

Help for the Kit LTS Software V1.3

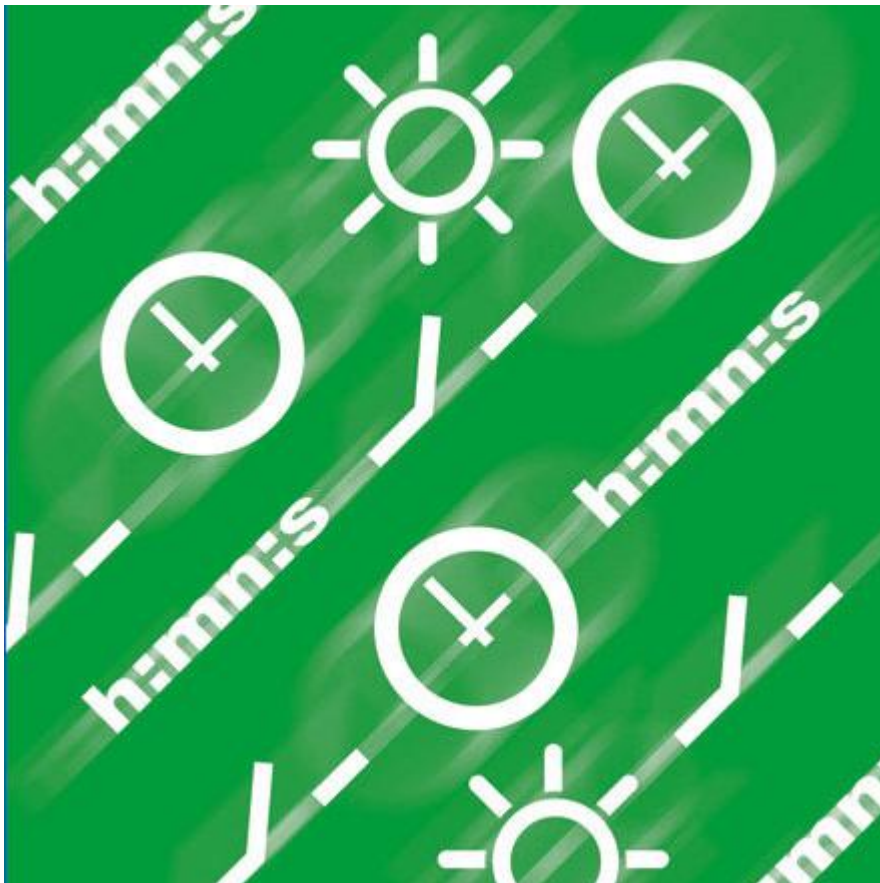


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1 Introduction

You can use the Kit LTS software to create programs and settings for your device on the PC, save these as a project, and transfer them to your device via the programming key. As long as the programming key is inserted in the device, you can use the programming key's switching program without deleting the switching program on the device.

