

## Actuator 16 A with current sensor

F522

### Description

The device is an actuator with 1 bistable relay sensor with zero crossing functionality, intended for the load control and/or automation functions.

The actuator is capable of assessing frequency (50 Hz) and voltage (230 Vac) in an isolated way.

#### In load control mode:

The actuator will be given a priority indicating the tripping order that will be followed by the F521 central unit for load management (e.g. Priority 1 will be the first load disabled if the threshold is exceeded). This priority coincides with the address that will be used in all configuration software programs. The actuator is fitted with a current sensor for the measurement of the controlled load consumptions, as well as for the display of the instantaneous consumption, and 2 energy totalizers that can be reset independently.

In this mode the device can process the following functions:

- measure the input power of the controlled load;
- measure the total power;
- measure the earth leakage current and display on the Touch Screen the status of the controlled load. This function is only available by connecting the optional external toroid, item 3523, to the actuator.

Using the forcing pushbutton it will be possible to re-enable the load for 4 hours after DISABLING by the central unit, or remove the load forcing previously set.

#### In automation mode, the actuator can perform the following functions:

- all operating modes that can be configured on the control devices, with the exception of those requiring the use of two interlocked relays (shutters);
- additional modes using the M configuration socket.

#### In mixed load control and automation mode, the following rules are followed:

The local key performs the load control management function (forcing/end of forcing)

- if the load is ENABLED or FORCED, the status of the relay follows the commands of the Automation system.

- if the load is DISABLED by the central unit for load management, the status of the relay does not follow the commands of the Automation system, but can only be re-enabled by a control, ENABLING or FORCING, from the load control management.

During disabling, the actuator keeps the statuses requested by the Automation commands in the memory. After RE-ENABLING the relay is placed in the status required by the last automation command.

This function has been conceived for applications where the load control management function is implemented, with the need of performing hourly load scheduling. If during DISABLING stage the relay is switched OFF due to the scheduling settings, when re-enabling takes place it will stay switched OFF.

The bistable relay enables preserving the status of the load also in case of lack of voltage from the SCS bus (e.g. device reset).

The space requirement for the device is equal to 1 DIN module. The device is provided with socket for 6 configurators: A, PL, M, P1, P2, PF.

### Technical data

Operating power supply

with SCS BUS: 18 – 27 Vdc

Absorption: 30 mA max

Measurement interval: 100 mA – 16 A

Operating temperature: 0 – 40 °C

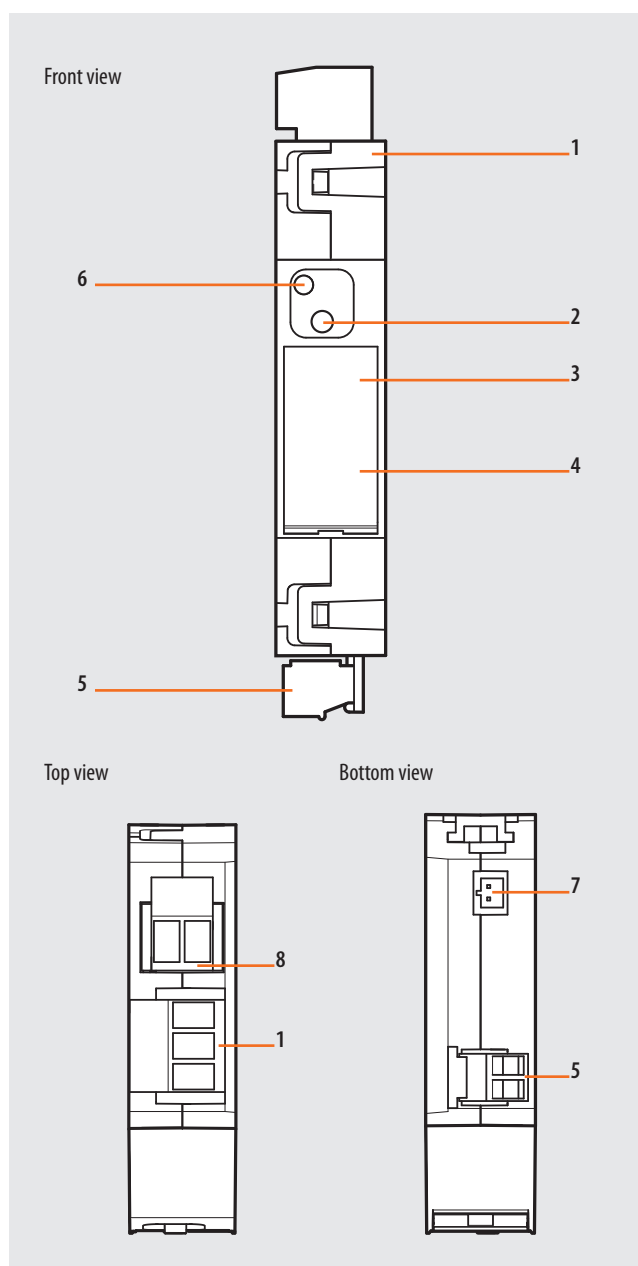
Power/Absorption of driven loads:

Incandescent lamps and halogen lamp 10 A / 2300W

LED lamp and compact fluorescent lamp 500 W / Max. 10 lamps

Linear fluorescent lamp and electronic transformer 4 A / 920 W

Ferromagnetic transformers 4 A cos 0.5 / 920 VA



### Legend

1. 230 Vac connection
2. Load forcing pushbutton
3. Virtual configuration pushbutton (future application)
4. Configurator socket
5. BUS connection
6. User interface LED, SEE TABLE
7. Toroid connection (Item 3523) for earth leakage current measurement
8. Load connection

### Dimensional data

1 DIN module

**Configuration**

The device can be configured by connecting the physical configurators to the correct sockets (Physical configuration)

The device is provided with socket for six configurators, which define:

- A/PL/M local address (room, light point) and mode in the automation system.
- P1/P2 address/priority in the load control management system (P1= tens, P2= units).
- PF Power Factor for power calculation.

The PF is configured as shown in the table:

PF	Power Factor	Typical loads
0	0.925 (default)	Hoover, Microwave, Television
1	1	Oven, iron, electric heaters, hair straightener, incandescence, electronic transformers, toroid transformers,
2	0.85	CFL lamps
3	0.80	
4	0.75	Washing machine, dishwasher, PC (desktop)
5	0.70	
6	0.65	
7	0.60	Other electronic devices (Home theatre, DVD recorder, PC notebook, etc...)
8	0.55	
9	0.50	

The parameters listed in the table are only indicative

**1) Automation Mode:**

The actuator performs all the operating modes that can be configured on the control devices, with the exception of those requiring the use of two interlocked relays.

In addition, the following table lists the operating modes required for the configurator connected to the M position of the actuator itself.

In the A and PL positions it will be necessary to indicated the device addresses in order

for this to be reached as automation actuator. In order to display the instantaneous and cumulative consumptions of the controlled load (saved inside the actuator), it will be necessary to configure also P1 and P2. In this case P1 and P2 shall indicate the address to be entered in the software programs in order to make it possible to display consumptions in the dedicated pages.

Possible function	Configurator in M
Actuator as slave. It receives a command sent by a Master actuator with the same address	SLA
Pushbutton (On monostable) ignores Room and General controls	PUL
Master actuator with delayed Off control on the corresponding Slave actuator. Only for point-point type control. With the Off control, the Master actuator is disabled; the Slave actuator is disabled after the time set using the configurators has elapsed <sup>1)</sup>	1 – 4 <sup>1)</sup>

<sup>1)</sup> In the Off delayed mode, the master sends the Off command after a period of time set using the 1 - 4 configurator connected to M as shown in the table:

Configurator in M	Time (minutes)
1	1
2	2
3	3
4	4

LED notifications based on the status of the actuator in automation mode:

Device status	Green LED	Red LED	Result
Load OFF	Fixed ON	OFF	GREEN
Load ON	Fixed ON	Fixed ON	ORANGE

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### 2) Load control management mode:

In the P1 and P2 positions it will be necessary to indicate the priorities from 01 to 63, in PF (see table), the A, PL and M positions must be configured equal to zero.

LED notifications based on the status of the actuator in load control management mode:

Device status	Green LED	Red LED	Result
Enabled	Fixed ON	Fixed ON	ORANGE
Enabled with consumption lower than 50 W	Fixed ON	Flashing 900 ms ON/100 ms OFF	ORANGE flashing 900 ms ON/100 ms OFF on GREEN
Forced	Fixed ON	Flashing 1 s/1 s	ORANGE flashing 1s/1s on GREEN
Disabled	OFF	Fixed ON	RED

### 3) Load control management and automation:

In the P1 and P2 positions it will be necessary to indicate the priorities from 01 to 63.  
In A and PL it will be necessary to indicate the device address.

