# GIRA

# Louver Control **Electronic Louver Control**

Info

Order No.: 0646 ..

Electronic Louver Control withSensor connection Order No.: 0823 ...



1. UP

2. Hour

3. Minute

Set Day 4.

SET 5.

DOWN 6.

7. UP

8. Mode

- 9. Set Date
- 10. Set Time

- 11. DOWN
- 12. Program Memory
- 13. Program
- 14. Random
- 15. Astro
- 16. Twilight Sensor
- 17. Sun Sensor
- 18. Summer Time
- 19. 'Learn'
- 20. Winter Time

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# 1 Function

The electonic louver control is a component of the louver control system and is installed in a connecting box according to DIN 49073 (recommendation: deep box) in conjunction with the louver control insert.

The unit facilitates the programmed, time-controlled switching of a louver motor with a maximum output of 1000 VA. The motor must have a limit switch.

### Product features:

- Simple operation through a four-key field
- Three independent program memories for a total of up to 18 switching time events (e. g. nine UP and nine DOWN control times)
- Sun protection function (accessory for sensor connection attachment)
- Twilight function (accessory for sensor connection attachment)
- Glass breakage sensor (accessory for sensor connection attachment)
- Wind protection can be implemented via extension s (accessory)
- Random function
- Summer/winter time change-over by key operation
- Astro function
- Individual astro function by astro time shift
- Individual louver running time 'learning'
- Driving via extensions (insert)
- Central control with superior louver control (insert)
- Reset facilitates resetting to factory setting
- Up to 24 hours moving time (maintenance-free, without batteries)
- Manual operation possible any time

# 2 Warning

# Caution: The installation and assembly of electrical equipment may only be performed by a skilled electrician.

This louver control system has been designed for switching louver or roller blind motors. Do not switch any other loads.

If louver motors are to be connected in parallel, please observe the information given by the motor manufacturers under any circumstances. Otherwise, the motors might get damaged.

Use louvers or roller blinds with limit switches (mechanical or electronic) only.

Please observe the information of the motor manufacturers.

An electronic locking of the attachment provides for a minimum change-over time of approx. 500 ms for continuous operation.

Please observe the information of the motor manufacturers with respect to change-over time and max. cyclic duration factor.

This louver control system has been designed for the automatic actuation of window louvers. Other applications such as controlling a rolling door may entail danger.

Such danger must be made impossible by the user by employing additional suitable safety measures (e. g. light barriers).

The glass breakage sensor should be attached to the window pane by a suitable two-component adhesive (e. g. Loctite glass-metal adhesive set).

Please observe the information of the adhesive manufacturer.



### 3 Installation Instructions



The electronic louver control attachment can only be placed into service in conjunction with the louver control insert.

Louver control insert ① should be installed in a connecting box according to DIN 49073 (recommendation: deep box).

The connecting terminals of the units must be down.

Plug electronic louver control attachment 2 onto the insert together with frame 3.

Electrical contacting is established through plug ④. For the connection of a sensor, additional plug-in contacts (5) of the sensor connection attachment must be led to a terminal block in the insert.



(For the description, installation and connection of the insert, please refer to separate instructions.)

### 3.1 **Connecting the Sensors**

The sun protection, twilight and glass breakage functions described in the subsequent chapters are not possible for the attachment without sensor connection (please refer to Chapter 4.9).

### Sun/Twilight Sensor

The sun/twilight sensor must be attached to the window pane.

The sun protection function facilitates automatic shutting the louver after a programmed brightness value is **exceeded**. The end position of the louver can be individually chosen by positioning the sensor at the window pane.

Applications: Sun protection at the terminal workstation, sun protection for flower windows or greenhouses etc.

The twilight function facilitates automatic shutting of the louver after a programmed brightness value is undercut. The louver moves into its lower end position.

Application: Shutting the louver at nightfall.





### **Glass Breakage Sensor**

The glass breakage sensor should be attached to the window pane. If the window pane is damaged, the louver is moved to its lower end position.

Application: Protection against weather influences in the event of glass breakage.

Glass breakage sensors must not be used together with the wind sensor. The wind protection function (louver moves up) will be disabled after glass breakage, the louver or roller blind remaining closed.

