

2012

Programming Manual

Example: How to control Split Ac
from DDP using IR Emitter/9in1



G4



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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. (please see 2-2)
- 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),

( Example) .

For Training Course Request Please apply online

www.smarthomebus.com

1- Introduction

Welcome to S-BUS manual Programming Guide, you are now a Beginner Programmer who will know soon how the S-bus 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 DDP panel, create and download different Picture on the LCD, and start with Motion sensor and Automate your Project and many more...

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 Display Panel "DDP", HVAC2 Air condition control 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



2- Start Programming

In smart home G4 there are two ways For Programming:

- ✚ Manual Way (For Basic Programming).
- ✚ Pc /Laptop Way (For Basic and Advanced Programming).


2-1 S-Bus Programming Software overview

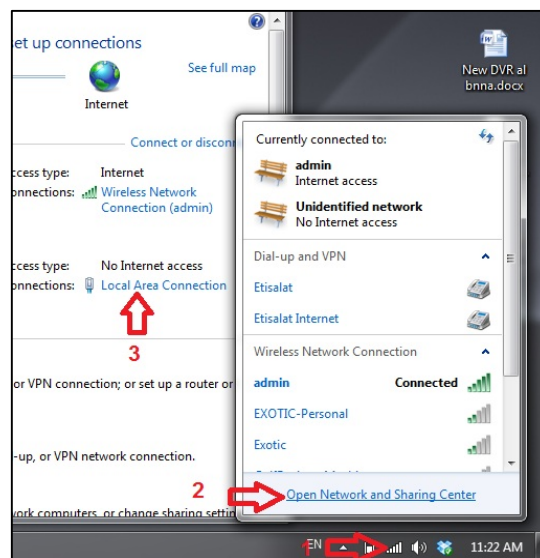
You need on this lesson: to have your computer with you. Running on windows Operating system, Smart Cloud **G4** software, Programming port SB-DN-1IP, that enable you to search for all the devices that connected to the bus network.

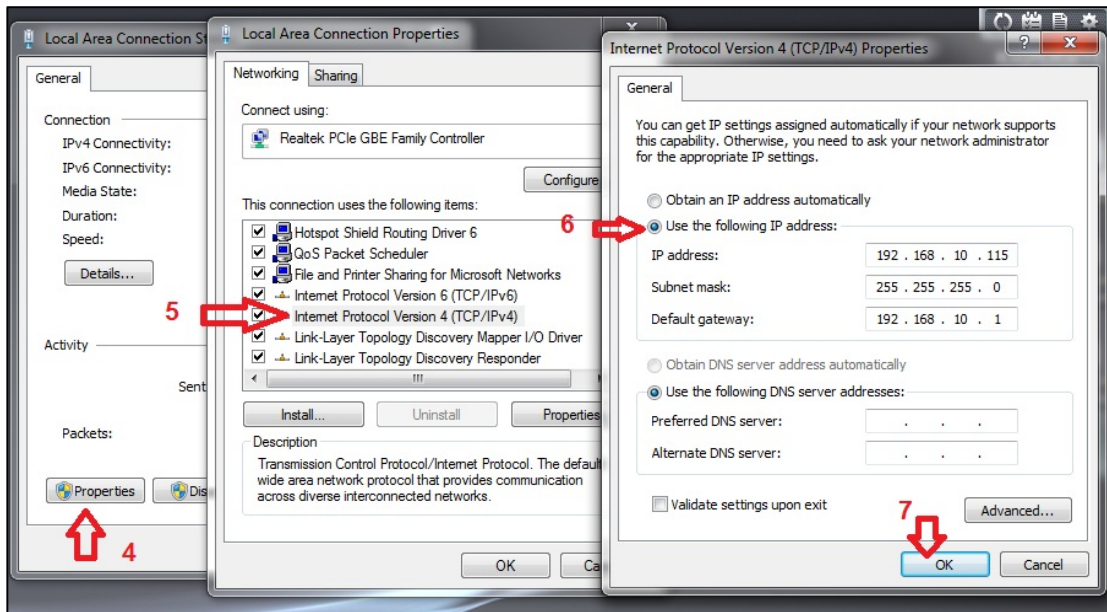
1- Install your S-bus configuration software in your Computer by pressing the **Setup** icon and follow the installation steps windows

2- Plug in your Ethernet cable (Rj45) in your pc and the other end in the **RSIP** module or **Zaduio** module then **Set** your computer IP Address, for example

