



Smart-HDL

## **S-BUS**

# **Lighting, Motor and HVAC**

**Programming Guide – Ver.1.2**

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## **Contents**

### **1- Introduction**

Objective 1-1

S-bus products 1-2

Course content 1-3

### **2- Start Programming**

S-Bus Programming Software overview 2-1

Installer Programming Ethernet Port overview 2-2

Programming Ethernet address and IP Setting 2-3

S-bus Configuration Software basic setting 2-4

Devices address and Search 2-5

Steps of basic programming 2-6

### **3- Relays and Dimmers Programming**

Relays and Dimmers type overview 3-1

Setting Relay and Dimmers Address 3-2

Channels search and Remarks 3-3

Relay Channel Setting 3-4

Dimmer Channel Setting 3-5

Area Setting 3-6

Scene Setting 3-7

Scene Restore 3-8

Sequence Setting 3-9

### **4- Curtain and Motor Controller Programming**

Curtain and motor controller overview 4-1

Curtain Channel mode and programming 4-2

### **5- Panel Switch Programming**

Panel Switch Type Overview 5-1

Panel Switch Address and basic setting 5-2

Panel Switch button Remarks and Modes 5-3

Panel Switch button Function settings 5-4

Panel Switch button Memory, Dimming, and LED Setting 5-5

Live Example about Lighting, Motor shade Programming 5-6

Panel Switch Setup (Minimum Diming Value and Infrared) 5-7

Panel Switch Lock and unlock Function 5-8

### **6- HVAC Programming**

Introduction of HVAC Module 6-1

HVAC Address and Testing 6-2

HVAC Startup and Switch off Safety Delay 6-3

HVAC Mode Configuration and safety Running Sequence	6-4
HVAC VAV Fan Voltage Output Setting	6-5

## **7- DLP LCD Panel (Basic Lighting and HVAC Function)**

DLP Overview	7-1
DLP Address Page Password and Language Setting	7-2
DLP Basic setting	7-3
DLP 4 Pages Button Remarks and Modes	7-4
DLP Buttons Function setting	7-5
DLP Buttons Memory, Dimming, and LED Setting	7-6
DLP Setup (Minimum Diming Value and Infrared)	7-7
DLP Combination Way	7-8
DLP Button Picture Edit and Download	7-9
DLP Mutual Exclusion Function	7-10
DLP Air condition Basic Setting and testing	7-11
DLP AC Page control Setup	7-12
DLP Temp Calibration and Lock function	7-13
DLP Slave to other DLP AC setting	7-14
DLP Broadcast Function	7-15
DLP AC Graphic setting	7-16
DLP Infrared Function overview	7-17

## **8- Touch Screen Pro Lighting Control Programming**

Touch Screen overview	8-1
Connection to the Bus and IP Address setting	8-2
Room Picture setting	8-3
Upload setting from PC to touch screen	8-4
Upload type and setting, creating new icon	8-5
Download Data from Touch screen to PC, and Edit exist room setting	8-6
Touch screen System Setting	8-7
Touch screen Picture and Icon Backup	8-8

## **9- Ceiling and wall Motion Sensor PIR Programming**

S-BUS sensor Overview	9-1
PIR Motion sensor Basic setting	9-2
PIR Motion sensor Automation setting	9-3
PIR enabling Disabling by other Devices	9-4

## Before you begin this course

Before you begin this course, you should have:

- Understand the basic bus Diagram Connection Topology
- Understand the Lighting and HVAC Connections Diagram
- Basic Knowledge about IP setting.
- Basic Knowledge of using Windows operating system.
- Basic Knowledge of using Windows Painter.



## Prerequisites

Either

- Products overview course.
- Installation Course.

## How this course is organized

Lighting and HVAC Programming Guide Course Organized in Simple way of

Product overview, Example Picture, (  Notices) , (  Advices) , and Program Examples to give you the Programming skills in very easy and professional way.

For Training Course Request Please apply online

[www.smart-hdl.com](http://www.smart-hdl.com)

## **1- Introduction**

Welcome to S-BUS Lighting Motor and HVAC Programming Guide, you are now a Beginner Programmer who will know soon how the S-bus Lighting, motor and HVAC Programming is simple.

### **1-1 Objective:**

After this course you will be able to program the Lights Dimmers and relays with the switches Panel, Program curtain shades control, program the Air condition setting and DLP panel, create and download different Picture on the LCD, Touch screen and start with Motion sensor and Automate your Project.

### **1-2 S-Bus products:**

S-BUS Products is vary with its powerful and multi functions, it have the high power dimmer and relay, Curtain, DMX and LED controller, Wall switches and Dynamic Label Pages DLP Panel, HVAC Air condition control, Touch screen, and different type of sensors, like Motion sensor, light intensity sensor, Ultrasonic sensor, Dry input sensor, Analog input, current sensor, Power meter, Infrared receivers and transmitter, Security and Automation , Audio, Module, Rs232 , Programming and integrations Module

### **1-3 Course content:**

This course is coverer 8 Basic Lessons:

*In the Lesson 1* you will know about the S-bus configuration software, install it on your computer and getting throw with it, set you IP address and Know what is the Programming port and set its address, search for the devices and start programming.

*In the Lesson 2* you will be able to program the Dimmers and Relay, test the Lighting channel and edit the channel Remarks, set the Area and program the scenes and sequence.

*In Lesson 3* you will know how simple the curtain motor programming is, how to set the delay and running time and name each curtain channel.

*In Lesson 4* you will be able to program your first panel switch, in this level you will know why and what you had programmed before of dimmers relay and curtain, you will start programming different type of button modes and you will enjoy the difference programs setting and you will feel the powerful.

*In lesson 5* you will have different experience with the HVAC Air condition programming, you will know the flexibility and functionality you have of Single and Multi stage compressor and VAV control.

*In Lesson 6* you will be able to program the magical LCD DLP panel for its lighting curtain and Air condition control function, you will be able to edit and

download picture for each button and make the LCD setting

*In lesson 7* you will be able to program and use the touch screen, download real room picture and play with it like a toy

*In lesson 8*, you will be able to program the motion sensor and get basic introduction about home automation programming.

## 2- Start Programming

You need on this lesson to have your computer with you. Running on windows Operating system, S-bus configuration Programming software package SB-SW-Pack, programming port SB-DN-1IP, that enable you to search for all the devices that connected to the bus network.

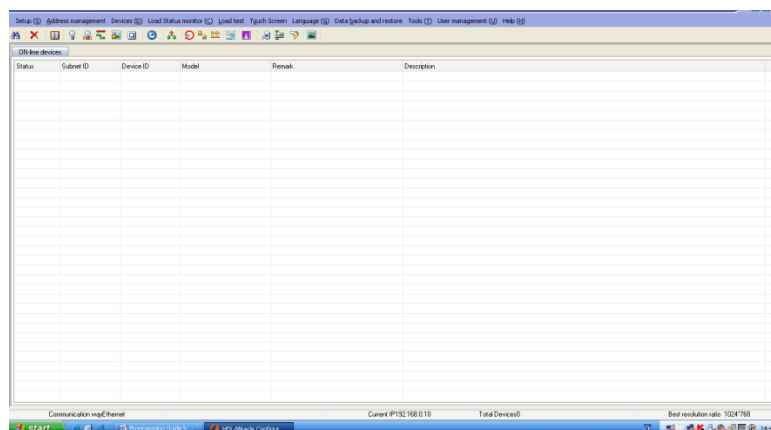
### 2-1 S-Bus Miracle Programming Software overview

- 1- Install your S-bus configuration software in your Computer by pressing the **setup** icon and follow the installation steps windows
- 2- Set your computer IP Address, for example  
IP                192.168.10.10  
Subnet        255.255.255.0  
Gateway      192.168.10.1
- 3- Run your S-bus configuration Software
- 4- The Password window will open, type the default password is **user**



A screenshot of a password login window. It has a light beige background with a blue border. Inside, there are two input fields: 'Username' with the text 'user' and 'Password' with masked characters 'xxxx'. Below the fields are two buttons: 'Confirm' with a green checkmark icon and 'Cancel' with a red X icon.

- 5- Your software will start



- 6- You can see your current IP on the footer of the software as 192.168.10.10 then your IP setting is ok.



*Set your computer IP setting before starting the S-BUS configuration software.*

## 2-2 Installer Programming Ethernet Port overview

### The S-Bus Programming Ethernet Port has 2 types

- 1- Old: LCD Programming Port type.
  - Need 220 V Power to be operated
  - Big size
  - Have LCD for easy setting
- 2- New: small Portable Programming Ethernet Port
  - Direct power from Bus network (no need 220 V)
  - Small size
  - No LCD , Setting will be done from software



*The new Programming port is easier in connection cause it doesn't need 220 V and it is smaller that can be carried with the programmer all the time.*

### The Programming Ethernet Port has the following function

- a- Used as programming port between your computer and the S-Bus devices.
- b- Used as Network bridge for big project network that need more than 255 devices
- c- Used as a bridge between Touch screen IP to Bus network.

## 2-3 Programming Ethernet address and IP Setting

### Configuration of old IP programming port

Set up the LCD IP port

- 1- Press **ESC** and **ENTER** Button together on the Module to unlock the page



- 2- Enter your password (if you change), to change password use the Arrows, and then press **Enter**.



- 3- Go to the **NET set** on the Menu then press **Enter**





- 4- In the Net set go to **Edit IP**



- 5- Set your IP Address for example 192.168.10.xxx and set your mask to 255.255.255.0 ,rout IP to 192.168.10.1



- 6- Press **Enter** to save  
7- Press ALL the 4 **Arrows** together (UP, DOWN, LEFT, Right) to restart the Module



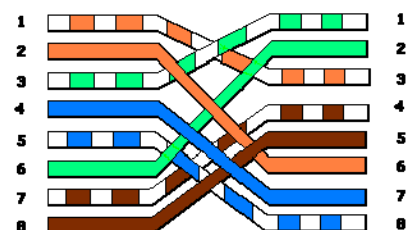
*You should always reset your Module every time you change the IP Address in order the new setting to be Active.*

After you set your Module IP Address now you should connect the module to your Computer Network in order to communicate.

The connection can be in two ways

- 1- Connect the 1Port IP Module to the HUB or Data Switch and connect your Computer to the same data Switch as standard straight cable Network wiring.
- 2- Without using the HUB or data switch you can

**TIA/EIA 568B Crossed Wiring**



use the cross cable to connect your computer directly to the IP Module, see the next cross wiring diagram of TIA/EIA 568B crossed wiring



*You can use the Line command **Ping** to check your connection.*

*On your Computer, Go to start/ Run/ CMD them type **Ping 192.168.10.xxx***

*If you see the following results similar to this Picture then your connection is successful*

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>Ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=45ms TTL=64
Reply from 192.168.0.1: bytes=32 time=37ms TTL=64
Reply from 192.168.0.1: bytes=32 time=2ms TTL=64
Reply from 192.168.0.1: bytes=32 time=2ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 45ms, Average = 22ms

