EUMA0405

Phase Cut & 0-10V Dimming Controller

User Manual

March, 2016

SHANGHAI EUCHIPS INDUSTRIAL CO.,LTD

- Please read this manual carefully before using products
- Please keep the product instructions for inspection

Catalog

1 Summary

Thanks for using the EUMA0405 phase cut controller. The product adopts advanced MOS-FET control technology, can accurately realize the phase cut function, and has no requirement for the type or capacity of load. The compatibility is far superior to leading edge controller.

Control mode of EUMA0405 is flexible, which complies with 4 control protocols:

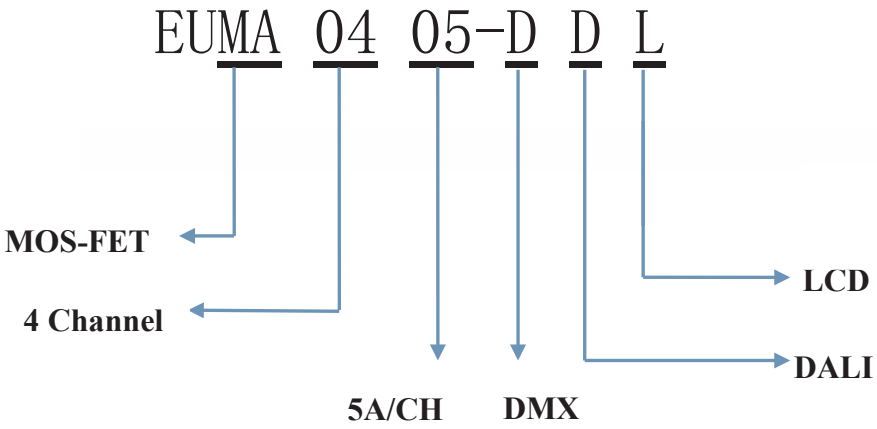
1, support the international widely adopted DMX-512 (1990) /RDM and DALI standard protocol, and can access KNX, Dynalite, Lutron, Crestron, LDS and other intelligent dimming network via gateway.

2, support EU-BUS lighting control protocol developed by EUCHIP. It can be used with relay switch controller, clock module, panel module, sensor module to achieve the group and scene control through the Euchips9 PC software. This solution is widely used in the family, conference rooms, hotels, schools, and other occasions.

3, support Touchdim, manual control, timing control function (optional).The user can manually turn ON/OFF or dim the brightness.

1.1 Ordering Information

Model	DALI	DMX/RDM	EU-BUS	Manual control	Timer function
EUMA0405-DDL	Y	Y	Y	Y	N



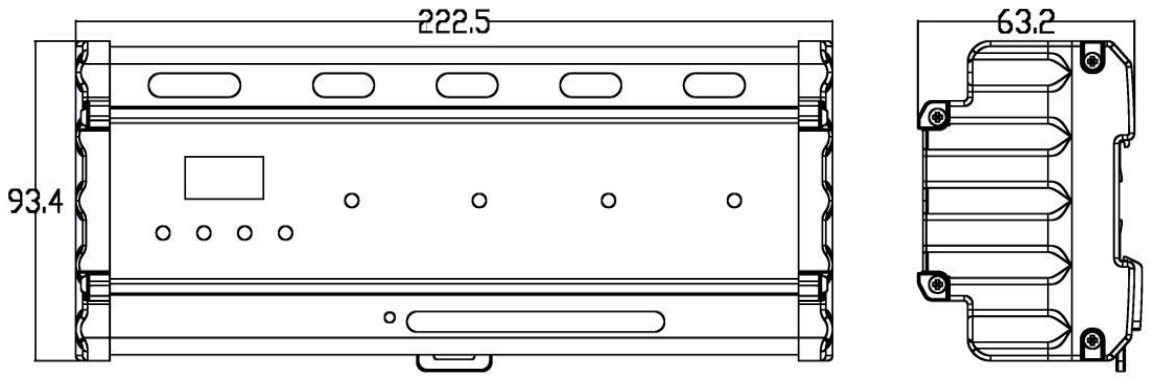
2 Product Features

- Meets DMX512(1990)/RDM, DALI IEC62386 protocol and EU-BUS protocol developed by EUCHIPS
- Output 4 channels AC MOSFET phase cut signal and their synchronous DC 0-10V control signal
- 4 AC MOSFET can work as leading edge (LPC) mode, trailing edge(TPC) mode or switch mode
- Maximum output current of AC MOSFET is 5A/ch
- Built-in LCD, the user can operate more conveniently
- Set fades time of each channel separately, range of 0.1-10s
- Each circuit is equipped with emergency switch that control full brightness (100%) output function
- Can save up to 8 events
- Standard 35 mm din rail, convenient installation

3 Technical Parameters

Item	Parameters
Input voltage	100-240VAC
Input control signal	DMX512(1990)/RDM，DALI IEC62386,EU-BUS
Maximum output current of phase cut	5A*4(AC MOSFET, please take 5A*PF as output current limit for each circuit)
Maximum output signal current	20mA*4(for DC0-10V)
Maximum inrush current limit per channel	100A
Equipment size	222.5*93.4*63.2mm(L*W*H),standard 35mm din rail
Packing size	226*100*68mm(L*W*H)
G.W.	975g
Operational temperature	-20-50℃

