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Avvio 51

RGBW 12/24 Vdc LED DRIVER
MAX 300W@12Vdc / 600W@24Vdc

USER AND INSTALLATION MANUAL

ENGLISH

REVIEW 2.21

Review: April 2020

Indice:

1. Safety Information

1.1 Fire hazards prevention

- Do NOT install the equipment onto flamable surfaces.
- The minimum safety distance to keep from flamable surfaces and substances is 0,1m.
- This equipment must be powered from a breaker/differential-switch-protected mains/power line.

1.2 Electric discharges prevention

- Remove power and await 1 minute before opening the equipment's protective case/lid and before operating on or inside the equipment.
- Please make sure to follow all Safety Instructions included in this manual to correctly connect to mains and power up the equipment
- ***Avvio 51*** is a highly sophisticated electronical equipment, only authorised and trained personnel should operate on it; please make sure to forward any technical assistance or service related query, only to **delectra** authorised service centers.
- It is highly advised to use DIN guide fixing brackets to safely ground the equipment.
- Please ensure that the power cable does NOT come into contact with any other cable.
- Please do NOT handle the equipment with wet or sweaty hands, or on and around liquids in general.
- Please do NOT install the equipment outdoors in direct exposure to rain/water or in high-humidity environments.

1.3 General Safety Notices

- Do NOT install the equipment in spaces without a constant circulating air flux.
- Ambient temperature must NOT be higher than 40°C or lower than -20°C.
- The equipment contains electrical and electronic components that must NOT get into contact with water, oil or any other liquid substance in general otherwise safety and reliability of the equipment may be affected or compromised.
- Never install the equipment in areas where condensation may occur.

1.4 Ingress Protection Grade

- This appliance conforms to any ordinary equipment with Ingress Protection grade of: IP20.

2. Warranty and Regulations

2.1 Normative Regulations

- This equipment complies with all essential requirements as per CE Regulations (please review technical specifications at chapter 3.1 or the product's conformity declaration).

2.2 Warranty Conditions

- The Equipment's warranty is valid 36 months from purchase date and it covers manufacturing processes and material related defects.
- This Warranty waives the OEM from covering any fault/breakage that is due to negligence or misuse; either derived from any non-compliant installation or any fault/breakage that result from an installation that is non-compliant with the environment type and/or device usage restrictions - as explicitely and clearly set out throughout this user and installation manual -. Furthermore, the OEM will not cover any fault/breakage due to the lack of trained personnel or the lack of service maintenance as advised or as needed. (Please make sure to carefully read this manual and thoroughly follow all the guidance set out in it).
- This Warranty is void if the appliance is modified or opened by non authorised personnel and/or in case that any safety or warranty seal appears broken or has been tampered with.
- This Warranty does not include equipment substitution.
- Serial Number and Equipment type/model-number are necessary when opening technical queries or whenever technical assistence is sought from the OEM, the vendors or any reseller.

3. Product Specifications

Avvio 51 is a 4 channels universal voltage regulator for LED systems; it lacks onboard power supply.This allows the user to connect multiple appliances with a common power source, resulting in cospicuous subsequent power savings.This appliance is extremely versatile thanks to the possibility of different power supply modes: at 12Vdc or 24Vdc (autosensing). ***Avvio 51*** can be used in offices, museums, private houses, hospitals, shop floors, boats and ships, hotels and commercial centers; it is compatible with any domotic system and it is operated by any common digital controller DMX512, Wi-Fi or even Ethernet (with the right accessory), or by its switch and IR remote controller.
The multifunctional display allows for easy access to all its settings menus, measurements, system diagnostics as well as software updates. The embedded bidirectional communication sub system allows to remotely control all system's features.
Please take a look at the website www.delectra.it for any news or updates.

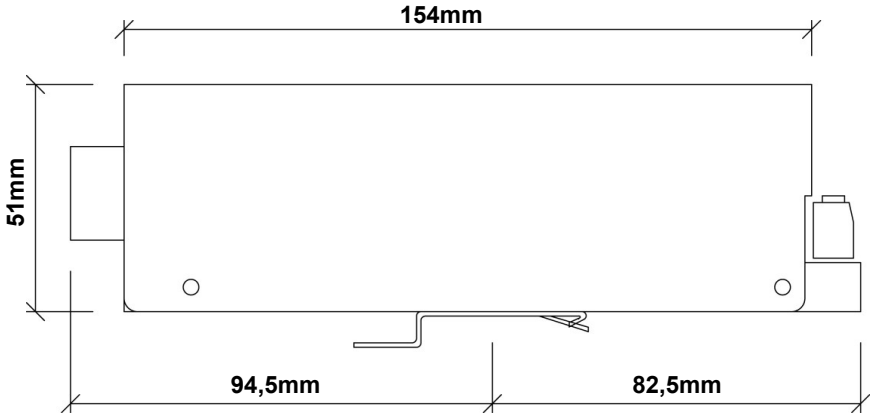
3.1 Products main features

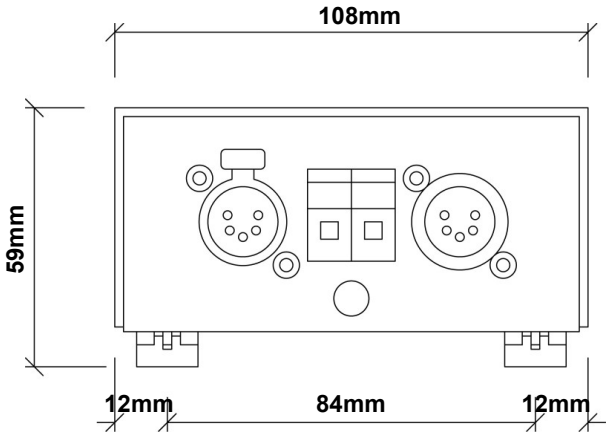
Input Technical Specifications		
Powering Voltage (Autosensing)	12Vdc (+/-5%)	24Vdc (+/-5%)
Output Technical Specifications		
Maximum Voltage (@max load)	12Vdc	24Vdc
Maximum Current	6,25A x 4	
Number of Channels	4	
Maximum Power	300W	600W
Regulation Type / Mode	Voltage / PWM	
Number of LED's per channel (White 3528) *	600	1200
Number of LED's per channel (RGB 5050) *	900	1800
PWM Frequency	76Hz - 2500Hz in 6 steps	
Flicker free	Yes	
Interface Technical Specifications		
Power Connector	12 AWG clamp - MPT410 Series (2P)	
IR & Switch/Button Connector	RJ11	
DMX Signal Connector	XLR5 (M e F)	
Lighting Sources Connector	14 AWG clamp -PT 1,5/..-H Series (2P)	
DMX512	1 x DMX512-A	
DMX Channels	6 (default) – 4	
IR input	1	
IR Menu Navigator	Yes	
Switch/button/domotic-contact input	1	
Dynamic Preset sequences	4	
Remoto© system compatibility	Yes	
Firmware Update	Yes (using Remoto©)	
Master-Slave compatibility	Yes	
Product codes	DEAVVIO5112000	DEAVVIO5124000
Protections		
Over-Temperature	Yes	
Power Derating feature	Yes	
Output Short-circuit	Yes	

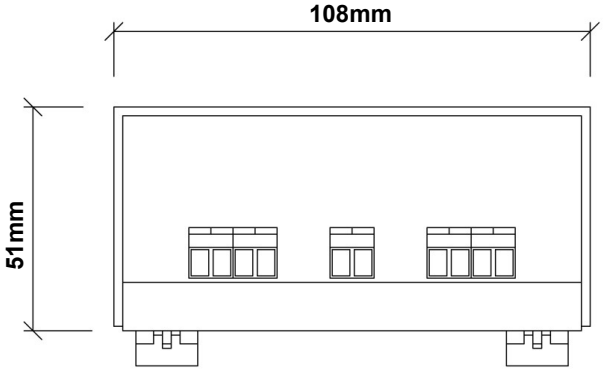
Measurements Availability	
InternalTemperature	Yes
DMX Signal	Yes
PWM Frequency settings	Yes
Life Time	Yes
Environmental Operating Ranges	
Ambient Temperature	-20 +40 °C
Relative Umidity	0-90% (condensation free)
Safety& EMC	
Reference standards	EN55015; EN61000-3-2
	EN61000-3-3; EN61000-4-2
	EN61000-4-3; EN61000-4-4
	EN61000-4-5; EN61000-4-6
	EN61000-4-8; EN61000-4-11
	EN61347-2-13; EN62031
	EN60968; EN62471
Structural Characteristics	
Dimensions LxHxW (mm)	177x59x108
Weight (Kg)	0,577
IP rating	IP 20
Options	DIN rail fixing
Accessories	
IR remote controller	DATELECOMANDO0
IR sensor	** DARXIRXXX00000
Remoto©	DEREMOTO000000
Accendo© Dmx 512 Opto Hub	DEOPTOHUB00000

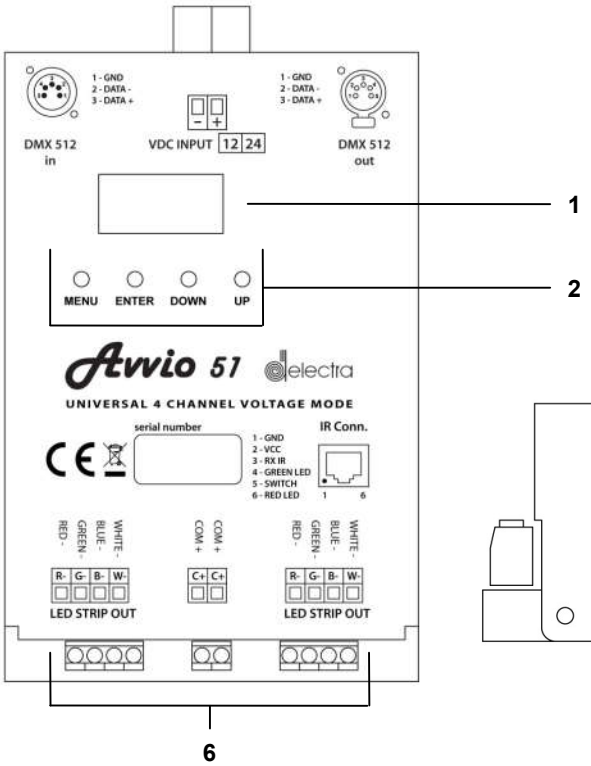
* LEDs number is approximate (depending on the Strip model used)
** For IR sensor models see related data sheet

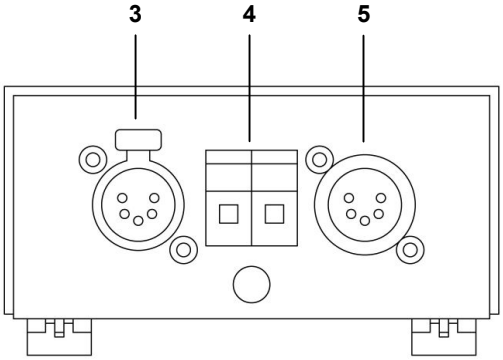
3.2 General overview

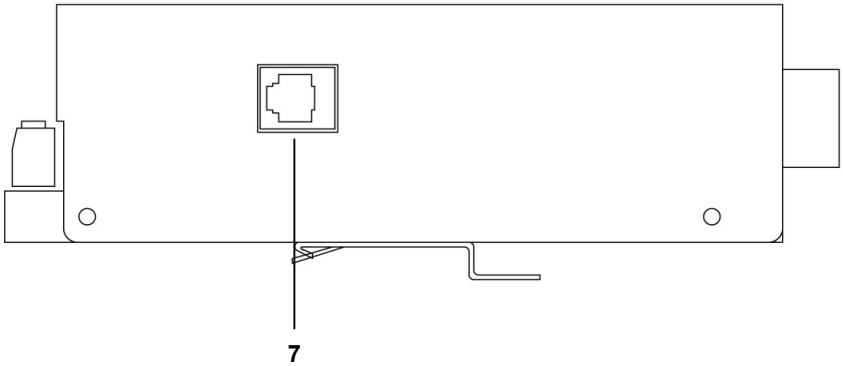












N.	Part	Position	Description
1	Display	Top cover	7 segments Display
2	Push Buttons	Top cover	Push buttons for menu browsing
3	DMX OUT connector	Front panel	XLR5-Female for DMX512 output signal
4	Power IN connector	Front panel	12 AWG clamp - MPT410 Seriesfor supply voltage
5	DMX IN connector	Front panel	XLR5-Male for DMX512 input signal
6	LEDs Connector	Rear panel	14 AWG clamp - PT 1,5/..-H Series for lighting sources connection
7	IR connector	Side panel	RJ11 for IR & Switch/Button/Domotic-contact inputs

4. Installation

Avvio 51 can be placed and installed on a flat surface or easily mounted on a DIN rail (omega type of 35mm), with the aid of the ad-hoc clips provided and pre-installed on the case. When installing the equipment, please make sure that a constant air flow is available: this is necessary for the correct functioning and general operations of the appliance.

