

Atvvio mini 4ch

**350/500/700mA LED DRIVER
4 CHANNELS – 40W**

USER AND INSTALLATION MANUAL

ENGLISH

REVIEW 2.01

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1. Safety Information

1.1 Fire hazards prevention

- Do NOT install the equipment onto flammable surfaces.
- The minimum safety distance to keep from flammable 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

- HIGH VOLTAGE: 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 mini* 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.
- 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 45°C or lower than -25°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 explicitly 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 assistance is sought from the OEM, the vendors or any reseller.

3. Product Specifications

Avvio mini 4ch is a 4 channels universal current regulator for LED systems with an embedded power supply; the device can output a maximum Total Power of 40W; Power can be delivered as the sum of the four channels [i.e. CH1 (max 10W) + CH2 (max 10W) + CH3 (max 10W) + CH4 (max 10W)]; as a single virtual channel (CH1, CH2, CH3 and CH4 set in parallel), or by activating only one channel of the four (up to the maximum value 40W). Specifically designed for offices, museums, private houses, hospitals, shop floors, boats and ships, hotels and commercial centres; **Avvio mini** is available in 3 versions 350/500/700 mA.

The device is operated with a common digital controller DMX512, Wi-Fi or Ethernet (with the right accessory), with its 0/10V input or a potentiometer. It can operate automatically with fixed or dynamic preset scenes.

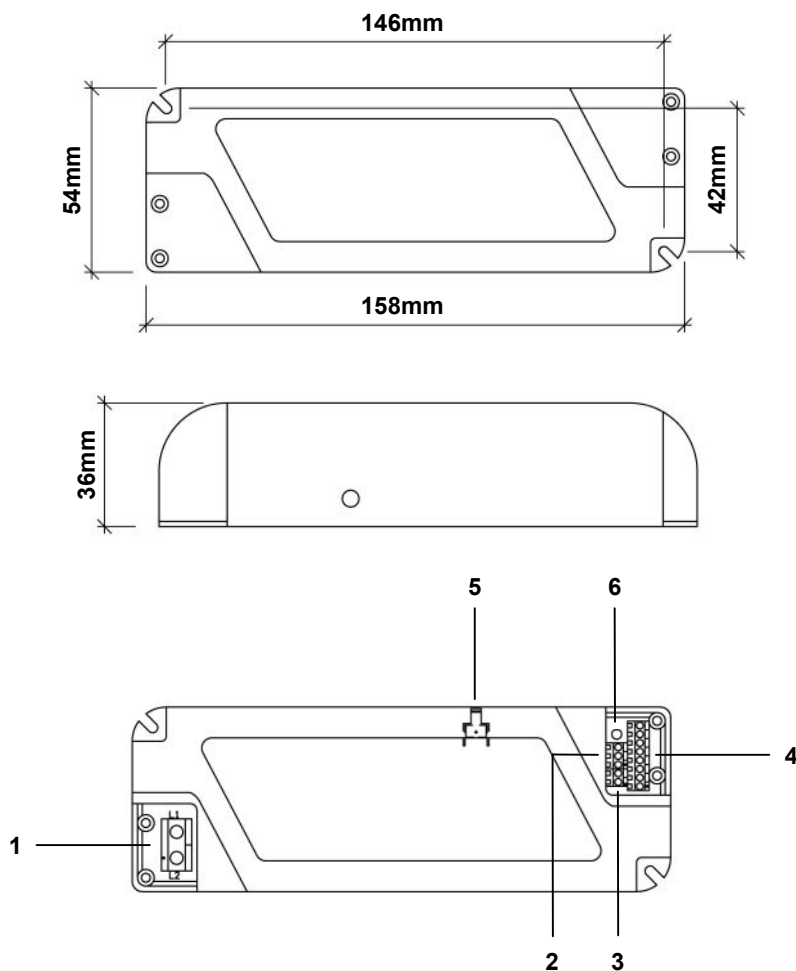
The embedded bidirectional communication sub system allows to read the most important parameters of the device; this functionality is made possible by using RDM protocol (see [chapter 12](#)) or by using **Remoto** Delectra that allows easy access to settings, measurements, diagnostics and software-update menus interfaces.

Please take a look at the website www.delectra.it for any other news or updates.

3.1 Products main features

Input Technical Specifications		Measurements Availability (with Remoto and/or RDM)	
Powering Voltage	100-240Vac (+/- 10%)	Internal Temperature	Yes
Frequency	47-63Hz	DMX Signal	Yes
Power Factor	> 0,93 @ 230Vac	PWM Frequency settings	Yes
Nominal Input Power (from mains)	47W @ 230Vac 50Hz 25°C	Life Time	Yes
Output Technical Specifications		Environmental Operating Ranges	
Maximum Voltage (@max load)	42Vdc	Ambient Temperature	-25... +45 °C
Maximum Current	350 – 500 – 700mA	Relative Umidity	0-90% (condensation free)
Number of Channels	4 channels (can be wired in parallel)	Max outer case temperature	+70 °C
Maximum Power	40W @ 230Vac	Safety & EMC	
Regulation Type/Mode	Corrente / PWM	The device is compliant with the following CE regulations:	
PWM Frequency	600Hz – 4Khz in 8 steps	Electro Magnetic compatibility (EMC) Regulations	2014-30-EU
Flicker free	Yes	Low Voltage Directive (LVD) Electric Material Regulations	2014-35-EU
Interface Technical Specifications		ROHS Regulations	2011-65-EU
Power Connector	AWG 22-12 7.5mmpitch, terminal block	For further details refer to the product Declaration of Conformity	
0/10V-Potentiometer Connector	AWG 30-16 2.54mm pitch, terminal block	Structural Characteristics	
DMX Signal Connector	AWG 30-16 2.54mm pitch, terminal block	Dimensions LxHxW (mm)	158x36x54
Lighting Sources Connector	AWG 30-16 2.54mm pitch, terminal block	Weight (Kg)	0,23
DMX512	1 x DMX512-A	IP rating	IP 20
RDM	Yes	Insulation Class	Classe 2
DMX Channels	1 – 2 – 4 (default) – 5	Product Codes	
0/10V Input	Yes	Avvio mini 4ch 350mA	DEADA40400000
Potentiometer Input	Yes	Avvio mini 4ch 500mA	DEADB40400000
Fixed Preset sequences	7	Avvio mini 4ch 700mA	DEADC40400000
Dynamic Preset sequences	6	Accessories	
Remoto [®] system compatibility	Yes	Remoto [®]	DEREMOTO000000
Firmware Update	Yes (using Remoto [®])	Accendo [®] Dmx 512 Opto Hub	DEOPTOHUB000000
Master-Slave compatibility	Yes	DDR3	DEDDR3000000000
Protections		DDR3 LCD	DEDDR3-LCD000000
Over-Temperature	Yes	DDR3 Wi-Fi	DEDDR3-WIFI0000
Power Derating feature	Yes	RJ45-Terminal Block 8 Poles Adapter	DAADAT200000000
Output Short-circuit	Yes (even among different channels)	T-Connector Adapter	DAHUB0200000000
		Hub 12x RJ45	DAHUB0300000000

3.2 General overview



N.	Element	Position	Description
1	Power IN connector	Left Side panel	7.5 mm pitch terminal block for supply voltage
2	DMX IN connector	Right Side panel	2.54mm pitch terminal block for DMX512 input signal
3	Dimming Control connector	Right Side panel	2.54mm pitch terminal block for 0/10V voltage IN and potentiometer
4	LEDs OUT connector	Right Side panel	2.54mm pitch terminal block for lighting sources connection
5	Button	Side panel (Upper side)	Button to set the operation mode
6	Service LED	Right Side panel	Yellow LED for signalling and service

4. Installation

Avvio mini can be placed and installed on any flat surface, with the aid of the ad-hoc mounting holes provided on the plastic case.

WARNING !

In order to avoid any electrical damage to the device and for the correct functioning of the appliance, please **ENSURE** that, during general operations:

- The equipment is installed in such a way that a constant air flow/recirculation is available.
- *Avvio mini* is positioned in such a way that **AT LEAST 5cm** of free space are available around the device case to allow for correct heat dissipation.

5. Power

5.1 **Operating Input Voltage and Frequency**

The device operates on an Input Voltage in the range [100Vac ~ 240Vac] and with a frequency in the range of [47Hz~63Hz]. Manual intervention is not needed as the device automatically adapts its operations to the input voltage and frequency measured by the autosensing function.

5.2 **Connectivity to mains**

Avvio mini must be connected to mains by means of a bipolar power cable that fully complies with current regulations of the country of installation and its security standards.

WARNING !

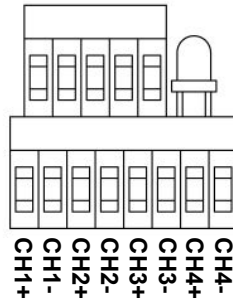
In order to safely and correctly operate *Avvio mini* and to avoid any electrical or electronic damage you **MUST**:

- Install the power supply in an electrical circuit provided with breaker switch (consult your country regulations).
- **NOT** power up the device via phase dimming power unit: this may damage the internal switching power supply.
- **CHECK** that the input current value supplied from mains complies with the *Avvio mini* operational ranges (as per Specifics datasheet) before hand connecting the device.
- Ensure that all electrical/electronics cabling and wiring operations are 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 the on-board 2.54mm pitch terminal block (please refer to Element #4 of [chapter 3.2](#)) placed on the right lateral panel of the device. Please make sure to use a low impedance cable⁽¹⁾ following the schematics and instructions below:



WARNING !

