

# Applications 2009





<a href="#">E10</a>	Control of lighting system with manual or automatic switch-off	page 2
<a href="#">E11</a>	Control of lighting system with automatic switch-off	page 4
<a href="#">E12</a>	Control of lighting system with automatic switch-on and switch-off	page 6
<a href="#">E13</a>	Control of lighting system with centralized switch-off	page 8
<a href="#">E14</a>	Control of light with automatic switch-on and switch-off	page 10
<a href="#">E15</a>	Control of lighting system using a low voltage (SELV) push-button	page 12
<a href="#">E16</a>	Sequential control of lighting circuits	page 14
<a href="#">E17</a>	Control of motorized roller shutter by double function push-buttons	page 16
<a href="#">E18</a>	Control of signal lamp - timed and blinking	page 18
<a href="#">E19</a>	Alternating the duty of two 3-phase motors	page 20
<a href="#">E20</a>	Sequential control A-B-C with one single push-button	page 22
<a href="#">E21</a>	Regulation to maintain steady lighting level	page 24
<a href="#">E22</a>	Controlling the play of a water fountain, with night illumination	page 26
<a href="#">E23</a>	Control of a multizone irrigation system	page 28
<a href="#">E24</a>	Time switch and light dependent relay control	page 30
<a href="#">E25</a>	Central heating management	page 32
<a href="#">E26</a>	Independent management of several lights by push-button or remote control	page 34
<a href="#">E27</a>	Control of lighting by time switch and light dependent relay	page 36
<a href="#">E28</a>	Control of lighting using a PIR movement detector	page 38
<a href="#">E29</a>	Control of light dimmer by push-button or remote control	page 40
<a href="#">E30</a>	Control of mechanized roller shutter by push-button or remote control	page 42
<a href="#">E31</a>	Control of lighting using a movement detector and a timer	page 44
<a href="#">E32</a>	Control of manual or automatic operation of a hydraulic pump using a level control relay	page 46

## Control of lighting system with manual or automatic switch-off.

### Examples of applications:

- garage lighting
- lighting of corridor

### Description:

Staircase timer K1 controls light fittings E1 and E2. K1 will normally be manually activated by pressing illuminated push-button S1 or S2.

With K1 set to the IT function mode, the lights can be allowed to turn off automatically after the K1 set time has expired (0.5...20 min). Or, they can be manually switched off by a second press of one of the push-buttons S1 or S2.

Relay K3 allows the lights to be switched on by an external command, which is electrically isolated from the push-buttons circuit. However, externally terminating the lighting time period is prohibited by the normally closed contact of K2, which inhibits the activation of K3 while the lights are on.

### List of components:



**K1** = staircase timer (set to IT function)  
type 14.01.8.230.0000



**K2** = modular monostable relay  
type 22.23.8.230.4000



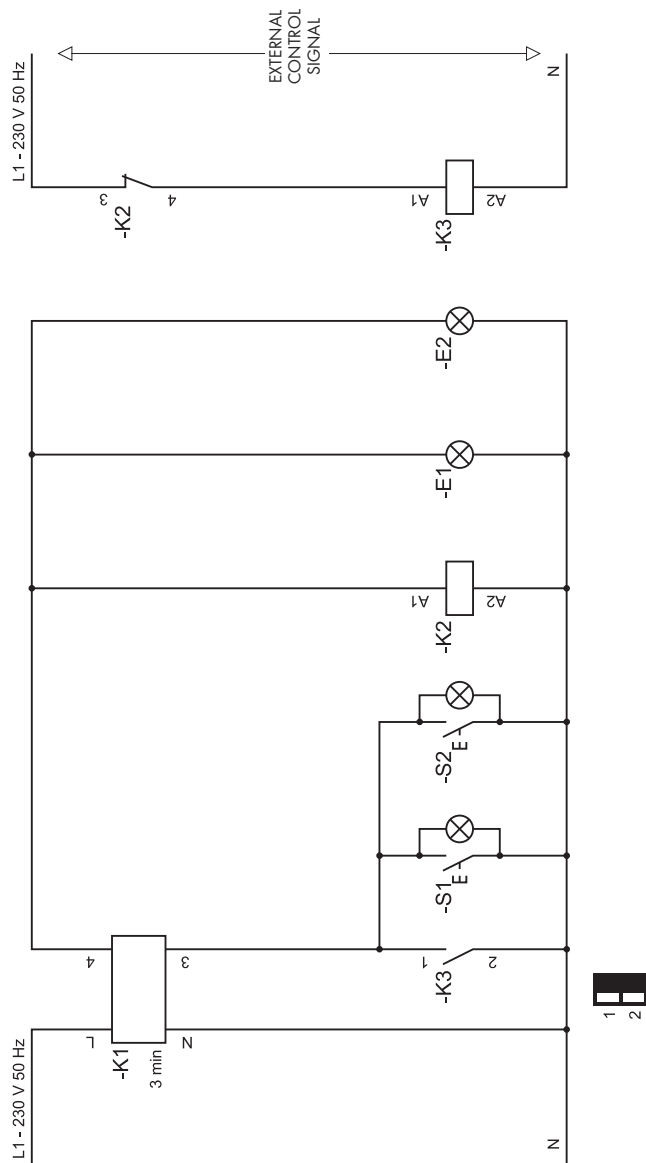
**K3** = modular monostable relay  
type 22.21.8.230.4000

**E1-E2** = light fittings

**S1-S2** = illuminated push-buttons, normally open



## WIRING SCHEMATIC



## LEGEND

**K1** = 14.01.8.230.0000  
**K2** = 22.23.8.230.4000  
**K3** = 22.21.8.230.4000

**Drawing: E10**  
**Project: Control of lighting system with manual or automatic switch-off**

## Control of lighting system with automatic switch-off.

### Examples of applications:

- staircase lighting
- lighting of areas of common usage/public buildings

### Description:

Lights E1.1...2 and E2.1...2 are controlled by two separate circuits via the contacts of miniature power relays K2 and K3.

By pressing illuminated push-buttons S1 or S2, the output contact of staircase timer (K1) closes for the chosen time (0.5...20 min). This in turn activates K2 and K3 - provided S3 and S4 are in the automatic position.

It is possible to extend the time that the lights are on, by pressing one of the push buttons again before the expiry of the K1 set time.

Whenever there is the need to permanently activate one or more lighting circuits, it is possible to select the manual position for S3 and S4.

At dusk the light dependent relay K4 activates relay K5 which in turn will activate the lighting system – subject to there being an external control signal present. Relay K5 provides electric isolation between the push-button circuit and the low voltage external control signal. This option usefully provides for the possibility, at night, to automatically control the lighting in response to the operation of electric garage doors or to the trigger from a PIR detector.

### List of components:



**K1** = staircase timer (set to BE function)  
type 14.01.8.230.0000



**K2-K3** = miniature power relay  
type 62.32.8.230.0040 +  
socket type 92.03 +  
LED module/varistor  
type 99.02.0.230.98



**K4** = modular light dependent relay  
type 11.01.8.230.0000

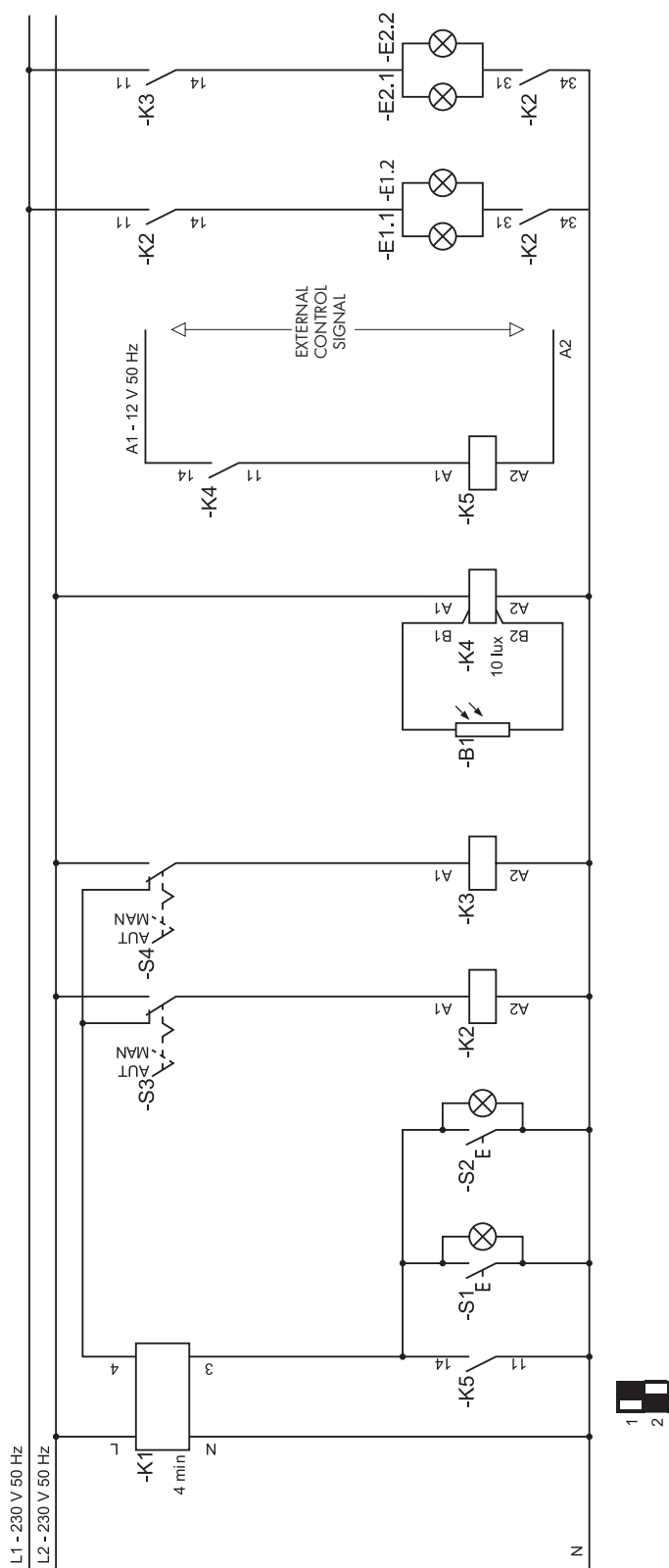


**K5** = modular interface with relay  
type 48.31.8.012.0060

**E1.1-E1.2-E1.3-E2.1-E2.2-E2.3** = light fittings  
**S1-S2** = illuminated push-buttons - normally open  
**S3-S4** = position selector switches



## WIRING SCHEMATIC



## Control of lighting system with automatic switch-on and switch-off.

### Examples of applications:

- lighting of outside areas
- small public lighting system

### Description:

At dusk the light dependent relay K1 automatically activates power relays K2, K3 and K4, provided that selector switches S1, S2 and S3 are in the automatic position. The miniature power relays supply three different lighting groups (E1.1...3.2); these groups being equally distributed over the three supply phases. At dawn, relay K1 switches off the lighting system. Whenever there is the need to permanently activate one or more lighting circuits, it is possible to select the manual position for S1...S3.

