CARLO GAVAZZI
Automation Components

CARLO GAVAZZI

Home automation system

Fieldbuses

Fieldbuses
Home automation system

Home automation today is a lot more than lighting control, it is a way to make the home something special, taking care of the owners and their loved ones. Like a person, a smart house can change over time, following evolving needs and moods, easily adapting itself to new solutions. Furthermore, the technology in the house improves wellbeing, comfort, security, energy saving and much more.
The new smart-house system by Carlo Gavazzi offers this new way of living to its customers: let's discover all the advantages and applications!

A dynamic and evolving system

With its new smart-house system, Carlo Gavazzi delivers a new way of designing a house or a building, thanks to its flexibility and modularity.
It is based on a patented digital bus, the two-wire Dupline® bus, very powerful in transmitting all the information needed in building automation. Thanks to the bus concept, the system can be expanded at any time without important structural changes in the installation and with excellent management of the costs. Furthermore, the functions can be changed and/or updated very easily by means of a software at any time and from anywhere, also remotely. Thanks to this, the smart-house system is always alive, dynamic, and easily adapted to the evolving requirements of the home owner and to the fast -progressing world of high technology. The smart-house system delivers complete solutions for home automation, including lighting scenarios to select the best ambience, shutter control to regulate perfect light and shade, temperature management to combine optimum comfort with optimum efficiency, intrusion, flooding and smoke monitoring to protect from any burglary or damage to the house, a scheduler to program all events and basic functions. All this creates very special automation. The system also includes energy monitoring, logging power, water and gas consumption and whatever information is present on the bus (temperatures, humidity, light level, ….). All this data is available on graphs, just by using a smart device or a PC, thanks to the embedded webserver. Moreover, the system is an open platform designed for easy and fast integration with products from other companies, since we use protocols based on TCP/IP, for which we deliver the complete documentation.

Fast commissioning without any addressing

One of the most innovative features is that no addressing of modules is needed: the installer just has to mount all the modules, launch a network scan and the system will find and automatically recognise the connected devices without the need to go around the whole installation making association or addressing. This means time and cost savings and an error free configuration process.

Diagnostic function for easier troubleshooting

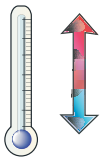
If any trouble should occur, the system provides powerful diagnostic functions in order to make the fault finding much easier: the bus is always monitored, giving information about shortcircuits, bus voltage and bus load, noise level and quality of the bus signals. The presence of the programmed devices is always monitored in order to give an immediate message if one is faulty. All this information is logged in a file so that the installer can check at any time what is happening.

State of the art software to guide users

The configuration of the system is easily carried out with the free SH tool that is downloadable from the Carlo Gavazzi website. The software has been developed using a state of the art concept in order to have a user friendly interface that guides the user in a fast and error free system configuration. At the same time, thanks to many basic functions, the most skilled user can also create customised applications. Furthermore, the SH tool has many debug features to make testing easier .

Fieldbuses

The smart-house at a glance



Temperature (pag. 9)

Automatic: Calendar

Manual: Remote Temperature Display

Intruder alarm (pag. 10)

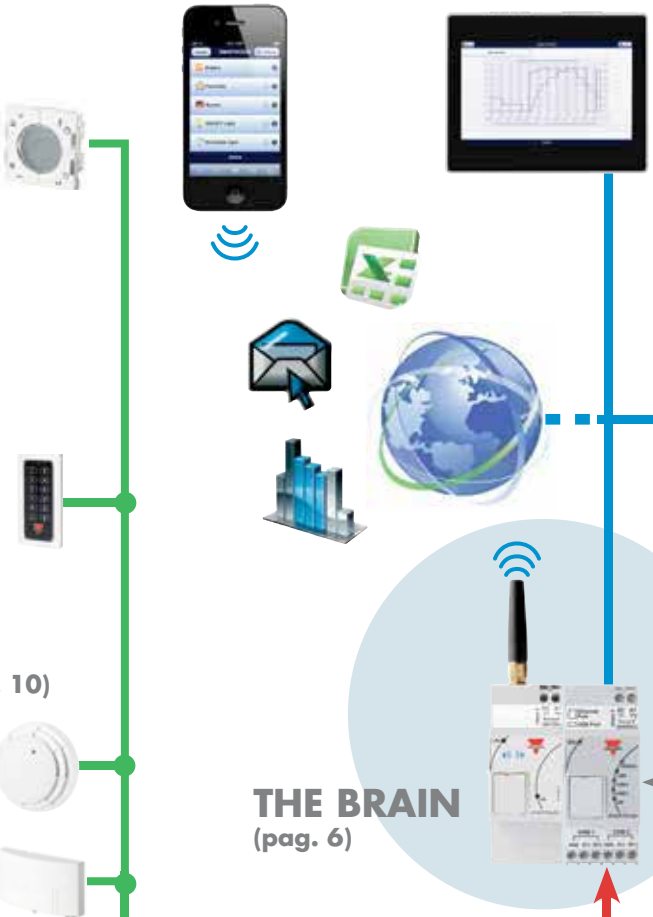
Automat: Calendar Sequence

Manual: Remote Keypad

Smoke/Water alarm (pag. 10)

Automatic: Smoke sensor

Water sensor



Energy management (pag. 13)

From Dupline® modules (pag. 13)

- DIN rail output modules: relay and dimmer
- DIN rail input module: pulse counter
- Wireless relay

From Carlo Gavazzi Energy Meters (pag. 13)

- Total consumption of the installation
- Energy production of the inverter

Complete, easy, flexible, user friendly, that is smart-house!

