

## Shutter Control

EASY-E4-UC-12RC1 with the E4-UC-16RE1 expansion module is required to control up to 6 shutters separately or centrally with this program.

### Task

This task requires the following components:

- Two direction pushbutton actuators (open and close buttons) as command devices for the direction of motion of each shutter
- One key switch for the activation/disabling of the easy outputs
- Integrated end position switches in the shutters, that switch off the integrated motor (230 V AC) on reaching the top and bottom positions.

### Normal operation

Pressing the open or close pushbutton actuator only briefly (actuation duration less than 2.5 seconds) causes the shutter to move only for the time of actuation in the associated direction.

If actuator is pressed for longer, .timed motion. is started, which moves the shutter for 10 seconds in the associated direction. You stop the timed motion by pressing the pushbutton actuator for the opposite direction.

Pressing one of the direction buttons for longer than 8 seconds causes all the shutters to be moved in the timed motion.

This thus makes it possible to close or open several shutters centrally by means of a single pushbutton actuator.

### Automatic mode

During longer periods of absence, the shutters can be opened or closed by means of the P4 button on the device.

For example, the shutters are required to open automatically between 6:15 and 7:15 am and between 21:00 and 22:00 pm. The shutters open

automatically at the weekend between 9:00 and 10:00 am and close between 22:00 and 23:00 pm.

There is no exact closing and opening time since this is generated randomly in the specified range of  $\pm 30$  minutes in order to give the impression that the shutters are not time controlled but are closed down arbitrarily within a defined time period.

If the Automatic mode is activated, the text display .Absence switching active. appears on the display.

### Preventing motion commands

The key switch prevents the shutters from being opened or closed. For example, this may be useful for window cleaning. If the switch contact of the switch is opened, the output of switching signals is disabled even though easy is active, thus preventing motion commands.

### Operands

#### Inputs

I01	Pushbutton "Shutter 1 open"
I02	Pushbutton "Shutter 1 closed"
I03	Pushbutton "Shutter 2 open"
I04	Pushbutton "Shutter 2 closed"
I05	Pushbutton "Shutter 3 open"
I06	Pushbutton "Shutter 3 closed"
I07	Pushbutton "Shutter 4 open"
I08	Pushbutton "Shutter 4 closed"
I09	Pushbutton "Shutter 5 open"
I10	Pushbutton "Shutter 5 closed"
I11	Pushbutton "Shutter 6 open"
I12	Pushbutton "Shutter 6 open"
R1	Key switch "Control relay ON"

#### Outputs

Q1	Shutter 1 Motor "Open"
Q2	Shutter 1 Motor "Closed"
Q3	Shutter 2 Motor "Open"
Q2	Shutter 2 Motor "Closed"
Q5	Shutter 3 Motor "Open"
Q6	Shutter 3 Motor "Closed"
S1	Shutter 4 Motor "Open"
S2	Shutter 4 Motor "Closed"
S3	Shutter 5 Motor "Open"
Q4	Shutter 5 Motor "Closed"
S5	Shutter 6 Motor "Open"
S6	Shutter 6 Motor "Closed"

## Parameters

- D1 Text display "Absence switching active"
- H1 7-day time switch "Auto open command"
- H2 7-day time switch "Auto close command"
- T1 Actuation period for timed motion including the motion time for "Shutter 1 open"
- T1 Actuation period for timed motion including the motion time for "Shutter 1 closed"
- T3 Actuation period for timed motion including the motion time for "Shutter 2 open"
- T4 Actuation period for timed motion including the motion time for "Shutter 2 closed"
- T5 Actuation period for timed motion including the motion time for "Shutter 3 open"
- T6 Actuation period for timed motion including the motion time for "Shutter 3 closed"
- T7 Actuation period for timed motion including the motion time for "Shutter 4 open"
- T8 Actuation period for timed motion including the motion time for "Shutter 4 closed"
- T9 Actuation period for timed motion including the motion time for "Shutter 5 open"
- T10 Actuation period for timed motion including the motion time for "Shutter 5 closed"
- T11 Actuation period for timed motion including the motion time for "Shutter 6 open"
- T12 Actuation period for timed motion including the motion time for "Shutter 6 closed"
- T13 Actuation period for timed motion including the motion time for "Shutters open centrally"
- T14 Actuation period for timed motion including the motion time for "Shutters closed centrally"
- T15 Random time generation for "central opening simulation during period of absence"
- T16 Random time generation for "central closing simulation during period of absence"

## Changing the motion time

Example of changing the motion time, if, for example, the motion time is insufficient with large shutters (doors).

A shutter is assigned two timing relays (open and close). The timing relays are parameterised as on-delayed and off-delayed at the same time.

The on-delay time is the time that you must press the pushbutton actuator in order to start the timed motion. (normally you have to press longer than 2.5 seconds, in order to start the 10-second timed motion.)

If you change the duration for timed motion, you should carry this out for both directions (i.e. both timing relays):

The duration for timed central motion should be based on the longest timed motion required for a single shutter. Setting a shorter duration for timed central motion will mean that not all shutters will be completely opened or closed.

To change the opening times in Absence switching mode, you must understand the time generation:

An automatic opening on weekdays at 6:45 ± 30 minutes is formed from the signal of the 7-day time switch H01, channel A, which starts at 6:15 am and is active for an hour. This signal activates timing relay T15 with an on-delay of 60 minutes and the mode .On-delay with random time switching. active.

This means that: the timing relay will switch at the earliest 0 minutes after the signal from H01, channel A, or with a 60 minute delay at the latest, when it will output the command for opening the shutters.