



FEATURES

- Output: 1 x channel
- BUS+FADER+DIMMER+DRIVER
- Input: DC 12/24/48 Vdc
- BUS Command: DMX512+RDM, DALI, MODBUS
- 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

→ For the whole and updated Device Manual refer to producer's website: <http://www.dalcnet.com>

Constant voltage variants (common anode)

CODE	Supply Voltage	Output	Channel	Command	
DLD1248-1CV-DMX	12/24/48V DC	1x8A max	1	DMX – N.O. push button / 0÷10 / 1÷10 / Potentiometer	PROFESSIONAL
DLD1248-1CV-DALI	12/24/48V DC	1x8A max	1	DALI – N.O. push button / 0÷10 / 1÷10 / Potentiometer	PROFESSIONAL
DLD1248-1CV-MODBUS	12/24/48V DC	1x8A max	1	MODBUS RTU – N.O. push button / 0÷10 / 1÷10 / Potentiometer	PROFESSIONAL

Protections

OTP	Over temperature protection
OVP	Over voltage protection
UVP	Under voltage protection
RVP	Reverse polarity protection
IFP	Input fuse protection
SCP	Short circuit protection
OCF	Open circuit protection
CLP	Current limit protection



Reference Standards

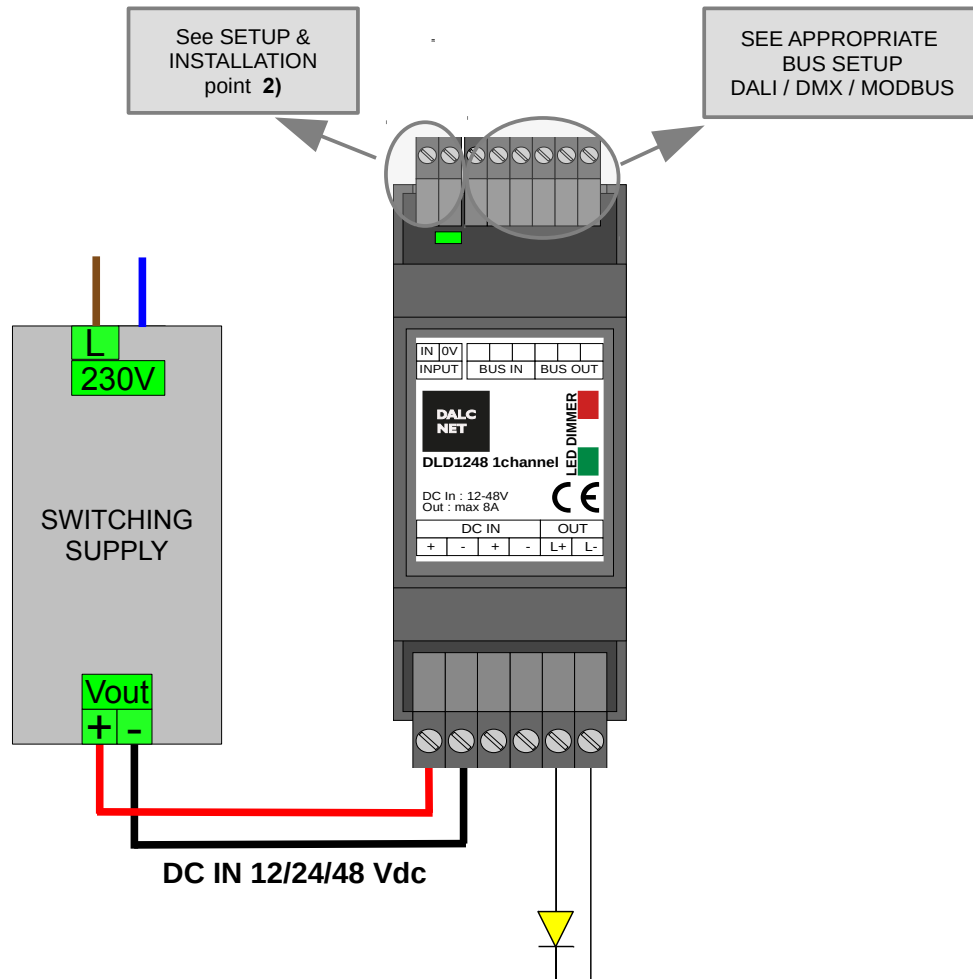
EN 61347-1	Lamp controlgear - Part 1: General and safety requirements
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 50581	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
IEC/EN 62386-101	Digital addressable lighting interface - Part 101: General requirements - System
IEC/EN 62386-102	Digital addressable lighting interface - Part 102: General requirements - Control gear
IEC/EN 62386-207	Digital addressable lighting interface - Part 207: Particular requirements for control gear - LED modules (device type 6)
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
-	MODBUS APPLICATION PROTOCOL SPECIFICATION V1.1b