C:\Documents and Settings\Administrator>
```

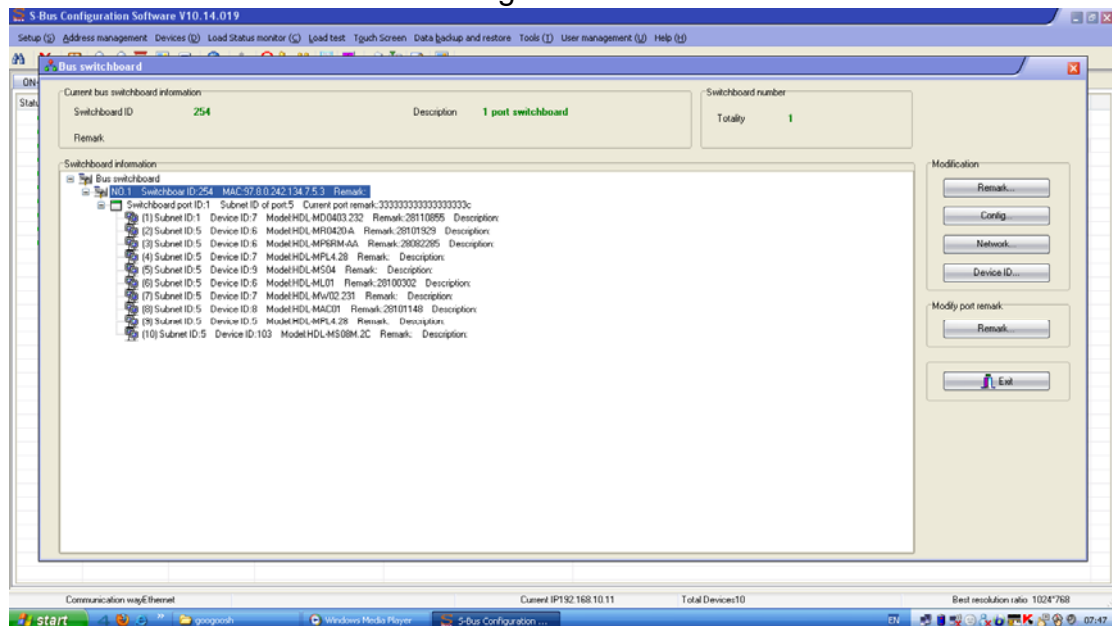


*Always the Programmer should carry with his programming kit the cross cable for programming without needs of the Data Switch or HUB.*

## Configuration of the New IP programming port

The IP programming Module Default ADDRESS is 192.168.10.250

- Change your computer IP address to 192.169.10.XXX
- Run your S-bus configuration software
- you can change the IP Address from the S-Bus Software by going to **Device/Switchboard** and change on the **Device Network**



- press on **Network** button
- change your IP address and route IP then press save
- Reset your module, Power it off then on to let the new IP setting to be active.

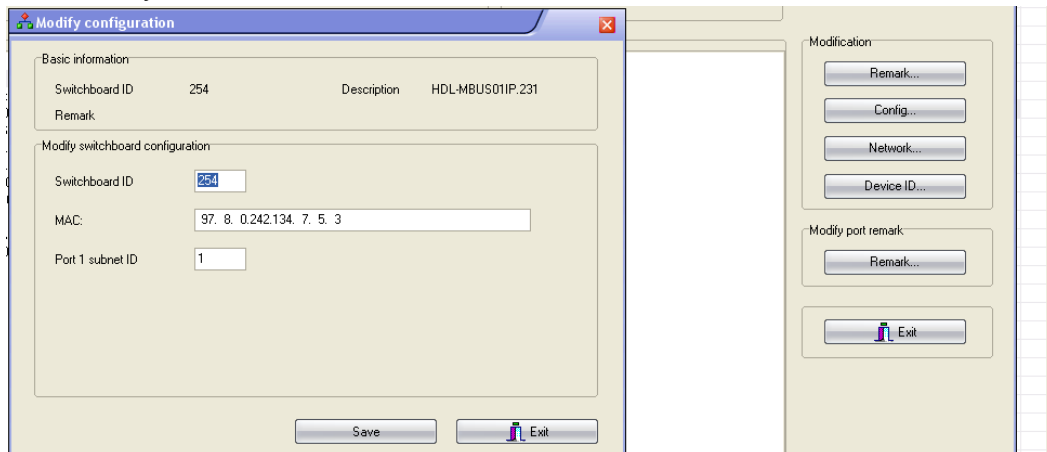
To reset the IP settings of the Module, do the Following

- Power on your module.
- Keep pressing on the broadcast button of the module for 20 seconds.

- Reset the module Power
- Your default IP address return to Default 192.168.10.250

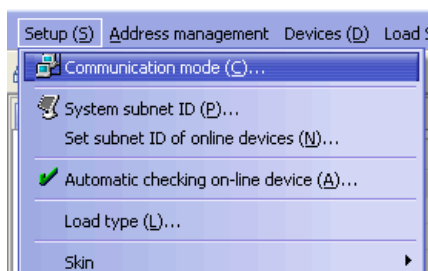
To change your IP module subnet ID to work as different IP Bridge,

- In the S-Bus Software by going to **Device/Switchboard**
- Press on **config** button
- Change the Subnet ID, then press **save**
- Reset your module Power



## 2-4 S-bus configuration Software basic setting

### Setup

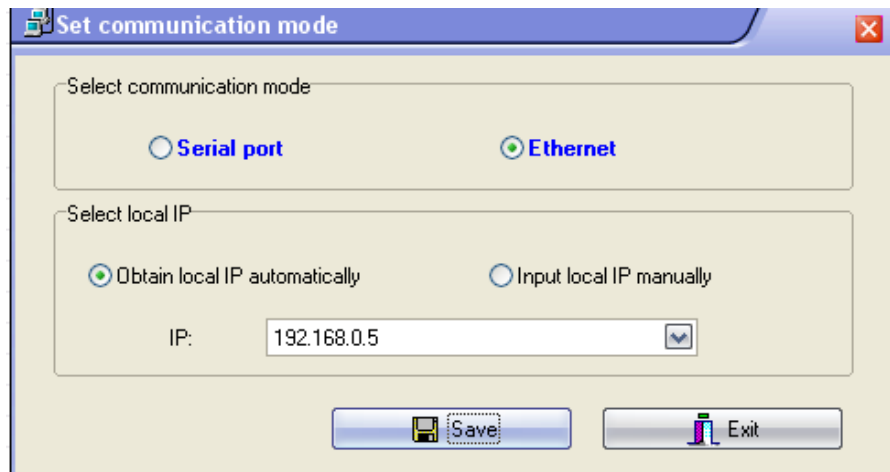


#### 1- Communication Mode

You can change between Ethernet Connection and Serial Port connection,



the Serial Port connection is old, slow and no longer use. Always keep the setting on Ethernet connection



Also you can chose between **obtain Local IP Automatically** (Default), or to **input local IP Manually**.



*Input local IP manually you can use it for example, if you are using in your laptop or computer Wireless and wired Network with different IP setting, and you want to choose the right one of it for programming, and don't want your S-bus software to detect your other IP address Automatically.*

## 2- System Subnet ID

The S-bus configuration software have fixed Device ID (254), but you can change its subnet ID only, the default software subnet is (Default = 254)



*The software default address is subnet 254, Device ID 254, this address must be unique, in case other Device has the same address you will not be able to find that Device unless you change the Subnet of the software.*

## 3- Automatic checking On-Line Devices

You can disable or enable the Auto Checking of Online devices (enable is Default).

## 4- Load type

You can add some Remarks to your Load type to use it as reference and print it out later on the excel sheet

## 5- Skin

Change different software interface skin color to give you different feeling while you are programming

## **Address Management**

Here you can search for the Device Addresses and load the Network and solve any conflict in the address. (for more Information see 3-2)

## **Devices**

You can go here directly to Devices setting Categorized by type

## **Load status Monitor**

To test the Dimmers and relays enhanced with the Current sensor for each

channel.

### **Load test**

This is important Function to check your Lights Circuit by flashing the lights ON/OFF and then you can give it name (for more information see 3-3 section).

### **Touch screen**

Setting of touch screen programming (for more information see 8-1 section).

### **Language**

You can change the Language between English and Chinese, and other Languages

### **Data Backup**

Important to backup and restore your Devices address and setting, infrared codes, touch screen Picture and touch screen setting.

### **Tools**

*Communication test* is an advanced Programming tools for advanced programmer to test the communication in Hexadecimal

### **User Management**

You can add different user, manage user Privileges, change password.

## **2-5 Devices address and Search:**

Each of S-bus Devices must have its own Address in the Network, the Address for each Device consist of 2 parts, **1- Subnet ID, 2- Device ID**

The subnet ID can be from 0 – 254

And the Device ID can be from 1 – 254

So you can put up to 65024 Deferent Devices in the same network with deferent subnet and device ID Address

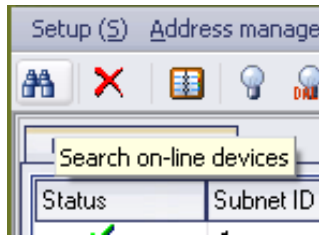
For example one of Dimmer Module Address is (Subnet 1, Device ID 5)

### **There is 5 ways to Search for the Devices in the Miracle Software**

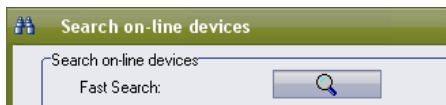
- 1- Fast Search
- 2- Advanced Search
- 3- Manually Search
- 4- Broadcast Address Device Search
- 5- Solve Conflict address search


### **Fast Search**

The Fast search is very useful tools to test your communication and search your devices Fast , the Fast search take around 2-15 seconds to finish load the devices information in your network.



- Press on the Online Search button
- Press on the **Fast search Button**
- Press **add all**
- Press **Exit** to exit the Window



 *Fast search can't load all the Network Devices, it is only load part of the devices, it is only good for small project that contain around 10 devices, and to check the network communication with your PC.*

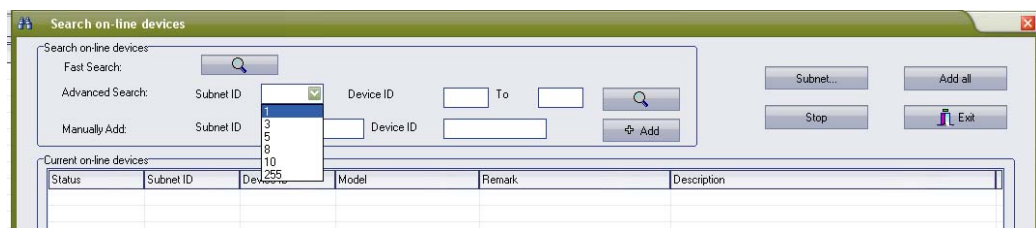
### **Advanced Search**

The Advanced Search is a powerful tool for searching your Devices in the network. You can set the Subnet ID you like to search on it and select the range of device ID you want to search for.

Advanced search take 0.3 seconds for each device to load and total of 80 seconds to finish the search and load for 255 devices totally in each subnet.



- Press on the Online Search button
- Go to **advanced search** , put the subnet ID and the range of device ID search



- Press **search ICON**
- Press **ADD ALL** after the search finish
- Press **Exit** to exit from the window
- press **stop** to stop the search
- Press **subnet** to add new subnet to the popup Menu subnet list



*Use the Advanced Search Always as your standard way to Load the Devices in the Network to your computer before you program in any new project.*

### **Manual Search**

Manual Search is a very fast and useful way to add known Device ID and subnet to your network

A dialog box titled 'Manually Add:' with two input fields: 'Subnet ID' containing the number '1' and 'Device ID' containing the number '2'. To the right of these fields is a green button with a plus icon and the text 'Add'.

- Type the subnet and device ID that you know
- Press ADD
- Exit the Menu

### **Broadcast Address Device Search**

This tool is important when you add new devices or you start your new Project installation, many devices could have the same Address or the communication is not yet tested, this tool is important to check the communication between your device and the bus network and to change its initial address in the first time installation.



- On your software Press **Address Management/ Modify Address**
- Go to your device like Dimmer / Relay / sensor or Panel and keep pressing the broadcast Address button for 5-10 seconds until the button LED keep ON.
- In your software in the set initial Address window press the **Indicate Initial Address** Button
- Your Device ID and Subnet will appear Automatically
- To change the address just type the new subnet ID or device ID you want then press **Modify Initial Address**
- Press **ADD** to load your device in the Devices Network List
- Press **Exit** to Close the Window

A dialog box titled 'Set initial address of equipment'. It contains two input fields: 'Subnet ID' and 'Device ID'. To the right of these fields are two buttons: 'Indicate initial address' (green) and 'Modify initial address' (grey). At the bottom of the dialog are two buttons: 'Add' (with a plus icon) and 'Exit'.

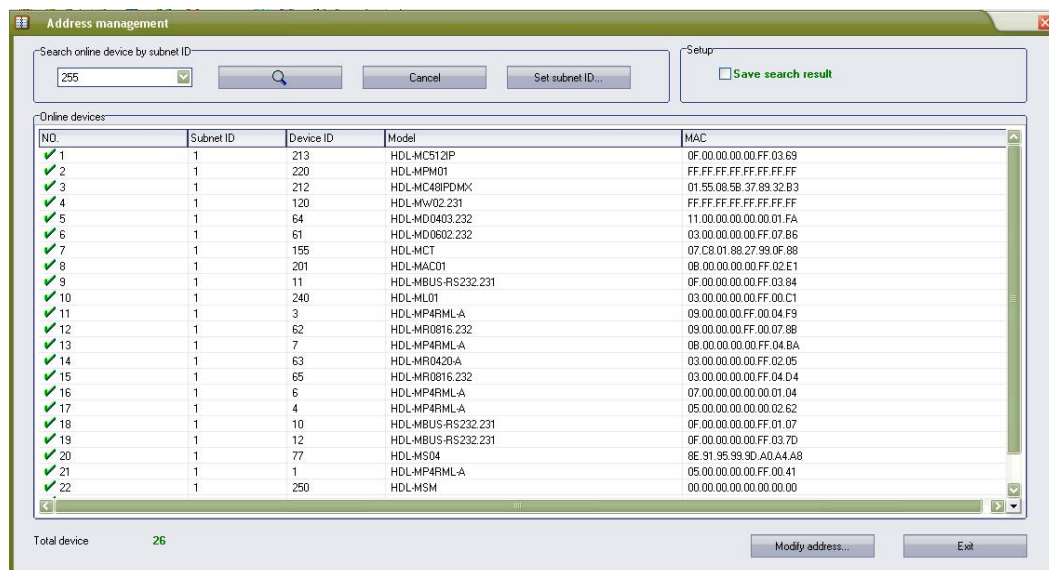
### **Solve Conflict address search**

This type of search used to solve the conflict address, for example if 2 devices have the same address, then you can easily change the address of it without the need of disconnecting its wires from the network.

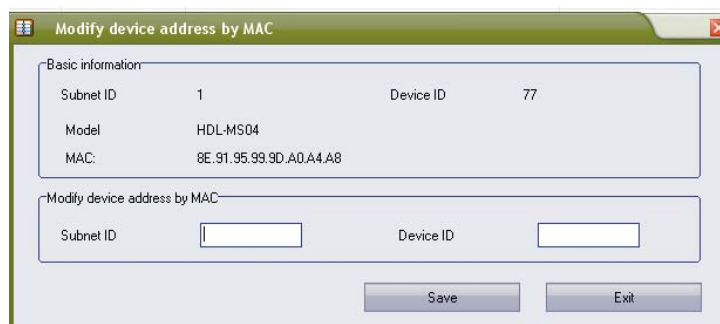
- Press Address Management/Address Management or press the

Address Management Shortcut icon





- Select Subnet **255 (recommended)** or any desired subnet then press the search icon
- Select the device you want to modify its address then press **modify Address** or double click on it
- New window will open, then type the new Subnet ID and Device ID, then Press **Save**



## 2-6 Steps of Basic Programming

The Basic Programming for Lighting Motor and HVAC of S-bus Products has procedure of Basic Steps as following

- Check the communication between your computer and the Bus
- Broadcast each Dimmer, Relay, Motor curtain HVAC control initial Address
- Change the initial addresses to the desired one
- Give name of each Dimmer, Relay Module
- Check each Lighting channel circuit if working and connected good
- Give name for each channel and type
- Make an excel sheet for all your Dimmers, relays, other module address and circuit name
- Make Area for each Dimmer , Relay module if required.



- I- Make Scene and Sequence for each Module if required.
- J- Make safety power restore and delay time for scenes and safety as required
- K- Check the curtain module give it address and name
- L- set the channel name, the running time open and close running time
- M- give the switch and panel its addresses and name
- N- assign the panel button to the corresponding scene or channel
- O- set the button graphic picture for the DLP for each button
- P- check the HVAC address, give it address and name
- Q- set the On OFF delay sequence
- R- set the VAV Voltage output if required.
- S- set the safety HVAC running sequence
- T- assign the DLP Panel to its HVAC unit
- U- Set the FAN speed, cool set point, type, adjust temperature sensor on the panel setting.
- V- Set the required graphic for AC, and panel basic setting
- W- Search for PIR motion sensor and give it address and name
- X- Set the sensitivity, way of triggering, motion , no movement delay and commands
- Y- Connect to the touch screen, and Upload some photo and icon, download to the touch screen
- Z- Test and enhance your programming.



*Following the basic Programming steps procedure will save the programmers time and effort.*

### 3- Relays and Dimmers Programming

Relays and Dimmers are the main modules for every lighting control system, the Leading Edge Dimmer, and smart relay save 30-70% of your lighting Energy consumption.

#### 3-1 Relays and Dimmers type overview

S-bus Dimmers and Relay have many types that you can install in any project

##### 1- Dimmers

- Wall Mount Dimmer 6 Ch, 20A
- Wall Mount Dimmer 12 Ch, 10A
- Wall Mount Dimmer 6 Ch, 10A
- DIN-Rail Mount Dimmer 2ch 6A
- DIN-Rail Mount Dimmer 4ch 3A
- DIN-Rail Mount Dimmer 6ch 2A

##### 2- Ballast Dimming controller

- DIN-Rail Mount, 48CH DALI Ballast Controller
- DIN-Rail Mount, 6 Channel 0-10V Ballast controller

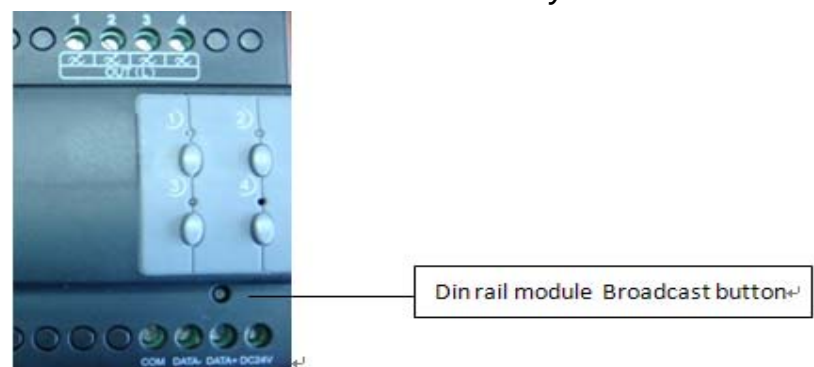
##### 3- Relay ON/OFF controller

- DIN-Rail Mount, High Power Relay Module 4CH, 20A
- DIN-Rail Mount, Relay Module 8CH, 16A
- DIN-Rail Mount, Relay Module 4CH, 10A
- DIN-Rail Mount, Relay Module 8CH, 10A

#### 3-2 Setting Relay and Dimmers Address

When you install the Dimmer or relay first time, it takes default address as Subnet ID 1, Device ID 7. To change the address and check the communication you should use the *Broadcast Address Device Search* as you see in the section 2-5 before)

*Every Din rail Module have Broadcast button as you can see in this Picture*



- On your software Press **Address Management/ Modify Address**



- Go to your device like Dimmer or Relay then keep pressing the broadcast Address button for 5-10 seconds until LED keep ON
- In your software in the set initial Address window press the **Indicate Initial Address** Button

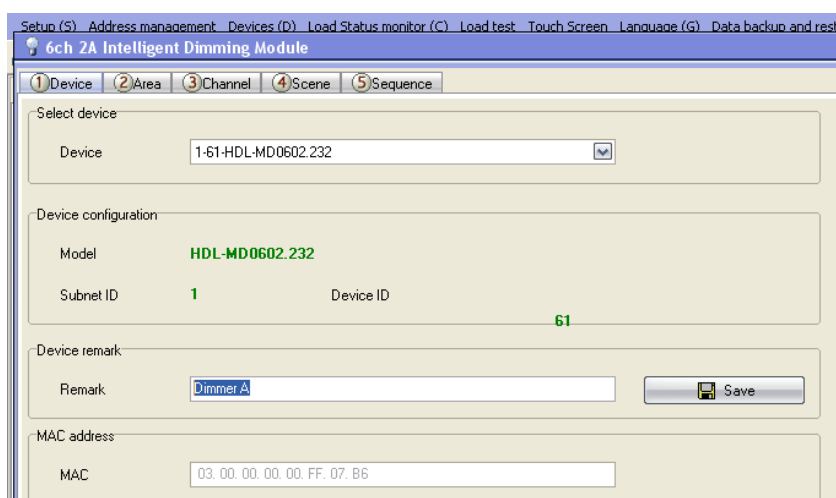


- Your Device ID and Subnet will appear Automatically
- To change the address just type the new subnet ID or device ID you want then press **Modify Initial Address**
- Press **ADD** to load your device in the Devices Network List
- Press **Exit** to Close the Window

### 3-3 Channels search and Remarks

After you finish editing the initial Address for each Dimmer and Relay, Search for all Modules in the network using the Advanced Search, after that you can start giving different Name in the remarks for each Module.

- Double click on the Module that you see on the List after searching to open it for editing
- In the Remarks field type the name of the Module
- Press save after you type the name





*Without giving name to the Dimmers or Relays in your Project, the program will be hard for any programmer to understand, troubleshoot, and enhance the program in the future; name and remarks always will help every programmer to do the programming*



*Always Give the Dimmers and Relay name that refer to its Location, for example if the Dimmer install in the floor 10 Apartment 20 then you can give it name for example DIM-10-20-A the next Dimmer in the same apartment can be DIM-10-20-B and so on and sticker Labeling can be stick on the dimmer Module itself with the same name*

### Testing Channels online:

After we gave Address and name to the Dimmer, now we must test it channel and gave it name.

- In your software Menu go to **Load Test**

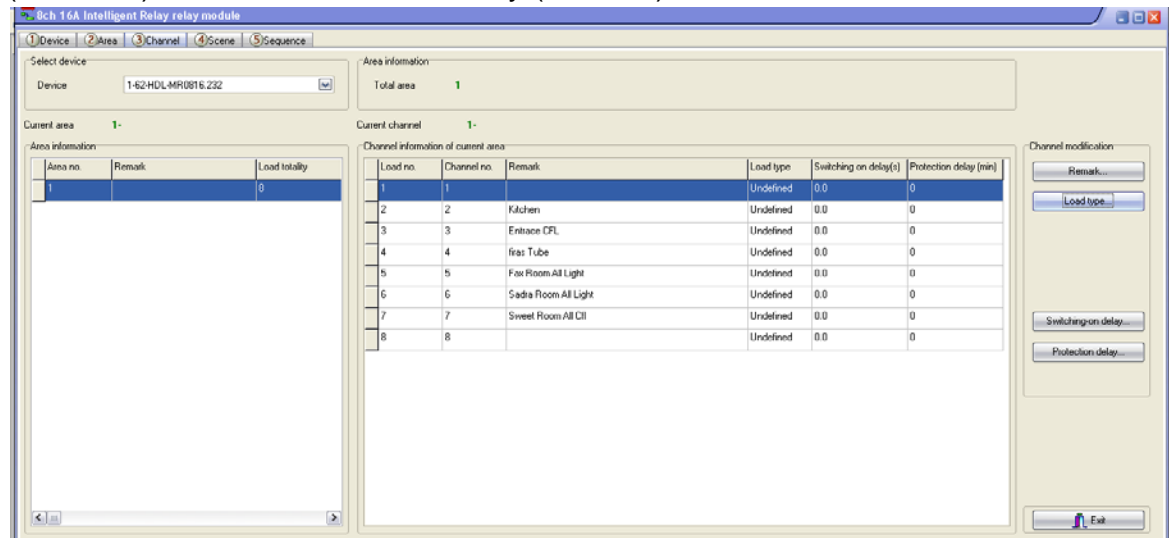
- set the Interval of seconds that will be flash the Light channel ON/OFF within this time (2 seconds is Default) after Editing it Press Save
- Edit the Subnet ID, Device ID of your Dimmer or Relay and Its Light Channel you want to test then press save
- Press start test button, than light icon will start Flashing ON/OFF
- Go to the channel light in your project that connect to this channel and see if the light is flashing or not.
- If the light channel is flashing ON/OFF than your connection is fine, then you can press stop test
- Give the name of this Light channel in the channel remarks field then press save
- Go for the next light channel test press save and follow the same steps for each module channels in your project.