3.1 Equipment size (mm)



4 Function Show of the product

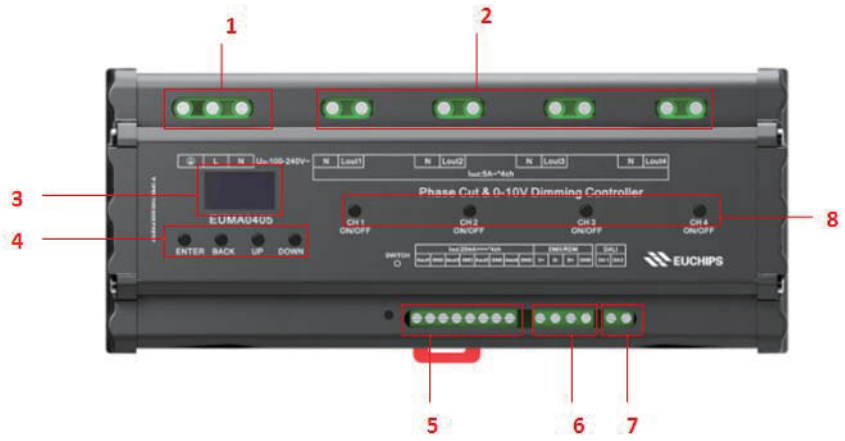


Figure 1

1	AC input port
2	4 AC MOSFET output ports, corresponding with 4 DC 0-10 V ports of 5 from left to right in proper order. For each channel, and the addresses of both AC MOSFET and the corresponding 0-10V are shared.
3	LCD display
4	Function button
5	4 DC analog voltage output ports(0-10V)
6	DMX 512/RDM,EU-BUS signal port(Don't use DMX 512/RDM and EU-BUS protocol simultaneously, they share the same terminals)
7	DALI signal port
8	Emergency switch

5 LCD function

After a successful connection, the menu will be seen in Figure 2. Press the button "ENTER" to enter the sub menu as shown in Figure 3, press "BACK" to return to the upper menu, press "UP" or "DOWN" button to move the cursor up or down.

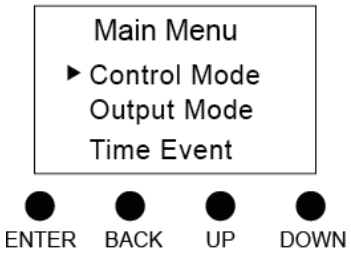


Figure 2

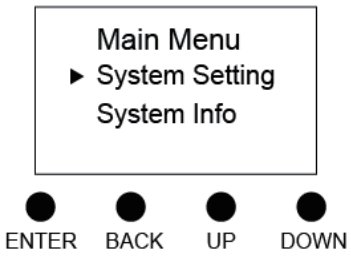
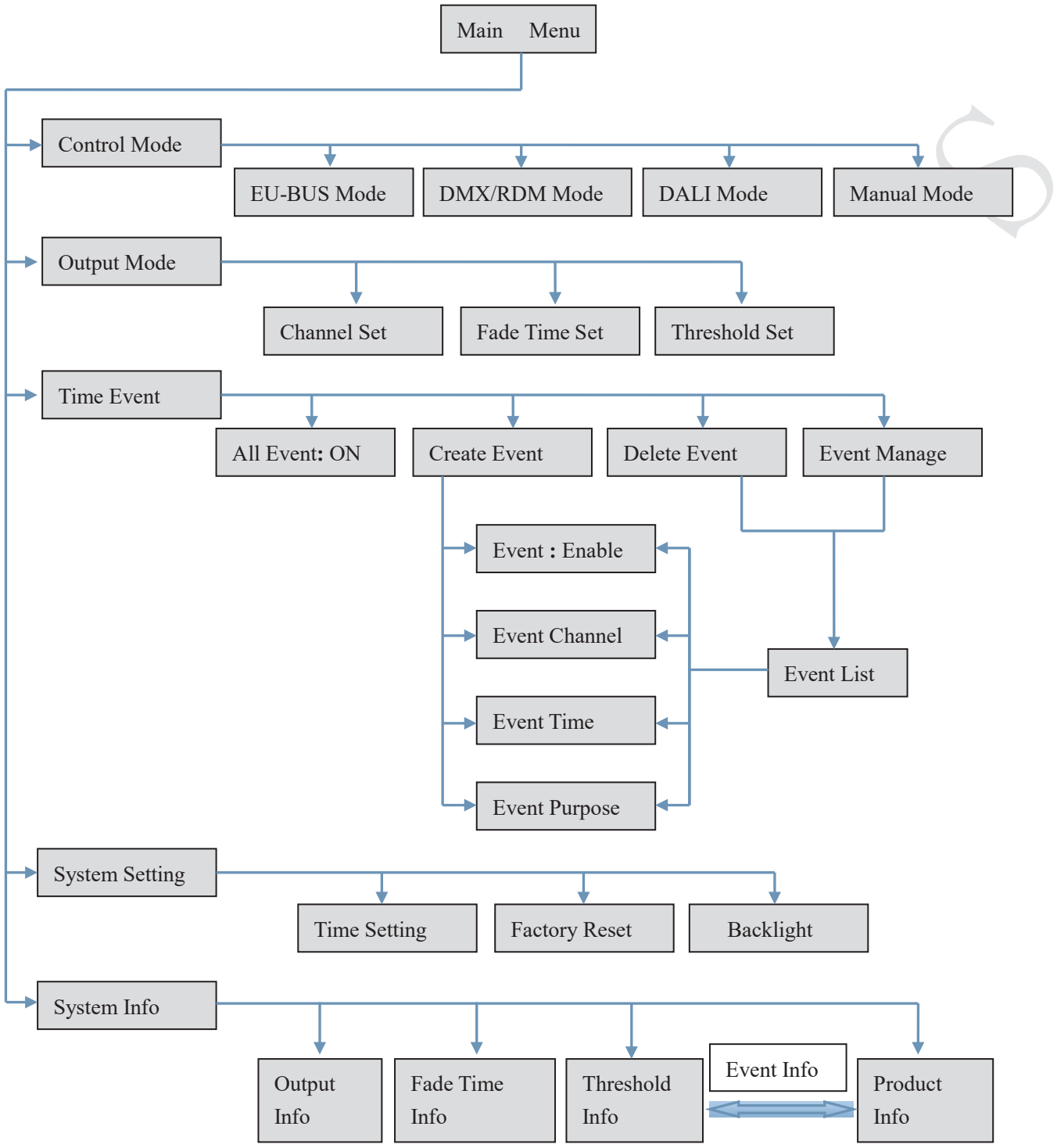


Figure 3

Button	Function
ENTER	Confirm key, confirm the selected state, enter the option to set the state
BACK	Return key, return to the upper menu, exit the option to set the state
UP	Move up the cursor; change the status of the option
DOWN	Move down the cursor; change the status of the option


Main Menu
Control Mode
EU-BUS Mode
DMX/RDM Mode
DALI Mode
Manual Mode
Output Mode
Channel Set
Fade Time Set
Threshold Set
Time Event
All Event: ON
Create Event
Delete Event
Event Manage
Event : Enable
Event Channel
Event Time
Event Purpose
Event List
System Setting
Time Setting
Factory Reset
Backlight
System Info
Output Info
Fade Time Info
Threshold Info
Event Info
Product Info

5.1 Control Mode

5.1.1 EU-BUS mode

In the current mode, the output signal is controlled by EU-BUS command, the host computer can scan equipment, assign the box number, read parameters, update the firmware of equipment, achieve group and scene control . The device can operate according to the instruction of the upper computer.