Technical Specification

		Variants
		Constant voltage
Supply voltage		DC min: 10.8 Vdc .. max: 52,8 Vdc
Output voltage		= Vin
Output current		max 8 A peak ¹⁾ max 7,5A @55°C ¹⁾ max 6,5A @60°C ¹⁾
Nominal power ¹⁾	@12V	78 W (6,5A @ 60°C) – 90 W (7,5A @55°C)
	@24V	156W (6,5A @ 60°C) – 180 W (7,5A @55°C)
	@48V	312W (6,5A @ 60°C) – 360 W (7,5A @55°C)
Thermal shutdown		150 °C
Command supply current		0,5mA (per 1-10V)
Command required current (max)		0,1mA (per 0-10V)
D-PWM dimming frequency		300Hz – 600Hz – 1200Hz
D-PWM resolution		16 bit
D-PWM range		0,1% ÷ 100%
Storage Temperature		min: -40 max: +60 °C
Ambient Temperature ¹⁾		min: -40 max: +60 °C
Protection grade		IP10
Wiring		2.5mm ² solid - 1.5mm ² stranded - 30/12 AWG
Mechanical dimensions		92 x 36 x 62 mm - DIN RAIL 2mod.
Packaging dimensions		124 x 71 x 48
Weight		88g

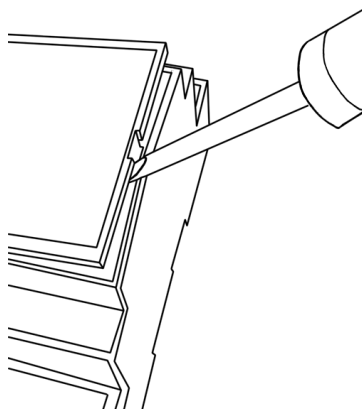
¹⁾ maximum value, dependent on the ventilation conditions

• **Installation**

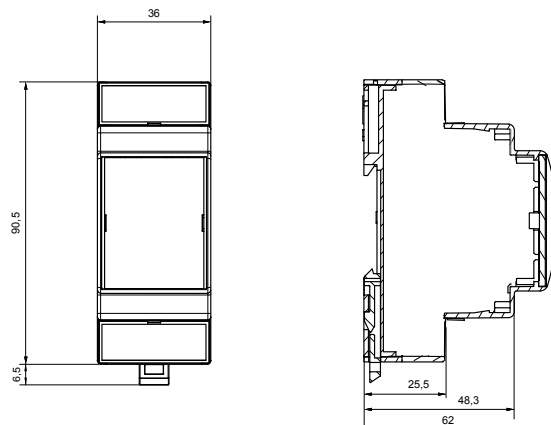


Opening the cover

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 overvoltages.
- 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 updown).
- 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, Modbus, DALI 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, Modbus, DALI 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

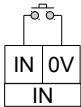

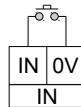

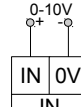

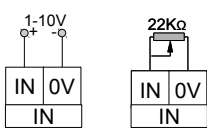

A 6 way dip-switch (under the cover) can provide a rich set of possible configurations:

Function		<ul style="list-style-type: none"> • Switches from 1 to 2: Curve • Switches from 3 to 4: Input Type • Switches from 5 to 6: Output Frame Rate (Freq.) 					
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">Curve</td> <td style="width: 25%; text-align: center;">Input</td> <td style="width: 25%; text-align: center;">Hz</td> <td style="width: 25%;"></td> </tr> </table> <p><i>Note: Factory positions = all OFF</i></p>	Curve	Input	Hz			
Curve	Input	Hz					




1) Select Dimming Curve: Switches from 1 to 2

Default (by bus type)	Exponential	Quadratic	Linear
			

2) Select Local Input Typ: Switches from 3 to 4

In Type	Description	Connections	Settings
Push	N.O. Pushbutton, NO MEMORY		
	N.O. Pushbutton, MEMORY		
0-10V	Input Analogic 0-10V		
1-10V	Input Analogic 1-10V & Potentiometer		

3) Set Output Frequency: Switches from 5 to 6

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:



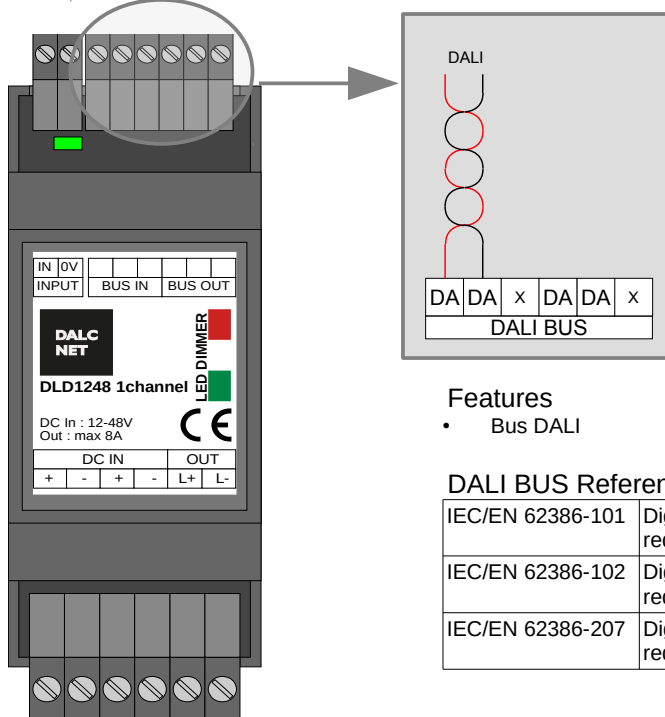
Dimmer

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.

■ DALI BUS SETUP

In **DALI BUS SETUP** all the leds are controlled by an external DALI controller.



Features

- Bus DALI

DALI BUS Reference Standards

IEC/EN 62386-101	Digital addressable lighting interface - Part 101: General requirements - System
IEC/EN 62386-102	Digital addressable lighting interface - Part 102: General requirements - Control gear
IEC/EN 62386-207	Digital addressable lighting interface - Part 207: Particular requirements for control gear - LED modules (device type 6)

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

Simplified method (One ballast connected at a time)	✓
Random Address Allocation	✓

CHANNELS MAP – DALI

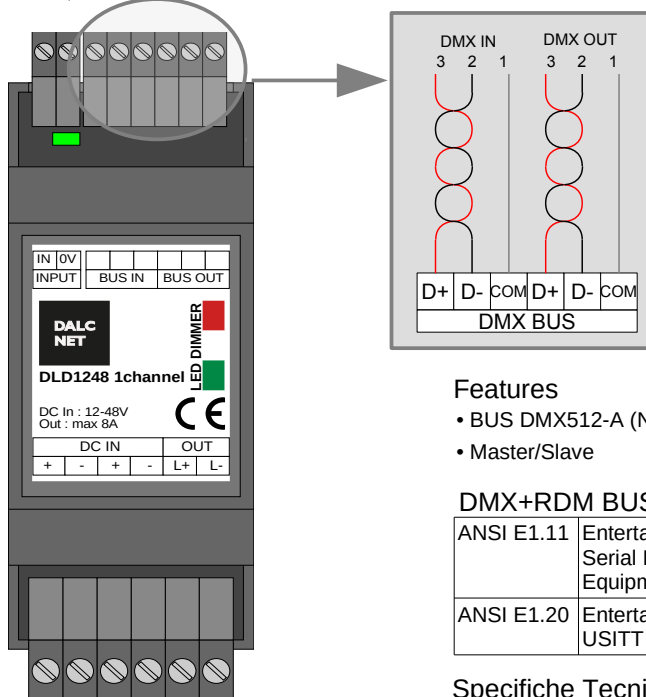
The intensity and the status (ON/OFF) is controlled by DALI

Addr	Function	Map: Dimmer
+0	Dimmer	Dimmer (Brightness Value) 0 .. 254

■ **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.



Features

- BUS DMX512-A (NSC+RDM)
- Master/Slave

DMX+RDM BUS Reference Standards

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

Specifiche Tecniche

Standard DMX512-A/RDM

Onboard led:

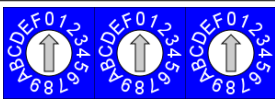
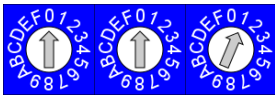
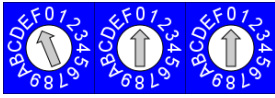
- In the case of bus error, the led blinks fast (2 pulsed per second).
- In the case of no bus detected, led blinks slow (1 pulse per second).
- In the case of data link active, the led stands on.