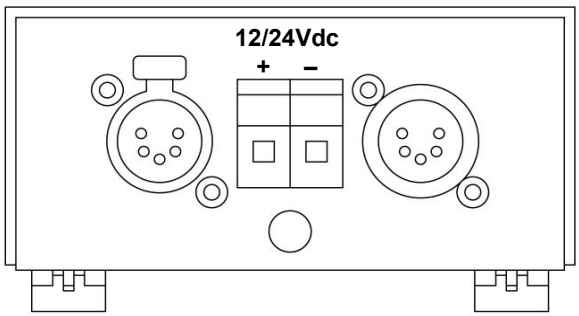
5. Power

5.1 Operating voltage

Operating Voltage depends on the controlled LED strip type; thanks to its autosensing features, ***Avvio 51*** automatically adapts to the input voltage of either 12Vdc or 24Vdc.

5.2 Power input connector

Avvio 51 is provided with a 10mm wide clamp to allow connectivity to the primary source of power supply. A bipolar cable of adequate size (min 1,5mm^2) that fully complies with security standards and the current regulations must be used for the connection; please see picture below:



WARNING !

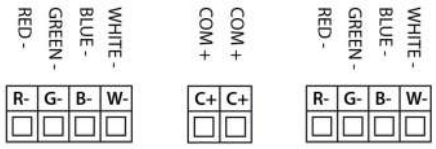
In order to safely and correctly operate Avvio 51 and to avoid any electrical or electronic damage you MUST:

- **Install the power supply in an electrical circuit provided with breaker switch (consult your country regulations)**
- **Ensure that the power supply outputs enough power and it is protected from any type of short-circuit**
- **Ensure that the installed power supply is compliant to CE, EMI and all SAFETY Regulations**
- **Ensure that the installed power supply can withstand the capacitance loads (470uF x Number of connected appliances)**
- **Ensure that all electrical/electronics cabling and wiring is carried out by qualified technicians**

6. LED Output and Control Inputs

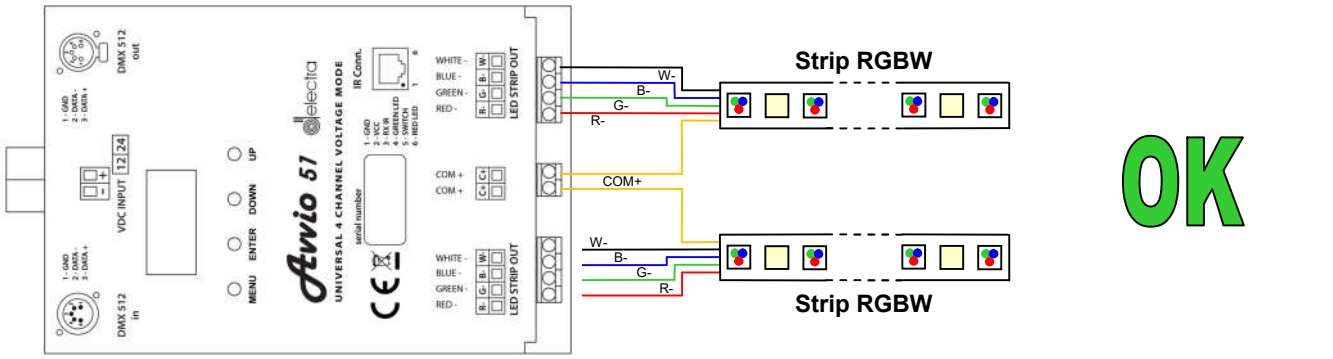
6.1 Lighting Sources connection

Lighting sources can be connected to the appliance by means of on-board clamps P.5mm (please refer to Element #6 of chapter 3.2) placed at the rear of the device. Please make sure to use a bipolar cable of adequate section and follow the schematics and instructions below:



Number, types and density of LED found on commercially available LED-strips can greatly vary: when wiring, please make sure to distribute them amongst all the different output connectors clamps of *Avvio 51*; please avoid chaining the strips (serial connection) above the appliance allowed limits (compare with wiring schematics in chapter 6.1.1).

6.1.1 RGBW LED Strips wiring and connection schematics



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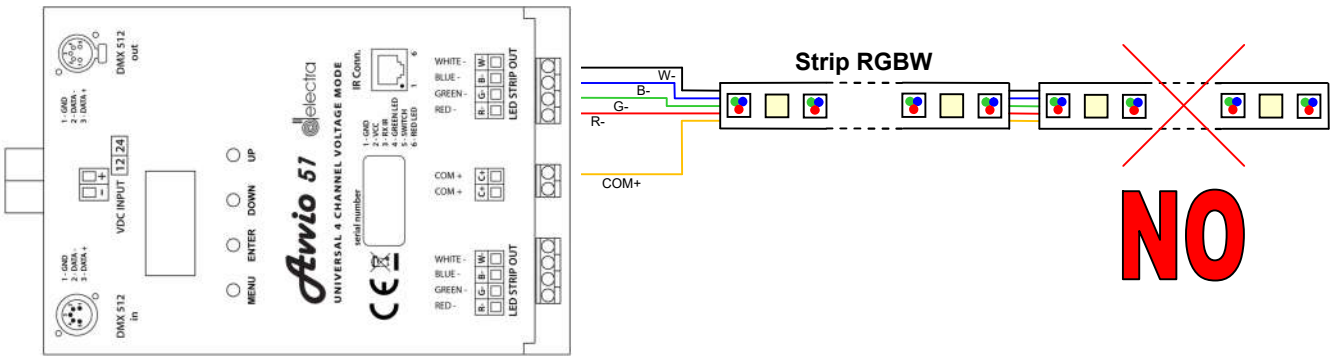
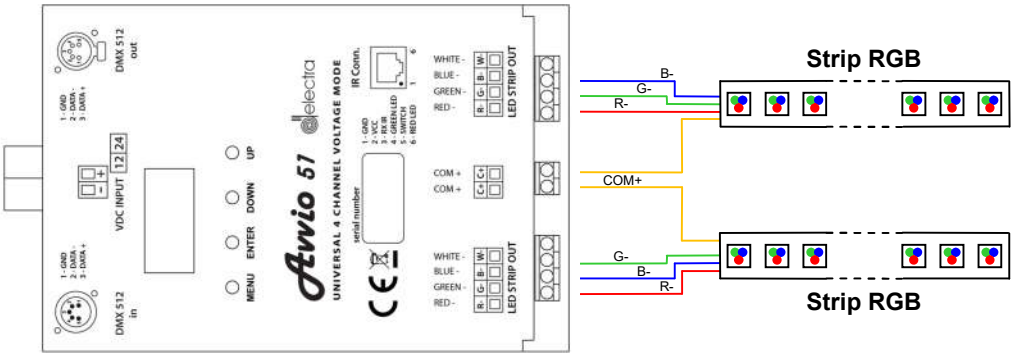
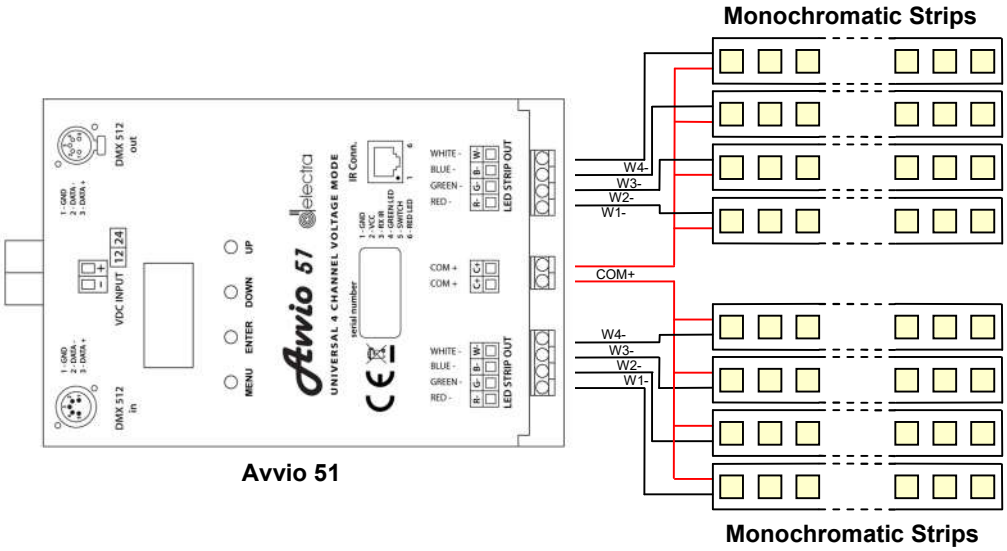


6.1.2 RGB LED Strips wiring and connection schematics



Avvio 51

6.1.3 Monochromatic LED Strips wiring and connection schematics



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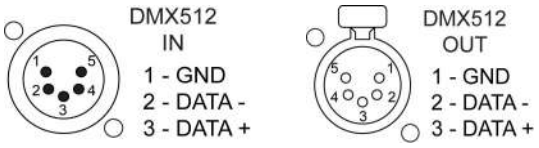
As previously mentioned (see chapter 6.1) please make sure to distribute all LED strips attached, amongst all the different output connectors clamps of *Avvio 51* and please avoid daisy-chaining the strips (i.e. in a serial fashion) beyond the technically specifics limits and allowances.

WARNING !

- **NEVER perform wiring/connection operations when the POWER is on or when the main is NOT switched OFF.**
- **DO NOT invert connections direction/polarity for ANY reason.**
- **ALL OUTPUT channels share the same POSITIVE polarity.**
- **Please AVOID using old types of soldering irons when performing wiring/connection to lighting sources; this is to prevent the generation of spurious currents on LEDs.**

6.2 DMX Connections

This connection is compliant with the international standards USITT DMX512-A (E1.11-2008); the implemented "Enhanced Function topologies" is of type EF1. The connection, that must be done using a cable of 120Ω impedence, is achieved by the use of XLR-5 M/F connectors (see elements #3 and #5 in chapter 3.2); these are located on the device frontal panel.
Please use the following schematics in order to perform correct wirings and connections:

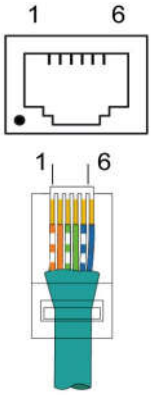


WARNING !

All SHIELDINGS and CONDUCTORS of the wires used for the connections, MUST NOT get into contact with each other or with any metallic case of the connectors themselves.
CONNECTORS'S PINS MUST NOT be grounded for any reason.

