

# SH2RE16A4



## Output relay module



### Benefits

- **Integrated system.** Dupline® is the brand name for Carlo Gavazzi's 2-wire bus system.
- **Cost reduction.** The use of a bus system is a proven way to reduce installation costs - especially when the distance between I/O points is extensive.
- **Fast and easy installation.** Completely free topology, no special cable required, no screen or twist. It can go for 2 km and even further with repeaters.
- **High noise immunity.** Can run next to power cables.
- **Scalability.** The system can be progressively integrated with new modules according to the application needs.
- **Modularity.** The system is composed by many modules, powered by the bus, so that each installation can be precisely and easily sized.

### Description

This is a four-relay output module for DIN mounting. When an activation command is received from the Dupline® bus, the output turns ON and remains ON until the OFF command is received. Thanks to the internal bus, the SH2RE16A4 modules can be connected one next to the other without the need for wiring the Dupline® bus.

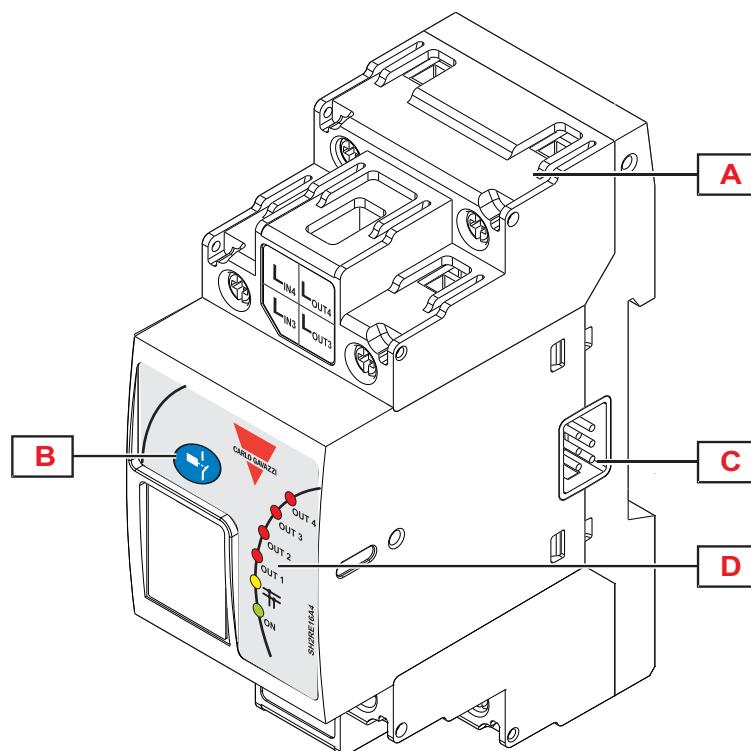
### Applications

Smart Dupline® is a bus system that offers unique solutions for a wide range of applications in home and building automation, industrial automation, water distribution, energy management, railway systems and many other areas.

### Main features

- 4 separate output channels
- Relay load 16 A
- Module load: 64 A
- 2-DIN housing
- LED indication for power supply, Dupline® bus, output1, output2, output3, output4
- Connection to other cabinet modules via local bus