### Sun Protection/Twilight Sensor **Glass Breakage Sensor**

Only one sensor plug at a time can be connected to the attachment. If the sun/twilight sensor and the glass breakage sensor are to be operated at the same time, use an adapter (not within the scope of supplies).

The sensor or adapter can be connected to the attachment via a plug. For buried installation, the sensor line can be connected to the insert through a screw terminal (please refer to the Louver control Insert Operating Instructions).

### Important: The sensor line carries protective low voltage (SELV). Please observe the installation procedures as specified by VDE 0100.

Note: In the event of glass breakage, the display reads 'GLAS'. Automatic and manual switching cycles as well as wind alarm will no longer be executed.

The glass breakage message can be reset by the key, and the louver moves up.

### 4 Programming





### Note:

If no operation is made for longer than 2 minutes during programming, the electronic louver control will automatically return to displaying the current data. Programming can be cancelled any time by pressing the SET key for about 3 seconds.





# 4.1 Setting Current Data

To enable the electronic louver control start ist operation, please enter the current data:

Hold the **SET** key pressed until the display reads **prog** (Fig. ).

Use key or to select the following settings (please refer to the diagram):

Time, date• : Set current dataA:Program memory AB:Program memory BC:Program memory C

Learn running time

Astro ●: Shift astro periods ☆, : Set sun/twilight value



Confirm the time symbol by shortly pressing the **SET** key.

The electronic louver control is now in the current data setting mode.

① Setting summer/winter time:

Use key or to set summer time (S) or winter time (W). Confirm by shortly pressing the **SET** key.



<u>② Setting the current month:</u>
 Use key or to set the month (01..12).
 Confirm by shortly pressing the SET key.



<u>③ Setting the current day:</u> Use key or to set the day (01..31). Confirm by shortly pressing the **SET** key.



<u>④ Setting the current day:</u>
 Use key or to set the day (MO..SU).
 Confirm by shortly pressing the SET key.





Uhrzeit Datum



<u>© Setting the current minute:</u> Use key or to set the minutes (00..59). Confirm by shortly pressing the **SET** key.

The electronic louver control has taken over the current data.

# 4.2 Astro Function



If the louver is to be opened at sunrise and to be closed at sunset, switching time events once programmed must be continuously adapted to the changing astonomical calendar in automatic mode (please refer to the illustration).

By adding the astro program, the programmed UP times which are in the darkness of the morning of the day are executed at the time of sunrise only.

Programmed DOWN times in the darkness at the evening of the day are executed at the time of sunset already. For this purpose, the electronic louver control calculates the time of sunrise and sunset for each day of the year (for the approximate location of Würzburg). Daylight switching time events remain unchanged by the astro program.

To adapt the pre-programmed astro times to the local conditions, the astro times can be shifted by a maximum of +/- 1 hour and 59 minutes (please refer to Chapter 4.6 'Programming an Astro Shift').



### Programming examples:

If a louver is to be opened daily at sunrise and to be closed at sunset, the following programming and activated astro function can be used to effect this:

Event 1: UP MO-SU at 4:00 hrs. Event 2: DOWN MO-SU at 22:00 hrs.

To open a louver at 6:30 hrs. in the morning at the earliest and to close it at 19:10 hrs. in the evening at the latest, use the following program with activated astro function (please refer to the illustration):

Event 1: UP MO-SU at 6:30 hrs. Event 2: DOWN MO-SU 19:10 hrs.



### 4.3 Random Function

If the random function is activated for a certain switching time event (please refer to Chapter 4.3 'Programming the Random Function'), this switching time is varied by +/- 15 minutes. This random time is used for all switching time events and is varied daily. If the astro function is additionally activated for this switching time event, this switching time event is adapted to the respective time of sunrise or sunset (please refer to Chapter 7) and varied by a random time of +/- 15 minutes.

### 4.4 Factory Setting and Reset

Manual operation, glass breakage alarm and wind alarm have, in all cases, priority over automatic mode.