### List of components:



**K1** = modular light dependent relay  
type 11.01.8.230.0000

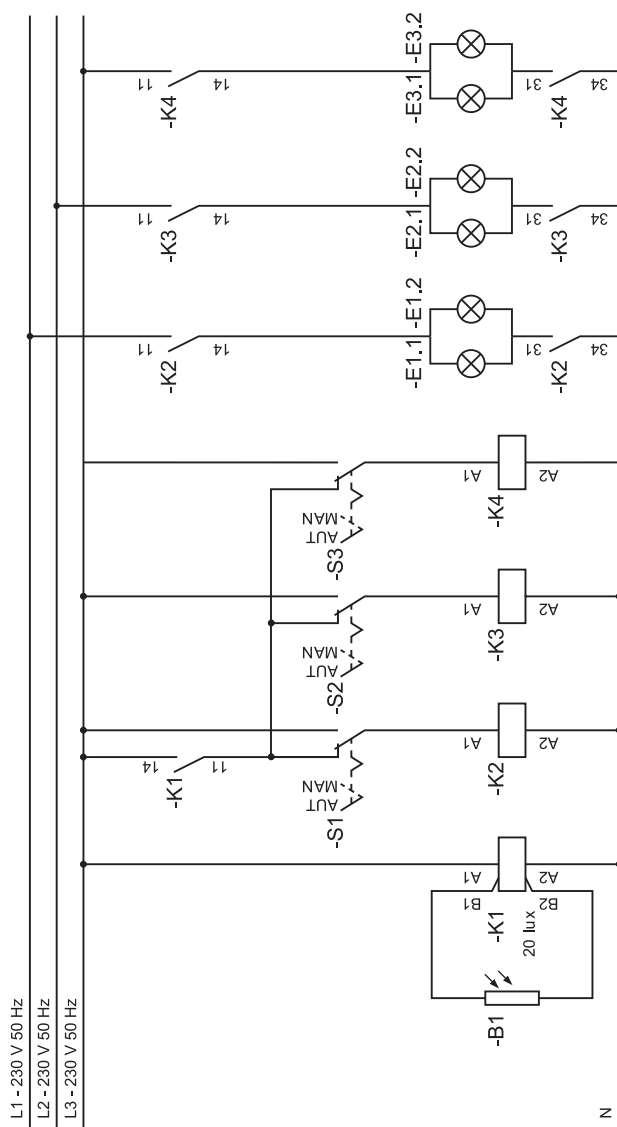
**K2-K3-K4** = miniature power  
type 62.32.8.230.0040 +  
socket 92.03 +  
LED module/varistor  
type 99.02.0.230.98

**E1.1-E1.2-E2.1-E2.2-E3.1-E3.2** = light fittings

**S1-S2-S3** = 2 position selector switches



## WIRING SCHEMATIC



## LEGEND

**K1** = 11.01.8.230.0000  
**K2** = 62.32.8.230.0040 + 92.03 + 99.02.0.230.98  
**K3** = 62.32.8.230.0040 + 92.03 + 99.02.0.230.98  
**K4** = 62.32.8.230.0040 + 92.03 + 99.02.0.230.98

**Drawing: E12**  
**Project: Control of lighting system with automatic switch-on and switch-off**

## Control of lighting system with centralized switch-off.

### Examples of applications:

- lighting in stores
- lighting in private houses

### Description:

Light fittings E1, E2, E3 and E4 are supplied through the contacts of step relays K2, K3, K4 and K5. By pressing buttons S2, S3, S4 and S5 it is possible to control switch-on and switch-off of the four lighting circuits in an independent way.

Push-button S1 activates relay K1; which in turn will energise the coil of all step relays which are currently active. This therefore achieves a centralized and simultaneous switch-off of all light fittings that were on.

### List of components:



**K1** = timed interface relay  
type 58.34.8.230.0060



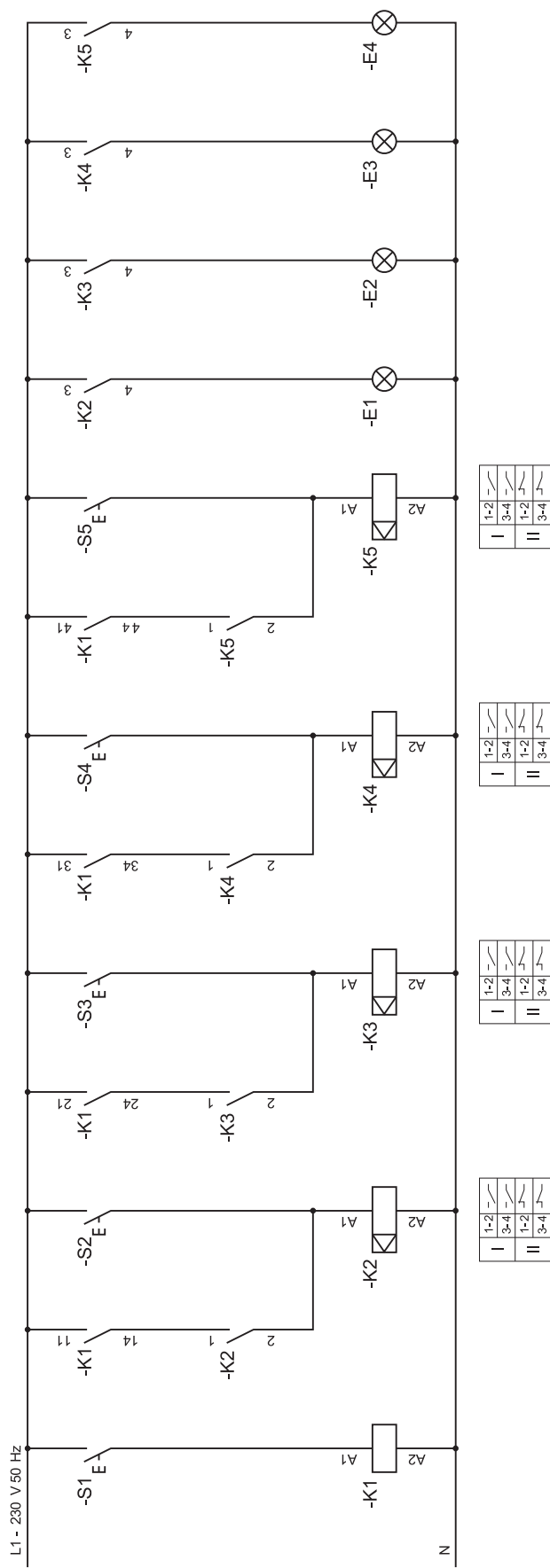
**K2-K3-K4-K5** = step relay  
type 20.22.8.230.4000

**E1-E2-E3-E4** = light fittings

**S1-S2-S3-S4-S5** = push-buttons, normally open



WIRING SCHEMATIC



LEGEND

- K1 = 58.34.8.230.0060
- K2 = 20.22.8.230.4000
- K3 = 20.22.8.230.4000
- K4 = 20.22.8.230.4000
- K5 = 20.22.8.230.4000

## Control of lights with automatic switch-on and switch-off.

### Examples of applications:

- control of advertising signs
- control of illuminated road signs

### Description:

Light dependent relay K1 switches on light fitting E1 at dusk and switches it off at dawn. To avoid oscillations and malfunctioning when the photoelectric sensor of K1 is being illuminated from an artificial source, such as car headlamps, the switch-off of the relay is delayed for a few seconds. The simplicity of the wiring is worth considering.

### List of components:

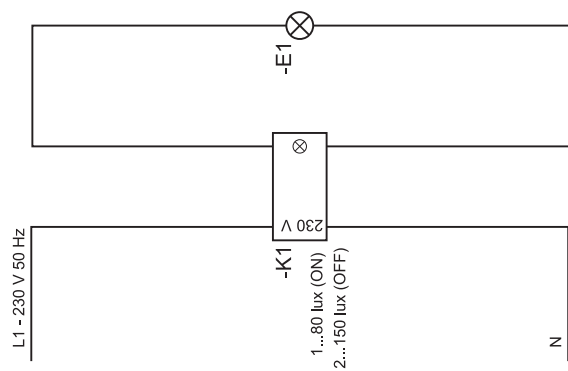


**K1** = light dependent relay  
type 10.41.8.230.0000

**E1** = light fitting



**WIRING SCHEMATIC**



**LEGEND**

**Drawing: E14**  
**Project: Control of lights with automatic switch-on and switch-off**

**K1 = 10.41.8.230.0000**

## Control of lighting system using a low voltage (SELV) push-button.

### Examples of applications:

- control for lighting system in humid or wet areas
- control for lighting system in locations with large areas of accessible metal

### Description:

By pressing button S1 it is possible to switch-on and switch-off the light fitting E1 through the electronic step relay K1.

Unlike electromechanical step relays, if the supply voltage is lost then the contact of relay K1 opens. With the supply restored, a further press of the S1 push-button is required to re-operate the light.

This step relay is provided with a separated extra low voltage (SELV) control circuit that is electrically isolated from the supply circuit and from the power contact (Ui 4000 V). This is thanks to a high security transformer inside the relay, built in accordance with norm EN 61558. This feature makes this product useful for the installation of control push-buttons in areas or rooms exposed to a high risk of electrical shock - in accordance with limitations of norm EN 60364 (CEI 64-8).

