



Dupline HW manual for Compatibility mode

rev. 0.1, 16/06/2015

Sx2WEB24 SYSTEM DESCRIPTION AND INSTALLATION MANUAL

This manual is an integral part of the Sx2WEB system. Please read it carefully, as it contains important information regarding safety.

- This system must be used only for the usage it has been designed for. Every other kind of usage is potentially unsafe. The manufacturer is not responsible for improper usage.
- The manufacturer is not responsible for the consequences of using non-original spare parts.
- This manual is subject to change without notice.

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1 Compatibility Mode – Hardware Manual Integration

The master channel generator SH2DUG24 provides the channel generator output drive for a Dupline® network in a smart-Dupline® system, which is controlled by a Sx2WEB24. Together with a Sx2WEB24, it substitutes a BH8-CTRLX-230, a BH8-CTRLZ-230, a G38xxxx or a G3490xx master generator (in the case of the G3490xx generator, only when used with 128 channels).

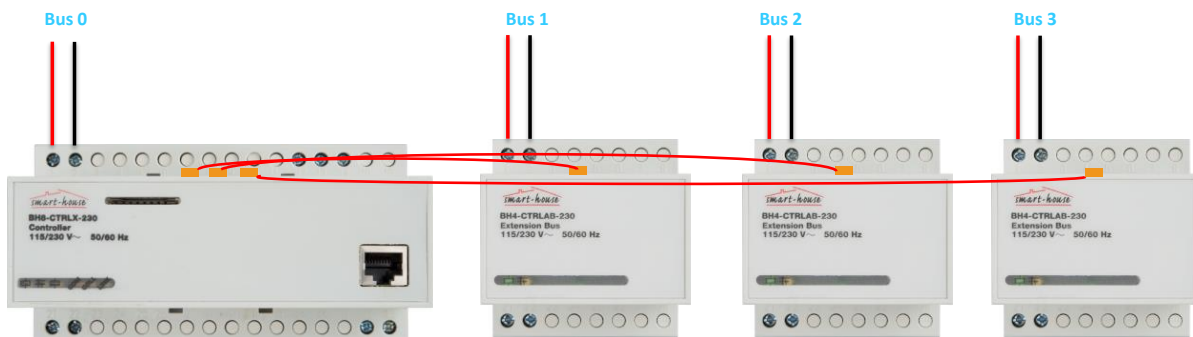
This manual explains the hardware recommendations and instructions to correctly upgrade an existing Dupline installation with the Dupline channel generator, the SH2DUG24 module.

1.1 How to define the number of Dupline networks in an existing system

The controller (BH8-CTRLX-230, BH8-CTRLZ-230, G38xxxx or G3490xx) is a programmable unit with the Dupline master generator integrated: the Dupline bus works with a nominal voltage of 8.2 Volts and the Bus is carried by a 2-wire cable, like the smart Dupline bus. The Dupline connectors (D+ and D-) are present on the controller and many input and output Dupline modules are supplied directly by the Dupline bus.

The BH8-CTRLX-230 can be connected to up to 3 bus extension modules. The Controller is referred to as Bus 0, and the extension bus modules are Bus 1, Bus 2 and Bus 3.

The figure below shows a Dupline system with all the Dupline networks used (without other modules). The user has to remember the correct generator associations when the BH8-CTRLX-230 and the bus extension modules are replaced with the new ones.

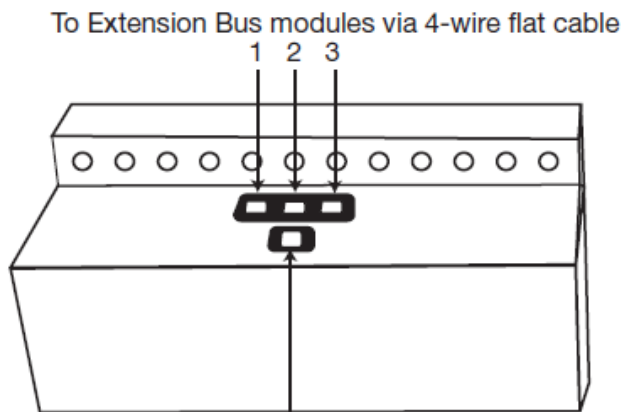


1.1.1 Extension modules

In an existing Dupline system, the Dupline extension modules are connected to the smart house Controller via special cables that come in a maximum length of 250 mm, so the Dupline extension modules are placed next to the Controller.

To upgrade, the user has to identify where the Controller is located and how many bus extension modules are in use in the existing Dupline system.

The bus extension connectors are present in the upper side of the BH8-CTRLX-230 controller, as shown in the picture below.



The bus extension module connected to the #1 socket on the controller is identified as Bus 1, the bus extension module connected to the #2 socket on the controller is identified as Bus 2 and the bus extension module connected to the #3 socket is identified as Bus 3.

1.1 How to upgrade an existing Dupline system with the SH2DUG24 Dupline generator

Before replacing the BH8-CTRLx-230 controller and the BH4-CTRLAB-230 bus extension modules with the SH2DUG24 Dupline master generator, attention must be paid to keeping the correct association.

The user has to remember that each bus extension module has its own bus (identified as Bus 1, Bus 2 and Bus 3) and he should record the correct association of all the modules and all the Dupline slave modules in all the networks.

The user has to perform the following steps to upgrade an existing Dupline system powered by a BH8-CTRLX-230, a BH8-CTRLZ-230, a G38xxxx or a G3490xxx:

1. Remove the power supply from the cabinet
2. Disconnect and remove the controller/master generator from the cabinet;
3. Replace the controller/master generator with the SH2DUG24 together with a Sx2WEB24 and a Carlo Gavazzi 24 VDC power supply;
4. Disconnect and remove each BH4-CTRLAB-230 bus extension module from the cabinet;
5. Replace each BH4-CTRLAB-230 bus extension module with a SH2DUG24 module;
6. Connect the Sx2WEB24 controller and all the SH2DUG24 modules to a Carlo Gavazzi 24 VDC power supply unit;
7. Connect each Dupline network to the Bus terminals on the correct SH2DUG24 Dupline generator;
8. The same Bus names are used in the .scc project file and in its import by the Sx tool;
9. Connect the LAN via the Ethernet connector on the Sx2WEB24 to program it;
10. Supply the cabinet;
11. Import the .scc file in the Sx tool (if the installation is powered by a BH8-CTRLX-230 controller) and create the functions

Points 4 to 6 are valid only for the upgrade of an installation powered by a BH8-CTRLX-230, since the other master channel generators do not support multiple Dupline networks.

