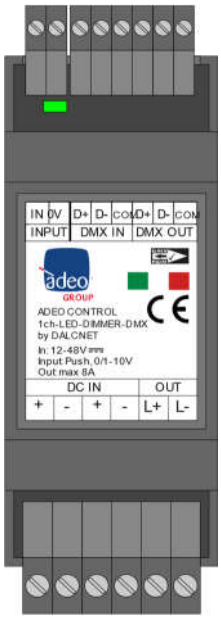
Adeo Group s.r.l.
Via della Zarga n. 50 - 38015 LAVIS (TN)
Tel: +39 0461 248211 - Fax: +39 0461 245038
Mail: info@adeogroup.it – www.adeogroup.it

Adeo Control
1ch-LED-DIMMER-DMX
Device Manual



CARATTERISTICHE

- Output: 1 x channel
- BUS+FADER+DIMMER+DRIVER
- Input: DC 12/24/48 Vdc
- BUS Command: DMX512+RDM
- LOCAL Command: N.O. push button (with or without memory), 0-10V, 1-10V, Potentiometer
- Adjusting the brightness
- Voltage outputs for R-L-C loads
- Typical efficiency > 95%
- Adjusting the brightness up to completed off (Dim to dark)
- Level minimum of brightness: 0.1% (1% in push)
- D-PWM Modulation
- Adjusting D-PWM frequency: 300 / 600 / 1200 Hz
- Adjusting output curve: Linear / Quadratic / Exponential
- Soft start and soft stop
- Optimized output curve
- Master / Slave Function (DMX variant)
- Extended temperature range
- 100% Functional test
- 5 Years warranty

Application

Projects for architects, OEM, lighting designers, interior designers, interior designers.
Generic lighting, white and dynamic white furniture lighting, architectural lighting, high colour rendering light and RGB and RGB+W scenes.

CONSTANT VOLTAGE VARIANTS (common anode)

CODE	Supply voltage	Output	Channel	Command
1ch-LED-DIMMER-DMX	12-48V DC	1x8A max	4	DMX
				Button N.A. / 0-10 / 1-10 / Pot 10kΩ

PROTECTIONS

		VOLTAGE VARIANT
OTP	Over temperature protection [1]	✓
OVP	Over voltage protection [2]	✓
UVP	Under voltage protection [2]	✓
RVP	Reverse polarity protection [2]	✓
IFP	Input fuse protection [2]	✓
SCP	Short circuit protection	✓
CLP	Current limit protection	✓

[1] Thermal Protection on the output channel in case of high temperature. The thermal intervention is detected by transistor (> 150°C)
[2] Only control logic protection

REFERENCE STANDARDS

Cod	Content
EN 61347-1	Lamp control gear - Part 1: General and safety requirements
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 50581	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
IEC 60929-E.2.1	Control interface for controllable ballasts - control by d.c. voltage - functional specification
ANSI E 1.3	Entertainment Technology - Lighting Control Systems - 0 to 10V Analog Control Specification
ANSI E1.11	Entertainment Technology - USITT DMX512-A - Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories
ANSI E1.20	Entertainment Technology-RDM-Remote Device Management over USITT DMX512 Networks