### List of components:



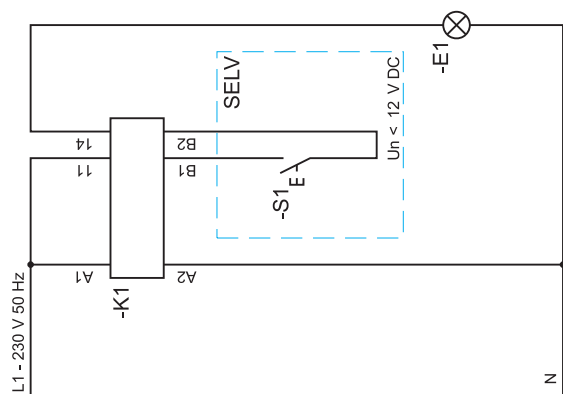
**K1** = electronic step relay  
type 13.01.8.230.0000

**E1** = light fitting

**S1** = push-button, normally open



## WIRING SCHEMATIC



## LEGEND

Drawing: E15  
Project: Control of lighting system using a low voltage (SELV) push-button

K1 = 13.01.8.230.0000

## Sequential control of lighting circuits.

### Examples of applications:

- lighting systems in private houses
- lighting systems in commercial buildings

### Description:

Step relay K1 is controlled by push-button S1 or S2. With each successive press of S1 (or S2) the two output contacts of K1 change state such that the Lighting follows the sequence:

- E1 on
- E1 & E2 on
- E1 & E2 off

The switching sequence will repeat cyclically with further presses of the push-buttons.

### List of components:



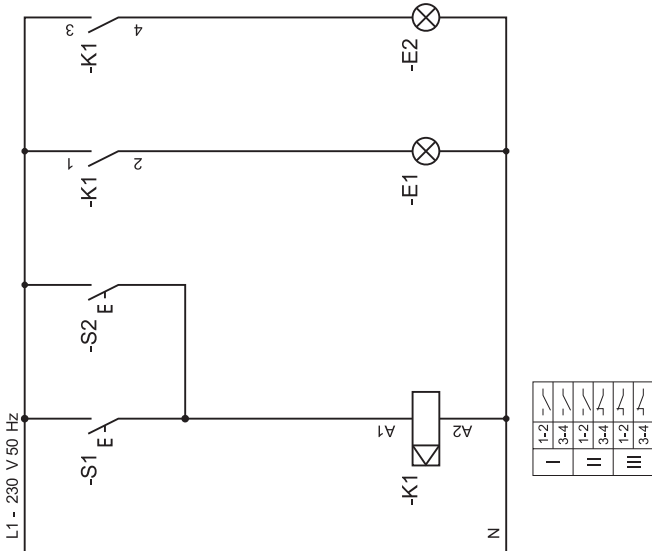
K1 = modular step relay  
type 20.26.8.230.4000

E1-E2 = light fitting

S1-S2 = push-buttons, normally open



WIRING SCHEMATIC



LEGEND

Drawing: E16  
Project: Sequential control of lighting circuits

K1 = 20.26.8.230.4000

## Control of motorized roller shutter by double function push-buttons.

### Examples of applications:

- private homes
- shops

### Description:

With a short press of push-button S1, auxiliary relay K1 energises which in turn energises power relay K3. K3 self maintains its energisation and supplies power to motor M1 allowing the roller shutter to completely close.

Similarly, a short press of push-button S2, will result in the roller shutter opening completely (through relays K2 and K4).

If either push-button is pressed for a time longer than that selected on timer K5, the movement of the roller shutter will stop at the instant that the push-button is released.

While the roller shutter is working it is possible to change the working direction of motor M1 by pressing the button of the opposite direction.

### List of components:



**K1-K2** = timed interface relay  
type 48.52.8.230.0060



**K3-K4** = miniature power relay  
type 56.34.8.230.0000 +  
socket 96.04 +  
LED module/varistor  
type 99.02.0.230.98



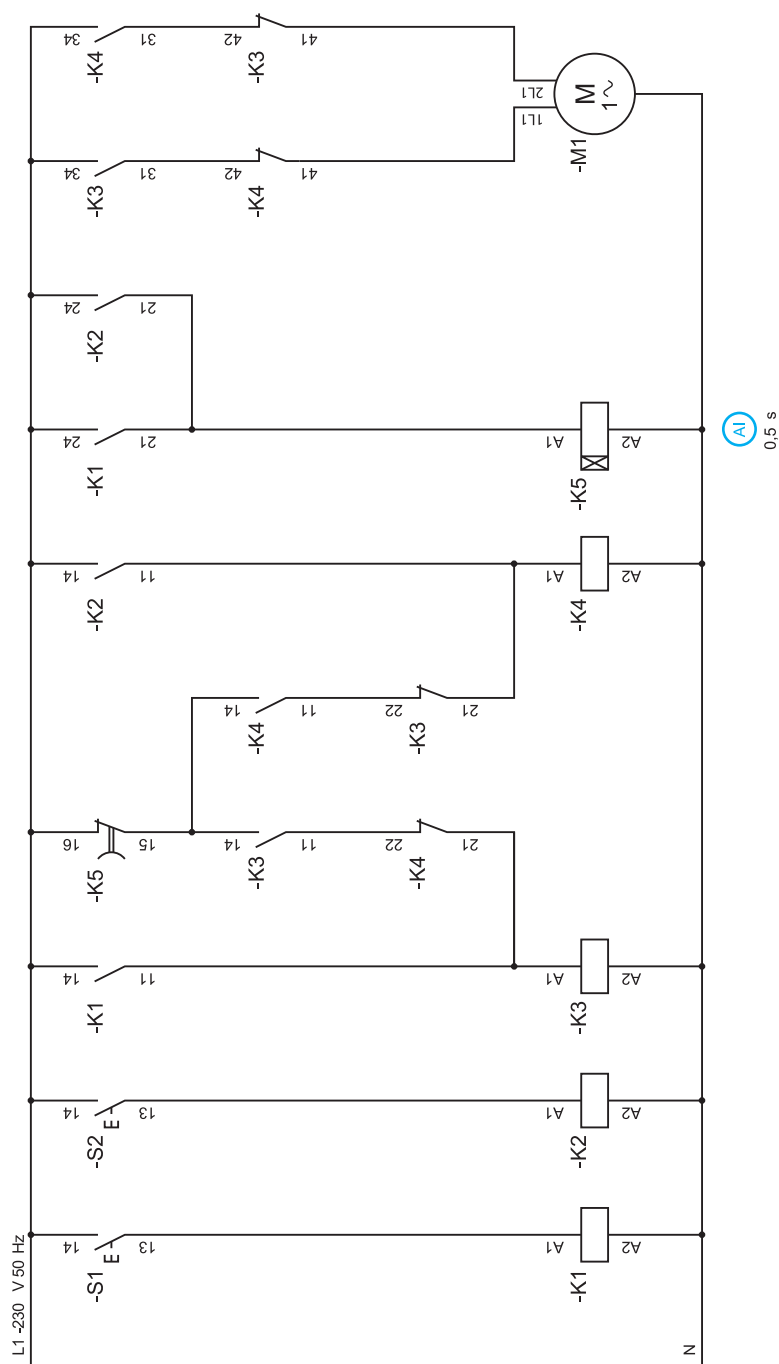
**K5** = timer  
type 80.01.0.240.0000

**M1** = single phase motor for roller shutter  
with integral limit switches

**S1-S2** = push-buttons, normally open



## WIRING SCHEMATIC



## LEGEND

**K1** = 48.52.8.230.0060  
**K2** = 48.52.8.230.0060  
**K3** = 56.34.8.230.0000 + 96.04 + 99.02.0.230.98  
**K4** = 56.34.8.230.0000 + 96.04 + 99.02.0.230.98  
**K5** = 80.01.0.240.0000

**Drawing:** E17  
**Project:** Control of motorized roller shutter  
 by double-function push-buttons

## Control of signal lamp - timed and blinking.

### Examples of applications:

- call on the entrance phone for deaf persons
- call for door opener in quiet areas  
(libraries, doctor's offices, radio and television studios)

### Description:

Momentarily pressing button S1 will activate timer K1 in the "On Pulse" mode (DI). A normally open contact of K1 supplies timer K3 set on blinking function (SW). The normally open contact of K3 powers the signal lamp E1 which will continue to blink for the time selected for K1. Pressing button S2 at any time will interrupt the signal lamp.

### List of components:



**K1-K3** = Plug-in timer  
type 85.02.8.240.0000

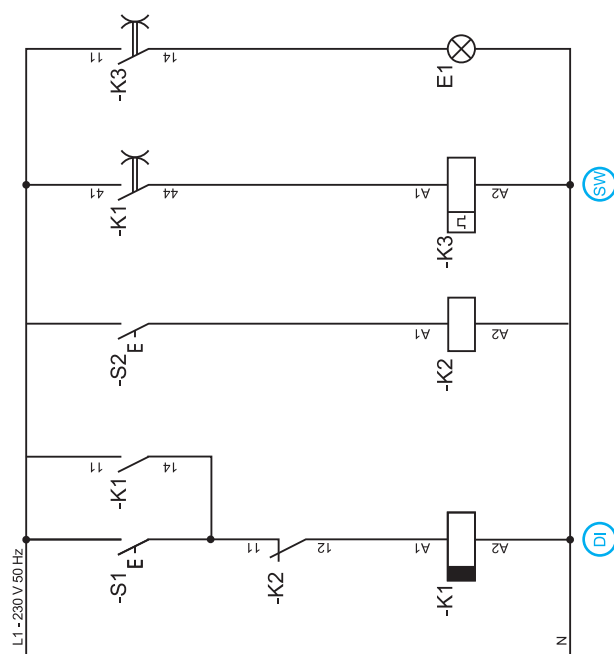
**K2** = timed interface relay  
type 48.31.8.230.000.0060

**E1** = signal lamp

**S1-S2** = push-button, normally open



WIRING SCHEMATIC



LEGEND

K1 = 85.02.8.240.0000  
K2 = 48.31.8.230.0060  
K3 = 85.02.8.240.0000

Drawing: E18  
Project: Control of signal lamp - timed and blinking

## Alternating the duty of two 3-phase motors.

### Examples of applications:

- pump installations
- air compressors

### Description:

As soon as the 24v control circuit powers up, timer K1 (set for DI function) energises and in turn applies a short pulse to the coil of step relay K2 (equal to the time setting for K1). This changes the state of step relay K2 contacts, so that the motor now ready for duty is the one that was previously off duty.

Timer K5 is set for "On Delay" (AI) and inhibits either motor being started during a short time period following powering up the control circuit (K5 time must be set slightly greater than K1).

After the expiry of K5 set time, the motors are turned on and off by miniature power relays K3 and K4, which are under the On/Off control of S1, with the duty being determined by the state of the contacts of K2. Every time S1 opens, the supply to K3 and K4 is cut and the supply to the motor on duty is removed. At the same time, power is re-applied to timer K1 which repeats the timing cycle that pulses the step relay K2, which in turn changes the motor duty ready for the next closure of S1.