TPP system integration (A&V - Audio / Video intercom)

THE HEART (pag. 7)

Light / Scenario (pag. 8)

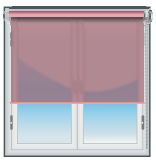
Automatic: Calendar, Motion sensor, Light level

Manual: Remote, Light switch

Shutters (pag. 11)

Automatic: Calendar, Wind, Light level, Rain

Manual: Remote, Light switch



Sequence (pag. 12)

Automatic: Calendar, Motion sensor

Manual: Remote, Light switch

Communication legend

- : Dupline® bus
- : High speed bus
- : RS485
- : Ethernet

Diagnostic function (pag. 14)

Eventlog

- Automatic recognition of the modules in the network
- Monitoring of the connected modules
- Supervision of the bus:
  - Voltage level
  - Short circuit
  - Overload
  - Quality of the signal

Fieldbuses

Brain and communication

SH2WEB24: the master unit

The smart-house system is based on a central CPU, the SH2WEB24, a Linux based embedded PC that manages all the smart functions. It is programmed by means of powerful software, the SH tool. The SH2WEB24 has the Ethernet communication capability to be remotely controlled and monitored by smart-devices/PCs; it is also a datalogger that can record any value/event coming from the many buses it can connect to (Wireless and Dupline® buses, two RS485 ports, Ethernet). This master unit is also provided with an sd-card and USB port to upload/download data and system configurations

SH2UMMF124: the universal mobile modem

Where wired Internet access is not available, Carlo Gavazzi provides a specific mobile modem to be added to the SH2WEB24. This modem makes it possible to control any remote installation, whether it is a cabin in the mountains or a house at the seaside.

What can you do with SH2UMMF124 ?

- **SMS**
- **e-mail**
- **Web Server**
- **Upgrade Firmware and Configuration**

Fast commissioning

The innovative concept of the local bus makes commissioning very easy, fast and error free: the installer only has to plug the DIN modules next to one another without wiring any bus cable in the cabinet, saving time and drastically reducing installation costs.
The wiring of the decentralised modules such as light switches, movement sensors, etc is also made very straightforward thanks to the screwless and detachable connectors: wires only need to be plugged in and everything is done!

The heart

The bus generators

If the SH2WEB24 is the brain of the smart-house system, the two bus generators are the pulsating heart that makes all the information flow. They are connected to the SH2WEB24 via the high speed bus that is present both on the local bus and on the terminals at the bottom. This means that the connection is very fast and easy in a cabinet, since the modules only have to be plugged together without any wiring, and at the same time it is very straightforward if the bus generators have to be mounted in different cabinets. Up to 7 bus generators can be connected to one SH2WEB24.

SH2MCG24: the wired smart Dupline® bus generator

The SH2MCG24 is the smart Dupline® bus generator that enables the Dupline® bus to communicate with the local bus and with the terminals at the top. Thanks to this the DIN-rail slave modules (dimmers, relays, rollerblind modules, etc...) can just be plugged into the SH2MCG24, without the need for any wiring.

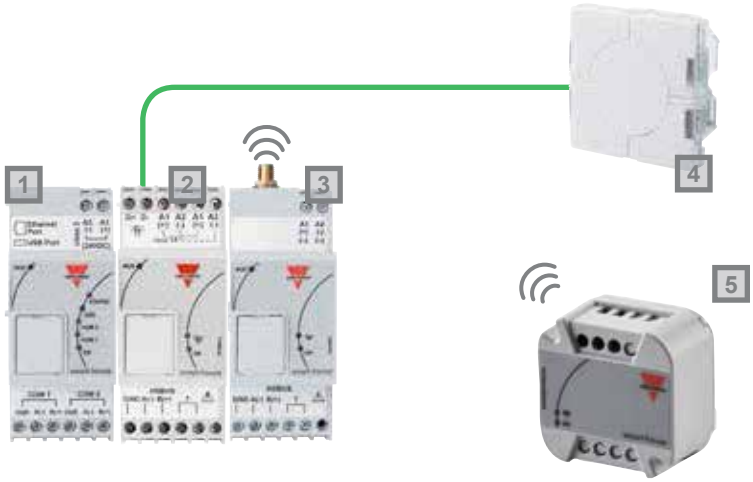
The decentralised modules, such as light switches, PIR sensors, temperature display, ...are connected to the SH2MCG24 by the two wires coming from the Dupline® terminals at the top. Up to 250 modules can be connected to one SH2MCG24.

SH2WBU230: the wireless wiDup bus generator

The smart-house system also provides a solution for when it is not possible to use wires. The SH2WBU230 is the wireless bus generator that can control wireless light switches and output relay modules. The wireless bus is based on the standard IEE 802.15.4 @2.4Ghz. Up to 250 modules can be managed by one SH2WBU230. The open space operating distance is 100m.

Wired and wireless buses work together

1 SH2WEB24
2 SH2MCG24
3 SH2WBU230
4 SHA4XLS4TH
5 SHDWRE16AE230
▬ Dupline® bus.



Fieldbuses

Home automation system

Lighting and scenario

The user can program a very simple on/off light, create automation to save energy, or define scenarios for any and every situation or mood.
The automation can utilise movement/ presence sensors which make the light switch on only when it is really needed.

It can also be managed by lux sensors which allow the light to be on only if the ambient light is below a predefined level. It can also enrich offices with a constant light feature.
Furthermore, the light can be turned on/off at predefined hours with the scheduler and managed with a timer suited to every situation (stairs, wardrobe, corridors,...).
And of course it can all be managed remotely with a smart device.

