

Actuator 4 relays

F430/4

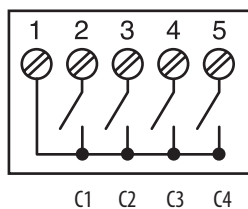
Description

By means of internal relays, this device executes the controls received from the central unit or the probe. It is needed to control loads such as 3-speed fan-coils, motorised valves, pumps and electric radiators.

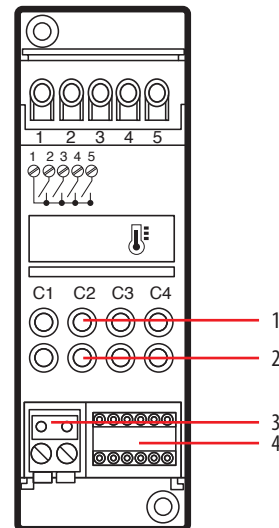
It has four relays, with independent control but common contacts, which can be used to control two distinct loads with ON/OFF function and to control a single load with open/close function.

To manage open/close loads the actuator must be configured with the logical interlock of the two relays and contacts C1/C2 respectively must be considered to open and close the first valve and contacts C3/C4 to open and close the second valve.

The contacts assume different functions when the actuator is used to control fan-coils. Contact C1 is an ON/OFF contact and controls the valve. Contacts C2, C3 and C4 control the ventilation minimum, average and maximum speed respectively. The fan speed is selected automatically depending on the difference between the temperature set by the user and the room temperature.



Front view



Technical data

Power supply from SCS BUS:	27 Vdc
Operating power supply with SCS BUS:	18 – 27 Vdc
Maximum absorption relays activated individually):	37.5 mA
Absorption (relays activated with interlock or Fan Coil control):	20.5 mA
Absorption in stand-by:	9 mA
Current load of individual relays:	4 A (resistive) e.g. electric radiators 1 A (inductive) e.g. solenoid valves, pumps
Maximum power consumption:	3.2 W
Operating temperature:	5 – 40 °C

Dimensional data

Size: 2 DIN modules.

Configuration

In the same way as for the 2-relay actuator, it is necessary to connect the two configurators that identify the item address, and the number of the zone the item belongs to, to the **ZA** and **ZB** sockets. A probe and an actuator belonging to the same zone will require the same numeric configurators in the **ZA** and **ZB** sockets.

On the front of the 4-relay actuator are six sockets dedicated to the configurators: **ZA**, **ZB1**, **ZB2**, **ZB3**, **ZB4**, **N**. The configuration sockets are distributed on the four relays in the following way:

ZA ZB1 Relay 1 zone address

ZA ZB2 Relay 2 zone address

ZA ZB3 Relay 3 zone address

ZA ZB4 Relay 4 zone address

N progressive zone number

The relays on the device are independent and may be used to activate four separate loads with ON/OFF function. Therefore, if all **ZB** configurators are different from each other, the four relays are configured to control four loads in four different zones. The diagram shows the correspondence between the configurator sockets and the contacts

Legend

1. C1 clamps 1 - 2 relay forcing pushbutton
C2 clamps 1 - 3 relay forcing pushbutton
C3 clamps 1 - 4 relay forcing pushbutton
C4 clamps 1 - 5 relay forcing pushbutton
The forcing pushbuttons do not operate if the OFF configurator is connected to the ZB1, ZB2, ZB3 or the ZB4 configurator sockets.
2. Yellow LEDs for notification of activation of the corresponding relays.
3. Configurator socket.
4. Removable clamp for BUS connection SCS.

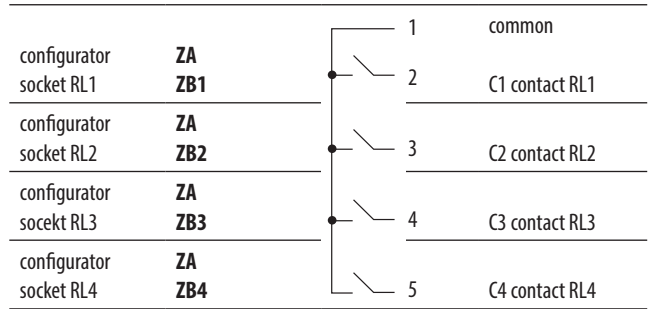
of the relays. The operation of one or more relays may be excluded. To do this, connect the OFF configurator to the **ZB** socket corresponding to the relay not being used. However, RL1 cannot be excluded.

The actuator may also be used to control two single loads with Open/Close function, such as, for example, solenoid valves with opening and closing control. For the management of these load it will be necessary to configure the actuator with logic relay interlocking, connecting two consecutive identical configurators in the **ZB** socket, therefore **ZB1=ZB2** and **ZB3=ZB4**. For the use of the contacts consider C1 and C2 for the opening and the closing of the first valve respectively, and contacts C3 and C4 for the opening and the closing of the second valve.

