

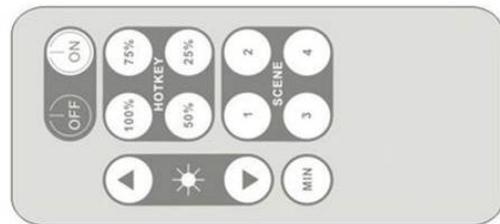
## MULTI WISE DIMMER1.0

- BLUETOOTH INTERFACE TO DALI, DSI AND 0-10V(1-10V).  
WINDOWS SOFTWARE FOR MASTER CONFIG AND CONTROL  
ANDROID SOFTWARE TO PLAY LIGHTING WITH PHONE OR PAD
- DALI INTERFACE TO DSI, 0-10V
- DSI INTERFACE TO 0-10V.
- STYLE 86 WALL DIMMER OF DALI, DSI AND 0-10V.
- INFRARED REMOTE CONTROL OF DALI, DSI AND 0-10V.
- INSIDE POWER SOURCE CIRCUIT CAN POWER DALI DSI LINE IN MASTER MODE.
- A RELAY INSIDE WORK TOGETHER WITH 0-10V.



### BLUETOOTH

This device enable bluetooth 2.0 Supported device such as desktop, Portable and pocket PC, intelligent Mobile phone( Windows, Android etc.) communicate to DALI, DSI and 0-10V line in 10 meters distance wirelessly. People can easy to address the DALI ballasts, set the parameters of DALI ballasts, control DALI, DSI and 0-10v lightings through this device.



The DSI 0-10V function will take one of DALI short address. It can be addressed , parameters set ,inquired and controled similar to a DALI ballast. When connected to DALI network as a slave unit, the DSI 0-10v function can be controled by commands from both bluetooth(computer phone etc.) and DALI line (from other controller,gateway etc.).

When connected to DSI network as a slave unit, the 0-10v function can be controled by commands from both bluetooth and DSI line .

### DALI

DALI function work in two mode:

1. **Slave mode** in default, it will listen commands from DALI line. Dim

commands will effect signal in **DSI output** port and voltage level on **0-10V** port,and it will reply to DALI line like a common DALI ballast if inquire commands received.

2. **Master mode** , when received message from bluetooth it will turn to master mode, transfer DALI control commands to DALI line and listen reply from DALI line and return message to bluetooth. It will turn back to slave mode automatically in one second not received new commands from bluetooth.

## **DSI**

**DSI input (slave mode)** share the port with DALI. DSI commands received will effect voltage level on **0-10V** port. when work at slave mode, the device can recognize DALI and DSI commands automatically.

**DSI output(master mode)** use independent port. it will output signal voltage near 15V. (NOTE there must be only one master in DSI line, and the DSI line do not need any extra power! )

## **0-10V**

The voltage of **0-10V**(or called 1-10V) port can be controled by commands from bluetooth, DALI or DSI. There is a relay inside the device work together with 0-10V. When brightness level >0 , relay will turn on,and the port **K** will conducted with port **L**, when brightness level=0, the relay will turn off,port **K** will break with port **L** , this function can be used to shut off power completely when need lamp off.

0-10V MAX SINK CURRENT: 50MA

## **WALL DIMMER**

Function:

Clockwise: level up.

Anti clockwise: level down

Short press: MAX

Long press: OFF

Actions from wall dimmer will effect both DALI DSI and 0-10V.

## **INFRARED REMOTE CONTROL**

Function: ON(MAX), OFF,MIN, UP,DOWN, 4 levels and 4 scenes.

Actions from remote controller will effect both DALI DSI and 0-10V.

## **POWER**

There are two options of power supply, only choose one.

1. use high quality well isolated and low wrinkle DC 15V or 16V external power source connect to port **15-16V+** and **15-16V-**, only choose this way when need certification.

2. AC100-250V directly connect to port **L** and **N**, there is a small power transformer inside the device can get power source of DC15-16V.

0-10V line is conducted with DC source(15-16V) inside.

DALI line is isolated to power supply in default. But if use the power supply of this device as power source of DALI line(usually in master mode), it will conducted to the DC source(15-16V) inside.

DALI line can be powered by power supply(15-16V) of this device with max current of 150ma by following steps:

1. open plastic cover.
2. solder conducted wires between two pairs of pads in parallel at the location of DALI power source of PCB.



