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Teaching mode
Reactive Light with Teaching Mode

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Teil I.
The circuit

1. Functional description

This circuit is an extension of the basic version of the reactive lights. It is easy to make with just a few elements.

The measurement of brightness is done by a photo resistor (LDR). During daylight the circuit goes into a standby mode and is inactive. It just measures periodically the brightness to detect the beginning of the night and set the circuit into an active mode. If in this mode the LDR is lit, the circuit will blink a previously adjusted sequence using the light emitting diode (LED) and wait for the next activation. If no sequence is stored, a standard sequence will be used.

The sequence can contain maximum 32 bright cycles. Each bright and dark cycle can last up to 30 seconds and is stored with a accuracy of 125 ms. The stored sequence will be available even after the microcontroller is switched off and on again.

To start teaching a sequence, the magnetic switch is used. That means teaching is also possible after the circuit is packed waterproof or grouted. The sequence is tought by a torch light and the photo resistor.

Because of the very small power consumption the circuit can be run for years with just a set of batteries.

The source code is not published and is just available as a completely programmed microcontroller at www.reaktivlicht.de.

Teil II.
Frequently asked questions and known problems

2. The tought sequence is not played back exactly.

During teaching the sequence is stored with a accuracy of 0.125 s. That's why the single phases can be shortened up to this value when playing back.

Furthermore the photo resistor reacts slowly to changes of luminance. It takes a short time until the value is adjusted to the darkness. Due to this the bright phases are extended and the dark phases shortened. This manner can be improved by having a high level of darkness during teaching.

3. The teaching of a sequence does not work.

The glass tube of the magnetic switch is fragile. Please check first if it is demaged.

If the device is in standby mode, the magnetich switch is evaluated just every 8 seconds. The switch has to be closed for a longer time or teaching must be done in a darker room.

Teaching can also be started by connecting pin 7 of the microcontroller to the positive pole of the power supply by a cable. The standby mode has to be considered, too. If the teaching works now, the soldering points of the magnetic switch have to be checked.

4. After switching on the reactive light immediately starts the teaching without the magnetic switch being closed.

The glass tube of the magnetic switch is fragile. Please check first if it is demaged.