

Installation Manual

Dimmers & Relays

V1.0



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Introduction:

All Smart-Bus G4 Devices are intelligent devices with CPU in each one of them. They can be connected to one network called the S-Bus network, where each device is recognized by a Device ID.

Many Networks can be connected together using the RSIP device, each network is recognized by a Subnet ID.

For extensive information on S-BUS network configuration refer to the Programming Manual.

The cable used in this network consist of four wires only (see below), and the connection topology is just flexible. Mesh, Serial, Parallel and daisy chain are all applicable on the Smart-Bus G4 network.

All Smart-Bus G4 Devices have two stages to install:

- ***The S-BUS network.***
- ***Device Specific wiring.***

While the first stage is identical in all devices, the other stage differs depending on the kind of system a device control.

THE S-BUS Network:

The S-BUS network can be achieved by 4 wires only.

DATA + DATA- GND +24

Those 4 wires can be used from any type of DATA cable, CAT5, CAT6, or any other...

You will only need a small screw driver and a cutter, to install the entire S-BUS G4 system.



There are *three* methods of connecting one device to the S-BUS network:

- **Cascading Train DIN-Rail.** (Not all devices)
- **Using the conventional S-BUS ports.** (All devices)
- **Using the 4D connector to join lines.** (Not all devices)

S-BUS G4 devices are rail mountable devices, and they are also equipped with two connectors on both sides that enable multiple devices to be cascaded in a train like manner on the rail.

As shown in figures 1, 2, and 3. The left hand side of the device has a Male connector, and the right hand side has female connector.



Figure 2 Male Train S-BUS Connector



Figure 1 Female Train S-BUS Connector

This is all along the side with the traditional S-BUS connection port for extra flexibility for wiring and connection. (Figure 6)



Figure 3 Conventional S-BUS connection

NOTE: all these ports, the Train Male and Female + the traditional ports are actually looped in the device, meaning where ever the wire is connected it will be looped to the other port.



Figure 4 Two Devices on Rail Train connection



Figure 5 Dimmer Bottom showing rail clicks

Of course, the female connector can be reached from far devices, not only cascading on a rail, and that is done using the 4D connector show Figure 7.



Figure 6 Connector 4D

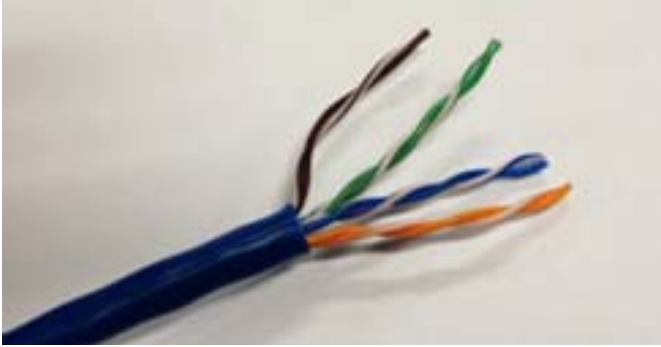


Figure 8 Conventional CAT5 Four pairs cable

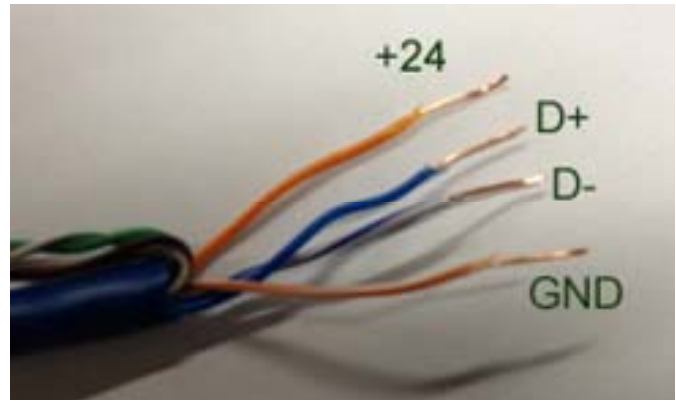


Figure 7 We need only two pairs

Like mentioned before, to achieve the network between the S-BUS devices you need only 4 wires, two wires for supplying the power to the Device (+24 & GND) and another two wires for data transfer between devices (D+ & D-). Meaning that you can use a normal CAT5 cable that has 4 pairs, where you need only two pairs and the others stays as extras.



Figure 10 Using 4D to connect to device



Figure 9 Conventional S-BUS connection

Dimmers: Device Specific wiring:

The Dimmer is device that controls light, with the ability to dim any dimmable lights.



Figure 11 Dimmer (4ch 3Amp Dimmer)

Light circuits run with two wires always, The Line and the Neutral, the Hot and the Cold, the Phase and the Black. Different terminologies used worldwide to the same concept.

Smart BUS G4 Dimmers accept both 220 and 110 AC power input.

As shown in the Figure 14, it has three ports for N, which are only looped neutral connector for extra flexibility when installing, and one port for power phase line in. the power going in the Dimmer is distributed to the output channels. This fact leads to the measurements required before connecting lighting circuits to Dimmers.