LED notifications based on the status of the actuator in load control management and automation mode:

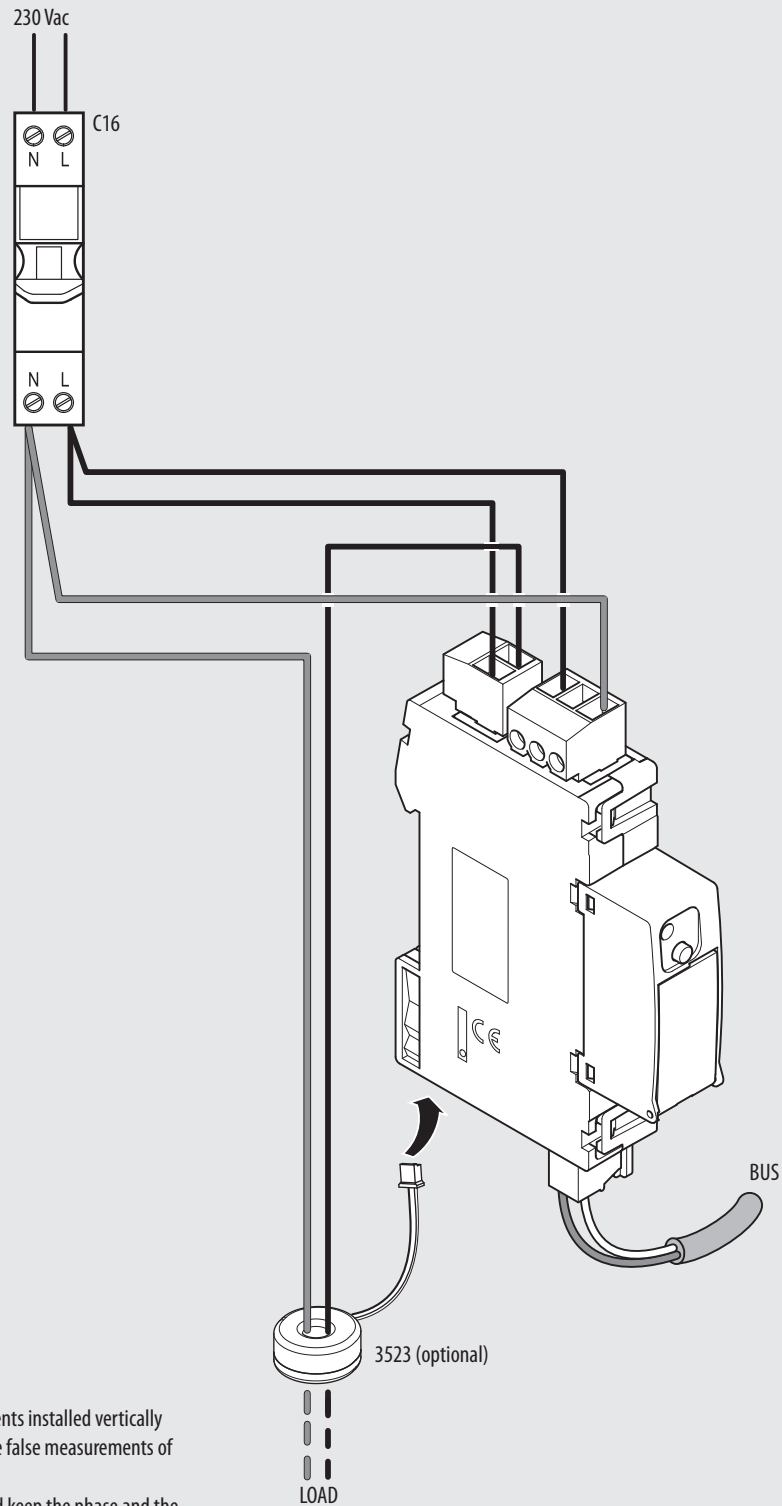
Device status	Green LED	Red LED	Result
Enabled + ON	Fixed ON	Fixed ON	ORANGE
Enabled + OFF	Fixed ON	OFF	GREEN
Enabled + ON with consumption lower than 50 W	Fixed ON	Flashing 900 ms ON/100 ms OFF	ORANGE flashing 900 ms ON/100 ms OFF on GREEN
Disabled	OFF	Fixed ON	RED
Forced + ON	Fixed ON	Flashing 1 s/1 s	ORANGE flashing 1s/1s on GREEN
Forced + OFF	Flashing 1 s/1 s	Flashing 1 s/1 s	ORANGE flashing 1s/1s

Common LEDs signalling:

Device status	Green LED	Red LED	Result
Installation error (230 Vac not detected)	OFF Flashing	Flashing 100 ms/900 ms	RED flashing 100 ms/900 ms
Configuration error	Fixed ON	Irregularly flashing	ORANGE irregularly on GREEN
No configuration	Fixed ON	Flashing 128 ms/128 ms	ORANGE flashing 128 ms/128 ms on GREEN

**Wiring diagrams**

Actuator connection:



**WARNING:** Cables carrying high currents installed vertically near the actuator (< 5 cm) may cause false measurements of the integrated current sensor.  
In this case move the cables away and keep the phase and the neutral coupled.