Smart Dupline®
Relay Output Module
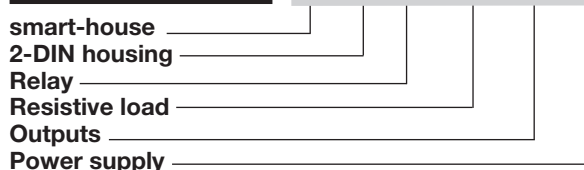# Type SH2RE1A424

CARLO GAVAZZI

- 4 SPST NO relays
- Relay load 5A with AC resistive load, 3A DC resistive load
- 2 DIN housing
- LED indication for power supply, Dupline® bus, output1, output2, output3, output4
- Connection to other cabinet modules via local bus

Product Description

This is a four-relay output module for DIN mounting. The outputs are normally OFF. 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 SH2RE1A424 modules can be connected one next to the other without the need for wiring the Dupline® bus.

Ordering Key

	SH	2	RE	1A	4	24

smart-house
2-DIN housing
Relay
Resistive load
Outputs
Power supply

Type Selection

Housing	Mounting	Relay max. load	Relay outputs	Supply: 15 to 30 VDC
2 DIN	DIN-rail	5A	4 SPST NO relays	**SH2RE1A424**

Output Specifications

Relay output	4 SPST NO relays
Resistive load	
AC	5 A, 250VAC
DC	3A, 30VDC
Mechanical life	5×10^6 operations
Electrical life	1×10^5 operations (5A at 250VAC) 2×10^5 operations (3A at 30VDC)
Derating	@50°C: max total current 12A @40°C: max total current 14A @30°C: max total current 16A
Contact ratings	
Contact material	AgNi
Max. switching power	1250 VA, 90 W
Failure rate (reference value)	10 mA at 5 VDC
Connection	O1: relay output1 O2: relay output2 O3: relay output3 O4: relay output4

Input Specifications

Keypad	For local ON/OFF switching

Supply Specifications

Power supply	Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2)
Rated operational voltage	15 to 24 VDC ± 20%
Power-on delay	Typ. 2s
Power Consumption	2W

Dupline® Specifications

Voltage	8.2 V
Maximum Dupline® voltage	10 V
Minimum Dupline® voltage	5.5 V
Maximum Dupline® current	1.5 mA

The Dupline® bus is present on the internal bus: the modules can be connected one next to the other without the need of wiring the Dupline® bus. See "Wiring diagram".

General Specifications

Installation category	Cat. II
Dielectric strength	
Dupline® to output and power supply to output	4 kV AC for 1 min. 6 kV impulse 1.2/50μs (IEC60664-1, TAB. A. 1)
Address assignment	Automatic: the controller recognises the module through the SIN (Specific Identification Number) that is fitted in the SH tool.
Fail-safe mode	In case of interruption of the smart-house connection, the channel will be forced into a specific optional status as described below.
Environment	
Degree of protection	
Front	IP 50
Screw terminal	IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	-20° to +50°C (-4° to 122°F)
Storage temperature	-50° to +85°C (-58° to 185°F)
Humidity (non-condensing)	20 to 80% RH
LED's indication	
Power LED	1 green
Dupline® LED	1 yellow
Output LED	4 red

Connection	
Terminal	10 screw-type
Cable cross-section area	Max. 1.5 mm^2
Tightening torque	0.4 Nm / 0.8 Nm
Housing	
Dimensions	2 DIN module
Material	Noryl
Weight	150 g
CE Marking	Yes
EMC	
Immunity	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
Emission	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)

Mode of Operation

Working mode
If the SH2RE1A424 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) As soon as the Dupline® bus returns
2) After a timeout of 1 minute after a button press
3) After a power cycle.

Push button
The push button is used for local switching ON/OFF of the outputs, without needing to connect the bus for test purposes.
Bus connected
With a short press, the user enters LOCAL mode and the green LED will be flashing: at the same time all outputs will be switched ON, if at least one of them is OFF. If all outputs are ON they will be switched OFF.
Bus not connected or faulty
If the bus is not connected or faulty, the push button overwrites the fail- state status of the outputs: if at least one output is OFF, all of them will be switched ON. If

all outputs are ON they will be switched OFF. Should all the outputs be configured for the safe-state recycle status, then a short pressure will reset the timer and revert to the original status of the outputs.

Fail/safe condition
The output status of the relays, when the Dupline® bus is not connected or faulty, is programmed via the SH tool and the user can choose between the following options:
1. Outputs always OFF
2. Outputs always ON
3. The four outputs maintain the status they had before the disconnection

4. The four outputs run in a cycle with programmable on and off periods: the user can set both the off and on period from 1 to 255 minutes.
The factory setting is outputs always OFF.

Addressing
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

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.

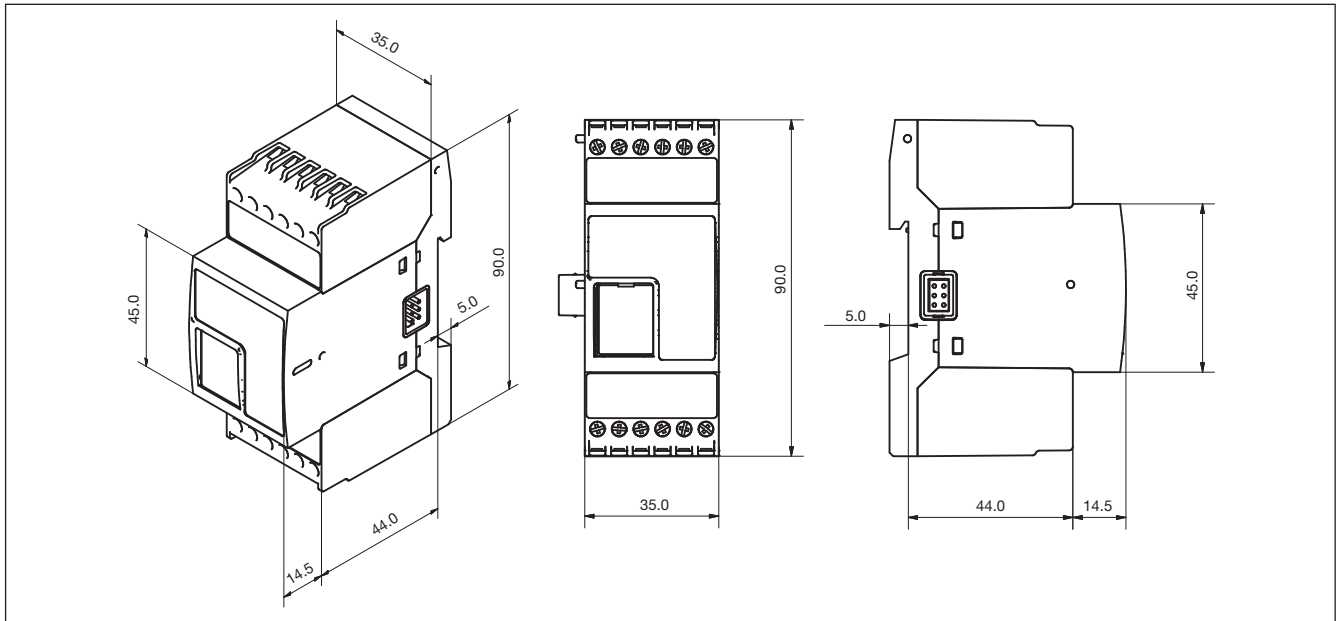**Green LED**: Power status.
ON: supply ON

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 voltage is lower than 5.5 V or not connected.

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Dimensions

Wiring Diagrams