IP	192.168.10.115
Subnet	255.255.255.0
Getaway	192.168.10.1

 The default address for S-bus Product is **192.168.10.xxx**

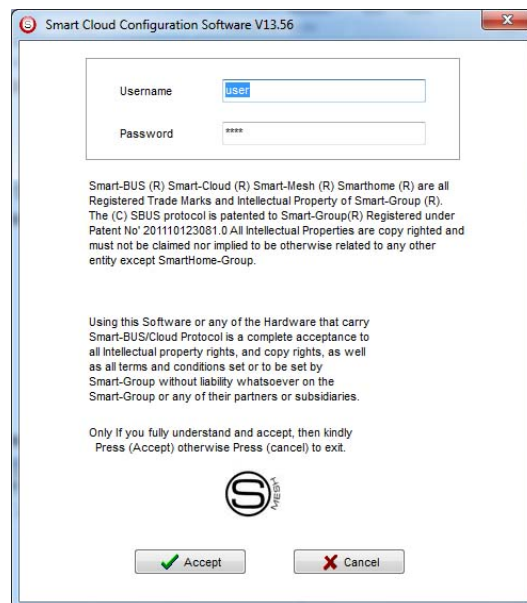




3- Run your S-bus smart cloud Software

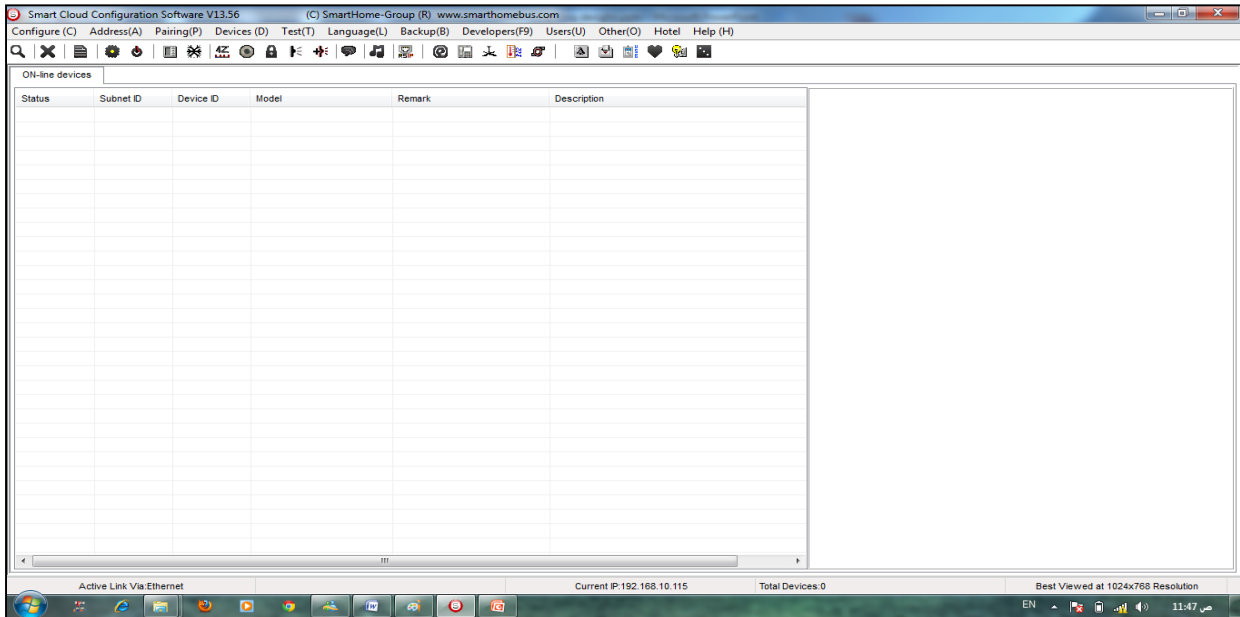


4- The Password window will open, type the default password is **user**

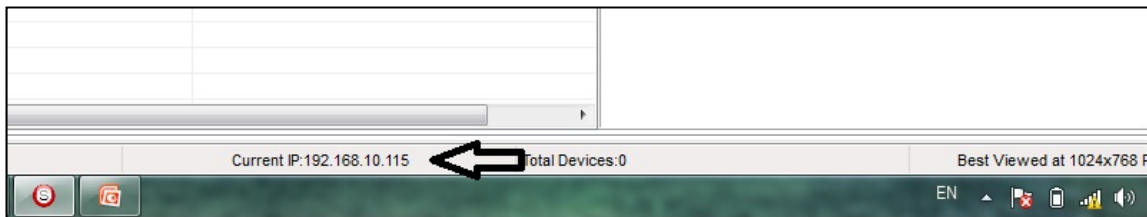


5- Your software will start





6- You can see your current IP on the footer of the software as 192.168.10.115 then your IP setting is ok.



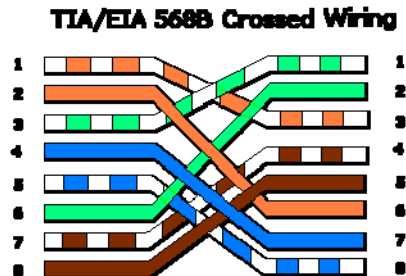
! *Set your computer IP setting before starting the S-BUS Smart Cloud.*

! *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/RSIP 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 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 then 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>
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=39ms 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