Channel Remarks is very important for any programming, Programmer should edit all the remarks in simple and clear way to refer to the lights Channel name.

### 3-4 Relay Channels Setting

Relay channel setting will allow you to edit the channel remarks in faster way if you have the List of your connected channels on your relay before testing it, also you can edit for each channel the load type remarks, Switch On Delay (Seconds), and Protection ON Delay (Minutes)



Double click on any relay Module on the List the relay setting window will appear go to the Channel tab, and start editing

**Channel Remarks:** it is another fast way to type your channels of your module in simple way.

**Load type:** to edit every channel load type as reference remarks

**Switching On Delay:** for industry and some motors connection needs to delay the Relay to be ON from (0 to 25 seconds) for each channel

**Protection Delay:** is used for industry use mainly and some heavy duty Machines for safety ON by long time delay range from (0 – 60 Minutes)

### 3-5 Dimmer Channel Setting

In the Dimmer channel setting you can edit your Dimmer Lighting channel Remarks, Load type remarks, Lower Limit, Higher Limit, Maximum Level.

- Double click on any Dimmer Module on the List then the Dimmer setting window will appear go to the Channel tab, and start editing

Area information

Total area 1

Current channel 1-

Channel information of current area

Load no.	Channel no.	Remark	Load type	Lower limit	Higher limit	Max level
1	1		Undefined	0	100	100
2	2		Undefined	0	100	100
3	3		Undefined	0	100	100
4	4		Undefined	0	100	100
5	5		Undefined	0	100	100
6	6		Undefined	0	100	100

Channel modification

Remark...

Load type...

Lower limit...

Higher limit...

Max level...

Exit

**Channel Remarks:** it is another fast way to type your channels of your module in simple way.

**Load type:** to edit every channel load type as reference remarks

**Lower Limit:** in this setting you can sit the lower Limit that you can dim to, beyond this level the Light will turn off totally.



*Lower Limit Option is useful when you connect a florescent Light that can't be dimmable to Dimmer module channel and you don't want it to be flickering when low voltage supply the florescent*



*if you don't want the florescent light to be ON while you make diming with fade time for all your channels than you can set the channel Lower Limit as 90% if connected to florescent or not dimmable light*

**Higher Limit:** in this setting you can sit the Higher Limit that you can Ramp to, beyond this level the Light will turn ON to the maximum level.



*Higher Limit Option is useful when you connect a florescent Light or any light that can't be dimmable to Dimmer module channel and you don't want the lights to flicker when low voltage output supply the channel*

**Maximum Level:** is used to set the maximum brightness level for the channel, beyond this level the dimmer can't give more voltage output.



**Be careful not to overload the channel, for example if your channel load is 2.7 Amp you cannot connect it to Dimmer of 2 Amp Channel.**



*it is always recommend to set all channel Maximum Level to 95% to save the Lights life and to protect the Dimmer load if there is any change in the voltage.*



*Maximum Level is very useful to solve the installation problem of overloaded channel, for example if you have load of 10 spot light each 50 Watt than your Amp is  $500W/220V=2.27A$ , here you can connect it to Dimmer 2Amp and set the maximum level as 85% than the dimmer channel will not exceed the 2 Amp output. (Programming should be done here for the channel before connecting the Load to it).*



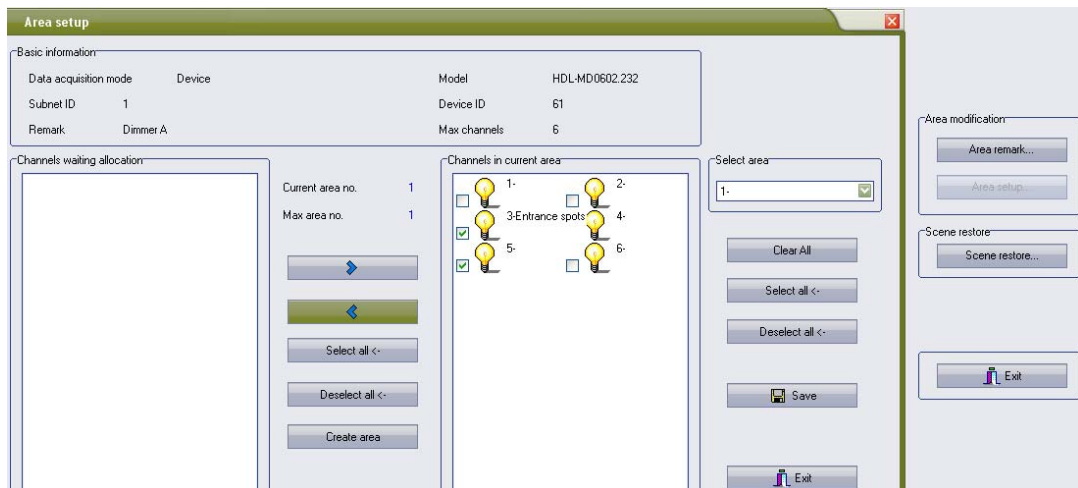
Be careful the Load of Dimmer Module of Din-Rail type not to exceed the total maximum box load. See the instruction Manual of each module.

### 3-6 Area Setting

In the Area setting you will divide your dimmer or Relay channels to different Area according to your project installation, each Area will have its scenes and sequences.

For example: if you have an apartment of 2 bed rooms, all its channels connected to the same dimmer, than you can divide the dimmer channels into 2 area , type name for each area and later you can set the scenes and sequences of each Area separately.

- Double click on any Dimmer or relay on the List
- Got to **Area** Tab
- Press **Area Setup**
- By default all channels is included in Area 1, Remove the channel that not belong to this area by checking them and press the **Left Arrow**.



- Press **Create Area** to Add new Area
- Insert the remaining channels on this Area by pressing the **Right Arrow**
- When you create all you Area and assign Channels to it, Press **Save** and Press **Exit** to close your Area Setting
- Press **Area Remarks** and edit your Area names, then Press **Save** then **Exit**.

### 3-7 Scene Setting

After you complete your Area setting, then you can assign Different Scenes for Each Area you create

- Press on the **scene** tab
- **Select the Area** on the select Area section
- Input the scene number you want to edit From ... To then press **confirm**
- Press **scene setup** to edit your scenes

- Edit the scene by modifying the output brightness and then press the next scene on the right list to edit it.
- Edit the scene running fade time on Minutes and seconds
- After you finish editing your scenes, press **save** and **exit**.
- Press **Remarks** to give the hint name for your scenes, press **save** and **exit**

You have many tools to help you editing the scenes

- ☐ **Modify running time synchronously**
- ☐ **Modify scene intensity synchronously**
- ☐ **ON-site output scene**

- **Modify Running time Synchronously** to apply the change effect for all the scenes running time together
- **Modify scene intensity Synchronously**, to modify all channels output level together
- **On-site Output scene**, to see the effect Live on your room before saving the scene.





Creating Area and scenes in the Modules is recommended for faster respond that control many channels in the same command.



Every area has Scene 0 and it is not modifiable, and always Pre-Programmed as scene Off that set all the channels Lights of the area to 0%.

### 3-8 Scene Restore

This setting is very important for the dimmer in case of Power failure. The scene restore is the specified scene that the dimmer module will run it once the Power restore after the electricity down.

- Press **scene** tab then press on scene Restore
- Select one of 2 options,
- **1- the scene before power off,**
- **2- specific scene Number**

Area number	Restore mode after power on	Scene No.
1	Specified scene	0

- Remember Scene 0 it mean the all Lights on the Area will be OFF when the Power restores.



Restore to scene 0 is useful for many applications to save the Electrical parts when the power came in higher load from the main usually.

### 3-9 Sequence Setting

Sequence setting is used to make Lights show and some other needed application in industry, security and others.

- Press on the Sequence tap

- Press on **sequence** Button to edit the sequence
- Select the mode you want

**Invalid:** not used

**Random:** will run the sequence scenes in random way

**Forward, and backward:** will run the scenes from first scene to last one then from last to first

**Backward:** will run the sequence scene from last to first

**Forward:** will run the sequence scene from first to Last

**Times:** the sequence can be **Unlimited** forever running, or will run from 1 time to 99 times.

**Step totally:** is the sequence scenes steps number that want to be include it in the Sequence

- After you finish editing your sequence setting, Press **save** and **exit**.
- Press **Remarks** to edit your Sequence name
- Press **Step** to edit your sequence steps
- Edit your **scene number** in each step
- Edit your **step time interval** on Minutes, seconds, part of seconds
- Press **Save** and **exit**



Some Relay Module like SB-DN-R0410, and SB-DN-R0810 don't have the Sequence Function



Relay Module that support the sequence like SB-DN-R0816 and SB-DN-R0420 , its Minimum step time interval can be 1 second.

## 4- Curtain and Motor Controller Programming

Motor always need tow directional Relays to control it, to protect the damage if both relay work together, usually the change over relay type is the relay used for the motor control

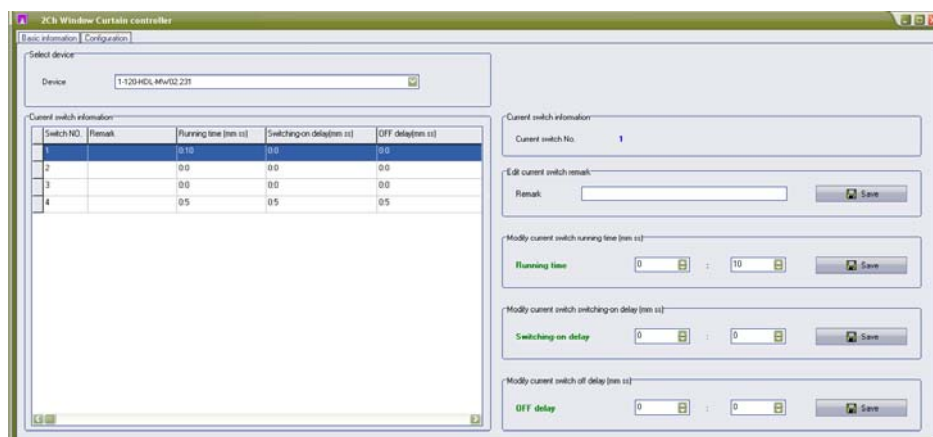
### 4-1 Curtain and motor controller overview

Beside the S-bus Sun seeker shade motor set controller, S-bus have its 2 channel Motor controller that can control any directional motor as open, close and stop statues.

### 4-2 Curtain Channel mode and programming

Search for the curtain Modules on the List,

- double click on the curtain module
- Edit the **Remark** name, then Press **Save**
- Go to **configuration** tab



- Edit the **remarks** for each curtain channel then press **save**

**For each curtain channel there is 3 important values:**

**Running Time:** the Time that the motor well be Opening or closing after this time the motor well stop

**Switch ON Delay:** the motor will not turn ON immediately, after this delay time the channel will turn on.

**OFF delay:** the motor will not turn OFF immediately after this delay time the channel will turn off.



To control directional motor like shades motor for example, don't forget to set the delay and running time in both channels of open and close depend on your shades type, speed and length.

## 5- Panel Switch Programming

### 5-1 Panel Switch Type Overview

The Switch panel in the wall is your interface to control your lights, curtain and other application

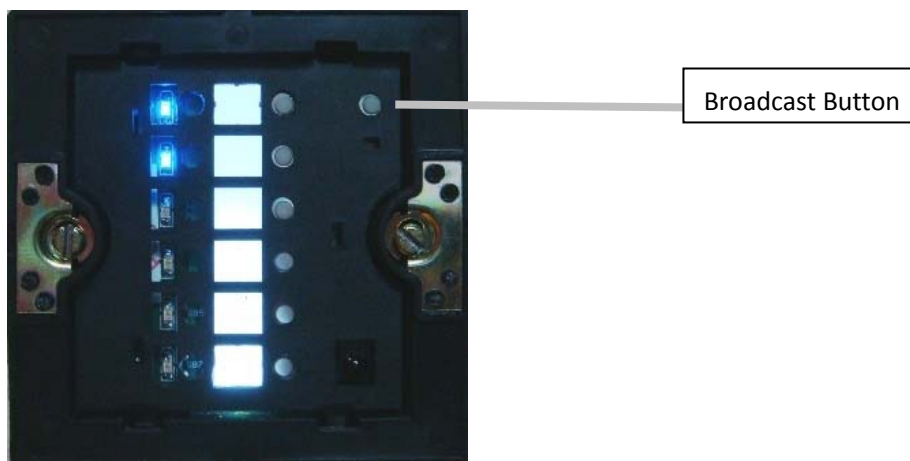
The S-bus button switch panels have many types, including the 6 button panel, 4 button panel, 3 buttons panel, 2 buttons panel, and 1 button panel.

### 5-2 Panel Switch Address and basic setting

To change the address and check the communication you should use the *Broadcast Address Device Search* as you see in the section 2-5 before)

*Every Switch Panel has broadcast button inside it*

*Open the plate cover and you can see the broadcast button as you can see in this Picture*



- On your software Press **Address Management/ Modify Address**



- On your Panel keep pressing the broadcast Address button for 5-10 seconds until LED turn ON
- In your software in the set initial Address window press the **Indicate Initial Address** Button
- Your Device ID and Subnet will appear Automatically
- To change the address just type the new subnet ID or device ID you want then press **Modify Initial Address**
- Press **ADD** to load your device in the Devices Network List
- Press **Exit** to Close the Window

After you load the Panel to the network, double click on it.

- In the basic setting you can type the panel name **remarks**, change its address subnet, and device ID
- Also you can change the **backlit** brightness and **LED** indicator brightness of the Buttons

BackLight

Status Lights

Save

Modify subnet ID and device ID according to MAC

Subnet ID  Device ID

Save

### 5-3 Panel Switch button Remarks and Modes

When we go to the Panel setting tab we will see all the buttons listed on the screen, by pressing the **mode** button we can change the Button function as you can see on this picture

**Edit key mode**

Basic information

Data acquisition mode	Device	Model	HDL-MP6RM-AA
Subnet ID	1	Device ID	9
Remark	Kitchen	Key totality	6

Modify key mode

1	Single on/off	2	Single on/off
3	Single on/off	4	Invalid
5	Single on	6	Single on/off

Single off  
Single on/off  
Combination on  
Combination off  
Combination on/off  
dbclick/single switch  
dbclick/Combination sw  
Momentary


Save Exit


### **Panel Switch Button Mode Setting**


<b>Mode</b>	<b>Function</b>	<b>Where to use example</b>	<b>How to use</b>
<b>Invalid</b>	No function	When you have extra button that you don't need to use it	No use
<b>Single OFF</b>	To OFF Light or scene, every time you press it	In room off mode to close the Light channel	Single Press
<b>Single ON</b>	To run scene ON , or Lights on every time you press	Usually used to trigger scene like visitor, meeting mode etc..	Single Press
<b>Single ON/OFF</b>	The classical use of toggling of single press ON/OFF	Widely use for ON/OFF light , scene by single press	Single Press ON , Single Press OFF, keep pressing Dim/ keep pressing Ramp
<b>Combination ON</b>	To trigger up to 99 different commands every time the button pressed	to Run complex mode that required more than 1 scene and mode by single press	Single Press
<b>Combination OFF</b>	To OFF up to 99 commands every time the button pressed	To OFF complex mode that required more than 1 scene and mode by single press	Single Press
<b>Combination ON/OFF</b>	To trigger up to 99 commands toggling between ON/OFF each time the button pressed	To run ON and OFF complex mode that required more than 1 scene and mode by single press	Single Press ON commands, Single Press OFF commands
<b>Double click, single switch</b>	To use the double click to run up to 49 commands while single press will toggle between ON/OFF of different commands	Used as extra function to trigger any other scenes on double click of the same button, like Double click can trigger ALL room off	Double fast click on the right button side to trigger double click function, Single Press ON, Single Press OFF, keep pressing Dim/ keep pressing Ramp

<b>Double click, Combination switch</b>	To use the double click to run up to 49 commands while single press will toggle between 50 commands ON/OFF	Used as extra function to trigger any other scenes on double click and different one for single Press	Double fast click on the right button side to trigger double click function, Single Press ON, Single Press OFF
<b>Momentary</b>	To run 1 command as momentary pressing	Used for example in Bell, gate motor , some IR commands	Keep pressing to keep sending on command, On release the OFF command will trigger

- To edit Button Remarks press **Remark** edit then **Save** and **Exit**