## Structure

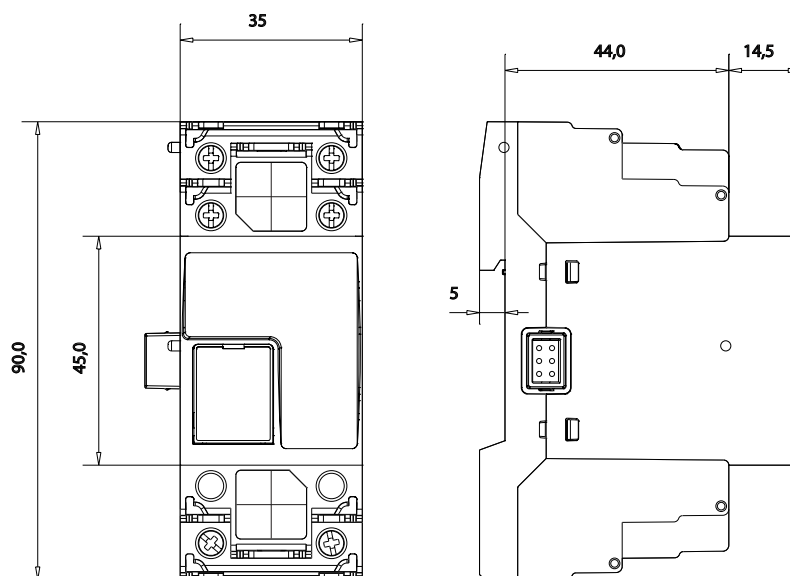


Element	Component	Function
A	Connection	Connection by terminal 8-screw type to relay outputs
B	Push button	To locally control the outputs
C	Local bus	Supplied by the Dupline® bus on the local bus
D	Information LED	Indicating the following status: Green LED: Power supply Yellow LED: Dupline® bus Red LED's: Outputs

## Features

### General


<b>Material</b>	Noryl
<b>Dimensions</b>	2-DIN module
<b>Weight</b>	150 g
<b>Protection grade</b>	Front: IP50; Screw terminal: IP20
<b>Dielectric strength</b>	Dupline® to output 4kV AC for 1 min.; 6 kV impulse 1.2/50µs
<b>Terminal</b>	8 screw-type; Section: 1.5 mm <sup>2</sup> maximum; Torque: 0.4-0.8 Nm



### Environmental

<b>Operating temperature</b>	-20° to +50°C (-4° to 122°F)
<b>Storage temperature</b>	-50° to +85°C (-58° to 185°F)
<b>Humidity (non-condensing)</b>	20 to 80% RH

## Compatibility and conformity

<b>Electromagnetic compatibility (EMC) - immunity</b>	EN 61000-6-2 Electrostatic discharge: EN 61000-4-2 Radiated radiofrequency: EN 61000-4-3 Burst immunity: EN 61000-4-4 Surge: EN 61000-4-5 Conducted radio frequency: EN 61000-4-6 Power frequency magnetic fields: EN 61000-4-8 Voltage dips, variations, interruptions: EN 61000-4-11
<b>Electromagnetic compatibility (EMC) - emissions</b>	EN 61000-6-3 Conducted and radiated emissions: CISPR 22 (EN55022), cl. B Conducted emissions: CISPR 16-2-1 (EN55016-2-1) Radiated emissions: CISPR 16-2-3 (EN55016-2-3)
<b>Approvals</b>	

## Power Supply

Power Supply	Specs
Power Supply	Supplied by the Dupline® bus on the local bus
Power on delay	Typ. 2 s

## Dupline®

<b>Voltage</b>	8.2 V
<b>Maximum Dupline® voltage</b>	10 V
<b>Minimum Dupline® voltage</b>	5.5 V
<b>Maximum Dupline® current</b>	10mA
<b>Addressing</b>	No addressing is needed since the module is provided with a specific identification number (SIN): the user has only to insert the SIN number in the SH tool when creating the system configuration. Used channels: 4 output channels.

## Outputs

Load	Test Conditions	Typical Number of Operations
250V, 12A, $\cos\phi=1$	1800/h, 50%, DC, +70°C	$1.0 \times 10^5$
250V, 8A, $\cos\phi=1$	1800/h, 50%, DC, +70°C	$3.5 \times 10^5$
250V, 4A, $\cos\phi=1$	1800/h, 50%, DC, +70°C	$5.0 \times 10^5$
250V, 3A, $\cos\phi=1$	1800/h, 50%, DC, +70°C	$7.5 \times 10^5$
230V, 550W filament lamps lin <40A peak loff = 2.5A	60/h, 8% DC, +22°C	$2.5 \times 10^5$
230V, 1000W filament lamps lin <71.5A peak loff = 4.5A	60/h, 8% DC, +25°C	$7.0 \times 10^4$
230V, 900W fluorescent tubes (25x36W) parallel compensated, 30mF	360/h, 50% DC, +25°C	$7.0 \times 10^5$
230V, compressor lin <21A peak loff = 3.5A	500/h, 20% DC, +25°C	$1.7 \times 10^4$
250V, 8A $\cos\phi = 0.3$	360/h, 50% DC, +25°C	$1.0 \times 10^5$