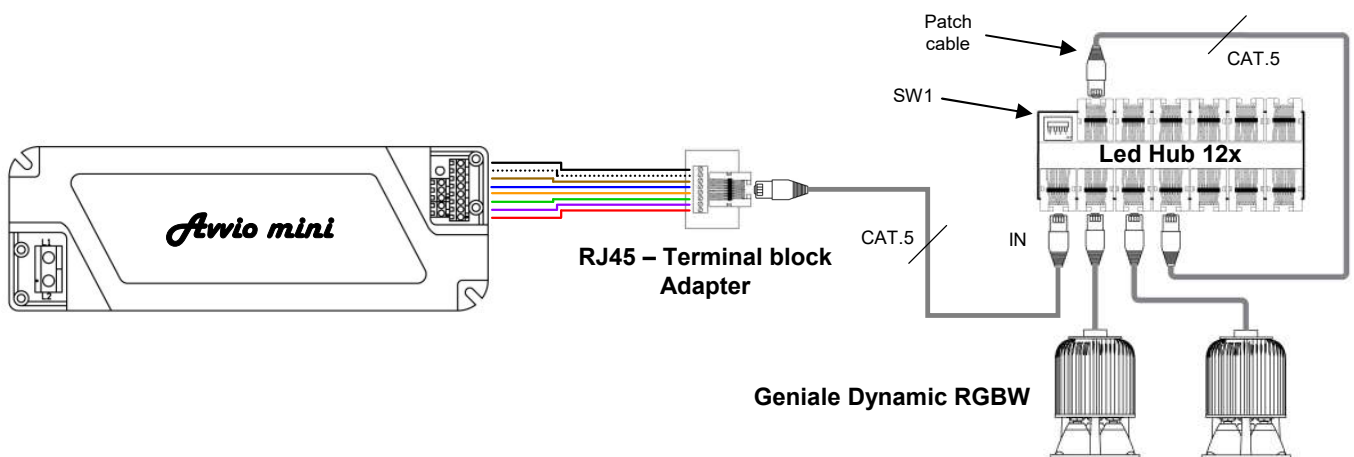
The number of LED sources that can be connected to Avvio mini is strictly dependant on the device Maximum Power Output (40W max). Make always sure to adequately compute the required power, by taking into consideration: LEDs Voltage, output current (variable with device models) and the number of used channels.

E.g.

Using the 500mA model, for instance, and 4 channels, it is possible to attach at most 6 LEDs; in fact, by considering an average Voltage of $V_{avg}=3,25V$, on the LEDs the output Power will be roughly maximum: $[(3,25V \times 6) \times 500mA] \times 4CH = 39W$.

In order to simplify devices setup phases and configuration deployments, the use of **DELECTRA** accessories LED Hub, T-connector and RJ45-terminal block adapter, is strongly advised. A CAT5 cable is advised to be used for as output cable.

6.1.1 Connection with RJ45–Terminal block adapter and Led Hub 12x



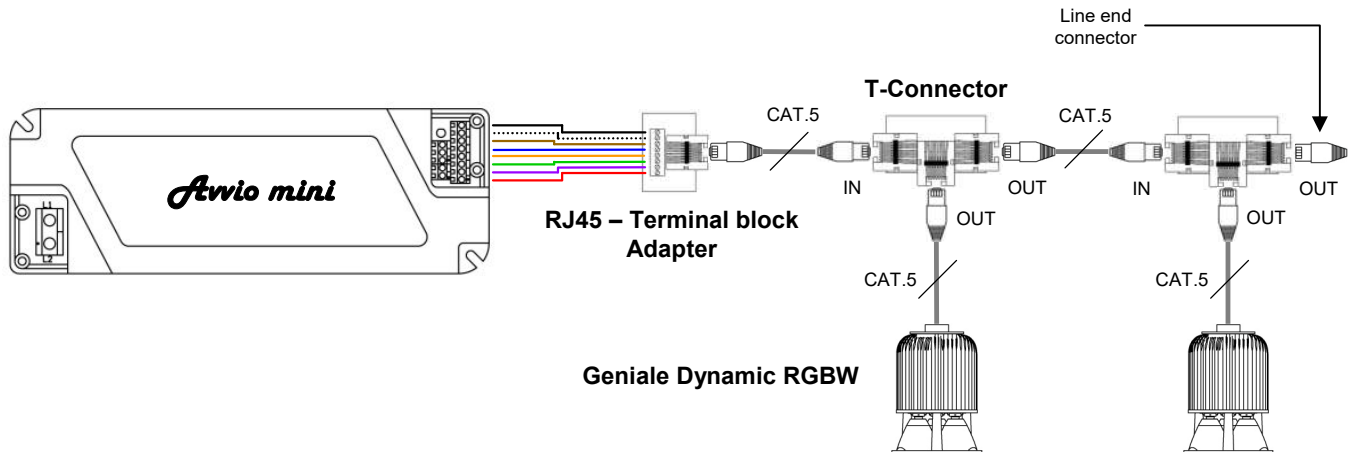
LED Hub accessory (cod. DAHUB030000000) allows to automatically connect in series the output LEDs for the whole *Avvio* Family, plus the lighting sources of the **DELECTRA Dynamic series**.

As mentioned in the previous paragraph, it is possible to connect up to 6 devices of the Geniale Dynamic RGBW series, still complying with the device maximum power output (40W) as show in the example.

Since LED Hub allows to connect up to 12 lighting sources, it is necessary in this case to use a small patch cable and create a bypass/bridge between the RJ45 connector (after the last source connected) and the block connector; then turn ON the 4 contacts of dip-switch SW1.

⁽¹⁾ Low resistance is considered here a cable with a value of DC resistance that is lower than 100Ω/Km.

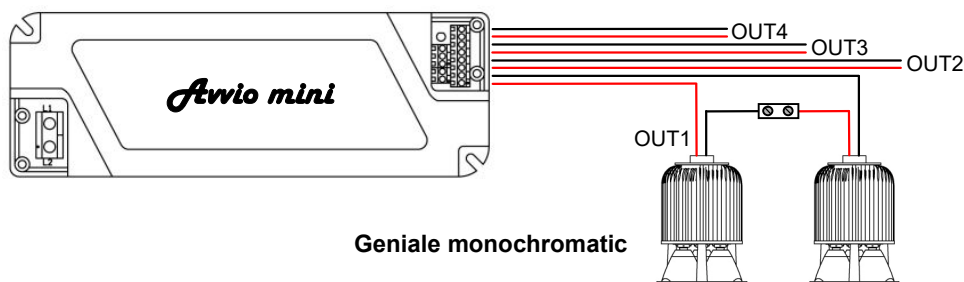
6.1.2 Connection with RJ45–Terminal block adapter and T-Connector



T-connector accessory (cod. DAHUB020000000) can be used alternatively to LED Hub, as it allows as well, to automatically connect in series the output LEDS for the whole **Avvio** Family, plus the lighting sources of the **DELECTRA Dynamic series**. It may be necessary to close the line by means of a “line end” connector, inserted at the end of the chain; this has the function of short-circuiting each positive terminal with its respective one, of each channel.

Please Note: the **T-connector** accessory has protection diodes on board; please make sure to accurately follow the connection instructions and schematics below, being careful NOT to inadvertently swap the INPUT RJ45 with ANY of the 2 OUTPUT ones.

6.1.3 Connection to single colour lighting sources

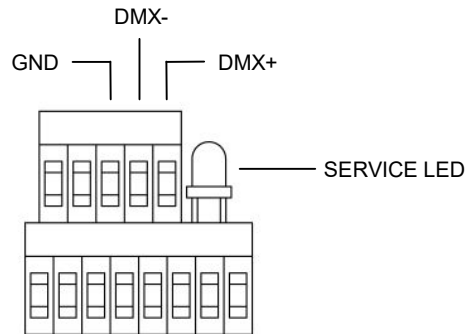


WARNING !

- **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.
- Do not connect the positive or negative poles of the output channels to each other for any reason because they are independent.
- Please **AVOID** using old models 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, must be implemented using a cable of 120Ω resistance, achieved by using the 2.54mm pitch terminal block (see element #2 in [chapter 3.2](#)) located on the right lateral panel of the device. Please use the following schematics in order to perform correct wirings and connections:



WARNING !

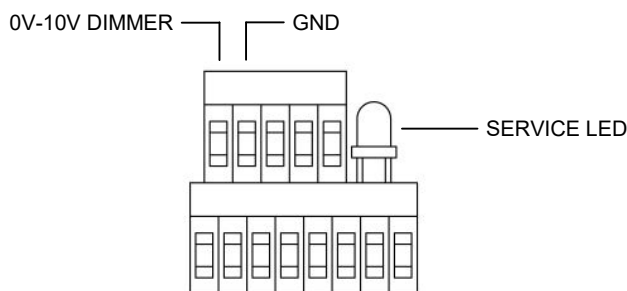
All SHIELDINGS and CONDUCTORS of the wires used for the connections, MUST NOT get into contact with one another or with any metallic casing of the connectors. CONNECTOR'S PINS MUST NOT be grounded, for any reason.

6.3 Dimming Control Connections

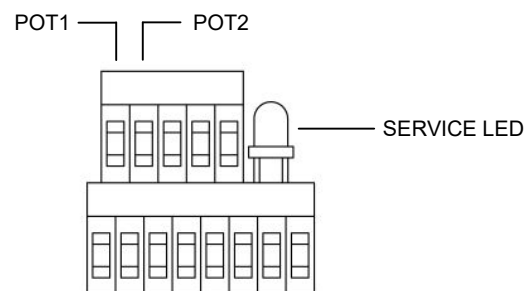
Avvio mini is equipped with a common 0/10V input or a potentiometer, to allow the user to perform output dimming operations when the outputs are connected in parallel.

This feature allows for instance to connect 1 COB of 2A, 20V or 1 COB of 1A, 40V (always respecting the max Power threshold of 40W of the appliance itself). For what concerns wiring and setup, please follow the schematics below:

0/10V INPUT



POTENTIOMETER INPUT

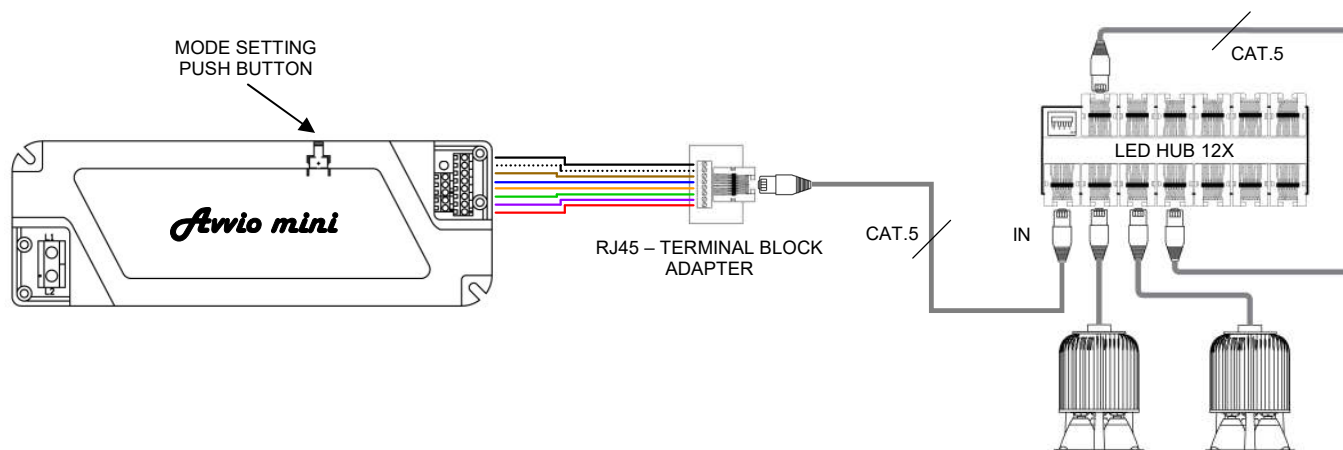


If multiple devices have to be connected and controlled concurrently, by the same input (either 0/10V input or the potentiometer) inputs of the various devices **MUST BE** connected in parallel, or a MASTER-SLAVE connection has to be set up.