Select the EU-BUS mode, press the “ENTER” can view the device model, the box number, serial number (GUID), press “BACK” to return to the upper menu.

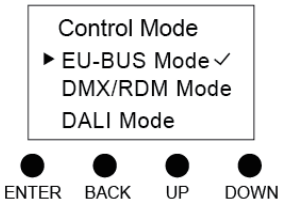


Figure 4

5.1.2 DMX /RDMmode

In the current mode, the output signal is controlled by DMX. Press” ENTER”， then set DMX address for each channel . The X value can be set from 1 to 511. The addresses of 4 channels can be continuous or discontinuous, such as 1, 2, 3, 4, or 1, 5, 8, 9. That is to say, the addresses of the 4 channels are independent, but for any channel，the addresses of AC MOSFET phase cut channel and the corresponding 0-10V DC channel are the same. In addition, the addresses of 4 channels can be the same, so that they can be controlled simultaneously.

When using RDM(2009), the upper computer can scan the device, and assign the address, read the parameters.

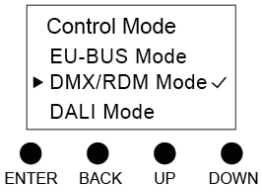


Figure 5

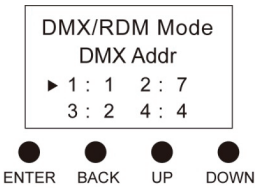


Figure 6

5.1.3 DALI mode

The output signal is controlled by the DALI command in this mode. The address of the DALI mode is defined by the system itself and can be modified by the host computer. The addresses of 4 circuits are independent of each other, but the address of AC MOSFET for each circuit is the same as the corresponding 0-10V DC channel.

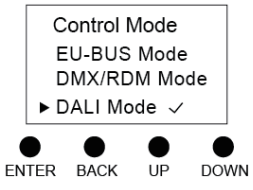


Figure 7

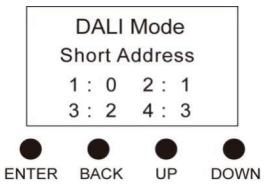


Figure 8

5.1.4 Manual mode

In the current mode, the output brightness level of 4 channels can be manually set via the button and LCD. The X is brightness of each channel, range of 0-100%.

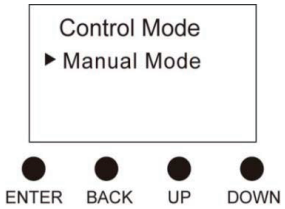


Figure 9

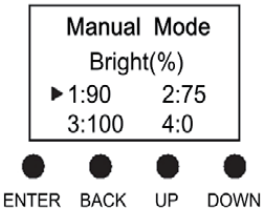


Figure 10

5.2Output mode

5.2.1Channel Set

In the current mode, each channel supports three functions:

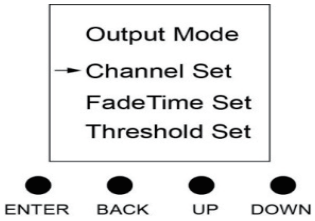


Figure 11

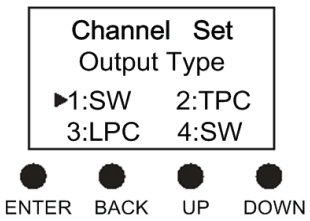


Figure 12

a） Switch : Switch mode, as the power switch, but is invalid for 0-10V signal

b） LPC: To dim leading edge drivers or devices

C） TPC: To dim trailing edge drivers or devices

5.2.2 FadeTime Set

In the current mode, you set fade time for each channel. The range is 0-100 (unit:0.1s).

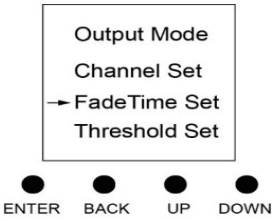


Figure 13

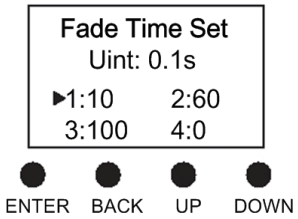


Figure 14

5.2.3Threshold Set

In the current mode, you can set the switch threshold for each AC MOSFET channel. The corresponding channel of phase cut will switch on output, if received the brightness value ≥ threshold set value. The X value range is 0-100%.

Note For 0-10V channel，this function is invalid.

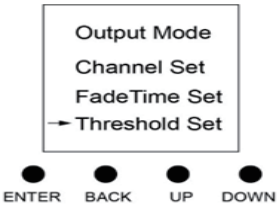


Figure 15

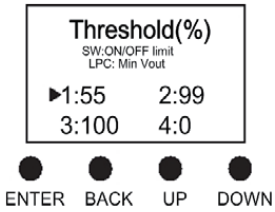


Figure 16

5.3 System Setting

After entering the system settings, you can set the current time, turn on or off the backlight and restore the factory settings.

5.3.1Factory Reset

Press ENTER to choose whether to reset factory settings.

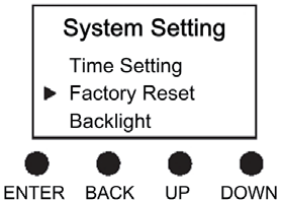


Figure 34

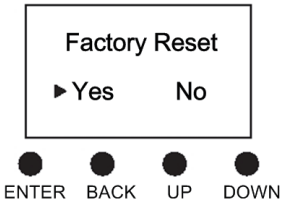


Figure 35

When the backlight is set to "ON",the display unattended operation over 60s, LCD will show “EUMA0405”. After 60s, LCD will automatically enter the sleep mode, press any key to end the sleep mode, enter the setting state.