1 SHA4XLS4P90L
SHE5XLS4P90L
Light switch with integrated 90° PIR sensor and luxmeter

2 SHDWRE16AE230
Wirless relay with energy reading

3 SHA4XWLS4
SHE5XWLS4
Wireless light switch

4 Junction box

—: Dupline® BUS

—: 230VAC power supply

Temperature control

The temperature control function has been developed to suit the needs of both small homes and big buildings thanks to the management of independent zones.
The number of zones can be from one to virtually infinite, since they are programmed via software.

The heating and cooling control can be used on all types of systems (floor systems, radiators, fan coils, ...) and it is based on a PID algorithm.
Each zone can manage up to three different setpoints to find the best temperature in each situation (comfort, activity, economy) in order to have very efficient temperature control. The selection of the three setpoints is managed by a powerful calendar. The temperature sensor can also be integrated into the light switches, providing an invisible solution. Temperatures and setpoints are,of course, accessible using smart-devices.

1 SHA4XTEMDIS
SHE5XTEMDIS
Temperature display

2 SHPOUTV224
0-10V analogue output module

3 BDA-RE13A-U
Relay output module

4 Junction box

—: Dupline® BUS

—: 230VAC power supply

Home automation system

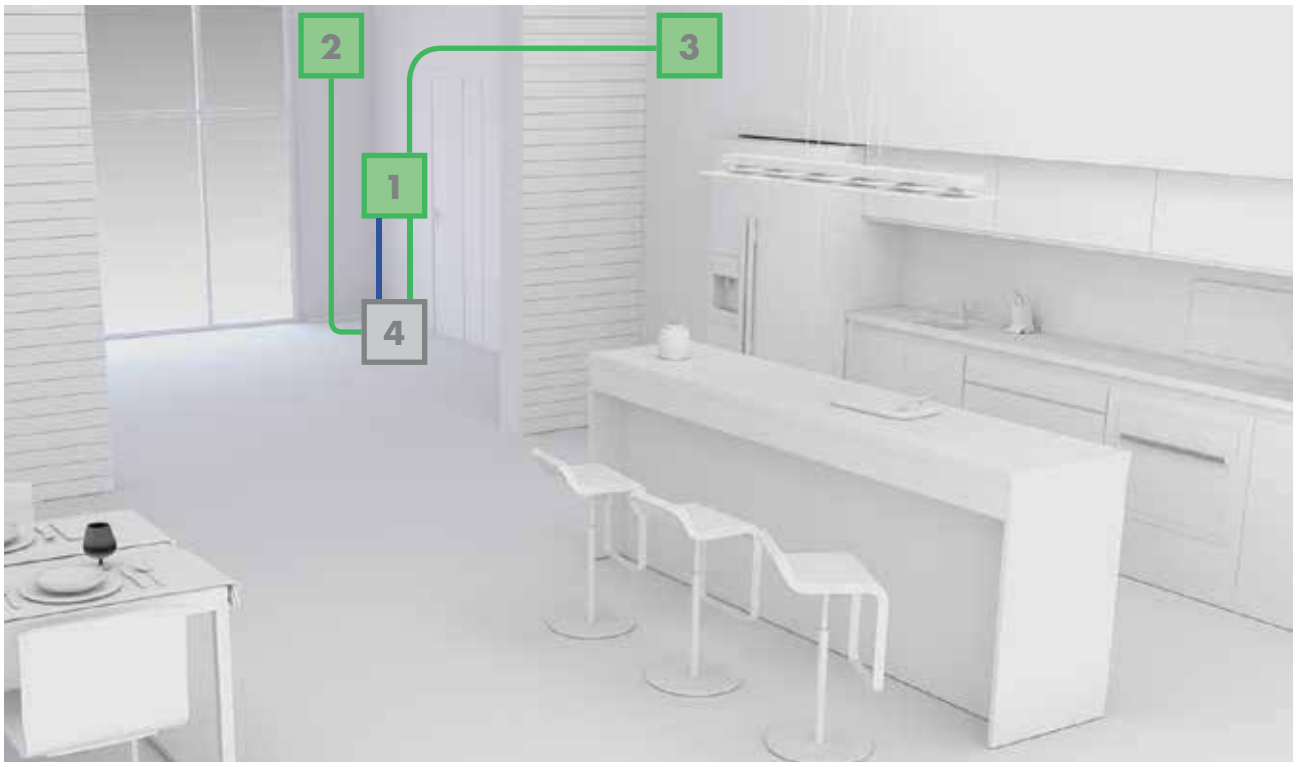
Alarms: intruder, smoke and water leakage

The intruder alarm function advises the home owner about an intrusion attempt by sending an email, sms, or activating a siren output. It can also be monitored by mobile phones, tablet PCs and PCs. It is managed by zones, giving the maximum flexibility in installations with floors or where predefined areas have special access. It can be activated by a code, using the keypad or a smart-device.

The smoke alarm function detects the presence of smoke, activating a siren and advising the user by sms, email or the webserver.

The water leakage alarm function detects the presence of leaking water and can accordingly close the relevant electro-valve.

Like the other two alarms, this function can be controlled and monitored remotely via the webserver, with the maximum simplicity and reliability.