For the specific instructions of the two connection types, 0/10V input and potentiometer, please see [chapter 8](#) of this manual.

7. Automatic functioning

7.1 Connection layout schematic: AUTO mode



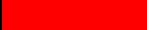
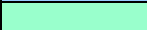
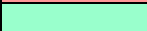
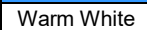
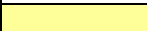
Avvio mini basic configuration uses the preset (static and dynamic) default lighting sequences.

Follow the procedure highlighted below, to set the device in this mode:

- Disconnect any DMX input signal and switch on the appliance.
- Press the **MODE SETTING** button (located on **Avvio mini** side panel): the yellow LED (**SERVICE LED**) will turn on and the first preset static scene will be executed.
- By pressing again the **MODE SETTING** button it is possible to cycle automatically through all the preset static and dynamic sequences as per table below:

STATIC AND DYNAMIC SCENES AND SEQUENCES (AUTO MODE)								
Scene	Mode	Example	CH1 (Red) Level ⁽¹⁾	CH2 (Green) Level ⁽¹⁾	CH3 (Blue) Level ⁽¹⁾	CH4 (White) Level ⁽¹⁾	Fade time	Wait time (interval)
1	Static		255	0	0	0	-----	-----
2	Static		0	255	0	0	-----	-----
3	Static		0	0	255	0	-----	-----
4	Static		0	0	0	255	-----	-----
5	Static		255	0	0	120	-----	-----
6	Static		55	255	45	100	-----	-----
7	Static		0	255	220	125	-----	-----
8	Static	White (FULL)	255	255	255	255	-----	-----
9	Static		255	0	255	0	-----	-----
10	Static		255	0	178	100	-----	-----
11	Static		255	100	0	80	-----	-----
12	Static		255	255	0	0	-----	-----
13	Static	Warm White	255	205	90	255	-----	-----
14	Dynamic		255	0	0	0	2 sec.	1 sec.
			0	255	0	0		
			0	0	255	0		
			0	0	0	255		
			255	255	0	0		
			255	130	10	0		
			235	0	255	140		
			40	255	255	200		
			0	255	75	120		
		White (FULL)	255	255	255	255		

(1) Channel's level values are between 0 and 255 (simulating the DMX control signal).

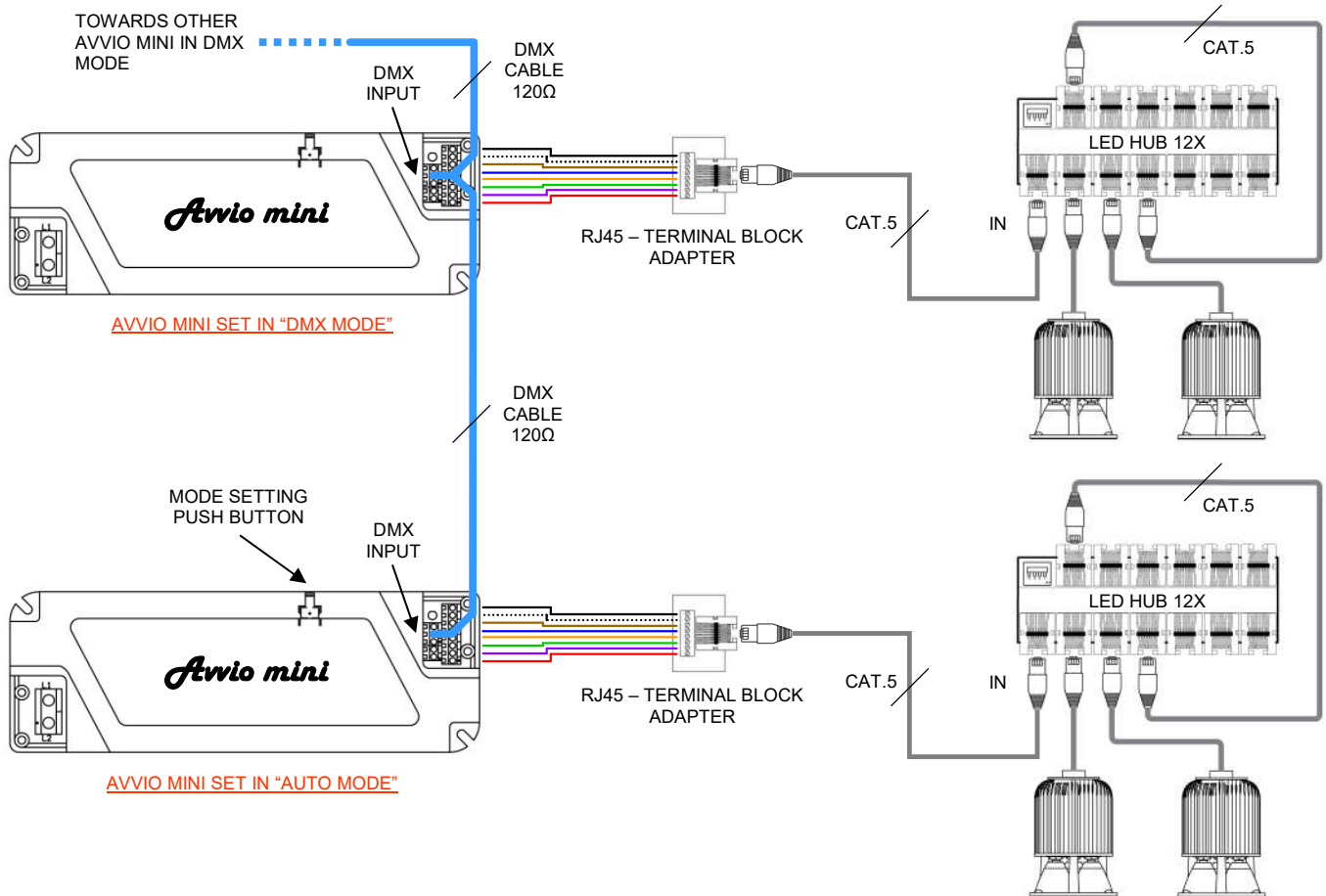
Scene	Mode	Example	CH1 (Red) Level ⁽¹⁾	CH2 (Green) Level ⁽¹⁾	CH3 (Blue) Level ⁽¹⁾	CH4 (White) Level ⁽¹⁾	Fade time	Wait time (interval)
15	Dynamic		255	0	0	0	15 sec.	5 sec.
			0	255	0	0		
			0	0	255	0		
			0	0	0	255		
			255	255	0	0		
			255	130	10	0		
			235	0	255	140		
			40	255	255	200		
			0	255	75	120		
		White (FULL)	255	255	255	255		
16	Dynamic		255	0	0	0	30 sec.	15 sec.
			0	255	0	0		
			0	0	255	0		
			0	0	0	255		
			255	255	0	0		
			255	130	10	0		
			235	0	255	140		
			40	255	255	200		
			0	255	75	120		
		White (FULL)	255	255	255	255		
17	Dynamic		210	35	0	150	15 sec.	5 sec.
			0	255	0	200		
			0	0	255	200		
		Warm White	105	105	0	255		
			255	255	0	150		
			255	110	0	150		
			235	0	255	150		
			10	244	255	255		
			0	255	0	200		
			175	10	255	255		
18	Dynamic		255	0	0	0	15 sec.	5 sec.
			0	255	0	0		
			0	0	255	0		
			255	255	0	0		
			255	130	10	0		
			255	0	255	0		
			0	155	255	0		
			180	255	0	0		
			255	0	160	0		
		White (RGB)	255	255	255	0		

- To reset the device outputs to the first static configuration, rapidly press twice the **MODE SETTING** button (press two times within 0.5 s); this can be done at any given moment or from any given position.
- It is possible to use the *Remoto* interface to select the scenes; please see [chapters 10.1](#) and [11](#) of the manual for the specific instructions on how to use the device with *Remoto*.
- To go back to **DMX** or **DIMMING CONTROL** modes, the procedures highlighted in [chapters 9](#) and [8](#) must be followed.

Please Note: by switching from one dynamic scene to the next, the sequence replays from the beginning.

⁽¹⁾ Channel's level values are between 0 and 255 (simulating the DMX control signal).

7.2 Connection layout schematic: AUTO/SLAVE mode



This setup is similar to the one described in [chapter 7.1](#): only difference is that it is possible in this configuration to extend the installation, by connecting to the main *Avvio mini* set in **AUTO** mode⁽¹⁾ up to a maximum of 32 other devices set in **SLAVE** mode⁽²⁾.

To set *Avvio mini* in **SLAVE** mode, the device need to be set in **DMX** mode (**4 Channels**) as per factory default settings (please refer to [chapter 9](#) for further instructions).