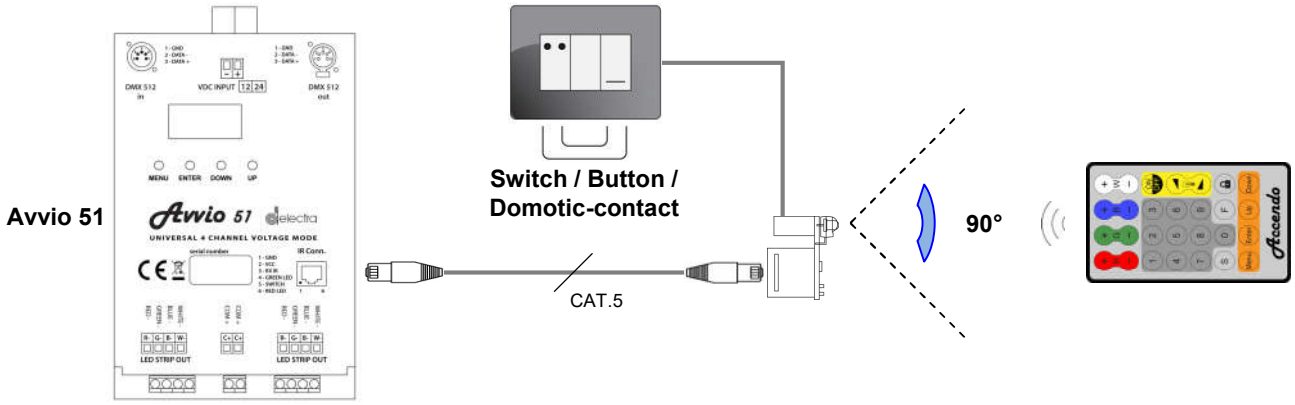
6.3 IR Connection and switch/button/domotic-contact

The link to the IR receiver and/or to the external switch/button/domotic-contact (if present and available on this model) is possible by means of the RJ11 (6 poles connector) located on the lateral panel of the case (see element #7 of chapter 3.2). It is strongly advised to connect the device through a CAT.5 cable following the layout schematic below:

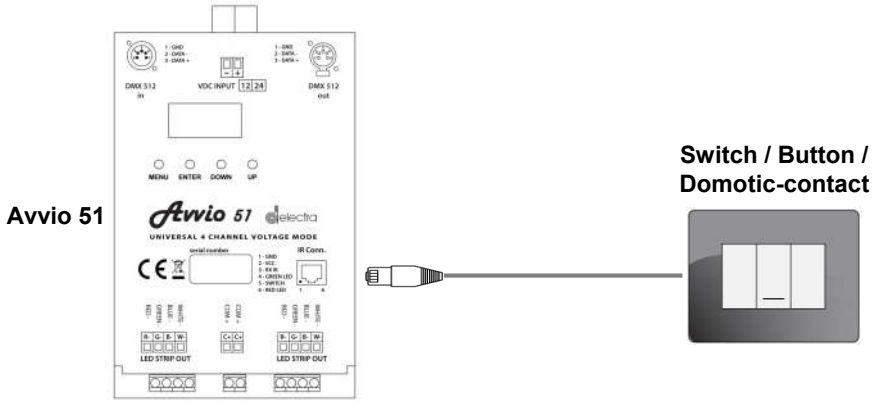


PIN 1 = GND	WHITE-ORANGE
PIN 2 = VCC	ORANGE
PIN 3 = RX IR	WHITE-GREEN
PIN 4 = RX V	GREEN
PIN 5 = SWITCH	WHITE-BLUE
PIN 6 = RX R	BLUE

The field of view of the IR sensor is 90° (Max angle to receive IR signals). It is strongly advised to install the sensor and the appliance in a suitable position that will allow clean field of view to the IR receiver/sensor, without sacrificing too much the easiness of pointing of the remote controller.



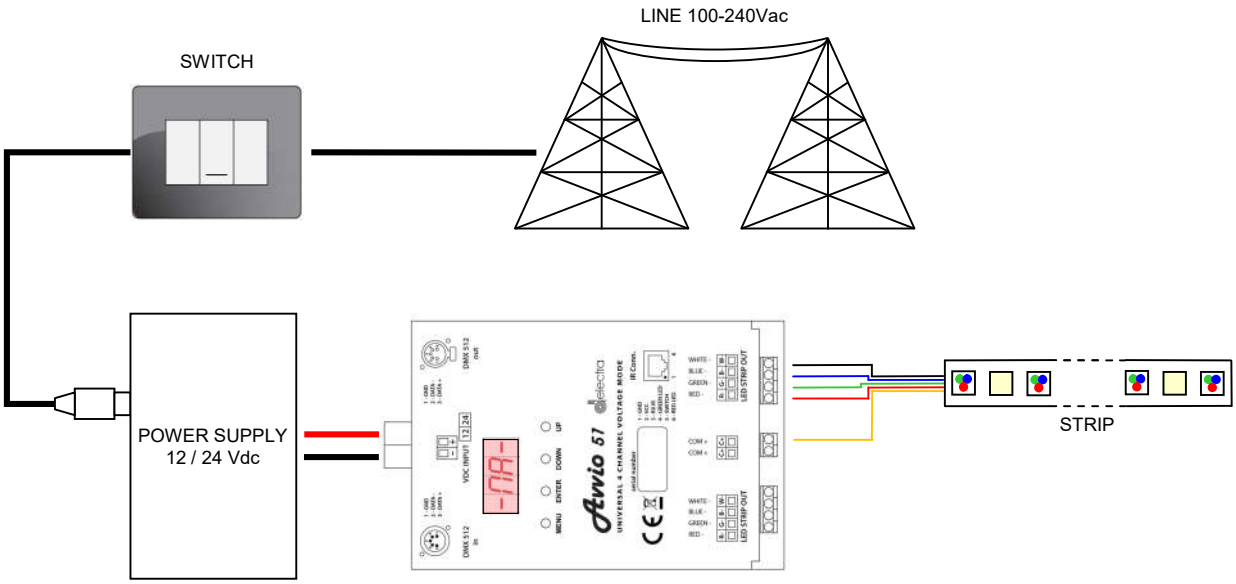
The choice between switch, button or domotic-contact depends on the final purpose of the installation and its specific applications: please consult this manual at chapter 11.3 for all the information and specifics required.



As one can easily infer from the picture, if the IR sensor is not critical for the specific installation/application it is even possible to connect just the switch/button/domotic-contact, to PIN1 (GND) and PIN5 (SWITCH) of the RJ11 (6 poles) connector.

7. Automatic functioning

7.1 Connection layout schematic: MASTER mode or AUTO mode

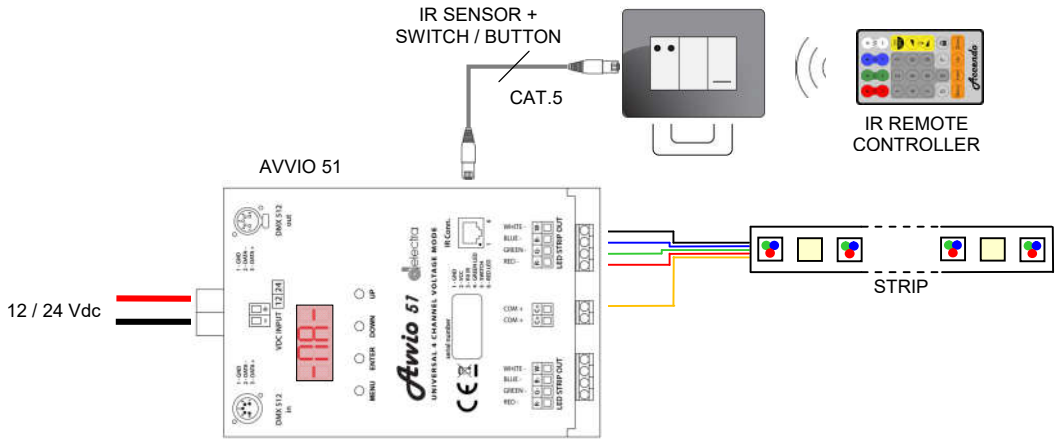


In the above schematics the basic configuration for ***Avvio 51*** installation is represented; there is a master controlling switch to turn ON/OFF the appliance: this helps minimising all energy losses and contributes to higher energy saving targets.
For this type of installation it is advised to use the appliance in the **MASTER** or **AUTO** functioning mode.

- **MASTER**[(1)] mode(see chapter 11.2): with this configuration it is possible, after powering up the device, to turn ON/OFF the outputs to a preset lighting level called **STANDARD** event (see chapter 7.2).
  A QUADRATIC dimming curve is applied by default (see chapter 11.3); hence the STANDARD event is defined (by factory default) as 5**%** of the maximum intensity of all ouput channels.
  If a change to this setting is needed, it is possible to do so:
  - via the "TEST menu" (see chapter 11.3)
  - by means of the remote controller and its IR sensor (see chapter 7.2 and chapter 10)
  - using the DMX controller (see chapter 8.1)
- **AUTO**[(1)] mode: with this configuration it is possible, after powering up the device, to send some preset and default lighting sequences to the lighting sources. There are 4 different default preset sequences, that can be selected from the menu; these can be executed singularly or in sequence, even in a random one.
  By factory default, the execution preset sequence is program 1 (**Prg.1**).
  If a change to this setting is needed, it is possible to do so via the "AUTO menu" (see chapter 11.3).

(1) In order to be able to set ***Avvio 51*** in **MASTER mode** or **AUTO mode**, the DMX signal MUST NOT be connected.

7.2 Connection layout schematic: IR and switch/button in MASTER mode



Another simple configuration for *Avvio 51* installation is the one represented here with IR receiver and switch/button. After setting the device in **MASTER mode**(1), it is possible to control - with the optional IR remote controller (code DATELECOMANDO0) - the lighting intensity of all four channels of *Avvio 51* either singularly or globally (global output level), so to achieve all desired colour combinations and grades (when using RGB or RGBW strips) or achieving all desired white lighting grades (when using Dynamic White strips).
This configuration allows to connect a switch, button or domotic-contact either to the IR sensor or directly to the device.
When using the switch (or the domotic setup), in the ON configuration, outputs activate with the **STANDARD EVENT** preset lighting levels.
When using the button instead, all device's functions can be accessed, depending on how and for how long the button is pressed. The following 3 different options are available:

- **FAST EVENT**: by pressing and releasing the button inside a predetermined time window (that can be set by the user), the outputs activate with all channels at maximum intensity; the transition time can be adjusted from the menu.
- **STANDARD EVENT**: by pressing and releasing the button in a time window that extends between the thresholds levels set by the FAST event (minimum value) and the DIMMER event (maximum value), the outputs activate with the channels set to the previously saved lighting level; the transition time can be adjusted from the menu.
- **DIMMER EVENT**: by keeping depressed the button longer than a predefined time window (that can be set by the user), the system turns on with a dimming effect over the global light intensity (of all channels), using the previously saved colour settings; the dimming effect time window can be set by the user through the menu.

