2012

Programming Manual

RS232/RS485

V2.1

Created By Sameh & Basem

Contents

1-Introduction

Objective 1-1

S-bus products 1-2

2- Start Programming

S-Bus Programming Software overview 2-1

S-bus Configuration Software basic setting 2-2

Devices address and Search 2-3

Steps of basic programming 2-4

What is the MAGIC LINE 2-5

3- Rs 232/485 Module

Rs 232/485 overview 3-1

Rs 232 /485 to s-bus 3-2

Rs 232/485 : S-bus to Rs232 3-3

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 well know soon how the S-bus Programming is simple.

1-1 Objective:

After this course you will be able to program the Lights Dimmers ad 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

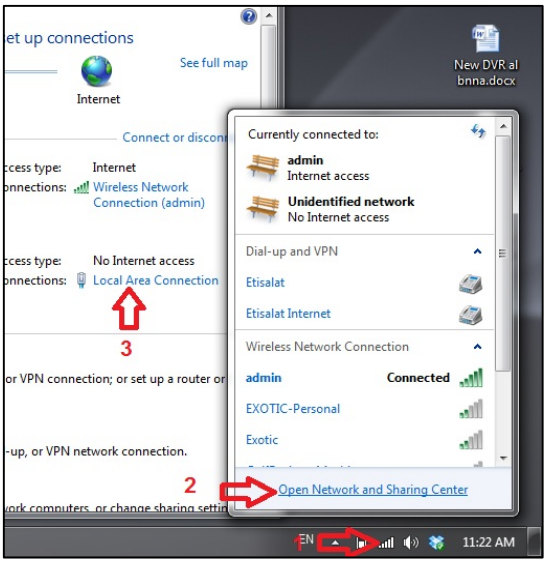
You need on this lesson: to have your computer with you. Running on windows Operating system, Smart Cloud **G4** software, Programming port SB-DN-1IP, that enable you to search for all the devices that connected to the bus network.

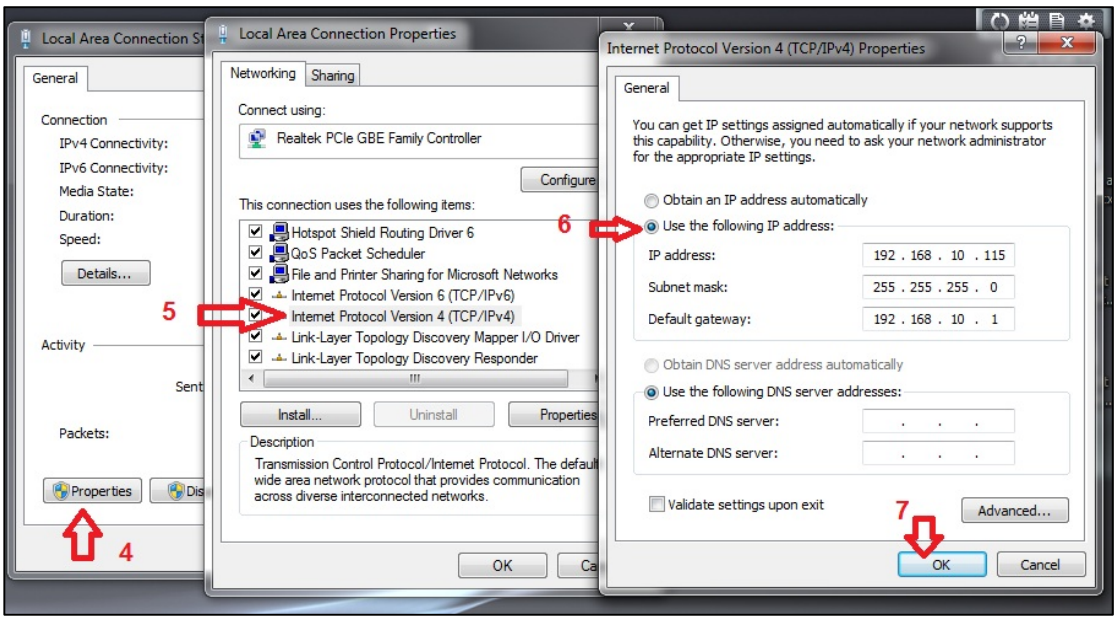
1- Install your S-bus configuration software in your Computer by pressing the **Setup** icon and follow the installation steps windows