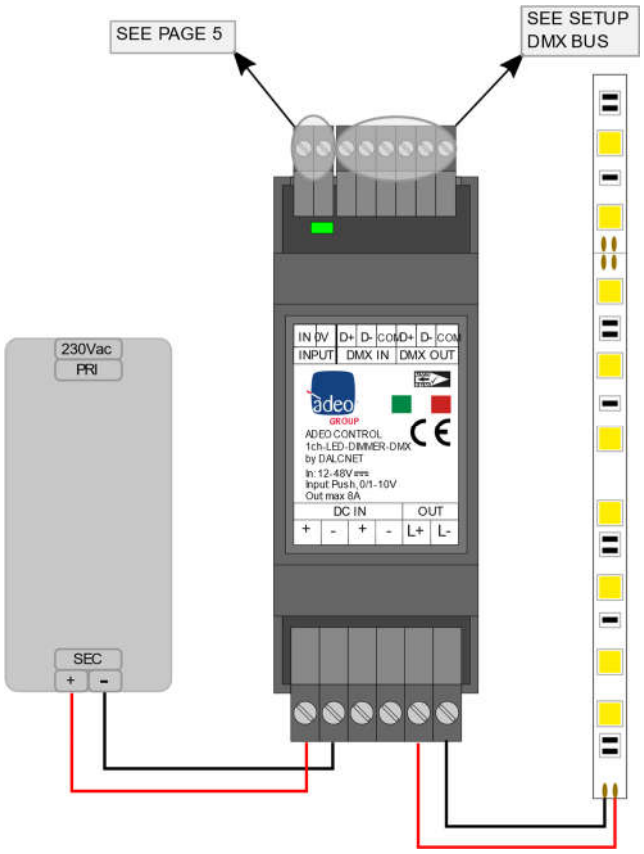
TECHNICAL SPECIFICATIONS

Feature		Variant Constant Voltage
Supply voltage		DC min: 10,8 Vdc .. max: 52,8 Vdc
Output voltage		= Vin
Output current		max 8 A peak [3)] max 7,5A @55°C [3)] **max 6,5A @60°C [3)]**
Nominal Power[3]	@12V	78 W (@ 6,5A) – 90 W (@ 7,5A)
	@24V	156W (@ 6,5A) – 180 W (@ 7,5A)
	@48V	312W (@ 6,5A) – 360 W (@ 7,5A)
Power loss in stand by mode		<500mW
Operating frequencies		R – L - C
Thermal Shutdown[4]		150 °C
Command supply current		0,5mA (solo per 1-10V)
Command required current (max)		0,1mA (solo per 0-10V)
D-PWM dimming frequency		300 – 600 – 1200 Hz
D-PWM resolution		16 bit
D-PWM range		0,1 – 100 %
Storage Temperature		min: -40 max: +60 °C
Ambient Temperature[3)]		min: -40 max: +60 °C
Protection grade		IP10
Wiring		2.5mm² solid - 1.5mm² stranded - 30/12 AWG
Casing Material		Plastic
Mechanical dimensions		92 x 36 x 62 mm - DIN RAIL 2mod.
Packaging unit (pieces/unit)		Single Carton Box 1pz
Packaging dimensions		124 x 71 x 48 mm
Weight		88g

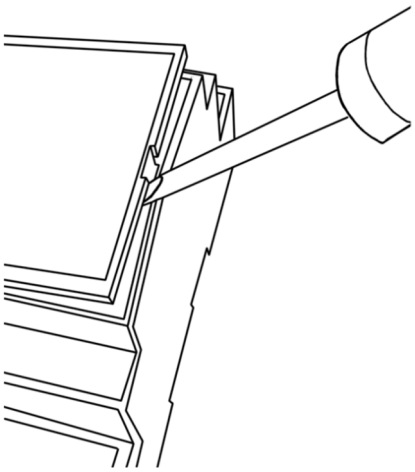
[3] Maximum value, dependent on the ventilation conditions

[4] Thermal intervention on the exit channel in case of high temperature. The thermal intervention is detected by the transistor (>150°C).

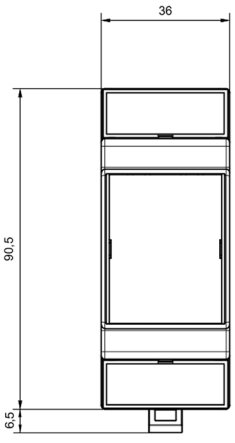
- **INSTALLATION**

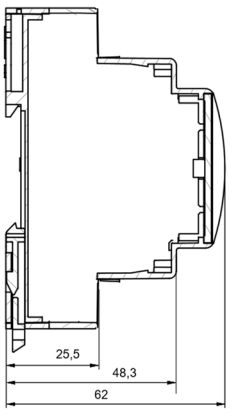


Opening the cover
For the Dip-switch and selectors configuration it is necessary to pull up the cover of the device. See the picture.