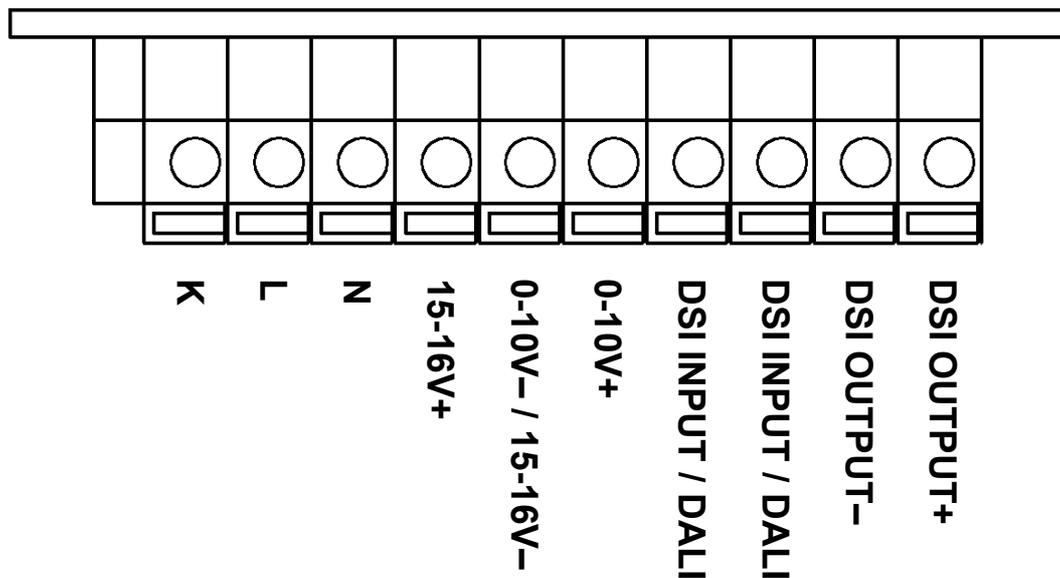
( connect between 1,2 and connect between 3,4 as above to power DALI line from DC15-16V source)

Note: DALI line can only have one power source, and usually powered from master device. Directly connect transformer to DALI line is absolutely not allowed.

Note: when the **DALI** port used as **DSI input** port(slave mode), this port should not be powered by power source of this device. Power of DSI line is job of DSI master only .

**DSI output** port is always powered by DC source(15-16V) inside, as it work in master mode always. This port should not connect together with other DSI master in the line.(one DSI line only need one master)

#### PORT DEFINITION OF WIRE CONNECTOR:



#### OTHER

LED indicator light meaning:

Green: bluetooth communication status

Red: DALI line and other communication status

**Software with bluetooth** communication(ONLY DEMO):

WinXP edition: <http://www.samluo.com/download/dali.zip>

Android edition: <http://www.samluo.com/DALIandroid.zip>

#### Progress of using control software in windows XP:

1. plug in a USB bluetooth dogle ( bluetooth 2.0 or above edition) to computer (desktop or notebook PC), the windows will install driver automatically.

2. power on the device, open XP menu start->setting->control panel -> bluetooth device, click button "add" and search bluetooth devices, choose the device named "DALI" and type password "1234", there will be two COM port built by XP, delete the input direction COM, only keep output one.

3. open DALI software, if it not remind "device not connected", that means the software can communicate with device. There are three software : address.exe

set.exe and client.exe. address.exe can directly program a short address of DALI device; set.exe can config and inquire parameters of DALI units, and make lamp list & scene list needed and give name of them. Client.exe is the control panel of lamps, which is most often to use. We make 3 software separately for the purpose of reduce misuse, as the address and config operation may bring serious problem to the DALI system if not skillful. Once you have addressed and configed of lamps, you only need client.exe in daily use.

**Example of build a DALI system:**

Target: There are 4 DALI lamps need to be installed in bedroom and hall, each room with one wall lamp and one ceiling lamp.

Progress:

1. connect the device to each lamp respectively through DALI line, use address.exe to give a short address of them. such as ,  
bedroom wall lamp 0,  
bedroom ceiling name 1,  
hall wall lamp 2,  
hall ceiling lamp3
2. connect all lamps in dali line, open set.exe, click button " load data lists from file" if you have configed before. click the long list in the bottom of software, you will see "A0", "G 0,1,2...." S 0,1,2...."etc under item "light" . The A means all lamps, G means group , and S means single lamp unit.