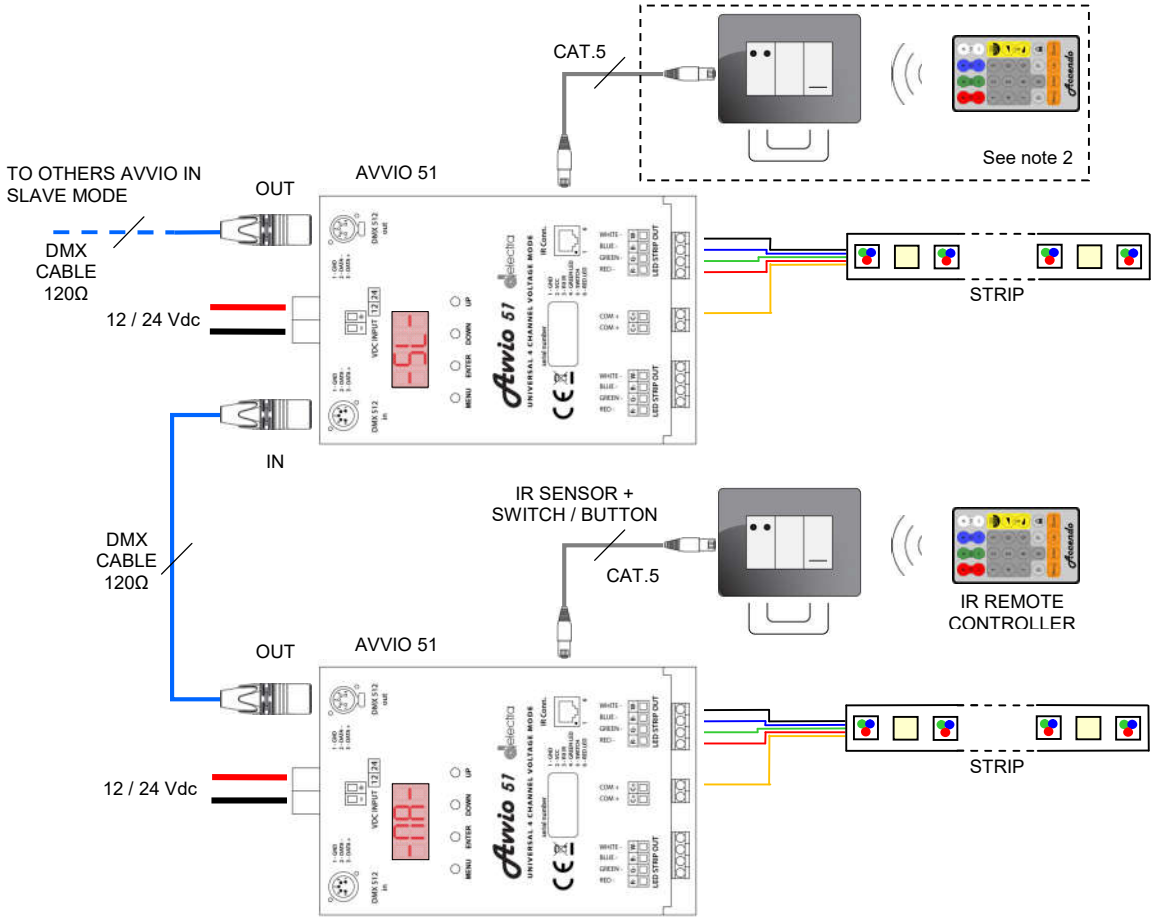
IMPORTANT !

In the configuration with remote controller or external switch, the STANDARD events the most important one, as this is normally the most used event by the final user. For what concerns all technical specifications of this event, its settings and saving features, (as well as all others device settings while in this mode) please refer to chapters 8.6 **and** 11.3 **of this manual**.

By means of the buttons "Menu" - "Enter" - "Up" and "Down" of the remote controller, it is possible to access the "Menu browsing" feature and to change *Avvio 51* configuration and settings, as can be done directly on the device's buttons.
If the remote controller is not needed, it is possible to use only the external switch correctly wired and connected (see chapter 6.3).
FAST event and **STANDARD** event can be easily loaded from the display panel by using the **EVENT menu** (see chapter 11.3).

(1) In order to be able to set *Avvio 51* in **MASTER mode**, the DMX signal MUST NOT be connected.

7.3 Connection layout schematic: IR andswitch/button in MASTER/SLAVE mode



This setup is similar to the one described in chapter 7.2: only difference is that it is possible in this configuration to extend the installation, by connecting to ***Avvio 51*** (set in **MASTER mode**[(1)]) up to a maximum of 32 other devices (set in **SLAVE mode**[(2)]). The wiring must be done through the frontal panel connectors (see elements #3 and #5 in chapter 3.2) by means of the DMX line.
In this configuration it is possible to :

- switch ON/OFF the LED load (with the remote controller, switch or button)
- change the 4 channels to obtain all desired coloring effects (using the remote controller)
- control the general lighting intensity (using the remote controller and the button)

All devices connected in **SLAVE mode**, will perfectly and syncronously replicate any lighting variation that the **MASTER** device will define and set.

Please Note: in order to provide the user with maximum control and flexibility, even the devices in **SLAVE mode** will retain some degree of independent control. In fact, altough all slave devices are controlled bythe **MASTER** device, the user is still able to control - by means of the IR remote controller or the external switch - all the following features of the **SLAVE** devices:

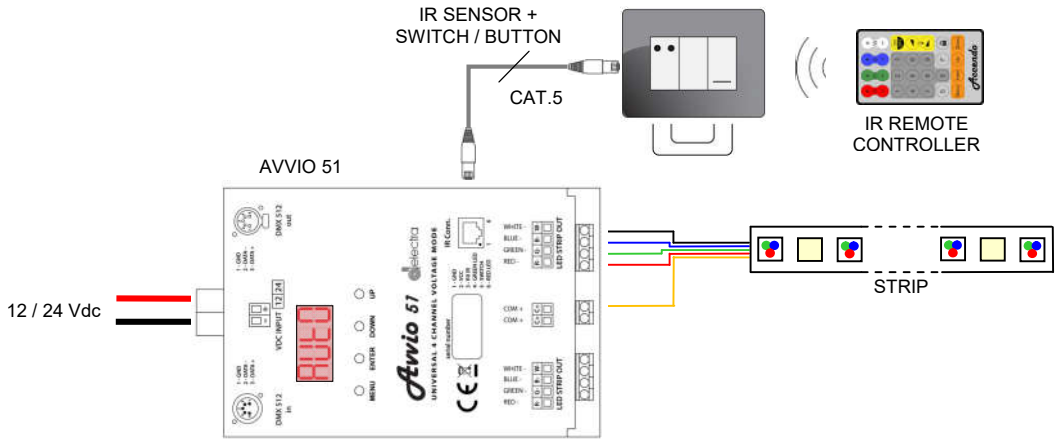
- switch ON/OFF the lighting sources
- tweak the global lighting intensity level

Please bear in mind that all actions and settings performed on the devices in **SLAVE mode**, will remain active untill these are switched OFF; at next restart/switch ON, they will start back replicating the settings pushed by the **MASTER** device.

(1) In order to avoid signal and communication conflicts, on the same line only ONE ***Avvio*** device MUST be set in **MASTER mode** or **AUTO mode**.

(2) The maximum number of **SLAVE** devices that can be connected, varies with the model type of ***Avvio*** device used and it is influenced by the quality of the DMX line. A number of 32 devices that can be connected in standard operating conditions of the line is normally accepted and reasonably enough allowed.
If a higher number of devices has to be connected, it may be necessary (for architectural technical reasons) to insert in the line an Accendo DMX512 Opto Hub **DELECTRA** device (code DEOPTOHUB00000) that not only amplifies the output signal, but it will also grant a safety galvanic insulation amongst the various DMX lines, allowing bidirectional transmissions as per DMX512-A standards.

7.4 Connection layout schematic: IR and switch/button in AUTO mode



This setup and configuration allows to send to lighting sources some preset lighting sequences.
There are 4 different preset sequence that can be chosen from the menu; these can be executed disjointly, in sequence or randomly (see chapter 11.2).

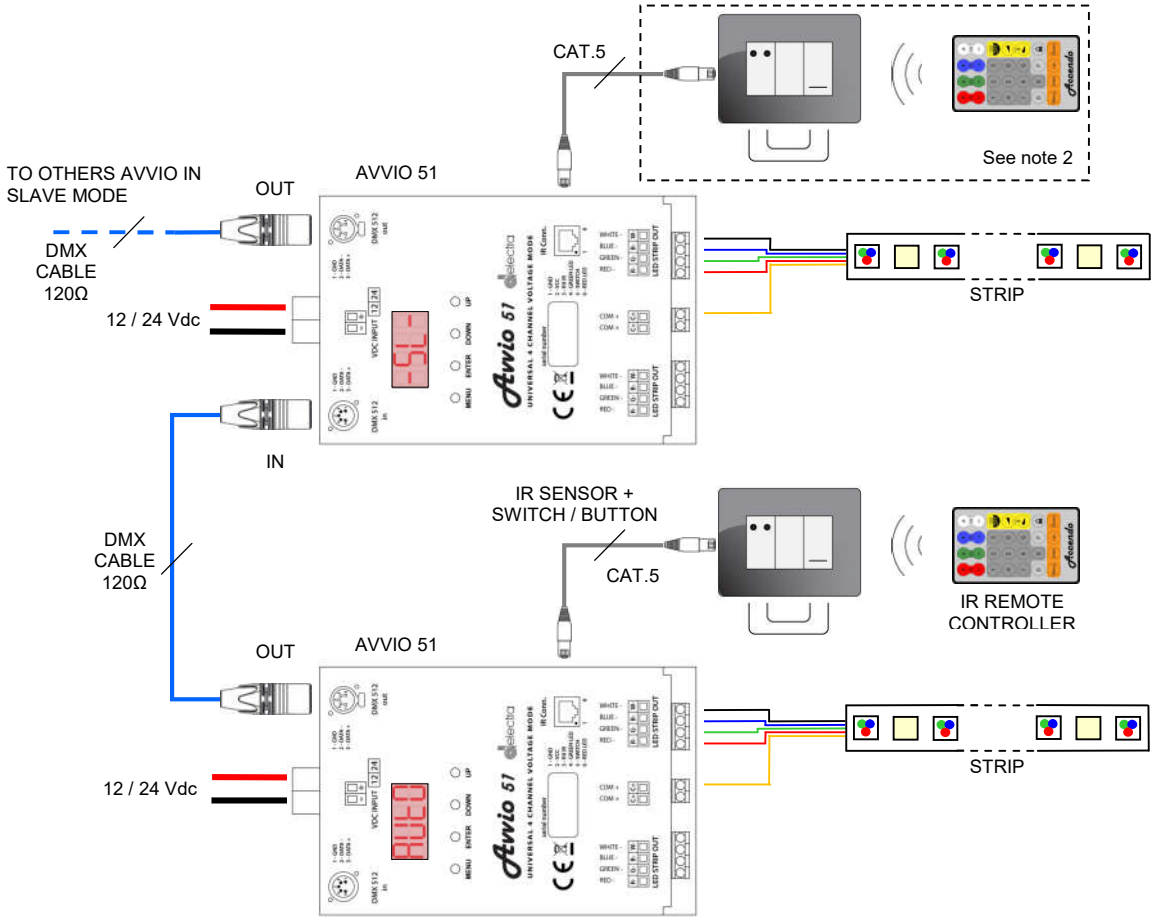
Please Note: In order to provide the user with maximum control and flexibility, even the devices in **AUTO mode**[(1)] will retain some degree of independent control. In fact, the user is still able to control - by means of the IR remote controller or the external switch/button - all the following features:

- switch ON/OFF the lighting sources
- tweak the global lighting intensity level

By means of the buttons "Menu" - "Enter" - "Up" and "Down" of the remote controller, it is possible to access the "Menu browsing" feature and to change *Avvio 51* configuration and settings, as can be done directly on the device's buttons.

(1) In order to be able to set *Avvio 51* in **AUTO mode**, the DMX signal MUST NOT be connected.

7.5 Connection layout schematic: IR and switch/button in AUTO/SLAVE mode



This setup is similar to the one described in chapter 7.4: only difference is that it is possible in this configuration to extend the installation, by connecting to the main *Avvio 51* (set in **AUTO mode**[(1)]) up to a maximum of 32 other devices (set in **SLAVE mode**[(2)]).
The wiring must be done through the frontal panel connectors (see elements #3 and #5 in chapter 3.2) by means of the DMX line.
The device configured in **AUTO mode** will send to all devices connected in **SLAVE mode**, the preset lighting sequences or the variations set by means of the IR remote controller or the external switch/button; these will be perfectly and sinchronously replicated.