## Mode of operation

### Working Mode

If the SH2RE16A4 is connected to the Dupline® bus and the bus is working properly, the relay module is in STANDARD mode and the green LED is ON. The relay enters LOCAL mode if the push button is pressed. In LOCAL mode the relay does not accept any command from the bus and the green LED will be flashing.

The relay can go back to STANDARD mode after one of the following events:

- 1) After a timeout of 1 minute after a button press
- 2) After a power cycle.

If the bus is not connected or faulty, the module is not powered and the outputs maintain the last status they had. No fail-safe condition is present.

To have a low power consumption, the 4 outputs are not activated all together at the same time, but a delay of 500ms is present between two consecutive activations.

### Push button

The push button is used for local switching ON/OFF of the outputs, without needing to connect the bus for test purposes. With a short press, the user enters LOCAL mode and the green LED will be flashing: at the same time all the 4 outputs will be switched ON, if at least one of them is OFF. If all the outputs are ON they will be switched OFF.

## LEDs Indication

**Red LED:** 4 output LEDs. Output1: ON if output1 active, OFF if output1 OFF. Output2: ON if output2 active, OFF if output2 OFF. Output3: ON if output3 active, OFF if output3 OFF. Output4: ON if output4 active, OFF if output4 OFF.

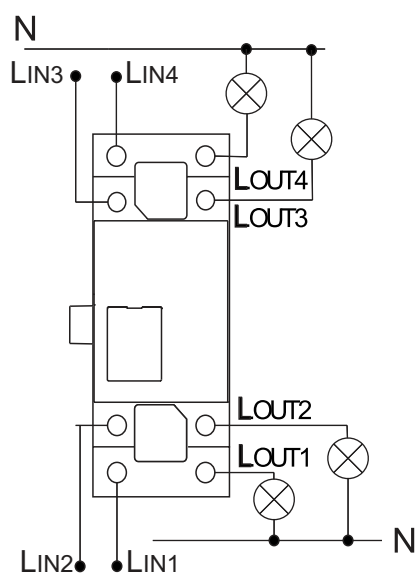
When a relay is switched on/off, all the LEDs are switched off to reduce current consumption.

**All blinking together:** the voltage on the Dupline® bus is not sufficient to supply the relay. ( $V_{bus} < 5.5\text{ V}$ )

**Green LED:** Power status. ON: supply ON. OFF: supply OFF. Flashing: LOCAL MODE active.

**Yellow LED:** if the Dupline® bus is working properly, it is always ON. It is OFF if the bus is OFF or not connected.

## Connection Diagrams





## References

### Further reading

Information	Document	Where to find it
Sx2WEB installation guide	System manual	<a href="http://www.productselection.net/MANUALS/UK/system_manual.pdf">www.productselection.net/MANUALS/UK/system_manual.pdf</a>
Sx2WEB software manual	Sx tool manual	<a href="http://www.productselection.net/MANUALS/UK/sx_tool_manual.pdf">www.productselection.net/MANUALS/UK/sx_tool_manual.pdf</a>

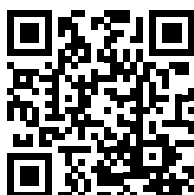
### Order code



**SH2RE16A4**

### CARLO GAVAZZI compatible components

Purpose	Component name/code	Notes
Controller	Sx2WEB24	
Bus Generator	SH2MCG24	



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