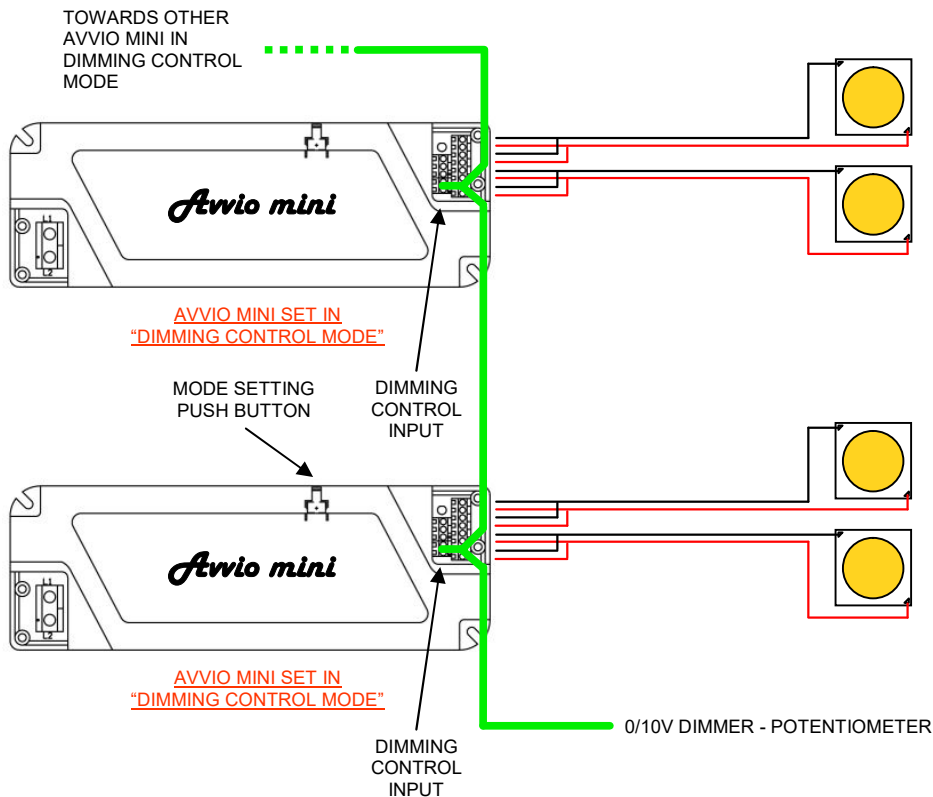
The devices must be chained by wiring them via the DMX IN terminal blocks; in this configuration, the main device set in **AUTO** mode, will send to all the **SLAVE** devices the preset static/dynamic sequences and these will be simultaneously replicated perfectly in synch, by all attached devices.

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

(2) The maximum number of **SLAVE** devices that can be connected is influenced by the quality of the DMX line. During standard operating conditions of the line, a number of up to 32 connected devices would normally be supported and reasonably enough accepted.
If a higher number of devices has to be connected, it may be necessary (for architectural technical reasons) to insert into 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. Dimming Control Functioning

8.1 Connection layout schematic: DIMMING CONTROL mode



8.1.1 DIMMING CONTROL mode with 0/10V input

This setup allows to control *Avvio mini* by means of a common 0/10V signal; this type of configuration may be suitable when outputs need to be connected in parallel (e.g. to drive and control LEDs stripes or monochromatic COBs with high current specs requirements). Outputs can be connected in parallel at preference (1-3, 2-2, 4). The 0/10V command simultaneously acts upon all channels;

- Outputs are OFF with a 0V signal;
- Outputs are ON at max brightness with a 10V signal
- With a value in the range 0÷10V, the outputs will be linearly dimmed with the value of the input signal

Each *Avvio mini*'s 0/10V input has a 300uA current consumption: connecting for instance 10 devices together, the 0/10V controller will have to provide a 3mA current ($10 \times 300\mu A = 3\text{mA}$).

Avvio mini is set to **DMX** mode by factory default. Follow the procedure highlighted below, to set the device in **DIMMING CONTROL** mode with the 0/10V input:

- Connect the 0/10V signal to the **DIMMING CONTROL** input.
- Switch on the device by keeping pressed the **MODE SETTING** button (located on *Avvio mini* side panel) until the yellow LED (**SERVICE LED**) changes from flashing to constantly ON.
- Release the **MODE SETTING** button.
- Use the 0/10V controller to change the input signal.
- *Avvio mini* automatically saves the settings (confirms by switching OFF the yellow LED) and exits from the current configuration mode.
- To go back to **AUTO** or **DMX** control modes, the procedures highlighted in [chapters 7.1](#) and [9](#) must be followed.

WARNING !

The **NEGATIVE** pole of the 0/10V input is connected to the negative pole of the LEDs outputs. Whenever a 0/10V controller that is **NOT** insulated from the mains is used, Safety conditions are **NOT** met anymore.

8.1.2 DIMMING CONTROL mode with Potentiometer input

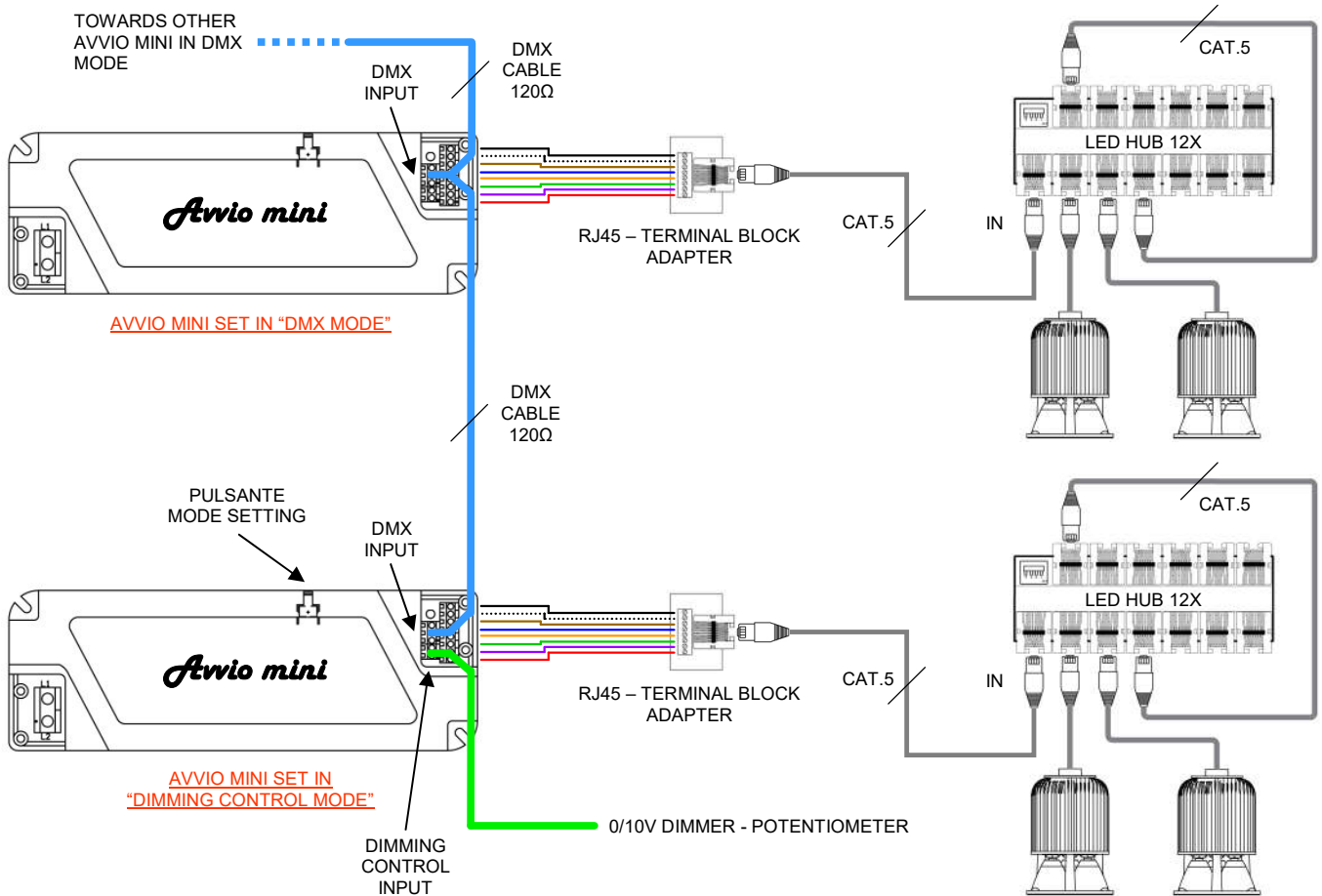
This type of installation allows to control *Avvio mini* with a **47K Ω linear** potentiometer; if multiple devices have to be used concurrently, the potentiometer inputs **MUST BE** connected in parallel, and the final potentiometer value is given by the formula: **47K Ω /n** where “n” is the number of connected devices.

The potentiometer acts simultaneously on all channels, dimming all outputs in a linear fashion.

Avvio mini is set to **DMX** mode by factory default. Follow the procedure highlighted below, to set the device in **DIMMING CONTROL** mode with the 0/10V input:

- Connect the 0/10V signal to the **DIMMING CONTROL** input.
- Switch on the device by keeping pressed the **MODE SETTING** button (located on *Avvio mini* side panel) until the yellow LED (**SERVICE LED**) changes from flashing to constantly ON.
- Release the **MODE SETTING** button.
- Use the potentiometer to change the input signal.
- *Avvio mini* automatically saves the settings (confirms by switching OFF the yellow LED) and exits from the current configuration mode.
- To go back to **AUTO** or **DMX** control modes, the procedures highlighted in [chapters 7.1](#) and [9](#) must be followed.

8.1.3 DIMMING CONTROL mode with MASTER/SLAVE function



This setup is similar to those described in previous paragraphs, with the main difference being that it is possible to connect, and hence simultaneously control, others *Avvio mini* attached by means of the DMX line.

The device set in **DIMMING CONTROL** mode⁽¹⁾ (MASTER) sends to all attached devices set in **SLAVE** mode⁽²⁾, the output levels determined either by the 0/10V input or the potentiometer, using the DMX line.

To set *Avvio mini* in **SLAVE** mode, the device need to be set in **DMX** mode (**4 Channels**) as per factory default settings (please refer to [chapter 9](#) for further instructions).

The devices must be connected using the DMX IN terminal blocks.

Please Note: this setup may be suitable when using *Avvio mini* to dim LEDs by means of 0/10V signal or potentiometer, when using a custom or particular lighting configuration. The desired colour settings and lighting configuration must be set on the MASTER device, via the **STOR** function from the **TEST** menu of the *Remoto* interface; the resulting temperature balancing is the mixing of the levels of all the 4 output channels.