Independent programs (e. g. for everyday use, weekends, vacations etc.) can be stored in the three program memories. A maximum of 18 different switching time events can be used in the three program memories altogether (e. g. 3 UP and 3 DOWN times per memory). Program memories A and B are factory-preset but can be over-written by your own programming:

### Memory A:

Event 1: 07:00 hrs., MO-FR, astro function active.
Event 2: 09:00 hrs., SA-SU, astro function active.
Event 3: 20:00 hrs., MO-FR, astro function active.
Event 4: 21:00 hrs., SA.-SU, astro function active.

### Memory B:

Event 1: 07:00 hrs., MO-FR. Event 2: 09:00 hrs., SA-SU. Event 3: 20:00 hrs., MO.-FR. Event 4: 21:00 hrs., SA-SU.

### Memory C:

Not factory preset. By RESETTING the louver control, programming can be reset to factory defaults. In this case, the current data and your own programming will be deleted.

### To RESET:

Press the **SET** and **MODE** keys at the same time for approx. 7 seconds. All display segments will light up shortly. Resetting is done.







# 4.5 Programming Individual Switching Time Events

**Note:** If switching time events overlap (identical time and day for UP and DOWN), the UP event will be executed.

Example: MO 8:15 hrs. Executed. MO 8:15 hrs. not executed. Press the **SET** key until the display reads **prog**.

<u>Selecting the program memory</u> Use key or to select program memory A, B or C where your new switching time events are to be stored.



Confirm your selection by shortly pressing the **SET** key.

The electronic louver control is now in the mode for programming new switching time events.

### ① Selecting a memory location

Keys or indicate the switching time events which a re already stored in the program memory.

With the key, you can scroll towards earlier events, while the key brings you to later events.

New switching time events are automatically sorted into this list.

**Note:** A maximum of 18 different switching time events can be stored. These events can be distributed over three program memories (A, B, C). If all these 18 switching time events have been programmed (e. g. 9 UP and 9 DOWN times), the display reads 'FULL' at the end of the table of events.

Select your desired memory location where the new switching time event is to be stored.

Any switching time event existing at this memory location will be overwritten.

Empty memory locations are indicated by a "------" symbol.

Confirm you selection by shortly pressing the **SET** key.



② Programming UP or DOWN

Use keys or to select the direction of the louver the new switching time event is to be executed for.

The associated symbol flashes in the display.

Confirm your selection by shortly pressing the **SET** key.









Use keys or to select the hour (00..23) where the switching time event to be programmed is to be executed. Confirm by shortly pressing the **SET** key.



### ④ Programming the minute

Use keys or to select the minute (00..59) where the switching time event to be programmed is to be executed. Confirm by shortly pressing the **SET** key.



### S Programming the days

Key or change between the days where the event is to be executed. The present position is indicated by a frame.



The **MODE** key can be used for cancelling or selecting the day. If the day has been selected for an event, a bar is shown within the frame. An empty frame indicates that the event is not executed at this day.

Use key or to change to the next day and select or cancel with the **MODE** key.

This is the way how to select those days on which the event is to be executed.

After all desired days have been selected: Confirm the selection by shortly pressing the **SET** key.





### © Programming the random function

Use key or to activate or deactivate the random function for the programmed switching time event.

If the random symbol flashes the random function is deactivated for this switching time event.

Confirm the random function by shortly pressing the **SET** key.

### ⑦ Programming the astro function

Use key or to activate or deactivate the astro function for the programmed switching time event.

If the astro symbol flashes the astro function is deactivated for this switching time event.

Shortly pressing the **SET** key stores the time, day as well as the astro and random functions data in the program memory. The louver control system is ready for the programming of the next switching time event.





8 End of programming

Having stored all desired switching time events in the program memory, exit the programming mode by pressing the **SET** key for at least 3 seconds.

Programming can be cancelled thereby any time.

# 4.6 Deleting Switching Time Events

Press the **SET** key until the display reads **prog**.

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### Selecting the program memory

Use key or to select program memory A, B, or C. Select the program memory where the switching time events are to be deleted.

Confirm your selection by shortly pressing the **SET** key.

Use key or to select the switching time event to be deleted.

There are two ways to delete the switching time events:

- 1. By pressing the MODE key for at least 3 seconds.
- 2. By cancelling all the days associated with the switching time event (please refer to Chapter 4.5).