Each SH2DUG24 has to be connected to the SH2WEB24 by means of the HSBUS (local bus or terminals on the bottom).

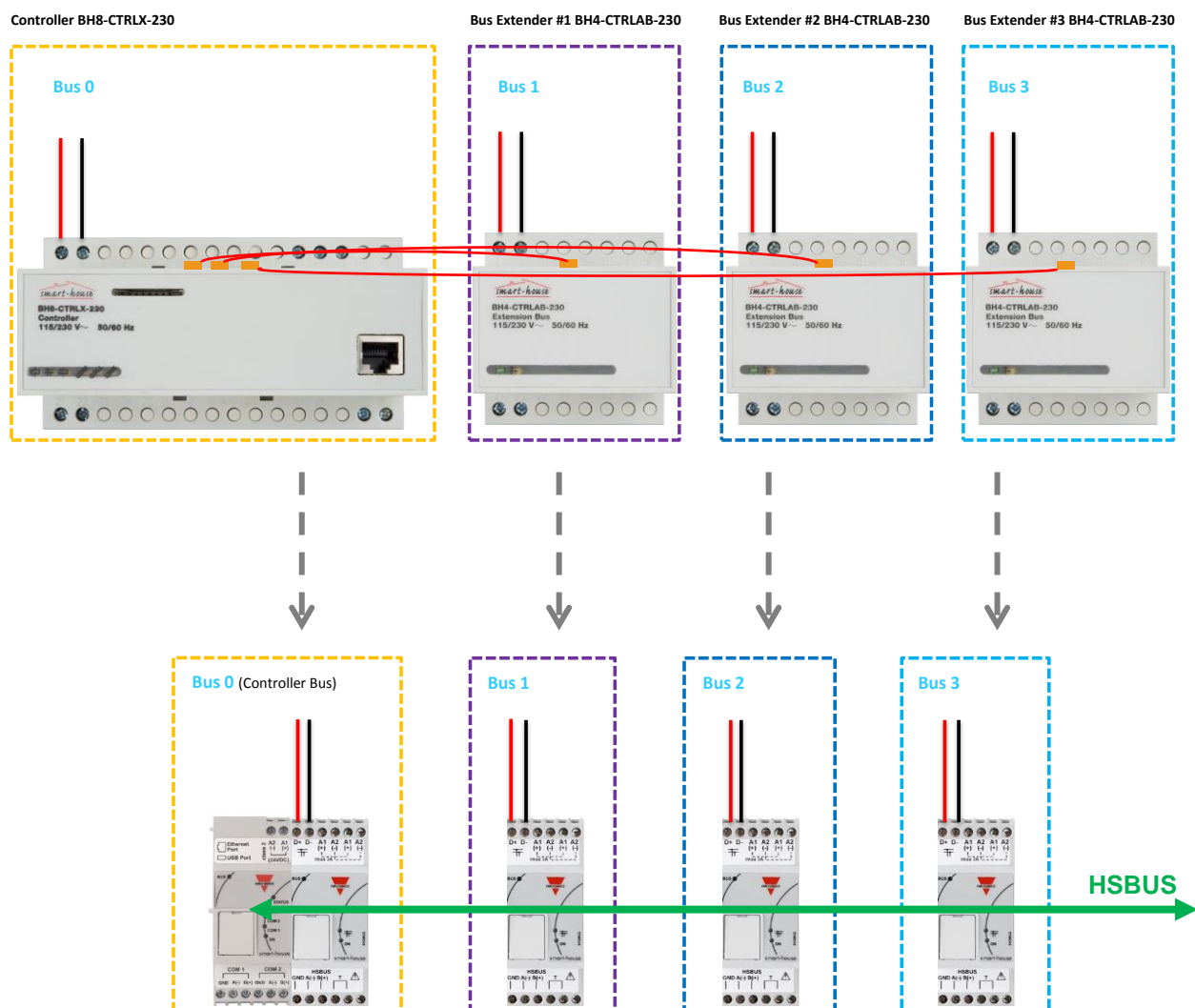
Each added SH2DUG24 will be assigned to a **new subnetwork**, and up to 7 Dupline/smart Dupline/wireless generators can be connected to one Sx2WEB24. The first SH2DUG24 added will be assigned to the subnetwork 1 (Dup 1), the second one to subnetwork 2 (Dup 2) and so on until all the Dupline generators are added.

If a Dupline module is connected to Bus 0 (the bus integrated into the BH8-CTRLX-230), it will be assigned to the DUP1 subnetwork in the Sx tool software once the .scc file is imported.

N.B. The user has to be sure to assign the correct subnetwork to each SH2DUG24 module according to the network it is connected to.

Example

In the picture below, there is shown a full 4-bus system (without other modules) replaced by SH2DUG24 Dupline generator modules.



1.2 How to use the Dupline network and Smart Dupline network in the same project

Each Sx2WEB24 can be connected up to 7 channel generators: the bus generators can be a mix of the Dupline® generators, the SH2DUG24, the Smart Dupline® generators, the SH2MCG24 and the wireless WiDup bus generators, the SH2WBU230N.