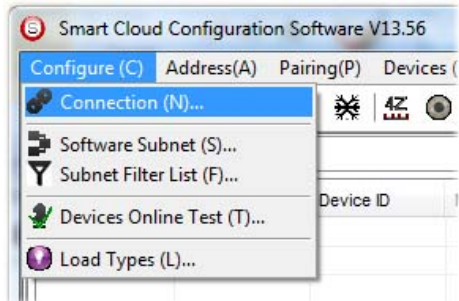
C:\Documents and Settings\Administrator>
```



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

2-2 S-bus Smart cloud Software basic setting

Configure

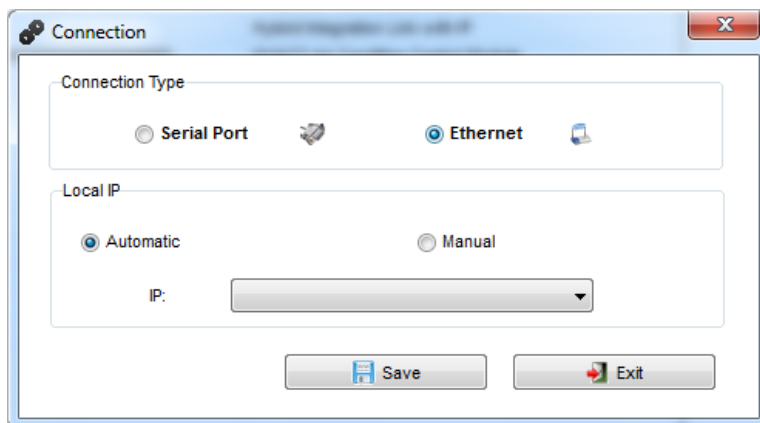


- **1- Connection**

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 choose 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- Software 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 subnet ID address is 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- Subnet Filter List:**

Here you can filter your subnet ID's that mean you can add more ranges if you have more than 254 devices so you can add another subnet ID

- **4- Devices On-Line test**

You can Deactivate or activate the auto test of Online devices (Activate is Default).

- **5- 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.

Address

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)

Pairing

You can enable pairing or disable either for one device or for all devices, disable meaning you can't program S-bus modules in manual anymore until you enable it again.

Devices

You can go here directly to Devices setting Categorized by type

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).

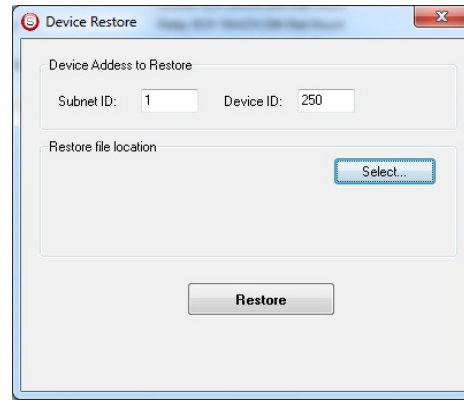
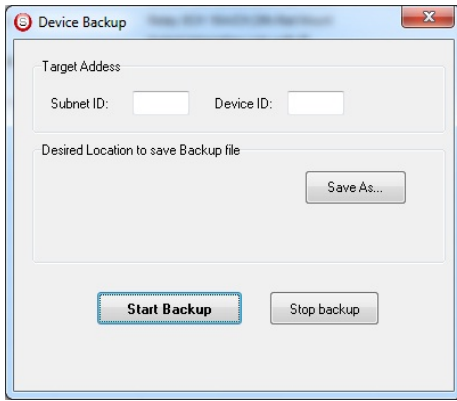
Language

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

Backup

Important to backup and restore your Devices address and setting.

- For Backup: put the subnet and device ID for desire device , choose the location for the backup file then click "Start backup" ,
- For Restore: put the subnet and device ID for desire device, choose the backup which you already made then click "Restore".
-



2-3 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:

- ❖ **Subnet ID**
- ❖ **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

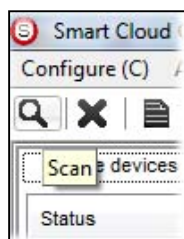
For example one of Dimmer Module Address is (Subnet 1, Device ID 5)

There is 5 ways to Search for the Devices in the Smart cloud 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.



- Click on the **Scan** button
- Click on the **Fast search Button**
- Click **add all**
- Click **Exit** to exit the Window




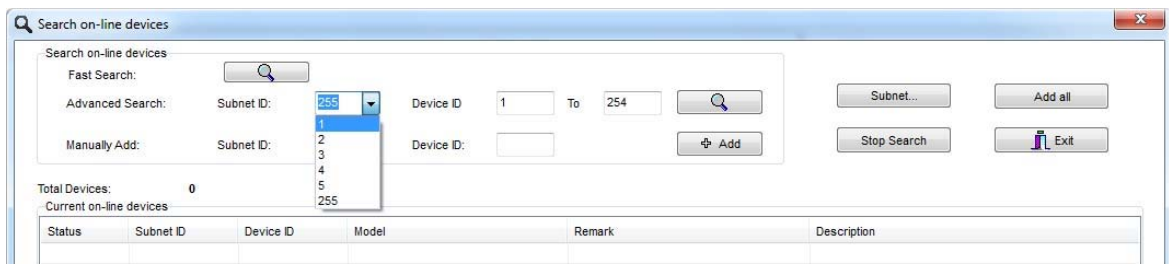
! *Fast search can't load all the Network Devices, it is only load part of the devices, it is only good for small project that contain around 10 devices, and to check the network communication with your PC.*

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.