### List of components:



**K1-K5** = relay type 40.31.8.024.0000 +  
socket type 95.03 +  
timer module  
type 86.30.0.024.0000



**K2** = step relay  
type 20.23.8.024.4000

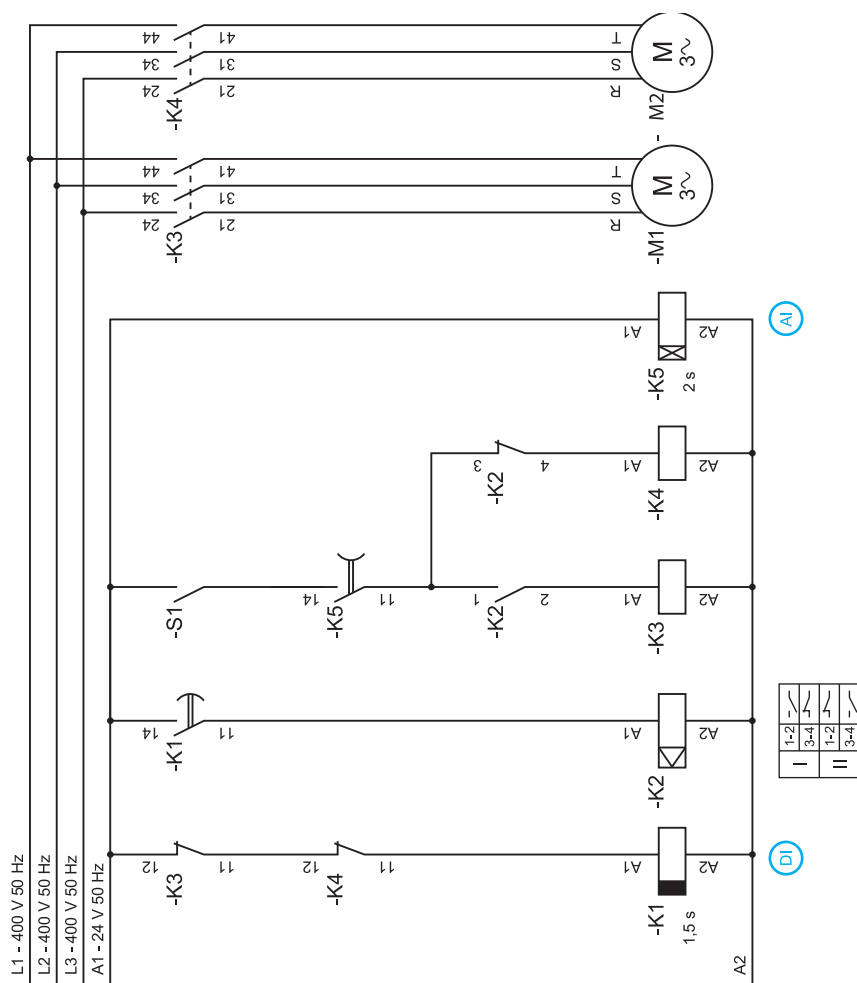


**K3-K4** = miniature power relay  
type 56.34.8.024.0000 +  
socket type 96.04 +  
LED module/varistor  
type 99.02.0.024.98

**M1-M2** = three-phase motors



## WIRING SCHEMATIC



## LEGEND

**K1** = 40.31.8.024.0000 + 95.03 + 86.30.0.024.0000  
**K2** = 20.23.8.024.4000  
**K3** = 56.34.8.024.0000 + 94.04 + 99.02.0.024.98  
**K4** = 56.34.8.024.0000 + 94.04 + 99.02.0.024.98  
**K5** = 40.31.8.024.0000 + 95.03 + 86.30.0.024.0000

Drawing: **E19**  
 Project: **Alternating the duty of two 3-phase motors**

## Sequential control A-B-C with one single push-button.

### Examples of applications:

- lighting systems
- control of a three-phase motor

### Description:

Every time when pushing button S1 relay K1 is activated. The first time S1 is pressed the contact K1, which is normally open, supplies the coil of the step relay K2 and operates the closing of both contacts of this relay. The contacts of K2 activate simultaneously relays K3 and K4, which switch-on light E1. The second time S1 is pressed the first contact of K2 opens and de-activates relay K4 and this switches-off light E1 and switches-on light E2.

The third time S1 is pressed the status of the contacts K1 changes, light E2 switches-off and light E3 switches-on. The fourth time S1 is pressed all lights are switched-off. Note: the lights switch-on at the instant push-button S1 is released.

### List of components:



**K1-K3-K4** = timed interface relay  
type 58.34.8.230.0060



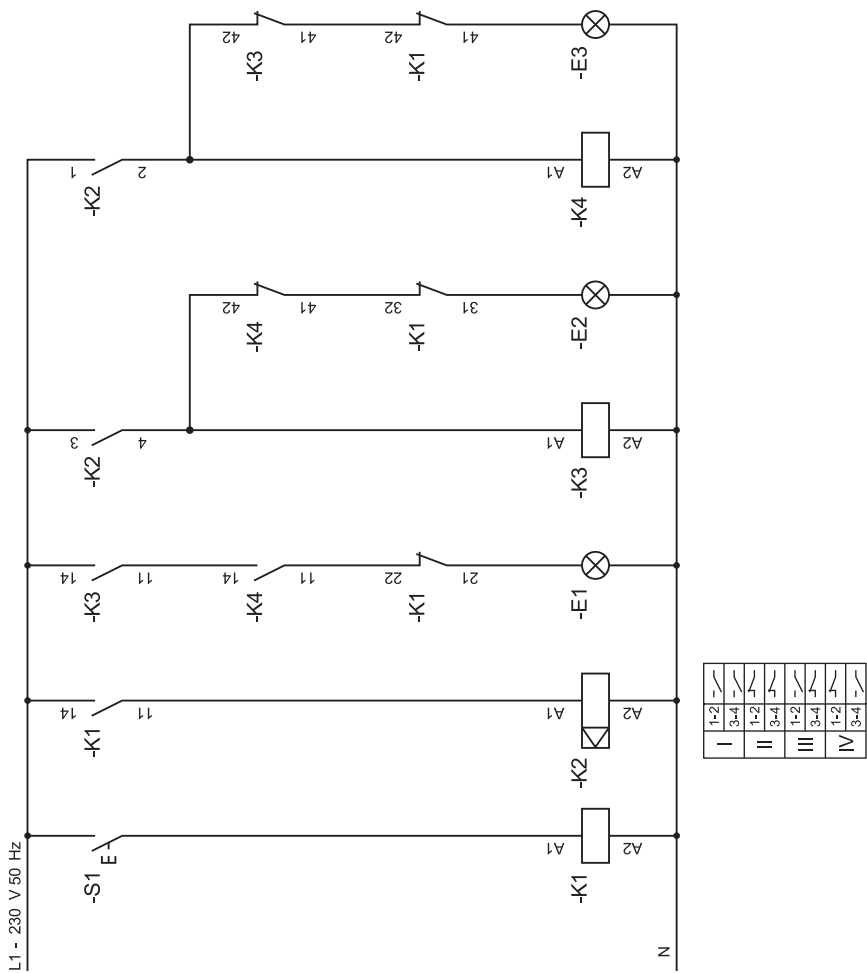
**K2** = step relay  
type 20.24.8.230.4000

**E1-E2-E3** = light fittings

**S1** = push-button, normally open



WIRING SCHEMATIC



LEGEND

- K1 = 58.34.8.230.0060
- K2 = 20.24.8.230.4000
- K3 = 58.32.8.230.0060
- K4 = 58.32.8.230.0060

Drawing: **E20**  
Project: Sequential control A-B-C with one single push-button

## Regulation to maintain steady lighting level.

### Examples of applications:

- energy saving lighting systems

### Description:

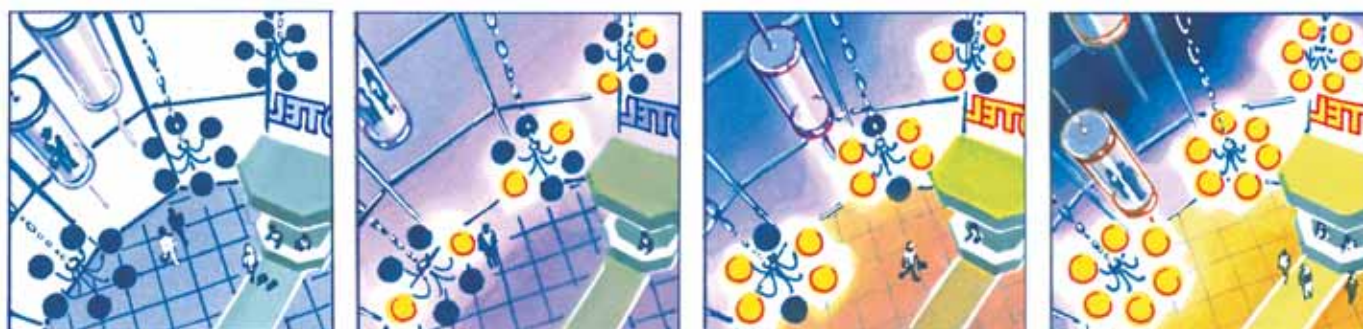
This circuit aims to maintain a steady light level in a room that receives a varying level of natural daylight. Due to the different lux settings of light dependent relays K1, K2 and K3, the artificial lighting E1, E2 and E3 is introduced progressively, as the natural light decreases. Note: the light sensitive photocells B1, B2 and B3 must be located such that they register the natural daylight. Set the lux switching thresholds for the light dependent relays in the order of decreasing lux, starting with K1.