Select A0 under item "light" in the bottom long list, checked the checkbox of "add to userpanel" in area "Setting lights userlist", you will see "YES" under item of "ADD" in the bottom long list. Also you can type a name in "description of light" and click button "set description" then you can see name changed under item "description" in bottom list.

Same as above,

select G0, set ADD=YES and description="bed room"

select G1, set ADD=YES and description="hall"

select S0, set ADD=YES and description="bed wall"

select S1, set ADD=YES and description="bed ceiling"

select S2, set ADD=YES and description="hall wall"

select S3, set ADD=YES and description="hall ceiling"

Now we enable two scenes:

Goto area "setting scene userlist", click the list

select scene 0, checked the checkbox to add , and set description"Sleep"

select scene 1, checked the checkbox to add , and set description"Watch TV"

following we need to config paramters of group and scene 0 , 1 of each lamp.

Select S0, you will see scences and groups available to edit. As the lamp 0 installed in bedroom(G0:group 0), so we checked group 0, and unchecked other groups. Type your wanted brightness level of wall lamp in bedroom when you sleep to scene 0, and Type your wanted brightness level of wall lamp in bedroom when you watch TV to scene 1.

Click button “save in list”, and click button “update single ballast”, and wait the setting progress finished. You can click button “load from ballast” to see if parameters set successfully.

Same as above,

Select S1, checked group 0 and set sleep & TV level in scene 0, 1, update.

Select S2, checked group 1 and set sleep & TV level in scene 0, 1, update.

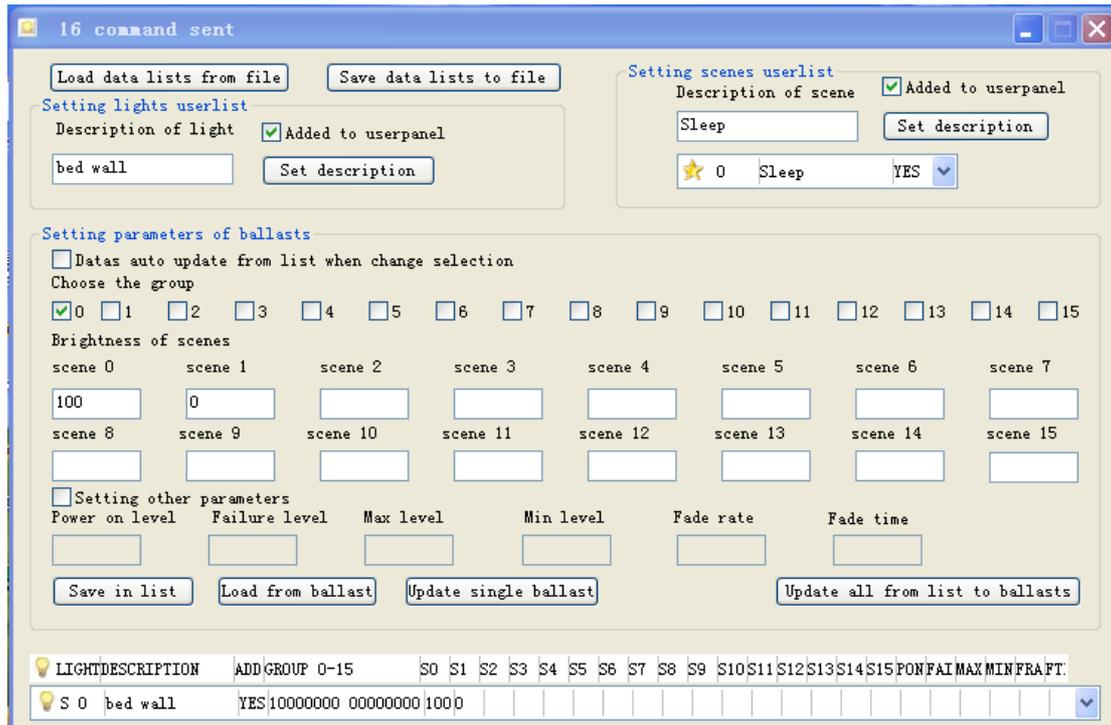
Select S3, checked group 1 and set sleep & TV level in scene 0, 1, update.

After we finish the setting, we need to click button “save data list to file” to save the setting in file config.dat, the client.exe will need it.

close software set.exe, and open client.exe, you will see “A0” ”G0”, ”G1”, ”S0”, ”S1”, ”S2”, ”S3” appeared in light list with name “bed room”, ”hall”, ”bed wall” ... . Also you will see 0 “sleep”, 1 “watch TV” in scene list.