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

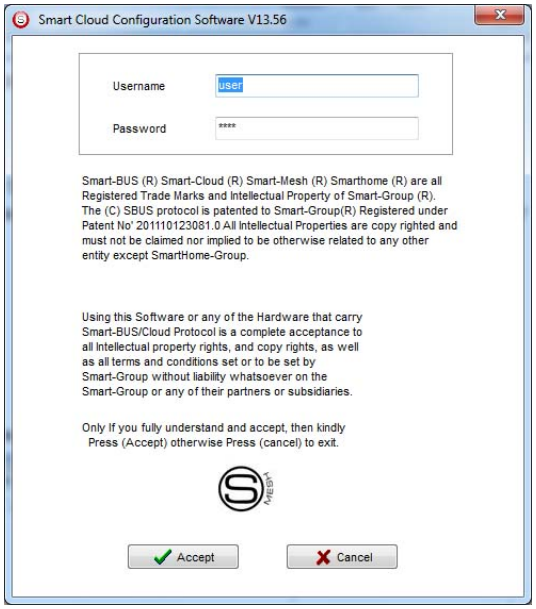
⚠ The default address for S-bus Product is **192.168.10.xxx**



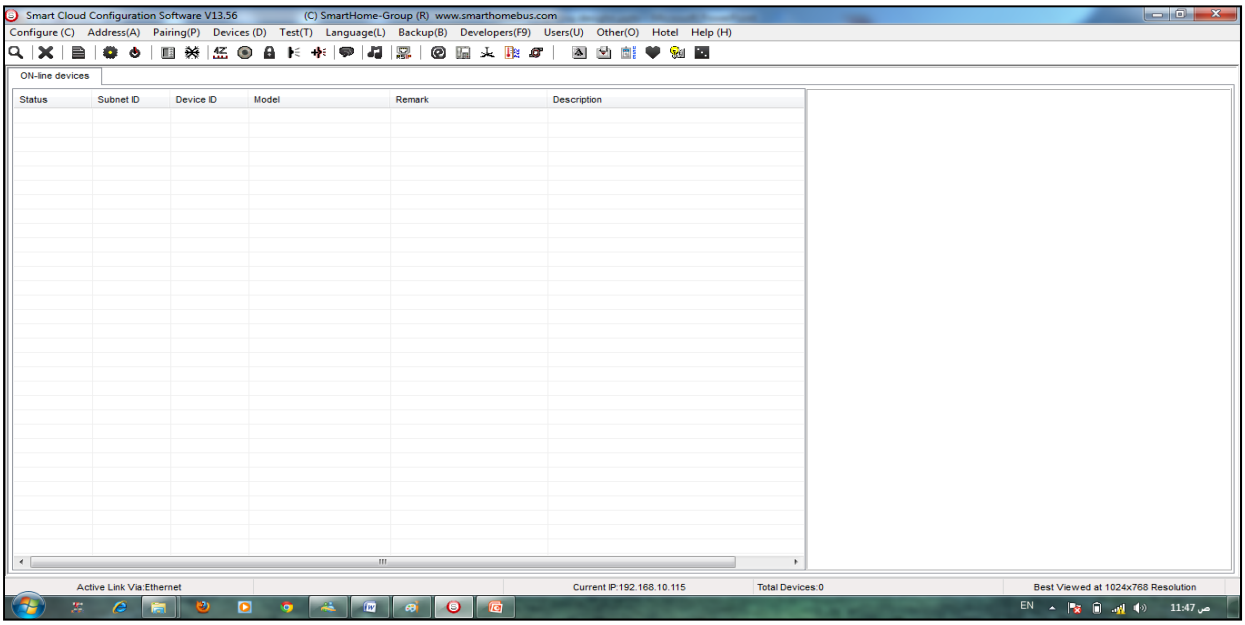


3- Run your S-bus smart cloud Software

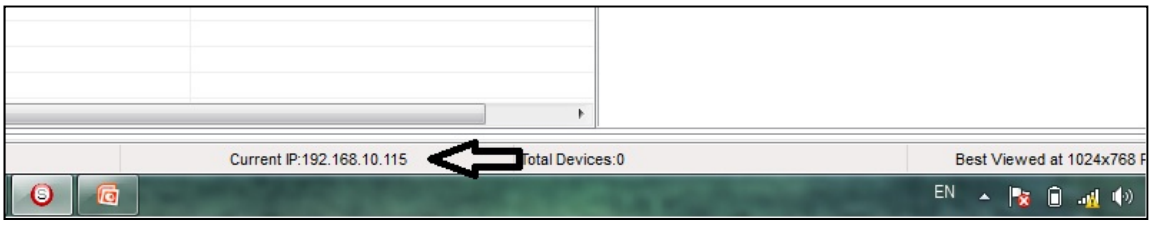
4- The Password window will open, type the default password is **user**



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.



