CE

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

Constant voltage variants (common anode)

CODE	Supply Voltage	Output	Channel	Command	
LQC1D-V1	12/24/48V DC	1x8A max	1	DALI – N.O. push button / 0÷10 / 1÷10 / Potentiometer	PROFESSIONAL

Protections

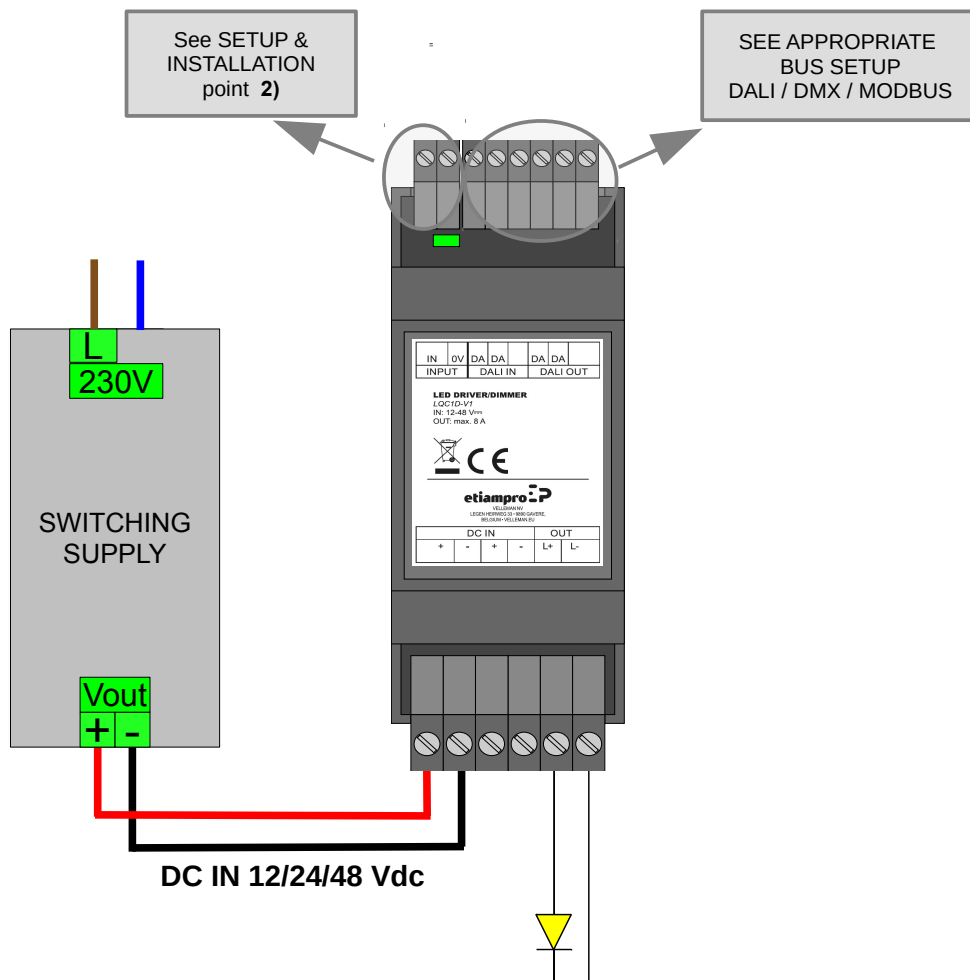|	
OTP	Over temperature protection
OVP	Over voltage protection
UVP	Under voltage protection
RVP	Reverse polarity protection
IFP	Input fuse protection
SCP	Short circuit protection
OCP	Open circuit protection
CLP	Current limit protection

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		2.5mm² solid - 1.5mm² 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**

See SETUP & INSTALLATION point **2)**

SEE APPROPRIATE BUS SETUP DALI / DMX / MODBUS

L
230V

SWITCHING SUPPLY

Vout
+ −

DC IN 12/24/48 Vdc

IN	0V	DA	DA	DA	DA
INPUT		DALI IN		DALI OUT	

LED DRIVER/DIMMER
LQC1D-V1
IN: 12-48 V$_{DC}$
OUT: max. 8 A

etiampro
VELLEMAN NV
LEGEN HEIRWEG 33 • 9890 GAVERE,
BELGIUM • VELLEMAN.EU

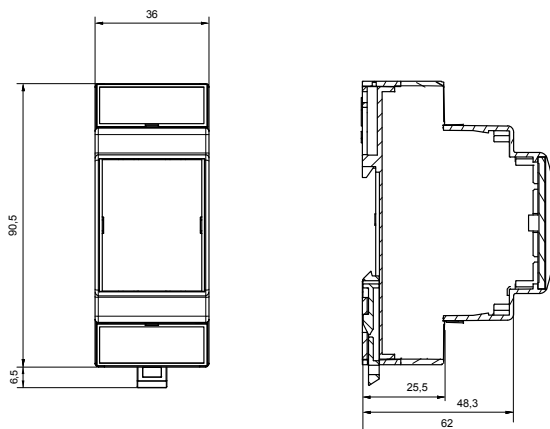| DC IN				OUT	
+	−	+	−	L+	L−

Opening the cover

For the Dip-switch and selectors configuration it is necessary to pull up the cover of the device. See the picture.
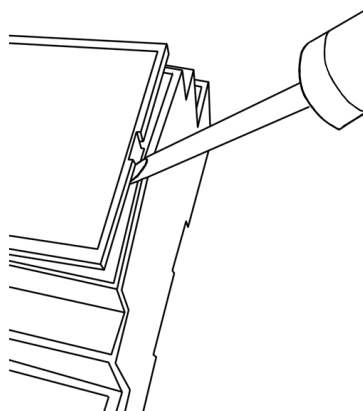
Mechanical dimension:
(without connectors)