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



- Click **search ICON**
- Click **ADD ALL** after the search finish
- Click **Exit** to exit from the window
- click **stop** to stop the search
- Click **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

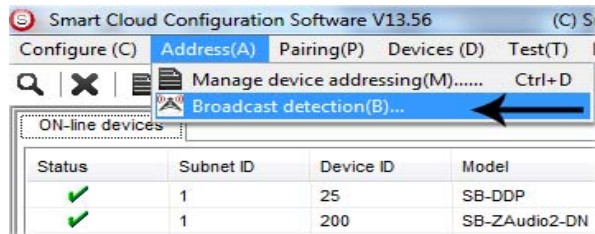
Manual Search is a very fast and useful way to add known Device ID and subnet to your network

Manually Add:	Subnet ID: <input type="text"/>	Device ID: <input type="text"/>	<input type="button" value="Add"/>
---------------	---------------------------------	---------------------------------	------------------------------------

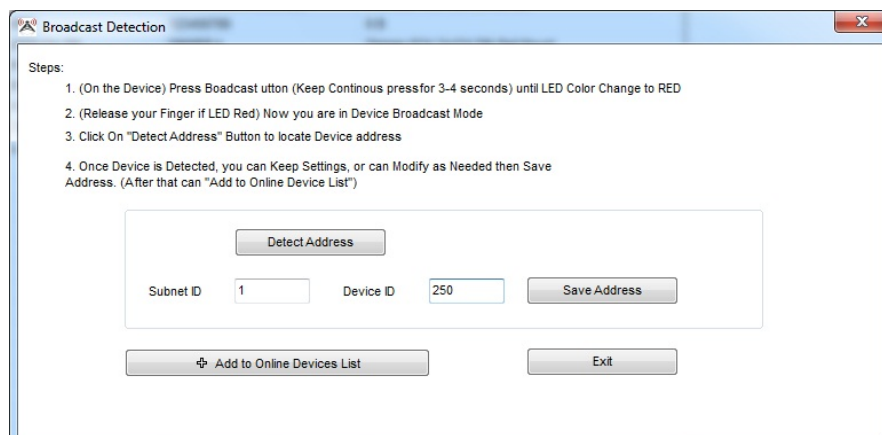
- Type the subnet and device ID that you know
- Click ADD
- Exit the Menu

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 Click **Address** then **broadcast detection**
- Go to your device like Dimmer / Relay / sensor or Panel and keep pressing the **broadcast Address button** for 2 ~ 4seconds until the button LED color change to **RED**.
- In your software in the Broadcast Detection window click the **Detect Address Button**.
- Your Device ID and Subnet well appear automatically
- To change the address just type the new subnet ID or device ID you want then click **Save Address**
- Click **ADD to online device list** to load your device in the Devices Network List.
- Click **Exit** to Close the Window

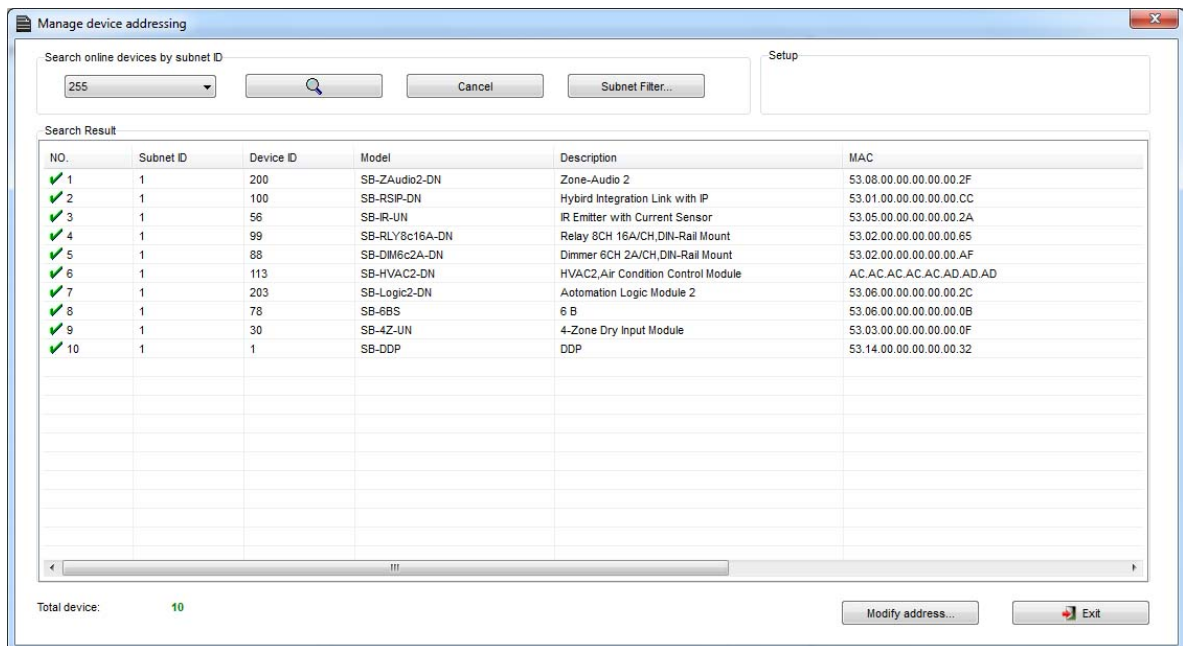




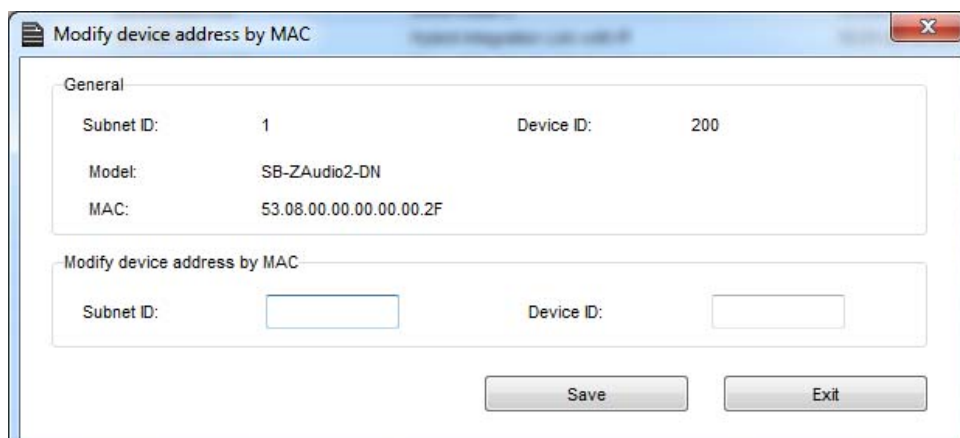
Solve Conflict address search

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.

- Click **Address** or click the Address Shortcut icon 



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



2-4 Steps of Basic Programming

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

- A- Check the communication between your computer and the Bus
- B- Broadcast each Dimmer, Relay, Motor curtain HVAC control++ initial Address
- C- Change the initial addresses to the desired one (**kindly check 2.5 for addresses range**).
- D- Give name of each Dimmer, Relay Module (Remark).
- E- Check each Lighting channel circuit if working and connected good
- F- Give name for each channel (remark).
- G- Make an excel sheet for all your Dimmers, relays, other module address and circuit name.
- H- 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 gives it address and name.
- L- Set the channel name, the running time open and close running time.
- M- Give the switch (6 gangs) and panel (DDP) its addresses and Name.