Now enjoy the intelligent illumination! First select one item in light list such as “bed room”, then press dim buttons, or click on brightness level bar, or select a scene in scene list, you will see your lamps turn to different levels as you want.

Click button “?” can inquire the brightness level of every lamp, the level will show under item “bright” of light list. level 0 means off, level 255 means lamp fault.



Above:software interface of set.exe



Above : software interface of client.exe

**ANDROID CONTROL SOFTWARE**

Android support bluetooth very well, so it will be easy to config.

Progress: Power on the device and search bluetooth device named DALI and connect it use password "1234", this step only need to do one time at start ..

installed the dali.apk in android 2.2 or above phone / pad which support bluetooth 2.0 or above. open the software, you will see the interface of select bluetooth DALI device in first time of use(you can call this interface at set-> bluetooth device in this software at any time), select a DALI device . exit the software,setting will saved automatically. This step only need to do one time too.

call "DIM" interface, you can control the lamps by android phone or pad now if bluetooth connected no problem.

Brief introduction of android UI:

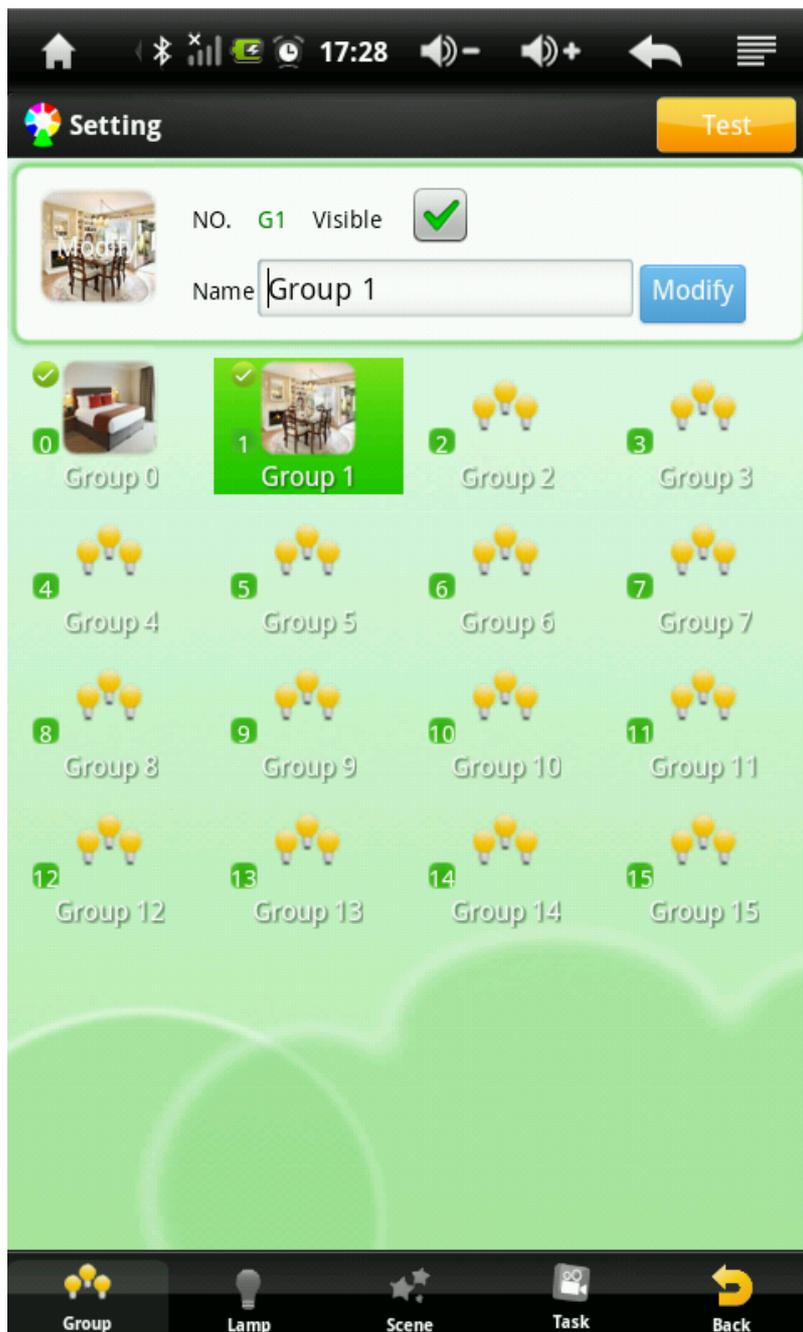


UI Dim: you can select ALL lamp, groups or lamps, and do the action of direct ARC, indirect dim or goto a scene.