 be careful when using Combination mode, the button will not have 2 way feedback statues , then the panel LED cannot be updated if the lights channel ON or OFF from other devices.

 When using Combination, you will not be able to dim the Light channel or scene.

 Try always to use Single ON/OFF, cause its 2 way updated and simple friendly use for the end user.

## 5-4 Panel Switch button Function settings

For each button you can make different functions of different commands

- On the panel window go to key assignment
- Press on the Function button
- Press on type popup menu and you can select the function you want as you can see on the picture

Function no.	Subnet ID	Device ID	Type	Parameter 1
1	1	61	Scene switch	2
<div> <div>Scene switch</div> <div>Sequence switch</div> <div>Universal switch</div> <div>Single channel lighting cont</div> <div>Curtain switch</div> <div>Panel control</div> <div>Broadcast scene</div> <div>Broadcast channel</div> </div>				

- Press Save and Exit.

**The Button Function of switch panel you can make is listed down on this table**

<b>Function type</b>	<b>Parameter 1</b>	<b>Parameter 2</b>	<b>Parameter 3</b>
Invalid	N/A	N/A	N/A
Scene Switch	Area Number	Scene Number	N/A
Sequence Switch	Area Number	Sequence Number	N/A
Universal Switch	Switch Number	ON / OFF	N/A
Single channel Lights	Channel Number	Brightness 0-100%	Fade time 0S - 60 M
Curtain Switch	Switch Number	Stop / ON/ OFF	N/A
Panel control	IR Function	ON / OFF	N/A
Panel control	Lock key of panel	ON / OFF	N/A
Panel control	AC Power	ON / OFF	N/A
Panel control	Cooling Temp	0-30 C , 32- 86F	N/A
Panel control	FAN Speed	Auto/high/med/slow	N/A
Panel control	AC Mode	Auto/Cooling/Heating/FAN	N/A
Panel control	Heating Temp	0-30 C , 32- 86F	N/A
Panel control	Auto temp	0-30 C , 32- 86F	N/A
Panel control	Up temp	1-5 C/F	N/A
Panel control	Down Temp	1-5 C/F	N/A
Panel control	LCD Backlit	ON / OFF	N/A
Broadcast scene	All Area	Scene Number	N/A
Broadcast Channel	ALL Channel	Brightness 0-100%	Fade time 0S - 60 M

Each Function type is necessary for different Action

**Example of each one as the table below**

<b>Function Type</b>	<b>Example of using</b>
Invalid	Is to disable the function
Scene Switch	Used to trigger the Scene that you create on the Dimmer or Relay Area
Sequence Switch	Used To trigger the Sequence that you create on the Dimmer or relay Area
Universal Switch	Used to send infrared code number, play show control list , set logic flag On or Off, set the hotel door bell services , disable or enable (Motion sensor, light intensity, zone port automation )
Single channel Lights	Used to turn one channel lights on./off with special level and running fade time



Curtain Switch	Used to open, close or stop the curtain channel
Panel control , AC Power	Used to turn the Air condition , ON/OFF
Panel control Cooling Temp	Used to set the Air condition cooling desired temperature to 0-30 C , 32- 86F
Panel control FAN Speed	Used to set the Fan type between Auto, High , Medium , Low
Panel control AC Mode	Used to set the AC mode to run as Auto, Cooling, Heating , Fan only
Panel control Heating Temp	Used to set the Air condition heating desired temperature to 0-30 C , 32- 86F
Panel control Auto temp	Used to set the Air condition Auto mode desired temperature to 0-30 C , 32- 86F
Panel control Up temp	Used to Rise the Temperature by 1-5 C
Panel control Down Temp	Used to Lower the Temperature by 1-5 C
Panel control LCD Backlit	Used to set the backlit of LCD ON / OFF
Broadcast scene	Used to trigger same scene number for all the Areas of the dimmer or relay
Broadcast Channel	Used to turn ON/OFF or set channel to brightness level for the all channel of Dimmer or relay



When choosing **Combination or double click** mode you have to input the function target number **from ... to** then press **confirm**

Input function no. from  To

Function configuration of current key

	Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parame
1	1	1	7	Scene switch	1(Area no.)	4(Scene no.)	N/A
2	255	255	255	Invalid switch	255	255	N/A
3	255	255	255	Invalid switch	255	255	N/A
4	255	255	255	Invalid switch	255	255	N/A
5	255	255	255	Invalid switch	255	255	N/A



When using **double click / Combination** you can change between each function setting in the radio log as the picture below

Input function no. from  To   ☐ Switch ☒ Double click

Function configuration of current key



*Double click always will save the commands from 51 to 99, be careful when you change the button mode from double click to Combination mode only then the old setting of commands from 51 to 99 will remain and remain Active.*



*Try always to refresh the page, to make sure not old wrong setting appears on the page, to refresh the page press right click on the mouse then press on **Refresh (Clear buffer memory, reread data from device)***

### Useful tools for editing your Functions

There are some useful tools to help you while you are making setting for multi functions together like the one in Combination and double click mode

☒ Modify subnet ID synchronously
 ☐ Modify the intensity synchronously  
☐ Modify device ID synchronously
 ☒ Modify the running time synchronously  
☒ Modify type synchronously

Modify key function configuration

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	22	Single channel lighting cor	1	32	0
2	1	11	Single channel lighting control	1(Channel no.)	100(Intensity)	0:0
3	1	12	Single channel lighting control	4(Channel no.)	50(Intensity)	0:0
4	1	15	Single channel lighting control	5(Channel no.)	100(Intensity)	0:0

**Modify Subnet ID synchronously:** to modify all subnet ID together and save the time of editing each one alone

**Modify Device ID synchronously:** to modify all Device ID together and save the time of editing each one alone

**Modify type synchronously:** to modify all function type together and save the time of editing each one alone

**Modify the intensity synchronously:** to modify all Level brightness intensity together and save the time of editing each one alone

**Modify the running time synchronously:** to modify all the running fade time together and save the time of editing each one alone

## 5-5 Panel Switch button Memory, Dimming, and LED Setting

Beside the Button mode and function there are three important setting for each button

We can categorize it as:

- 1- **Memory / Toggling setting:** the memory will save the last Dimming value, every time you switch ON the light channel it will go to the last lights brightness Level you set before switching it OFF, while the toggling will turn the lights brightness to the maximum level and not save the last statues.
- 2- **Dimming / not Dimming setting:** it is simple setting you can use Dimming when your target lights is dimmable, while using not dimmable when your

target is not Dimmable Lights.

- 3- **LED enable / Disable Setting**, you can enable your 2 way Button LED statues, while in some situation you need always to disable the button LED.

### How to make LED, Dimming, Memory/toggling setting

- Go to **key assignment** tab on the panel setting
- Press on **Set button**
- Select the setting for each button you need

The screenshot shows a software window titled "Save adjust" with a close button in the top right corner. It contains two main sections: "Basic information" and "Keystroke info".

**Basic information:**

Model	HDL-MPL4.28		
Subnet ID	1	Device ID	3
Remark	Reception	Button LED setup	1

**Keystroke info:**

Key no.	Keystroke Status	Dimming	Keystroke status
1	Memory	Valid	Valid
2	Toggle	Invalid	Valid
3	Memory	Valid	Valid
4	Memory	Valid	Valid

At the bottom of the window, there are two buttons: "Save" and "Exit".

## 5-6 Live Example about Lighting, Motor shade Programming

The customer has BED ROOM that has the following lights, shade and Panel

Channel name	Channel type	Module type and Address
Center spot light	Dimmable Light	Dimmer Sub 1, Device ID 11 , Ch 1
Wall Lights	Dimmable Light	Dimmer Sub 1, Device ID 11 , Ch 3
Chandler	Dimmable Light	Dimmer Sub 1, Device ID 11 , Ch 4
Florescent Light	Not dimmable	Relay Sub 1, Device ID 12 , Ch 1
Cove robe Light	Not dimmable	Relay Sub 1, Device ID 12 , Ch 2
Shade	Curtain motor	Motor control Sub 1, Device ID 15 , Ch for open 1, Ch for close 2
6 button Panel	Wall panel	6G panel, Sub 1, Device ID 1

**The client wants the programming of his panel to be as the following**

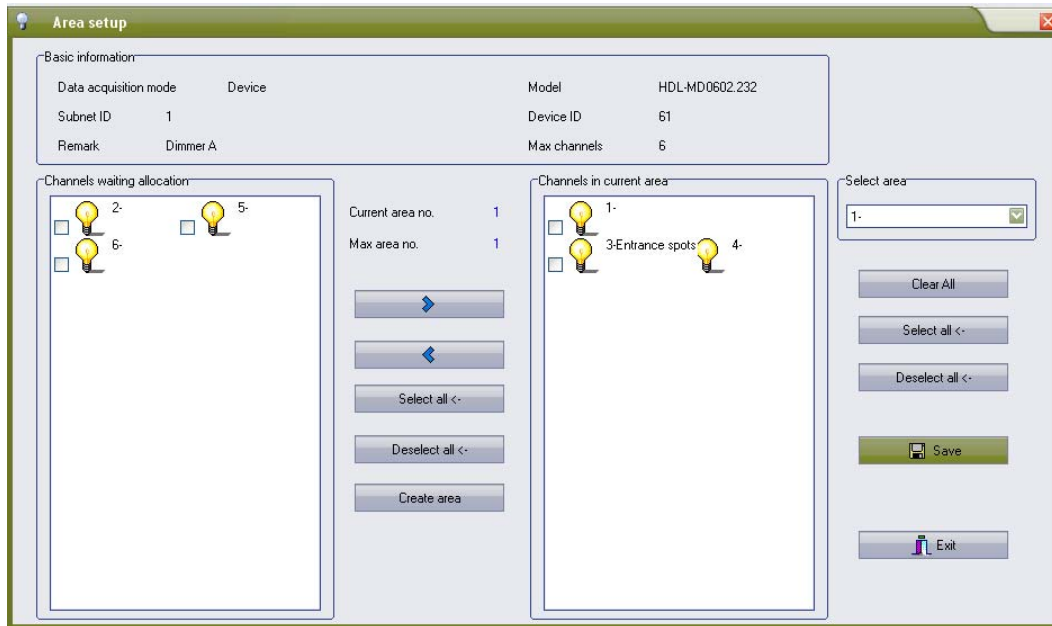
Button No	Function
Button 1	He want it to be as the following: single press to switch ON the center spot light, and single press to switch off the center spot lights, he want to be able to dim and ramp the lights by keep pressing the button , and he want the button to save the brightness level every time he press the lights On. And he want the LED statues to update him about the lights channel statues
Button 2	He want it to be as the following: single press to switch ON the florescent light, and single press to switch off the florescent lights, this channel is not dimmable lights so he don't want the dimmable function , And he want the LED statues to update him about the lights channel statues
Button 3	He want to trigger a scene to run the reading mode every time he press the button, the scene will be as (make the Center spot light to be 60%, Wall Lights to be 80, Chandler to be 40%, Florescent Light to be ON, Cove Lights to be OFF, and the shade will be open)
Button 4	He want to run the Movie Mode every time he press, the scene will be as following (make the Center spot light to be 20%, Wall Lights to be 30, Chandler to be OFF 0%, Florescent Light to be OFF, Cove Lights to be OFF, and the shade will be close)
Button 5	He want to run the saving energy mode, the mode will not affect the Wall lights but will turn the Center spot light to be 0%, Wall Lights to be 0, Chandler to be OFF 0%, Florescent Light to be OFF, Cove Lights to be OFF and the shade will be close
Button 6	He want it to be as single press to run the sleep mode, double click to run all room off, in the sleep mode , all the dimmable lights in the room will turn off slowly by 1 minute running fade time while the not dimmable lights will turn off fast and the curtain will close, while on double click all the lights will off fast directly and curtain will open, the customer don't want LED statues to indicate while he is on sleep or All OFF mode



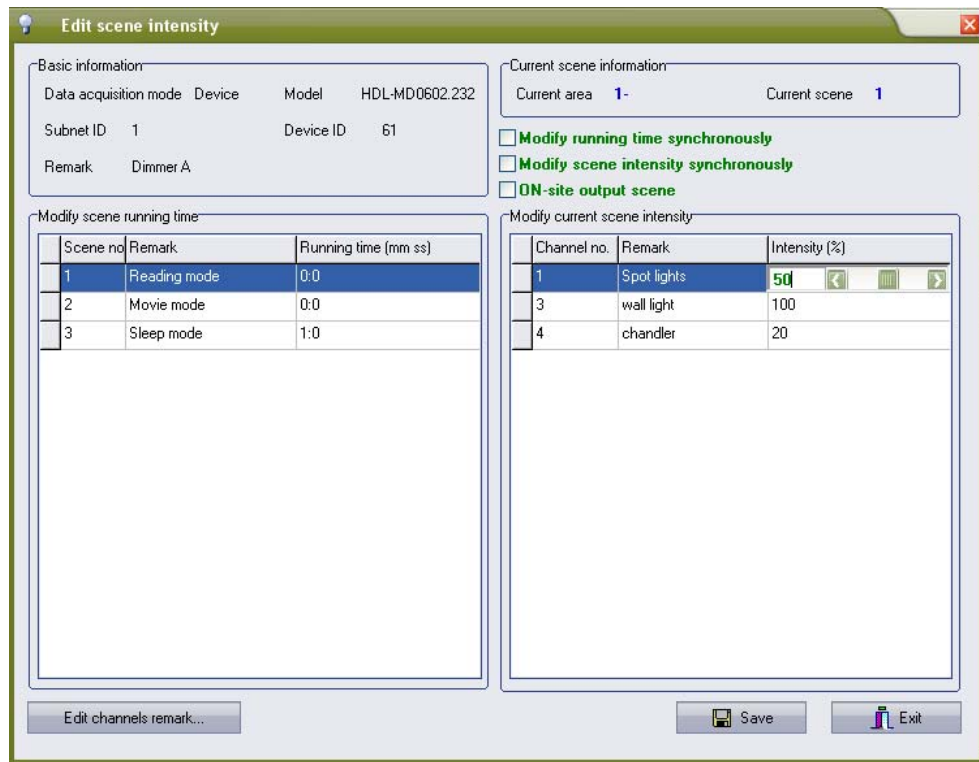
*Try to make the above requirement yourself before looking to the instruction steps*

**To program the above requirement Please do the following steps and then test your program, after you finish this example you will be able to do anything regarding the lighting and motor control programming.**

- 1- Go to your Dimmer setting , and specify Area 1 to include (ch1, ch3, ch4) and remove from the area 1 all the other extra Channels



- 2- Put the remarks of area 1 as bed room
- 3- Go to scene setting and select area 1 and specify from 1- 3 scene then press confirm and star make your scenes as, scene 1 , (Reading mode) set the channel level as required and set the running time as 0 seconds, scene 2 Movie mode set the channel level as required and set the running time as 0 seconds, set scene 3 sleep mode, set all channel to be OFF and set the running time as 1 Minute.



- 4- type the scenes names as 1 reading mode, 2 movie mode, 3 sleeping mode

- 5- in the same way, go to the relay and set the Relay Area 1 to include ch1, ch2 and remove all the other extra channels from area 1
- 6- Type the area name
- 7- Set the area scenes , select area 1 and set 1 scene of reading mode and set the required and set the running time as 0 seconds
- 8- Type the name of the scene
- 9- Go to the curtain and type the channel remarks
- 10-Set the running time, ON/OFF delay depend on your curtain motor needs
- 11-Go to your 6 button switch panel setting and type the panel remarks name
- 12-Set button 1 mode as Single ON/OFF
- 13-Set Button 1 Function type as single channel lights,(subnet 1, Device ID 11 channel 1, Level 100%, running time 0:0

**Edit key function configuration**

Basic information:

Data acquisition mode	Device	Model	HDL-MP6RM-AA
Subnet ID	1	Device ID	9
Remark	Kitchen	Current key	1
Mode	Single on/off		

☐ Modify subnet ID synchronously
 ☐ Modify the intensity synchronously  
☐ Modify device ID synchronously
 ☐ Modify the running time synchronously  
☐ Modify type synchronously

Modify key function configuration:

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	11	Single channel lighting cor	1	100	0

- 14-Set the button function as Dimming, LED enable, Memory,

**Save adjust**

Basic information:

Model	HDL-MP6RM-AA		
Subnet ID	1	Device ID	9
Remark	Kitchen	Button LED setup1	

Keystroke info:

Key no.	Keystroke Status	Dimming
1	Memory	Valid
2	Toggle	Valid
3	Toggle	Valid
4	Toggle	Valid
5	Toggle	Valid
6	Toggle	Valid

Save Exit

- 15- you can test your programming for the first button, by single press ON – Single Press OFF, Keep Press Ramp/DIM, Keep Press again Ramp/DIM, if everything working fine then your first button programming is done

- 16- Set button 2 mode as Single ON/OFF
- 17-Set Button 2 Function type as single channel lights,(subnet 1, Device ID 12 channel 1, Level 100%, running time 0:0
- 18-Set the button function as no Dimming, LED enable, toggle,
- 19- you can test your programming for the second button, by single press ON, Single Press OFF, keep press will Toggle the light on release if everything working fine then your second button programming is done
- 20- Set button 3 mode as Combination ON

Modify key mode

1	Single on/off	2	Single on/off
3	Combination on	4	Single on
5	Single on/off	6	Single on/off

Save Exit

- 21- Set target function from 1-3, and set first function type as (scene switch, subnet 1, Device ID 11 area 1, scene 1), set second function as (scene switch, subnet 1, Device ID 12 area 1, scene 1),set third function as (curtain control subnet 1, Device ID 15, and set channel 1 to be ON)

Input function no. from 1 To 3 Confirm

Function configuration of current key

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	11	Scene switch	1(Area no.)	1(Scene no.)	N/A