### List of components:

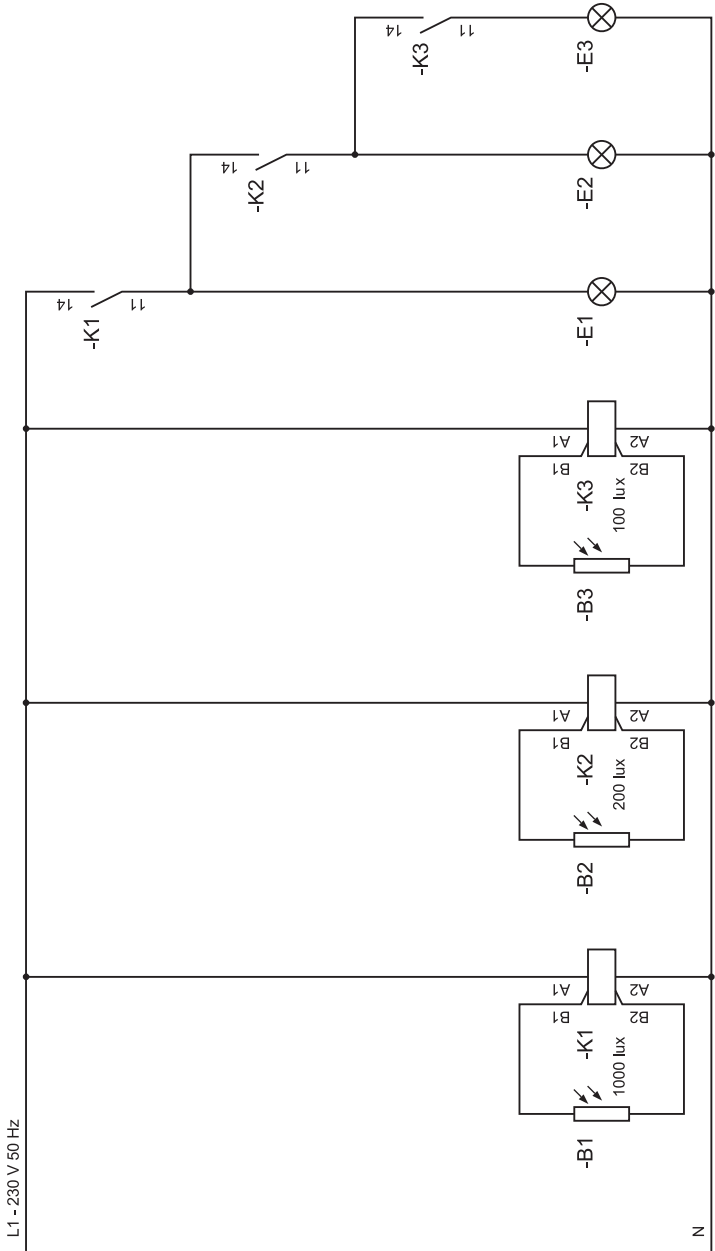


**K1-K2-K3** = light dependent relay  
type 11.01.8.230.0000

**E1-E2-E3** = light fittings



WIRING SCHEMATIC



LEGEND

K1 = 11.01.8.230.0000  
K2 = 11.01.8.230.0000  
K3 = 11.01.8.230.0000

Drawing: E21  
Project: Regulation to maintain steady lighting level

## Controlling the play of a water fountain, with night illumination.

### Examples of applications:

- fountain

#### Description:

When contact S1 closes it energises the timer K1 set for cyclic function (SW). This applies power to the light dependent relay K3, and energises the electric valve Y3 such that the water jets associated with Y3 are now permanently playing.

During it's "on" time, K1 applies power to timer K2 which is also set for cyclic function, but for a time approximately 25% of that for K1.

The cycling CO contact of K2 ensures that, additional to Y3, the water jets associated with valves Y1 and Y2 play cyclically during the "on" time of K1.

At dusk the light dependent relay K3 causes the introduction of the illumination of E1 and E2.

The system voltage is 24v AC because of the humidity and the location of the electrical equipment.

#### List of elements:



**K1-K2** = modular timer  
type 80.01.0.240.0000



**K3** = modular light dependent relay  
type 11.71.0.024.0000

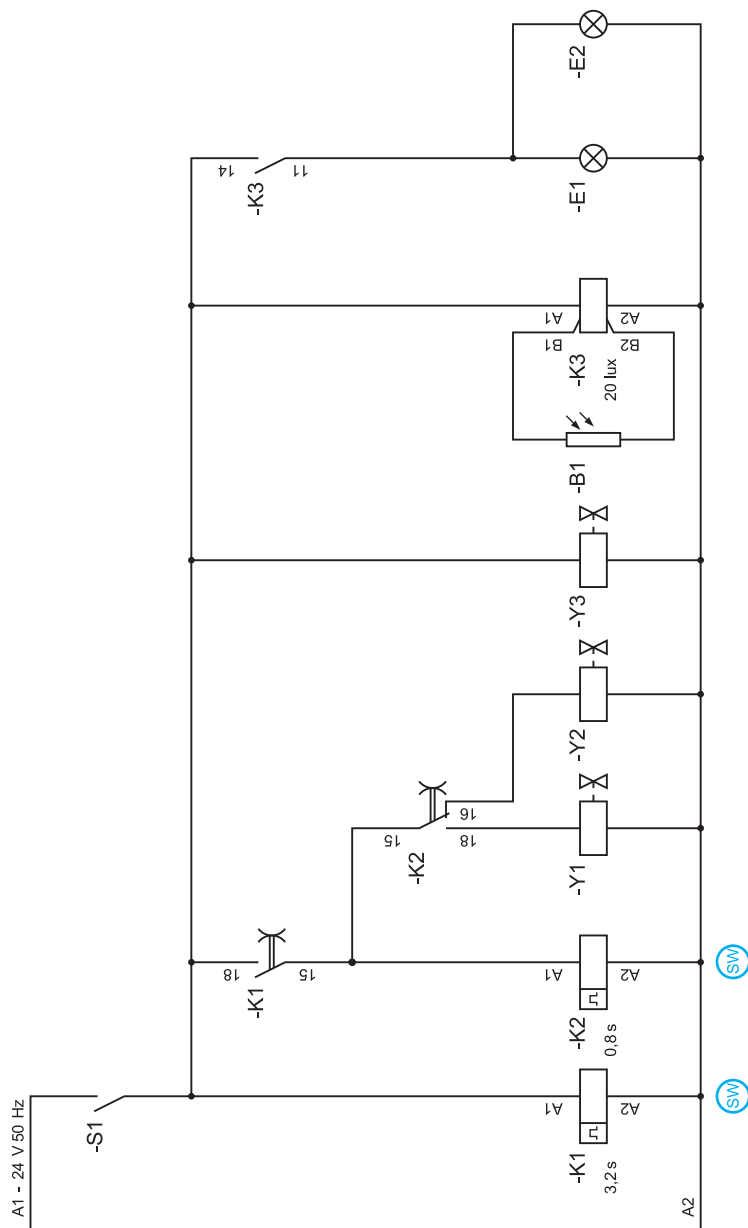
**E1-E2** = light fittings

**S1** = switch

**Y1-Y2-Y3** = electric valves



WIRING SCHEMATIC



LEGEND

K1 = 80.01.0.240.0000  
 K2 = 80.01.0.240.0000  
 K3 = 11.71.0.024.0000

Drawing: E22  
 Project: Controlling the play of a water fountain, with night illumination

## Control of a multizone irrigation system.

### Examples of applications:

- gardens
- greenhouse cultivation

### Description:

Contact of time switch P1 applies power to timer K1, which is set to "On delay" function (AI). Through the normally closed contact of K1, power is applied to electric valve Y1. When the time set for K1 has expired, valve Y1 is de-activated, and timer K2 introduced and electric valve Y2 activated. The sequence continues until the electric valve Y4 has been activated and de-activated according to the time set by K4.

Note: the circuit is modular and therefore expandable. But, always ensure that the time switch contact P1 is closed for a time equal or greater than the sum of the times set on the timers.

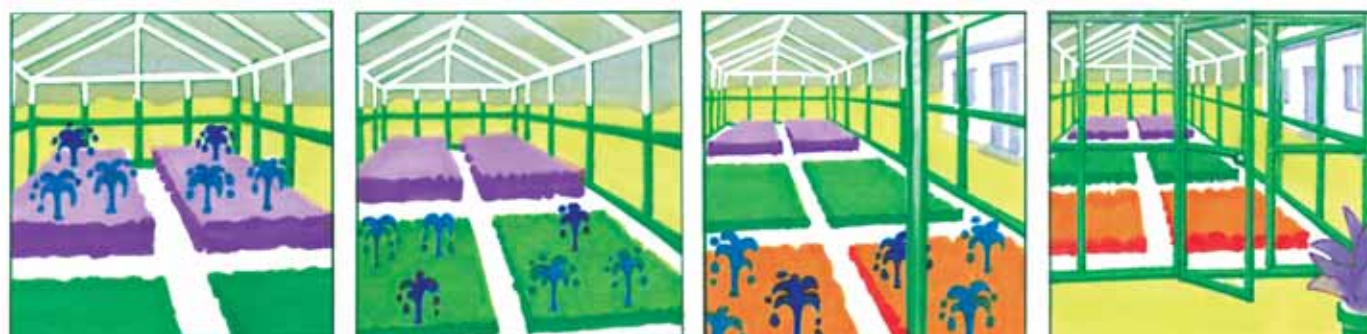
### List of components:



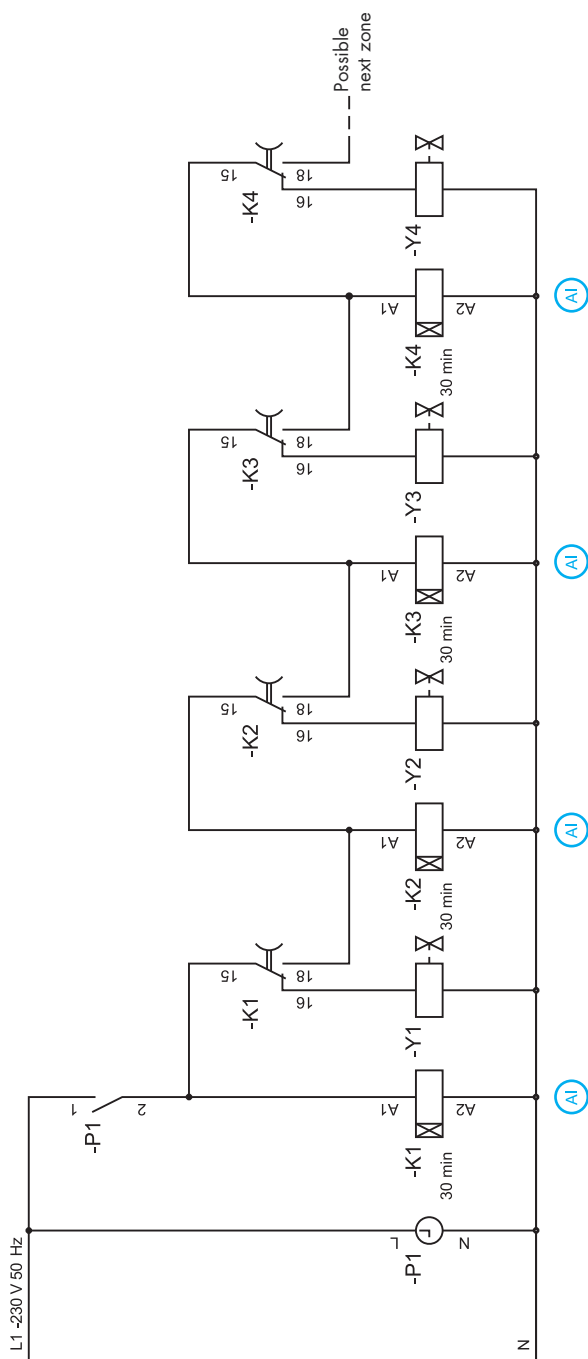
**K1-K2-K3-K4** = modular timers  
type 80.11.0.240.0000