36

90,5

6,5

25,5

48,3

62

LQC1D-V1 1 channel

LED DRIVERS

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		
Curve | Input | Hz *Note: Factory positions = all OFF*	● Switches from 1 to 2: **Curve** ● Switches from 3 to 4: **Input Type** ● Switches from 5 to 6: **Output Frame Rate (Freq.)**	

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	IN | 0V / IN	
	N.O. Pushbutton, MEMORY	IN | 0V / IN	
0-10V	Input Analogic 0-10V	0-10V + - / IN | 0V / IN	
1-10V	Input Analogic 1-10V & Potentiometer	1-10V + - / IN | 0V / IN 22KΩ / IN | 0V / IN	

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

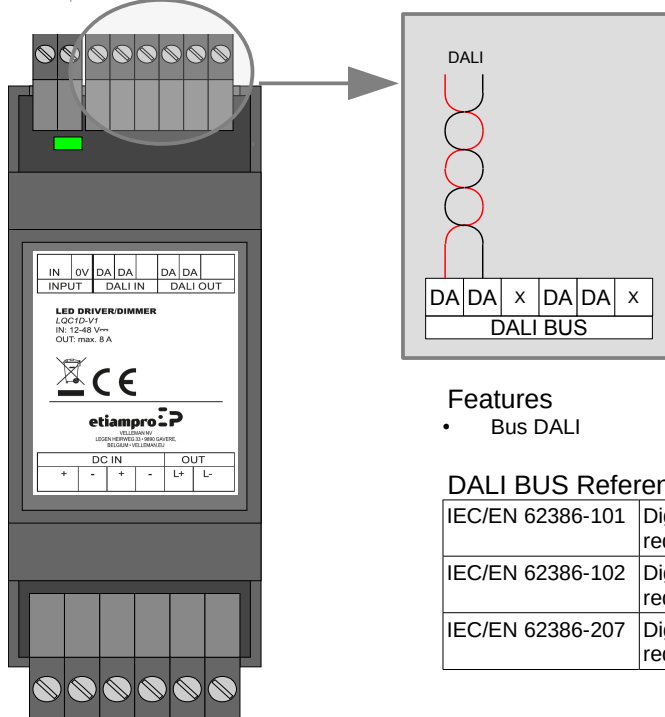Available Functions: 0-10V / 1-10V / potentiometer:

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 (**B**rightness Value) 0 .. 254

LQC1D-V1 1 channel   LED DRIVERS

etiampro IP

DALI COMMANDS

STANDARD COMMANDS	
DIRECT ARC POWER	✔
OFF	✔
UP	✔
DOWN	✔
STEP UP	✔
STEP DOWN	✔
RECALL MAX LEVEL	✔
RECALL MIN LEVEL	✔
STEP DOWN AND OFF	✔
ON AND STEP UP	✔
GOTO SCENE (0 to 15)	✔
RESET	✔
STORE ACTUAL LEVEL IN THE DTR	✔
STORE THE DTR AS MAX LEVEL	✔
STORE THE DTR AS MIN LEVEL	✔
STORE THE DTR AS SYSTEM FAILURE LEVEL	✔
STORE THE DTR AS POWER ON LEVEL	✔
STORE THE DTR AS FADE TIME	✔
STORE THE DTR AS FADE RATE	✔
STORE THE DTR AS SCENE (0 to 15)	✔
REMOVE FROM SCENE (0 to 15)	✔
ADD TO GROUP (0 to 15)	✔
REMOVE FROM GROUP (0 to 15)	✔
STORE DTR AS SHORT ADDRESS	✔
ENABLE WRITE MEMORY	✘
QUERY STATUS	✔
QUERY BALLAST	✔
QUERY LAMP FAILURE	✔
QUERY LAMP POWER ON	✔
QUERY LIMIT ERROR	✔
QUERY RESET STATE	✔
QUERY MISSING SHORT ADDRESS	✔
QUERY VERSION NUMBER	✔
QUERY CONTENT DTR	✔
QUERY DEVICE TYPE	✔
QUERY PHYSICAL MINIMUM LEVEL	✔
QUERY POWER FAILURE	✔
QUERY CONTENT DTR1	✔
QUERY CONTENT DTR2	✔
QUERY ACTUAL LEVEL	✔
QUERY MAX LEVEL	✔
QUERY MIN LEVEL	✔
QUERY POWER ON LEVEL	✔
QUERY SYSTEM FAILURE LEVEL	✔
QUERY FADE TIME / FADE RATE	✔
QUERY SCENE LEVEL (0 to 15)	✔
QUERY GROUPS 0-7	✔
QUERY GROUPS 8-15	✔
QUERY RANDOM ADDRESS H	✔
QUERY RANDOM ADDRESS M	✔
QUERY RANDOM ADDRESS L	✔
READ MEMORY LOCATION	✘
QUERY EXTENDED VERSION	✘

SPECIAL COMMANDS	
TERMINATE	✔
DATA TRANSFER REGISTER	✔
INITIALIZE	✔
RANDOMIZE	✔
COMPARE	✔
WITHDRAW	✔
SEARCHADDR H	✔
SEARCHADDR M	✔
SEARCHADDR L	✔
PROGRAM SHORT ADDRESS	✔
VERIFY SHORT ADDRESS	✔
QUERY SHORT ADDRESS	✔
PHYSICAL SELECTION	✘
ENABLE DEVICE TYPE	✘
DATA TRANSFER REGISTER 1	✔
DATA TRANSFER REGISTER 2	✔
WRITE MEMORY LOCATION	✘