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	✓
By selectors	✓

DMX	000 (default):		Address defined by RDM
	from 001	 to 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
1	Dimmer	Dimmer (Brightness Value) 0 .. 255

RDM COMMANDS

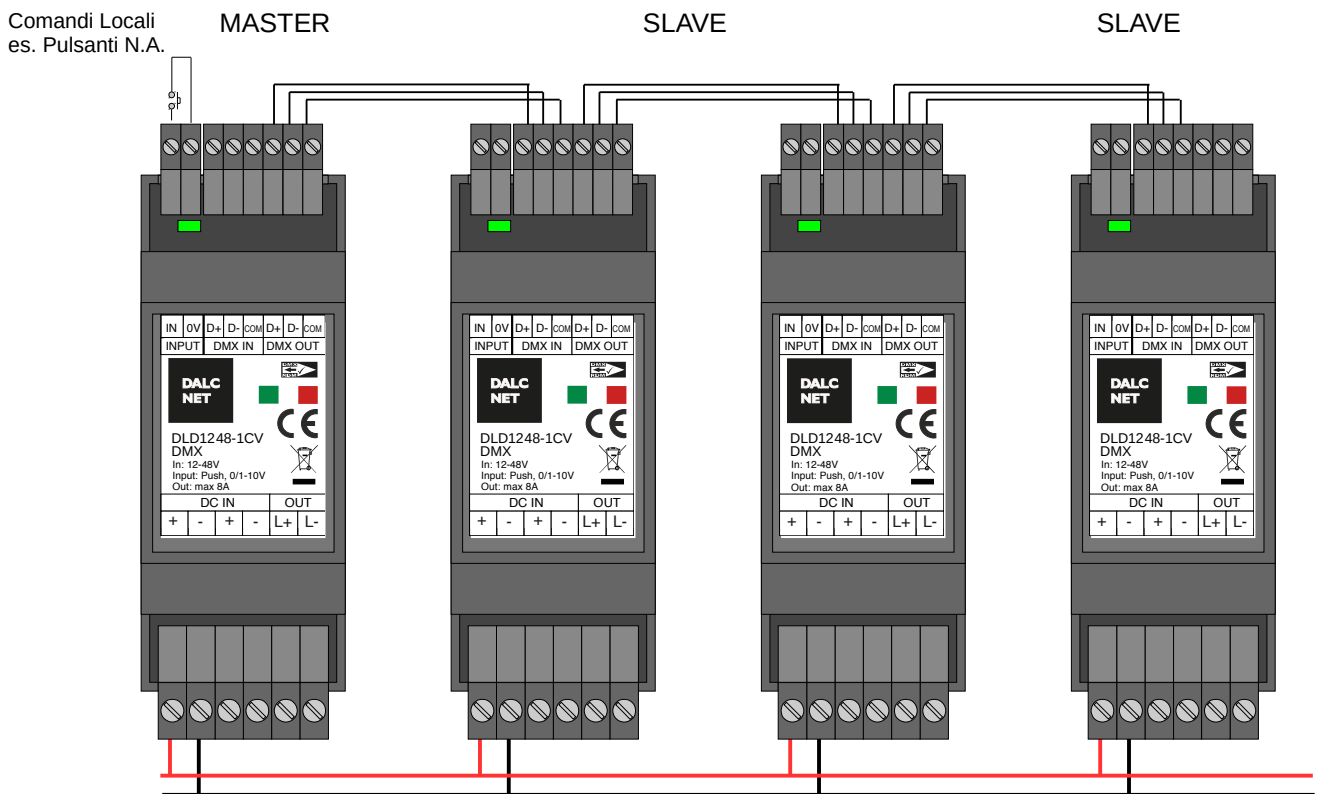
REQUIRED PARAMETERS	
DISC_UNIQUE_BRANCH	✓
DISC_MUTE	✓
DISC_UN_MUTE	✓
SUPPORTED_PARAMETERS	✓
PARAMETER_DESCRIPTION	✓
DEVICE_INFO	✓
SOFTWARE_VERSION_LABEL	✓
DMX_START_ADDRESS	✓
IDENTIFY_DEVICE	✓

SUPPORTED PARAMETERS	
PRODUCT_DETAIL_ID_LIST	✓
DEVICE_MODEL_DESCRIPTION	✓
MANUFACTURER_LABEL	✓
DEVICE_LABEL	✓
BOOT_SOFTWARE_VERSION_ID	✓
BOOT_SOFTWARE_VERSION_LABEL	✓
DMX_PERSONALITY	✓
DMX_PERSONALITY_DESCRIPTION	✓
SLOT_INFO	✓
SLOT_DESCRIPTION	✓
DEFAULT_SLOT_VALUE	✓

■ DMX Master/Slave

➤ 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 13.



