

# Electronic Relays and Actuators: Multi and Single Function



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## 13 SERIES Quiet electronic step relays 10 - 16 A



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13.81 - Quiet electronic step relay - Rail mount -	13.81	13.91
<ul> <li>13.91 - Quiet electronic step relay and timing step relay Switch box mount - 1 Pole</li> <li>Fixed time (10 minutes) timing function selectable (13.91)</li> <li>Use with 3 or 4 wire connection, with automatic recognition by the relay</li> <li>Control input can be continuously applied</li> <li>Longer mechanical and electrical life, and much quieter than electromechanical step relays</li> <li>"Zero crossing" load switching</li> <li>Can be mounted behind blanking plates, as widely used in residential wiring systems such as; BTicino: Axolute, Matix, Living and Magic, Gewiss: GW24, Vimar: Plana and Idea (13.91)</li> <li>35 mm rail (EN 60715) mount (13.81)</li> <li>Cadmium free contact material</li> </ul>	<ul> <li>1 NO (SPST-NO)</li> <li>35 mm rail (EN 60715) mount</li> <li>17.5 mm wide</li> </ul>	<ul> <li>I NO (SPST-NO)</li> <li>Step relay and timing step relay (10 minutes)</li> <li>For mounting within residential switch boxes</li> </ul>
For outline drawing see page 19		
Contact specification		
Contact configuration	1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current A	16/30 (120 - 5 ms)	10/20 (80 - 5 ms)
Rated voltage/		
Maximum switching voltage V AC	230/—	230/—
Rated load AC1 VA	3700	2300
Rated load AC15 (230 V AC) VA	750	450
Nominal lamp rating:		
230 V incandescent/halogen W	3000	1000
fluorescent tubes with		
electronic ballast W	1500	500
fluorescent tubes with		
electromagnetic ballast W	1000	350
CFL W	600	300
230 V LED W	600	300
LV halogen or LED with electronic ballast W	600	300
LV halogen or LED with	1500	500
electromagnetic ballast W	1000 (10/10)	200 1000 (10/10)
Standard contact material		
	AysilO <sub>2</sub>	Agono <sub>2</sub>
	220	220
Nominal voltage ( $U_N$ ) V AC (50/60 Hz)	230	230
V DC	-	-
Kated power VA (50 Hz)/W	3/1.2	2/1
Operating range AC (50 Hz)	(0.81.1)U <sub>N</sub>	(0.81.1)U <sub>N</sub>
DC	—	—
Technical data		
Electrical life at rated load in AC1 cycles	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
Maximum impulse duration	Continuous	Continuous
Dielectric strength between: open contacts V AC	1000	1000
supply - contacts V AC	_	_
Ambient temperature range °C	-10+60	-10+50
Protection category	IP 20	IP 20
Approvals (according to type)	C€ ヒム [A[ @	<b>C €</b> ĽK EAE @