5.3.2 Backlight EUMA0405-DDL:

When the backlight is set to "ON", the display unattended operation over 60s, LCD will enter clock mode， show the current time and date. After 60s, LCD will automatically enter the sleep mode, press any key to end the sleep mode, enter the setting state.

When the backlight is set to "OFF", the display will remain the current setting state.

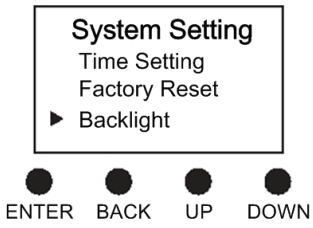


Figure 36

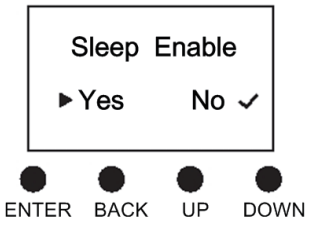


Figure37

5.4System Info

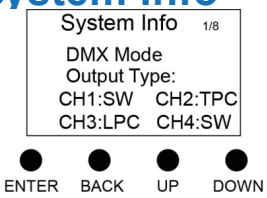


Figure 38

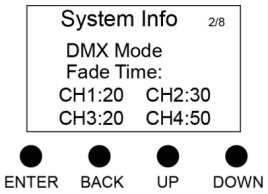


Figure 39

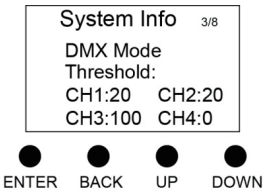


Figure 40

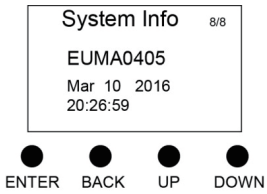


Figure 41

In this menu, the current system information can be displayed, which is shown as follows:

Page 1: control mode and output type
Page 2: control mode and fade time
Page 3: control mode and threshold
Others except the last page: event status and event content
Last page: product model and the current time

6 Emergency Switch Function

4 channel output, each channel corresponds to a button. If the channel has output, press the button to switch off the 0-10V channel and the corresponding phase cut channel output. If the channel doesn’t have output, press the button to switch on the 0-10V and the phase cut channel output.

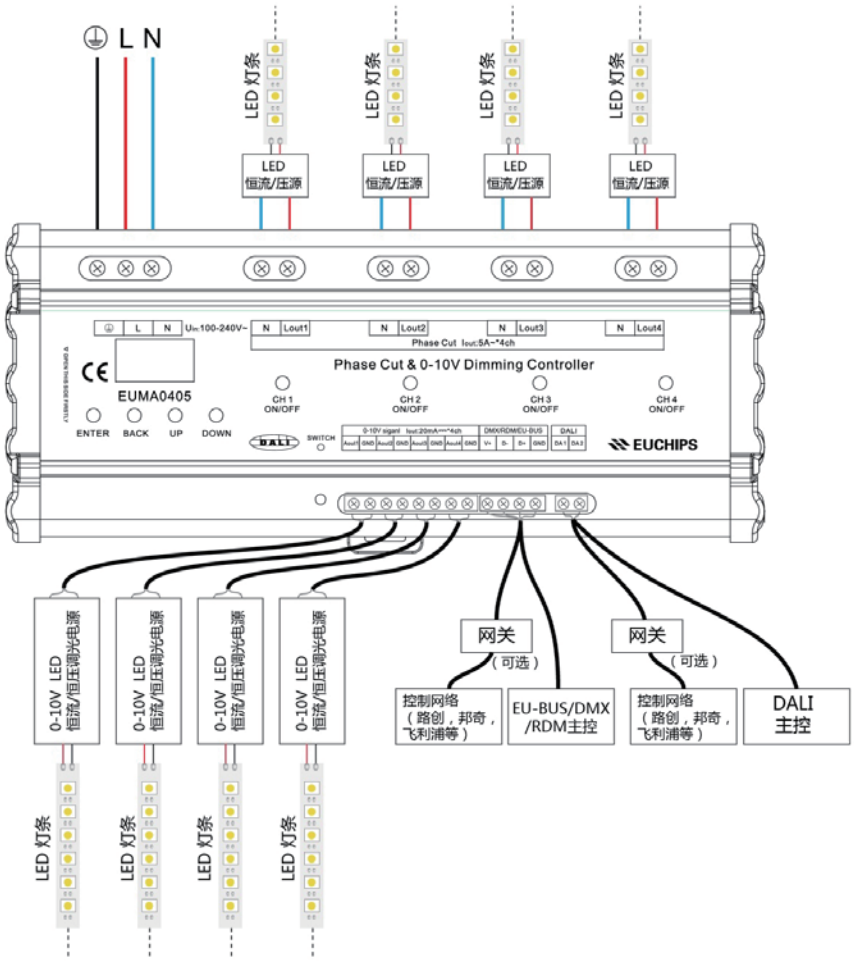
7 Wiring Diagram

EUMA0405 dimming module signal port can be connected to EU-BUS network, DMX512/RDM or DALI master, and also can be access to Dynalite system via the Dynalite gateway. This device outputs 4 DC0-10V signal and 4 AC phase cut signal. EUMA0405 device can drive 4 channel DC0-10V dimming power supply and 4 channel phase cut dimming power supply at most.

The maximum current of each channel of 0-10V is 20mA, the maximum number of 0-10V dimming power which can be connected to each channel is determined by signal interface current consumption.

The maximum number of the phase cut dimming power supplies which can be connected to each channel is determined by watts and PF, such as, the power factor of the filament lamp is 1, the max load of each channel is 5*220V*1=1100 watts, but at present, the LED lamp is widely used, the PF of led dimmable lamps and dimmable drivers is low, it is recommended that the power of each channel is not more than 800 watts. When the impact

current of phase cut dimmable lamps or drivers is more than 100A,the device may protect themselves and can not start (Impact protection function is provided to avoid broken),the fault information will be shown at LCD. In this situation, please set longer fade time to restart the device slowly.