- N- Assign the panel button to the corresponding scene or channel.
- O- Set the button graphic picture for the DDP for each button.
- P- Check the HVAC address give it address and name.
- Q-Set on off relay sequence.
- R- Set the VAV Voltage output if required.
- S- Set the safety HVAC running sequence T- assign the DDP 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 the Z-audio 2 to the s-bus And address it
- Z-Test and enhance your programming.



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

2-5 What is The Magic Line In our software ? :

In programming in all S-bus Modules you will find the same line with same fields that's why we called it "Magic Line" .

If you want to send any command you have to use this magic line.

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	50	Invalid switch	1	2	N/A
2	10	11	Invalid switch	12	13	N/A
3	255	255	Invalid switch	255	255	N/A
4	255	255	Invalid switch	255	255	N/A
5	255	255	Invalid switch	255	255	N/A

If you notice the Command Line is contained of :

Function No. : indicated to Order/Function Number , the maximum order you can put is depend of the module .

Subnet ID : each device has subnet ID in our software you can put up to 254 subnet ID.

Device ID : additional to the Subnet ID also each device must has unique ID to avoid the conflict . and the range is 254.



Each Subnet ID can cover 254 devices and we have 254 subnet ID that means the total Number is 64516 devices.

Type : What type of order you want to send, if you notice in the following pic the system has many types depend on the module

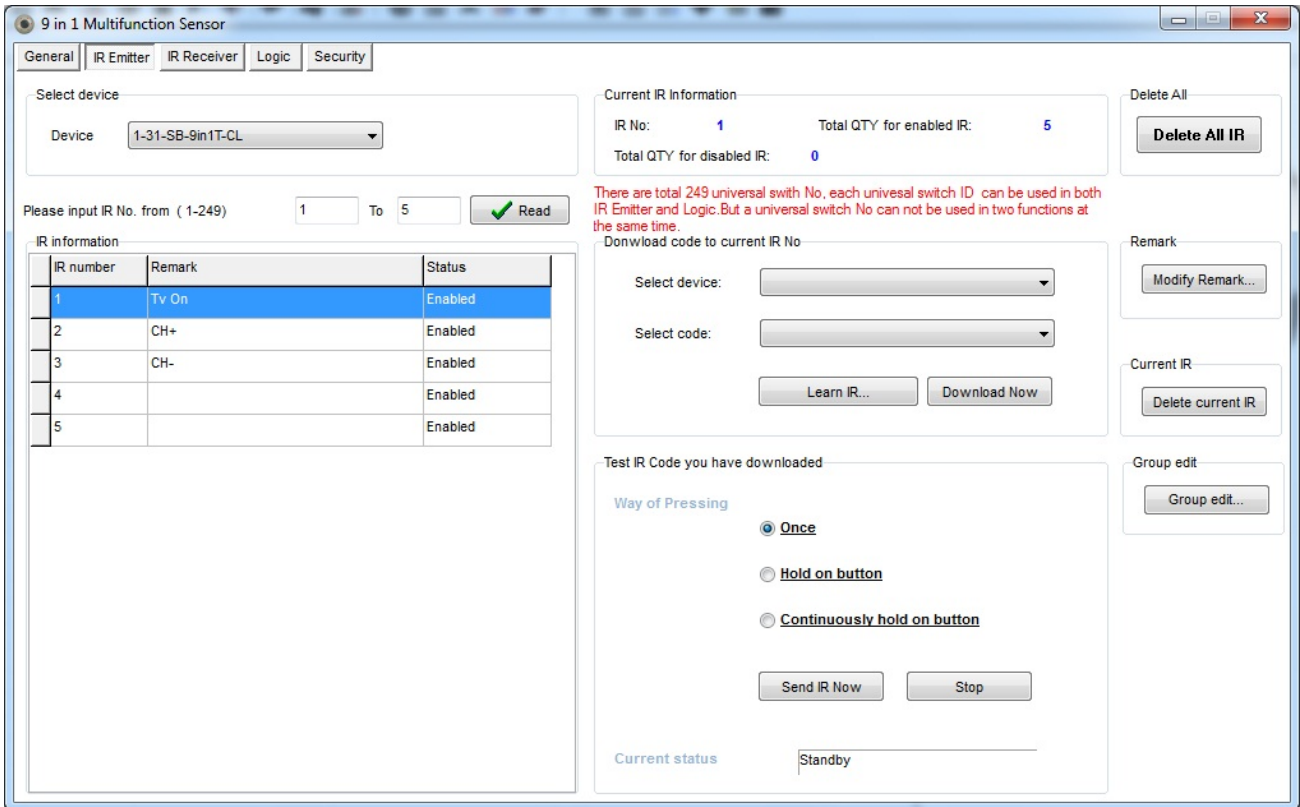
Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	50	Scene switch	1	2	N/A
2	10	11	Invalid switch	12	13	N/A
3	255	255	Scene switch	255	255	N/A
4	255	255	Sequence switch	255	255	N/A
5	255	255	Universal switch	255	255	N/A
			Single channel lighting			
			Curtain switch			
			SMS control			
			Panel control			
			Broadcast scene			
			Broadcast channel			
			Security module			
			Zone-Audio 2			

Parameter 1 ,Parameter 2 and Parameter 3 are related to "TYPE" field like 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	Channel Number	Brightness 0-100%	Fade time 0S - 60 M
Curtain Switch	Switch Number	Stop / ON/ OFF	N/A
SMS	Message	Message SMS Number	N/A
Panel	Invalid	N/A	N/A
Panel	IR Receiver	ON / OFF	N/A
Panel	Lock	ON / OFF	N/A
Panel	AC Power	ON / OFF	N/A
Panel	AC Cooling	0-30 C , 32- 86F	N/A
Panel	ACFan Speed	Auto/high/med/slow	N/A
Panel	AC Mode	Auto/Cooling/Heating/FA	N/A
Panel	AC Heating	0-30 C , 32- 86F	N/A