The Dupline Compatibility feature provides the user with the possibility of mixing and managing Dupline networks with Smart Dupline networks and wireless networks in one system. It is very useful where:

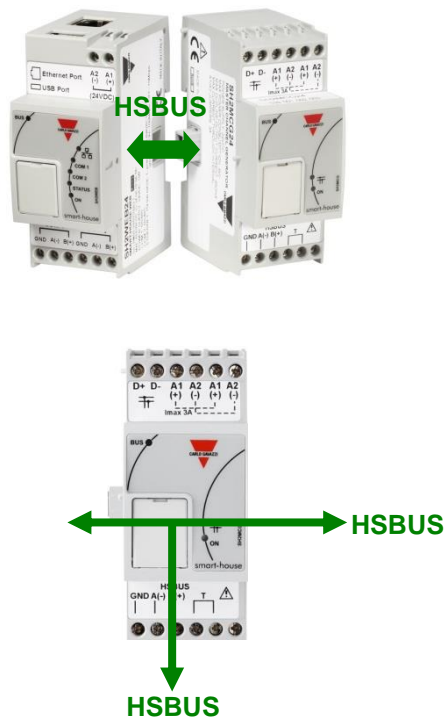
- The user needs to extend an existing Dupline system with new features that require Smart Dupline modules;
- The user needs to extend an existing Dupline system with new features that require wireless modules;
- The user wants to extend an existing Dupline system with energy reading;

1.2.1 How to extend an existing Dupline system with Smart Dupline modules

In most cases, the existing Dupline system uses existing cables, so the user can keep the same cables and replace only the Dupline controller (and bus extension modules) as explained in the previous paragraph.

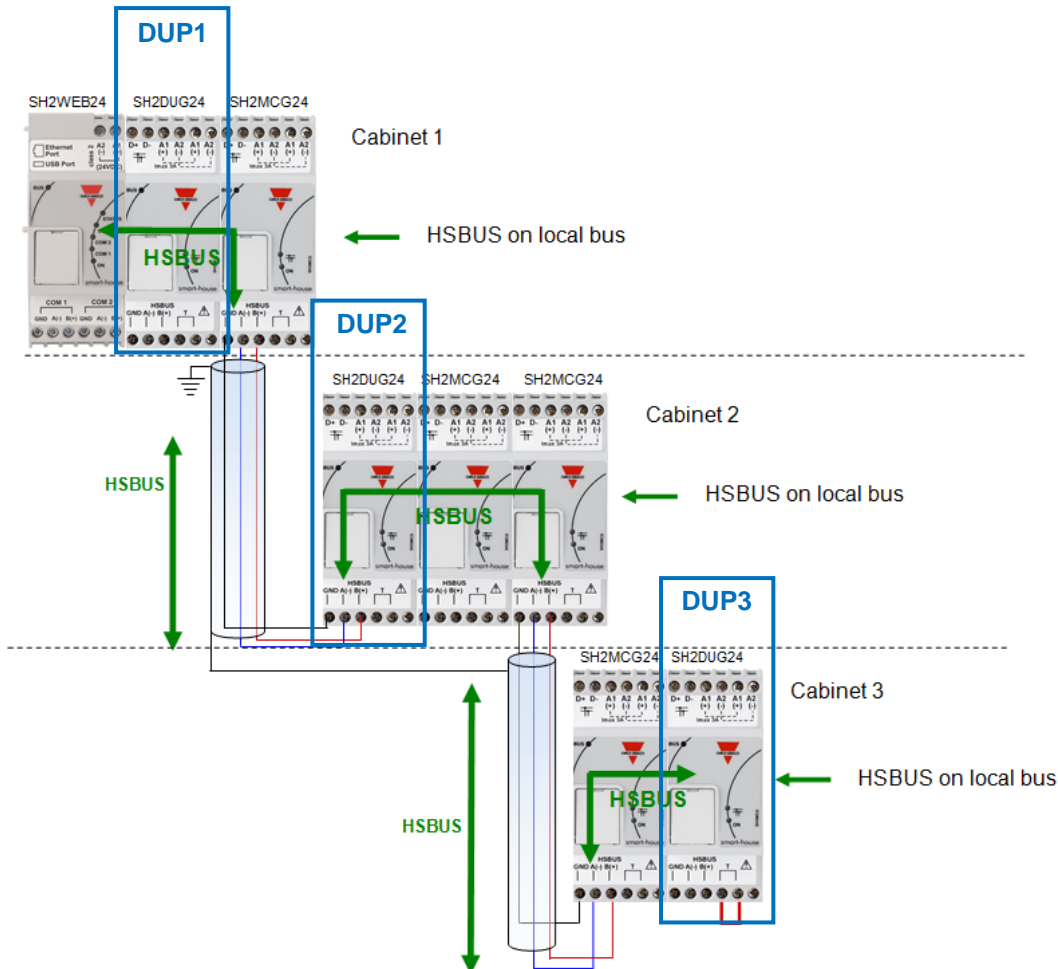
Both the Dupline bus and the Smart Dupline bus use two wires, D+ and D-: the user should be sure not to connect the two buses, since they operate with a different voltage and data protocol. Should this happen, the system will not be damaged since the buses are protected, but it will not work.

Unlike the connection between the BH8-CTRL-X-230 controller and the BH4-CTRLAB-230 bus extension modules, which requires them to be next to each other, the user does not need to put the modules all together in a DIN rail and they can be mixed with the smart Dupline® generator, as is shown in the picture below. The HSBUS present on the terminals of the generators is used.