EUMA0405 系列

可编程切相&0-10V 调光控制器

使用说明书

2016 年 3 月版

上海欧切斯实业有限公司

●使用前请仔细阅读本产品说明书
●请妥善保管本产品说明书，以备查阅

目录

1 概述

欢迎使用 EUMA0405 切相负载控制器。该系列产品采用先进的 MOS-FET 控制技术，可以精确的实现切相功能，对负载维持电流、负载大小、类型无要求，兼容性远优于可控硅前沿控制器。

控制器控制方式灵活，支持多种控制协议：

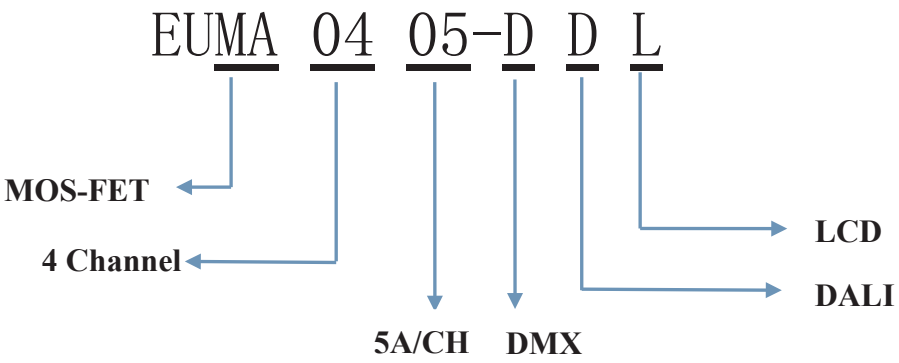
1，支持国际上广泛采用的 DMX-512（1990）/RDM 和 DALI 标准协议，可以通过 DALI、DMX/RDM 网关接入 KNX、Dynalite、Lutron、Crestron、LDS 等智能调光网络。

2，支持我公司自主研发的 EU-BUS 灯光控制协议，可以与我公司的继电器负载模块、时钟模块、面板模块、传感器模块组成控制系统，通过 Euchips9 上位机软件可以实现分组、场景控制，可广泛适用于家庭、会议室、酒店、学校等场合。

3，支持手动控制、Touchdim、定时控制功能（可选），单机可以手动实现开关、调光功能，也可以采用定时方式实现开关、调光功能。

1.1 订购信息

型号	DALI	DMX/RDM	EU-BUS	手动控制
EUMA0405-DDL	支持	支持	支持	支持



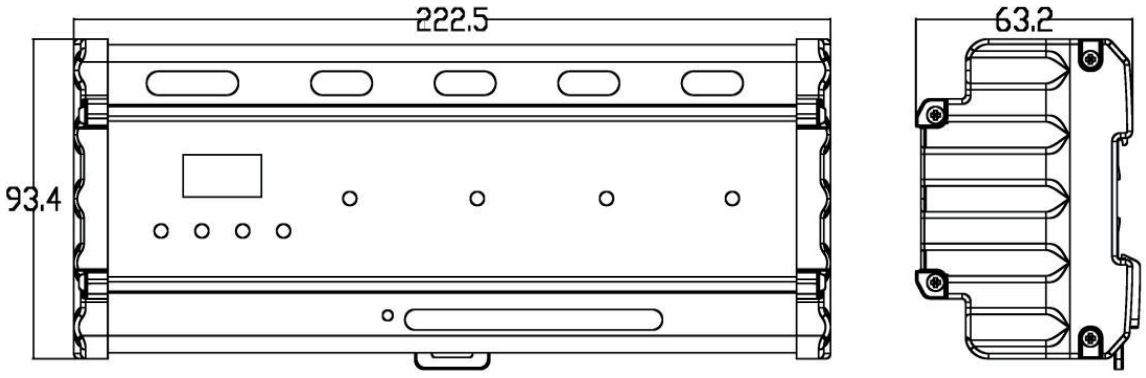
2 产品特点

- 符合 DMX512（1990）/RDM，DALI　IEC62386 国际标准协议和欧切斯自主研发的 EU-BUS 协议
- 输出 4 路切相信号及其同步的 DC 0-10V 控制信号
- 切相输出可以选择工作在前沿切相、后沿切相或开关模式
- 切相输出最大承载电流为每通道 5A
- 内置 OLED 液晶显示，用户操作更加便捷
- 可单独设定每回路的淡入淡出时间，设置范围为 0.1-10S
- 每个回路设有应急开关，可以开启/关闭本回路的全亮度（100%）输出功能
- 系统最多可以保存 8 个事件
- 标准 35mm 导轨外壳，方便安装

3 技术参数

名称	参数
输入电压	100-240VAC
输入控制信号	DMX512(1990)/RDM、DALI（IEC62386）、EU-BUS
输出回路最大承载电流	5A*4 路（AC MOSFET 回路，使用时请乘以功率因素作为最大承载电流的限值）
输出信号最大承载电流	20mA*4 路,（DC 0-10V 回路）
每通道最大冲击电流限值	100A
设备尺寸	222.5*93.4*63.2mm,标准 35mm 导轨安装
包装尺寸	226*100*68mm
毛重量	975g
工作温度	-20℃ - 50℃

3.1 产品尺寸(mm)