Panel	Rise temp	0-30 C , 32- 86F	N/A
Panel	Reduse temp	1-5 C/F	N/A
Panel	LCD Backlit	ON / OFF	N/A
Panel	LCD status ligh	1~100	N/A
Panel	Floor heating power	ON / OFF	N/A
Panel	Floor heating mode	Normal-day-night -away	N/A
Panel	Goto page	1~7	N/A

Function type	Parameter 1	Parameter 2	Parameter 3
Broadcast scene	All Areas	Scene Number	N/A
Broadcast Channel	ALL Channel	Brightness 0-100%	Fade time 0S - 60 M
Security Module	Area Number	Arming Mode	N/A
Zone-audio 2	Source Control	SD Card/Audio In/FTP Server/FM Radio	N/A
Zone-audio 2	Play Mode	No Repeat/ Repeat Song/ Continued/ Repeat all	N/A
Zone-audio 2	Play List/Radio Channel	PREV Play List/Next Play ListSpecify Play List No/PREV	N/A
Zone-audio 2	Play Control	PREV Song/Next Song/Play/Stop	N/A
Zone-audio 2	Volume	VOL	0-100
Zone-audio 2	Volume	TREBLE	Reduce/increase
Zone-audio 2	Volume	BASS	Reduce/increase
Zone-audio 2	Play Specify Song	Folder No.	Song No.

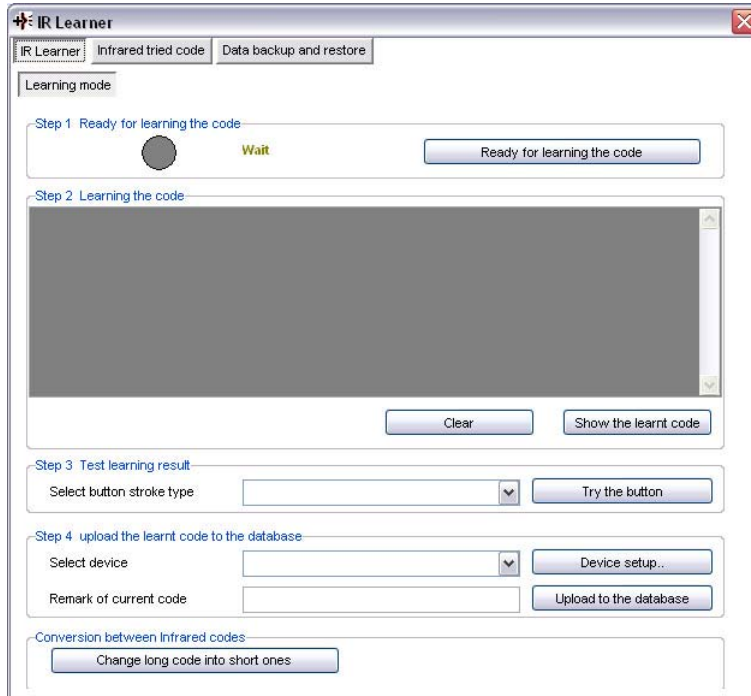
3-1 Learning and send IR codes :



If you want to control any devices has a remote you need first to save its IR codes, For that, connect your IR Learner install the driver (WIN XP):



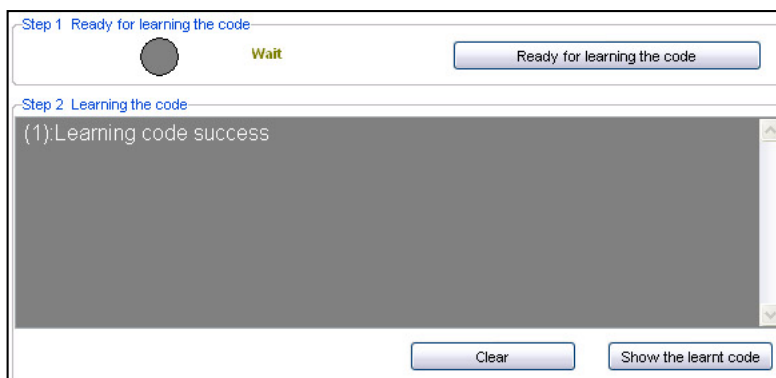
- Press **Learn IR** button you will get this window :



- Click on **Ready for Learning** button the grey circle it will be green :



- Put your Remote in front of IR learner and press the desire button you want to its code.
- Once you press you will get the success notification :



- Now Select single press then go to Device setup

Step 3 Test learning result

Select button stroke type

Step 4 upload the learnt code to the database

Select device

Remark of current code

- Create new device with remark then click on add :

Device setup

ID	Remark
1	Smart IR Remote(Big)
2	AUX AC

Add device

Remark

Edit device

ID: 2

Remark

- Click Exit
- after you create your devise you can choose it from **select device** (I choose T.V remote)
- Remark your code to recognize it later Ex : **CH+**
- Click **upload to data base** button.

Step 4 upload the learnt code to the database

Select device

Remark of current code

- High light on any row in **IR Information** table (I chose No.1)
- Go to **Download code** section choose your devise and code
- Click **download now**.

Please input IR No. from (1-249) To

IR number	Remark	Status
1	TV REMOTE_CH+	Enabled
2	CH+	Enabled
3	CH-	Enabled
4		Enabled
5		Enabled

Download code to current IR No:

Select device:

Select code:

-) to send this code through **DDP** just choose any button :