Example

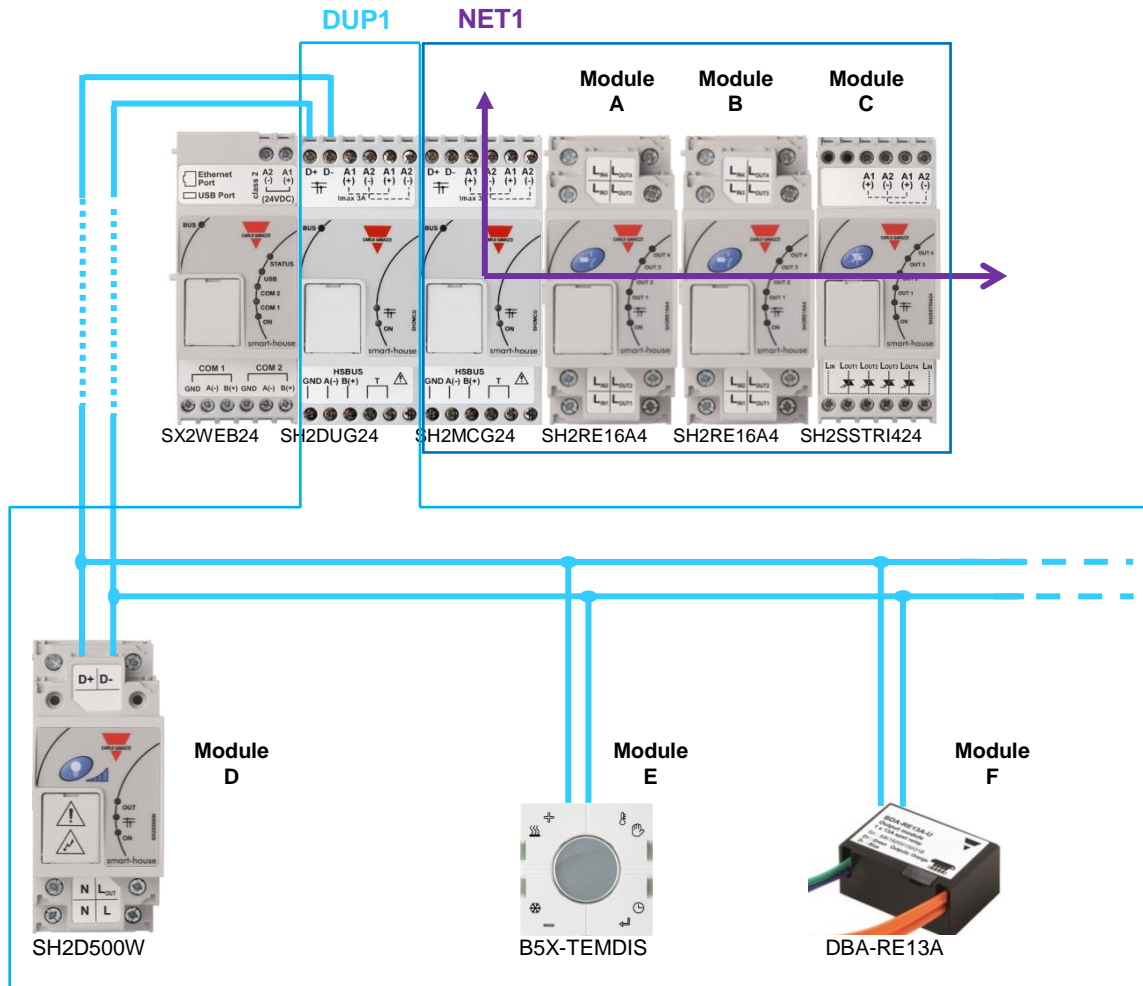
The bus generators SH2MCG24 and SH2DUG24 (and SH2WBU230N) do not need to be put all together in a DIN rail, and they can be mixed as is shown in the picture below.



Like the other bus generators, each SH2DUG24 has an SIN address that has to be programmed using the Sx tool.

Example

In the picture below, there is shown a Sx2WEB24 system with a Dupline network (DUP1) and a Smart Dupline network (NET1).

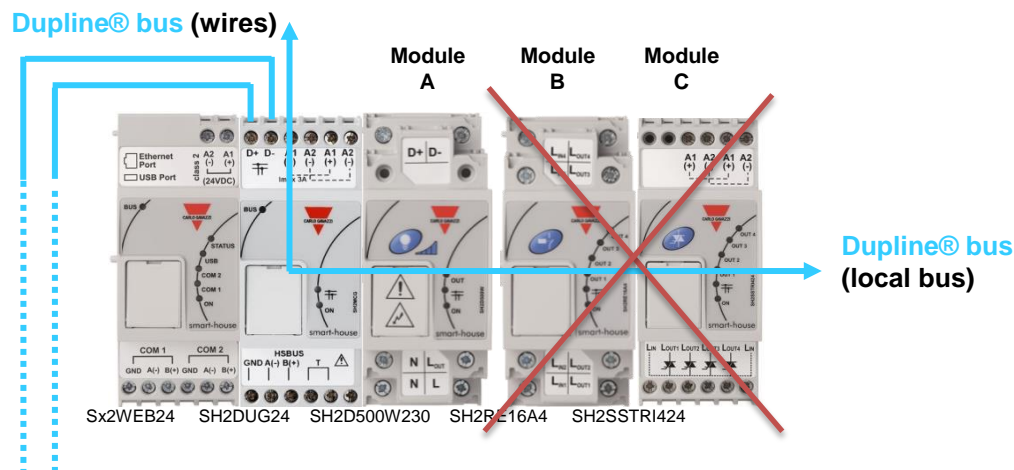


Modules **A**, **B**, and **C** are connected to the smart Dupline network (NET1).

Modules **D**, **E**, and **F** are connected to the Dupline network (DUP1).