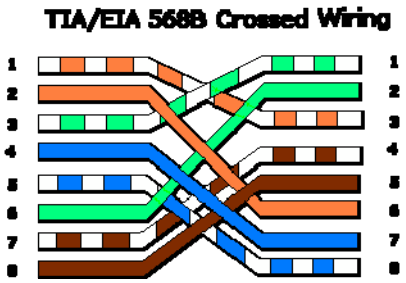
Set your computer IP setting before starting the S-BUS Smart Cloud.

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

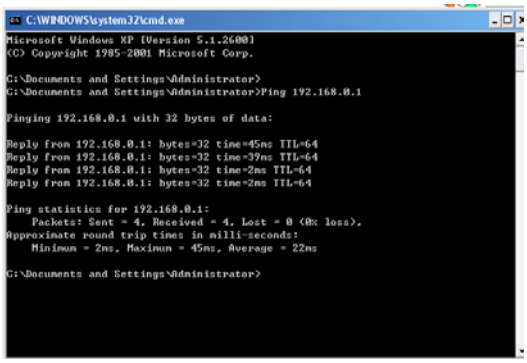
After you set your Module IP Address now you should connect the module to Your Computer Network in order to communicate. The connection can be in two ways

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



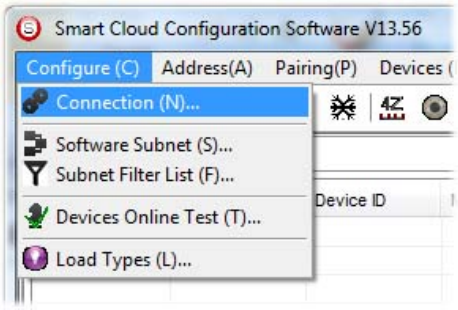
*You can use the Line command **Ping** to check your connection.*
On your Computer, Go to start/ Run/ CMD then type Ping 192.168.10.xxx
If you see the following results similar to this Picture then your connection is successful



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

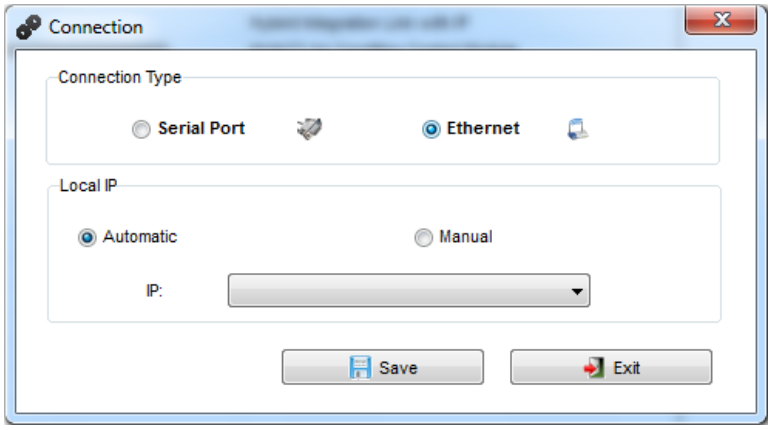
Configure



- ***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 devicess 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).

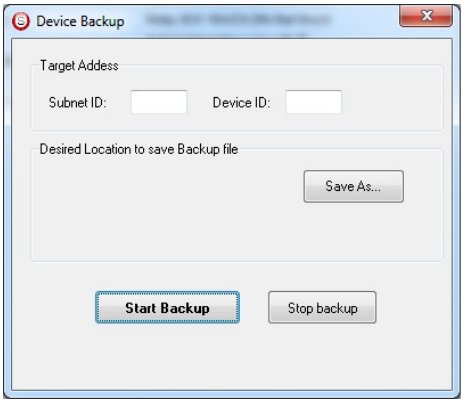
Language

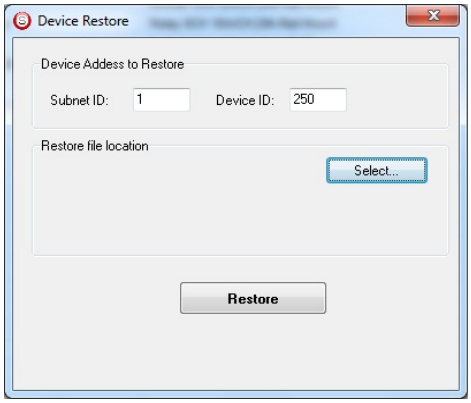
You can change the Language between English and Chinese, and other Languages

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**

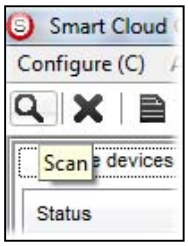
The subnet ID can be from 0 – 254
And the Device ID can be from 1 – 254
So you can put up to 65024 Deferent Devices in the same network with deferent subnet and device ID Address
For example one of Dimmer Module Address is (Subnet 1, Device ID 5)