1 BACC-KEYPAD-DC-U
Keypad

2 SHSQP360L
Movement sensor with integrated luxmeter

3 BSG-SMO-U
Smoke detector

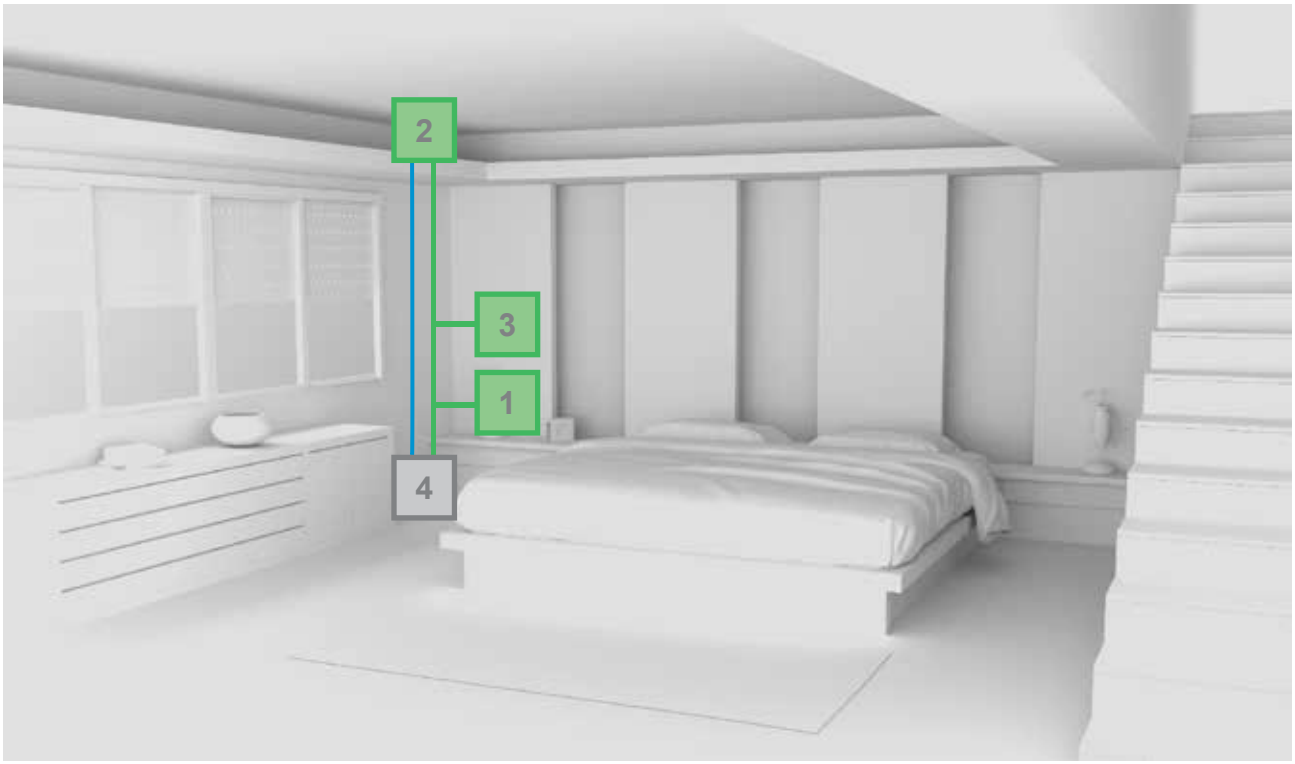
4 Junction box

—: Dupline® BUS

—: 12VDC power supply

Shade control

The rollerblind and window control functions manage AC and DC motor control of shade and window opening/closing.
The user can move these manually, using the same kind of switches as are used for light, or have them automatically moved according to predefined light levels, rain and wind presence, temperatures and the scheduler.
The smart-house system also manages curtains with tilting flaps in a very efficient way.
The blinds and windows can be controlled individually or by group: this choice can be defined once the installation is finished and at any time later.
Like all the other smart-house functions, this one can also be monitored and controlled remotely via smart-devices.