Please Note: In order to provide the user with maximum control and flexibility, even the devices in **SLAVE mode** will retain some degree of independent control. In fact, the user is still able to control even on these devices - by means of the IR remote controller or the external switch/button - all the following features:

- switch ON/OFF the lighting sources
- tweak the global lighting intensity level

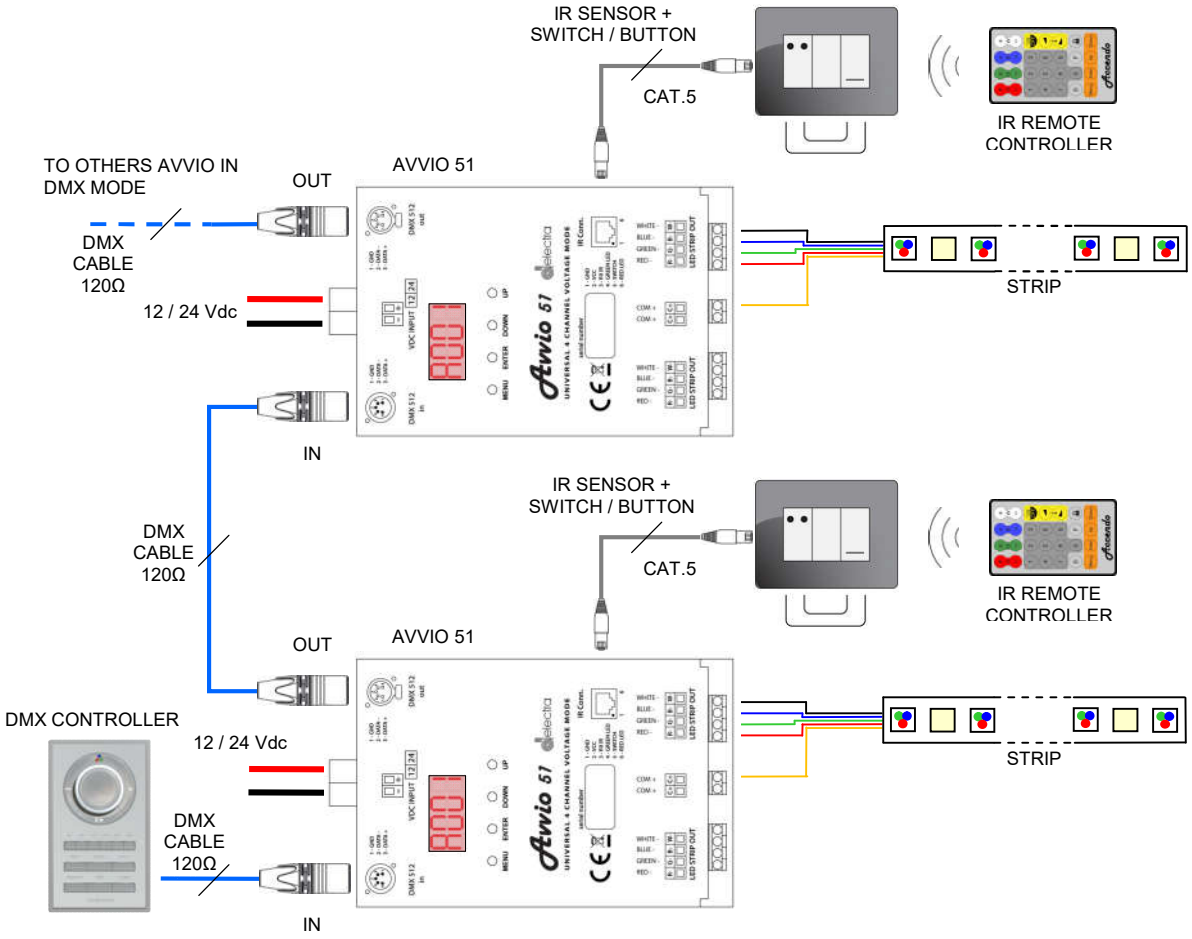
Please bear in mind that all actions and settings performed on the devices in **SLAVE mode**, will remain active untill these are switched OFF; at next restart/switch ON, they will start back replicating the settings of the device set in **AUTO mode**.

(1) In order to avoid signal and communication conflicts, on the same line only ONE *Avvio* device MUST be set in **MASTER mode** or **AUTO mode**.

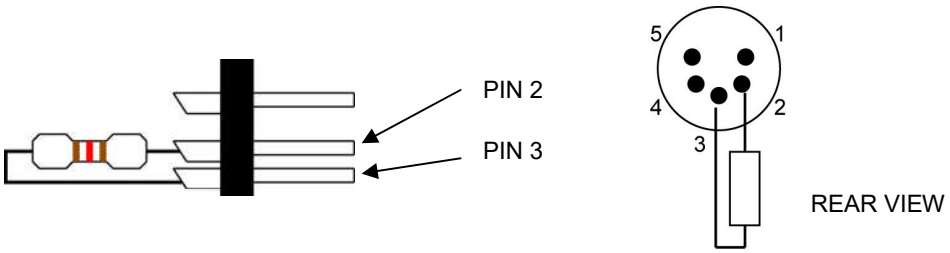
(2) The maximum number of **SLAVE** devices that can be connected, varies with the model type of *Avvio* device used and it is influenced by the quality of the DMX line. A number of 32 devices that can be connected in standard operating conditions of the line is normally accepted and reasonably enough allowed.
If a higher number of devices has to be connected, it may be necessary (for architectural technical reasons) to insert in the line an Accendo DMX512 Opto Hub **DELECTRA** device (code DEOPTOHUB00000) that not only amplifies the output signal, but it will also grant a safety galvanic insulation amongst the various DMX lines, allowing bidirectional transmissions as per DMX512-A standards.

8. DMX functioning

8.1 Connection layout schematic: IR and switch/button in DMX mode



This setup allows the user to control *Avvio 51* using a common DMX controller that, depending on its type and model, can be used to generate many different lighting combinations, effects and sequences that can be normally stored in the DMX controller itself.
DMX signal is based on RS-485 Protocol, and it's a digital communication standard mainly used for controlling lighting devices in the show business industry, recently introduced in other fields such as technical and architectural lighting.
It is possible to to connect up to a maximum of 32 devices all in **DMX mode**[(1)] by means of the connectors (or the ad-hoc IN/OUT clamps) located on the front panel (see elements #3 and #5 of chapter 3.2).
If the installation needs very long DMX cables, it is strongly advised to use a terminal clamp: this connector consists of a XLR-5 jack (female connector) of 120Ω impedence, soldered on PIN-2 and PIN-3, inserted **ONLY** on the last unit of the DMX line.



(1) The maximum number of devices that can be connected, varies with the model type of *Avvio* device used and it is influenced by the quality of the DMX line. A number of 32 devices that can be connected in standard operating conditions of the line is rnormally accepted and reasonably enough allowed.
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8.2 DMX Address

The **DMX mode** setup expects a DMX address to be set; this is displayed in the main screen. The address identifies the first channel of the embedded controller in use by the device and it can have a value that ranges between 1 (A001) and 512 (A512).
If the display has a blinking address this indicates an anomaly: either a lack of a DMX input signal or some DMX signal receiving problems.
The DMX channels received can be mapped in two ways: **4 Channels** mode and **6 Channels** mode.
In the first case, 4 channels of the DMX controller will be needed to control the device, while in the second case, 6 channels will be needed instead.

Please Note: Any *Avvio 51* daisy-chained into the DMX line, in order to be independent, MUST have an address that equals the sum of the previous (in line) device address, plus the number of needed channels for its specific mode.

(E.g.: in the **4 Channels mode**, the first *Avvio 51* will have the A001 address, the second one "chained" down the DMX line, will have the A005 address; the third one will have the A009 address, the fourth one will have the A012 address, etc.)
If two devices connected to the same DMX line have the same address they will not generate any conflict, but they will replicate identically any lighting effect as per the controls sent by the controller node.

8.3 DMX Address setting

Avvio 51 has a factory default address of DMX A001. In order to change this, press the button + or – until the desired address is selected: during this procedure, the letter **"A"** will blink on the display, meaning that the setting is pending but not saved. Press then ENTER to confirm the selection; after a sequence of blinks of the display, the newly selected address will be saved, allowing the user to control the device with this last address set.
If the DMX signal is not available, changing adress is still possible and allowed, but after saving the new address, the display will keep on blinking.
Please Note: while changing address, if the keys + or – are kept depressed, the digits counting speed is increased to allow for a better and quicker selection.

8.4 DMX Chart – 4 Channels Mode

The **4 Channels** operating mode, 4 DMX channels are accounted for; these will control the 4 output channels of the device itself, without allowing any possibility to apply effects.
For more details of the various channels, please refer to the following chart:

4 Channels MODE					
DMX Channel	**Function**	**Control Type**	**Effects**	**DMX Value**	**Output**
1	Out 1	Proportional	Output lighting intensity adjustment - Channel 1	0-255	0-100%
2	Out 2	Proportional	Output lighting intensity adjustment - Channel 2	0-255	0-100%
3	Out 3	Proportional	Output lighting intensity adjustment - Channel 3	0-255	0-100%
4	Out 4	Proportional	Output lighting intensity adjustment - Channel 4	0-255	0-100%

8.5 DMX Chart – 6 Channels Mode

Inthe **6 Channels** operating mode, 6 DMX channels are accounted for. For more details of the various channels, please refer to the following chart:

6 Channels MODE					
DMX Channel	**Function**	**Control Type**	**Effects**	**DMX Value**	**Output**
1	Master Dimmer	Proportional	MASTER output lighting intensity adjustment - All Channels	0-255	0-100%
2	Out 1	Proportional	Output lighting intensity adjustment - Channel 1	0-255	0-100%
3	Out 2	Proportional	Output lighting intensity adjustment - Channel 2	0-255	0-100%
4	Out 3	Proportional	Output lighting intensity adjustment - Channel 3	0-255	0-100%
5	Out 4	Proportional	Output lighting intensity adjustment - Channel 4	0-255	0-100%
6	Effects	Single	No effect	0-9	---
		Proportional	Variable speed strobo effect, from slow to fast	10-57	0,4 – 30 p/sec
		Single	No effect	58-59	---
		Proportional	Sequenced pulse effect, slow closing, fast opening (variable speed pulsing, from slow to fast)	60-108	1,45 – 380 p/min
		Single	No effect	109-110	---
		Proportional	Sequenced pulse effect, fast closing, slow opening (variable speed pulsing, from slow to fast)	111-159	1,45 – 380 p/min
		Single	No effect	160-161	---
		Proportional	Strobo effect with variable and random blinking speed (all channels syncronised)	162-207	---
		Single	No effect	208-209	---
		Proportional	Strobo effect with variable and random blinking speed (non-synchronized channels)	210-255	---