<u>There is 5 ways to Search for the Devices in the Smart cloud Software</u>

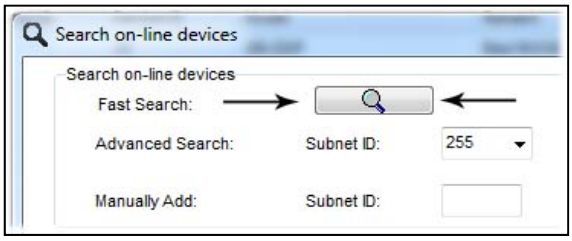
1- Fast Search
2- Advanced Search
3- Manually Search
4- Broadcast Address Device Search
5- Solve Conflict address search

<u>Fast Search</u>

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.

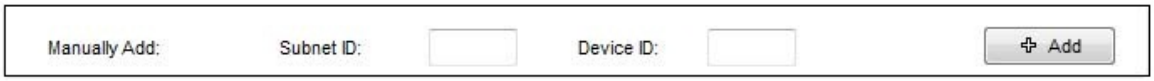
- Click on the Online Search button
- Go to **advanced search** , put the subnet ID and the range of device ID search

- 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

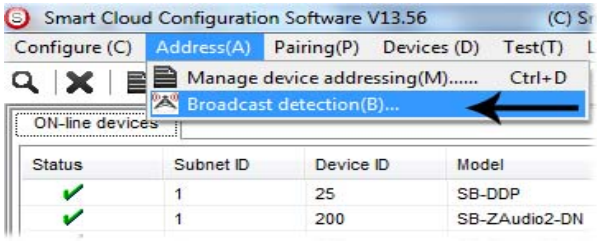
Manual Search is a very fast and useful way to add known Device ID and subnet to your network



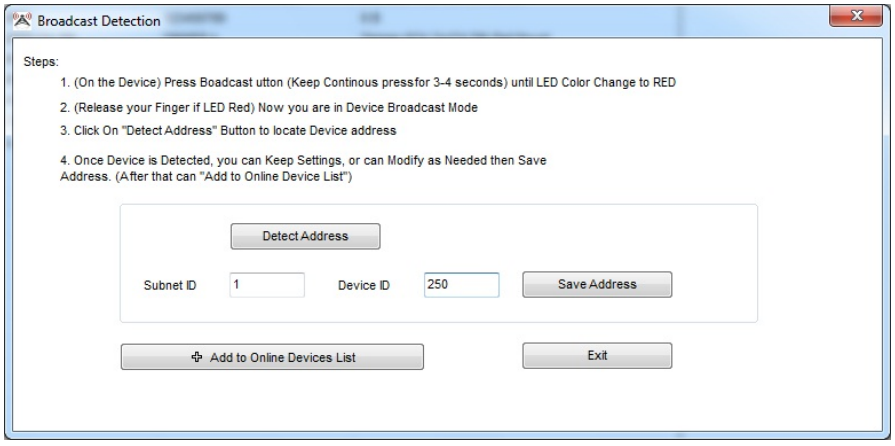
- Type the subnet and device ID that you know
- Click ADD
- Exit the Menu

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.



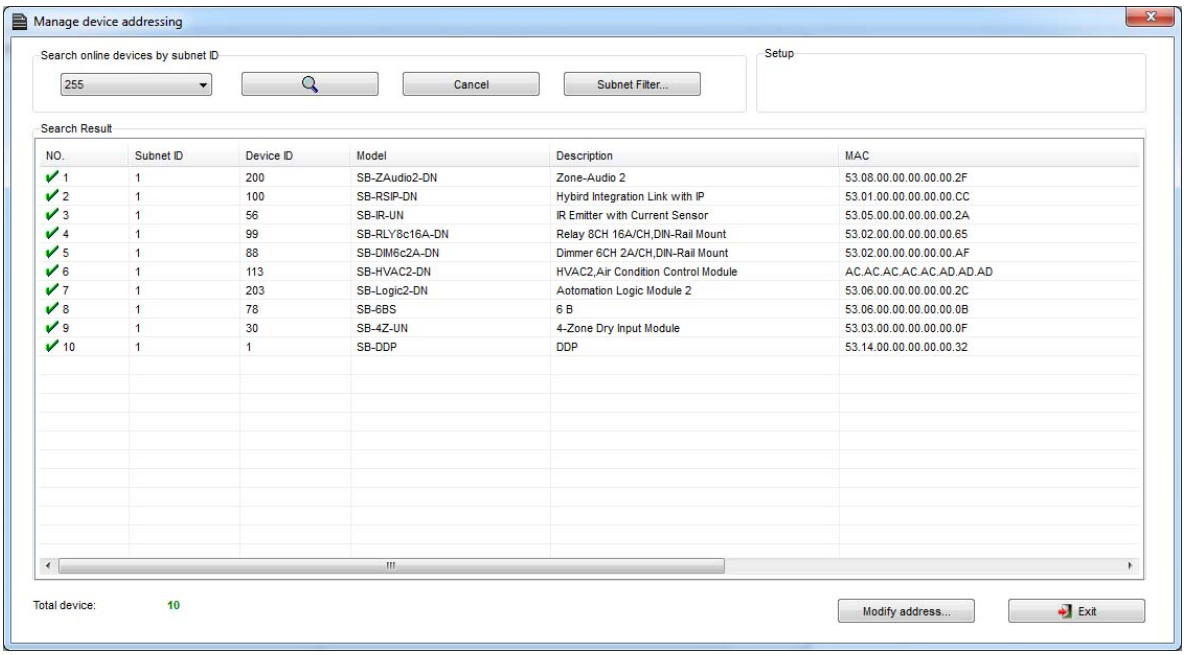
- On your software Click **Address** then **broadcast detection**
- Go to your device like Dimmer / Relay / sensor or Panel and keep pressing the **broadcast Address button** for 2 ~ 4seconds until the button LED color change to **RED**.
- In your software in the Broadcast Detection window click the **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