Mechanical dimension
(without connectors)





Technical notes

Installation:

- Installation and maintenance must be performed only by qualified personnel in compliance with current regulations.
- The product must be installed inside an electrical panel protected against over voltages.
- The product must be installed in a vertical or horizontal position with the cover / label upwards or vertically; Other positions are not permitted. It is not permitted to bottom-up position (with the cover / label up down).
- Keep separated the circuits at 230V (LV) and the circuits not SELV from circuits to low voltage (SELV) and from any connection with this product. It is absolutely forbidden to connect, for any reason whatsoever, directly or indirectly, the 230V mains voltage to the bus or to other parts of the circuit.

Power Supply:

- For the power supply use only a SELV power supplies with limited current, short circuit protection and the power must be dimensioned correctly.
- In case of using power supply with ground terminals, all points of the protective earth (PE = Protection Earth) must be connected to a valid and certified protection earth.
- The connection cables between the power source "low voltage" and the product must be dimensioned correctly and they should be isolated from every wiring or parts at voltage not SELV. Use double insulated cables.
- Dimension the power supply for the load connected to the device. If the power supply is oversized compared with the maximum absorbed current, insert a protection against over-current between the power supply and the device.

Command:

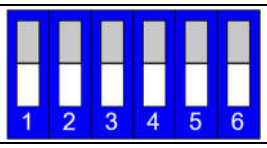
- The length of the connection cables between the local commands (N.O. Push button, 0-10 V, 1-10 V, Potentiometer or other) and the product must be less than 10m; the cables must be dimensioned correctly and they should be isolated from every wiring or parts at voltage not SELV. Use double insulated shielded and twisted cables.
- The length and type of the connection cables at the BUS (DMX512 or other) use cables as per specification of the respective protocols and regulations and they should be isolated from every wiring or parts at voltage not SELV. Use double insulated shielded and twisted cables.
- All the product and the control signal connect at the bus (DMX512 or other) and at the local command (N.O. Push button, 0-10 V, 1-10 V, Potentiometer or other) must be SELV (the devices connected must be SELV or supply a SELV signal)

Outputs:

- The length of the connection cables between the product and the LED module must be less than 10m; the cables must be dimensioned correctly and they should be isolated from every wiring or parts at voltage not SELV. Is preferable to use shielded and twisted cables.

• SETUP & INSTALLATION

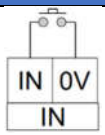
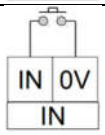
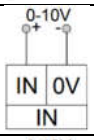
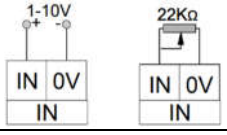
A 6 way dip-switch (under the cover) can provide a rich set of possible configurations:
Note: Factory positions = all OFF

Function		● Switches da 1 a 2: **Curve** ● Switches da 3 a 4: **Input Type** ● Switches da 5 a 6: **Output Frame Rate (Freq)**

1) Switches from 1 to 2: Curve

Default		Quadratic		Exponential		Linear	

2) Switch from 3 to 4: Input type

Command	Description	Connections	Settaggio
Push	N.O. Pushbutton, NO MEMORY		
	N.O. Pushbutton, MEMORY		
0-10V	Input Analogic 0-10V		
1-10V	Input Analogic 1-10V & Potentiometer		

3) Switches da 5 a 6: Settable Frequency

300Hz		600Hz		1200Hz		Reserved	

- **LOCAL INPUTS**

Available Functions: N.O. PUSH BUTTON memory / N.O. PUSH BUTTON no memory:

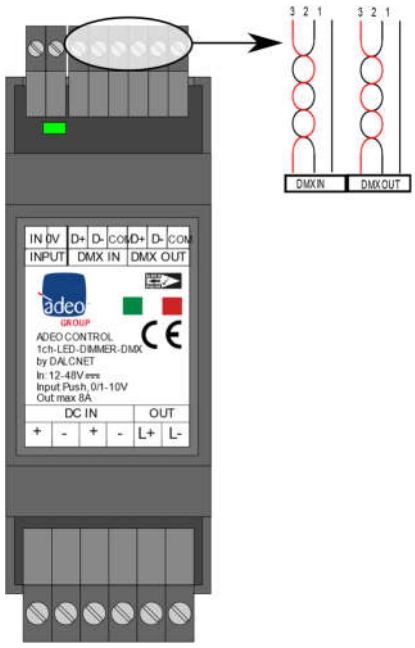
	**Dimmer** Dim the light following the selected dimming curve, keeping a constant color temperature. Soft Turn On with 200ms fade time, Soft Turn Off with 1s fade time. CLICK: Turn ON/OFF light. Double Click: Turn On light at 100% Long pressure (>1s) from OFF: Turn on at 1% (Nighttime) Long pressure (>1s) from ON: Dimmer UP/DOWN

- **AVAILABLE FUNCTIONS: 0-10V / 1-10V / POTENTIOMETER:**

	**Dimmer** Dim the light following the selected dimming curve, keeping a constant color temperature. Minimum intensity = 0.1%. Below 1V = Turn OFF light. 10V = Maximum intensity.

• DMX+RDM BUS SETUP

With the DMX+RDM BUS SETUP in the "slave" condition the outputs are managed by an external DMX controller.
In the "master" condition, the DMX+RDM allows the communications between devices.



Reference standards BUS DMX+RDM	
ANSI E1.11	Entertainment Technology - USITT DMX512-A - Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories
ANSI E1.20	Entertainment Technology-RDM-Remote Device Management over USITT DMX512 Networks

• ONBOARD LED

In the case of no bus power detected, or bus error, the led blinks fast (2 pulsed per second).
In the case of bus power but no data, led blinks slow (1 pulse per second).
In the case of data link active, the led stands on.

• RELATION WITH LOCAL COMMANDS

At power-up, in case of absence of connection to the BUS, local control is active.
When the BUS is detected, the control passes to the BUS. It remains to the BUS until there is signal.
In the absence of signal:

- if the local command is N.O. PUSH BUTTON, the control passes to local command in the event of a N.O. push button pressure.
- if the local command is 0-10V or 1-10V the control passes immediately to the local command.

• ADDRESSING

RDM o tramite i selettori	✓

DMX	000 (default):				Address defined by RDM
	da 001		a 512		First channel address, from 1 to 512
	F00				MASTER