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	31	Universal switch	1	On	N/A

Device ID= 31 → your **9 in 1** ID
 Type = Universal → must be to send IR code
 Parameter 1 = 1 → where we save our code (CH+)
 Parameter 2 = on → to execute the command

For more info please check out these links :

<http://www.youtube.com/watch?v=z5PuMgv3v5Y&feature=plcp>

<http://www.youtube.com/watch?v=nUoF1VptuJM&feature=plcp>

http://www.youtube.com/watch?v=r_QaBCXIVD0&feature=plcp

3-2 DDP Programming:

Now, the Split AC remote control commands are stored in the IR Emitter module. In the DDP you need to configure the AC page to control this IR emitter AC commands.

1 - In the Air Conditioning page, there is an option (**Control type**) that determines the DDP is going to control HVAC or IR Emitter or Relay. In our case choose By IR/Relay

Smart Cloud Configuration Software V14.14 (C) SmartHome-Group (R) www.SmartHomeBus.com

DDP

General Button Assignment Air conditioning Floor Heating Music Page Remote Control

DDP Address

Subnet ID: 1 Device ID: 20
Model: SB-DDP Remark: Bed ROOM 2

Show AC Page on DDP Save

Control Type

By HVAC By IR/Relays

Control AC by IR

Infrared Control [Dropdown] Save

Modify commands...

NO.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3

Slave information

Slave NO. [Dropdown] Enable current slave I/O

Subnet ID of HVAC [Text] Device ID of HVAC [Text] Save

Temperature Calibration

Temperature Calibration on DDP: [Slider] ? Save

Broadcast Temperature

Enable Temperature Broadcast

Subnet ID of target Device: [Text] Device ID of target Device: [Text]

if Subnet ID and Device ID both equal 255, it means broadcast to all devices Save

AC Control

Power On Lock 0 ?

Cool Setpoint: [Slider] ?

Heat Setpoint: [Slider] ?

Auto Setpoint: [Slider] ? Save

FAN Speed [Dropdown] Mode: [Dropdown]

Current Status: Cool

Control Desert Cooler

Automatic control Save

Other Setup... AC Graphic

2 – in the **Infrared Control** drop list you'll find all AC command.

First choose ON/OFF, it will show you in the table two records, one for ON and another one for OFF.

Control AC by IR

Infrared Control

	NO.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
OFF							
ON							

These records will determine what action will happen if the button ON/OFF in the AC page in the DDP is pressed (The first button). In our case we need to tell the IR emitter to send the OFF command when OFF is pressed and ON command when On is pressed.