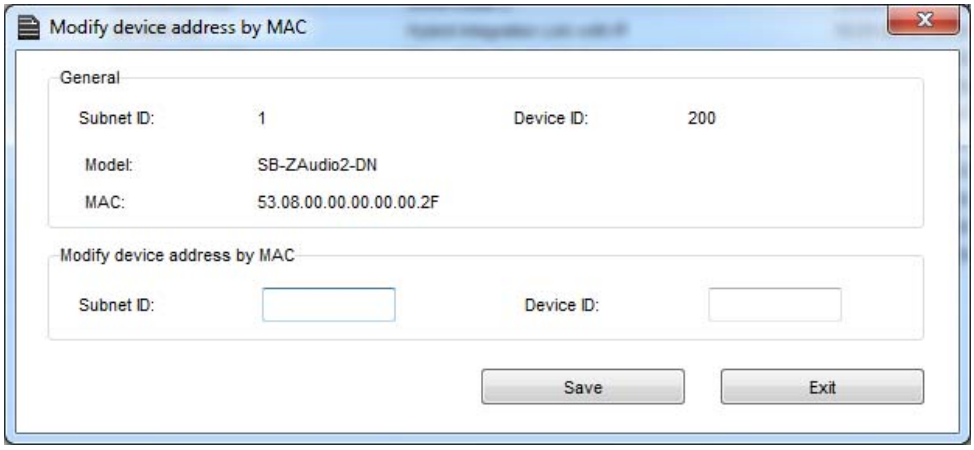
Solve Conflict address search

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

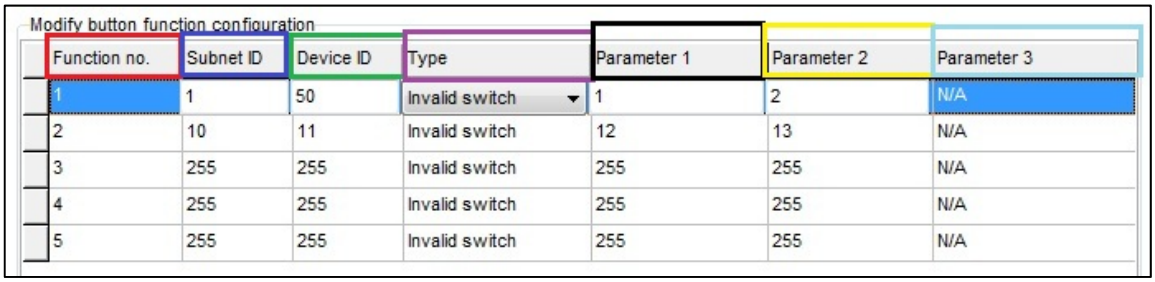
A- Check the communication between your computer and the Bus
B- Broadcast each Dimmer, Relay, Motor curtain HVAC control++ initial Address
C- Change the initial addresses to the desired one (**kindly check 2.5 for addresses range).**
D- Give name of each Dimmer, Relay Module (Remark).
E- Check each Lighting 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.