1 B4X-LS4-U
B5X-LS4-U
Switch

2 SH2RODC224
Roller blind module

3 SHA4XP150L
SHE5XP150L
150° PIR sensor with embedded luxmeter

4 Junction box

—: Dupline® BUS

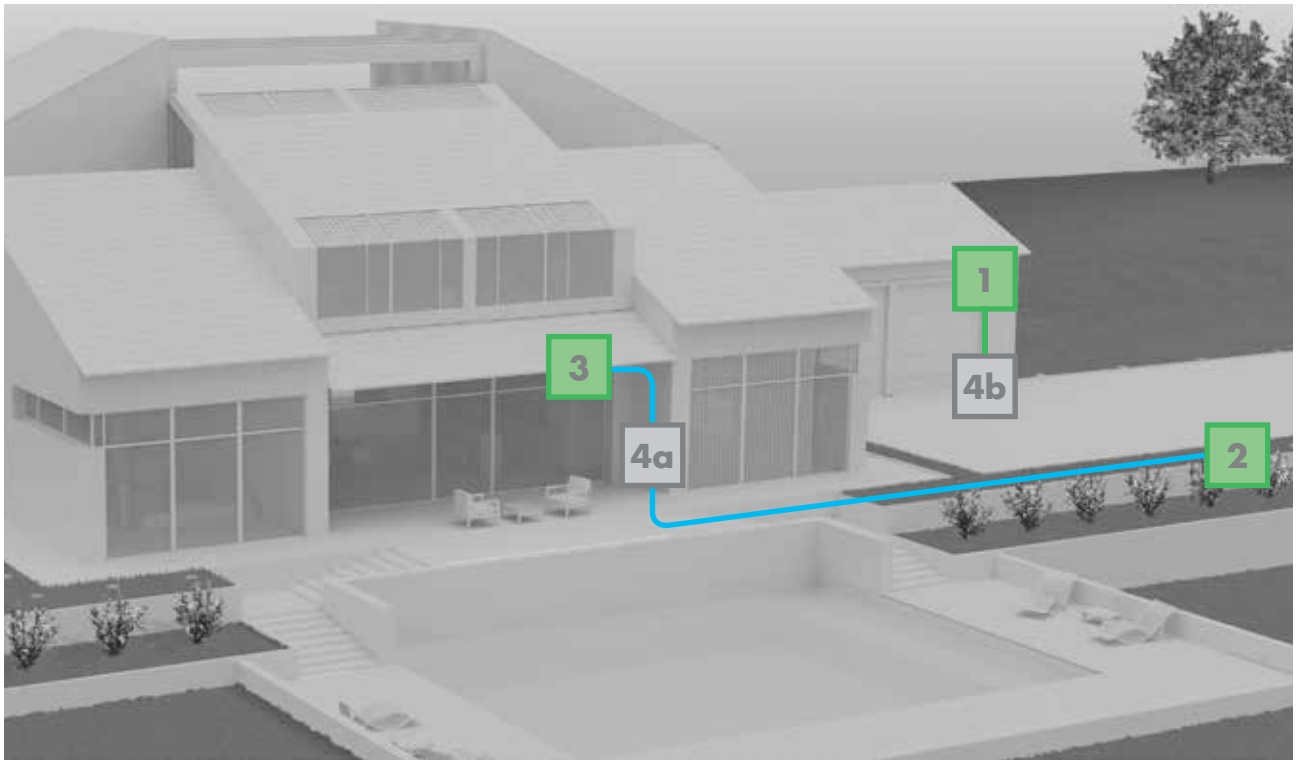
—: Motor control

Home automation system

Sequences: one click to do many things

Sequences is a powerful tool offered by the smart-house system: the user can put together the functions already created to activate/deactivate them with just one click. For example, when the home owner activates the "Good bye" sequence when exiting his house, the intruder alarm is activated, all the lights are switched off, all the blinds go down and the temperatures are set to the economy level. In the same way, when he comes back home, by activating the "Welcome" sequence all the required lights are switched on, the blinds go up, soft music or the television can be turned on, and so on … there are no limits to the possibilities offered by the smart-house system.

Waking up in the morning can be programmed to be very gentle in a smart-house: the blinds go up to a predefined level very slowly so that the light intensity is not too strong, soft music starts and the temperature is programmed to reach the comfort level required.



1 SHSPP90L
PIR sensor with integrated luxmeter

2 SH2RE16A4
Output relay module

3 SH2D10V424
Dimmer module

4 a: Cabinet
b: Junction box

—— : Dupline® BUS

—— : Load control

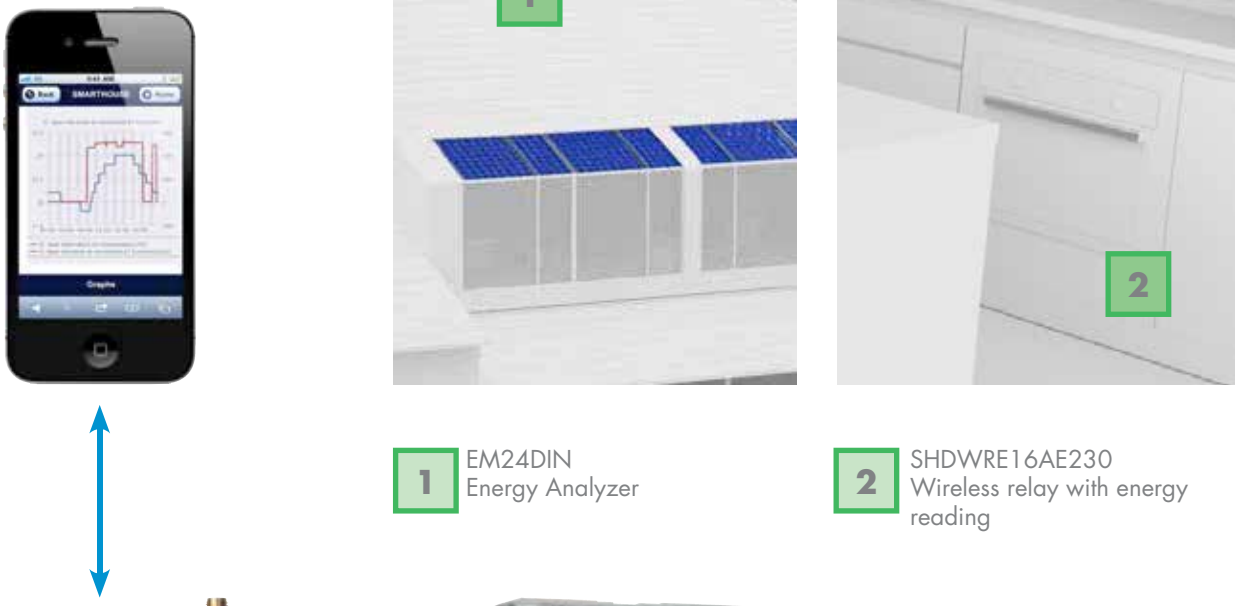
Energy monitoring and data logging

The smart-house system reads and logs the electrical values and displays them in graphics, comparing them with the previous day, or presents them in downloadable excel and csv files.
The reading can be done using:

- Carlo Gavazzi energy meters: the information is sent via the RS485 bus. The SH2WEB24 can read data from the following energy meters: EM21, EM23, EM24, EM26, EM33.
- The Dupline® output modules with energy reading capability (dimmer module, DIN-rail relay module and wireless relay output module): the information is sent via the Dupline® bus.
- The Dupline® DIN-rail pulse counter connected to an energy meter: the information is sent via the Dupline® bus.

