



**ZSC1**

Electronic control unit for traffic lights

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**DESCRIPTION OF THE PRODUCT**

The electronic control unit is used to co-ordinate the two-light traffic lights in car parks, residences and wherever orderly access management is needed (for example, along a single lane with alternating traffic, or at a simple junction). This control unit has two possible operating logics:

1. time operating logic. The red and green times that will be connected to the control unit are set by adjusting the respective trimmers. This logic does not use photocells or other sensor devices since the system is controlled solely by the times set for the two traffic lights.
2. operating logic with sensor devices (for example, photocells). The red and green times that will be connected to the control unit are determined by the signals from the photocells or from other sensor devices. Subsequently the operating logics will be explained in greater detail along with the directions on how to set the two different modes.

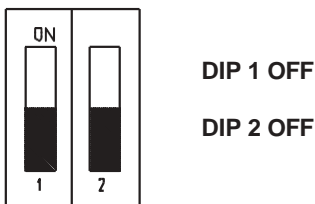
**MAIN TECHNICAL SPECIFICATIONS**

Power supply 230 V, 50 Hz, 5 VA. 1 auxiliary output voltage 24 Vac, 130 mA max (for photocells, magnetic coils, etc.)

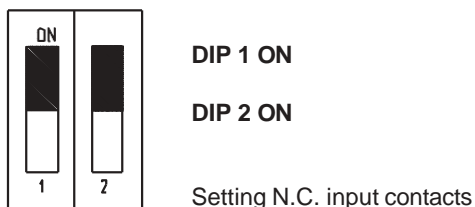
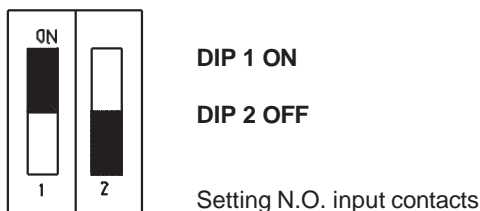
- 1 fuse to protect the line 160 mA.
- 1 fuse to protect the auxiliary output 160 mA
- 4 relay outputs with clean contact on switchover (230 V, 2 A max).
- 2 N.O. or N.C. settable control device inputs (photocells, etc.) 1 microswitch (Dip 2) to select N.O. or N.C. inputs.
- 1 microswitch (Dip 1) to select operation with sensor device or by time.
- 1 trimmer (T1) to adjust red light time (range from 5 to 120 seconds).
- 1 trimmer (T2) to adjust green light time (range from 5 to 120 seconds).
- 1 trimmer (T3) to adjust priority time (range from 5 to 120 seconds).
- 5 LEDs to signal input and output statuses. Here we show the wiring diagram for the main components of the electronic control unit.

The electronic control unit has two microswitches (Dip) that enable selecting the operating mode of the control unit and the type of contact for the input control devices. Here we show the possible combinations:

**1. SETTING THE TIME OPERATING LOGIC**



**2. SETTING THE OPERATING LOGIC WITH A SENSOR DEVICE**



## ZSC1

### TIME OPERATING LOGIC

To set the time operating logic,

Dip 1 must be OFF.

Dip 2 = OFF.

Trimmer T1 is adjusted to set the time in which you want the two traffic lights to both be red (from 5 to 120 seconds).

Trimmer T2 is adjusted to set the time in which one of the two traffic lights stays green (from 5 to 120 seconds).

Trimmer T3 is indifferent. The time operating cycle has the following steps:

1. At the time of switching on the electronic control unit, both traffic lights are red for the time set by the trimmer T1 (time T1).
2. After the time T1, the traffic light connected to the terminals "1" turns green while the one connected to the terminals "2" stays red.
3. The traffic lights stay in this state for the time set by trimmer T2 (time T2).
4. After the time T2, both traffic lights turn red for a time T1 to let the last ones in clear the passage.
5. After the time T1, the traffic light connected to the terminals "1" stays red, while the one connected to the terminals "2" turns green.
6. After the time T2, both traffic lights turn red for the time T1 to let the last ones in clear the passage.
7. The cycle restarts from point 2 and is repeated endlessly.

### OPERATING LOGIC WITH SENSOR DEVICES

To set the operating logic with sensor devices,

Dip 1 must be ON.

Dip 2 must be OFF, for N.O. contacts.

Dip 2 must be ON, for N.C. contacts.

The trimmer T1 is adjusted to set the time in which you want both traffic lights to be red (from 5 to 120 seconds).