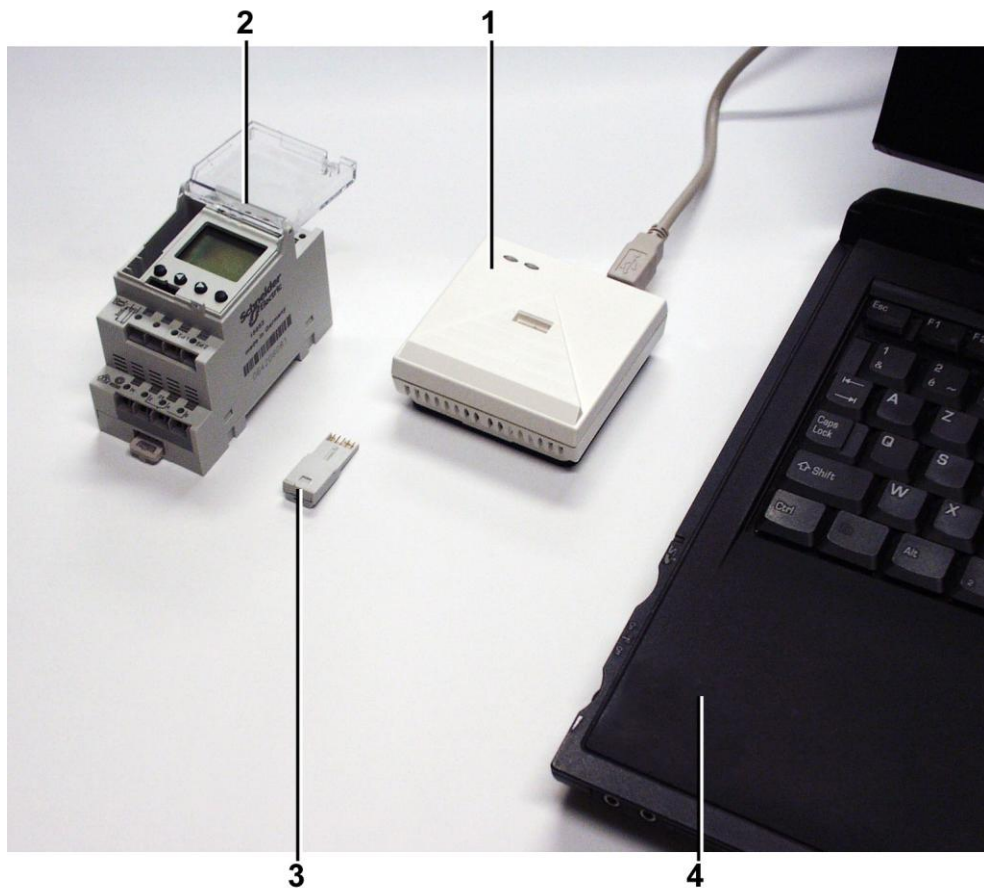


Fig. 1: Design



1	Programming interface
2	Device
3	Programming key
4	PC

You can use the Kit LTS software for the following devices:

- IHP
- IC 100k+
- IC 100kp+
- IC Astro
- KNX year time switch REG-K/8/800

2 Manual information

The following symbols are used in this help manual:

Symbol	Meaning
	Information, comment or tip
	Important information which has to be observed
1)	Indicates that an action includes several steps
•	Indicates that an action includes only one step
→	The result of action

Tab. 1: Symbols in this manual

3 Start program

1) After calling the program, select the appropriate product group.



Fig. 2: Selection of product group

2) Select the radio button for the device type and confirm the input with OK.

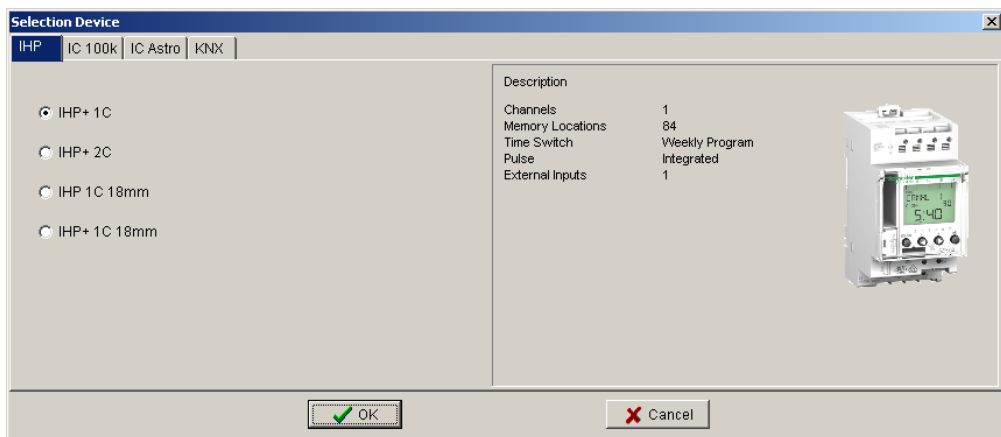


Fig. 3: Selection of the device using the example IHP

→ A project for the selected device type is created.



Programs and device properties, which you transfer to the device with the programming key, are saved in projects.