8.6 Remote Control and switch in DMX-mode

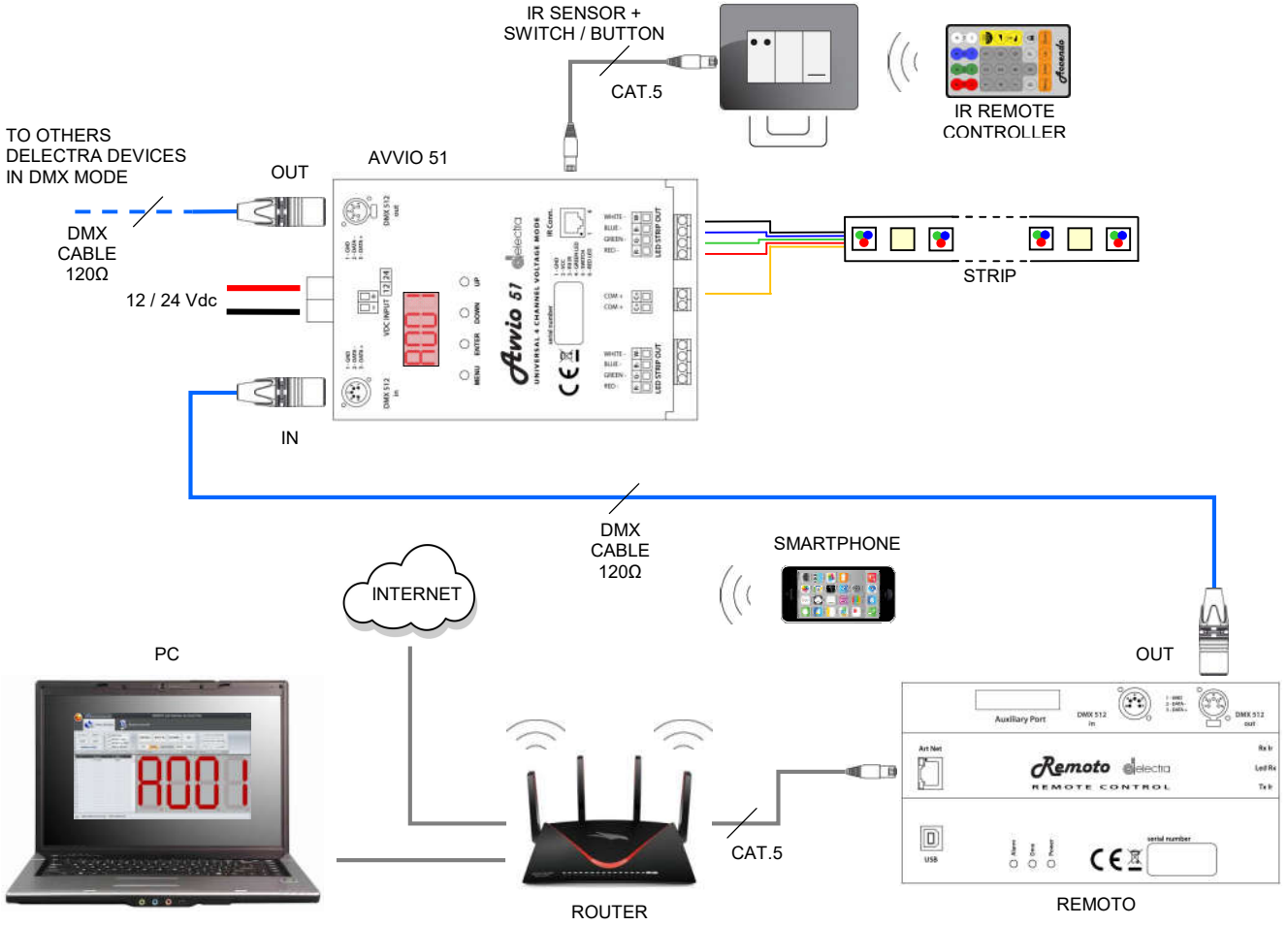
From the technical wiring diagram, when the **DMX mode** is active, it is possible to connect the IR sensorand the external switch to all devices. If there is no DMX signal variation, it is possible to adjust with the remote control the brightness of *Avvio 51*'s 4 channels as if it was done in **MASTER mode**.
By means of the buttons "Menu" - "Enter" - "Up" and "Down" of the remote controller, it is possible to access the "Menu browsing" feature and to change *Avvio 51* configuration and settings, as can be done directly on the device's buttons.
There are no restrictions if the device is operating by an external switch: also in this case, if DMX signal has NO variations, the **FAST** event, **STANDARD** eventand **DIMMER** event are possible (please refer to chapter 11.3).

IMPORTANT !

Please remember that in case of concurrent use of switch, DMX signal and IR Remote control signal, the electronics' signalling regulation logic states that LAST ACQUIRED SIGNAL is the one taken into consideration.
Morover, last configuration settings sent from one of these 3 inputs it is always AUTOMATICALLY SAVED as STANDARD event.
For everything else that concerns with technical specifics, settings and memory setup, please check this manual at chapter 11.3.

9. Wi-Fi / Ethernet

9.1 Connection layout schematic: Wi-Fi / Ethernet



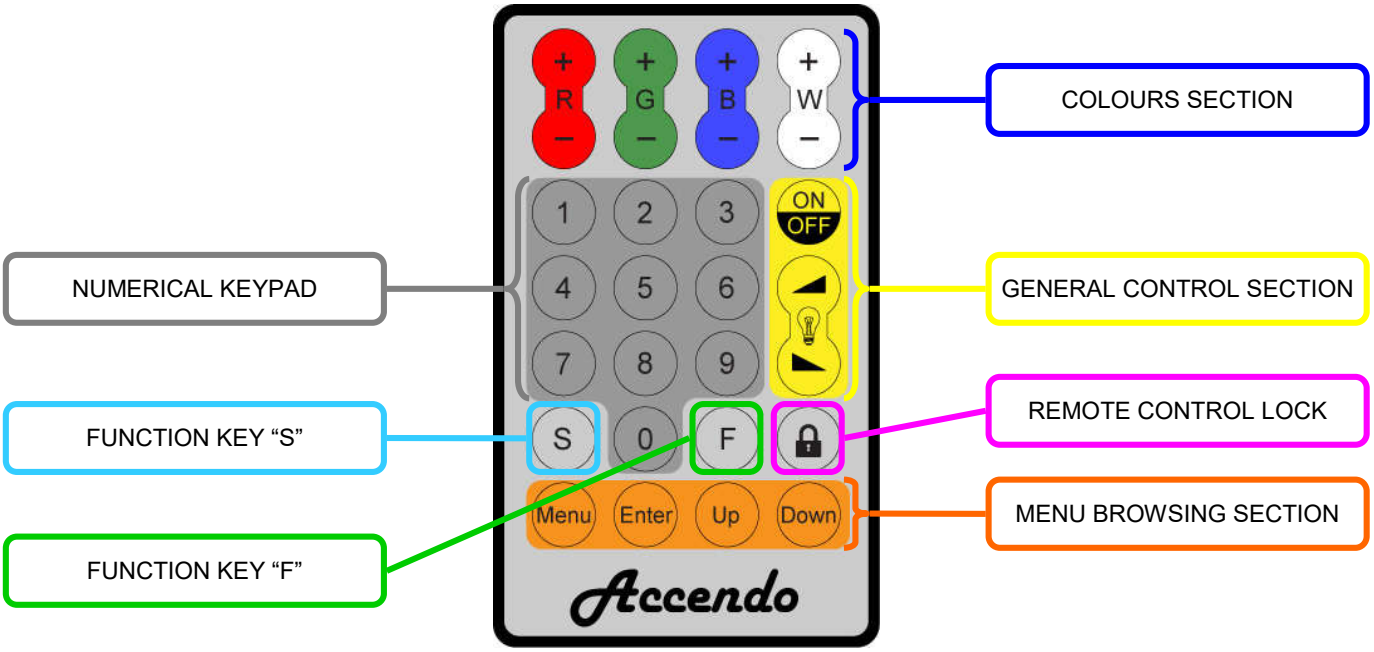
If a network connection to ***Avvio 51*** is needed, either over Wi-Fi or through Ethernet link, it is necessary to do so via ***Remoto***, which is **DELECTRA**'s accessory gateway; this device allows the user to control the devices from a network connected PC or smartphone, using dedicated applications that emulate a general purpose DMX or Artnet controller.
Some of the most commonly used applications for this purpose are: FreeStyler, DMX Workshop (for PC), Luminair and Artnet Controller Lite (for smartphone)(1).

Remoto also allows the user, to modify the device's main settings using a PC, removing the need of manually and physically operating on the appliance itself; this is extremely useful when the appliance installed athights or in remote and difficult to reach areas of the installation.

Remoto allows the user to perform software upgrades of all **DELECTRA** devices.

For all other technical information and specifications regarding ***Remoto***, its usage and its relative settings, please consult its technical and User's manuals.

10. Remote Control



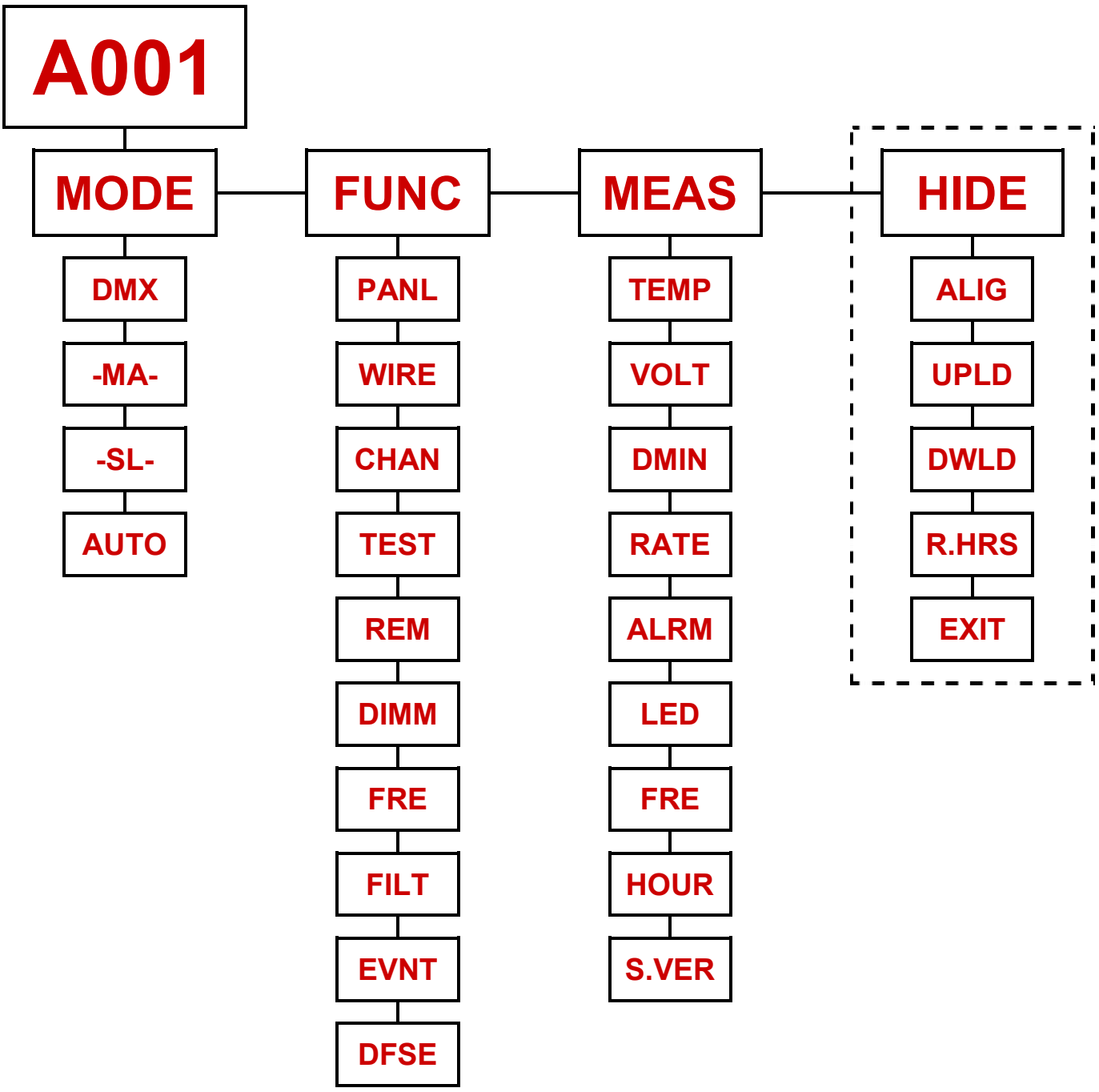
When *Avvio 51* is connected to the IR sensor, the Remote control features presented are the following:

- **COLOURS SECTION (SINGLE DIMMER)**: thanks to these four pairs of buttons it is possible to independently adjust the output levels of each single channel. The obtained lighting configuration is saved in the device as STANDARD event (see chapter 11.3).
  Please Note: while dimming single channel, the percentage value displayed is the **ouput current** provided to the load (E.g. **G.075** = **Green – 75%**). This value is the sum of the various levels contributions as set by single-channel buttons and the MASTER DIMMER button (see paragraph below).
- **GENERAL CONTROL SECTION**: commands of this section contemporarily act upon **all output channels**. The ON/OFF button sets the STANDARD event with a FADE time that can be manually set.
  The MASTER DIMMER buttons (global dimming) allow concurrent regulation of lighting intensity of all the outputs from min to max levels. Similarly to the COLOUR SECTION, the obtained lighting configuration is saved in the device as STANDARD event.
  Please Note: while pressing MASTER DIMMER buttons, the percentage value displayed is the input of MASTER (E.g. **M.050**= **Master dimmer – 50%**). This value is NOT related to lighting output (E.g. all single channels could be set to different levels).
- **REMOTE CONTROL LOCK**: by pressing this button for at least 5 seconds, remote control locking feature is enabled/disabled: when the remote control is LOCKED button interactions are ignored. Visual feedback of this mode is the RED BLINKING light of the IR receiver's LED.
- **MENU BROWSING SECTION**: menu browsing is achieved by pressing the buttons of this section. It allows to change *Avvio 51* configuration and settings, as can be done directly on the device's buttons.
- **NUMERICAL KEYPAD**: the numerical keypad is not enabled in *Avvio 51*.
- **FUNCTION KEY "S"**: this button is not enabled in *Avvio 51*.
- **FUNCTION KEY "F"**: this button is not enabled in *Avvio 51*.

11. Display

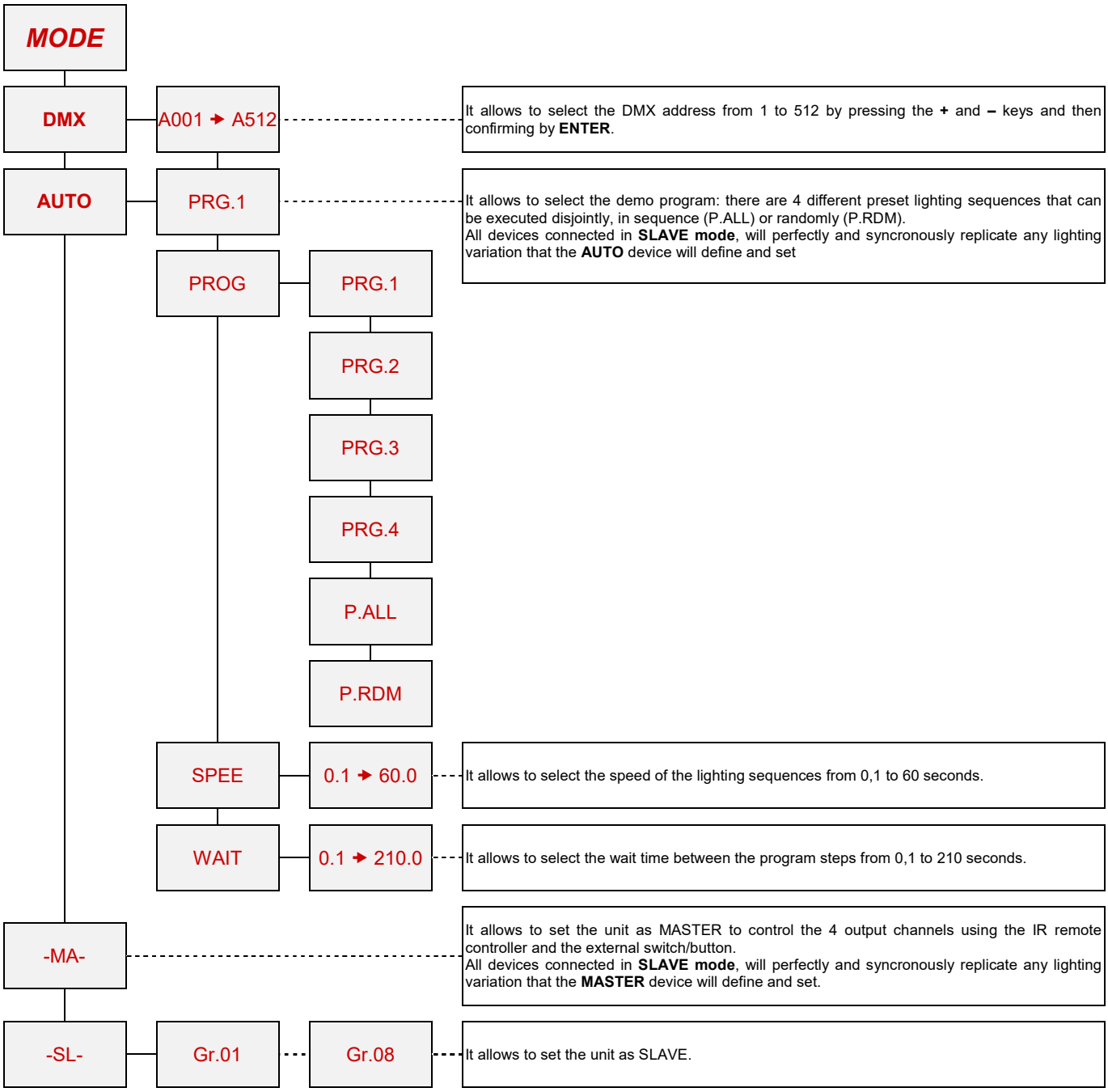
Through the control panel it is possible to select the mode of functioning (**MODE** menu) with its relative functions and settings (**FUNC** menu); device diagnostic can be carried out through the measurements functionality (**MEAS** menu).
In order to access any functionality, from the main screen displayed, press the **MENU** button, browse around the various options with the + or – keys, once the desired sub-menu is selected, press the **ENTER** button.
To save any particular setting press the **ENTER** button: if the display blinks 3 times it means correct / successful saving.
Use the **MENU** button to move from a sub-menu to its parent menu (i.e. going back).