The contacts of the relays perform different functions if the actuator is used to control fan-coils. To activate this function, connect 4 identical configurators to the ZB position, therefore **ZB1=ZB2=ZB3=ZB4**.

The C1 contact is an ON/OFF type contact and controls the valve, controls C2, C3 and C4 control the minimum, medium and maximum ventilation speeds respectively.

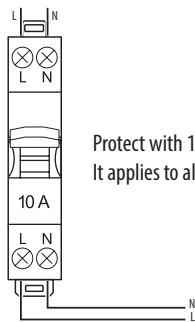
The ventilation speed is selected automatically by the temperature control function based on the difference between the user set temperature and the room temperature. This actuator cannot be used to control the system circulation pump (configurator in zone 00), and to control separate loads belonging to the same zone.



Configurator summary table:

Socket	Function	Configurator
ZA	zone address	0 – 9
ZB1	zone address - ON/OFF contact management - Open/Close contact management - Fan-Coil management - OFF zone	0 – 9 – OFF
ZB2	zone address - ON/OFF contact management - Open/Close contact management - Fan-Coil management - OFF zone	0 – 9 – OFF
ZB3	zone address - ON/OFF contact management - Open/Close contact management - Fan-Coil management - OFF zone	0 – 9 – OFF
ZB4	zone address - ON/OFF contact management - Open/Close contact management - Fan-Coil management - OFF zone	0 – 9 – OFF
N	progressive zone number	1 – 9

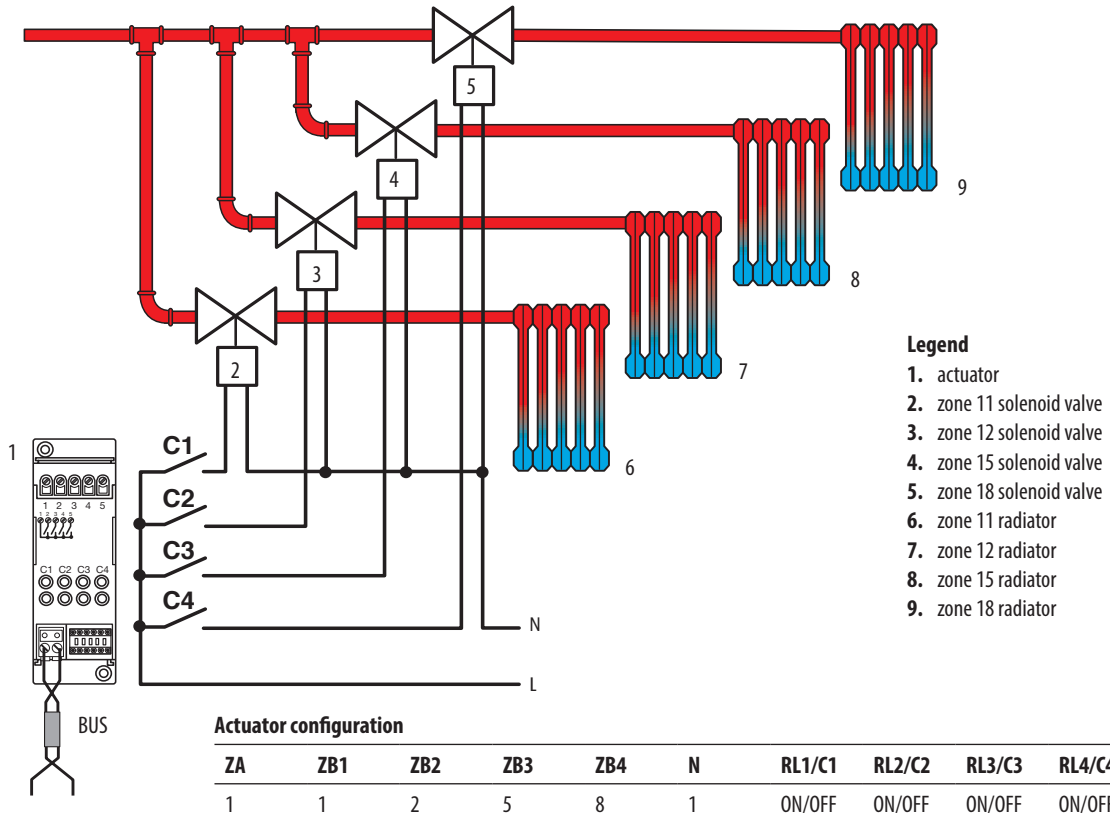
Protection



Protect with 10 A thermal magnetic circuit breaker.
It applies to all the following wiring diagrams.

Example 1

Configuration and connection of the 4-relay actuator, for the control of four solenoid valves (ON/OFF type) in four different zones (zone 11, zone 12, zone 15 and zone 18). The progressive zone number is 1.