At the same time, the installer can create simple logic to switch the loads off automatically if the consumed power exceeds the pre-set threshold, or they can be activated only according to a defined time table at cheaper electricity tariffs.

In the same user friendly format, the home owner can also view the consumption of gas and water.
As with all the electrical values, the smart-house system can log any analogue value and present it in graphs.
The graphs and instant values can be seen by using smart-devices such as mobile phones, tablets, PCs.



1 EM24DIN
Energy Analyzer

2 SHDWRE16AE230
Wireless relay with energy reading

SH2WEB24
SH2WBU230

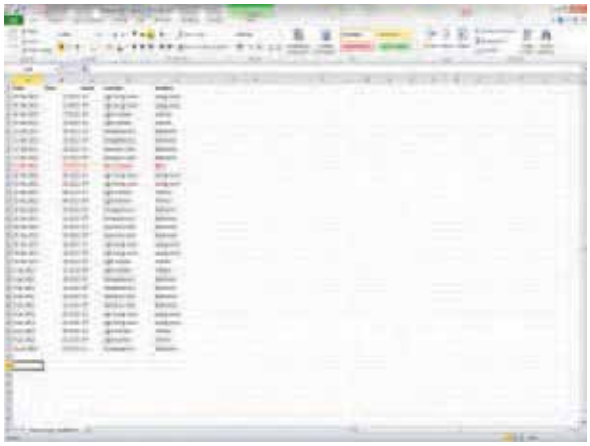
: RS485

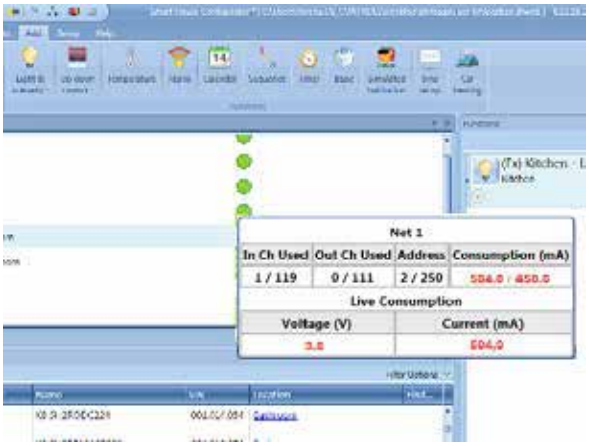
: Dupline® BUS or wireless wiDup

Home automation system

Diagnostic function

The smart-house system provides information about its working status and makes it available by using the SH tool and the webserver.
During commissioning, the installer is always aware of the working status of the smart Dupline® bus, since the bus voltage, bus load and short-circuit are monitored, as well as the quality of the signal: thanks to this, if any fault should occur, the installer will be informed without going all around the installation to look for it, thus saving time and money.
At the same time, each module is monitored to check if it is alive, working well and without any alarm/warning message such as over current, over voltage or over temperature, and the result is always available via smart-devices, so that the home owner can also be alerted in advance if any fault is going to occur.
The smart-house also advises if a lamp or, in general a load , is broken or not working anymore, reminding the user to change or repair it.
All the diagnostic events are logged in a file that can be accessed locally or remotely, providing the installer with a way to look into the problem even if it occurred in the past.





SmartHub: the touch display

In the living room or at the entrance, the SmartHub display is the ideal solution to control a smart-house with a finger touch. It is connected to the SH2WEB24 master unit via Ethernet and it is configured by the easy-to-use Wizard software, which automatically reads the Modbus TCP/IP variables of the smart-house master unit and assists the installer in creating the user interface with a comprehensive object library and templates. All the smart-house functions such as lights, scenario, light and shade, alarms, temperatures, …can be controlled by the SmartHub. It can also be linked to external monitoring systems, such as surveillance IP cameras, to monitor parts of a building directly from the touch panel. Furthermore, audio/video systems with Modbus TCP/IP capability can be connected to control music and entertainment.

SH tool: the configuration software

The master unit is programmed by means of the configuration software SH tool, downloadable free from the Carlo Gavazzi website. The SH software has been developed to make commissioning fast, easy and error free: the wizard tool guides the user step by step in the creation of predefined functions. As soon as the software is connected to a master unit, it scans the network and finds all the connected modules. Thanks to this feature, the installer doesn't have to worry about any addressing of the modules, since it is done automatically, saving a lot of time and drastically reducing the numbers of errors. In a very intuitive way, the user can create a map of the installation where he will place the required modules and create all the automation, either with predefined functions or by using special logic with the basic functions.

Create a "tree" map of the installation.

1

Add all the installed modules with an automatic network scan.