13.01 - Electronic step Bictable or monostable relay	13.01		13.61.0.024.0000	13.61.8.230.000x		
<ul> <li><b>13.61</b> - Electronic step Multifunction step relay Reset feature (13.61.8.230.000x) Set and Reset feature (13.61.0.024.0000)</li> <li>Control input can be continuously applied</li> <li>Longer mechanical and electrical life, and much quieter than electromechanical step relays</li> <li>35 mm rail (EN 60715) mount</li> <li>Cadmium free contact material</li> <li>Selectable Step or Monostable operation (13.01)</li> <li>Suitable for SELV applications and available also for supply 12 and 24 V AC/DC (13.01)</li> <li>Multifunction: Step, Timing step, Monostable, Light ON (13.61)</li> <li>1224 V AC/DC and 110240 V AC supply versions (13.61)</li> <li>Reset feature, for centralized off command (13.61.8.230.000x)</li> <li>Set feature, for centralized off command (13.61.0.024.0000)</li> <li>"Zero-crossing" load switching (13.61)</li> <li>13.01/13.61</li> <li>Box clamp</li> <li>With DC Bistable function: (1213.2)V DC</li> </ul>	<ul> <li>1 CO (SPDT)</li> <li>Step or mono:</li> <li>According to I 2 x MOOP</li> <li>35 mm rail (EN)</li> <li>35 mm wide</li> </ul>	stable relay EN 60601-1 I 60715) mount	<ul> <li>1 CO (SPDT)</li> <li>Reset feature, for centralized off command</li> <li>Set feature, for centralized on command</li> <li>Multifunction: <ul> <li>step relay</li> <li>timing step relay</li> <li>(30 s20 min)</li> <li>monostable relay</li> <li>light on</li> </ul> </li> <li>35 mm rail (EN 60715) mount</li> <li>17.5 mm wide</li> </ul>	<ul> <li>I NO (SPST-NO)</li> <li>Reset feature, for centralized off command: <ul> <li>reset 3s: Type 13.61-0000</li> <li>reset 1s: Type 13.61-0001</li> </ul> </li> <li>Multifunction: <ul> <li>step relay</li> <li>timing step relay</li> <li>(30 s20 min)</li> <li>monostable relay</li> <li>light on</li> </ul> </li> <li>35 mm rail (EN 60715) mount</li> <li>17.5 mm wide</li> </ul>		
For outline drawing see page 19						
Contact specification	1.00					
Contact configuration			16/20 (120 A - 5 ms)	1 NO (SPS1-NO)		
Pated voltage/	10/50 (12	0 A - 5 ms)	10/30 (120 A - 3 ms)	16/30 (120 A - 3 IIIs)		
Maximum switching voltage V AC	250	/400	250/400	250/400		
Rated load AC1 VA	4000		4000	4000		
Rated load AC15 (230 V AC) VA	7	50	750	750		
Nominal lamp rating:						
230 V incandescent/halogen W	20	000	2000	3000		
fluorescent tubes with electronic ballast W	10	000	1000	1500		
fluorescent tubes with						
electromagnetic ballast W	750		750	1000		
CFL W	400		400	600		
230 V LED W	400		400	600		
LV halogen or LED with	400		400	600		
LV halogen or LED with	400					
electromagnetic ballast W	8	00	800	1500		
Minimum switching load mW (V/mA)	1000 (10/10)		1000 (10/10)	1000 (10/10)		
Standard contact material	AgSnO <sub>2</sub>		AgSnO <sub>2</sub>	AgSnO <sub>2</sub>		
Supply specification						
Nominal voltage (U <sub>N</sub> ) V AC (50/60 Hz)	110125	230240	—	110240		
V DC/AC (50/60 Hz)	12	24	1224			
nated power AC/DC         VA (50/60 HZ)/W           Operating range         V/AC (50/60 HZ)/W	2.5	18/ 252	1/0.5	00 264		
	10.0* 12.2	20.6 22.6	10.2 26.4	70204		
Technical data	10.813.2	20.055.0	10.220.4	_		
Electrical life at rated load in AC1	100	· 10 <sup>3</sup>	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>		
Maximum impulse duration	Conti	nuous	Continuous	Continuous		
Dielectric strength between: open contacts V AC	10	00	1000	1000		
supply - contacts V AC	40	000	2000	2000		
Ambient temperature range °C	-10+60		-10+60	-10+60		
Protection category	IP	20	IP 20	IP 20		
Approvals (according to type)	CE K FAI					
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Multi and Single function e with Bluetooth	lectronic relays	<b>NEW</b> 13.22	<b>NEW</b> 13.72	NEW 13.52		
13.22 - Electronic multifund	tion relay	YESLY	YESLY	YESLY		
<ul> <li>Pole</li> <li>Round wall box (ie: Ø 60 mm) mounting</li> <li>21 available functions (step relays, timer, staircase timer) for lighting and fan motor control</li> <li>13.72 - Electronic multifunction relay</li> <li>2 Pole</li> <li>Wall mounting, compatible with most popular Italian residential switch boxes: AVE, BTicino, Gewiss, Simon-Urmet, Vimar</li> <li>21 available functions: step relays, timing (1s - 24h), electric shutter, blind or curtain control</li> <li>13.52 - Electronic roller shutter actuator</li> <li>Round wall box (ie: Ø 60 mm) mounting</li> <li>For electric shutter, blind or curtain control</li> <li>2 contacts NO 6 A - 230 V AC independent and programmable channels</li> </ul>		<ul> <li>Offering a variety of ON/OFF functions associated with lighting and fan motor control</li> <li>Transmission protocol Bluetooth Low Energy (BLE)</li> </ul>	<ul> <li>Offering a variety of ON/OFF functions associated with lighting, electric shutters, blinds or curtains</li> <li>Transmission protocol</li> </ul>	<ul> <li>Suitable for electric shutters, blind or curtain control</li> <li>Transmission protocol Bluetooth Low Energy (BLE)</li> <li>Safe connection with 128-bit</li> </ul>		
<ul> <li>2 inputs for wired push-but channel)</li> <li>Transmission range: approx space and without obstacle</li> </ul>	tons (one input per imately 10 m in free s	<ul> <li>Safe connection with 128-bit encryption</li> <li>App programming with iOS or Android Smartphone:</li> </ul>	<ul> <li>Bluetooth Low Energy (BLE)</li> <li>Safe connection with 128-bit encryption</li> <li>App programming with iOS or</li> </ul>	encryption • App programming with iOS or Android Smartphone: Finder YOU		
13.22/13.52/13.72 Box clamp		Finder YOU • Can be managed through standard push-buttons, BEYON and Type 013.B9 wireless buttons	Android Smartphone: Finder YOU • Can be managed through standard push-buttons, BEYON and Type 013.B9 wireless buttons	<ul> <li>Can be managed through standard push-buttons, BEYON and Type 013.B9 wireless buttons</li> </ul>		
NOTE: with 110125 V AC su (AC1, AC15 and lamp loads) r 50 % (e.g. 100 W instead of 20	upply, the Ratings nust be reduced by 00 W)		wireless buttons			
For outline drawing see page	19					
Contact specification		2 NO (DPST-NO)	2 NO (DPST-NO)	2 NO (DPST-NO)		
Rated current/Maximum pea	k current A	6/40	6/40	6/40		
Rated voltage/	VAC	230/	230/	230/		
Rated load AC1	VA	1380	1380	1380		
Rated load AC15 (230 V AC)	VA	300	300	300		
Single phase motor rating (23	30 V AC) W	200	200	200		
Nominal lamp rating 230 V: incar	ndescent/halogen W	200	200	_		
fluor	escent tubes with electronic ballast W	200	200	_		
fluor	rescent tubes with					
electr	omagnetic ballast W	200	200	—		
	LED 230 V W	200	200			
LV ha	logen or LED with	200	200			
LV ha	llogen or LED with	200	200			
electr Supply specification	omagnetic ballast W	200	200			
Nominal voltage ( $U_N$ )	V AC (50/60 Hz) V DC	110230	110230	110230		
Rated power AC/DC	VA (50 Hz)/W	2 / 0.5	2/0.5	2/0.5		
Operating range	AC (50 Hz)	(0.81.1)U <sub>N</sub>	(0.81.1)U <sub>N</sub>	(0.81.1)U <sub>N</sub>		
	DC					
Technical data						
Electrical life at rated load in	AC1 cycles	60 · 10 <sup>3</sup>	60 · 10 <sup>3</sup>	60 · 10 <sup>3</sup>		
Maximum impulse duration	opon contacta VIAC		Continuous	Continuous		
Ambient temperature range	open contacts VAC	-10 +50	-10 +50	-10 +50		
Protection category	C	IP 20	IP 20	IP 20		
Approvals (according to type	e)	C € ዸጙ ֎	CE LK	<b>€ 5</b> 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		