Please see [chapters 10.1](#) and [11](#) of the manual for the specific instructions on how to use the device with *Remoto*.

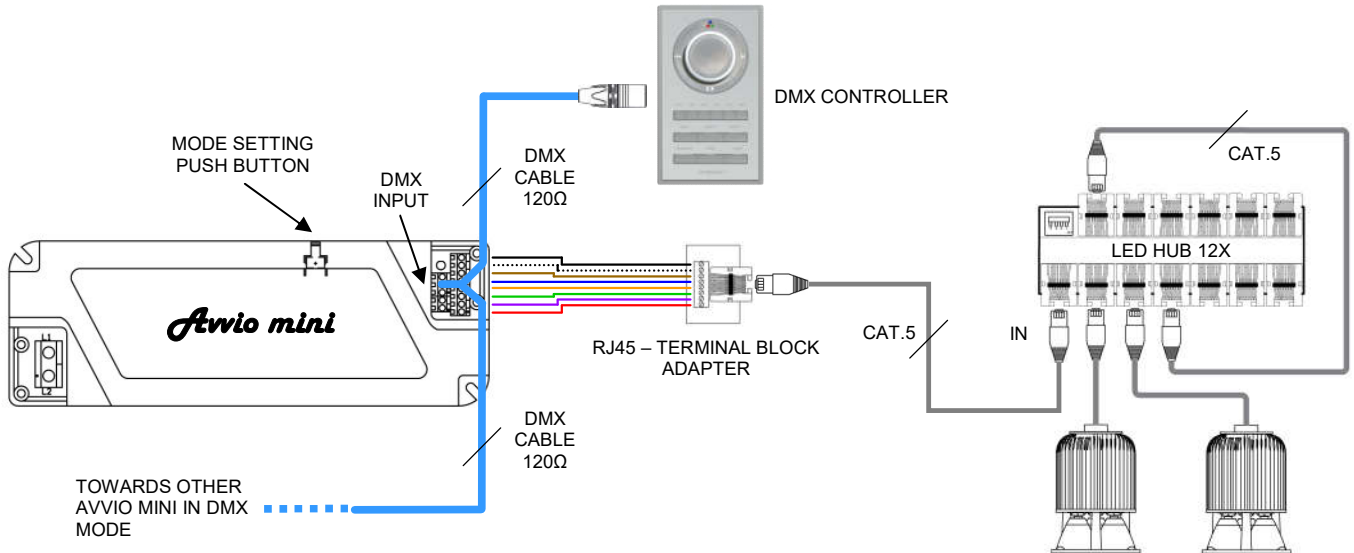
(1) In order to avoid signal and communication conflicts, on the same line ONLY ONE *Avvio* device MUST be set in **DIMMING CONTROL** mode.

(2) The maximum number of SLAVE devices that can be connected is influenced by the quality of the DMX line. During standard operating conditions of the line, a number of up to 32 connected devices would normally be supported and reasonably enough accepted.

If a higher number of devices has to be connected, it may be necessary (for architectural technical reasons) to insert into 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.

9. DMX functioning

9.1 Connection layout schematic: DMX mode



This setup allows the user to control *Avvio mini* 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.

9.2 DMX Address

The DMX mode setup expects a DMX address to be set; 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).

Avvio mini is configured by factory default in **4 Channels** mode: 4 channels of the DMX controller are necessary in this configuration.

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

In **4 Channels** mode, the second *Avvio mini* device will have address 5, the third device in the chain will have address 9, the fourth one address 13 and so on.

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.

It is possible to change the DMX input channels mapping from the **4 Channels** mode (see [chapter 9.6](#)) to the **5 Channels** mode (see [chapter 9.7](#)), to the **2 Channels** mode (see [chapter 9.5](#)), or to the **1 Channels** mode (see [chapter 9.4](#)), by means of the

Remoto interface or the RDM protocol.

Please see [chapters 10.1](#) and [11](#) of the manual for instructions related to how to use the device with *Remoto*.

9.3 DMX Address setting

Avvio mini 4 channels has a factory default DMX address of A001. In order to change its address or set a new one please follow the highlighted procedure:

- Connect the DMX signal to the device **DMX IN**.
- Switch on the device by keeping pressed the **MODE SETTING** button (located on *Avvio mini* side panel) until the yellow LED (**SERVICE LED**) changes from flashing to constantly ON.
- Release the **MODE SETTING** button.
- Vary the DMX input signal from MIN value to MAX value on the DMX controller, using the channel that will set the new/different DMX address.
- *Avvio mini* automatically saves the settings (confirms by switching OFF the yellow LED) and exits from the current configuration mode.

To go back to **AUTO** or **DIMMING CONTROL** modes, the procedures highlighted in [chapters 7.1](#) and [8](#) must be followed.

9.4 DMX Chart – 1 Channel Mode

In the **1 Channel** mode, 1 DMX channel is used to simultaneously control the 4 output channels of the device, as explained in the following table:

<u>1 Channel</u> MODE					
DMX Channel	Function	Control Type	Effects	DMXValue	Output
1	Out 1-2-3-4	Proportional	Simultaneous output lighting intensity adjustment of all Channels	0-255	0-100%

9.5 DMX Chart – 2 Channels Mode

In the **2 Channels** mode, 2 DMX channels are used to control in pairs and simultaneously, the 4 output channels of the device, as explained in the following table:

<u>2 Channels</u> MODE					
DMX Channel	Function	Control Type	Effects	DMXValue	Output
1	Out 1 - 2	Proportional	Simultaneous output lighting intensity adjustment of Channels 1 and 2	0-255	0-100%
2	Out 3 - 4	Proportional	Simultaneous output lighting intensity adjustment of Channels 3 and 4	0-255	0-100%

9.6 DMX Chart – 4 Channels Mode

In the **4 Channels** mode, 4 DMX channels are used to control the 4 output channels of the device, as explained in the following table:

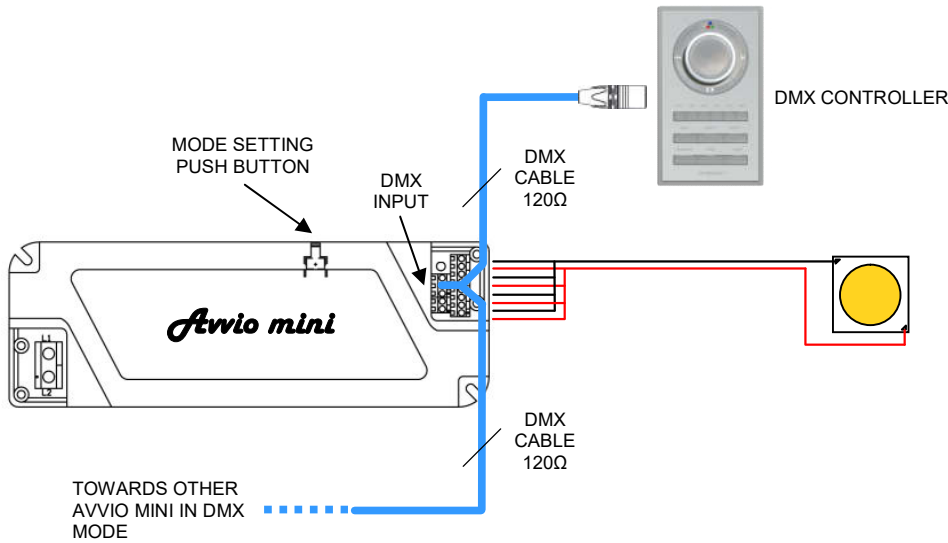
<u>4 Channels</u> MODE					
DMX Channel	Function	Control Type	Effects	DMXValue	Output
1	Out 1	Proportional	Output lighting intensity adjustment – Channel 1	0-255	0-100%
2	Out 2	Proportional	Output lighting intensity adjustment – Channel 2	0-255	0-100%
3	Out 3	Proportional	Output lighting intensity adjustment – Channel 3	0-255	0-100%
4	Out 4	Proportional	Output lighting intensity adjustment – Channel 4	0-255	0-100%

9.7 DMX Chart – 5 Channels Mode

In the **5 Channels** mode, 5 DMX channels are used as explained in the following table:

<u>5 Channels</u> MODE					
DMX Channel	Function	Control Type	Effects	DMXValue	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%

9.8 Connection layout schematic: DMX 1 Channel mode with 4 channels set in parallel



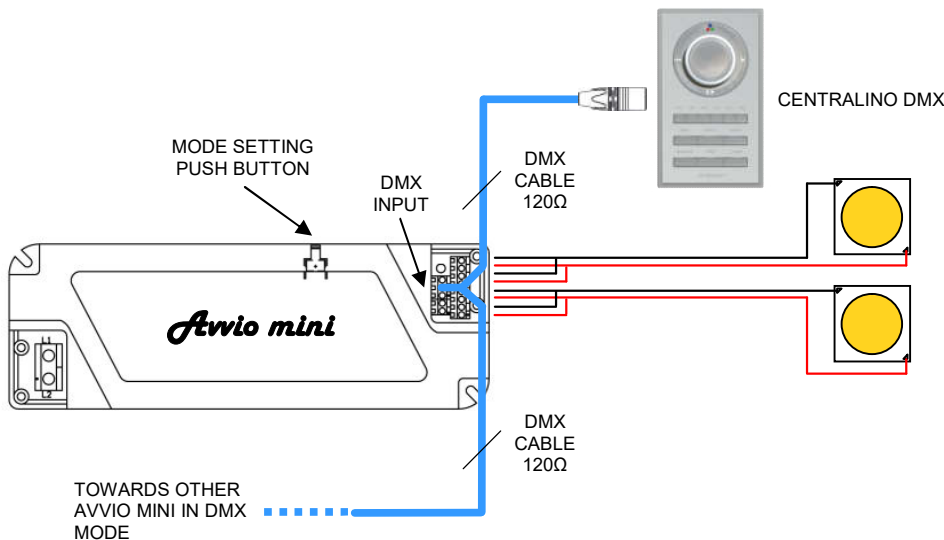
This setup may be suitable when outputs need to be connected in parallel (e.g. to drive and control LEDs stripes or monochromatic COBs with high current specs requirements).

WARNING !

Whenever “parallel-channels” settings are required, the **ONLY POSSIBLE** way to do so that grants correct system functioning, is by:

- setting the “1CH” mode via the “Function → Chan” menu by using the RDM protocol or the *Remoto* Interface.