You can select several groups or lamps to dim or call scene together, the selected items will be green background.

Press Buttons of All, Group and Lamp can change target between all lamps, groups and single lamps. Press Dim Button can change between Dim/ Scene When you selected several groups or lamps, one press of Group button or Lamp button can cancel all the selections quickly.

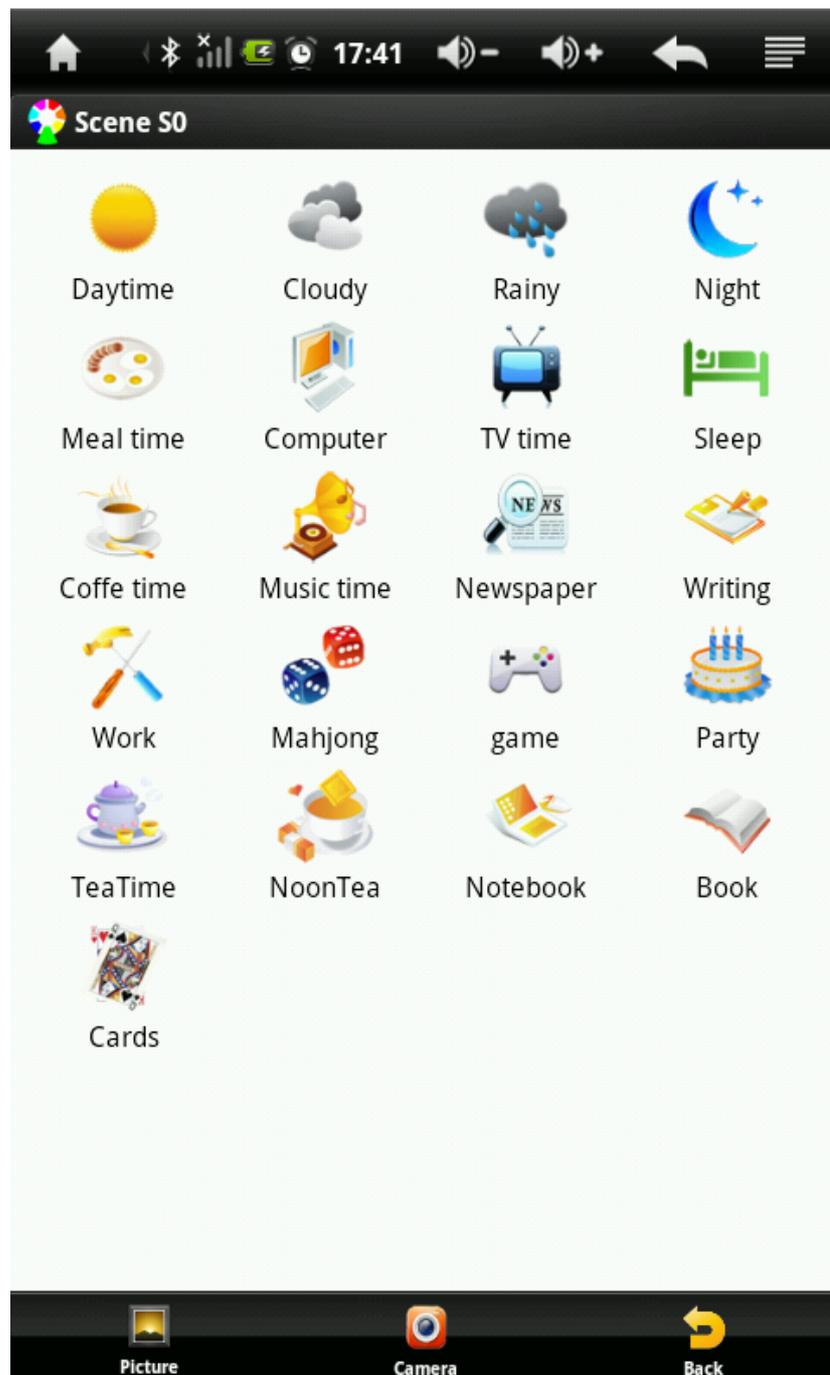
The FOLD button right above can show or hidden more Dim or Scene buttons. In Groups, Lamps and Scenes, the Images , names and what items show you can customized in Set UI.