Examples of connections:

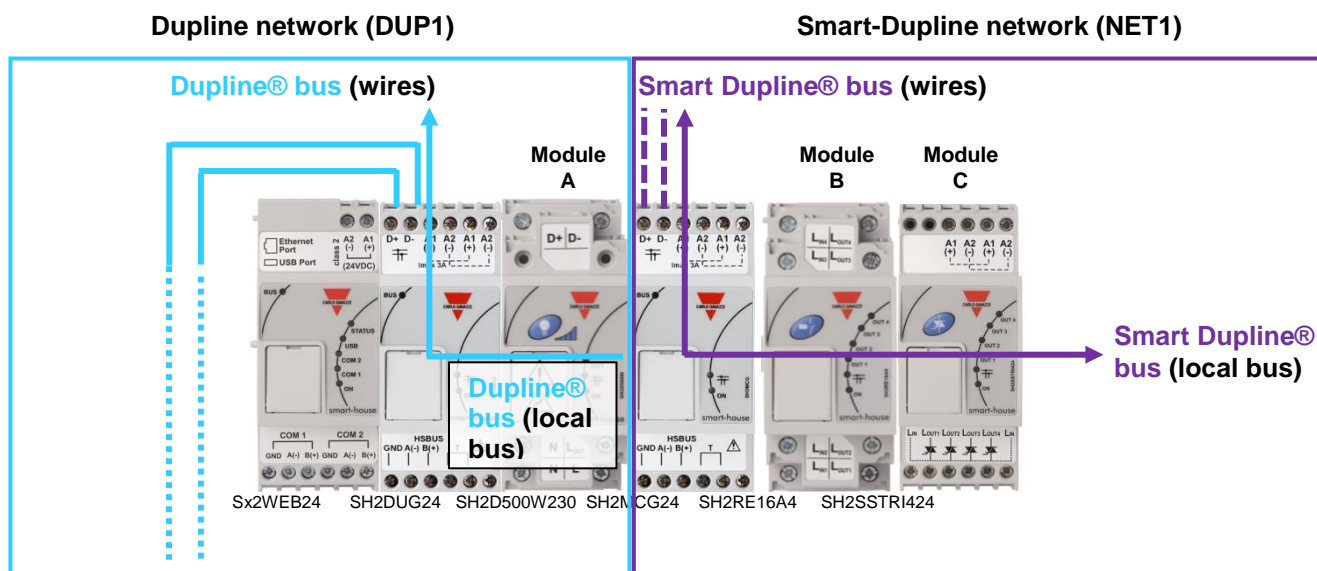
Wrong connection:



Modules **A**, **B** and **C** are connected to the right of SH2DUG24 Dupline generator.

Module **A** is a Dupline cabinet module and will work fine. Modules **B** and **C** are Smart Dupline cabinet modules and will not work with a SH2DUG24 Dupline generator.

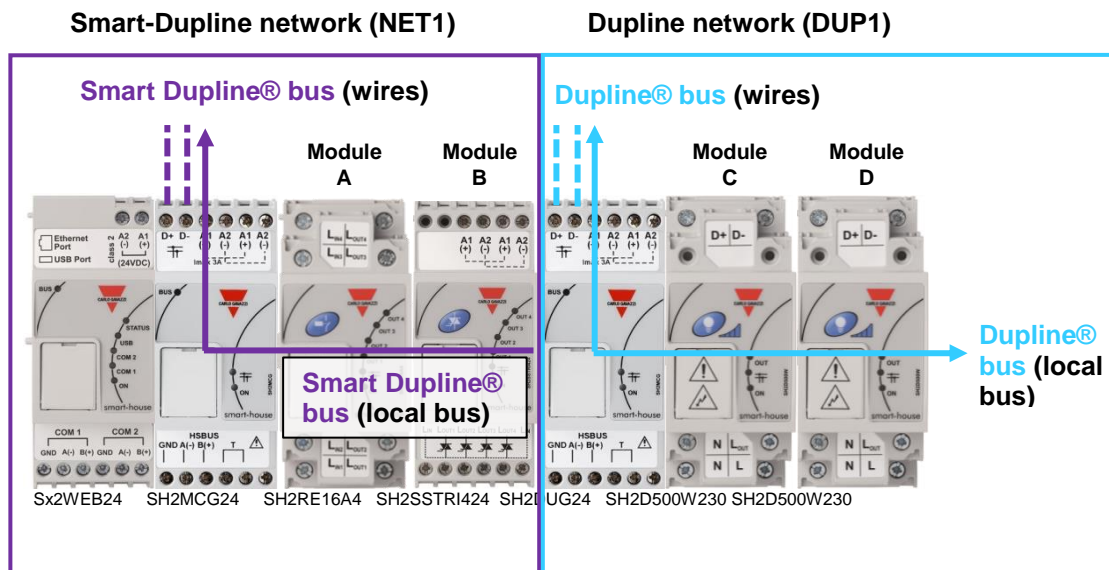
Correct connection 1:



Module **A** is connected to the Dupline® network 1 (SH2DUG24 Dupline network).

Modules **B** and **C** are connected to the smart Dupline® network 1 (SH2MCG24 smart Dupline network).

Correct connection 2:

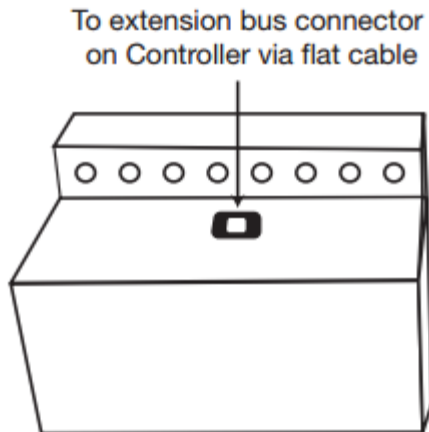


Modules **A** and **B** are connected to the smart Dupline® network 1 (SH2MCG24 smart Dupline network).

Modules **C** and **D** are connected to the Dupline® network 1 (SH2DUG24 Dupline network).

N.B. The SH2D500W230 dimmer module can be connected to the SH2DUG24 without having to cable the Dupline BUS on the terminals on the top.

1.3 How to replace the GSM extension with a Universal mobile modem SH2UMMF124

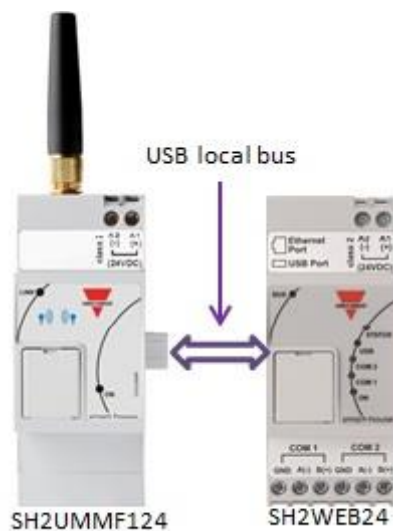


If the GSM extension module is part of the installation, the user has to perform the following steps to upgrade it:

1. Disconnect and remove the BH4-CTRLAG GSM extension module from the cabinet;
2. Replace the BH4-CTRLAG GSM extension with a SH2UMMF124 Universal mobile modem to be connected to the left of the Sx2WEB24 controller.