4 User interface

The following menus, buttons and display fields appear after you have started the program:

4.1 Menu bar

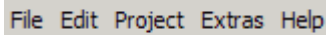













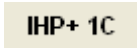
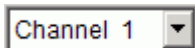
Fig. 4: Menu bar

Menu	Command
File	Open, save or print project; read or program programming key
Edit	Undo action; copy, paste, delete times
Project	Sort or optimize project; set options
Extras	Create Language-KIT LTS ; set language and first day of the week, set public holidays
Help	Kit LTS help; program information

Tab. 2: Menu bar

Chapter 14 "Menu commands", page 51 contains an explanation of the menu commands.

4.2 Toolbar

Button	Command	Short command
	Create new project	Ctrl + N
	Open project	Ctrl + O
	Save project	Ctrl + S
	Print project	Ctrl + P
	Retrieve print preview	
	Read programming key	
	Program programming key	
	Sort switching program	
	Optimize the switching program	
	Simulation	
	Evaluation	
	Create new project (button has the same name as the selected device)	Ctrl + N
	Select channel	

Tab. 3: Toolbar

4.3 Tabs

As the device properties differ depending on the device group and device type, different tabs are displayed, see chapter 15 "Device properties".

Tab	Function
Light	- Settings for the light sensor (lux values, delay time) for the program/ standard program
Astro	- Settings for the astrotimes (offset, sunrise and sunset) for the Astro program - Setting of the position based on the list of towns or the coordinates - Set favourites
Program/ Standard program	- Weekly program settings
Extra program 1-16	- Additional program for defined date ranges (e.g. public holidays) - Extra programs take precedence over the standard program. The lowest numbered extra program has the lowest priority.
Device settings	- Settings that can be saved on the programming key and transferred to the device (e.g. time/date format, summer/winter time rule; holidays; options)
Astro settings	- See Astro register; position, coordinates, own Astro table etc.

Tab. 4: Tabs

4.4 Graphical presentation

In the graphical presentation it is possible to enter a switching program in a weekly plan. Different buttons (e.g. on, pulse) are displayed depending on the device type.

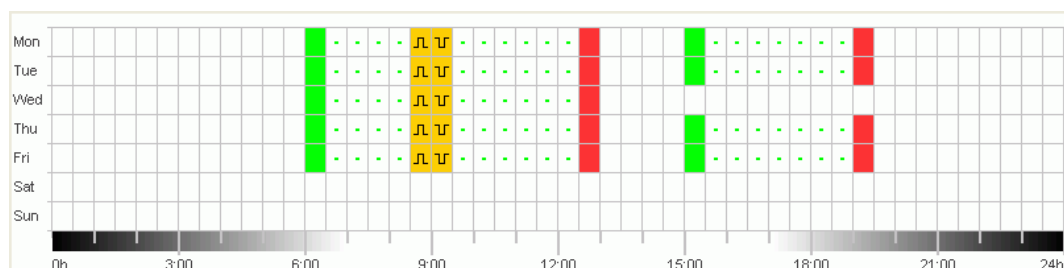


Fig. 5: Graphical presentation of the switching program using the example IHP+ 2C

An explanation of the buttons for the graphical presentation can be found in the relevant chapters.

Chapter 6.5 "Change switching program", page 21 describes how you can copy, move or delete switching programs.

4.5 Tabular presentation

The tabular presentation allows direct input of the switching program in a table:

No.	Type	Status	Time hh:mm:ss	Weekday							Pulse	Hint / Error
				Mon	Tue	Wed	Thu	Fri	Sat	Sun	Duration mm:ss	
1	Switch	On	06:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2	Switch	Off	12:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3	Pulse	On	08:30:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:10	
4	Pulse	Off	09:00:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:10	
5	Switch	On	15:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6	Switch	Off	19:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	New											

Fig. 6: Tabular presentation of the switching program using the example IHP+ 2C

4.6 Status bar

The status bar contains the following information:

- Occupied and maximum possible memory locations
- Channel number (if there are several channels)
- Operating hours per channel and week (for IHP+ only)
- Error messages

Memory 4/84	Channel 1	C1 On/Week: 40 h 0 min 0 s
--------------------	-----------	-----------------------------------

Fig. 7: Status bar

5 Program settings

If required, you make the following settings prior to programming the switching program:

5.1 Set grid

The grid for the graphical presentation can be adjusted using the following selection field:

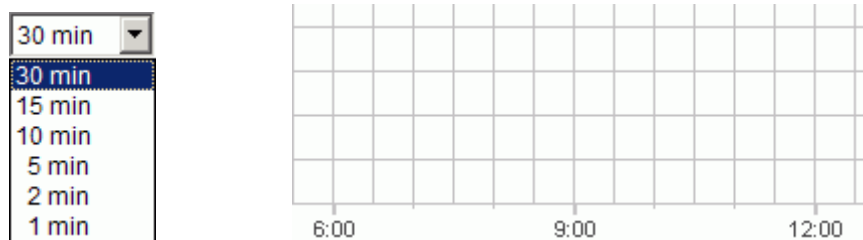


Fig. 8: Grid selection

5.2 Set language

Proceed as follows if you wish to change the language of the PC software:

- 1) Under Extras, click on PC Software Settings and select the Language tab.
- 2) Select a language and click on OK to confirm it.

5.3 Change display of PC software

The following factory settings are preset:

- First day of the week: Monday
- Date format: 31.12.00
- Currency: EUR



All changes that you make under Extras, PC Software Settings are only applied to the view of the PC software and are retained after you close the program. They are **not** transferred to the programming key or device.

Only changes on the Device Settings tab are saved in the device after transfer, see chapter 7.4 "Change device settings", page 32.

Proceed as follows if you wish to change the view of the PC software:

- 1) Under Extras, click on PC Software Settings and select the Display tab.
- 2) Make the desired change.
- 3) Confirm your input with OK.

5.4 Public holidays

- Click on Public holiday in the Extras menu. The window opens

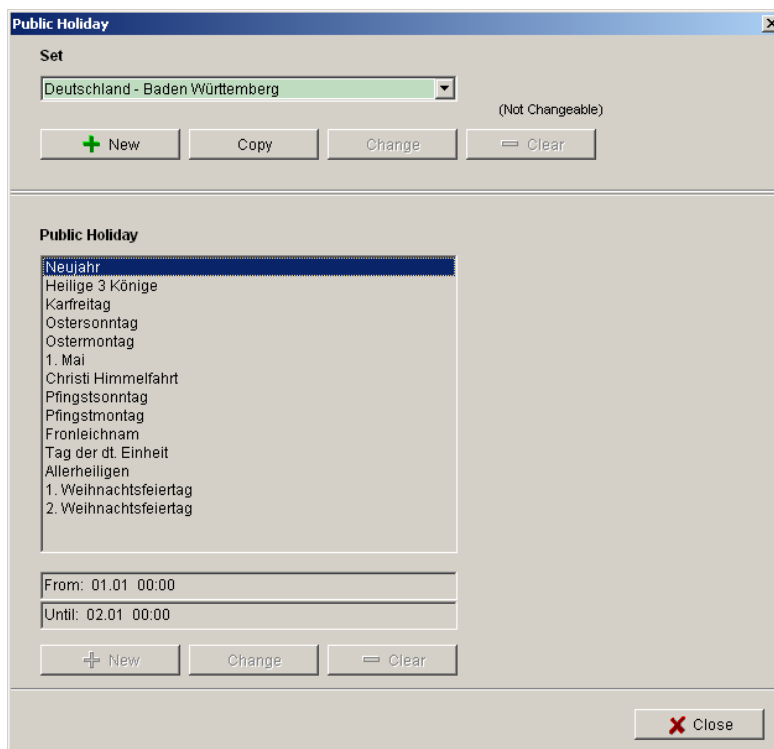


Fig. 9: Select public holidays

You can choose from predefined public holiday settings (green background). These settings cannot be changed.

5.4.1 Create your own settings

You can create your own public holiday settings (white background). If you want to enter new settings:

- 1) Click on New (in Settings window).
- 2) Enter a name for the new settings.

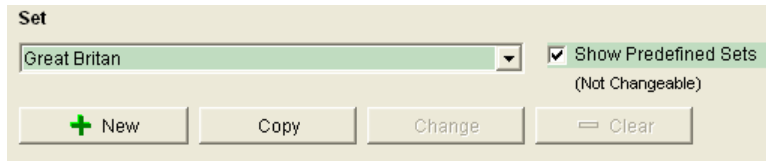


Fig. 10: Create own settings

If you want to copy existing settings.