An empty memory location is indicated by a "-----" symbol.

Having deleted the switching time events, exit the programming mode by pressing the **SET** key for at least 3 seconds.



Info



### **Programming an Individual Running Time** 4.7

The running time is factory-set to approx. 2 minutes. For specific applications, this running time can be reduced or extended to a maximum period of 12 minutes. Press the **SET** key until the display reads prog. Use key or to select the \_ learn running time symbol.

Confirm by shortly pressing the **SET** key. This closes the move  $\bigcirc$ up relay. The louver is now drawn up automatically with a running time of 2 minutes.

When the louver has reached its upper end position, this process can be discontinued earlier by pressing the or key.

- Press the key. This activates the learning process. 2 The louver moves down. The display shows a second counter which reads the current running time.
- 3 When the louver has reached its desired position, stop the process by pressing key or .

This learned running time is automatically stored in the memory and, after the louver has been moved into its top UP position at a running time of at least 2 minutes, initiated for manual and automatic DOWN commands.

This ensures that the learned time is always done from the top UP position and the louver takes its 'learned' position. If the learned time is longer than 2 minutes, it is also used for DOWN commands (please refer to the 'Winter/Summer Time Change-Over').

### 4.8 Programming an Astro Time Shift





The astro shift function facilitates the individual adaptation of the factory-pre-calculated sunrise and sunset times to your local conditions. This shift is executed for all days throughout the year.

Press the SET key until the display reads prog.

Use key or to select the astro symbol.

Confirm by shortly pressing the **SET** key. The maximum astro time shift for the sunrise and sunset times is 1 hour and 59 minutes, in each case.

① Sunrise hour astro time shift

Use key or to set the hour (-1, -0, 0, 1) by which the astro curve is to be shifted.

- Shifting the astro curve 1 hour towards earlier times. -1:
- Shifting the astro curve 1 hour towards later times. 1:
- -0, 0: No shifting within the hour range, sign for shifts within the minute range (please refer to the next programming step). Confirm by shortly pressing the SET key.



② Sunrise minute astro time shift

Use key or to set the minute (00..59) by which the astro curve is to be shifted.

Confirm by shortly pressing the SET key.



3 Sunset hour astro time shift

Use key or to set the hour (-1, -0, 0, 1) by which the astro curve is to be shifted.

- -1: Shifting the astro curve 1 hour towards earlier times.
- 1: Shifting the astro curve 1 hour towards later times.
- -0, 0: No shifting within the hour range, sign for shifts within the minute range (please refer to the next programming step).

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④ Sunset minute astro time shift

Use key or to set the minute (00..59) by which the astro curve is to be shifted.

Confirm by shortly pressing the SET key.

By shortly pressing the **SET** key, the new astro times are taken over into the memory.

### 4.9 Programming the Sun Protection and Twilight Functions

The programming of the sun protection and twilight functions facilitates brightness-controlled switching time events, i. e. the louver is moved down when a preselected brightness value is exceeded or undercut, respectively.

This function necessitates the connection of a sensor (to be ordered separately).

Before the sun protection function can be executed, the louver must be brought to its upper end position in 'continuous running' mode.

Note: Activating the sun protection or twilight function with no sensor installed will cause malfunctioning. The twilight function substitutes the astro function for DOWN times. Therefore, the twilight function will be executed instead of an astro DOWN time activated for this day.

Press the **SET** key until the display reads **prog**. Use key or to select the 'sun / moon' symbol. Confirm by shortly pressing the **SET** key.

① Programming the sun protection function

The sensor must be attached to the window pane and facilitates the sun protection function.

Select the sensor position up to which the louver is to be moved when the brightness value is exceeded.



Use keys and to activate and deactivate the sun protection function. If the sun symbol flashes, the sun protection function is deactivated.

Confirm by shortly pressing the **SET** key. (If sun protection OFF is selected, please refer to 'Programming the Twilight Function'.)

# A Programmerers Spekher A Programmerer Spekher A Programmerer Spekher B Programmerer Spekher B Programmerer Spekher C Programme

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The first two display digits read the present brightness value. Digits 3 and 4 are flashing. Use keys and to select the brightness value (01..99) where, when exceeded, the louver is moved down (refer to Standard Values,

Confirm by shortly pressing the SET key.