9.9 Connection layout schematic: DMX 2 Channels mode with parallel channels (2-by-2)



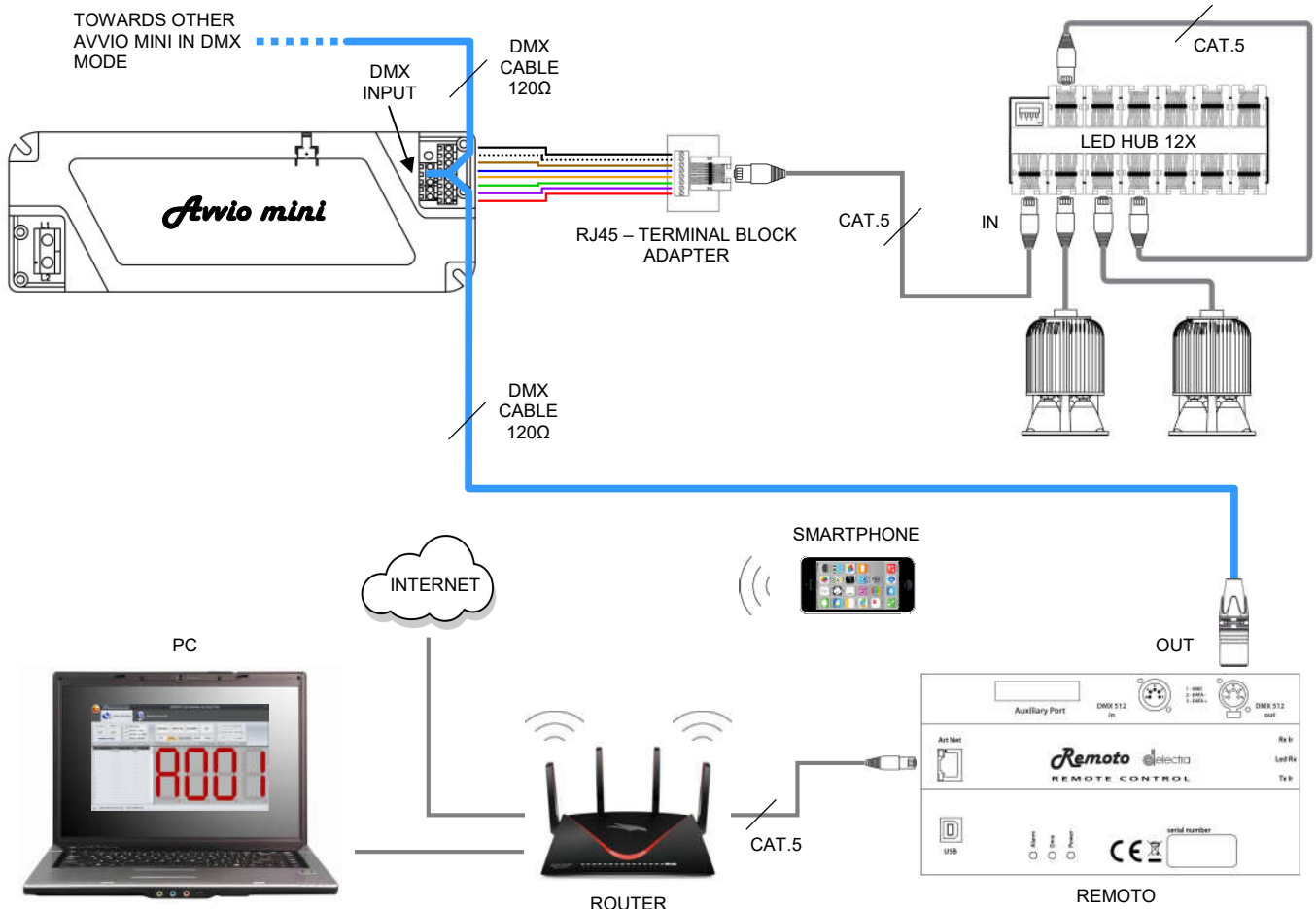
This installation, as the one described in [chapter 9.8](#), is useful when a high current output is required to control LEDs stripes or monochromatic COBs.

WARNING !

Whenever parallel-channels settings are required, the “1CH” or “2CH” mode needs to be set via the “Function → Chan” menu by using the RDM protocol or the *Remoto* Interface. The **ONLY** possible pairings are: CH1-CH2 and CH3-CH4 as indicated in the schematics.

10. Wi-Fi / Ethernet

10.1 Connection layout schematic: Wi-Fi / Ethernet



By using *Remoto* (Delectra's gateway accessory) and a PC, it is possible to emulate the function of a display and gain access to all *Avvio mini*'s settings and diagnostic functions.

Using the DMX IN and by means of the DMX line, it is possible to change device settings such as the current on the load, the frequency, the operating mode etc.; finally, it is also possible to inspect in this way the device's vital parameters outputs (values such as temperature, input voltage etc..)

By using *Remoto* (Delectra's gateway accessory) it is possible to connect *Avvio mini* to the local Wi-Fi or Ethernet networks. *Remoto* will allow the user to control other devices from a network connected PC or smartphone, using a dedicated application that emulates 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 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.

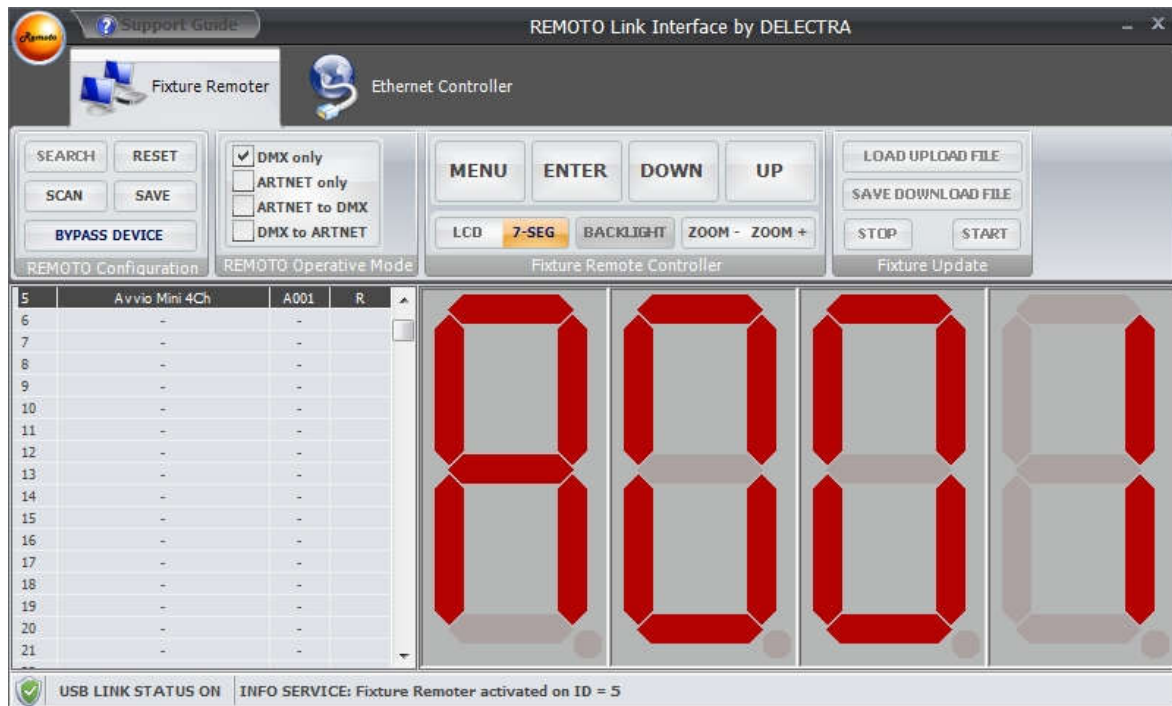
⁽¹⁾ All quoted and reported brands belong to their respective owners. All listed Applications are for reference purpose only and the list is by no mean complete. Delectra does not endorse, support or promote the use of any particular application amongst those mentioned and assumes NO responsibility with reference to the compatibility and functioning of those cited.

11. Control panel

11.1 Introduction

Through the control panel - accessible via Delectra's *Remoto*⁽¹⁾ - it is possible to select the device functioning mode (**MODE** menu) and its relative functions and settings (**FUNC** menu), or perform device diagnostics by accessing the measurements functionality (**MEAS** menu).

Dopo aver installato e avviato il programma **Remoto Link Interface**, il pannello di controllo si presenta in questo modo:



- From the main display screen, press the **MENU** button in order to access any functionality.
- Browse the various options with the + or – keys.
- Press the **ENTER** button to enter the selected/desired sub-menu.
- To save any particular setting press the **ENTER** button; a successful saving operation is confirmed by the display blinking 3 times.
- Use the **MENU** button to move from a sub-menu to its parent menu (i.e. to go back into previous menu)

Please Note: it is worth reminding the User that in order to avoid signal and communication conflicts, EACH *Avvio mini* device MUST have a UNIQUE ID code.