2	1	12	Scene switch	1(Area no.)	1(Scene no.)	N/A
3	1	15	Curtain switch	1(Switch NO.)	On(Switch Status)	N/A

- 22-you can test your programming for the third button, by single press to trigger all your needs as reading mode, if everything running correct meaning your button programming done
- 23-Set button 4 mode as Combination ON
- 24- Set target function from 1-3, and set first function type as (scene switch, subnet 1, Device ID 11 area 1, scene 2), set second function as (scene switch, subnet 1, Device ID 12 area 1, scene 0),set third function as curtain control and set subnet 1 , device ID 15 channel 2 to be ON
- 25-you can test your programming for the forth button, by single press to trigger all your needs as movie mode , if everything running correct meaning your button programming done
- 26-Set button 5 mode as Combination ON
- 27- Set target function from 1-4, and set first function type as (single channel light switch, subnet 1, Device ID 11 channel 1, level 0%, running 0:0), set second function type as (single channel light switch, subnet 1, Device ID 11 channel 4, level 0%, running 0:0),set third function as (scene switch, subnet 1, Device ID 12 area 1, scene 0),set forth function as (



- curtain control subnet 1, Device ID 15, and set channel 2 to be ON)
- 28-you can test your programming for the fifth button, by single press to trigger all your needs as saving energy mode , if everything running correct meaning your button programming done
- 29-Set button6 mode as Double click/ Combination
- 30- Put the selection for functions target on **Switch** to configure the sleep mode function see the picture below



- 31-Set target function from 1-3 and press confirm, then set first function type as (scene switch, subnet 1, Device ID 11 area 1, scene 3), set the second function as (scene switch, subnet 1, Device ID 12 area 1, scene 0),set third function as (curtain control subnet 1, Device ID 15, and set channel 2 to be ON)
- 32-you can test your programming for the fifth button, by single
- 33-Put the selection for functions target on **double click** function
- 34-Set target function from 1-3, and press confirm, then set first function type as (scene switch, subnet 1, Device ID 11 area 1, scene 0), set the second function as (scene switch, subnet 1, Device ID 12 area 1, scene 0),set third function as (curtain control subnet 1, Device ID 15, and set channel 1 to be ON)
- 35-Set your button LED as Invalid
- 36-Single press to trigger all your needs as sleep mode , then double click on the right side to trigger all off mode , if everything running correct meaning your button programming done



*After you complete this example, try to use different button mode that you don't use on the above example like (Momentary, single ON, Single OFF, Double click/Single, combinations OFF), also try to use some functions like (Sequence). And change in the buttons settings like (Dimming LED and memory), toggling function to understand the function very well.*

### **Mutual Exclusion Function**

This function is used on switch panel to link between two or more combination ON/OFF button mode to consider them as 1 group, and to prevent the confusion of using two related macros together.

- On the **key assignment** press on the **mutual exclusion** button
- Set the value to **YES** for all the buttons of combination ON/OFF to be as 1 group together



**Edit the mutual exclusion relationship between keys**

Basic information

Model: HDL-MP6RM-AA

Subnet ID: 1      Device ID: 9

Remark: Kitchen

Edit the mutual exclusion relationship between keys (condition: Combination on/off mode)

Key no.	Remark	Mode	Mutual exclusion or not
1		Single on/off	N/A
2		Single on	N/A
3		Single on	N/A
4		Combination on/off	YES
5		Combination on/off	YES
6		dbclick/single switch	N/A

Save      Exit



Try to make two buttons as combination ON/OFF with many commands and set them mutual exclusion to YES and recognize the difference



Mutual exclusion is active only on Combination ON/OFF for the 6button panel, while its active on all combination modes and double click modes of the DLP and new series of Wall switch panels).

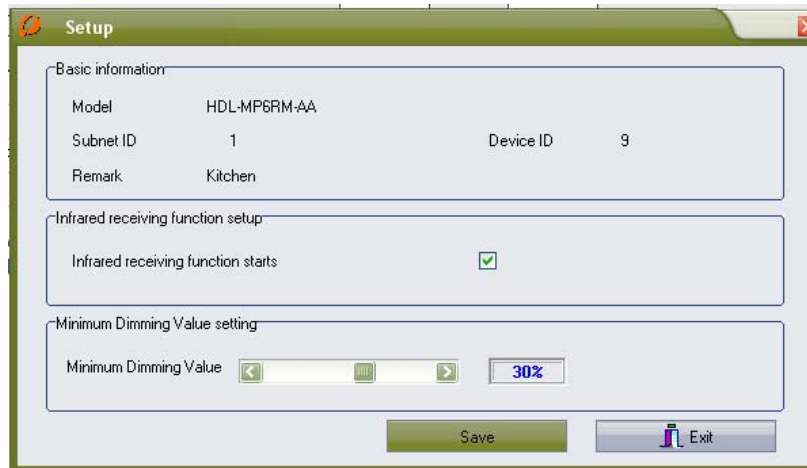
## 5-7 Panel Switch Setup (Minimum Dimming Value and Infrared)

**Minimum Dimming value:** is used to force the panel not to dim the light from the button by keep pressing it in order not to go below the minimum level of dimming

**Infrared function:** is used to enable or disable the IR receiving function on the panel,

To make the setting of the of the Minimum Level and IR setting

- Go to **Key Assignment** tab
- Press **setup** button
- Adjust the Minimum Dimming Value from 0% - 50%
- Uncheck the Infrared receiving function to disable or check the box to enable it



*Minimum level is very important and useful function to avoid the confusion for the user when he dim some memory button to 10% and the spot lights will appear as OFF while it is 10% dimming, when the user press the button single press it will toggle between 10% and 0% and the user will think the lights is burned cause he will not notice the 10%.*



*Minimum level recommended being as 20% so the lights will not go below this level when the user keep pressing the button.*



*IR disabling is useful when 2 panel near each other in 1 room and the remote control sending to the both panel and the functions is confusing the user, disabling 1 panel IR is recommended on this situation.*

## 5-8 Panel Switch Lock and Unlock Function

Panel Lock function will affect the panel by auto locking the buttons every 20 seconds.

**To release the panel lock** you should keep pressing the first and last button of the switch panel together for couple of seconds, then you will see the Buttons LED flashing, here the panel button released and you can use the panel button.

Every time the Panel will go to auto lock again every 20 seconds of last usage if the Auto Lock is enabled.

### How to make the Lock setting


- Go to **Key assignment**
- Press **Key Lock** Button
- Check the box for **Key Lock startup** for Auto Lock function, uncheck for disable this function
- Press **save** and **exit**

Basic information			
Model	HDL-MP6RM-AA		
Subnet ID	1	Device ID	9
Remark	Kitchen		

Key lock setting	
Key lock startup	<input type="checkbox"/>

Save      Exit

 *Auto lock is useful in public Area like restaurant, party halls, Private room etc. to prevent the customer and not authorized people to play on the lights and mode of the room.*

## 6- HVAC Programming

HVAC module is the main module that control most of central air condition types, like AHU, FCU, VAV

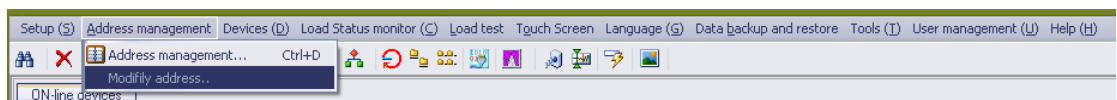
### 6-1 Introduction of HVAC Module

The HVAC module have 3 Mode relay type you can configure it as your requirement, each relay can be (Cool, heat, Aux (humidifier, dehumidifier)) with 2 FAN speed relays as slow and fast, with VAV control DC 0-10 V for 3 air speed as Slow, Medium and high

### 6-2 HVAC Address and Testing

Like all Din Rail Mount Modules, the HVAC module has its Broadcast Address button; to get the HVAC address you can do the following

- On your software Press **Address Management/ Modify Address**



- Go to your HVAC Module device, then keep pressing the broadcast Address button for 5-10 seconds until its LED keep ON
- In your software in the set initial Address window press the **Indicate Initial Address** Button



- Your Device ID and Subnet will appear Automatically
- To change the address just type the new subnet ID or device ID you want then press **Modify Initial Address**
- Press **ADD** to load your device in the Devices Network List
- Press **Exit** to Close the Window

After you load the device to your list, double click on the Module to open its configuration

On the basic information, you can add the name Remarks of your HVAC,

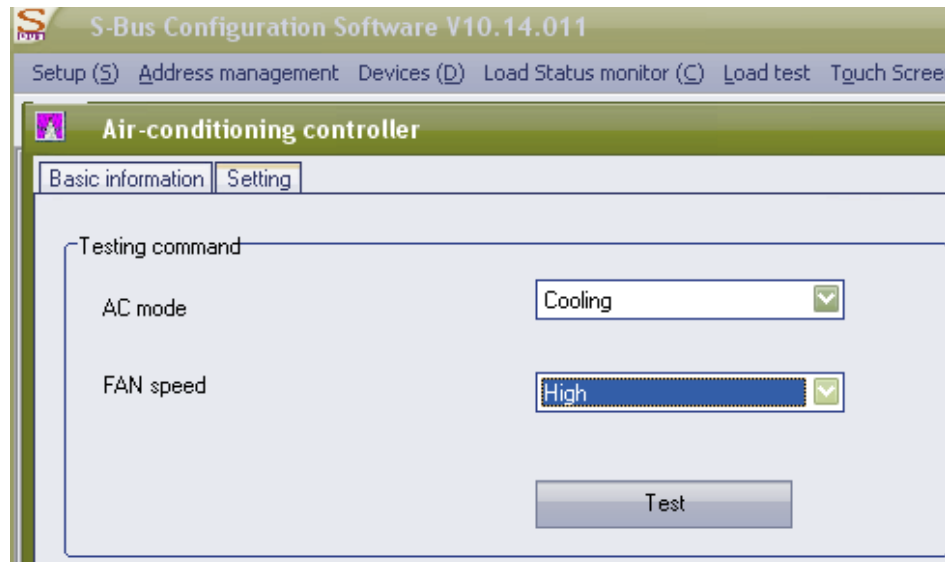



*It is recommended to give the name of the room or place that the HVAC is installed or running its AC, for example you can type the remarks of the HVAC as Living AC*

After you give the Address and name remarks for your HVAC module, it is the time to start checking the connection of the module to the unit.

To test the commands and see if the AC unit responding do the following

- On the HVAC page go to the **setting** tab
- In the test command section Select the fan speed you want to test it
- Press test then the relay of HVAC Fan should respond




 Before you test the AC Mode cooling heating Modes or 0-10V output, you should configure the AC Mode and VAV setting (see 6-4, 6-5)

### 6-3 HVAC Startup and Switch off Safety Delay

Compressor Startup safety Delay is one of the most important settings you should take care about when you make the setting of the HVAC module. The compressor delay will prevent the HVAC Module to turn the compressor ON directly after it Turned off, Delay time of minutes or seconds always preventing the Direct ON after OFF operation, that will keep your Central unit safe, without damaging your compressors and units.

To do the AC delay setting

- On the HVAC page go to **setting**
- Go to **Air condition delay** section
- Set the **compressor startup delay**, select (Minutes 1-10) or (seconds 3-127), this setting will prevent the compressor to ON after OFF by this delay Minutes / seconds.

 *Compressor startup delay is the most important safety setting to protect your AC unit*

Setting	Value	Unit
Compressor Startup Delay	1	(M)
Compressor Switch off Delay	5	(S)
Fan Startup Delay	3	(S)
Fan Switch off Delay	10	(S)

Save

Beside the compressor startup delay there is other function you can set in the Air condition delay section as following

**Compressor switch OFF delay:** every time you switch your AC unite, the HVAC will give 0-10 seconds delay time to off your compressor.

**Fan Startup Delay:** every time you start your Fan, the HVAC will give 0-10 seconds delay time to start your Fan.

**Fan Switch OFF delay:** every time you stop your fan, the HVAC will give 0-10 seconds delay time to stop your Fan.

Press **save** when you finish your setting



*it is highly recommended to set your compressor switch off delay to 10 seconds to give more time for the user to change his AC mode between FAN ,Heat, Cool, and make sure he select his mode, that will prevent switching OFF the compressor while the user still selecting his AC mode.*



*it is recommended to give different OFF time for both compressor and FAN, for example if your compressor OFF delay is 10 seconds, make your Fan OFF delay is 8 seconds, this will be better for relay action and power consumption by gradually OFF Process.*



*In case of power down, when the power restore to the HVAC module, the HVAC will return to its last Running mode.*



*Always Read the AC unit instruction and installation manuals before any installation or programming to fit the best requirement for your AC control*

## 6-4 HVAC Mode Configuration and safety Running Sequence

In this setting you will configure the HVAC Mode compressor Relays (I II III) each can be as (cool, Heat, Auxiliary or disable),

The screenshot shows the 'AC model config' window. It contains three sections for 'Switch 1', 'Switch 2', and 'Switch 3'. Each section has a 'Function' dropdown menu and a 'Sequence Run-time(M)' table with four rows: '1st step (ON)', '2nd step (OFF)', '3rd step (ON)', and '4th step (OFF)'. Each row has a corresponding input field with a dropdown arrow. To the right of each section is a 'Save' button.

Switch	Function	1st step (ON)	2nd step (OFF)	3rd step (ON)	4th step (OFF)
Switch 1	Cool	20	1	20	1
Switch 2	Cool	20	1	20	1
Switch 3	Heat	15	2	8	2

In the AC Mode configuration you can set the function mode for each relay switch, this module support single stage and multi stage Unites, for example if you have a big unit of 2 cool compressors , then you can set the switch1 and switch 2 as cool.

The table below shows you the setting and function table of your HVAC mode configuration

Setting	Usage of this Function
<b>Function Cool</b>	Used to configure the relay switch that will be connecting to the central AC unit cooling compressor wire
<b>Function Heat</b>	Used to configure the relay switch that will be connecting to the central AC unit Heating compressor wire
<b>Function Auxiliary</b>	Used to configure the relay switch that will be connecting to the Humidifier, dehumidifier, fresh air motor wires, FAN
<b>Function Disable</b>	To Disable the Relay switch , it is used when there is

	no connection to the relay, and it is important to disable it to save the unnecessary consumption
<b>Sequence Running time 1<sup>st</sup> step ON, 2<sup>nd</sup> step OFF</b>	Used for safety <u>startup sequence</u> to rest the compressor after couple of minutes of starting by 2 <sup>nd</sup> step OFF minutes
<b>Sequence Running time 3<sup>rd</sup> step ON, 4<sup>th</sup> step OFF</b>	Used for safety <u>running sequence</u> to rest the compressor after couple of minutes of running by 4 <sup>th</sup> step OFF minutes especially in case of multi stage compressor to let one rest while the other is starting and vice versa

### Example of double stage cooling unit safety running sequence setting

This setting will let the both compressor to run as startup sequence together for 20 minutes (1<sup>st</sup>, 2<sup>nd</sup> steps) while in the running time (3<sup>rd</sup>, 4<sup>th</sup> steps), each compressor will (start and stop) in different times to rest and save the consumption of AC

Switch 1	Function	Cool
	1 <sup>st</sup> step ON	<b>20</b>
	2 <sup>nd</sup> step OFF	<b>0</b>
	3 <sup>rd</sup> step ON	<b>9</b>
	4 <sup>th</sup> step OFF	<b>3</b>
Switch 2	Function	Cool
	1 <sup>st</sup> step ON	<b>20</b>
	2 <sup>nd</sup> step OFF	<b>5</b>
	3 <sup>rd</sup> step ON	<b>12</b>
	4 <sup>th</sup> step OFF	<b>4</b>



*Value 0 Minute will disable the step in the safety sequence settings*



*Safety running sequence is important to keep and extend the life of your central AC unit.*



*It is recommended for every long running time to set the off step at least to 3 minutes to make the unit rest*