Example

The example below shows how the universal mobile modem must be placed.



The modem is configured by means of the Sx tool software.

2 Dupline modules managed by the Sx tool

When the wiring connection has been completed, the user can open the existing .scc file project by means of the Sx tool to import the locations and modules with the relevant channel assignment (see the *Compatibility mode - Sx tool manual*).

The table below lists the modules that are part of the BH8-CTRLX-230 system and which are present in the database of the Sx2WEB24 platform. The modules highlighted in green are imported from the .scc project file with the same channel coding as in the original project.

Table 1

Part Numbers				
B4X-LS4	BOW-PIR90A	BOW-TEMANA	BSF-WAT	BH4-D230W2-230
B5X-LS4	BSB-PIR90	BFW-TEMDIS	BSK-MAG	BH4-D500W-230
BFW-LS4	BSD-PIR90	BOW-TEMDIS	BSA-IND	SH2D500W230
BOW-LS4	BSD-PIR90A	BEW-TEMDIS	BSA-INDA	BH6-D500W2-230
BEW-LS4	BSD-WPIR-BAT	BFW-TEMTHE	BSE-MAG	BH4-RE16A4-230
BFW-WLS4	BEL-PIR90	BOW-TEMTHE	BSE-MAGA	BH4-RE16A8-230
BOW-WLS4	BSP-PIR90	BEL-TEMANA	BDD-INCON4	BH8-RE20A4-230
BEW-WLS4	BSP-PIR90A	BSI-TEMANA	BDA-RE13A	BH4-RO5A2-230
BEW-LS1	BFW-IRXB&O8	BFW-HUM	BDE-RE13A	BH4-RO5ADC2-230
BEW-LS2	BOW-IRXB&O8	BOW-HUM	BDA-SSTRI1	BH4-SSTRI8-230
BEW-LS3	BEL-IRXB&O8	BSH-LUX-A	BSM-CAPSTD1	BH4-DD10V2-230
BPC-INCON2	BOW-IRXSTD8	BSH-LUX-B	BDB-INCON4	BH4-D10V2-230
BPC-INCON2A	BDF-WLS3	BOW-LUX	BDB-INCON8	BH4-WBU-230
B4X-PIR90	BDF-WLS8	BSN-ANE	BDB-IOCP8	BH4-WBUA-230
B5X-PIR90	BSJ-IRX8	G43111120	BDB-IOCP8A	BH2-SEP-230
BSQ-PIR360	B4X-TEMDIS	BACC-KEYPAD-DC	BDC-RO5A-230	BTM-T10-230
BFW-PIR90	B5X-TEMDIS	BSG-SMO	BDA-INVOL	X-Touch
BOW-PIR90	BFW-TEMANA	BSG-SMOA	BDG-WLS4	G42484134

If the Dupline wireless modules or IR remote control modules are used, they are not automatically imported, so in the Sx tool a module with the same type of channels has to be used. These are highlighted in yellow in the table above. The modules highlighted in red are not managed and supported by the Sx tool software.

The next paragraphs explain the tricks & tips to configure the items marked in yellow.

The table below shows the list of modules for which a different part number has to be used in the Sx tool.

Table2

Not listed module	Module description	Suggested module
BOW-IRXSTD8	Dupline IR receiver	BDB-INCON8
BSJ-IRX8	Dupline IR receiver	BDB-INCON8
Bxx-IRXB&O8	Dupline IR receiver for B&O	BDB-INCON8
BEW-WLS4	Dupline wireless light switch	BxX-LS4
BFW-WLS4	Dupline wireless light switch	BxX-LS4
BOW-WLS4	Dupline wireless light switch	BxX-LS4
BDF-WLS3	Dupline wireless remote control	BxX-LS4
BDF-WLS8	Dupline wireless remote control	BDB-INCON8
BDG-WLS4	Dupline wireless input module	BDD-INCON4
BOW-LUX	Dupline light sensor	BSH-LUX-A
BH4-WBUx-230	Dupline wireless base unit	No configuration needed
BH4-D10V2-230	Dupline 1-10V dimmer module	BH4-D230W2-230
BDC-RO5A-230	Dupline rollerblind module	BH4-RO5A2-230

2.1 How to manage the wireless Dupline

2.1.1 Dupline wireless base unit

All the wireless Dupline modules are designed for the base unit BH4-WBUx-230 and will only work with this unit. Each wireless Dupline module must be associated to a base unit: *please see the specific module datasheet for the matching procedure.*

The Dupline wireless signals are transmitted at a frequency of 868 MHz and WiDup: the wireless smart-house system is designed to operate in the 2.4 GHz radio band, so the two systems can co-exist in the same place without interference. Care must be taken with regard to the placement of the wireless bases, because of the range limitations. Normal free-air range is approx. 100 meters. Depending on its nature, any obstruction will cause reduction in the range of the radio waves.

The wireless Dupline is not compatible with the WiDup (wireless smart-Dupline system), so none of the wireless Dupline modules can be used with the SH2WBU230N WiDup base unit.