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<ul> <li>Radio frequency remote actuator for BLISS2</li> <li>Type 13.21.8.230.S000 <ul> <li>868 MHz long-range radio frequency transmission</li> <li>Multi-zone heating/cooling function</li> <li>Hygrostat function combined with the BLISS2 thermostat</li> <li>Compatible with the BLISS2 smart thermostat</li> </ul> </li> <li>13.21 Box clamp </li> <li>Image: Comparison of the state of</li></ul>		<ul> <li>1 CO (SPDT) 16 A 250 V AC</li> <li>Bluetooth Low Energy (BLE) transmission protocol</li> <li>128-bit encrypted connection</li> <li>Programmable via app Finder YOU compatible with iOS and Android operating systems</li> <li>It can be connected to wired buttons or to BEYON and 013B9 wireless buttons</li> <li>Recess mounting</li> </ul>	<ul> <li>1 CO (SPDT) 16 A 250 V AC</li> <li>Compatible with BLISS2 smart thermostat</li> <li>Heating/cooling systems - direct or solenoid control</li> <li>It can be used in dehumidification or forced ventilation systems</li> </ul>		
For outline drawing see pag	e 19				
Contact specification					
Contact configuration		1 CO (SPDT)	1 CO (SPDT)		
Rated current	A	16	16		
Rated voltage/		250	250		
Maximum switching voltage	2 V AC	250	250		
Pated load AC15 (220 V/AC)	VA	600	5000		
Single phase motor rating (		500	500		
Nominal Jamp rating 230.V:	230 V AC) VV	500	500		
inc	andescent/balogenW	1000	_		
fluc	prescent tubes with	1000			
nu	electronic ballast W	500	_		
fluc	prescent tubes with				
elec	tromagnetic ballast W	350			
	CFL W	300	—		
	LED 230 V W	200	—		
LV h	electronic ballast W	200	_		
LV h	alogen or LED with				
elec	tromagnetic ballast W	500	_		
Supply specification					
Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	110230	110230		
	V DC		—		
Rated power AC/DC	VA (50 Hz)/W	2.8 / 0.8	2.8 / 0.8		
Operating range	AC (50 Hz)	(0.81.1)U <sub>N</sub>	(0.81.1)U <sub>N</sub>		
	DC	—	—		
Technical data		=0.402	50, 402		
Electrical life at rated load in	ACT cycles	50 · 10 <sup>3</sup>	50 · 10 <sup>3</sup>		
Dielectric strength between	anon contacta MAC		1000		
	· open contacts VAC	-10 - 50			
Protection category	: ·C	- IU+30	-10+50 ID 20		
Approvals (according to ty	эе <i>)</i>		ίς câ		