Modify button function configuration

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 :

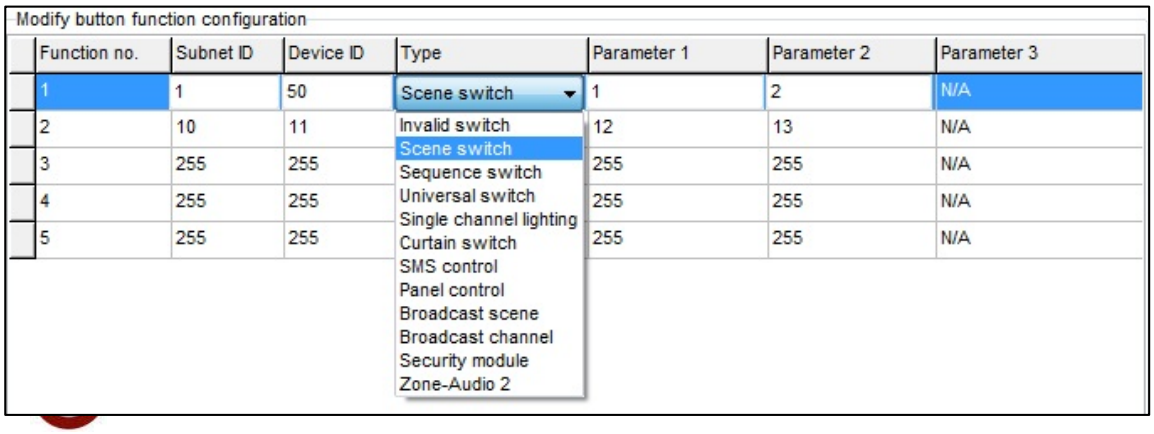
Function No. : indicated to Order/Function Number , the maximum order you can put is depend of the module .

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 uniqe 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


Modify button function configuration

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

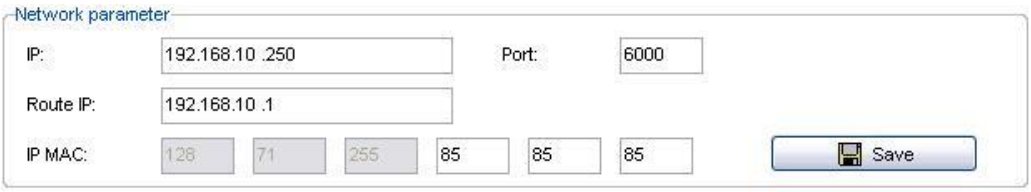
Function type	Parameter 1	Parameter 2	Parameter 3
Broadcast scene	All Areas	Scene Number	N/A
Broadcast Channel	ALL Channel	Brightness 0-100%	Fade time 0S - 60 M
Security Module	Area Number	Arming Mode	N/A
Zone-audio 2	Source Control	SD Card/Audio In/FTP Server/FM Radio	N/A
Zone-audio 2	Play Mode	No Repeat/ 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- Rs 232/485 Module:

3-1 RS232/485 overview:

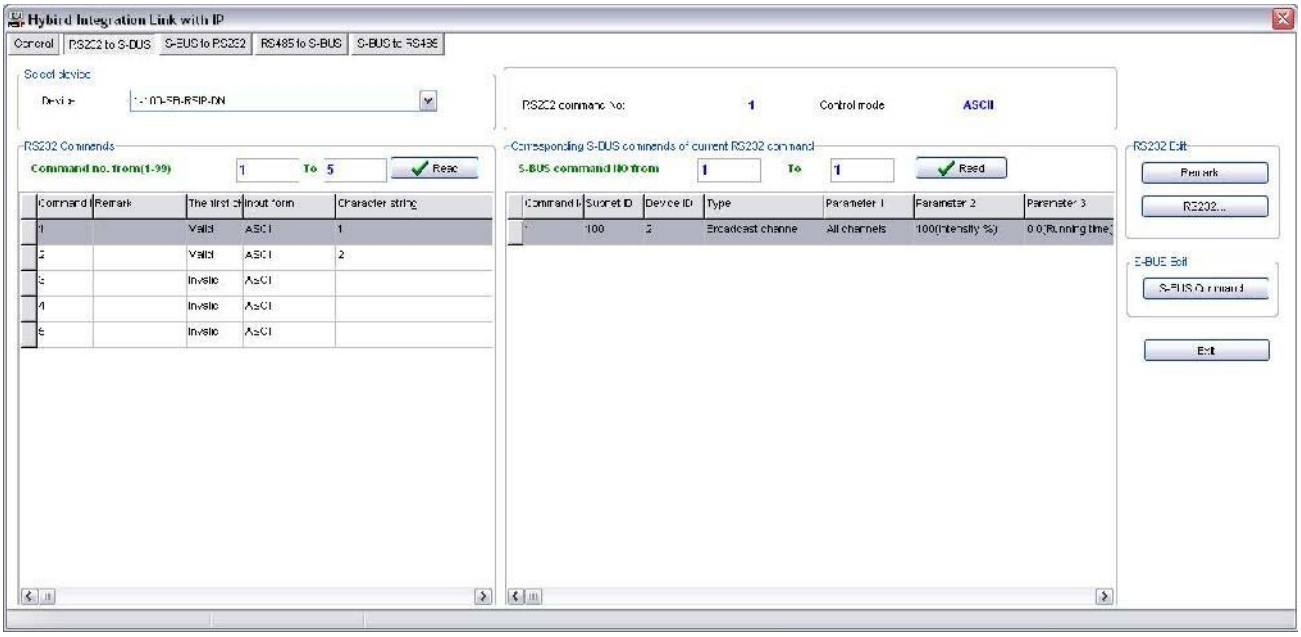
PC/IP Interface and 3rd Party Integration RS-232 & RS-485. This Module is multi Purpose, it can be used for programming S.BUS, and a bridge between computer Smart-BUS networks, can also be used as Network Bridge in the big projects with thousands of devices. It is the Touch Screen to SBUS Bridge. Same device is used
for 3rd Party Integration. Can send more than 1980 ASCII and/or Hexadecimal Command with **50** ASCII Character Message Length for more flexibility. 2 way communication that can receive up to **99** ASCII, HEX string commands to do up to **20** different commands for each message received Fixed ASCII S-BUS Protocol with Send Command Delay option Adjustable baud rate.