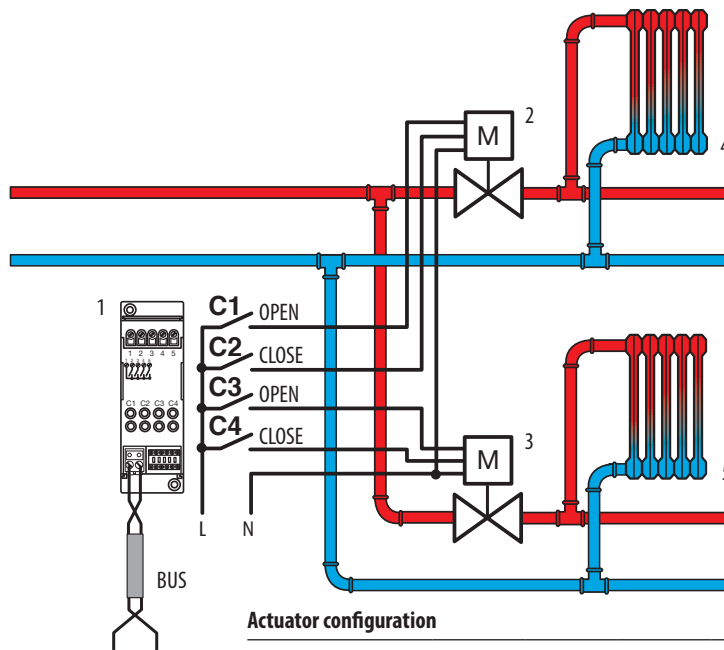


Legend

- 1. actuator
- 2. zone 11 solenoid valve
- 3. zone 12 solenoid valve
- 4. zone 15 solenoid valve
- 5. zone 18 solenoid valve
- 6. zone 11 radiator
- 7. zone 12 radiator
- 8. zone 15 radiator
- 9. zone 18 radiator

Example 2

Configuration and connection of the 4 interlocking relays actuator for the control of two solenoid valves, with opening and closing control in zones 2 and 3. The progressive zone number is 2.



Legend

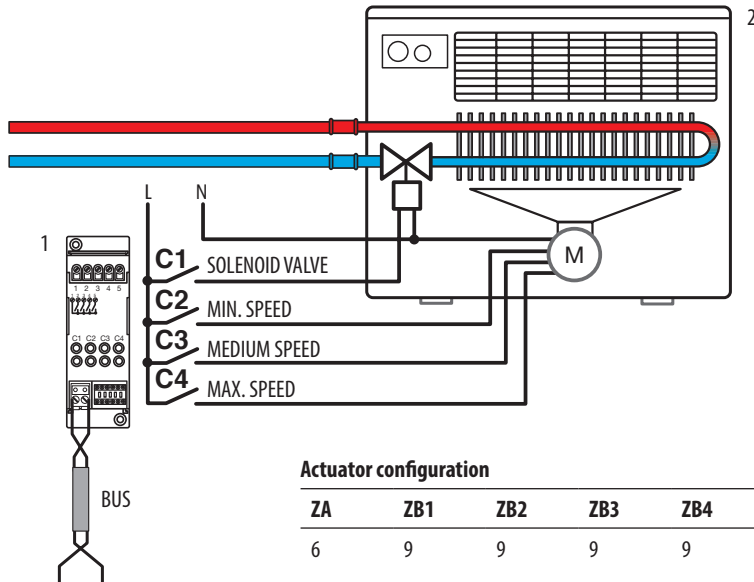
- 1. actuator
- 2. zone 2 solenoid valve
- 3. zone 3 solenoid valve
- 4. zone 2 radiator
- 5. zone 3 radiator

Actuator configuration

ZA	ZB1	ZB2	ZB3	ZB4	N	RL1/C1	RL2/C2	RL3/C3	RL4/C4
0	2	2	3	3	2	OPEN	CLOSE	OPEN	CLOSE

Example 3

Configuration and connection of the 4-relay actuator, for the control of a 3 speed fan-coil in zone 69. The progressive zone numbers is 4.



Legend

- 1. actuator
- 2. 2-pipe 3-speed fan-coil

Note

If a fan-coil is used in a heating system, it should be ensured that the fan does not operate when the water is cold, to avoid cooling the room rather than heating it. Some fan-coils are fitted with a water temperature probe for this function. If a fan-coil without fitted sensor is used, an effective solution is to install an immersion thermostat on the water return pipe. The contact of the thermostat controls a remote switch, to which the fan-coil power supplies are connected.

