output level can be selected from 0 to F.

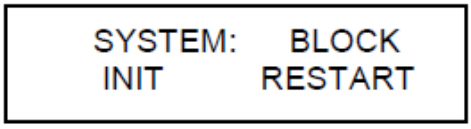


X: Number of channel to modify.

Y: Output level from 0 to F (0-100%).

5.3. System

This menu has three options: unit initialization, unit restoration and keyboard blockage.



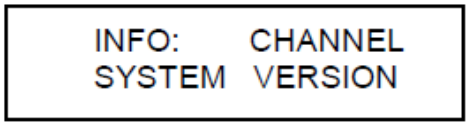
BLOCK: The four buttons are blocked. Press them altogether to unblock it.

INIT: The power unit is initialized with default values.

RESTART: Keeping the programmed parameters of the configuration, the power unit is reset.

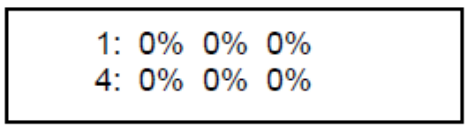
5.4. Unit information

This is a menu which informs about the state of the different parameters of the dimmer, there are three options: channel information, system menu and version menu.



Channel information

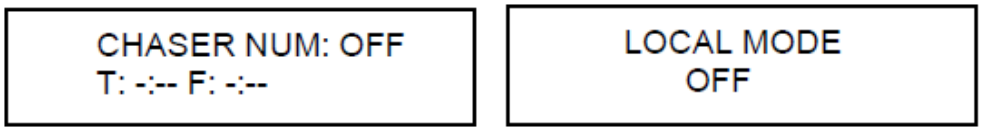
It shows the state of each channel.



System menu

This is an information menu; consequently, no parameters can be modified.

If the power unit works in automatic mode (chasers), it will show the times of FADE and TIME. It will also show local mode state: on or off.



Version menu

It informs about the software version of the dimmer.

6. Maintenance

6.1. Regular cleaning

To prevent the growth of dust and dirt which may impair the proper operation of the equipment, it should be cleaned regularly.

For cleaning it, use a soft, slightly and damp cloth (if the equipment is very dirty, apply a little liquid detergent to the cloth).

WARNING: Do not use solvents or products containing alcohol. Make sure that no liquid get inside the equipment.

7. Most common problems

Problem	Usual cause	Solution
Unit does not start	No current reaching the unit	Check mains connections
Power unit does not give response in some channels	Breakers or differentials activated	Check breakers and differentials state
	Addressing problem	Address channels in free addresses See “Programming” section
	Wrong DMX line installation	Check the type of cable, connections, connectors, installation and 120Ω terminator resistance
The unit does not work in autonomous mode	No chaser selected	See “Programming” section
	No FADER and TIMER selected	See “Programming” section
PANIC function does not respond	Not activated or not programming	See “Programming” section
	Wrong jack connection	Check connection See “Connection” section

If the problem persists despite these measures, please contact to FRESNEL’s Technical Service Department.

Telf 34 93 274 54 28

Telf 34 93 360 02 30

Fax 34 93 274 47 47

If you want to do without this product, do not mix it with the ordinary waste. There are specific methods and systems for dividing electronic and electromagnetic used products that are described in 2002/96/EC directive, which is in force in the European Community countries.

	FRESNEL S.A.	DC-01
	STATEMENT OF COMPLIANCE	DATE: 01/01/12

We declare that the products:

Mark:

STRONG

Models:

POWER 24-3 TR-M

POWER 24-3 E-M

POWER12-3 TR-M

POWER 12-3 E-M

Year of construction:

2012

Conforms to the following EC directives:

2006/95/EC: In relation to the safety requirements for material intended for use within specific voltage limits.

2004/108/EC: In relation to the electromagnetic compatibility of equipment, systems and installations.

Sole administrator

Ángel Torrecillas Redón Barcelona, January 1st of 2012

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