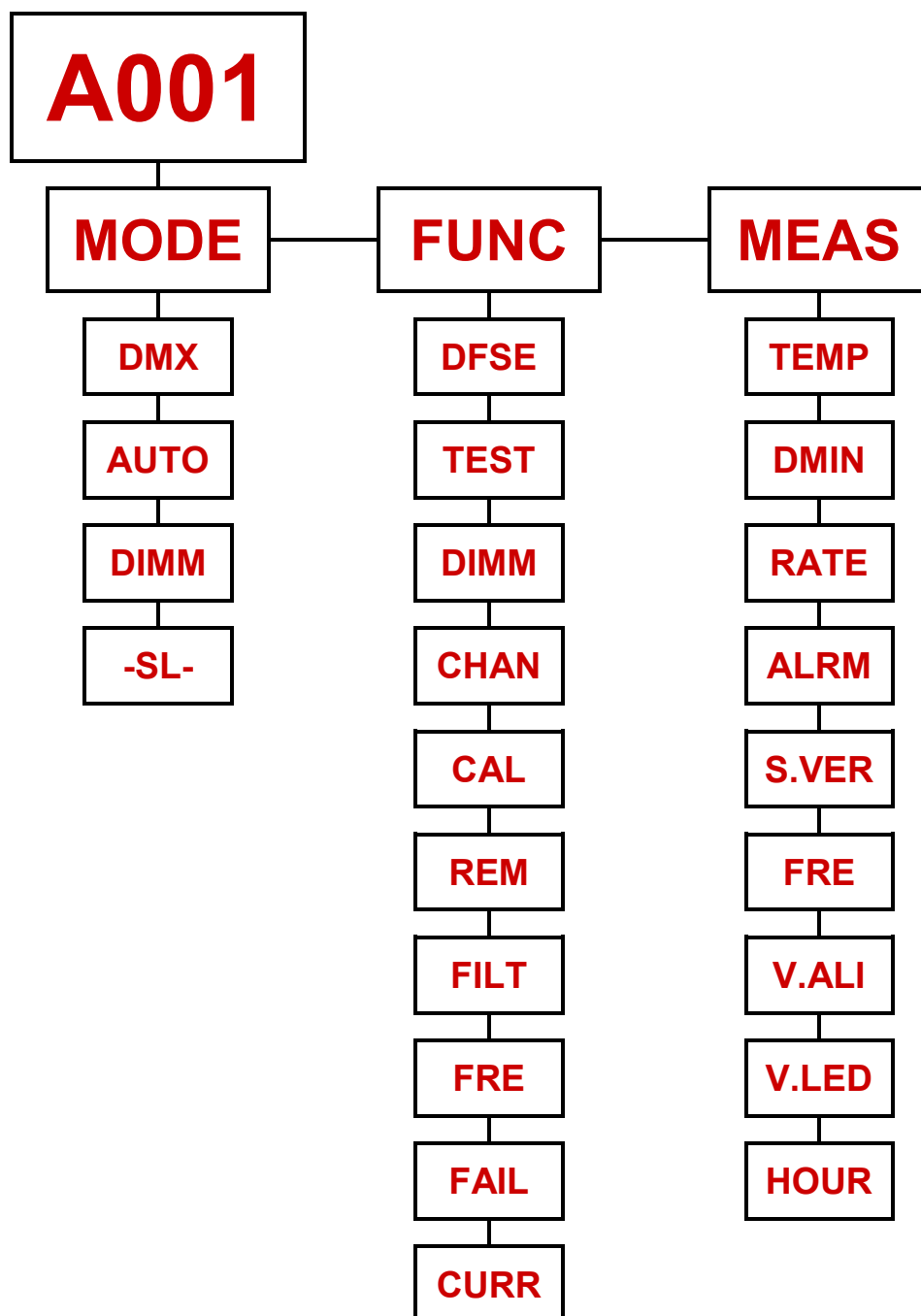
The factory default ID of ALL devices can be found on their labels. It is strongly advised to double check the whole installation and to make sure only UNIQUE IDs are present; if any change is needed, the **FUNC → REM** menu can be used.

Diagnostics and some configuration changes on the device can be performed also via Remote Device Management (**RDM**) protocol, once the device is connected to a PC by means of its USB-DMX interface, that allows to pass RDM control messages over the DMX line.

See [chapter 12](#) of the current manual for more details and please check online all other protocol related details and specifics.

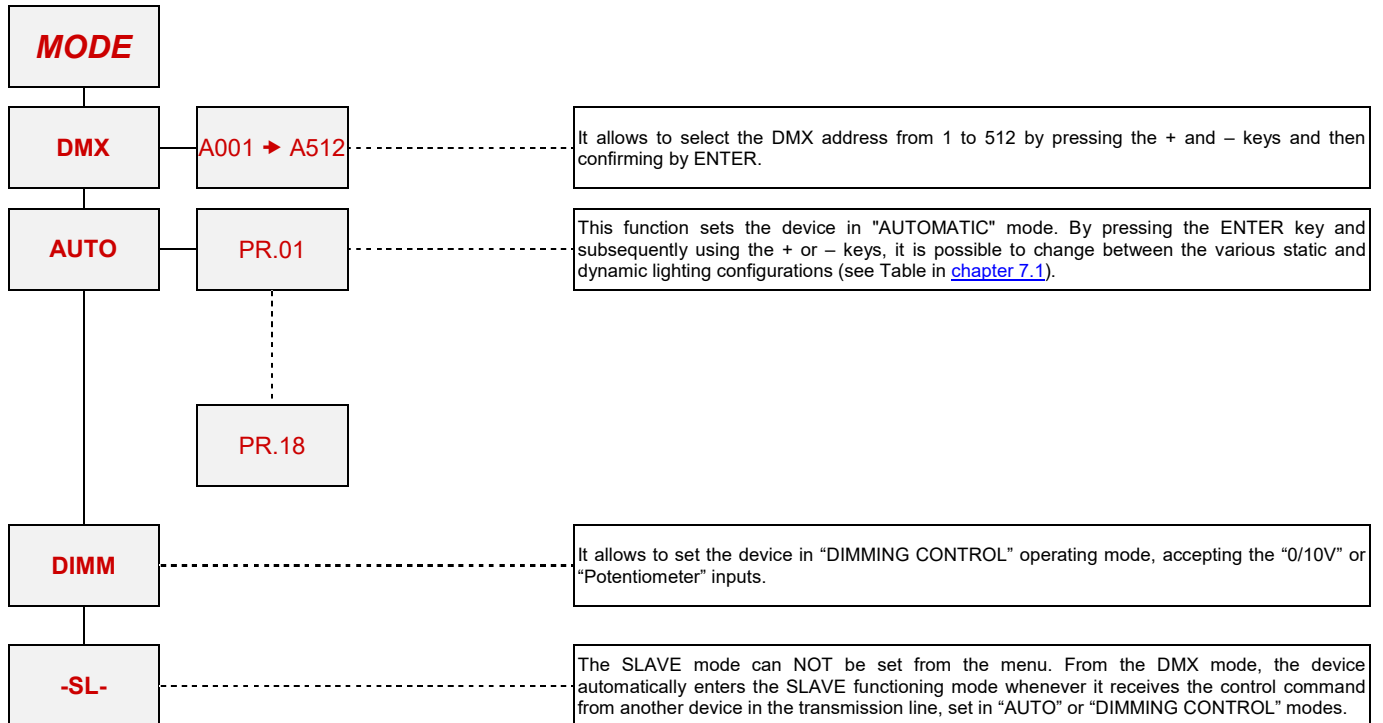
(1) Please refer to *Remoto* user guides and instructions manuals for the details regarding *Remoto* installation and setup, as well as anything related to **REMOTO LINK INTERFACE** software.