**P1** = time switch type 12.21.8.230.0000  
**Y1-Y2-Y3-Y4** = electric valve



WIRING SCHEMATIC



LEGEND

P1 = 12.21.8.230.0000  
 K1 = 80.11.0.240.0000  
 K2 = 80.11.0.240.0000  
 K3 = 80.11.0.240.0000  
 K4 = 80.11.0.240.0000

Drawing: E23  
 Project: Control of a multizone irrigation system

## Time switch and light dependent relay control.

### Examples of applications:

- automatic lighting installations

### Description:

At dusk the output contact of light dependent relay K1 closes providing power to light fittings E1 and E2. At the end of the time set on the time switch P1, E2 switches-off. E1 will switch-off at dawn.

Note: Set the On time for P1 such that it will occur in advance of the time that light dependent relay K1 senses dusk.

### List of components:



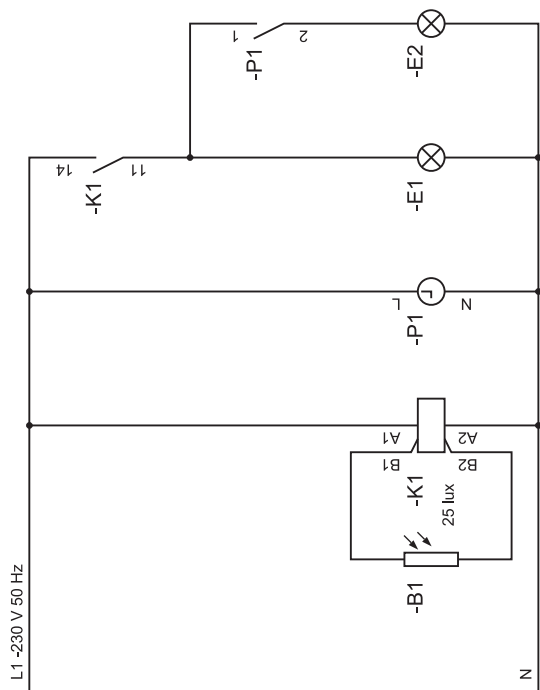
**K1** = modular light depending relay  
type 11.01.8.230.0000



**P1** = time switch type 12.21.8.230.0000  
**E1-E2** = light fittings



WIRING SCHEMATIC



LEGEND

K1 = 11.01.8.230.0000  
P1 = 12.21.8.230.0000

Drawing: E24  
Project: Time switch and light dependent relay control

## Central heating management.

### Examples of applications:

- home heating systems

#### Description:

The normally open contact of time switch P1 activates miniature power relay K1 which controls the heating system pump M1. The equivalent contact of P2 activates miniature power relay K2 and its normally open contact will activate the domestic hot water system pump M2. Miniature power relay K3 controls the burner B1 provided that at least one pump, M1 or M2, is running and that the contact of the thermostat S1 is closed. The first normally open contact of K3 activates the timer K4 set to provide a delay function when switching off. The timer K4 ensures that the anti-condensation pump M4 operates at the same time as the burner B1, but will also continue to run for the time set on K4, after burner B1 stops. Note: S2 is an overriding thermal or safety control contact

#### List of components:



**K1-K2-K3** = miniature power relay  
type 62.32.8.230.0040 +  
socket type 92.03 +  
LED module/varistor  
type 99.02.0.230.98



**K4** = timer  
type 80.41.0.240.0000

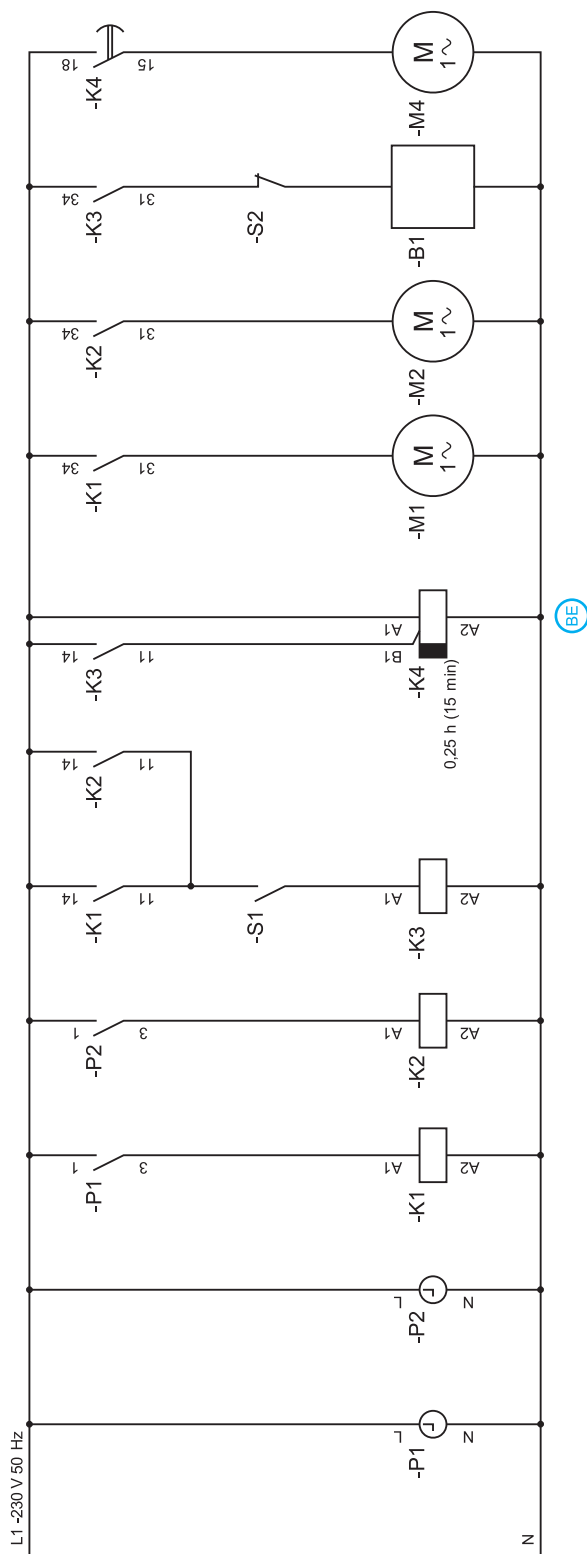


**P1-P2** = time switch  
type 12.01.8.230.0000

**M1** = heating system pump  
**M2** = sanitary system pump  
**B1** = burner  
**M4** = anti-condensation pump  
**S1** = room thermostat  
**S2** = safety thermostat



WIRING SCHEMATIC



LEGEND

**P1** = 12.01.8.230.0000  
**P2** = 12.01.8.230.0000  
**K1** = 62.32.8.230.0040 + 92.03 + 99.02.0.230.98  
**K2** = 62.32.8.230.0040 + 92.03 + 99.02.0.230.98  
**K3** = 62.32.8.230.0040 + 92.03 + 99.02.0.230.98  
**K4** = 80.41.0.240.0000

Drawing: **E25**  
 Project: **Central heating management**

## Independent management of several lights by push-button or remote control.

### Examples of applications:

#### - home lighting system

### Description:

This example shows 3 lighting groups or areas, each comprising 2 light fittings.

It is required that each group of 2 light fittings can be controlled such that all 4 permutations for the 2 lights can be achieved.

Taking the first group comprising lights E1 and E2; these are to be controlled by stepping relay K1, which will sequentially, provide for:

- E1 & E2 off
- E1 on
- E2 on
- E1 & E2 on

Similar provision is made for the other two groups or areas, using stepping relays K2 and K3.

The 3 stepping relays can be individually controlled by respective push-buttons S1, S2 and S3, or by output contacts of a remote control, CR1, CR2 and CR3.