Chapter 4.10).

The sun protection function comes into action approx 2 minutes after the preset brightness value has been exceeded, the louver moving down. Such delay (hysteresis) by approx. 2 minutes is necessary in order to compensate short-time brightness variations. The louver or roller blind, respectively, is not moved up and down upon each brightness difference.

When the position of the sensor is reached, the louver is stopped  $(\mathbb{O})$ , moved up again for a certain distance  $(\mathbb{O})$ , and then moved down to a position where the sensor is still uncovered  $(\mathbb{O})$ . Moving up is necessary to expose the sensor as, otherwise, brightness changes cannot be evaluated.

This apparently moves the louver or roller blind a little 'too high'. The subsequent down movement facilitates the correct positioning of the louver blades to obtain dazzle-free sun protection (blade control).

After the preset brightness value has been undercut for at least 15 minutes, the louver is moved up again (short-time brightness variations will be disregarded).





### <sup>②</sup> Programming the Twilight Function

The sensor must be attached to the window pane and facilitates the twilight function.

The twilight function is activated approx. 120 minutes before sunset (refer to the astro curve). The louver is moved down approx. 4 minutes after the preset brightness value is undercut.

Use keys and to turn the twilight function ON and OFF. If the moon symbol flashes, the twilight function is deactivated. Confirm by shortly pressing the **SET** key. (When twilight function OFF is selected, programming is complete, and the louver control unit reads the current time.).

The first two display figures read the present brightness value. Digits 3 and 4 are flashing. Use keys and to select the brightness value (01..99) where, when exceeded, the louver is moved down.

**Tip:** Program the EVENING twilight function with the brightness value where the louver is to be moved down. Digits 3 and 4 (brightness for moving down the louver) must then be brought into coincidence with digits 1 and 2 (present brightness). Confirm by shortly pressing the **SET** key. The louver control reads the current time.



### 4.10 Standard Values for Sun Protection and Twilight Functions

This Table shows a few brightness values associated with the reading:

### Sun Protection Function:

Display	Approx. Lux Value
3	1500
8	4800
15	10000
25	21000
40	37000
68	74000
70	76000

**Twilight Function:** 

Display	Approx. Lux Value
00	6
10	17
30	50
50	80
70	135
90	220
98	300

Please individually determine your desired brightness values for the sun protection or twilight function, respectively.

# 5 Mode Selection

### 5.1 Selecting the Program Memory



As described in chapter 4.4, three separate program memories with up to 18 switching time events can be occupied. Thus, three individual switching time programs can be made up and one of them, in each case, activated by selecting the corresponding program memory.

Shortly pressing the **MODE** key selects the program memory (A, B, C), whose switching time events are to be executed. The display shows the program memory selected. Only the switching time events programmed in this selected program memory are executed. If none of the three program memories has been selected, the

electronic louver control insert to manual operation. Programmed switching time events will then not be executed.

### 5.2 Winter/Summer Time Selection Selecting the Learned Running Time



# 5.3 Manual Operation

With key , the louver can be moved  ${\bf UP}$  and moved  ${\bf DOWN}$  with key .

### Short pressing (max. 1 second):

A pulse corresponding to the period of pressing the key is produced. This function serves for adjusting louver blades.

After longer pressing (at least 1 second):

The electronic louver control changes to self-holding ('continuous operation'). If no other running times have been learned, a running time of approx. 2 minutes will be implemented.

**Note:** If an UP command is being applied to extension input '2', the louver will not be able to be operated manually or automatically on the unit itself.

# 6 Behaviour in Case of Mains Failure

In the event of mains failure, the display shows the "------" symbol for a certain time before it goes off. The switching time events programmed by the user and the current data are kept, for the electronic louver control is backed up for approx. 24 hours.

When the mains voltage has reappeared, the last switching time event in the program memory is executed. This moves the louver to the current position as determined by the program. The programmed data is kept and the electronic louver control is ready for service again.



Example: Louver DOWN time: 20:15 hrs. Mains failure at 20:10 hrs. Mains voltage reappearing at 20:20 hrs. The last 20:15 hrs. DOWN switching command is executed. The louver goes down, the current position is reached.