To do that, like explained in the Magic line above, add the following in the OFF record:

Subnet ID: 1

Device ID: 150 (Your IR emitter module address)

Type: Universal Switch (The type used to send command from IR Emitter module)

Parameter1: 1 (Where you stored the OFF command)

Parameter 2: ON (means Send this command now)

Parameter 3: N/A

Now when you go to the DDP and press the OFF button in the AC page it will tell the IR emitter module of address the 150 to send command number 1 through the IR blaster that is connected to the module and stick near the IR receiver of the Split AC unit.

Repeat the same for all the commands that you have learned to the IR Emitter module.

For basic Split AC control you need to learn the following commands:

ON/OFF

COOLING/Heating

Cooling temperatures (For example from 18 to 30 C, meaning you have to learn the code for each degree)

Heating temperatures.

Control AC by IR

Infrared Control

	NO.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
Cool							
Heating							
FAN							
Auto							
Dehumidif							

Control AC by IR

Infrared Control

	NO.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
17C							
18C							
19C							
20C							
21C							
...							

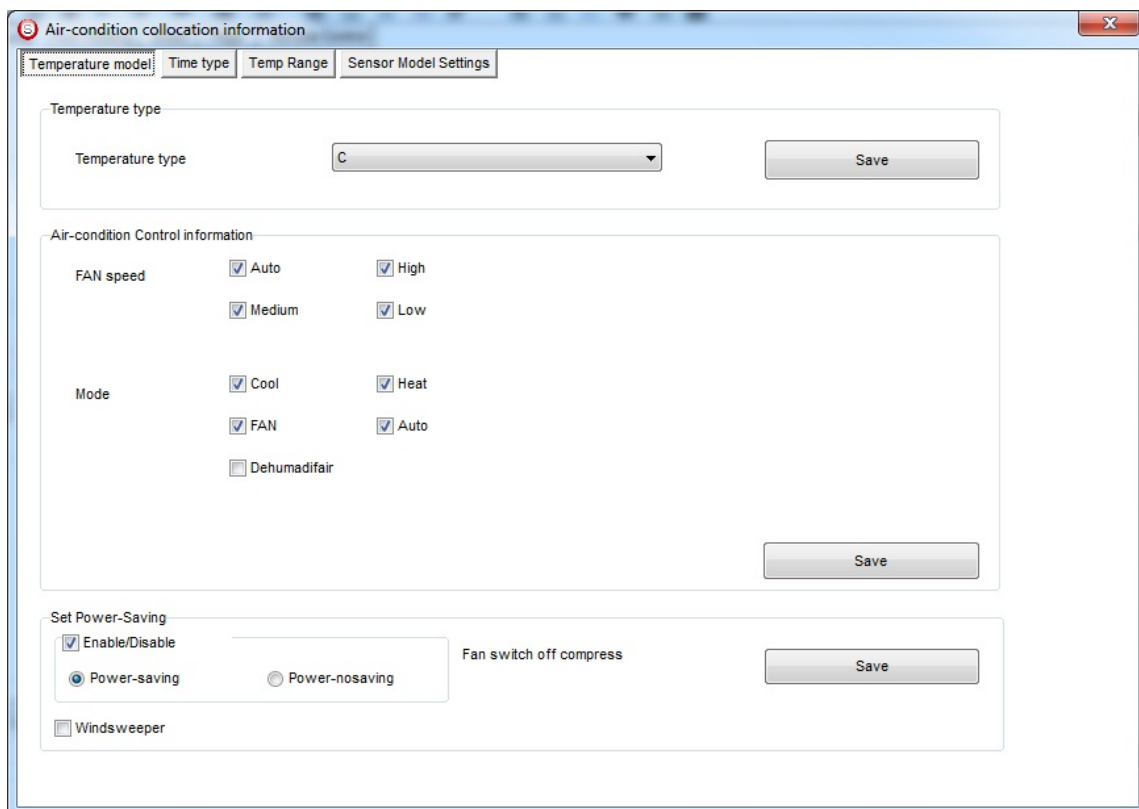
3-3 DDP AC Page control Setup

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

In the temperature Type 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 DDP 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.

Temperature Range

Cooling Range: Low-limit: 0 C High-limit: 30 C

Heating Range: Low-limit: 0 C High-limit: 30 C

Auto Range: Low-limit: 0 C High-limit: 30 C

Dry Range: Low-limit: 0 C High-limit: 30 C Device ID of target Device: 30 C

Save



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 Model setting: to refer to the Indoor temp sensor (DDP temp sensor), Outside sensor (Pro HVAC temp sensor). Or Average between both sensors

3-4 DDP Temp Calibration and Lock function

You can Calibrate your DDP temp sensor to give you exact room temperature, for example: sometimes the DDP 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 **Air-condition tab** then go to **temperature calibration** section, you can adjust it (-8 to +8 degree).
- Press **save**

Temperature Calibration

Temperature Calibration on DDP: 0 C

Save

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

- Go to **AC control** section, and enable the **Lock** or disable it
- Press **save**



For More info please Enjoy our youtube channel : <http://www.youtube.com/SmartG4/>