## HVAC VAV Fan Voltage Output Setting 6-5


VAV setting is to set the Variable DC Voltage output for each fan speed from 0-10 VDC

- Go to **Setting** on the AC page
- Go to **VAV fan voltage setting**
- Set the Value of **Voltage** you want to give in each Fan speed Mode

Fan Speed	Voltage (V)
High	9
Medium	5
Low	2

Save

 Some VAV unit use 0-5 V, also you can modify your HVAC module VAV voltage setting to adapt with 0-5 V, for example you can set it as (Low 1V, Medium 3V, high 5V).

 This HVAC Module work and communicate with the DLP Panel SB-DLP-XX, Please read (DLP AC Page control Setup 7-12).

## 7- DLP LCD Panel (Basic Lighting and HVAC Function)

In this lesson we will learn about some of the function of the DLP panel that will cover the Lighting, scenes, curtain and HVAC setting.

### 7-1 DLP Overview

The wall Dynamic labelling Panel DLP is the first LCD panel in the world that can control lights, shade, security, air-condition, music, infrared. With built in temp sensor and infrared receiver

The DLP has ( 4 commands button + 1 button to change between pages) of 4 multi usage pages with AC master page and 8 slave AC pages, music page, password page, and the settings pages.

Each button can be used as single pres, keep press, double click, right and left pressing, momentary pressing function

### 7-2 DLP Address Page Password and Language Setting

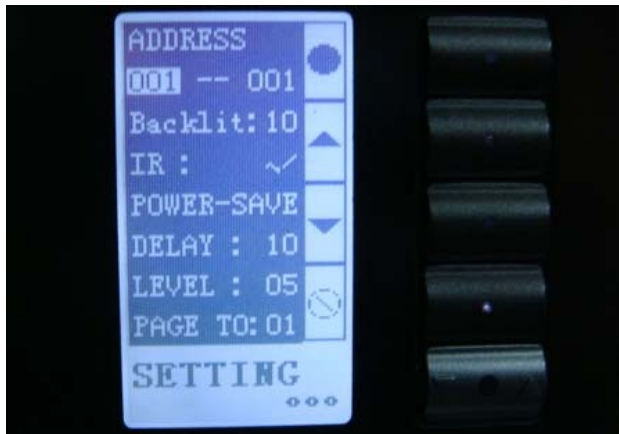
The DLP panel Address setting can be set by S-bus configuration software, or manually from the DLP panel setting

**To set the Address manually, please do the following:**

- On your DLP panel Keep pressing on the **buttons (1 and 4)** together for couple of second
- Setting page will appear for you as you can see



- As you can see from the menu the 4 button function will be (button 1 confirm, button 2 Arrow up, button 3 Arrow down, button 4 back)
- Go to **system** and press button1 confirm
- Another list menu will appear as you see



- You can see the **address** consist of 2 number which refer to the subnet ID, and device ID
- change the address by using button 2,3 for arrow up+ arrow down- , press button 1 to confirm, and to go to the next setting , press button 4 back to exit the setting
- Also in the system list menu you can change the **backlit** brightness level from 0-10, **IR** receiving function by enabling or disabling it.
- Also you have the **power save** setting , to set the Delay time by seconds to dim the backlit to the specify Level as you can see on the **Delay** and **LEVEL** setting
- **Page to** setting to let the DLP LCD to show the default page after the delay time finish.
- After you finish your setting you can press button 4 back and exit.



*Changing the Address manually is more convenience and faster for programmer to assign the panels by its address in any new project*

Also you can use the password setting to lock the pages by protected password

**To set the password settings, do the following:**

- On your DLP panel Keep pressing on the **buttons (1 and 4)** together for couple of second
- Setting page will appear for you as you can see



- Go to **password** by pressing button 3 arrow down then press button 1 confirm
- The password page will appear as following



- In the **PAGE** setting you can select the page number you need to lock by password, then press button 1 confirm
- In the **USED** you can use the arrow up to enable or disable the password page protection then press button 1 confirm



- In the **PASSWORD** you can press button 3 Arrow down to change the password the following menu will appear



- To change the password you should enter your old password and then your new password, the **default password is 0000**
- In the **OLD** type your password by using button 2, 3 to change the number and button 1 confirm to go to the next number digit

- In the **NEW** use the same buttons to type your new password
  - After you finish press button 4 back
- The following page will appear to confirm the password new setting



- Select between YES or NO by pressing button 2,3.
- To **save** the change select yes and press button 1 confirm
- The page that protected by password will be locked after 20 seconds automatically and cannot be open unless you type your right password

#### **To change the setting menu language, do the following**

- On your DLP panel Keep pressing on the **buttons (1 and 4)** together for couple of second
- Setting page will appear for you as you can see
- Go to Language setting and press button 1
- Chose between the language you have then press confirm button 1



*The DLP Language setting will affect the default picture showing on the AC page.*

-

### **7-3 DLP Basic setting**

Double click on the Panel on the search List

You can type the Name of the Panel Location in the **Remarks**

In the **LCD Backlit** you can

- Adjust the Backlit of the LCD from 0-100%
- Adjust the LED statues Brightness from 0-100%

Also from basic setting you can Change the subnet and device ID of the Panel

Go to **Basic Setting** tab

## Backlit Display

In this page you can make the Backlit Display setting

You have two options

- Always Show: will keep the backlit ON all the time
- Designate specific time : to put timeout from 10-99 seconds to go to the

saver mode of backlit brightness level



*It is recommended always to set the backlit to 0% after time in all bed rooms so the backlit will not disturb the user while he is sleeping*

### Page jump setting

You have two options for this setting

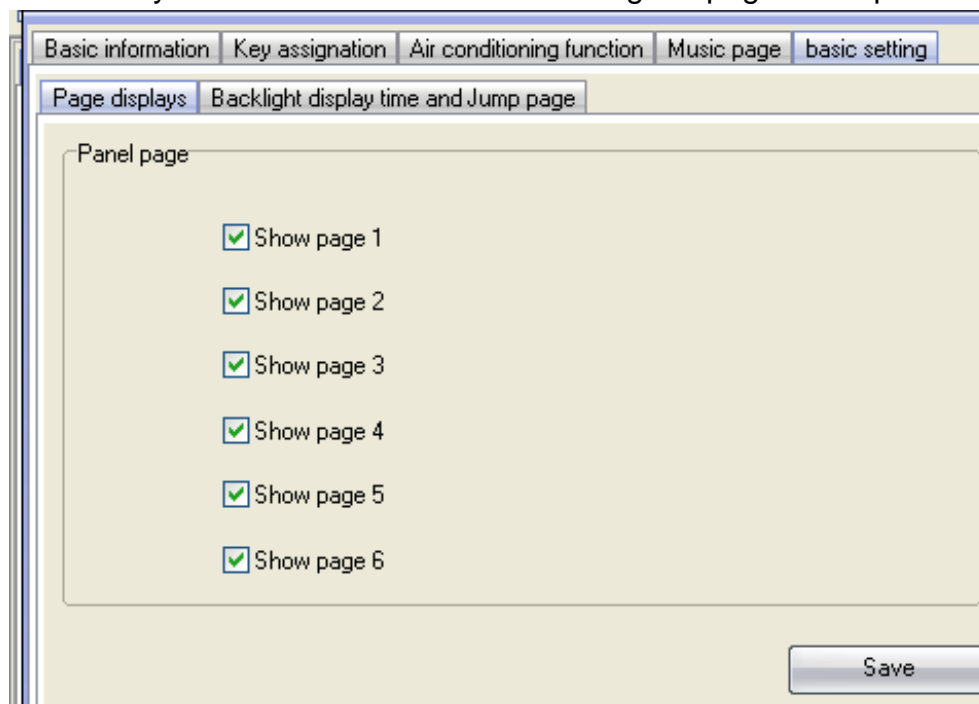
- Never jump: the page will remain and will never change automatically, for example if the user put the DLP panel to page 3 it will remain on page 3 until he change the page by himself
- Designate jump page: the DLP panel will jump to page Number( \*) after Jump delay from 20-150 seconds



*It is recommended always to put the Jumping page to Default lighting page for example page 1, cause the user will use his lighting mostly in his room more than Air-condition or music or other function*

### Page displays

In this tab you can enable or disable showing the page in the panel



Remember that page 1-4 is multi function page, Page 5 is for AC, and page 6 is the music page.



*Always disable the page that you don't need in your panel to make your Pages more friendly use and save time to navigate between the needed pages only.*

## 7-4 DLP 4 Pages Button Remarks and Modes

Go to **Key Assignment** tab on the DLP Panel setting

You have total 4 pages in you LCD Panel you can configure it according to your needs, to move between pages use the **Arrows** as shown on this Picture

Current key **1** Mode **Single on/off**

Key information: 1 1 [Dropdown] [Left Arrow] [Right Arrow]

Key no.	Remark	Mode
1		Single on/off
2		Single on/off
3		Single on/off
4		Single on/off

### Remarks Edit

- Press on **Remarks** Button
- Type your Remarks for each button
- Press **save**
- Go to the next page and do the same for each button

### Mode Edit

- Press on **Mode** button
- Edit your button mode for each button
- Press save
- Repeat it for each page you need to configure its button

**Edit key mode**

Basic information

Data acquisition mode	Device	Model	HDL-MPL4.28
Subnet ID	1	Device ID	1
Remark	Fax Room	Key totality	4
Current page 1			

Modify key mode

1	Single on/off	2	Single on/off
3	Combination on Combination off Combination on/off Separated Single Separated Combined dbclick/single switch dbclick/Combination sv Momentary	4	Single on/off

[Save] [Exit]



## DLP Panel Button Mode

Mode	Function	Where to use example	How to use
<b>Invalid</b>	No function	When you have extra button that you don't need to use it	No use
<b>Single OFF</b>	To OFF Light or scene, every time you press it	In room off mode to close the Light channel	Single Press
<b>Single ON</b>	To run scene ON , or Lights on every time you press	Usually used to trigger scene like visitor, meeting mode etc..	Single Press
<b>Single ON/OFF</b>	The classical use of toggling of single press ON/OFF	Widely use for ON/OFF light , scene by single press	Single Press ON , Single Press OFF, keep pressing Dim/ keep pressing Ramp
<b>Combination ON</b>	To trigger up to 99 different commands every time the button pressed	to Run complex mode that required more than 1 scene and mode by single press	Single Press
<b>Combination OFF</b>	To OFF up to 99 commands every time the button pressed	To OFF complex mode that required more than 1 scene and mode by single press	Single Press
<b>Combination ON/OFF</b>	To trigger up to 99 commands toggling between ON/OFF each time the button pressed	To run ON and OFF complex mode that required more than 1 scene and mode by single press	Single Press ON commands, Single Press OFF commands
<b>Separated Single</b>	To trigger single command ON/OFF	Used to open close curtain, Lights,	Press on the Right side ON, Left side OFF
<b>Separated Combination</b>	To trigger 50 commands by pressing Right side, other 50 commands when pressing Left side	Used to trigger different IR, as CH+,CH- , VOL+ , VOL-, curtain Open close , different IR codes triggering	Press on the Right side ON 50 commands, Left side OFF other 50 commands

<b>Double click, single switch</b>	To use the double click to run up to 49 commands while single press will toggle between ON/OFF of different commands	Used as extra function to trigger any other scenes on double click of the same button, like Double click can trigger ALL room off	Double fast click on the right button side to trigger double click function, Single Press ON, Single Press OFF, keep pressing Dim/ keep pressing Ramp
<b>Double click, Combination switch</b>	To use the double click to run up to 49 commands while single press will toggle between 50 commands ON/OFF	Used as extra function to trigger any other scenes on double click and different one for single Press	Double fast click on the right button side to trigger double click function, Single Press ON, Single Press OFF
<b>Momentary</b>	To run 1 command as momentary pressing	Used for example in Bell, gate motor, some IR commands	Keep pressing to keep sending on command, On release the OFF command will trigger
<b>Clock</b>	To have clock alarm to run many commands on time	Used for reminders for meetings, or get up daily, or medicine reminders	Keep pressing to go to Alarm setting, double click to Active and inactive



*It is recommended using separated Mode always to send IR like TV CH +, CH - , or to open close the Curtain.*



*It is not recommended to use Separated Mode for Lighting Purpose, because the button is small and will confuse the user in darkness and in using; it is recommended to use the Single ON/OFF Mode for Lighting*

## 7-5 DLP buttons function setting

For each button you can make different functions of different commands

- On the panel window go to **key assignment**
- Press on the **Function** button
- Press on type popup menu and you can select the function you want as

you can see on the picture

Function no.	Subnet ID	Device ID	Type	Parameter 1
1	1	61	Scene switch	2
			Scene switch Sequence switch Universal switch Single channel lighting cont Curtain switch Panel control Broadcast scene Broadcast channel	

- Press Save and Exit.

**The Button Function of the DLP panel you can make is listed down on this table**

Function type	Parameter 1	Parameter 2	Parameter 3
Invalid	N/A	N/A	N/A
Scene Switch	Area Number	Scene Number	N/A
Sequence Switch	Area Number	Sequence Number	N/A
Universal Switch	Switch Number	ON / OFF	N/A
Single channel Lights	Channel Number	Brightness 0-100%	Fade time 0S - 60 M
Curtain Switch	Switch Number	Stop / ON/ OFF	N/A
GPRS Control	Message	Message SMS Number	N/A
Panel control	IR Function	ON / OFF	N/A
Panel control	Lock key of panel	ON / OFF	N/A
Panel control	AC Power	ON / OFF	N/A
Panel control	Cooling Temp	0-30 C , 32- 86F	N/A
Panel control	FAN Speed	Auto/high/med/slow	N/A
Panel control	AC Mode	Auto/Cooling/Heating/FAN	N/A
Panel control	Heating Temp	0-30 C , 32- 86F	N/A
Panel control	Auto temp	0-30 C , 32- 86F	N/A
Panel control	Rise temp	1-5 C/F	N/A
Panel control	decrease Temp	1-5 C/F	N/A
Panel control	LCD Backlit	ON / OFF	N/A
Panel control	Lock key of AC	ON/OFF	N/A
Broadcast scene	All Area	Scene Number	N/A
Broadcast Channel	ALL Channel	Brightness 0-100%	Fade time 0S - 60 M
Security Module	Area Number	Arming Mode	N/A

Each Function type is necessary for different Action

**Example of each one as the table below**

<b>Function Type</b>	<b>Example of using</b>
Invalid	Is to disable the function
Scene Switch	Used to trigger the Scene that you create on the Dimmer or Relay Area
Sequence Switch	Used To trigger the Sequence that you create on the Dimmer or relay Area
Universal Switch	Used to send infrared code number, play show control list , set logic flag On or Off, set the hotel door bell services , disable or enable (Motion sensor, light intensity, zone port automation )
Single channel Lights	Used to turn one channel lights on./off with special level and running fade time
Curtain Switch	Used to open, close or stop the curtain channel
GPRS Control	Used to send SMS as alert, Help, Emergency , or information
Panel control , AC Power	Used to turn the Air condition , ON/OFF
Panel control Cooling Temp	Used to set the Air condition cooling desired temperature to 0-30 C , 32- 86F
Panel control FAN Speed	Used to set the Fan type between Auto, High , Medium , Low
Panel control AC Mode	Used to set the AC mode to run as Auto, Cooling, Heating , Fan only
Panel control Heating Temp	Used to set the Air condition heating desired temperature to 0-30 C , 32- 86F
Panel control Auto temp	Used to set the Air condition Auto mode desired temperature to 0-30 C , 32- 86F
Panel control Rise temp	Used to Rise the Temperature by 1-5 C
Panel control Decrease Temp	Used to Lower the Temperature by 1-5 C
Panel control LCD Backlit	Used to set the backlit of LCD ON / OFF
Lock key of AC	Used to Hold your AC, so no one can control it, or to lock other room AC. Like children room AC
Broadcast scene	Used to trigger same scene number for all the Areas of the dimmer or relay