4 接口介绍

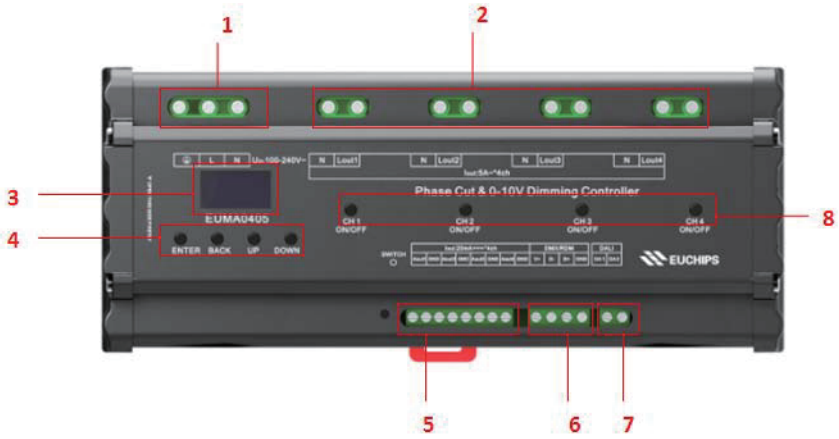


图 1

1	交流电源输入端子	5	4 路 DC 模拟电压输出端子（0-10V），和 2 中的 4 路 AC MOSFET 通道按从左到右顺序一一对应，相对的为一路，共用一个地址。
2	4 路 AC MOSFET 输出端子，和 5 中的 4 路 DC 0-10V 通道按从左到右顺序对应，相对的为一路，共用一个地址。	6	DMX512/RDM, EU-BUS 信号端口（DM512/RDM 和 EU-BUS 使用相同的接线端子，不能同时使用）
3	LCD 显示屏	7	DALI 信号输入输出端子
4	功能按键	8	4 路应急开关

5 LCD 主界面介绍

设备成功连接以后，将会看到如图 2 所示的菜单主界面。LCD 下方按钮按”ENTER”键可以确定进入子菜单如图 3， 按“BACK”返回上一级菜单，按“UP”和“DOWN”键可以上下移动。

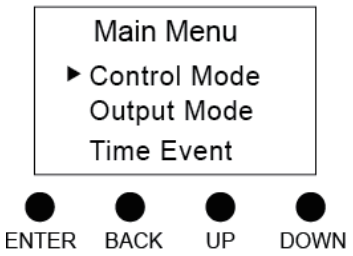


图 2

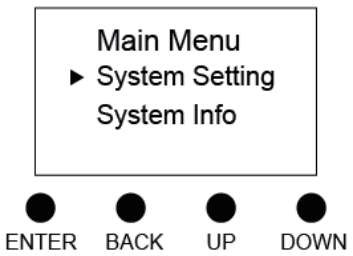
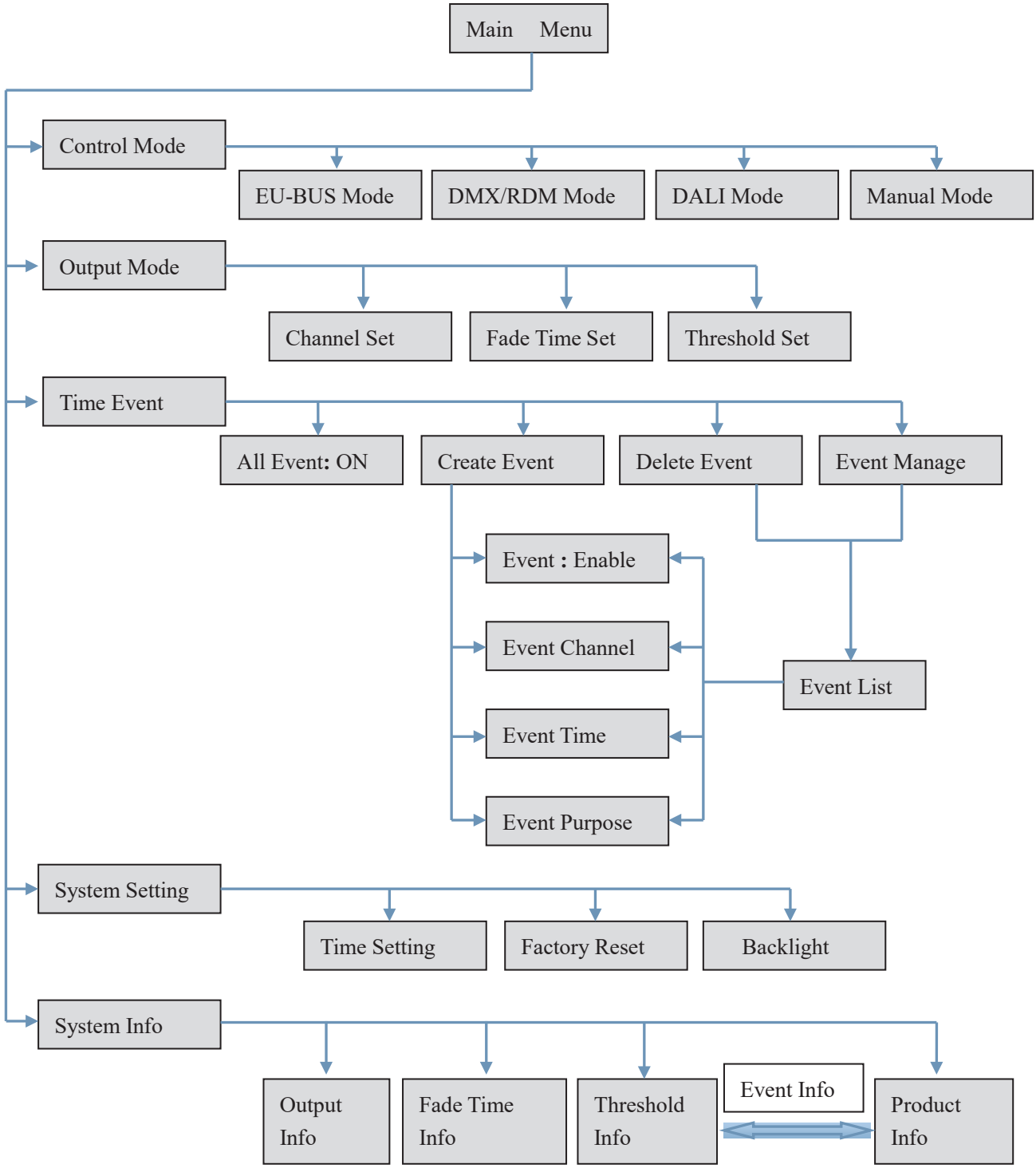