Figure 12 Dimmer's Phase Input ports



Figure 13 Dimmer's Load output loads.

First you have to take into consideration what type of dimmer are you using. There are 6 types available:

- *One channel Dimmer, Handles up to 12 Amps load - around 2600 Watts. (1ch12amps)*
- *Two channels Dimmer, each handles up to 6 Amps load - around 1320 Watts (2ch6amps)*
- *Four channels Dimmer, each handles up to 3 Amps load - around 660 Watts (4ch3amps)*
- *Six Channels Dimmer, each handles up to 2 Amps load - around 440 Watts (6ch2amps)*
- *Eight Channels Dimmer, each handles up to 1.5 Amps load - around 330 Watts (6ch2amps)*
- *Twelve channels Dimmer, each handles up to 1 Amps load - around 220 Watts(12ch1amps)*

So, here is the check list:

- 1- Dimmers channels load handling.*
- 2- Dimmers Input load handling.*
- 3- Electrical breaker load handling.*

Our example:

- 1- In the picture we have four channels Dimmer, meaning the maximum load that can be connected to each channel is 3 Amps. Refer to your electrical circuit installer and bulb supplier to determine how much each circuit load before connecting.
For extra protection, an external Fuse is preferred to be connected ahead of each channel to protect against overload, shorts, electrical sharks and other common electrical issues.
- 2- Since it is distributed load, it means that all the channels loads will be on the one electrical wire that is used in the input L port of the Dimmer, reviewing all S-BUS G4 Dimmers, all load supply would be 12 amps in sum.
Usually, a 1.5 to 2.0 mm electrical wire is enough and okay for this kind of load,
- 3- Another thing to consider is the breaker that is used in the main electrical DB should be able to handle 12 amps or more. Refer to the electrical installer to determine the breakers and other fixture specifications in accordance to the load that will be installed.



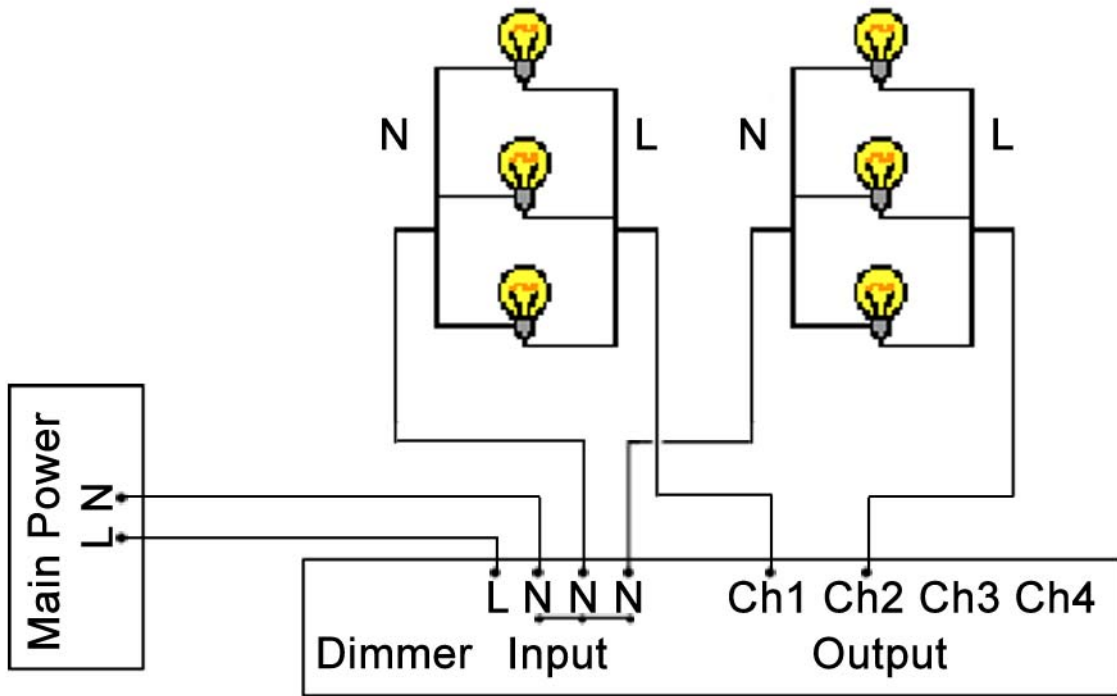


Figure 14 Light Circuit Example on 4 channels Dimmer



Figure 15 Actual Photo of the example in figure 16

Now, the simple buttons on the surface of the Dimmer, will act as manual switch to turn the lights on and off.

After the bus is connected, now you can control those channels and dim it using other devices like the DDP or an Apple device using the G4 iOS application.

Refer to the programming manual for Dimmer – DDP for more information on how to program it.



Relays: Device specific wiring:

The Relay is a Pass-Through device, whatever is in, it will be out.



Figure 16 Relay Wiring

In the figure above, it shows different types of Relay related control. For the lighting no need for the Neutral connection, you just need to connect the main line through the relay, and the relay will handle it ON/OFF.

Since it is a pass through device, you can connect any kind of Switching control device like, Dry contact application that would open a motor gate for example.