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## **Ordering information**

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Example: Multifunction relay with YESLY Bluetooth, 2 contacts 6 A NO (SPST-NO), 110...230 V AC supply.



## **Technical data**

230 = 230 V AC (13.31, 13.81 and 13.91) 230 = 110...230 V AC (13.21, 13.22, 13.72, 13.S2)

Insulation		13.01.8	13.01.0	13.11 - 13.12	13.31	13.61	13.81	13.91				
Dielecti	Dielectric strength											
bet	tween control circuit and supply	V AC	4000	—		—		—				
bet	tween control circuit and contacts	V AC	4000	4000	_	—		—				
bet	tween R-S-A2 and contacts	V AC	—	—	2000	—		—				
bet	tween supply and contacts	V AC	4000	4000	—	2000		—				
bet	tween open contacts	V AC	1000	1000	1000	1000		1000				
Other data			13	.01	13.11 - 13.12	13.31	13.61	13.81	13.91	13.21	13.22 13.52 13.72	
Power I	ost to the environment											
wit	hout contact current	W	2	.2		0.4	1	1.2	0.7	0.4	0.5	
wit	h rated current	W	3	.5	1.5	1.6	1.8	2	1.8	2.2	1.5	
Max cal	ble length for push-button connecti	on m	100		100	_	200	200	100	100	100	
Max. no	o. of illuminated push-button (	≤1mA)	_		—	—	10*	15	12	—	5	
Terminals		13.01		13.11 - 13.12 - 13.31 - 13.61 - 13.72 - 13.81 - 13.91		13.21 - 13.22 - 13.S2						
Max. wi	ire size		solid cable stranded cable		solid cable	stranded cable		solid cable		stra	stranded cable	
		mm <sup>2</sup>	1 x 6 / 2 x 4	1 x 6 / 2 x 2.5	1 x 6 / 2 x 4	1 x	4 / 2 x 2.5	1 x 2.5	/ 2 x 1.5	1 x :	2.5 / 2 x 1.5	
		AWG	1 x 10 / 2 x 12	1 x 10 / 2 x 14	1 x 10 / 2 x 12	1 x	12/2x14	1 x 14 /	/ 2 x 16	1 x	14/2x16	
🕀 Scr	ew torque	Nm	0.8		0.8		0.5					

\* For 8.230 version.





## Functions for types 13.01, 13.11, 13.12, 13.81, 13.91



## **Operating mode setup for type 13.91**

 $RI \rightarrow IT$ 



- a) Remove the supply voltage
- b) Press the control button
- c) Apply the supply to the relay, keeping the button closed. After 3 second, the light will flash twice to indicate the selection of the "IT" function, or flash once for "RI" function.

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## Functions for type 13.61

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## Functions for type 13.22, 13.72 and 13.21.8.230.B000

#### **Relay settings**

Multifunction electronic relays can be configured with the Finder YOU app, available for iOS or Android systems. This product is ready-to-use preset with the factory setting (RI) Step relay on both channels.