- **CHANNELS MAP – DMX512**

The intensity and the status (ON/OFF) is controlled by DMX512

Ch	Function	Map: Dimmer
0	Dimmer	Dimmer (Brightness Value) 0 .. 255

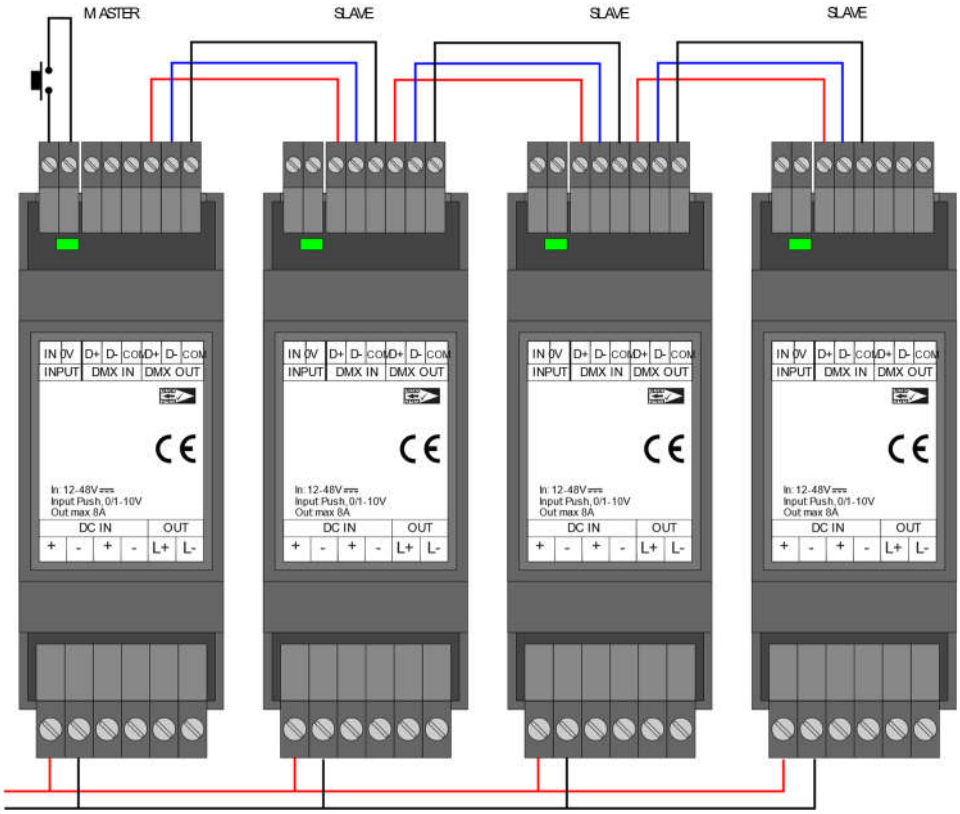
- **RDM COMMANDS**

Standard commands		Special commands	
DISC_UNIQUE_BRANCH	✓	PRODUCT_DETAIL_ID_LIST	✓
DISC_MUTE	✓	DEVICE_MODEL_DESCRIPTION	✓
DISC_UN_MUTE	✓	MANUFACTURER_LABEL	✓
SUPPORTED_PARAMETERS	✓	DEVICE_LABEL	✓
PARAMETER_DESCRIPTION	✓	BOOT_SOFTWARE_VERSION_ID	✓
DEVICE_INFO	✓	BOOT_SOFTWARE_VERSION_LABEL	✓
SOFTWARE_VERSION_LABEL	✓	DMX_PERSONALITY	✓
DMX_START_ADDRESS	✓	DMX_PERSONALITY_DESCRIPTION	✓
IDENTIFY_DEVICE	✓	SLOT_INFO	✓
		SLOT_DESCRIPTION	✓
		DEFAULT_SLOT_VALUE	✓

- **DMX MASTER/SALVE**

Example to Master/Slave connection

More DLD1248-1CV-DMX devices can be connected following a master/slave configuration. Master and Slave must be the same DIP-SWITCH configuration. To select the desired local command, DIP-SWITCH need to be set as explained in Setup DMX MASTER/SLAVE on page 10:



- **SETUP DMX MASTER/SALVE**

Master

Note: Master and Slave must have setted the same map (switches da 1 a 2 e da 5 a 6 see page 5).

Default Master

F00				MASTER

Master with FADE UP / FADE DOWN

da F00		a FFF		MASTER with fade: Selector " x 10" = UP fade time Selector "x 1" = DOWN fade time 0 = no fade, F=60seconds (see table)

Fade times

1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
NO fade	0.5s	1s	2s	3s	4s	5s	6s	7s	8s	9s	10s	15s	20s	30s

Examples

If you want to have a turn on fade of 1 second (fade UP) and a turn off fade of 10 seconds (fade DOWN) is necessary to set the switches as follows:
Selector x100 (left selector) = “F” , in this case the device is set to as MASTER;
Selector x10 (middle selector) = “2” , in this case the Fade UP is equal to 1s
Selector x1 (right selector) = “B” , in this case the Fade DOWN is equal to 10s

Slave

Note: Master and Slave must have setted the same map (switches da 1 a 2 e da 5 a 6 see page 4).

Default Slave:

F00				SLAVE

Note: The Slaves follow master fade ramps.

- **Control4 Integration**

See the SGDD-C4-3 Device Manual or send a request to info@adeogroup.it