2.1.2 How to connect a wireless base unit in a Sx2WEB24 system

The user has to follow the steps shown below to connect the BH4-WBU-230 wireless base unit:

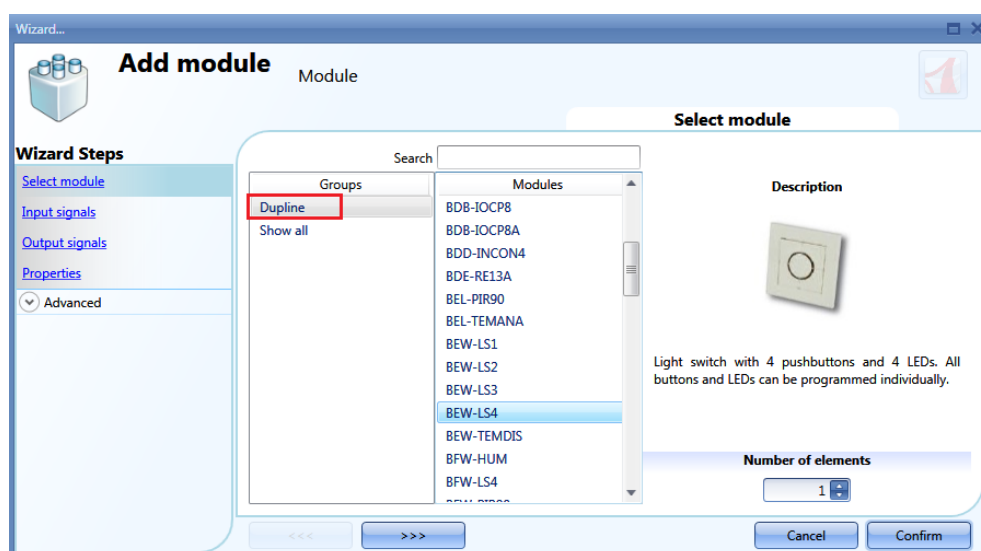
1. Disconnect and remove the BH8-CTRLX-230 controller from the cabinet;
2. Replace the BH8-CTRLX-230 controller with the SH2DUG24, together with a Sx2WEB24 and a Carlo Gavazzi 24 VDC power supply;
3. Connect the Dupline terminals of the BH4-WBU-230 to the SH2DUG24 which substitutes the bus the BH4-WBUx-230 was connected to;
4. The BH4-WBUx-230 should not be added into the software configuration as it is transparent to the system

2.1.3 How to manage a Dupline wireless module

To manage a wireless Dupline module the user has to perform the following steps:

1. Verify that the BH4-WBUx-230 wireless base unit is powered and connected to a Dupline subnetwork;
2. Verify the communication between the BH4-WBUx-230 and all the Dupline wireless modules it is associated to;
3. In the Sx tool, click on *Add module, Dupline* and select the Dupline module: all the Dupline wireless modules can be configured as “virtual” modules: the user has to select a wired Dupline module present in the *Module* window with the same number of Input channels. For example, if the module in the installation is a BEW-WLS4, a wired BEW-LS4 can be used, since Dupline just works with channels.

Please refer to table2 on page 15 for a list of suggested Dupline modules.



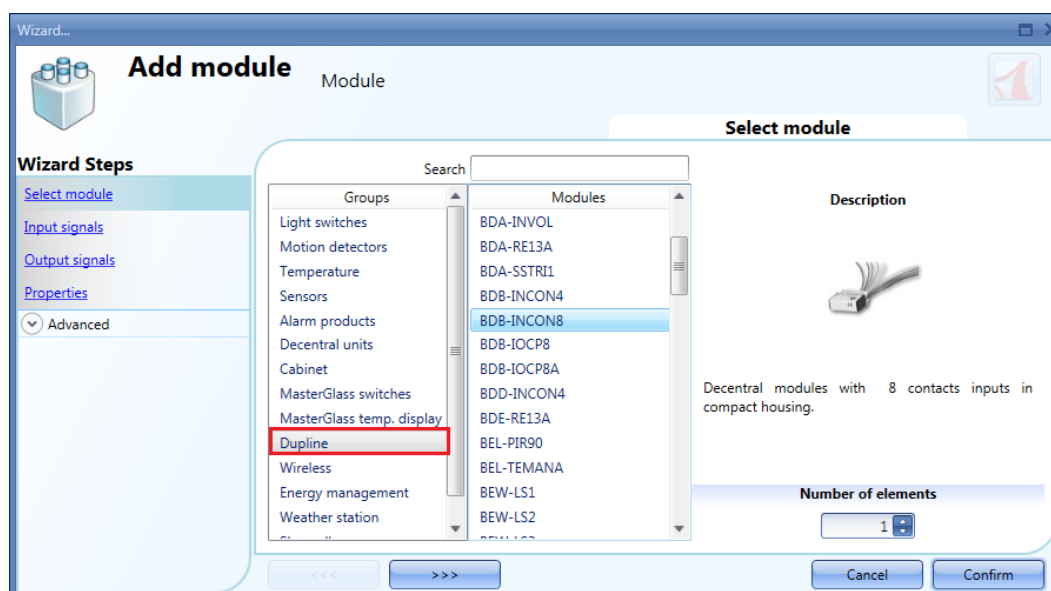
4. The user must be sure to assign the correct network to each virtual module according to the network the BH4-WBUx-230 is connected to;
5. For each virtual module, in the *Input signals* field, the user has to assign the same Dupline channels as the I/O Dupline channels currently assigned to the wireless module;

2.2 How to manage Dupline InfraRed communication

The IR remote control system is a system component for the Dupline bus. It consists of two modules: an 8-channel IR-receiver (Dupline transmitter) and an 8-channel handheld IR-transmitter. The IR receiver can transmit on eight Dupline channels, and the address coding is carried out by the programming unit BGP-COD-BAT.