## Functions for type 13.22, 13.72, 13.21.8.230.B000 and 13.S2



## **Sequences**

P1 (SET): press to advance through the sequence

P2 (RESET): press to return to Step 1

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#### (IT) Timing step relay.

On initial impulse the output contact closes and timing starts. On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.

#### (IP) Timing step relay with switch off early warning.

On initial impulse the output contact closes and timing starts. After the timing period, the output contact blinks off once; 10 seconds later the contact blinks off twice, and after a further 10 seconds the contact opens.

During the pre-set and 20 second warning time, it is possible to immediately open the output contact by a further impulse.

#### (FZ) Timing monostable.

The output will be closed when the switch is closed, except where the switch is closed for greater than the preset time  $T_1$  - in which case the output contact opens.

#### (VB) Bathroom light + fan.

Channels Ch1 and Ch2 both close when the P1 command is pressed. At the expiry of T1 Ch1 opens and after a further delay of T2, Ch2 opens.

Ch1 can be prematurely opened by another press of P1.

#### (CP) Ringbell + light.

A press to P1 closes Ch1 for the pre-set time T1. While Ch1 is closed Ch2 executes a blinking function, at a rate set by T2. Subsequent presses to P1 extends the Ch1 closed time by re-triggering T1.

#### (TP) Roller shutter.

A short press (< 1 second) to P1 ("up" push-button) initiates a 500ms delay before Ch1 closes for time T1. Pressing P1 again within time period T1 will immediately open Ch1 contact. If P1 is closed for more than 1 second the Ch1 contact will open immediately P1 opens.

The same operation applies to P2 and Ch2 contact, used to control the "down" function.

Turne	Eurotions	Sequences			
туре	runctions	1	2	3	4
13.22 13.72	02	Ϋ́	ŀŀ		
	03	Ϋ́́			
	04	$\frac{1}{1}$	44		μI
	05	$\frac{1}{1}$			
	06	$\frac{1}{1}$			
	07	$\frac{1}{1}$	44	μI	
	08			Υ.	



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## Wiring diagrams



**Type 13.11** Call & reset relay



Call & reset relay



Type 13.31





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## **Wiring diagrams**

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4 wire connection









## Wiring diagrams



Maximum 15 mA illuminated push-buttons



Maximum 12 mA illuminated push-buttons





Maximum 15 mA illuminated push-buttons



Maximum 12 mA illuminated push-buttons



Note:

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• If the load is powered by a phase other than the one that powers the 13.21, a 50% reduction in the lamp capacity must be considered (set the "Different phase" function from the Finder YOU app).





## **Wiring diagrams**



Maximum 5 mA illuminated push-buttons

Maximum 5 mA illuminated push-buttons



Maximum 5 mA illuminated push-buttons



Example of connection with a 230 V AC solenoid valve, always refer to the technical characteristics of the solenoid valve.



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## **Examples of applications**







## **Examples of applications**

Type 13.21.8.230 - Special function Rla - Step relay (switch control). Ideal for converting a traditional lighting system using one, two, or four way switches, into a Smart system. Any existing system can be made Smart with minimum change or disruption





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## **Outline drawings**



Type 13.11 Box clamp





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Type 13.61.0.024.0000 Box clamp

44.5

Type 13.61.8.230.000x

88.8

Type 13.72

Б 17.5 • • œ Ð 88.8 \_\_\_\_ • Œ



Types 13.31/13.91 Box clamp



Type 13.21/13.22/13.S2 Box clamp

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Box clamp 45.5 22.5 **O**ffin 40 • 42

## Type 13.21.8.230.S000







## **Accessories**

	011.01	
011.01		
	Adaptor for panel mounting, for type 13.11, 13.12, 13.61 and 13.81, 17.5 mm wide	020.01
020.01		
	Sheet of marker tags (CEMBRE Thermal transfer printers) for relays types	
	13.11, 13.12, 13.61 and 13.81 (48 tags), 6 x 12 mm	060.48
060.48		
N.29	Push-button phase/neutral converter. Use this with a pre-existing neutral wired	
013.00	push-button when retro fitting a device designed only for phase connected push-buttons.	
015.00	This avoids any radical change to the existing wiring.	013.00





Application example with type 13.22



013.17



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