Broadcast Channel	Used to turn ON/OFF or set channel to brightness level for the all channel of Dimmer or relay
Security Module	Use to Arm your home in deferent level, like Vacation Away Night, or Disarm, also used to trigger panic , Fire, Emergency

## 7-6 DLP Buttons Memory, Dimming, and LED Setting

Beside the Button mode and function there are three important setting for each button

We can categorize it as:

- 4- **Memory / Toggling setting:** the memory will save the last Dimming value, every time you switch ON the light channel it will go to the last lights brightness Level you set before switching it OFF, while the toggling will turn the lights brightness to the maximum level and not save the last statuses.
- 5- **Dimming / not Dimming setting:** it is simple setting you can use Dimming when your target lights is dimmable, while using not dimmable when your target is not Dimmable Lights.
- 6- **LED enable / Disable Setting,** you can enable your 2 way Button LED statuses, while in some situation you need always to disable the button LED.

### How to make LED, Dimming, Memory/toggling setting

- Go to **key assignment** tab on the panel setting
- Press on **Set button**
- Select the setting for each button you need

The screenshot shows a software window titled 'Save adjust' with a close button in the top right corner. The window is divided into two main sections: 'Basic information' and 'Keystroke info'.

**Basic information:**

Model	HDL-MPL4.28		
Subnet ID	1	Device ID	3
Remark	Reception	Button LED setup	1

**Keystroke info:**

Key no.	Keystroke Status	Dimming	Keystroke status
1	Memory	Valid	Valid
2	Toggle	Invalid	Valid
3	Memory	Valid	Valid
4	Memory	Valid	Valid

At the bottom of the window, there are two buttons: 'Save' and 'Exit'.



*Always make the button diming setting Invalid if you control ON/OFF Relay channel, so the user will not confuse in dimming it without any response from the Channel.*

## 7-7 DLP Setup (Minimum Diming Value and Infrared)


**Minimum Dimming value:** is used to force the panel not to dim the light from the button by keep pressing it in order not to go below the minimum level of dimming


**Infrared function:** is used to enable or disable the IR receiving function on the panel,

To make the setting of the of the Minimum Level and IR setting

- Go to **Key Assignment** tab
- Press **setup** button
- Adjust the Minimum Dimming Value from 0% - 50%
- Uncheck the Infrared receiving function to disable or check the box to enable it



 *be careful when you make the Dimming function valid and Memory, sometimes the user will keep pressing on the button to dim the light to 7% Level and then he will turn it off and on by single press and the Light will change from 0% to 7%, then the user will think the lights is not working. To solve this problem use the minimum dimming value to prevent the user to dim less than the minimum dim level.*

 *It is recommended always to set the minimum Dim level for all panels that control the Dimmers to 20% - 30%. .*

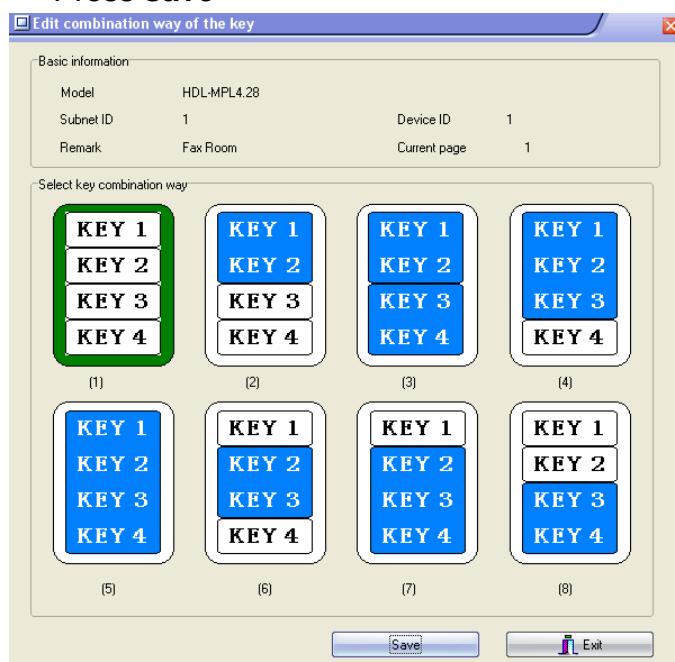
## 7-8 DLP Combination Way

DLP Combination way is very useful for giant people whom have big Fingers, and old people who can't see the small buttons

You can combine two buttons or more to make it as one button

To make the combination in the key assignment tab

- Press on **combination way** button
- Select the way you want to combine your button
- Press **save**

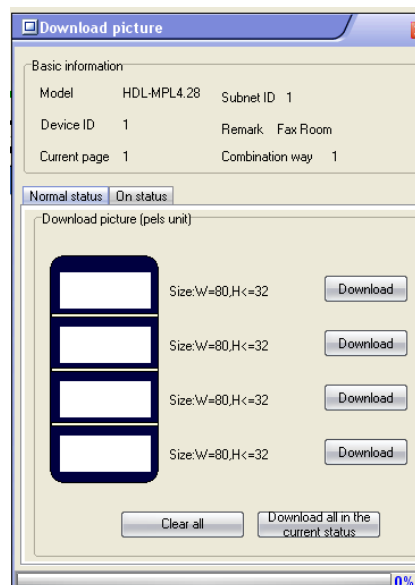


## 7-9 DLP Button Picture Edit and Download

You can download bmp Format Picture for each button for both normal Statues and ON statues

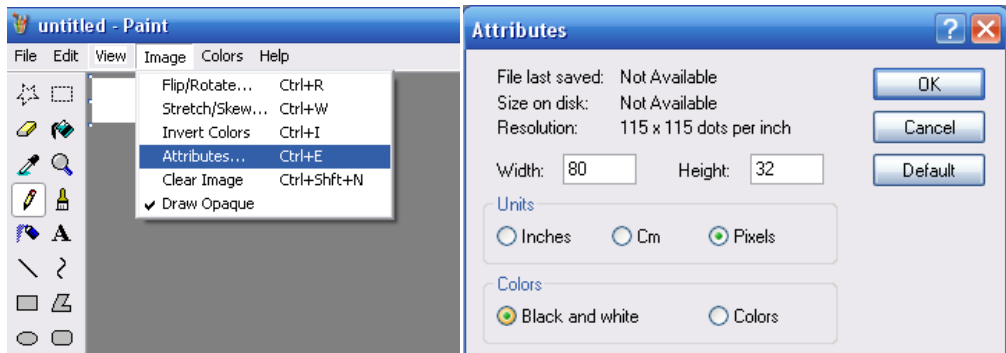
To download the Picture

- In the key assignment tab select the page you want to download the picture to it from 1-4
- Press on **Pic downloads** button
- Select **Normal Statues or On Statues** for the Picture you want to download.
- **Double click** on the white square
- Brows where the Picture file you need to download then press **open**
- Press **download button** for this picture or you can select all the picture you need in this page then press **Download all in the current statues** button
- You can see the download bar running from 0-100%.



**!** You have to be careful for the size of the picture that is written near each button for example, Size W= 80, H= 32 , you can see deferent size you have depend on the combination way

**!** All pictures should be black and white setting and bmp format, to do that in simple way go to windows paint program and set the Image/Attribute and set the Pixels size and the black and white setting then save your picture as bmp.

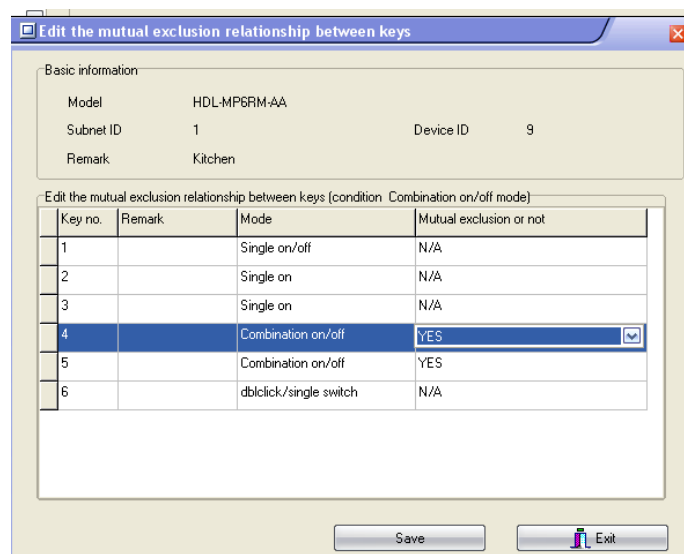


## 7-10 DLP Mutual Exclusion Function

### Mutual Exclusion Function

This function is used on switch panel to link between two or more combination ON/OFF button mode to consider them as 1 group, and to prevent the confusion of using 2 related macros scenes together.

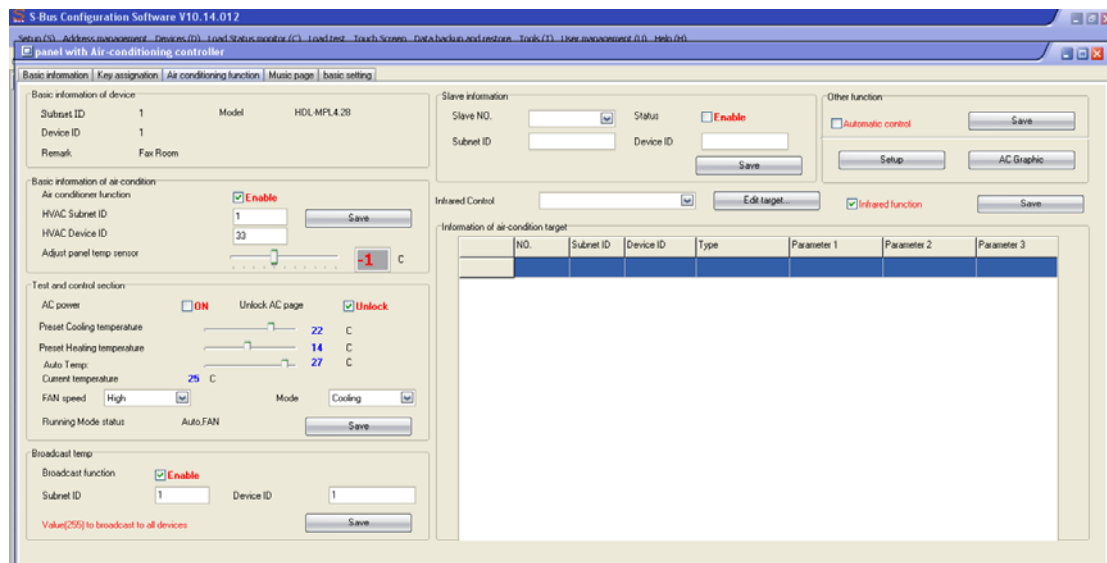
- On the **key assignment** press on the **mutual exclusion** button
- Set the value to **YES** for all the buttons of combination mode, or double click mode to be as 1 group together



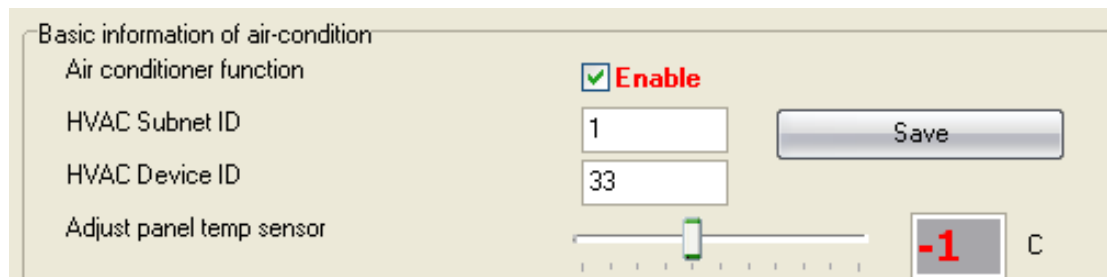


## 7-11 DLP Air condition Basic Setting and testing

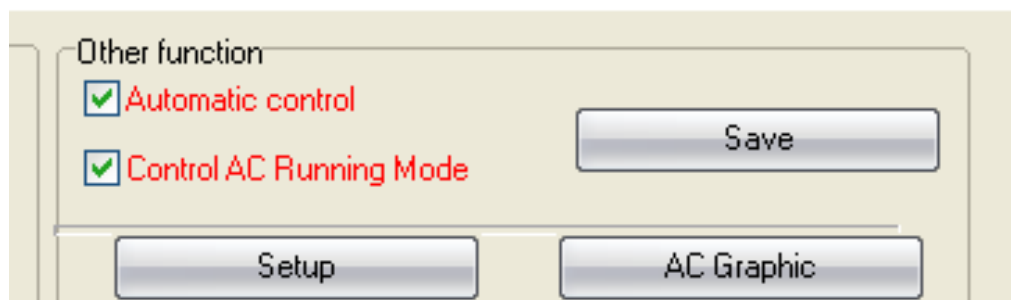
Go to Air condition tab, you can in this page enable or disable the AC function of the LCD DLP panel, and make all the other AC setting



In the **basic information** of Air condition edit the Subnet and device ID for the HVAC Module that related to the panel room then press **save**  
For Example if your HVAC Module address is subnet 1 , device ID 33 then type that in the Air condition panel setting and save



Also you must enable the DLP to control the normal HVAC module by activate the **Control AC running mode**



Also you can test your AC control in the **test and control** section

Test and control section

AC power ☐ ON      Unlock AC page ☒ Unlock

Preset Cooling temperature  22 C

Preset Heating temperature  14 C

Auto Temp:  27 C

Current temperature  26 C

FAN speed  High      Mode  Cooling

Running Mode status      Auto,FAN     

## 7-12 DLP AC Page control Setup

On the Air condition tab press **Setup** button

Temperature model   Time type   Set temperature range   Sensor Model Setting

Temperature type

Temperature type  C     

Air-condition Control information

FAN speed ☒ Auto      ☒ High  
☐ Medium      ☐ Low

Mode ☒ Cooling      ☐ Heating  
☒ FAN      ☐ Auto

Set Power-Saving

☐ Power-saving      Fan switch off compress     

In the temperature model you can change the function and display settings

**Temperature Type:** can be (C) Celsius or (F) Fahrenheit

**AC control information:** you can enable or disable the options of Fan speed

like High low Medium, and Mode type like cooling, fan, heating, and Auto, to disable it to appear as option on the DLP panel

**Power saving:** if enable then the Fan will stop with the compressor when the room temperature become equal or below the desired temperature when FAN mode on Auto.

**Time type** you can set your time display format.

**Temperature range** you can set your higher and lower set point for each mode (cool, heat, Auto) so the user can not go above the higher limit, or below the lower limit.

The screenshot shows a software interface titled "Air-condition collocation information". It has four tabs: "Temperature model", "Time type", "Set temperature range" (which is active), and "Sensor Model Setting". Under the "Set temperature range" tab, there are three sections: "Cooling range", "Heating range", and "Auto Temp". Each section contains two sliders with numerical values in degrees Celsius. For "Cooling range", the "Cooling Low-limit" is 18 C and the "Cooling High-limit" is 26 C. For "Heating range", the "Heating low-limit" is 20 C and the "Heating High-limit" is 30 C. For "Auto Temp", the "Auto Min\_Temp" is 18 C and the "Auto Max\_Temp" is 30 C. A "Save" button is located at the bottom right of the window.



*It is recommended always to set the Limit for Cooling , heating and auto, so the user will not make the desired to freezing or very hot level for each mode and to prevent children to do so.*

**Sensor Mode setting:** to refer to the Indoor temp sensor (DLP temp sensor), outside sensor (Pro HVAC temp sensor). Or Average between both sensors

## 7-13 DLP Temp Calibration and Lock function

You can Calibrate your DLP temp sensor to give you exact room temperature, for example: sometimes the DLP installed in place where the sun striking it or near heat or cold source, or if the temperature near the wall is not as the temp in the room, then you have to adjust the temp sensor level to be as the reasonable room temperature where the people set or sleep

To do that

- Go to **Adjust** Panel temp sensor, you can adjust it (-5 to +5 degree)
- Press **save**

Basic information of air-condition

Air conditioner function ☒ **Enable**

HVAC Subnet ID

HVAC Device ID

Adjust panel temp sensor  **-1** C

Save

Another function is to lock the AC page, you need this function in public are that no need for user to play with Air-condition and the whole control will be centralized from the Automation controller

- Go to test and control section, and enable the **unlock** or disable it
- Press **save**

Test and control section

AC power ☐ **ON**

Unlock AC page ☒ **Unlock**

## 7-14 DLP Slave to other DLP AC setting

One of the unique functions of the DLP is that he can control up to 8 other AC of other panel.

To set the AC Panel slave on the Air condition tab

- go to **slave information** section
- select **Slave NO** from 1-8
- type the slave DLP **Subnet** , and **Device ID** no
- check **Enable**
- Press **save**
- Do the same steps for the other slaves up to 8

Slave information

Slave NO.

Status ☒ **Enable**

Subnet ID

Device ID

Save



*To navigate between slaves AC, on the DLP panel when you are in the AC Page5, go back by Arrow back then you will see the slave AC, press Arrow back again to see more slave AC*

## 7-15 DLP Broadcast Function

This function is important to update the others Devices in the network about the current room temperature

It is useful for Automation and BMS system

Setting broadcast temp to subnet 255, device ID 255 will update all the devices in the Network



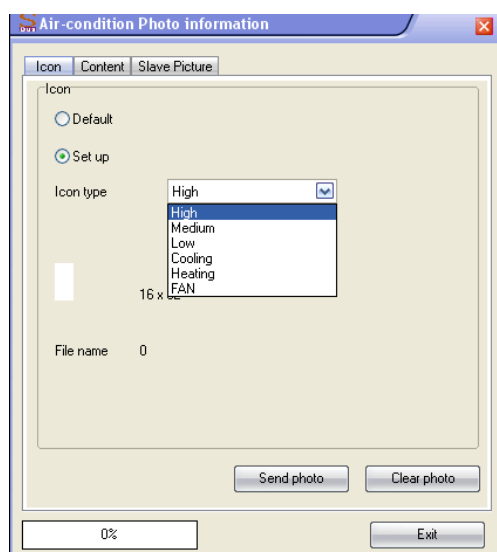
The screenshot shows a configuration window titled "Broadcast temp". It contains the following elements:

- Broadcast function:** A checkbox labeled "Enable" which is checked.
- Subnet ID:** A text input field containing the value "255".
- Device ID:** A text input field containing the value "255".
- Value(255) to broadcast to all devices:** A red text label.
- Save:** A button to save the configuration.

## 7-16 DLP AC Graphic setting

In the AC Graphic you can put new Icon for cooling, Heating, Fan, also you can change the English text to any language by downloading bmp file, and to put Room names Picture for all the 8 slaves AC

- Press on the **AC Graphic** button
- In the Icon tab you can keep your icon a default or change it by set up option
- Select the **icon type** and press on the picture
- Brows and open the bmp picture you want picture should be 16 \*32 pixel size
- Press **send photo** button to download the picture
- Press **Save statues**

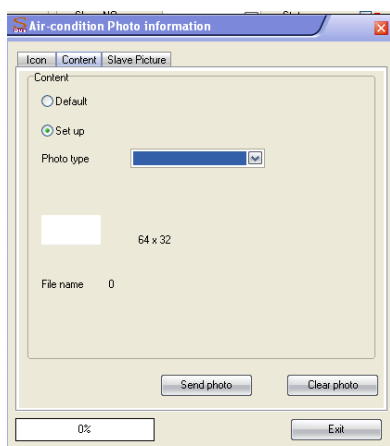


The screenshot shows a window titled "Air-condition Photo information". It has three tabs: "Icon", "Content", and "Slave Picture". The "Icon" tab is active. It contains the following elements:

- Icon:** Two radio buttons, "Default" and "Set up". "Set up" is selected.
- Icon type:** A dropdown menu with options: "High", "Medium", "Low", "Cooling", "Heating", and "FAN". "High" is selected.
- File name:** A text input field containing the value "0".
- Buttons:** "Send photo", "Clear photo", and "Exit".
- Progress bar:** A progress bar showing 0%.

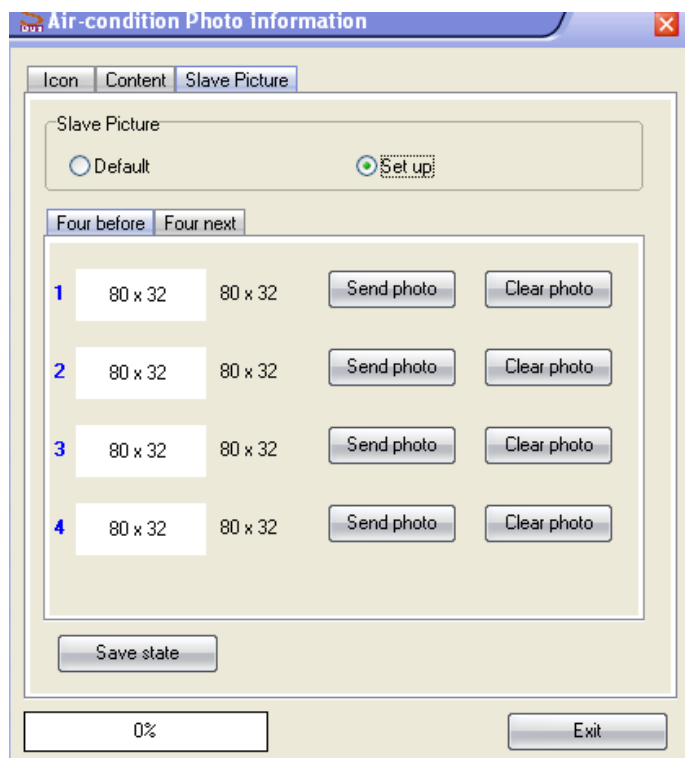
Also you can change the text of the AC page to any other photo language

- Go to **content** tab
- You can keep your content text as default or change it by **set up** option
- Select the **photo type** and press on the picture
- Brows and open the bmp picture you want picture should be 64 \*32 pixel size
- Press **send photo** button to upload the picture
- Press **Save status**



Also you can put picture for the room for the 1-8 AC slaves control

- Go to slave Picture
- Select set up
- Select the tab of 1-4 slave and the other tab for 5-8 rooms picture
- Brows the picture and press on send photo picture to upload it.
- Press **save states**



## 7-17 DLP Infrared Function overviews.

Also you can use the AC Page to send different Infrared command to control your split AC,

The screenshot shows the 'Infrared Control' interface. At the top, there is a dropdown menu for 'Cooling temperature' and a button 'Edit target...'. Below this, a dropdown menu for 'Information of air-condition' is open, showing options: 'Cooling temperature', 'FAN speed', 'Cooling/Heating', 'On/off', 'Heating temperature', and 'Auto Temperature'. To the right of the dropdown, there is a checkbox labeled 'Infrared function' which is checked, and a 'Save' button.

	NO.	Type	Parameter 1	Parameter 2	Parameter 3
16C	1	Invalid switch	32	32	N/A
17C	2	Invalid switch	32	32	N/A
18C	3	Invalid switch	32	32	N/A
19C	4	Invalid switch	32	32	N/A
20C	5	Invalid switch	32	32	N/A
21C	6	Invalid switch	32	32	N/A
22C	7	Invalid switch	32	32	N/A
23C	8	Invalid switch	32	32	N/A
24C	9	Invalid switch	32	32	N/A
25C	10	Invalid switch	32	32	N/A
26C	11	Invalid switch	32	32	N/A
27C	12	Invalid switch	32	32	N/A
28C	13	Invalid switch	32	32	N/A
29C	14	Invalid switch	32	32	N/A

for more information see S-bus Infrared, Automation and security Programming Guide.

### Also you can use this Function to Switch ON Floor Heater and Window AC of the Powerful Relay Module

To do that

- Check the box on **Infrared Function**
- Check the box of **Automatic control** to let the Panel to OFF the heater when the room temperature reaches the desired temperature.