The IR I/O channels are managed in the same way as the wired Dupline I/O channel. To manage a Dupline IR module the user has to do the following:

1. Verify the Dupline IR receiver is powered and connected to a Dupline network;
2. In the Sx tool, click on *Add module, Dupline* and select a Dupline module: all the Dupline IR receivers can be configured as “virtual” modules: the user has to use a wired Dupline module present in the *Module* window with the same number of input channels. Each Dupline IR receiver has eight input channels to communicate with an IR transmitter so, for example, a BDB-INCON8 module can be used. *Please refer to table2 on page 15 for a list of suggested Dupline modules.*



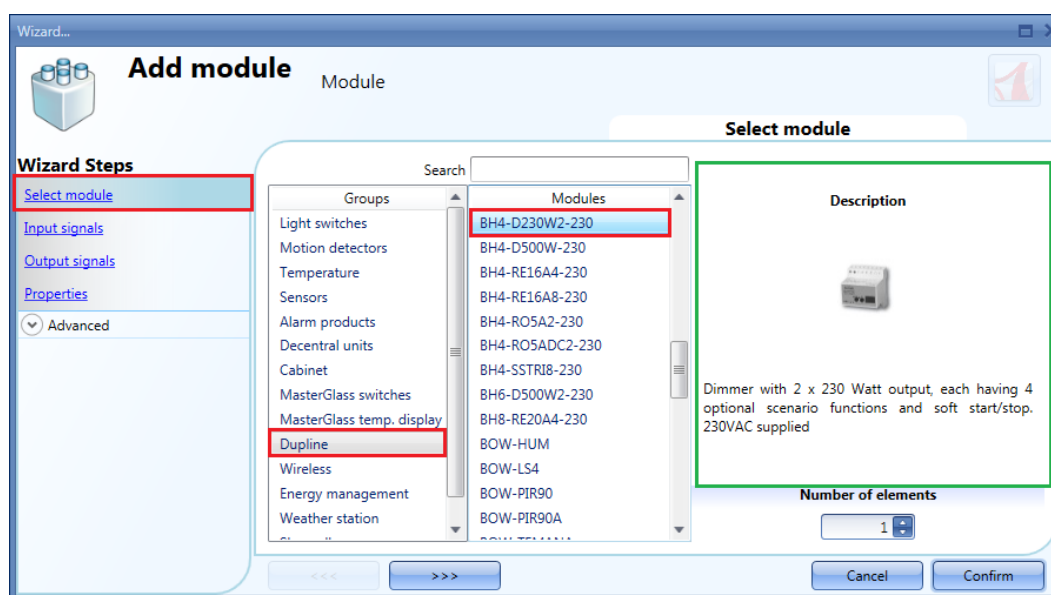
3. The user must be sure to assign the correct network to the “virtual” module according to the network the IR receiver is connected to;
4. For each “virtual” module, in the *Input signals* field, the user has to assign the same Dupline channels as the I/O Dupline channel currently assigned to the IR module.

2.3 How to use a BH4-D10V2-230 module

2.3.1 How to manage a BH4-D10V2-230 module

If a BH4-D10V2-230 is present in the installation to upgrade with a Sx2WEB24, it has to be replaced with a BH4-D230W2-230 in the Sx tool since they use the same channels. The BH4-D10V2-230 is not imported into the Sx tool.

In the Sx tool, the user has to click on *Add module*, *Dupline* and select a BH4-D230W2-230 module.



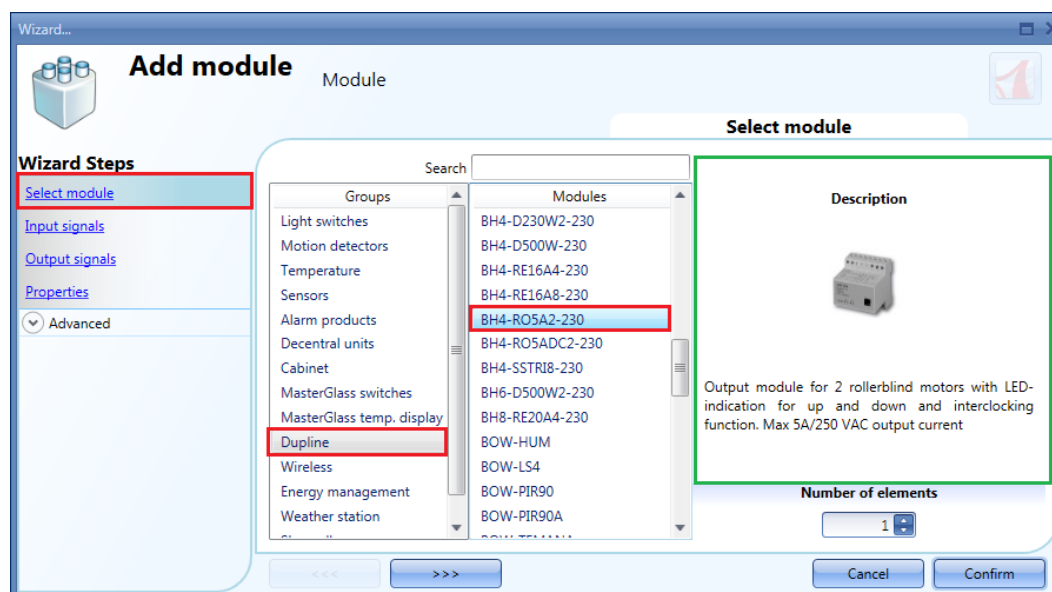
The user must be sure to assign the correct network to the BH4-D230W2-230 in the software, according to the network the BH4-D10V2-230 is connected to.

In the *Input signals* and *Output signals* fields of the suggested module window, the user can assign the *Dupline channels* connected to the I/O Dupline channel currently assigned to the BH4-D10V2-230.

2.3.2 How to manage the BDC-RO5A-230 module

The decentralized BDC-RO5A-230 module can operate with the same Dupline channels as the BH4-RO5A2-230 module. Since the BH4-RO5A2-230 module can control two rollerblind motors, the user has to configure only the Dupline channels for *Output motor 1*.

In the Sx tool, the user has to click on *Add module*, *Dupline* and select a BH4-RO5A2-230 module.



The user must be sure to assign the correct network to the BH4-RO5A2-230 according to the network the BDC-RO5A-230 is connected to.

In the *Input signals* and *Output signals* fields of the BH4-RO5A2-230 window, the user can assign the Dupline channels connected to the I/O Dupline channel currently assigned to the BDC-RO5A-230.