For mains failures of **longer** than 24 hours, the programmed switching time events are kept. The present data (time, date) will get lost and must be entered again. The display will read 12:00 hrs. and flash.

# 7 Specifications

Rated input voltage:	230 V, 50 Hz, neutral conductor required
Switching capacity:	Max. one 1000 VA motor via insert
Change-over time for continuous operation:	Min. 500 ms
Accuracy:	+/- 1 minute per month
Backing:	Approx. 24 hrs. (no battery required)
Switching time events:	Max. 18 (in 3 program memories)
Random generator:	+/- 15 minutes
Astro program:	Shifting by +/- 1 hour 59 min.
Pulse duration:	Approx. 2 minutes (variable)
Connection:	To be plugged onto the louver control insert
Ambient temperature:	0 °C 45 °C
Storage temperature:	-10 °C +60 °C

# 8 What happens if...

### ...the louver does not move down when the twilight function is activated?

At dusk and when the twilight function is activated, the symbol flashes. The twilight function, in addition, is linked up with the astro function (activation approx. 120 minutes before astro). Therefore, at least one switching time must be used for astro for each day the twilight function is to be executed (e. g. Mon-Sun, 21:00, astro). In this case, the twilight function is executed throughout the week, but not astro. Switching events without astro will be executed without the twilight function.

### ...moving times learnt are not executed?

Before each execution of moving times learnt, the louver must be moved to its upper end position for a running time of a t least 2 minutes. Only this provides for defined execution of the stored moving times from the upper end position.

# ...the louver corrects its position after about one hour when the sun protection function is activated?

After each hour, the louver moves to the optimum sun protection position, depending upon the current solar altitude.

# ...the louver moves down too far (overrides the sensor) when the sun protection function is activated?

The brightness behind the louver (at the sensor) is still higher than the preset value. Readjust the brightness value.

### ...the louver is not moved down in the evening when the twilight function is activated?

The twilight value is not undercut. The sensor is possibly exposed to extraneous light.

# ...the astro times do not seem to be executed correctly or show high deviations from sunrise and sunset, respectively?

Check the settings of the date and of the astro time shifts.

### ...the louver does not move to its lower end position but stops before?

Make sure whether such a moving time learnt is activated as to be too short for moving the louver all the way down.

### ...no sensor is connected with the sensor functions activated?

Sun protection function: Not executed.

Twilight function: Executed approx. 120 min. before astro time.

Glass breakage function: Not executed. If the glass breakage sensor is removed during operation, the louver will move down.



### ...the unit does no longer respond to push-button operation?

When the symbol flashes in the display, an UP command is being applied to extension input '2'. In such a case, the louver will move up and will no longer be able to be operated manually or automatically.

### ...the louver seems to have moved down for no reason?

If GLAS is shown in the display, glass breakage alarm has been triggered. The louver can be moved up with the push-button.

### ...the operating voltage had failed?

The display shows the "------" symbol, the 24 hour power reserve is activated. If the voltage failure is less than 24 hours, the unit resumes the set functions without any maintenance. After longer voltage failure, the current data (time, date) must be re-entered.

# ...the programming, i. e. the moving down of the louver, is to be deactivated on certain days (e. g. garden party)?

Set the unit to manual operation. Deactivate program memories A, B and C with the MODE pushbutton (the symbols can no longer be seen in the display). The unit is now in the manual mode, and programmed events will not be executed.

### ...the louver motor stops too early when executing a moving time learnt?

Various louver motors are equipped with an overload circuit. For long moving times learnt (e. g. 12 min.), such overload circuit may come into action and cause a premature motor stop. Note the information given by the motor manufacturers.

### ...the unit is to be reset to factory setting?

Make a RESET. Press the SET and MODE push-buttons simultaneously for approx. 7 seconds.



# Acceptance of guarantee

We accept the guarantee in accordance with the corresponding legal provisions.

Please return the unit postage paid to our central service department giving a brief description of the fault:

Gira Giersiepen GmbH & Co. KG Service Center Dahlienstrasse 12 D-42477 Radevormwald

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