- 1) Select the required public holiday setting.
- 2) Click on Copy (in Settings window).
- 3) Enter a name for the new settings.

Some public holiday settings can be deleted or renamed.

5.4.2 Edit own settings

You can only edit the settings you have entered.

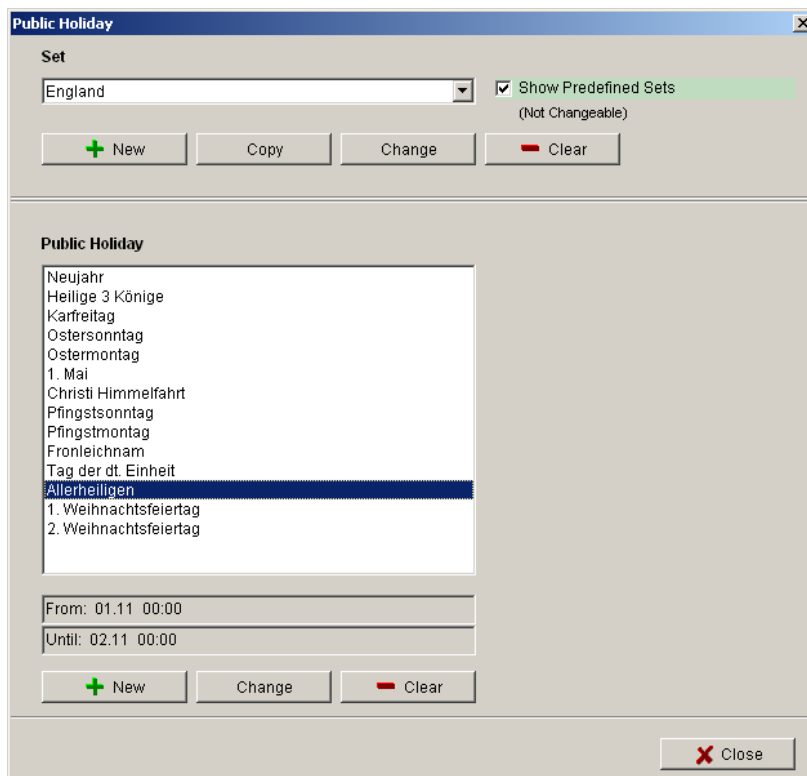


Fig. 11: Edit own setting

- 1) Click on New (in public holiday window).
The window opens

Add Public Holiday

Name of the public holiday

Type of the public holiday

Fixed Yearly

Relativ To Eastern

Free

Relativ To CNY

Fixed Once

From: 01.01 00:00 hh:mm

Until: 02.01 00:00 hh:mm

[Edit Name](#)

Save Close

Fig.12: Enter name of public holiday

- 2) Enter the name of the public holiday.
- 3) Select the type of public holiday (fixed annual date, relative to Easter, non-fixed date, relative to CNY (Chinese New Year), single fixed date) and the duration of the public holiday.

6 IHP

Depending on the device type, you have different device properties, see chapter 15 "Device properties", page 53.

6.1 Select channel

- For devices with several channels, first select one channel.

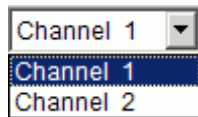


Fig. 13: Channel selection

6.2 Program the switching program

Programs can be entered as a graph or table. Chapter 6.5 "Change switching program", page 21 describes how you can change, copy, move or delete switching programs.

6.2.1 Graph

Graphical programming occurs via the following buttons:

Button	Command
	Cursor to select or move a switching program
	Set on times
	Set off times
	Set on and off times
	Set switch-on pulse
	Set switch-off pulse
	Set cycle

Fig. 9: Buttons for graphical presentation

Example: Shop lighting

In order to switch on shop lighting during business hours (Monday to Friday 9am – 8pm, Saturday 9am – 6pm) program the Kit LTS software as follows:

- 1) Click on the On+Off button.
- 2) Press the left mouse button and drag the cursor from top to bottom in the 9:00 column (when shop opens) (Monday to Saturday). Each line represents a weekday.
- 3) Release the left mouse button.