### List of components:

**K1-K2-K3** = step relay  
type 27.05.8.230.0000



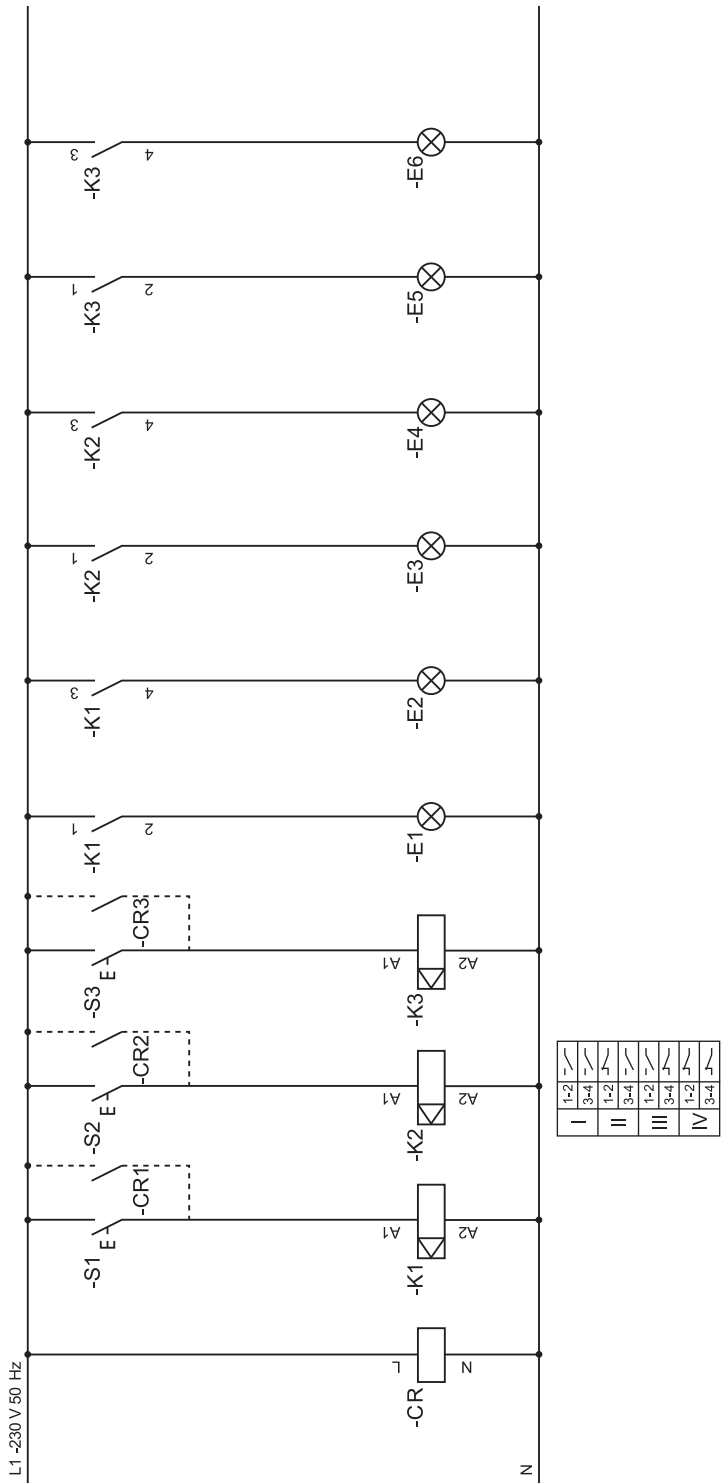
**E1-E2-E3-E4-E5-E6** = light fittings

**CR** = remote control output contacts

**S1-S2-S3** = push-buttons



WIRING SCHEMATIC



LEGEND

K1 = 27.05.8.230.0000  
K2 = 27.05.8.230.0000  
K3 = 27.05.8.230.0000

Drawing: E26  
Project: Independent management of several lights  
by push-button or remote control

## Control of lighting by time switch and light dependent relay.

### Examples of applications:

- energy saving lighting system

### Description:

The light fitting E1 switches on under the control of a contact of time switch P1. At dusk the light dependent relay K1 switches on lighting fitting E2.

At the end of the time set by time switch P1, both lighting fittings E1 and E2 will switch off.

### List of components:



**K1** = modular light dependent relay  
type 11.01.8.230.0000

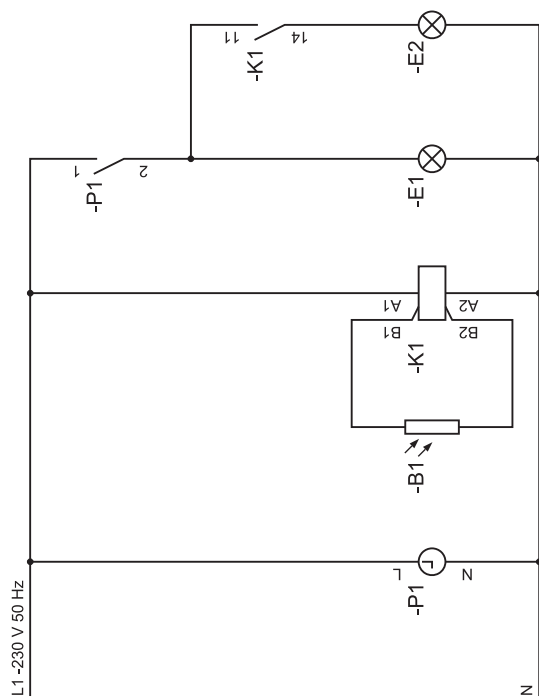


**P1** = digital electronic weekly time switch  
type 12.21.8.230.0000

**E1-E2** = light fitting



WIRING SCHEMATIC



LEGEND

P1 = 12.21.8.230.0000  
K1 = 11.01.8.230.0000

Drawing: E27  
Project: Control of lighting by time switch and light dependent relay

## Control of lighting using a PIR movement detector.

### Examples of applications:

- garage, junctions, entrances

### Description:

When movement detector SP1 detects movement in a room, it will close it's output contact and activate light E1.

A light dependent sensor in the movement detector can be adjusted to detect movement only when the ambient light intensity is below a specific level. The light will be switched on only for the duration of the time set on the movement detector – after which it resets ready for the next detection of movement.

### List of components:

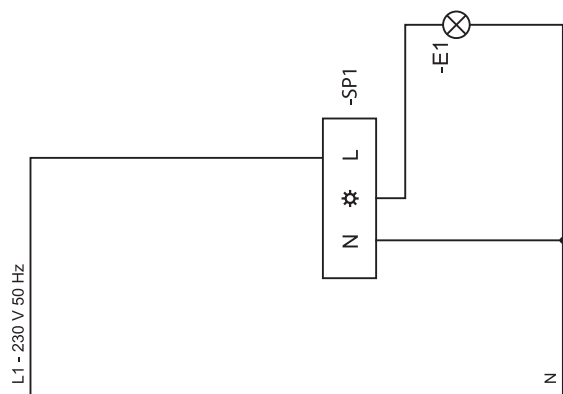


**SP1** = movement detector  
type 18.01.8.230.0000

**E1** = light



**WIRING SCHEMATIC**



**LEGEND**

**Drawing: E28**  
**Project: Control of lighting using a PIR movement detector**

**SP1 = 18.01.8.230.0000**

## Control of light dimmer by push-button or remote control.

### Examples of applications:

- lighting in homes

### Description:

A Short press of the remote control CR, or switch S1, will alternately switch the Dimmer D1 On or Off – changing the state of the light E1.

Longer operation of CR or S1 will ensure that the light level is progressively raised or lowered through a maximum of 10 steps.

It is important to note that lights must conform to the technical requirements for the dimmer, as detailed in the Instruction manual for the dimmer.

### List of components:



**D1** = regulatable step relay – dimmer  
type 15.51.8.230.0400

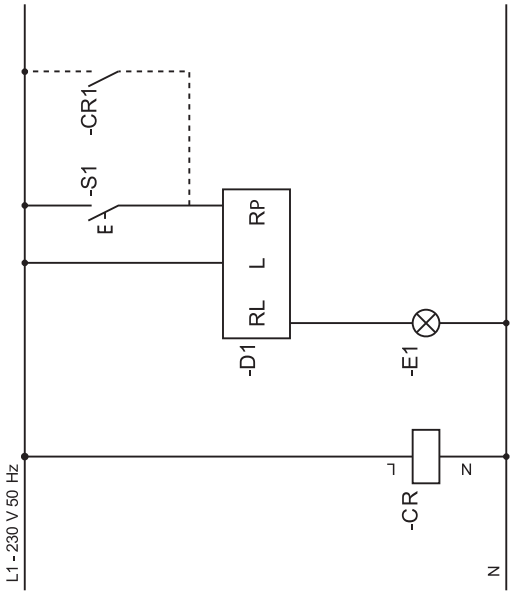
**CR** = remote control contact

**E1** = light

**S1** = push-button



**WIRING SCHEMATIC**



**LEGEND**

**Drawing: E29**  
**Project: Control of the light dimmer by button or remote control**

**D1 = 15.51.8.230.0400**

## Control of mechanized roller shutter by push-button or remote control.

### Examples of applications:

- homes
- shops

### Description:

Momentarily pressing the remote control causes contact CR1 to momentarily close - pulsing the coil of step relay K1. The contacts of K1 control the power to motor M1. Successive pulses to K1 will result in the contacts of K1 changing in a sequence that will drive the roller shutter sequentially; Up – Stop – Down – Stop – Up and so forth.

The motor/shutter mechanism should be fitted with internal end of travel limit switches to disconnect the power to the motor when the fully Up or fully Down positions have been reached.

However, pressing the remote whilst the shutter is moving allows the shutter to be stopped at any desired intermediate position.

Push-button S1 may be used to perform the same function as the remote control.

### List of components:



**K1** = step relay  
type 26.08.8.230.0000

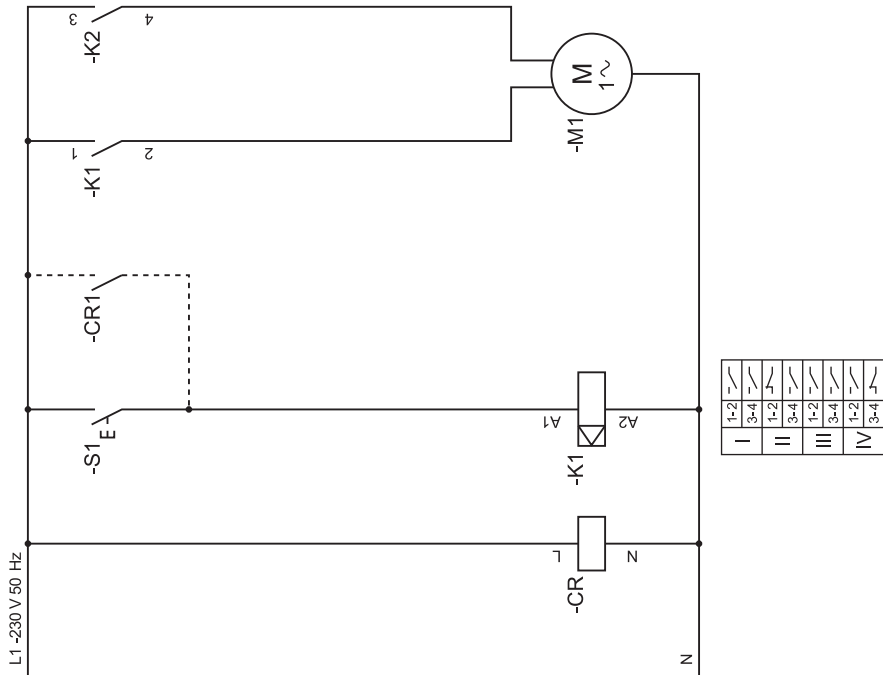
**CR** = remote control M1

**M1** = single-phase reversing motor

**S1** = push-button



WIRING SCHEMATIC



LEGEND

Drawing: **E30**  
Project: **Control of motorized roller shutter by button or remote control**

K1 = 26.08.8.230.0000

## Control of lighting using a movement detector and a timer.

### Examples of applications:

- lighting of premises, classrooms

### Description:

When detector (SP) senses movement within the room it triggers timer K1 (set for signal Off delay – BE) which switches on light E1.