Accordingly you can change the RS 232/485:



3 -2 Rs 232 /485 to S-bus:

This tab is very important if you want to receive an external signal from any third party
And convert this signal to S-bus Commands.



: We have RF ID system fixed at the gate and we want to open the motor gate when

the system detect the

RF card ? Note: **RF**

CARD ID : 00002324

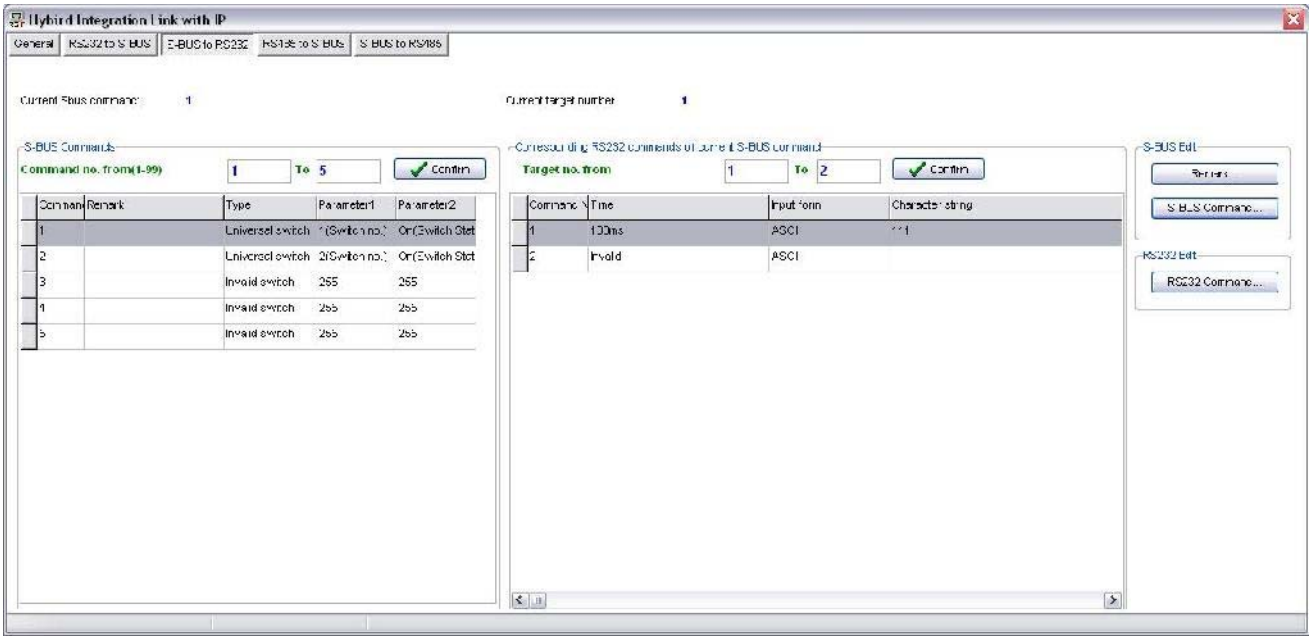
- After you connect the RS232 wires Double click on RS IP
- Go to " RS232 to S-BUS"
- Click "RS232" button
- In "character string " of the new window put your RF card in **ASCII** or **HEX** 00002324 in hex = 30,30,30,30,32,33,32,34
- Press "save"
- Exit
- Click on **S-Bus Command** button
- Like any s-BUS command put your relay address and channel No. which you already connect your motor cable.