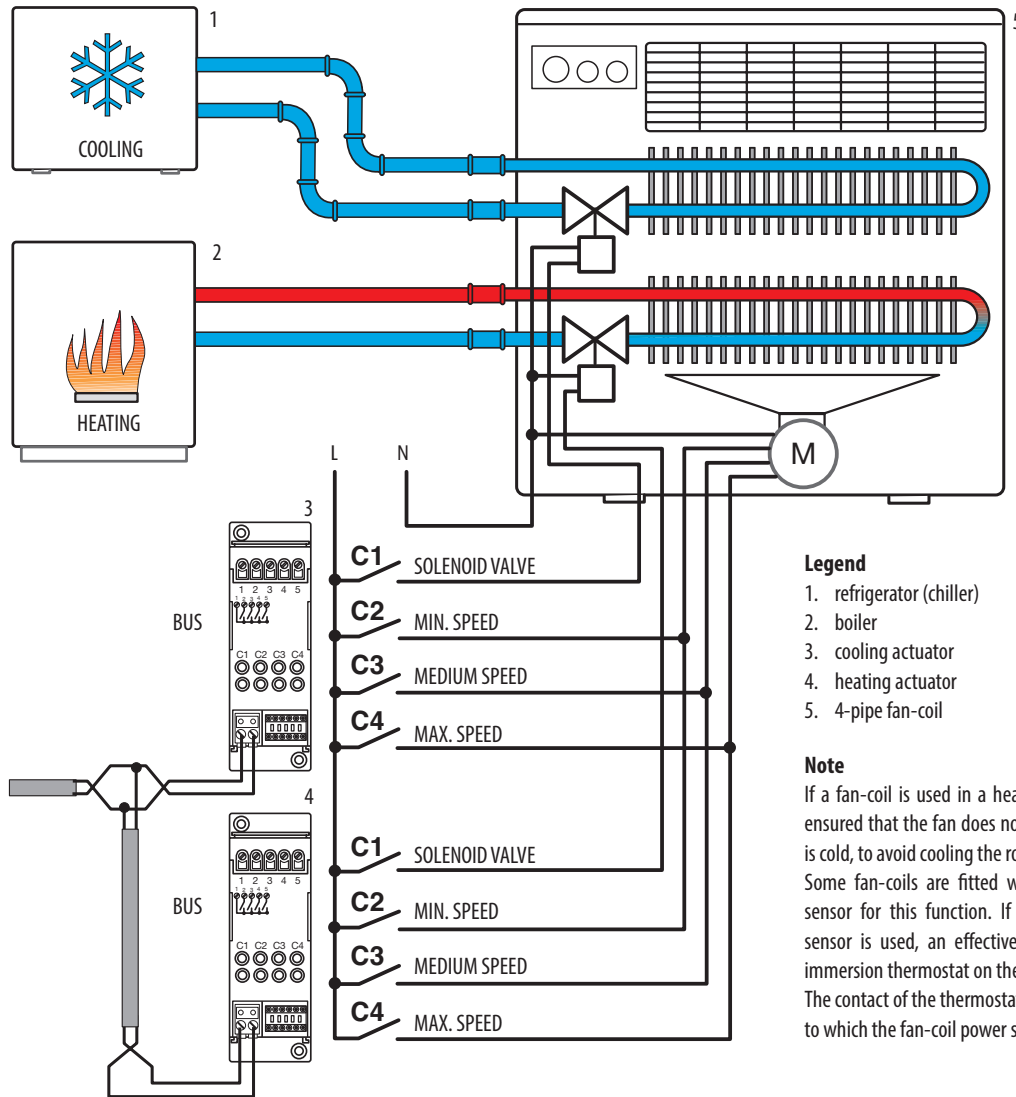
Actuator configuration

ZA	ZB1	ZB2	ZB3	ZB4	N	RL1/C1	RL2/C2	RL3/C3	RL4/C4
6	9	9	9	9	4	Valve	Minimum speed fan	Medium speed fan	Maximum speed fan

Example 4

Configuration and connection of two 4-relay actuators (one for the cooling, and one for the heating system), for the control of a 4-pipe, 3 speed fan-coil. For both actuators the corresponding zone is 28. The progressive number for the cooling actuator is 5, while for the heating actuator is 6.

The C1 contact of each actuator controls the corresponding solenoid valve, selected by the temperature control function based on the system setting (summer or winter). The C2, C3 and C4 contacts of the two actuators must be connected in parallel, to control the switching on and the speed of the ventilation system electric motor.



Cooling actuator configuration

ZA	ZB1	ZB2	ZB3	ZB4	N	RL1/C1	RL2/C2	RL3/C3	RL4/C4
2	8	8	8	8	5	Valve	Minimum speed fan	Medium speed fan	Maximum speed fan

Heating actuator configuration

ZA	ZB1	ZB2	ZB3	ZB4	N	RL1/C1	RL2/C2	RL3/C3	RL4/C4
2	8	8	8	8	6	Valve	Minimum speed fan	Medium speed fan	Maximum speed fan