UI Set: You can set images(icons), names and the item visibility of Groups , Lamps, Scenes and Task.

Press one item it will turn green background, you can modify the Image, name and visibility in top . the attributes will updated if modify sucessfully.

The image icon you can select from icon library, or edit from your picture album, or take a photo of target lamp or room etc.



UI, Setting Icon of Scene:

You can select an image on top area.

Also you can press bottom button of Picture, then you can pick up a picture from your album, and you can edit it as an icon.

Also you can take the photo of actual lamps , rooms etc and set them as your icons, by press bottom button of Camera, the photo can be editable too.

Make sure your phone or pad with SD card to store the temporary file of photos.



### UI Task Setting:

If you need to do several dim actions between different targets usually, you can record the commands (targets and actions) and define a quick button in Panel.UI.

Select a task, it will be green background, then press bottom button Adds, the Dim UI will come out, you can select your wanted targets and do actions of Diming or Scene. The targets and actions will be recorded automatically, well your lamps will follow your commands too if bluetooth connect no problem.

Button Clear will clear all commands of selected task,

Button Add and Delete can add or delete one command you selected.

Once you set commands in a task, the Task button will be show in UI of Panel.

Press the button will trigger all commands you set if bluetooth connected no problem.

**Appendix:****OUR RELATED PRODUCTS LINE:****DALI/DSI/0-10V DIMMABLE FLUORESCENT BALLAST**

Dim range 2%-100%

Tube type : single or dual T5,T8 such as 1x28W T5, 2x36W T8 etc.

Input: AC110/220V

PF:  $\geq 97\%$

Feature: No sparkle in low brightness level, no noise working. high performance and low cost.

**DALI/DSI/0-10V DIMMABLE LED DRIVER (CONSTANT CURRENT)**

Dim range 1%-100%

Output voltage :DC20V-70V.

Output current: as demand.

Power: 15-40Watts usually for indoor LED lamp.

Input: AC110/220V

PF:  $\geq 97\%$

Efficiency: 85%-90% at 100% brightness.

Feature: No sparkle in low brightness level, no noise working. high performance and low cost.

**DALI/DSI LED DIMMER (PWM CONSTANT VOLTAGE)**

Dim range 0.5%-100%

Input voltage :12V-30V.

MAX Current: <4A

Feature: No sparkle in low brightness level, very low EMC level. Customer can easy to make a DALI DSI lamp work at their wanted current and voltage.

**DALI/DSI LED PCB MODULE (PWM)**

Dim range 0.1%-100%

Input voltage :12V-18V.

Output: PWM dim signal. Lamp off signal.

Current: <5ma at standby condition.

Feature: small size and low cost. no EMC problem. With lamp fault detect function. The lighting factory can easy to use this module make a DALI DSI LED lamp work at pwm mode without know any knowledge of DALI DSI.

This module used in our own DALI LED products too.

**DALI/DSI LED PCB MODULE (0-5V dim signal)**

Dim range 1%-100%

Input voltage :12V-18V.

Output: 0-5V dim signal. Lamp off signal.

Current: <5ma at standby condition.

Feature: small size and low cost. no EMC problem. With lamp fault detect function, This module supply to LED driver factory to make a DALI DSI LED driver at constant current mode without know any knowledge of DALI DSI.

This module used in our own DALI LED products too.

### **DALI/DSI PCB CONTROL MODULE FOR FLUORESCENT BALLAST**

Dim range: 1%-100%

Input voltage :<=DC450V

Output: 0-5V dim signal; bootup and power manage of ballast and PFC IC.

Power: <0.2W at standby condition. The standby power of ballast use this module can lower than 0.3W with APFC solution at input AC220V.

Feature: small size and low cost. With lamp fault detect function,with Inside power manage circuit can directly input high voltage at low energy cost. Support most dimmable ballast IC in market.

With this module dimmable fluorescent ballast factory can make a high performance DALI DSI ballast without know any knowledge of DALI DSI.

This module used in our own fluorescent ballast products too.

### **OTHER RELATED PRODUCTS OR SERVICE:**

#### **1.CUSTOMIZED DALI DSI AND OTHER INTELLIGENT LIGHTING ELECTRONIC HARDWARE AND SOFTWARE**

Such as customized DALI audio dimmer, gateway etc.

#### **2.KINDS OF LIGHTING FIXTURES WITH INTELLIGENT FUNCTIONS.**

We are in location of lighting capital of China, so easy to supply different lighting fixtures at low cost to oversea customers