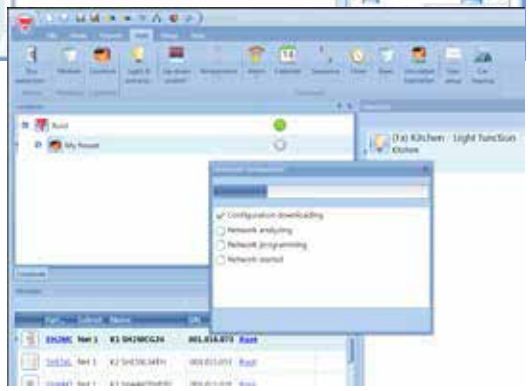
2

Create your functions in a very simple way by means of the wizard tool.

3

Download the configuration locally and remotely into the master unit SH2WEB24.

4



Done!

Home automation system

Switches

	Dimension (mm)	Colour	Mounting	LED	Power supply	Other functions
B4X-LS4-U	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	
B5X-LS4-U	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	
SHA4XWLS4	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	Wireless
SHE5XWLS4	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	Wireless
SHA4XLS4TH	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	With temperature and humidity sensor
SHA4XLS4TH	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	With temperature and humidity sensor
BEW-LS4-U	55x55	White	Wall box Elko	White	By bus	
BEA-LS4-U	55x55	Anthracite	Wall box Elko	White	By bus	

Switches with integrated motion detector and luxmeter

	Dimension (mm)	Colour	Mounting	LED	Power supply	Main features
SHA4XLS4P90L	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	4 push buttons, 90° PIR and luxmeter
SHE5XLS4P90L	55x55	Blank, white	Wall box Elko, Gira, Jung	White and blue	By bus	4 push buttons, 90° PIR and luxmeter

Temperature Displays

	Dimension (mm)	Colour	Mounting	LED	Power supply	Main features
SHA4XTEMDIS	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	Measuring range: -10°C to +50°C, 3 setpoints
SHE5XTEMDIS	55x55	Black	Wall box Elko, Gira, Jung	White and blue	By bus	Measuring range: -10°C to +50°C, 3 setpoints
SHEKxTEMDIS	55x55	White, anthracite	Wall box Elko	White	By bus	Measuring range: -10°C to +50°C, 3 setpoints

Outdoor Temperature Sensor

	Dimension (mm)	Colour	Mounting	Connection	Power supply	Measuring Range
BSI-TEMANAx-U	67x35x15	White	Wall mounting	Cable or plug	By bus	-40°C to +50°C

Movement/Presence Detectors

	Dimension (mm)	Colour	Mounting	LED	Power supply	Other functions
B4X-PIR90-U	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	Operating distance: 8m Angle: 90°
B5X-PIR90-U	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	Operating distance: 8m Angle: 90°
BSD-PIR90-U	104x55x57	White	Wall mounting	Red	By bus	Operating distance: 10m Angle: 90°
BSB-PIR90-U	Ø 76x25	White	Ceiling mounting	Blue	By bus	Operating distance: 6m Angle: 90°
BSP-PIR90-U	67x52x34	White	Wall mounting	Blue	By bus	Operating distance: 15m Angle: 90°
SHA4XP150	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	Operating distance: 8m Angle: 150°
SHE5XP150	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	Operating distance: 8m Angle: 150°

Movement/Presence Detectors with Luxmeter

	Dimension (mm)	Colour	Mounting	LED	Power supply	Other functions
SHA4XP90L	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	Operating distance: 8m Angle: 90°
SHE5XP90L	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	Operating distance: 8m Angle: 90°
SHSDP90L	104x55x57	White	Wall mounting	Red	By bus	Operating distance: 10m Angle: 90°
SHSBP90L	Ø 76x25	White	Ceiling mounting	Blue	By bus	Operating distance: 6m Angle: 90°
SHSPP90L	67x52x34	White	Wall mounting	Blue	By bus	Operating distance: 15m Angle: 90°
SHSQP360L	Ø 90x40	White	Ceiling mounting	White and blue	By bus	Operating distance: 7m Angle: 360°
SHA4XP150L	44x44	Black, white	Wall box Biticino, Niko, Fuga	White and blue	By bus	Operating distance: 8m Angle: 150°
SHE5XP150L	55x55	Black, white	Wall box Elko, Gira, Jung	White and blue	By bus	Operating distance: 8m Angle: 150°

Luxmeter for Indoor and Outdoor Installation

	Dimension (mm)	Colour	Mounting	Connection	Power supply	Other functions
BSH-LUX-U	55x53x36	White	Wall mounting	Cable	By bus	Measuring range: 0 to 20Klux Operating temperature: -30° to 60°C

Light Switch Interfaces

	Dimension (mm)	Inputs number and type	Outputs number and type	Ouput voltage	Power supply
BDB-INCON4-U	28x28x10	4, voltage free			By bus
BDB-INCON8-U	28x28x10	8, voltage free			By bus
BDB-IOCP8-U	28x28x10	4, voltage free	4, PNP	3.3 V	By bus
BDB-IOCP8A-U	28x28x10	4, voltage free	4, PNP	8.0 V	By bus

Digital Input Modules

	Dimension (mm)	Inputs number	Input type	Power supply
BDD-INCON4-U	107x50x110	4	Voltage free or NPN	By bus

Voltage Input Modules

	Dimension (mm)	Inputs number	Input type	Power supply
BDA-INVOL-U	28x28x10	1	Opto-isolated voltage input 90-265 VAC	By bus

Water Detector

	Dimension (mm)	Colour	Mounting	Power supply	Main features
BSF-WAT-U	70x39x15.5	White	Wall mounting	By bus	Input for Felson probe, IP67