图 3

按键名称	功能
ENTER	确定键，选中光标所在选项，进入该选项
BACK	返回键，返回上级菜单；退出该选项
UP	向上移动光标，改变选项状态；在设置 Threshold，DMX Address，Fade time 时，长按“UP”，设置值将迅速增加
DOWN	向下移动光标，改变选项状态；在设置 Threshold，DMX Address，Fade time 时，长按“DOWN”，设置值将迅速减小



5.1 Control Mode(控制模式)

5.1.1 EU-BUS Mode（EU-BUS 模式）

在当前模式下，可编程设备受 EU-BUS 命令控制，可以通过 EU-BUS 上位机软件实现设备扫描、地址分配、设备参数读取、设备分组、场景设置等一系列逻辑控制。

选中 EU-BUS 模式后，按“ENTER”可以查看设备代码，箱号和序列号，按“BACK”返回上级菜单。

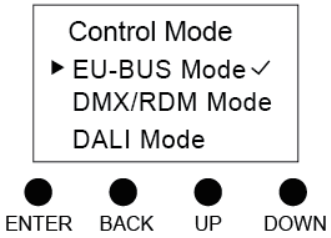


图 4

5.1.2 DMX/RDM Mode（DMX/RDM 模式）

在当前模式下，设备受 DMX/RDM 信号控制。使用 DMX512(1990)协议时，按下 ENTER 可以独立的设置每个设备通道的 DMX 地址，可设置的范围为 1-511(如图 6)。但每个切相输出通道和跟它对应的 DC 0-10V 通道地址是相同的。设备通道地址可以设置成相同地址，这样通过对应的 DMX 主控实现分组控制。另外设备还兼容 RDM(2009)协议，可已通过 RDM 上位机软件方便的修改各个设备的 DMX 地址。

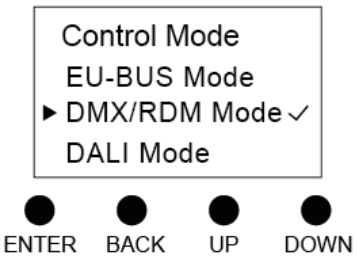


图 5

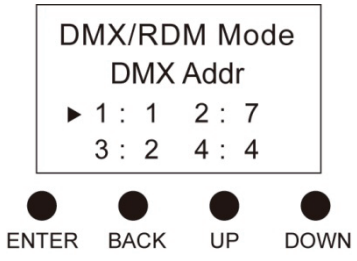


图 6

5.1.3 DALI Mode（DALI 模式、Touchdim 模式）

在当前模式下，设备受 DALI 信号控制，按下“ENTER”键进入 DALI 模式界面（如图 7），在此界面下可以方便的读取每个设备通道的 DALI 短地址，设备通道在未分配任何地址时显示“--”。
类似的，设备的每个切相输出通道和 DC 0-10V 通道是一一对应的。

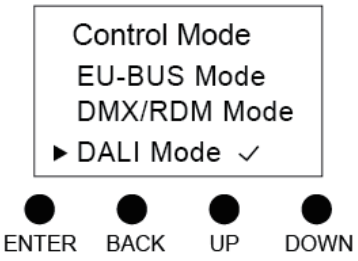


图 7

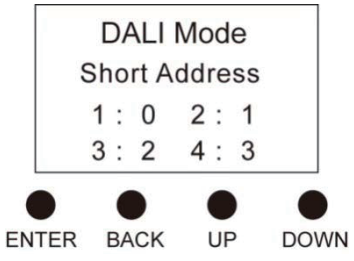


图 8

5.1.4 Manual Mode（手动模式）

在当前模式下，4 路照明输出亮度等级可以通过按键和 LCD 手动设置，每个通道亮度等级 x 设置范围为 0-100%。

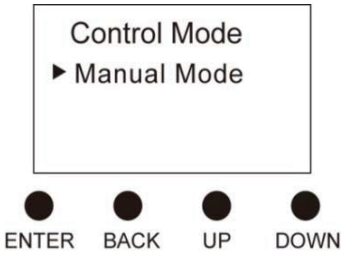


图 9

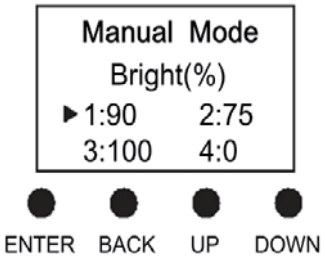


图 10

5.2 Output Mode(输出模式)

5.2.1 Channel Set(通道设置)

在当前模式下，每个通道都有三种功能可以设置

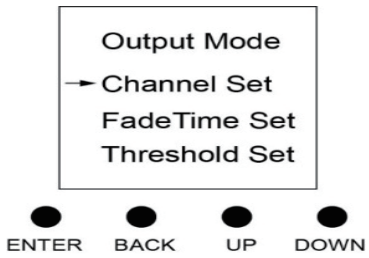


图 11

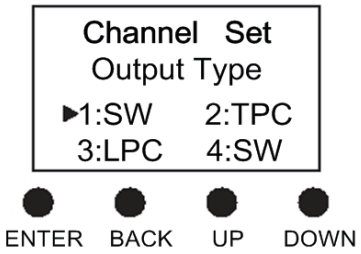


图 12

a) Switch ：开关模式，作为强电的开关模块,对 0-10V 信号无效。
b) LPC：对应前沿切相（Leading edge）功能。
c) TPC：对应后沿切相(Trailing edge)功能。

5.2.2 Fade Time Set(Fade Time 设置)

在当前模式下，每个通道都可以设置淡入淡出的时间，设置数字范围为 0-100，单位 100ms。

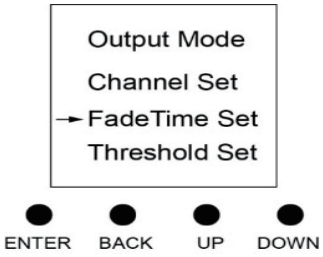


图 13

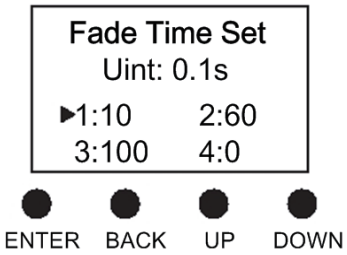


图 14

5.2.3 Threshold Set(阈值设置)

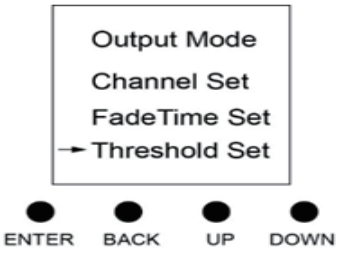


图 15

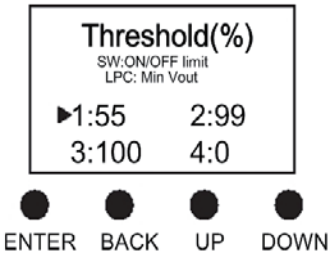


图 16

在当前模式下，每个通道都可以设置开关门限，当前接收到的亮度值≥开关门限，则打开输出，否则关闭输出。亮度等级门限值的设置范围为 0-100%.