Modify Commands

Command NO	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	80	Single channel lighting (	1(Channel no.)	100(Intensity %)	0:0(Running time(mm:ss))

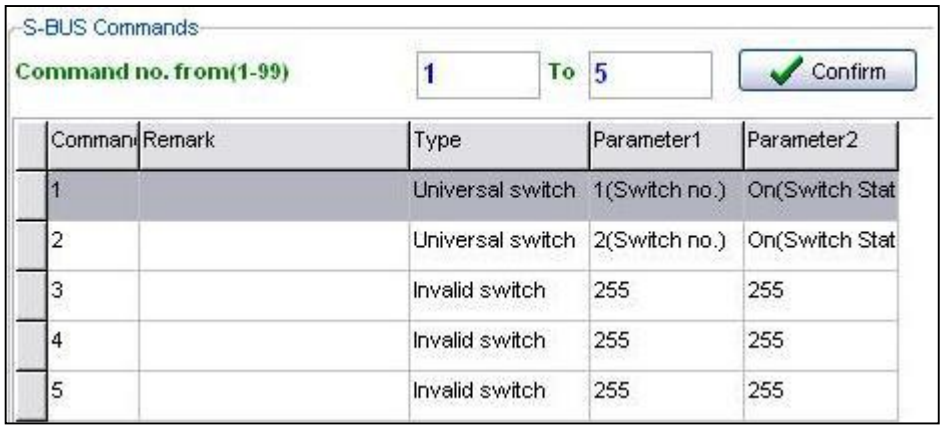
3-3 S-BUS to Rs232:

In RSIP you will notice also "S-bus to Rs232", this tab if you want to send S-bus command to the external system (Ex: Projector) through RS232.

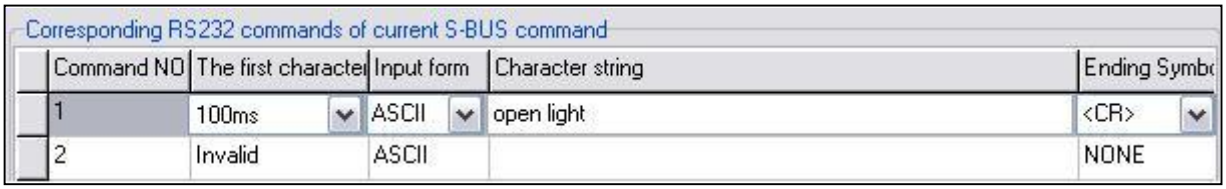


To do that :

- Click **S-BUS Command** Button
- In “type” option choose “universal switch”
- Create your command address in Parameter 1 (1~255)
- Parameter 2 Choose “ON” to execute the RS232 command when this FLAG is ON

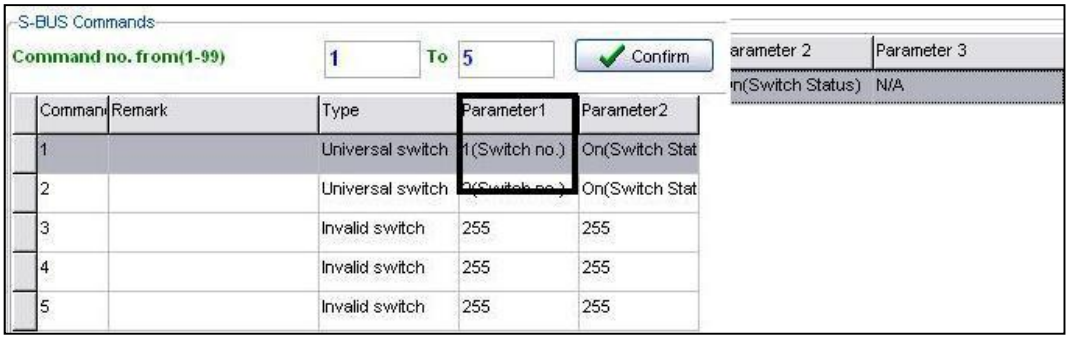


- click **RS232 Command** button
- put your Device RS232 command In ASCII or HEX
- save, exit



- **To call this command from DDP** :

  - Double click on DDP
  - Go to button assignation
  - In the mode its recommended to select “single on” or “combination on”
  - In s-bus command list put your RSIP ID and Subnet
  - Type “ universal “
  - Parameter1 “ **1**” the rs232 command address (1~255)



Modify button function configuration

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	251	Universal switch	1(Switch no.)	On(Switch Status)	N/A

- Put in Parameter 3 “ On”

Now once you press on DDP first button the RS232 Command is will execute .

In RS485 tabs it’s the same exactly like RS232 steps.