Trimmer T2 is adjusted to set the time in which one of the two traffic lights stays green (from 5 to 120 seconds).

Trimmer T3 is adjusted to set the time needed to block a continuous reset of the time T2, due to one of the two traffic lights repeatedly passing, and thereby also satisfy requests for access from the opposite side (from 5 to 120 seconds).

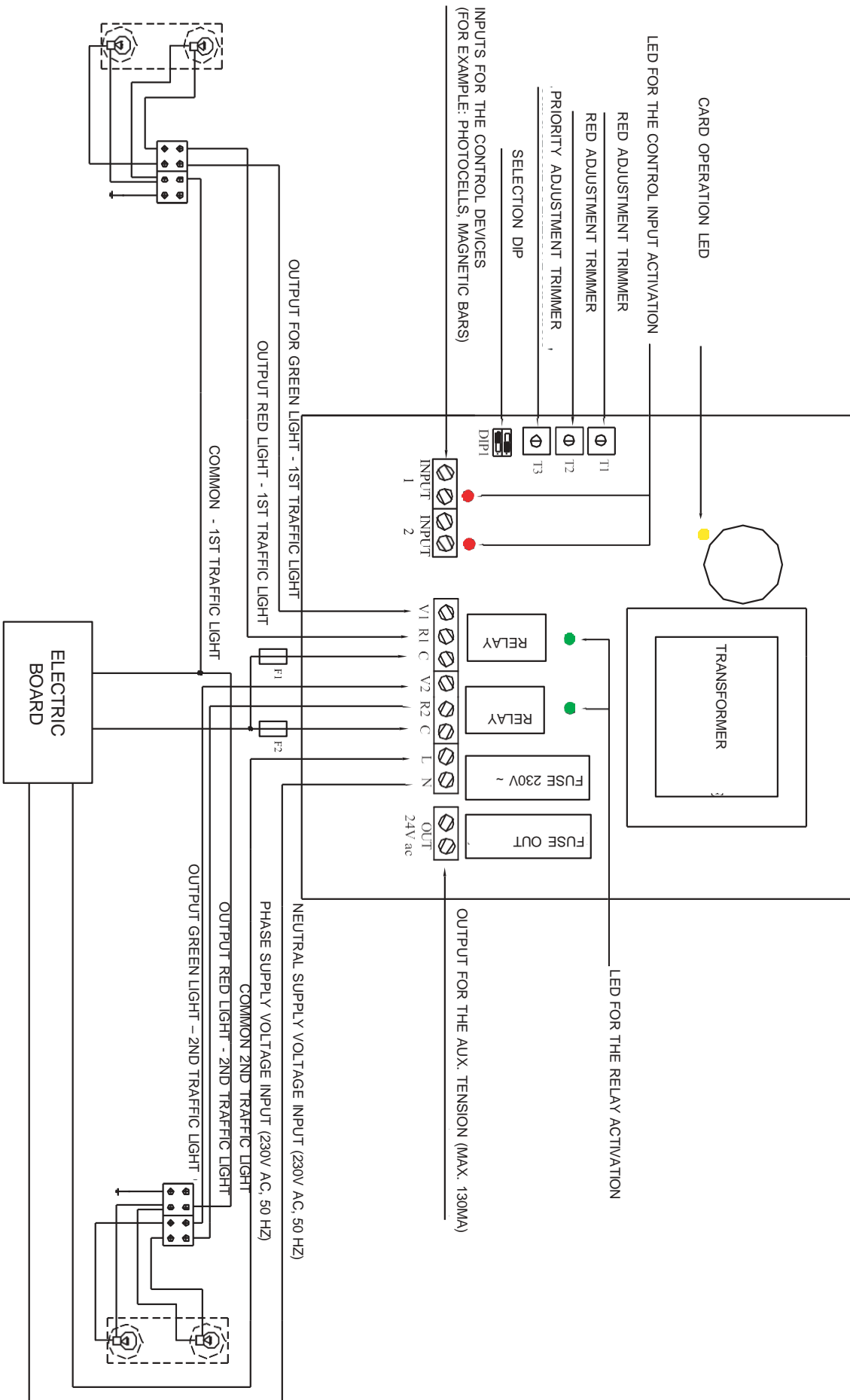
The time operating cycle has the following steps:

1. At the time of switching on the electronic control unit, both traffic lights are red for the time set by the trimmer T1 (time T1).
2. After the time T1, the first sensor to be energized (for example a photocell) calls green for the traffic light associated with it for a time set by the trimmer T2 (time T2), while the other traffic light stays red.
3. The green time T2 is reset each time the sensor is energized, until the opposite sensor is free; otherwise, the cycle passes onto point 7.
4. If the sensor is no longer energized at the end of the time T2, both traffic lights turn red.
5. The traffic lights stay on red for the time T1. If in this phase an activation command reaches the inputs, this is saved and taken into account at the end of the time T1.
6. After the time T1 the cycle restarts from point 2.
7. If the opposite sensor is also energized, the count starts for the time set by the timer T3 (time T3).
8. At the end of the time T3 the continuous reset of the time T2 is blocked (due to repeated passing from one of the two parts).
9. At the end of the time T2 both traffic lights are on red for the time T1.
10. At the end of the time T1 the call for green made by the other traffic light is satisfied and the cycle restarts from point 3.

### NOTE

- a) The power supply of the clean contacts controlled by the relays depends on the type of traffic light used: for traffic lights with light bulbs it will be necessary to have an electric panel that supplies a voltage of 230V ac, whereas ones with LEDs will need a voltage of 24V ac-dc.
- b) The outputs of the electronic control unit for red are connected on the N.C. contact of the relay, then, if the card breaks down, the traffic lights will always be on red.
- c) The inputs of the sensor devices only see the changes in status of the sensor, so if this breaks down always giving the busy status (for example a photocell blinded by sunlight) the input is ignored always giving the red status on the output associated with it.
- d) The electronic card needs no particular maintenance. In any case, periodically, at least twice a year, check the traffic lights work properly as set on the card.
- e) The dipswitches must be set when the card is not powered.
- f) In order to protect the relays from short-circuiting, use fast-acting fuses (F1 and F2) of adequate capacity (max 2A) on the common terminals of both traffic lights.
- g) It is recommended to insert a miniature circuit breaker before connecting the power supply to the control unit.

WIRING DIAGRAM



**SAFETY INSTRUCTIONS FOR INSTALLERS**

- Carefully read the instructions on this leaflet: they give important information on the safety, use and maintenance of the installation
- After removing the packing, check the integrity of the set. Packing components (plastic bags, expanded polystyrene etc.) are dangerous for children. Installation must be carried out according to national safety regulations.
- It is convenient to fit close to the supply voltage source a proper omnipolar type switch with 3 mm separation (minimum) between contacts.
- Before connecting the set, ensure that the data on the label correspond to those of the mains.
- Use this set only for the purposes designed, i.e. for electric door-opener systems. Any other use may be dangerous. The manufacturer is not responsible for damage caused by improper, erroneous or irrational use.
- Before cleaning or maintenance, disconnect the set.
- In case of failure or faulty operation, disconnect the set and do not open it.
- For repairs apply only to the technical assistance center authorized by the manufacturer.
- Safety may be compromised if these instructions are disregarded.
- Do not obstruct opening of ventilation or heat exit slots and do not expose the set to dripping or sprinkling of water.
- Installers must ensure that manuals with the above instructions are left on connected units after installation, for users' information.
- All items must only be used for the purposes designed.
- **WARNING:** to avoid the possibility of hurting yourself, this unit must be fixed to the wall according to the installation instructions.
- This leaflet must always be enclosed with the equipment.

**Directive 2002/96/EC (WEEE)**

The crossed-out wheeled bin symbol marked on the product indicates that at the end of its useful life, the product must be handled separately from household refuse and must therefore be assigned to a differentiated collection center for electrical and electronic equipment or returned to the dealer upon purchase of a new, equivalent item of equipment.

The user is responsible for assigning the equipment, at the end of its life, to the appropriate collection facilities.

Suitable differentiated collection, for the purpose of subsequent recycling of decommissioned equipment and environmentally compatible treatment and disposal, helps prevent potential negative effects on health and the environment and promotes the recycling of the materials of which the product is made. For further details regarding the collection systems available, contact your local waste disposal service or the shop from which the equipment was purchased.

**Risks connected to substances considered as dangerous (WEEE).**

According to the WEEE Directive, substances since long usually used on electric and electronic appliances are considered dangerous for people and the environment. The adequate differentiated collection for the subsequent dispatch of the appliance for the recycling, treatment and dismantling (compatible with the environment) help to avoid possible negative effects on the environment and health and promote the recycling of material with which the product is compound.



Product is according to EC Directive 2004/108/  
EC and following norms.