Home automation system

Smoke Detector

	Dimension (mm)	Colour	Mounting	LED	Power supply	Main features
BSG-SMO-U	Ø 100x54	White	Ceiling mounting	1, Red	By bus	Detection area: 60 m² Battery back-up (9Vdc battery)
BSG-SMOA-U	Ø 100x54	White	Ceiling mounting	1, Red	By bus	Detection area: 60 m²

Anemometer

	Dimension (mm)	Type	Mounting	Power supply	Main features
BSN-ANE-U	183x137x145	Cup anenometer	Wall mounting	By bus	Measuring range: 2 m/s to 25m/s Heating system

Weather Station

	Dimension (mm)	Measurements	Power supply	Main features
SHOWEAGPS	96x77x118	Light, wind, temperature, GPS receiver	10 to 40 Vdc, 12 to 28 Vac	Operating temperature: -30° C to 50°C Communication: Modbus RTU

Programmable Keypad

	Dimension (mm)	Mounting	LED	Power supply	Main features
BACC-KEYPAD-DC-U	130x50x8	Wall box indoor and outdoor	3, programmable	12 Vdc	28 user-programmable codes Buzzer output

Analogue Input Modules

	Dimension (mm)	Inputs number and type	Power supply
SHPINV324	50x30x18	3, 0 to 10 V	By bus
SHPINV2T1P124	50x30x18	2, 0 to 10V; 1, thermistor 10K3; 1, potentiometer 1-11Ω	24 Vdc
SHPINT1P1	50x30x18	1, thermistor 10K3 1, potentiometer 1-11Ω	24 Vdc
SHPINNI2	50x30x18	2, configurable pt1000/ni1000	By bus

Analogue Output Modules

	Dimension (mm)	Outputs number and type	Power supply
SHPOUTV224	50x30x18	2, 0 to 10 Vdc	24 Vdc

Touch Display

	Dimension (mm)	Main features	Power supply
BTM-T7-24	187x147x47	Windows CE, 7'', 800 x 480 pixel, Ethernet port	24 Vdc ±20%
BTM-T4-24	147x107x56	Windows CE, 4.3'', 480 x 272 pixel, Ethernet port	24 Vdc ±20%

Wireless Energy Meter

	Mounting	Inputs number	Input type	Power supply	Main features
SHDWEM16A230	Decentral	1	Monophase	230 Vac	Load: 16 A, 230 Vac, wireless

Ouput Modules

	Mounting	Outputs number	Output type	Power supply	Main features
BDA-RE13A-U	Decentral	1	Bistable relay	By bus	Load: 16 A, 230 Vac
SHDWRE16AE230	Decentral	1	Bistable relay	230 Vac	Load: 16 A, 230 Vac, wireless
SH2RE16A2E230	DIN rail (2 modules)	2	Bistable relay	230 Vac	Load: 16 A, 230 Vac x 2, with energy reading, local bus
SH2RE16A4	DIN rail (2 modules)	4	Bistable relay	By bus	Load: 16 A, 230 Vac x 4, local bus
SH2RE1A424	DIN rail (2 modules)	4	NO, voltage free contact	24 Vdc ±20%	Load: 5 A, NO x 4, local bus
SH2SSTRI424	DIN rail (2 modules)	4	Solid state relay	24 Vdc ±20%	Load: 10 W x 4, local bus

Dimmer Modules

	Mounting	Outputs number	Dimming type	Power supply	Main features
SH2D500WE230	DIN rail (2 modules)	1	230 dimmible bulbs, LEDs	230 Vac	Power dimmer up to 500W, energy reading, local bus
SH2D500W1230	DIN rail (2 modules)	1	230 dimmible bulbs, LEDs	230 Vac	Power dimmer up to 500W, local bus
SH2D10V424	DIN rail (2 modules)	4	1 to 10V dimmeble ballast, LEDs	24 Vdc ±20%	Four independent outputs, local bus

Rollerblind Modules

	Mounting	Outputs number	Motor type	Power supply	Main features
SHDRODC230	Decentral	1	AC	230 Vac	Up/down control, tilting, local bus
SH2ROAC224	DIN rail (2 modules)	2	AC	24 Vdc ±20%	Up/down control, tilting, local bus
SH2RODC224	DIN rail (2 modules)	2	DC	24 Vdc ±20%	Up/down control, tilting, local bus

Digital Input Module/Pulse Counter

	Mounting	Outputs number	Motor type	Power supply	Main features
SH2INDI424	DIN rail (2 modules)	4	NPN, PNP, voltage free, pulse counter	24 Vdc ±20%	Configurable inputs, local bus

Dupline® Transparent Module

	Mounting	Main features
SH1DUPFT	DIN rail (1 module)	Transparent Dupline® module

Universal Mobile Modem

	Mounting	Power supply	Main features
SH2UMMF124	DIN rail (2 modules)	24 Vdc ±20%	Quad-band GSM-GPRS-EDGE, dual-band UMTS-GPRS-HSPA, available for Europe, Africa and Asia

Bus Generators

	Mounting	Power supply	Main features
SH2MCG24	DIN rail (2 modules)	24 Vdc ±20%	Dupline® bus generator, up to 250 slave modules can be connected
SH2WBU230	DIN rail (2 modules)	24 to 240 Vac/dc	Wireless bus generator, up to 250 slave modules can be connected, based on IEEE EEE 802.15.4, @ 2.4 GHz

Master Unit (CPU)

	Mounting	Power supply	Main features
SH2WEB24	DIN rail (2 modules)	24 Vdc ±20%	Home automation master unit with datalogging capability. Linux based PC with 2 USB ports, Ethernet port, 2 RS485 ports, local bus

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