- From the infrared control Select the ON/OFF
- Modify the OFF and ON command to single channel light of your selected Relay channel that connects to Heater or window AC.
- Go to Cooling heating
- Select ON command for heating or cooling, OFF Channel to the FAN to switch off automatically when the room temperature reaches the desired temperature.



*It is recommended not to choose the Automatic control, if you are controlling split AC or Window AC that have built in Temperature sensor.*

## 8- Touch Screen Pro Lighting Control Programming

### 8-1 Touch Screen overview

Smart bus 7" wall touch screen work on Windows CE operating system, it can consist of many software like the Pro Lighting control Programming software that we will cover it in this section, and also the touch Life for DMX control and others future interface software.

### 8-2 Connection to the Bus and IP Address setting

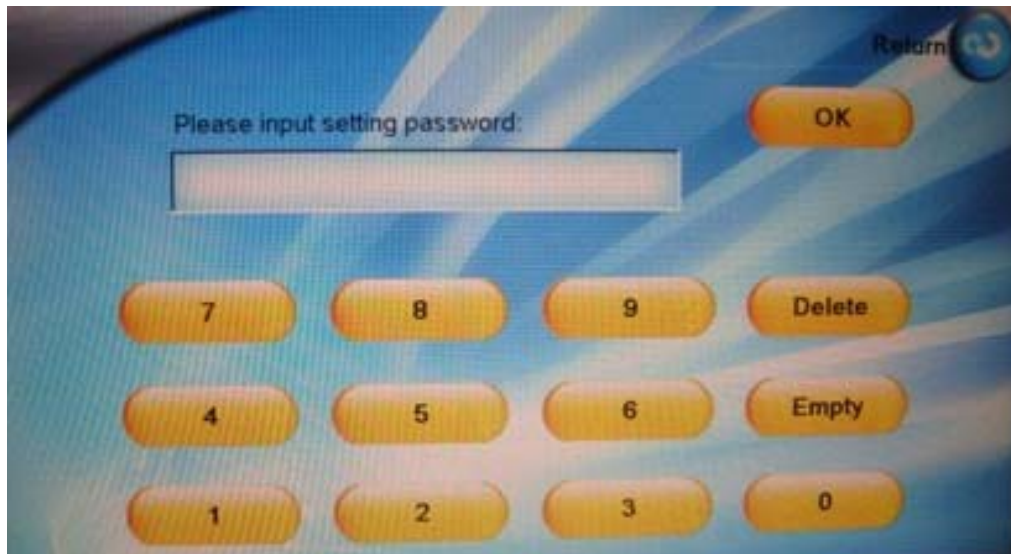
The wiring of touch screen must be done according to the installation manual and data sheet. Like any PC the touch screen take IP address.



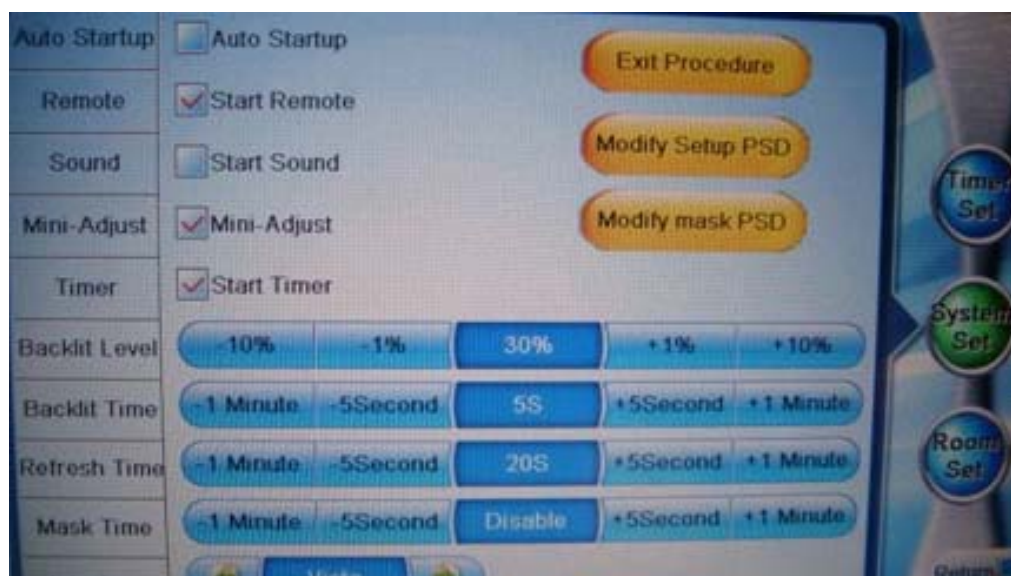
After you connect the touch screen you must set the IP address to be in the same range of your smart-bus IP port Address according to the following steps:

- Go to your screen software and press on the up right corner the **Set**
- Input your password then press **OK** the **default password is 000000**





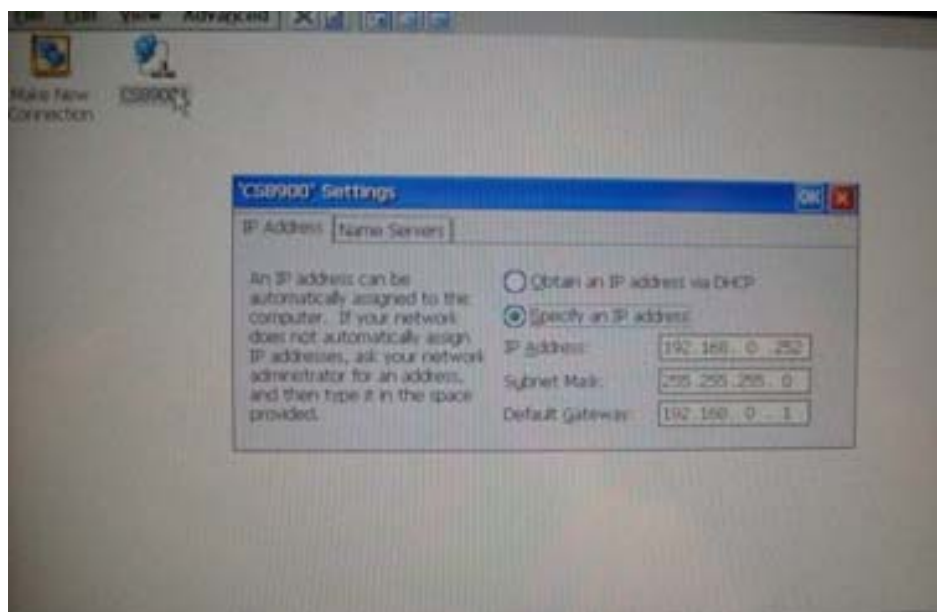
- Go to **system setting**
- Uncheck the **Auto startup**



- Press **return** and exit the setup page
- Restart your screen by pressing on the screen reset button , it is located on the lift down of the screen small hall, you may need small pin to press it in order the screen to restart, also you can reset it by power it off.
- When the screen start again go to **start menu/setting/network and dial up connect**



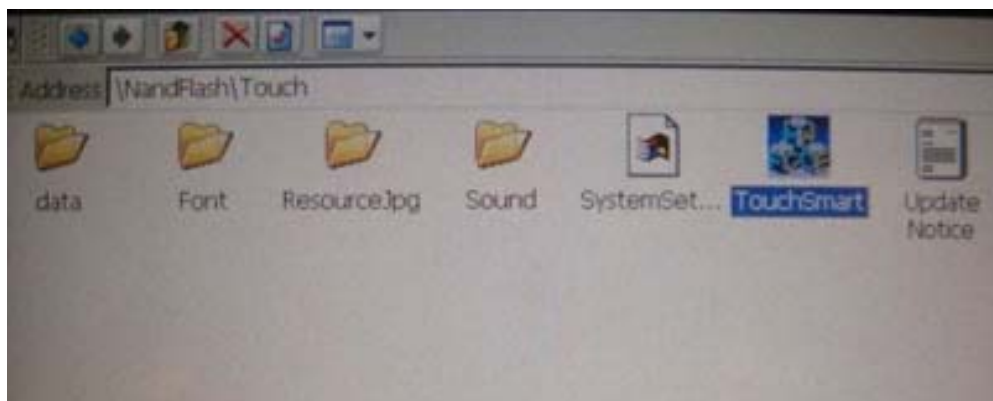
- Double click on the **network icon** , then set your IP address to be the same range of your smart bus IP Port Module, for example if your IP Port address is 192.168.10.250 then your screen must be 192.168.10.xxx    xxx can be any free address number



- Press **OK**
- Go to **start menu** and press **suspend**, in order to save the new IP address of the screen
- The screen color will change and hung, after that you can restart it by the restart button or power it off then ON to restart.
- After the screen restart Test the communication from your PC on the

CMD line command to Ping for the screen IP address.

- When the communication is success and you can ping successfully, you can go and double click on the following to run the program **my-compute/Nandflash/touch smart**



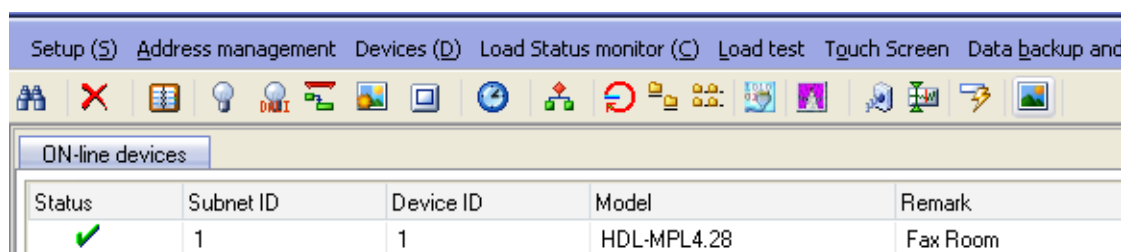
- Go to **set/system set/** and check on the **auto startup** to activated again.



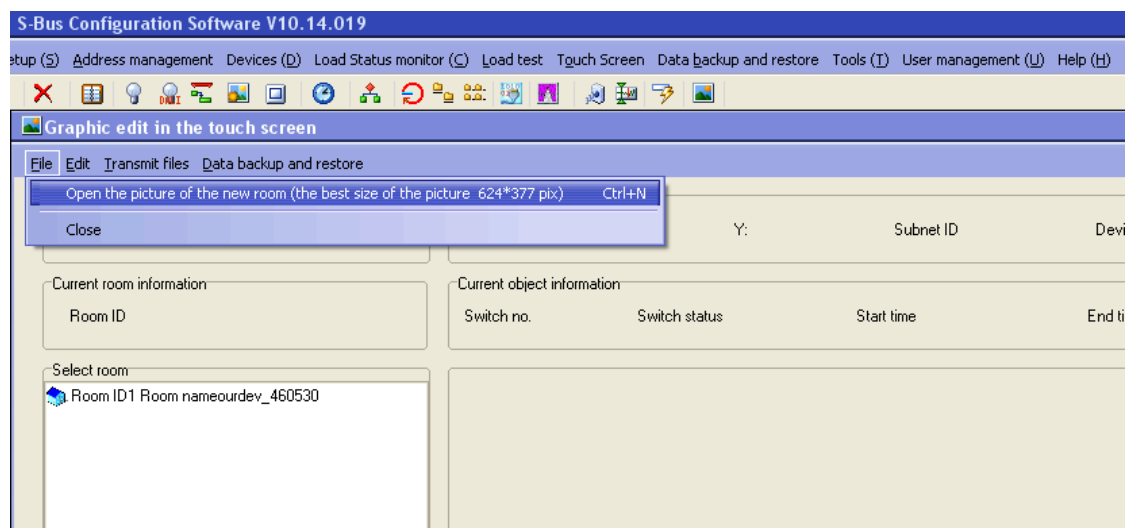
*Restarting the screen after you set the IP address without pressing the **Suspend** will not save your new IP setting.*

### 8-3 Room Picture setting

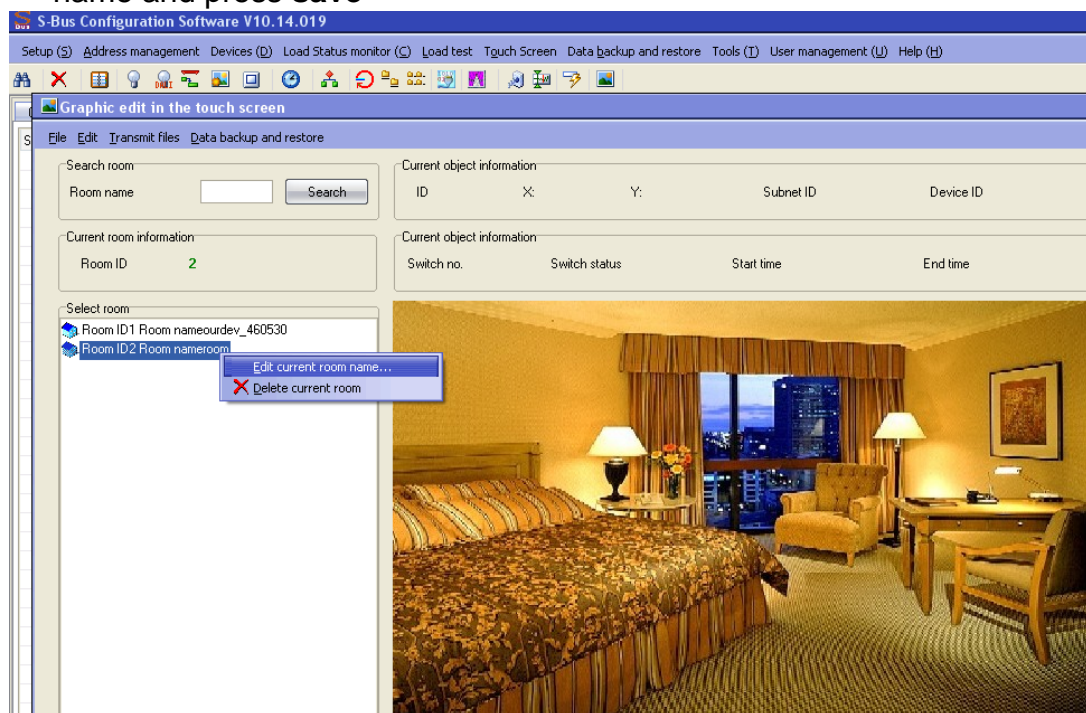
To edit your touch screen settings open your sbus configuration software and go to **touch screen/ touch screen** or simply press on the touch screen icon.



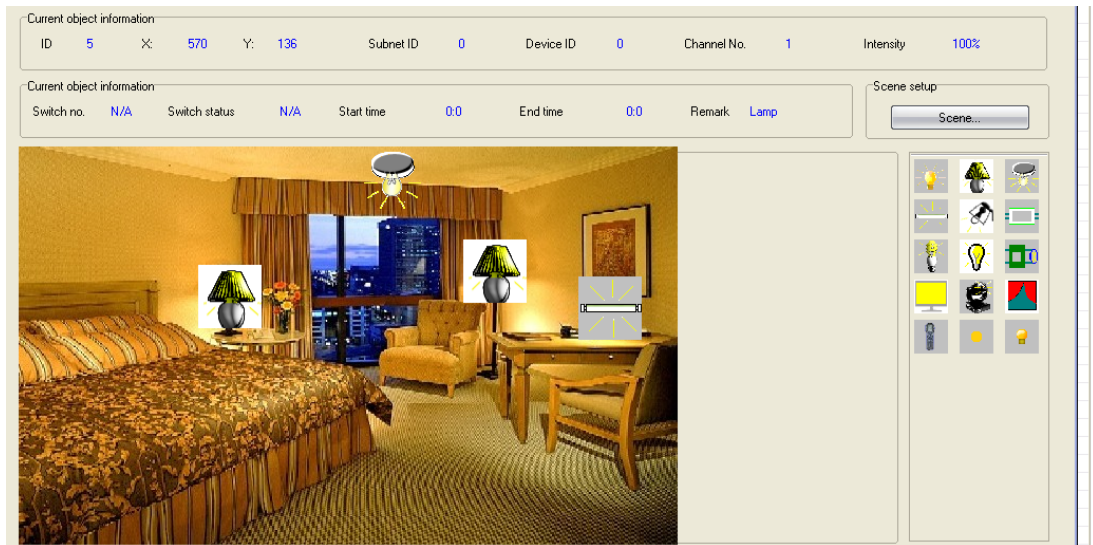
- Press **file/ open** the Picture of new room, select the room picture file you want to include.



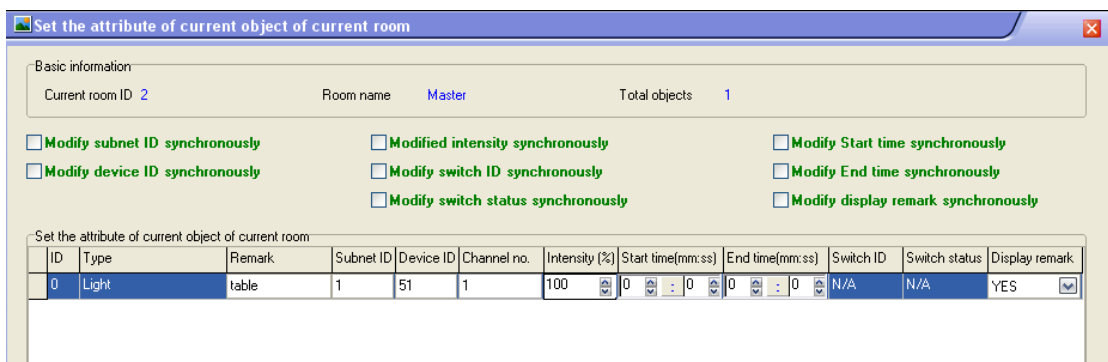
- After you add the room, you must change the room name , press on the room on the list, right click then press **edit room**, then edit the room name and press **save**



- Now we can set the icon that refer to our lights channels and others function by drag and drop Icon to the right place in the room picture



- Press right click for each icon and press set the **attribute of the current object**,

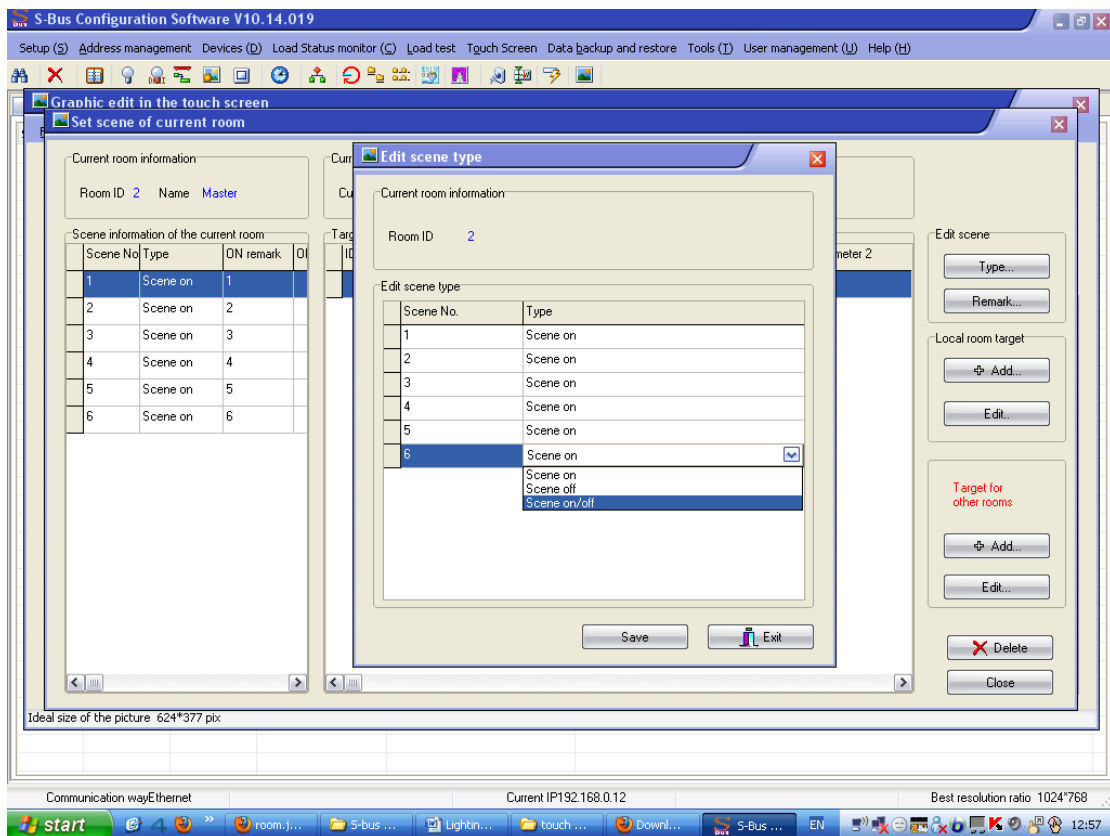


- Set the **Remarks** the name that will display if **display remarks** set to YES, also set the light channel subnet, device ID intensity running time. Then press on **save**.

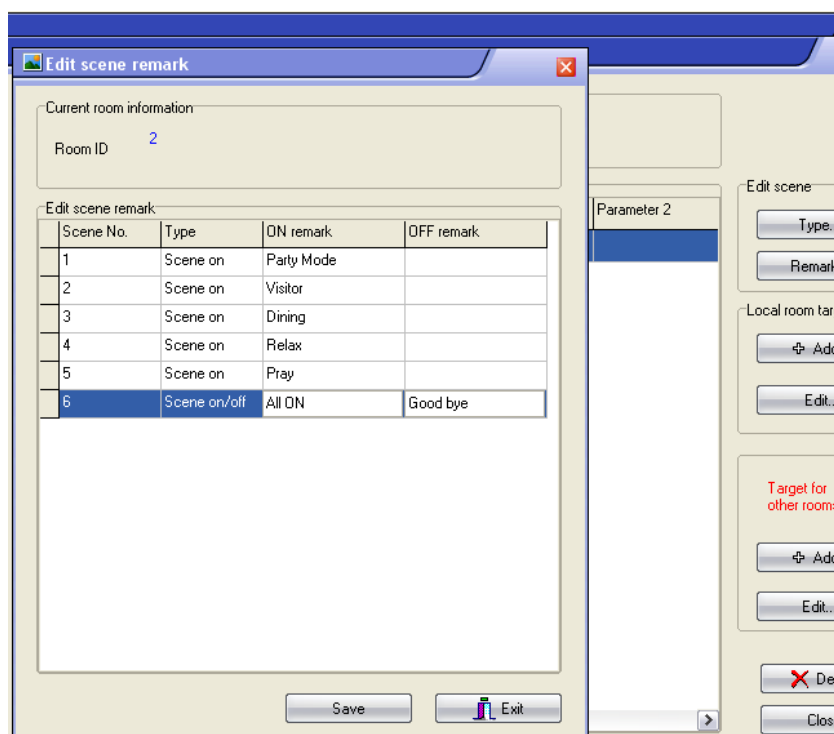
Also you can set 6 scenes for each room to do that

- press on **Scene** button
- press on **scene type** to set each scene if it is Scene ON or Scene OFF or Scene ON/OFF





- after you select the scene type press on **remarks** to edit the scene name, then press **Save**, see the Picture for example



- After that you can add the command for each scene you want to effect,

you have 2 options to use the lights in your room in your scene or to include also the target for other rooms in your room scene.

- You can also edit and delete any target command in the scene list by pressing on the Edit or delete button.

## 8-4 Upload setting from PC to touch screen

After you finish the room's icons and scenes setup, it is the time to upload your setting to the touch screen as the following steps

- Press on **transmit file/upload computer to touch screen**
- Press **IP setup** to add your new screen IP address and touch screen name, the press **ADD**

The screenshot shows a window titled "IP information" with a table of IP addresses and a form for adding or modifying an IP.

ID	IP	Remark
1	192.168.18.254	
2	192.168.10.95	
3	192.168.10.80	

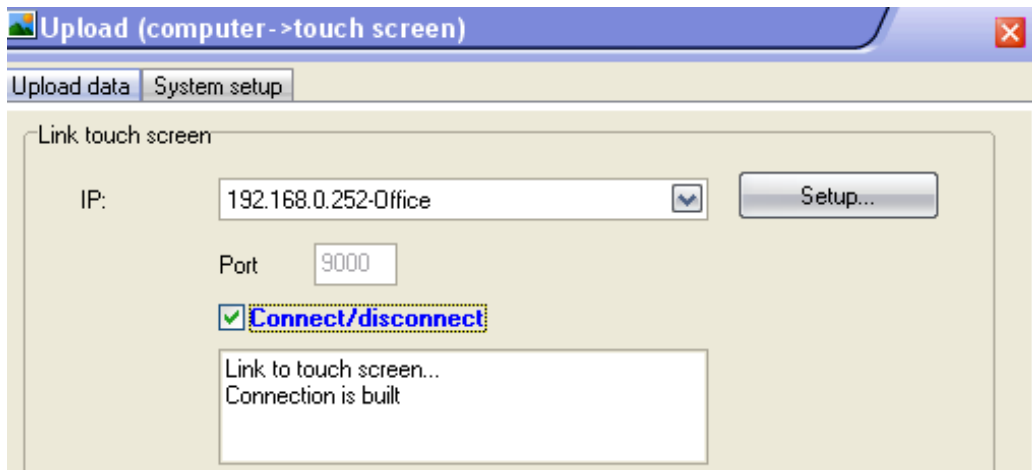
Below the table is a large empty text area.

On the right side, there are two sections:

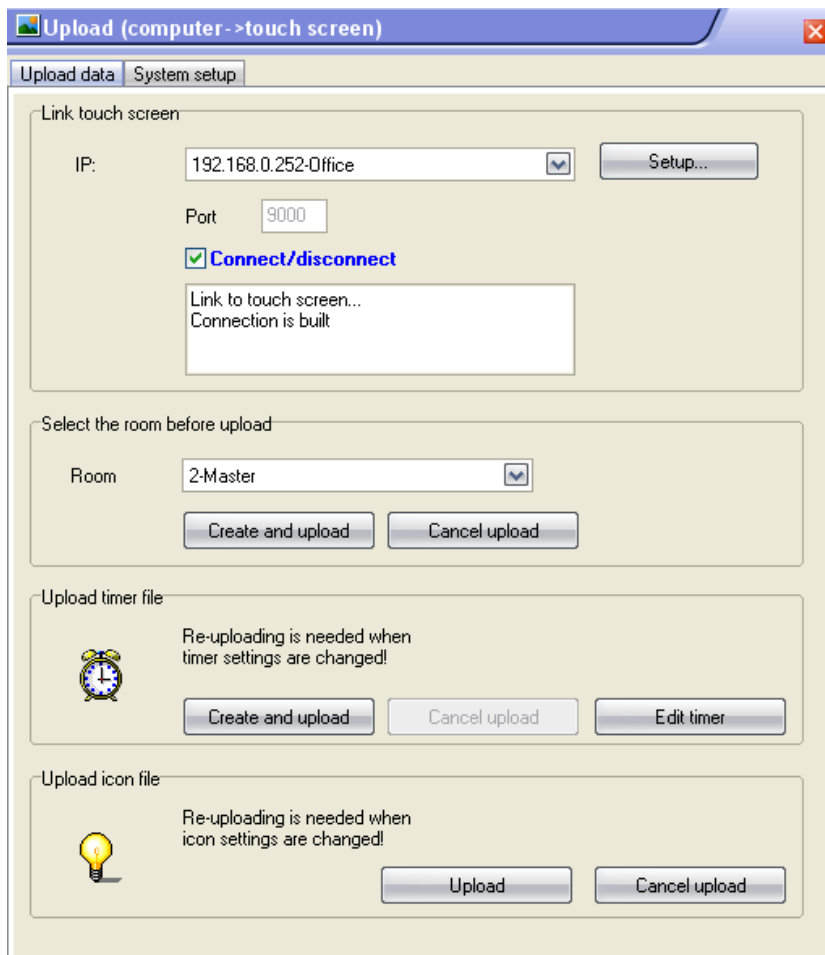
- Add new IP**: Contains fields for IP (192.168.0.252) and Remark (Office), and an "Add" button.
- Modify IP**: Contains fields for ID (1), IP (192.168.18.254), and Remark (empty), and a "Save" button.

At the bottom right, there are "Delete" and "Exit" buttons.

- Exit from the window then select the IP of your screen then check on the **connect/disconnect** box , the following message should appear if your connection successes, "connection is built"



- Then select the room before upload, and press **create and upload** button
- In the upload icon section also press **Upload** button.

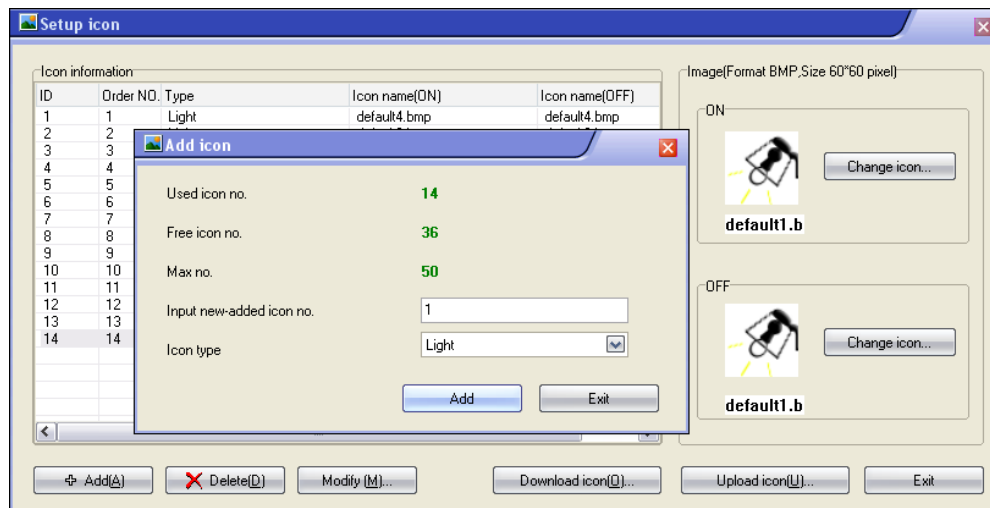




## 8-5 Icon type and setting, creating new icon

If you don't like the Icon you use and want to create your own Icon, you can create it and import it to use it in your touch screen to do that:

- Go to **edit / setup icon**
- You can edit the existing icon or add new one
- Press on **ADD** button to add new icon



- Enter how many Icons you need to add and the type of it.
- Press on **Change Icon** for ON statues and select the BMP file that you create it. Do the same for OFF Icon



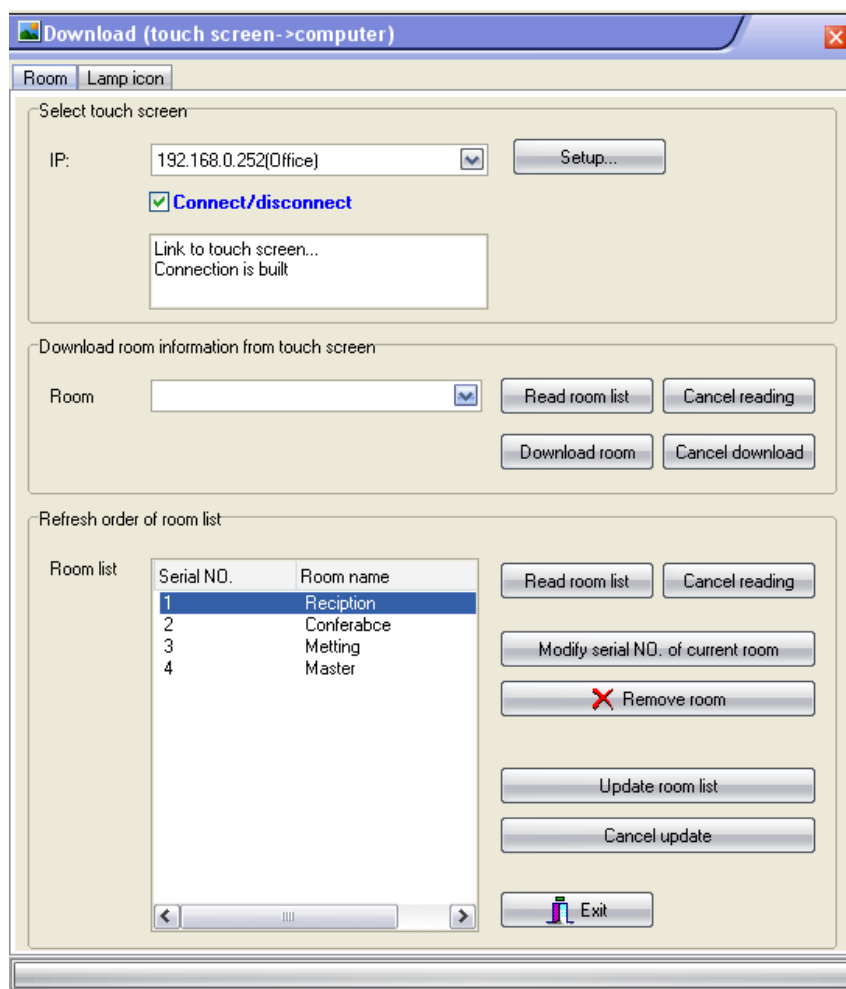
the BMP ICON should be 60 \* 60 Pixel size.

## 8-6 Download Data from Touch screen to PC, and Edit exist

### room setting:

You can also download the screen setting to your PC to modify it edit it and update it again.

- Press on **transmit files/ download touch screen to computer**
- Select the IP of your screen then check on **connect/disconnect**
- Press on **read room list** in the room section
- Press on **read room list** on the refresh room order section
- You can arrange rooms order by selecting the room in the list then pressing on **modify serial no of current room**



- You can also delete room from your screen by selecting it then press **Remove** room.
- After you finish the modifying press on **update room list** button to save the setting on your screen.

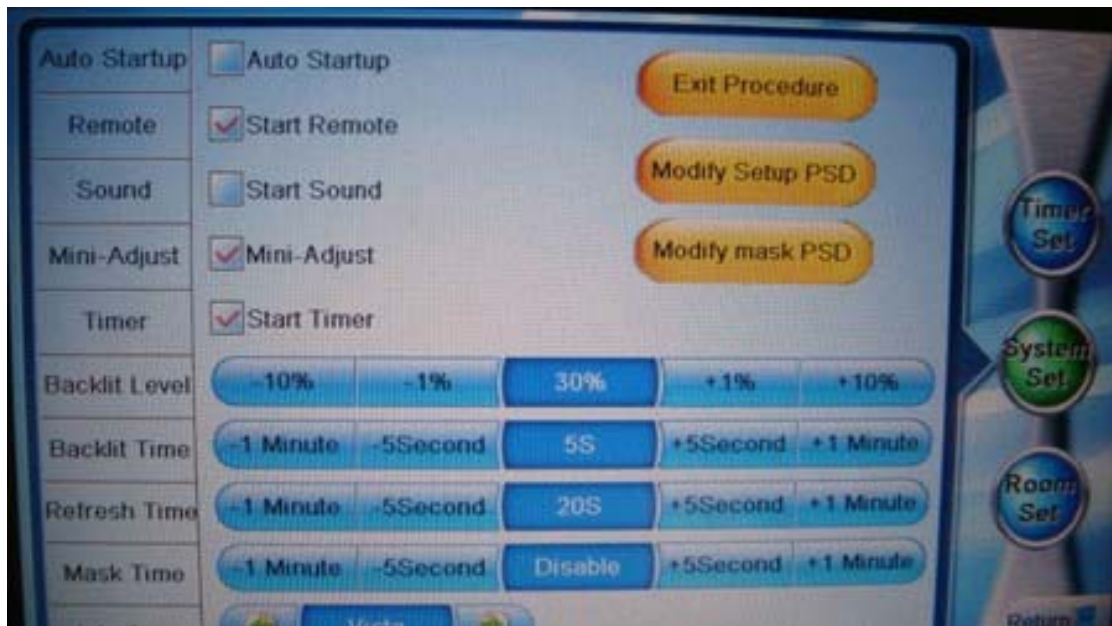
## Touch screen System Setting 8-7

You can set some basic setting for your screen.

**Auto startup:** is useful when the Power off then on to run the program automatically when the screen restart.



*it is recommended always to activate the Auto startup so in case of Power down the software will run automatically and the client will not call you to run it every time this happen. Only you will disable this function when you want to change the IP of screen or when you have more than 1 software in your screen and you want to switch between them every time.*



**Start Remote:** the touch screen have built-in IR receiver and you can control it by remote control for its page and scenes, you can enable or disable this IR receiving function.

**Start sound:** it will start beep sound for every time you click on the screen.

**Mini Adjust:** it will adjust the size of the Picture to fit on the screen dynamic Always recommend to leave it active.

**Timer:** to activate or deactivate the timer of the User.

**Backlit Level:** to dim the screen brightness after time for screen saver.

**Refresh time:** to update the 2 way lights and other devices status every X seconds.

**Skin:** to change the skins interface look of the Menu.

## 8-8 Touch screen Picture and Icon Backup

You can backup your room Picture, settings of your projects to use it later in case for maintenance or to copy it to other projects, to do that:

- Go to data **backup and restore/ backup data of touch screen**
- Press **save as** , and select the folder you want to backup in
- Press **begin backup**

To restore any backup file to your PC,

- press data **backup and restore/ restore data of touch screen**
- select the MDB file of your setting to restore
- Press **begin restore**.

## 9- Ceiling and wall Motion Sensor PIR Programming

### 9-1 S-BUS sensor Overview

Smart bus have simple motion sensor for ceiling and wall type, this motion sensor is used for trigger the lights on automatically and to turn the lights off if no movement for desired minutes for saving energy

### 9-2 PIR Motion sensor Basic setting

Double click on the motion sensor on the List

The screenshot shows a software window titled "Basic information" and "Configuration". It contains several sections for configuring a motion sensor:

- Select device:** A dropdown menu labeled "Device".
- Device configuration:** Fields for "Model" (0), "Subnet ID" (0), and "Device ID" (0).
- Device remark:** A text input field labeled "Remark" and a "Save" button.
- MAC address:** A text input field labeled "MAC" with a pattern of dots. Below it, a section "Modify Address according to MAC SubNet ID:" with input fields for "SubNet ID" and "Device ID", and a "Save" button.
- Enable setup of re-trigger:** A red warning message: "The target moves before succeeding in sending the control target 'motionless'. If it doesn't require to resend the control target 'motion', please turn down this function ; otherwise please turn on." Below the message is a dropdown menu set to "Enabled" and a "Save" button.
- Enable setup Of device local control:** A red warning message: "If needs to close this sensor, available switch number 255, on-off state is Closes (0), opening, this sensor, the switch number is 255, on-off state is Opens (1)." Below the message is a dropdown menu set to "Enabled" and a "Save" button.
- Sensitivity adjustment (The higher the grade is, the higher the sensitivity is):** A section with a "Sensitivity" field set to 50, a "Grade" field, and a "Save" button.

**Remarks:** in the basic setting you can edit the remarks of the motion sensor to give it name where the motion installed.

**Enable setup of re-triggering:** this function if enabled it will trigger all the commands every time the statues of the sensor changed from no movement to movement.

If the function is disabled, the commands will not trigger for the second time if there is movement unless the time of no movement finish.



*the re-triggering function is very useful, you can disabled in all rooms that people stay in for long time like Living room, bed room, cinema room, so when the first time they enter the room the lights will turn on but while they are staying in the room and change the lights mode it will not trigger again any light if still they are in the room and moving, while enabling this function is useful in the passage , WC and others rooms that we need always lights and no mode to set.*

**Enable setup of device local control:** is to enable the motion sensor or disable it manually from the software, to enable and disable the motion by smart-bus command see section 9-4.

**Sensitivity:** you can adjust the sensitivity of the motion sensor depend on the room or passage requirement, you can set it from 1-100, it is recommend not to exceed 70%.

### 9-3 PIR Motion sensor Automation setting

- Go to configuration tab
- Set the action type to motion

- enter the command from 1-99 that you need when there is movement
- set the commands you want
- select Motionless in the action type
- set the delay time in HH:MM:SS that if no movement for this time the command will trigger
- enter the off command from 1-99
- edit the command of motionless

## 9-4 PIR enabling Disabling by other Devices

To enable or disable the motion from other devices like DLP, Logic module or other use the universal switch command switch number 255 (ON to enable, OFF to disable)

For example:

If the Motion sensor Subnet is 1, device ID 55

Then in the DLP Panel setting for a button to enable the sensor, it will be likes the following picture:

The screenshot shows a software window titled "Edit key function configuration". It contains a "Basic information" section with the following details:

Data acquisition mode		Device	Model
Subnet ID	1		HDL-MPL4.28
Remark	Sweet Room		
Mode	Separated Single		

Below this, there are checkboxes for synchronization:

- ☐ Modify subnet ID synchronously
- ☐ Modify device ID synchronously
- ☐ Modify type synchronously
- ☐ Modify the intensity synchronously
- ☐ Modify the running time synchronously

The "Modify key function configuration" section contains a table:

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	55	Universal switch	255	Off	N/A

The "Parameter 2" cell for the first row has a dropdown menu open, showing "Off", "On", and "N/A". At the bottom right, there are "Save" and "Exit" buttons.

For more information about Programming and other helpful materials

Visit our website

[www.smart-hdl.com](http://www.smart-hdl.com)

for HD film about programming visit sbus training page on youtube

[www.youtube.com/user/sbustraining](http://www.youtube.com/user/sbustraining)