■ **Setup DMX Master/Slave**

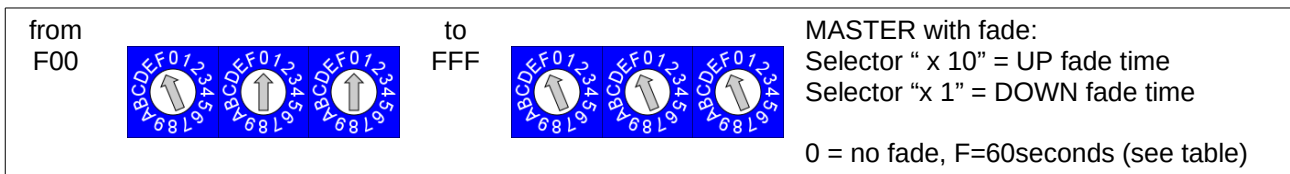
Master:

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

Default Master:



Master with FADE UP / FADE DOWN:



Fade times:

0	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	60s

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 vedi page 4).

Default Slave:

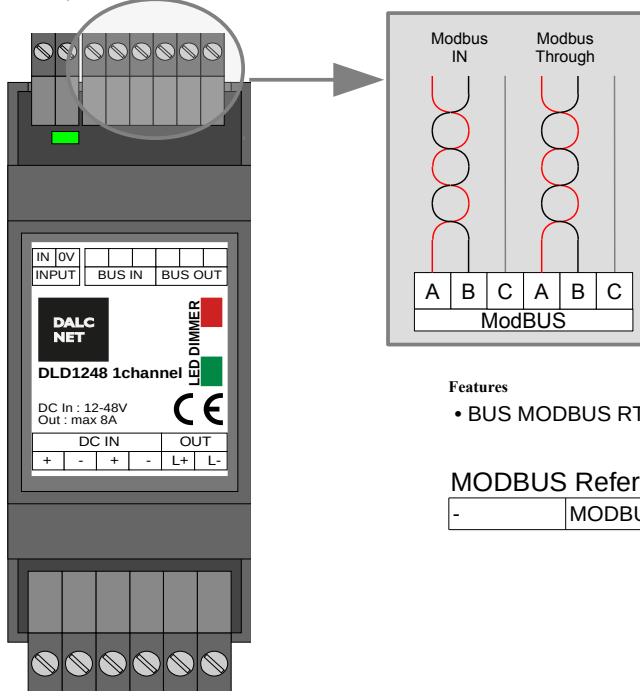


Note:

The Slaves follow master fade ramps.

■ **MODBUS SETUP**

In **MODBUS SETUP** in the "slave" condition the outputs LEDs are managed by an external MODBUS RTU master controller (RS-458).



Features

- BUS MODBUS RTU SLAVE su RS485

MODBUS Reference standards

- MODBUS APPLICATION PROTOCOL SPECIFICATION V1.1b

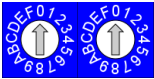

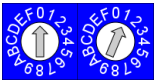
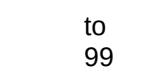
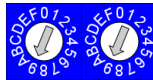
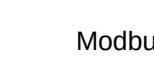








Onboard led:

- In the case of bus error, the led blinks fast (2 pulsed per second).
- In the case of no bus detected, 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 by selectors

Selectors x10, x1 (middle and right)	
Modbus	00 (default):   Default modbus ID (1)
	from 01   to 99   Modbus ID
Selector x100 (left)	
Modbus	 0 115200 baud 8N1
	 1 115200 baud 8E1
	 2 38400 baud 8N1
	 3 38400 baud 8E1
	 4 19200 baud 8N1
	 5 19200 baud 8E1
	 6 9600 baud 8N1
	 7 9600 baud 8E1

**CHANNELS MAP – MODBUS**

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

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

**SUPPORTED FUNCTIONS FOR READING AND WRITING – MODBUS RTU**

Function code		
0x01	Read Coils	✘
0x02	Read Discrete Inputs	✘
0x03	Read Holding Registers	✔
0x04	Read Input Register	✘
0x05	Write Single Coil	✘
0x06	Write Single Register	✔
0x07	Read Exception Status	✘
0x08	Diagnostic	✘
0c0B	Get Com Event Counter	✘
0x0C	Get Com Event Log	✘
0x0F	Write Multiple Coils	✘
0x10	Write Multiple Registers	✔
0x11	Report Server ID	✘
0x14	Read File Record	✘
0x15	Write File Record	✘
0x16	Mask Write Register	✘
0x17	Read/Write Multiple Registers	✘
0x18	Read FIFO queue	✘
0x2B	Read Device Identification	✘