11.2 Menu – Blocks diagram



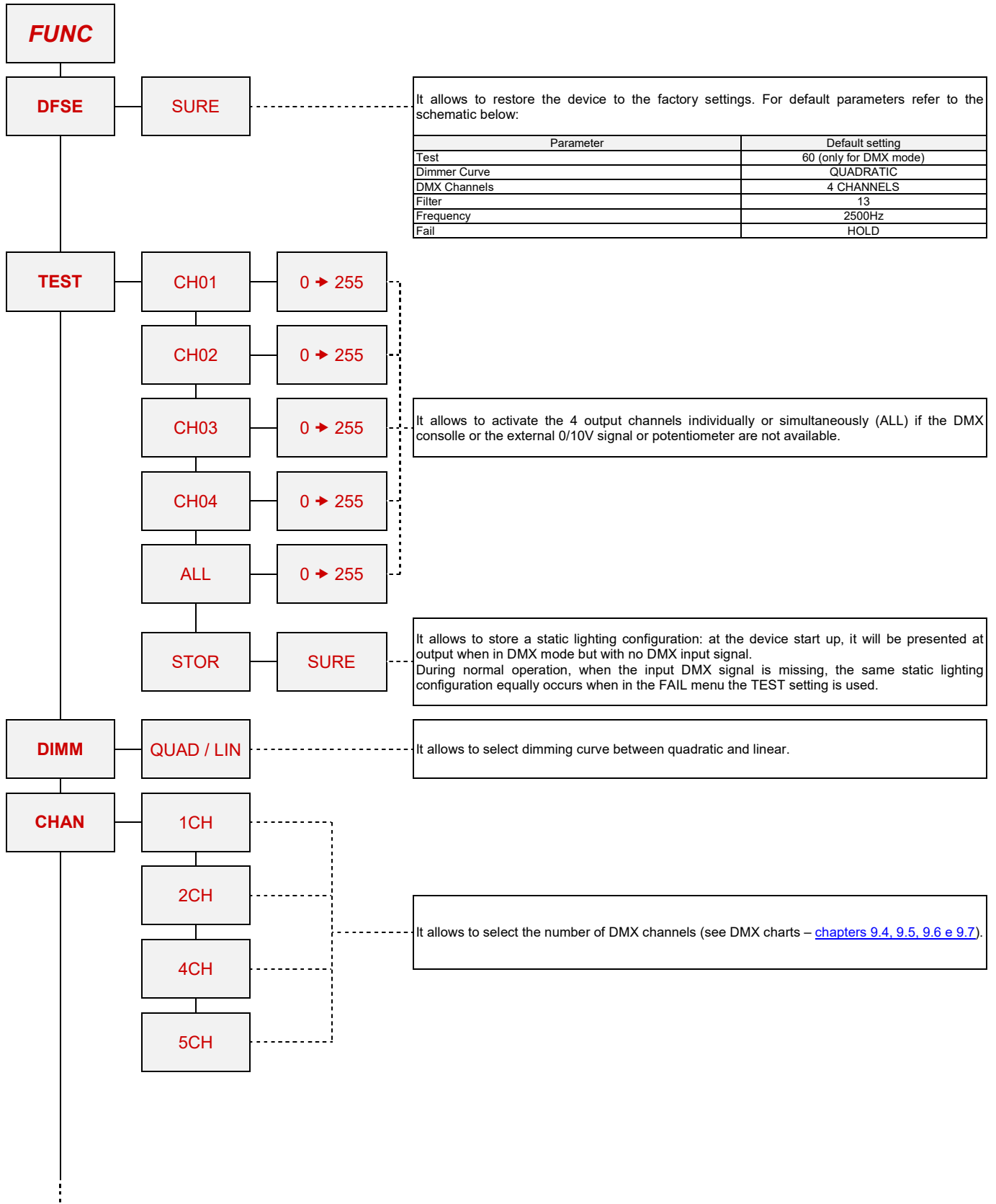
11.3 MODE menu

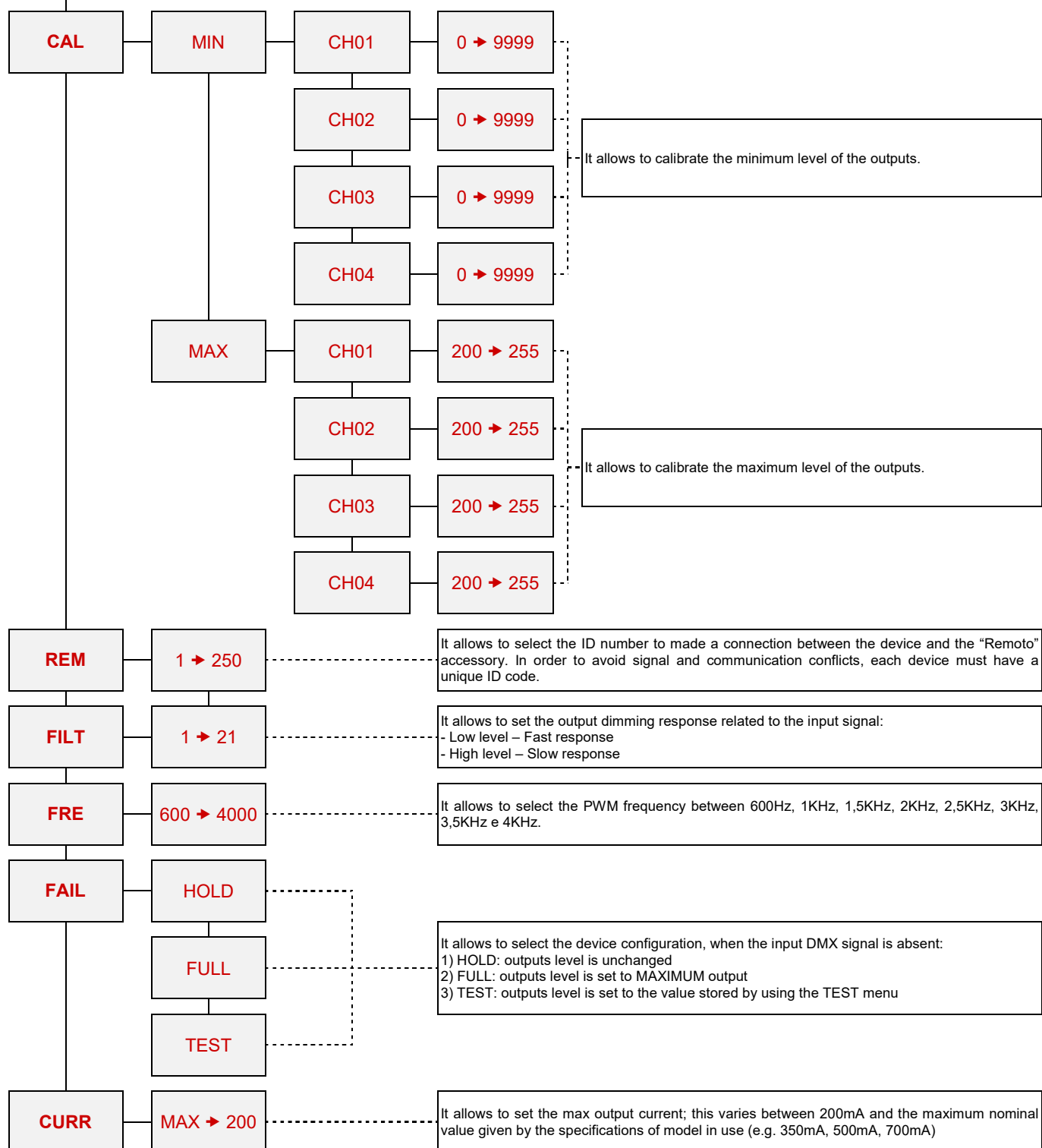
The **MODE** menu allows to choose between 4 operative modes of *Avvio mini*: Dmx (**DMX**), Automatic (**AUTO**), Dimming Control (**DIMM**) and Slave (**SL**).



11.4 FUNCTION menu

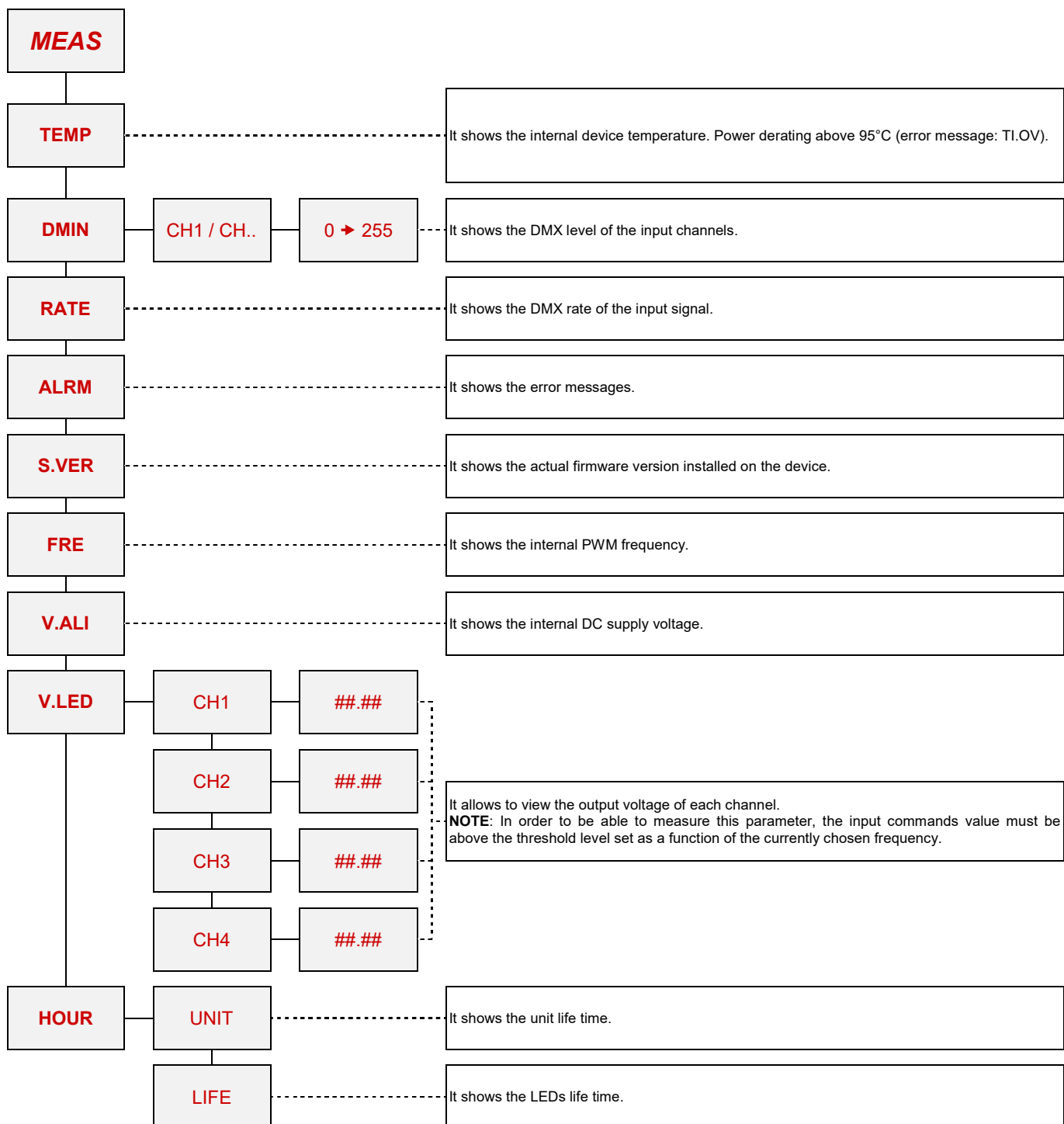
The **FUNCTION** menu allows to change and customize some functional settings of *Avvio mini*, e.g. DMX channels, output PWM frequency, ecc... For more details please refer to the schematic below:





11.5 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:



12. RDM (Remote Device Management)

Not only with *Remoto* it is possible to achieve bidirectional communication between the PC and *Avvio mini*, but also with the RDM (Remote Device Management) protocol, by means of the DMX line.
The RDM protocol - used mainly in lighting systems control devices - allows to:

- Identify and classify connected devices.
- Correctly address DMX512-controlled devices.
- Perform status checks.
- Main parameters configuration deployment.

In order to be able to communicate without issues, each device has a UID (Unique ID number). Various USB-DMX interfaces and PC software are available in commerce; these allow the use of the device with the RDM protocol.

12.1 PIDs RDM

The RDM protocol is composed of various commands, both mandatory and optional/custom these are called Parameter IDs (PIDs). The table below summarises *Avvio mini*'s PIDs implementation for RDM:

PID name	Description
DEVICE_INFO	Parameter used to retrieve important device information (normally requested by controllers)
SOFTWARE_VERSION_LABEL	Parameter used to display the currently implemented software version
DMX_START_ADDRESS	Parameter used to view / set the device DMX address
IDENTIFY_DEVICE	Parameter used to physically identify the device, by means of a visible / audible cue (e.g. beeping sound or signalling LED pulse etc..)
SUPPORTED_PARAMETERS	Message used to view / recap the PIDs list as implemented on the device
DEVICE_MODEL_DESCRIPTION	Parameter used to obtain a (max 32-characters) ASCII text device model description
MANUFACTURER_LABEL	Parameter used to obtain a (max 32-characters) ASCII text OEM / manufacturer details
DEVICE_LABEL	Parameter used to set a custom label to the device (e.g. to identify its location, position, etc..)
FACTORY_DEFAULTS	Parameter used to reset the device to factory defaults
DMX_PERSONALITY	Parameter used to view / set the DMX personality of the device
DMX_PERSONALITY_DESCRIPTION	Parameter used to obtain a (max 32-characters) ASCII text device DMX personality description
DEVICE_HOURS	Parameter used to view / set the power on time of the device
LAMP_HOURS	Parameter used to view / set the power on time of the lighting devices

Delectra reserves the rights to change or further extend or implement new PIDs and update their descriptions without any warning.

13. 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 electronic 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 lives 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.