11.1 Menu – Blocks diagram



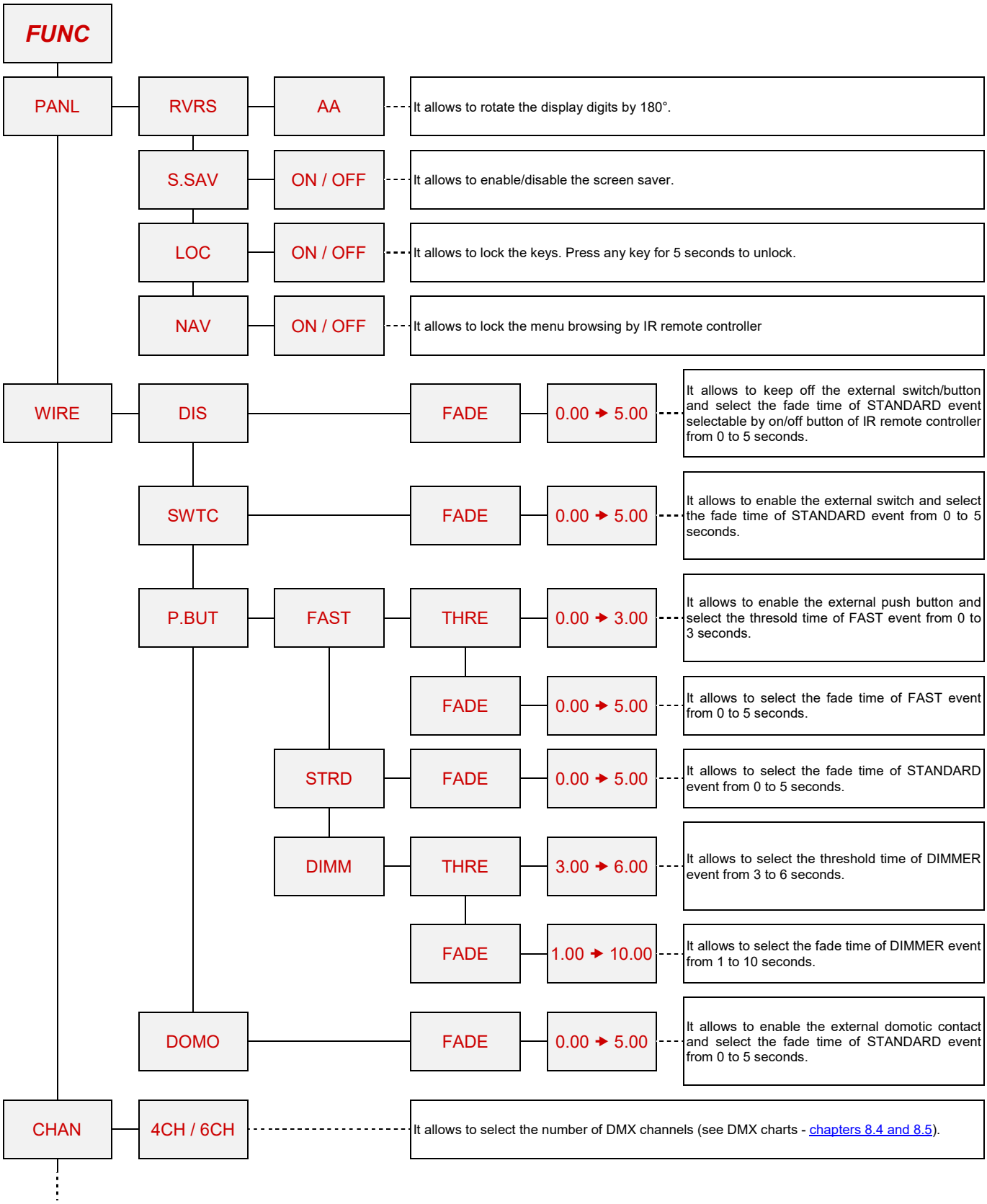
11.2 MODE menu

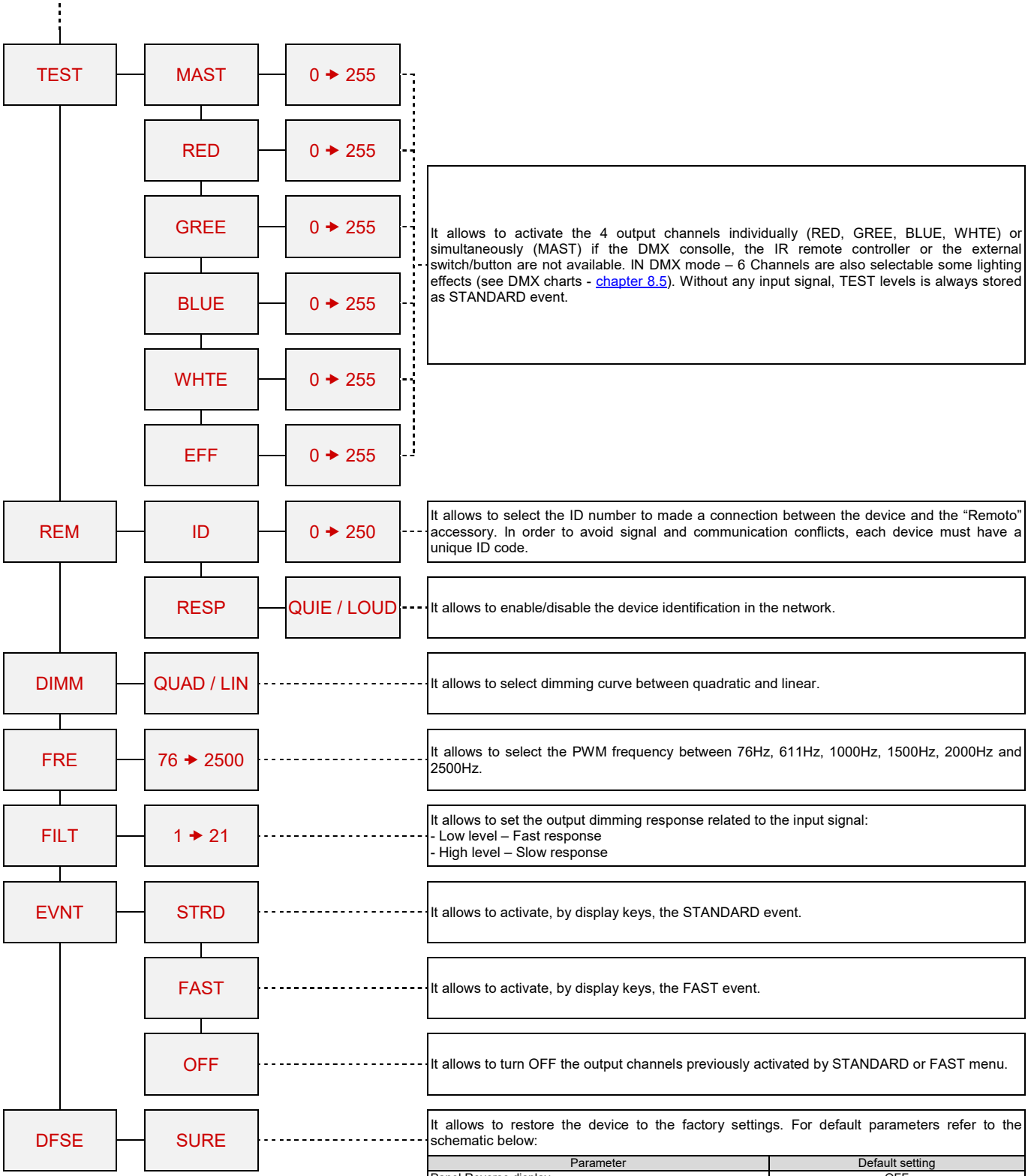
The **MODE** menu allows to choose between 4 operative modes of *Avvio 51*: Dmx (**DMX**), Automatic (**AUTO**), Master (**MA**) and Slave (**SL**).



11.3 FUNCTION menu

The **FUNCTION** menu allows to change and customize some functional settings of *Avvio 51*, e.g. DMX channels, output PWM frequency, ecc… For more details please refer to the schematic below:

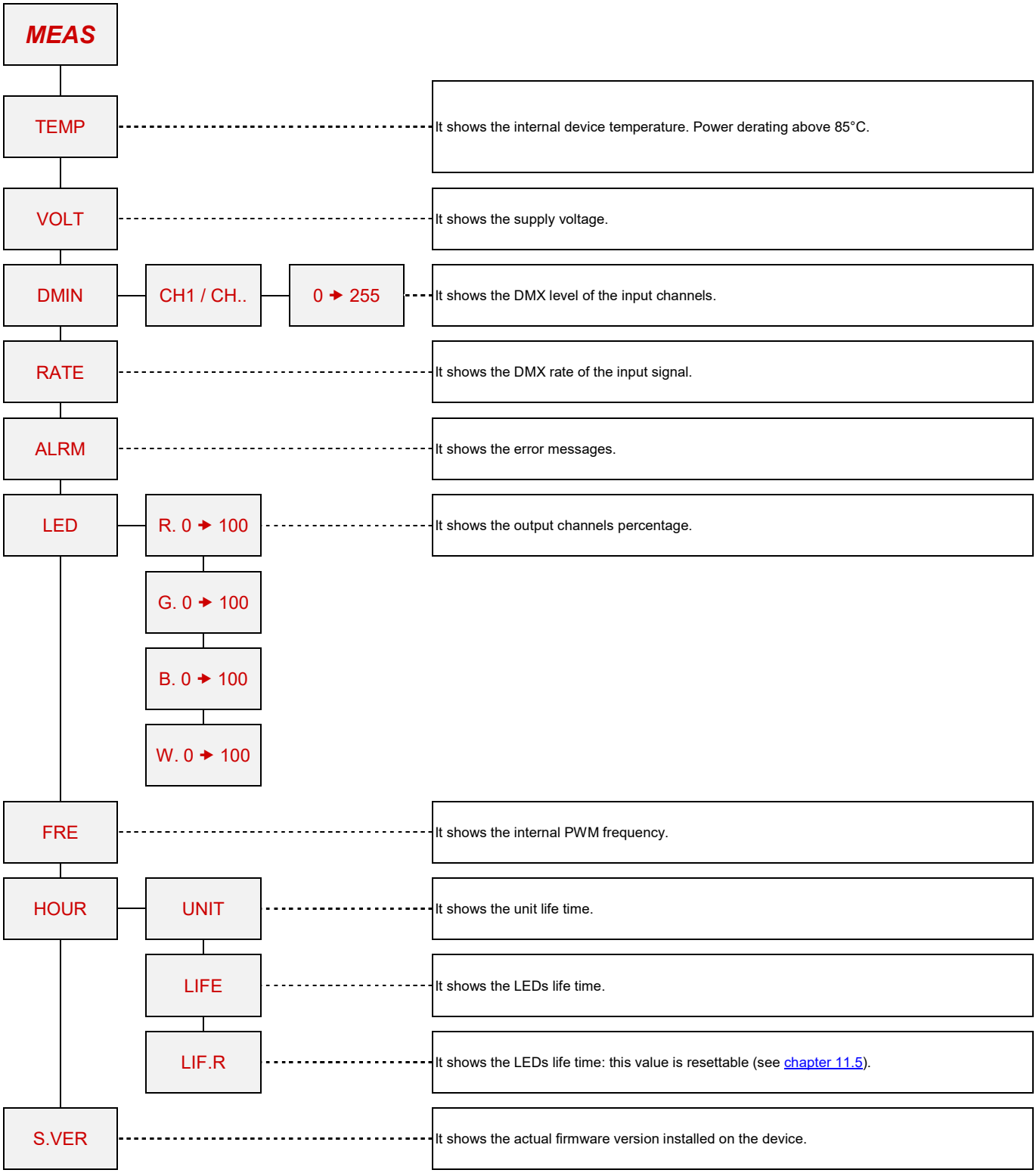




Parameter	Default setting
Panel Reverse display	OFF
Panel Screen saver	OFF
Panel Lock	OFF
Panel IR navigator	ON
DMX Channels	6 CHANNELS
ID Code	0
ID Response	QUIET
Dimmer Curve	QUADRATIC
Frequency	76Hz
Filter	6

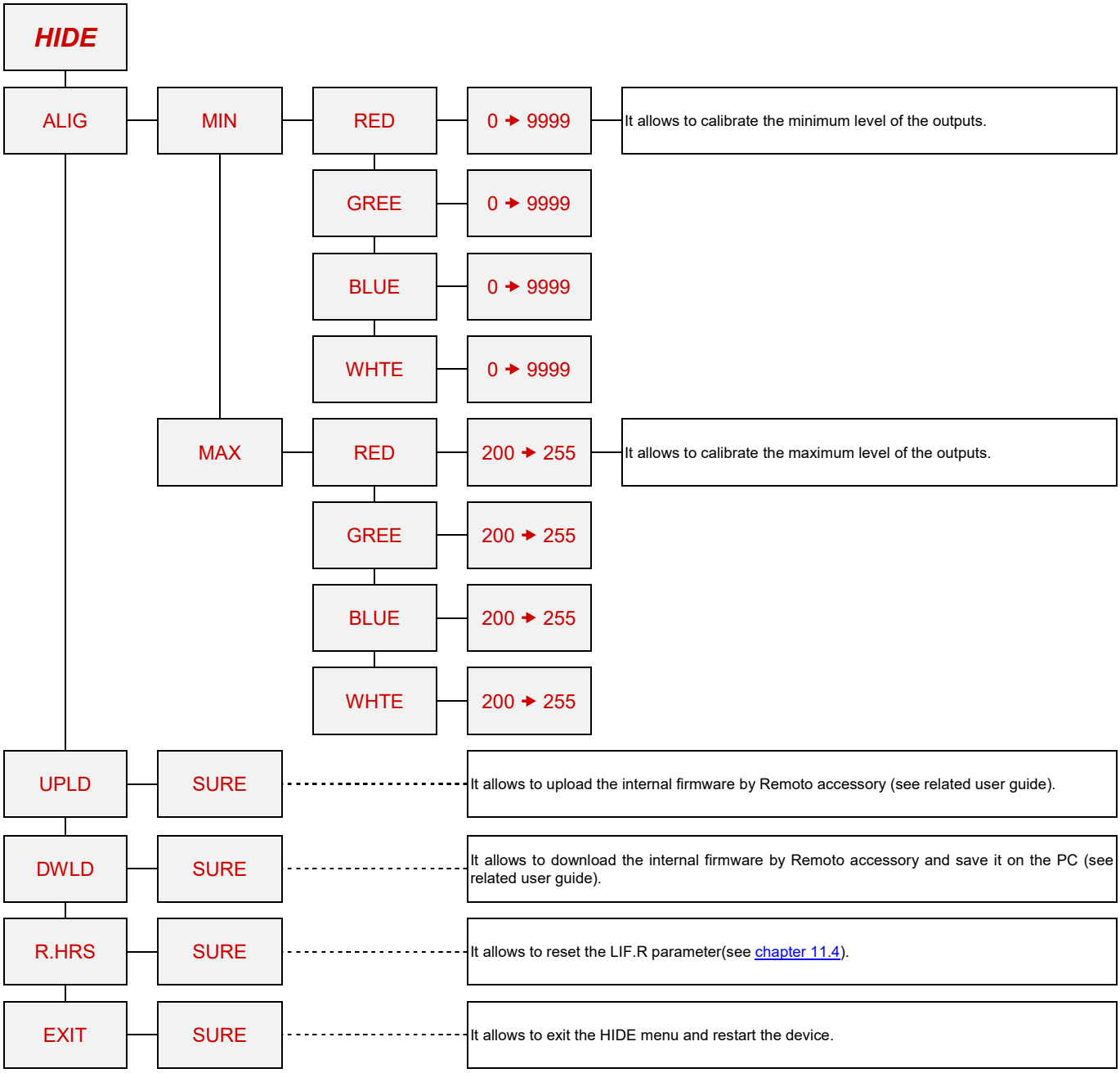
11.4 MEASURE menu

The **MEASURE** menu allows access to key parameter measurements of the device such as for instance, internal temperature, Voltage, POH counter (total power on hours, to measure device life), etc. For more details please refer to the schematic below:



11.5 HIDE menu

The hidden functionality (**HIDE** menu) allows the installer/operator to perform some particular administrative operations such as firmware upgrades, LED ouputs lighting intensity alignment, etc. For more details, please refer to the schematic below.
In order to acces the HIDE menu, both **MENU** button and **ENTER** button must be kept pressed down during device boot-up sequence.



12. Environmental Safety and waste disposal

	Information
	This device must be correctly disposed of in a suitable and lawfully regulated disposal center that allows for the recycling of electrical and elictronical equipment, components and materials, when its EOL (end of life) is reached. Following the correct environmental safety regulations and the current modern waste disposal procedures, greatly helps avoiding negative impact of these materials on the environment and on people's life and health, while contributing to correct recycling, re-using and redistribution of the main component materials. It is prohibited to unlawfully dispose of this device and its materials; any inadequate or illegal disposal procedure followed, may lead to administrative sanctions or penalties to the user, in accordance with currently applied laws and regulations in your country.