注：此功能对于 0-10V 信号无效。

5.3.1 Factory Reset（出厂复位）

按“ENTER”进去后，选择是否恢复出厂设置。
恢复出厂设置后，设备恢复到出厂初始状态。

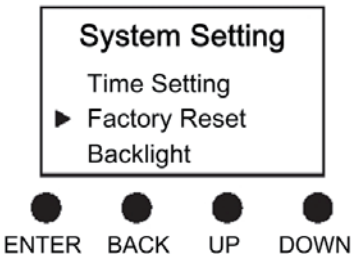


图 34

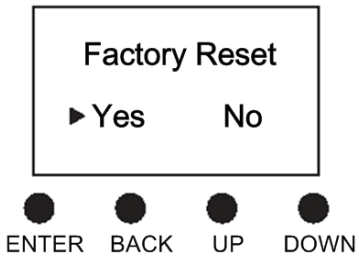


图 35

5.3.2 Backlight（背光灯）

EUMA0405-DDL:

当背光灯设置为“ON”时，60s 内不对显示屏进行操作，LCD 将显示“EUMA0405”。再过 60s 后，系统将自动进入睡眠模式，按任意键结束睡眠模式，进入设置状态。

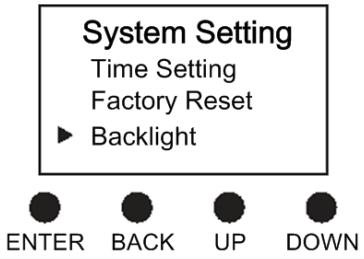


图 36

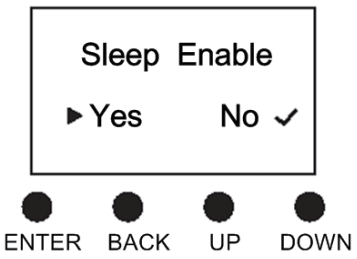


图 37

5. 4 System Info（系统信息）

在该菜单下，LCD 显示了设备当前的系统信息，包括控制模式，每一通道的输出类型，淡入淡出时间，开关门限值，所有事件信息，产品型号和当前时间。

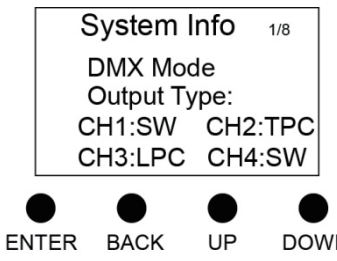


图 38

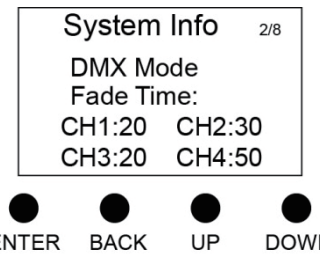


图 39

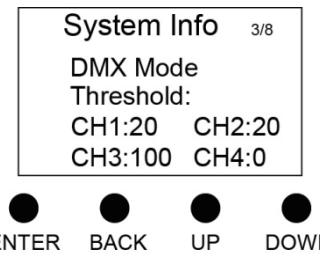


图 40

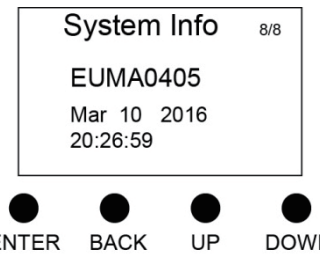


图 41

第 1 页	控制模式和各通道输出类型
第 2 页	控制模式和各通道淡入淡出时间
第 3 页	控制模式和各通道开关门限值
第 4 页-倒数第 2 页	事件状态及事件内容
最后 1 页	产品型号及当前时间

6 应急开关功能

4 通道输出，每通道对应一个按键，当按键按下去，如果当前系统任意通道有输出，则 0-10V 通道和切相输出通道关闭。如果当前系统已经是所有通道关闭状态，此时按键则使得 0-10V 和切相所有通道输出 100%亮度。

7 应用连接图

EUMA0405 调光模块信号输入可以接，DMX512/RDM，DALI 主控设备或接入 EU-BUS 网络，也可以通过网关接入 Dynalite，邦奇，路创等系统(注：Dynalite 商标持有人是飞利浦公司，相关权益由商标持有人拥有，下同)。此设备输出 4 路 0-10V 信号和 4 路交流切相信号。每个 EUMA0405 设备最多可接 4 回路 0-10V 调光电源和 4 回路切相调光电源。

此设备每路 DC 0-10V 输出 20mA 的电流，每回路所接 0-10V 调光电源的最大数量由其调光信号接口消耗电流决定。

每回路所接切相调光电源的最大数量要考虑到调光电源功率因素的影响，如接功率因素为 1 的白炽灯，每回路可以到 5*220V*1=1100W，但是目前普遍使用的都是 LED 灯具，LED 切相调光电源的功率因素普遍较低，建议每回路接入的切相调光电源不超过 800W。部分切相调光电源的冲击电流过大，当检测到冲击电流＞100A 时，设备会自我保护而无法启动（我们做了冲击保护,一般情况下不会损坏），LCD 显示过流故障，需重新上电才能恢复。用户 可以将 Fade time 设置较长时间以让切相调光电源缓慢上电。