The light will switch off only after; movement ceases to be detected, the time set for SP has elapsed, and the time set for K1 has elapsed.

If the detector re-registers movement before the total time delay has expired, then E1 will remain switched on and the time will be reset.

Note: the Off delay incorporated in the 18.01 can be set to 12 minutes maximum. Consequently for a total time of 12 minutes or less, it is possible to utilize just the 18.01 detector.

### List of components:

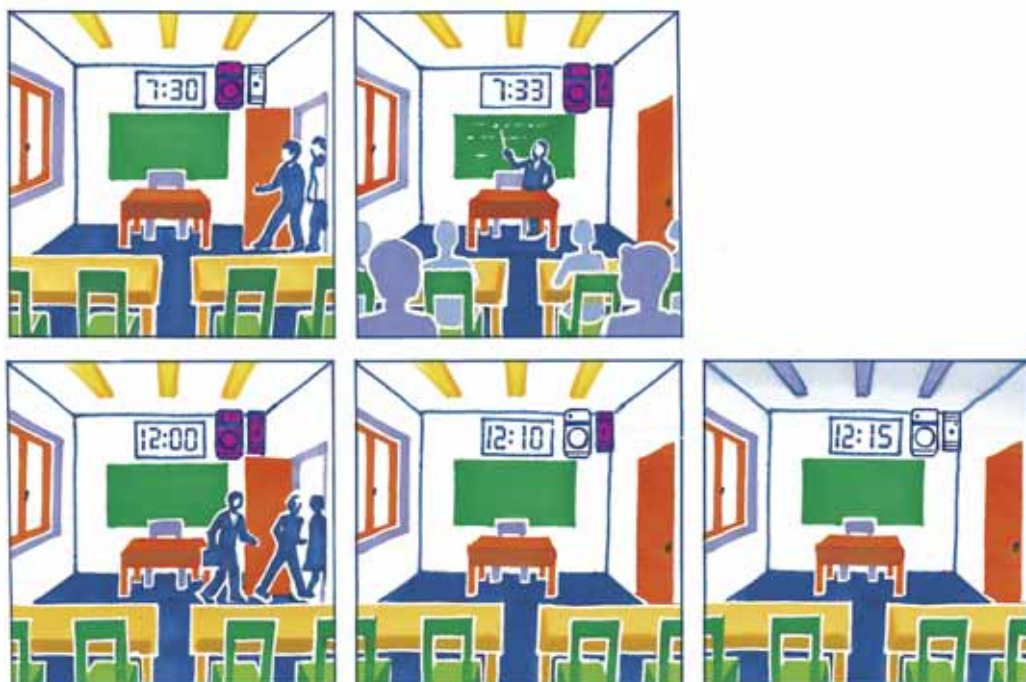


**K1** = modular timer  
type 80.41.0.240.0000

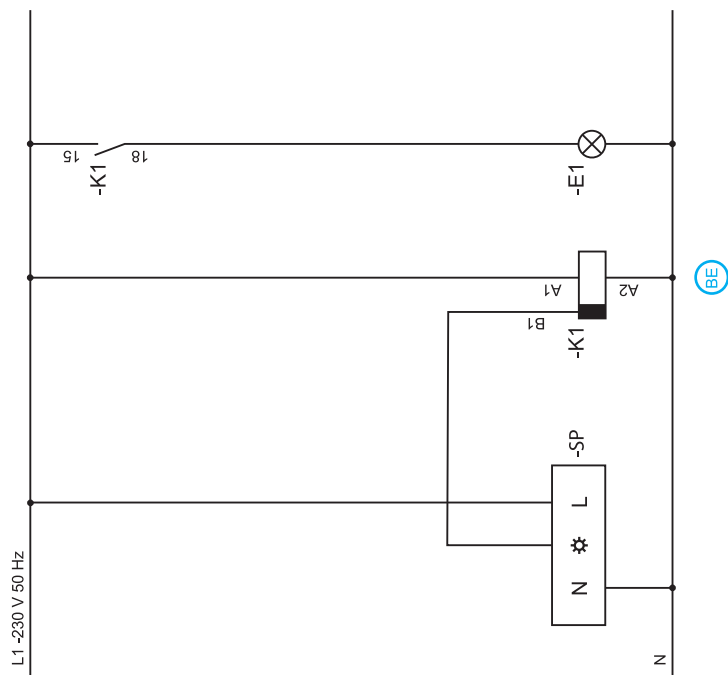


**SP** = movement detector  
type 18.01.8.230.0000

**E1** = light



## WIRING SCHEMATIC



## LEGEND

Drawing: **E31**  
 Project: **Control of lighting using a movement detector and a timer**

**SP** = 18.01.8.230.0000  
**K1** = 80.41.0.240.0000

## Control for manual or automatic operation of a hydraulic pump using a level control relay.

### Examples of applications:

- house heating systems, plumbing

### Description:

Pressing button S1, pulses relay coil K1, changing the status of its contacts; powering up level control relay K4 and time-switch P1. In this situation, automatic control of pumps C1 and C2 is achieved according to the level of the hydraulic liquid, and the time of day. By pressing S1 again, K1 changes the status of its contacts and switches on K3; a contact of which powers indicator light E1 which indicates "manual operation". The other contact of K1 enables a feed to the coil of K2, via push-button S2.

Consequently, successive pushes of S2 will alternately turn pumps C3 and C4 On or Off - via the contacts of K2.

### List of components:



**K1** = modular step relay  
type 20.23.8.230.0000



**K2** = modular step relay  
type 20.28.8.230.0000



**K3** = timed interface relay  
type 48.52.8.230.0060



**K4** = level control relay  
type 72.01.8.230.0000

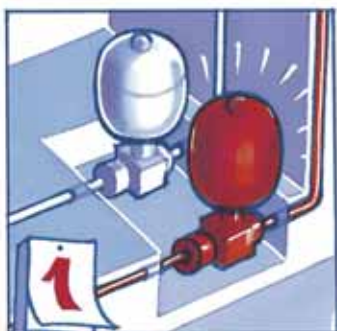
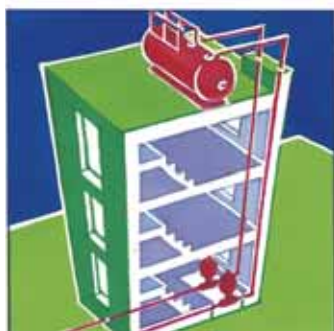


**P1** = timer switch  
type 12.22.8.230.0000

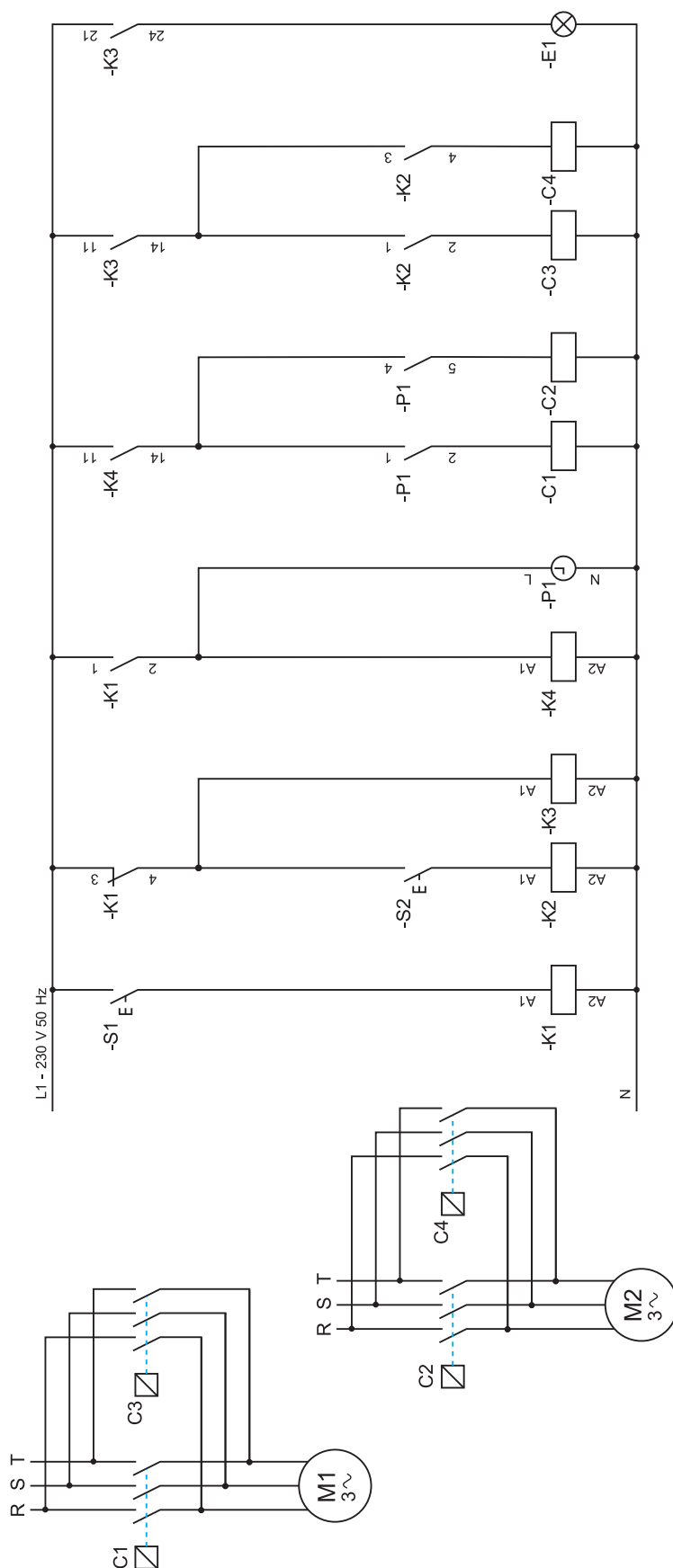
**E1** = illuminating part

**C1-C2-C3-C4** = contactors

**S1-S2** = push-buttons



## LEGEND



**K1 = 20.23.8.230.0000**  
**K2 = 20.28.8.230.0000**  
**K3 = 48.52.8.230.0060**  
**K4 = 72.01.8.230.0000**  
**P1 = 12.22.8.230.0000**

**Drawing:** E32  
**Project:** Control for manual or automatic operation of a hydraulic pump using a monitoring relay

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