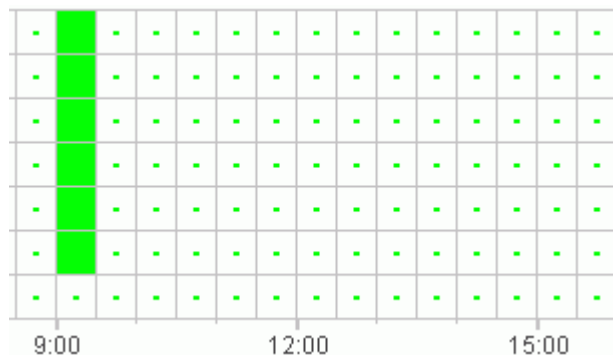


Fig. 14: Switch on shop lighting

- 4) Subsequently press the left mouse button and drag the cursor down the 20:00 column from Monday to Friday.
- 5) Click on the Off button and then click on the 18:00 column of the Saturday line.

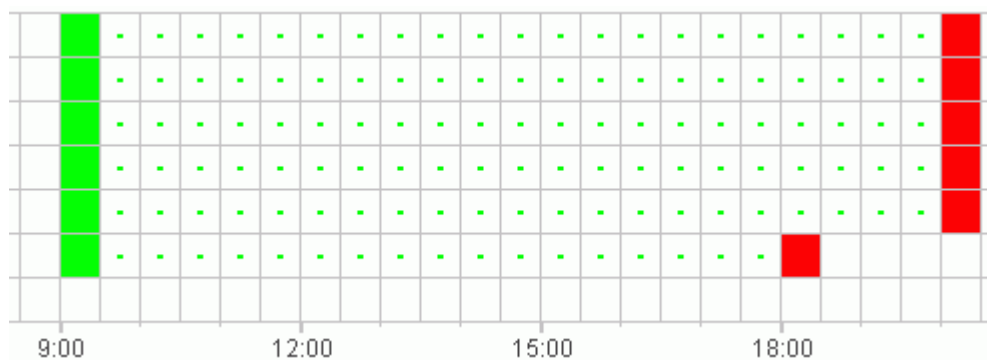


Fig. 15: Switch shop lighting on and off Monday to Saturday



If two switching programs are so close together that the symbols overlap (irrespective of the grid setting), the box with the two symbols is black.



Fig.16: Overlapping switching program symbols

6.2.2 Table

A switching program can also be programmed as a table.

Example: Shop lighting for IHP+ 1C

Proceed as follows to program shop lighting Monday to Friday from 8.45am to 8.15pm:

- 1) Click on New in the table.

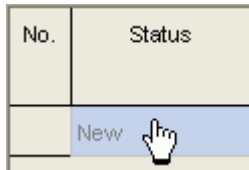


Fig. 17: New switching program

- 2) Select On or Switch.
- 3) Enter a switch-on time.

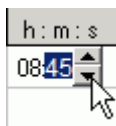


Fig. 18: Select time

- 4) Select the weekdays.



Fig. 19: Check weekdays

- 5) Proceed in exactly the same way for the switch-off time.



Fig. 20: Weekdays for switching on and off

6.3 Program pulse

Pulses for pause signals, ventilation, etc. can be programmed as a graph or table. The pulse duration can only be entered as a table.

6.3.1 Graph

Graphical programming occurs via the following buttons:

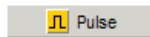


Fig. 21: Button for "Pulse on"

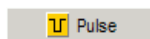


Fig. 22: Button for "Pulse off"

Example: Pause signal

The pulse start can be set to the second. Proceed as follows to switch on a pause signal at 9am and at 12.15pm Monday to Friday for 5 seconds:


- 1) Set the grid to 15 min.
- 2) Click on the  button.
- 3) Press the left mouse button and drag the cursor from top to bottom in the 9:00 column from Monday to Friday.



Fig. 23: First pulse

- 4) Repeat step 3 in the 12:15 column.

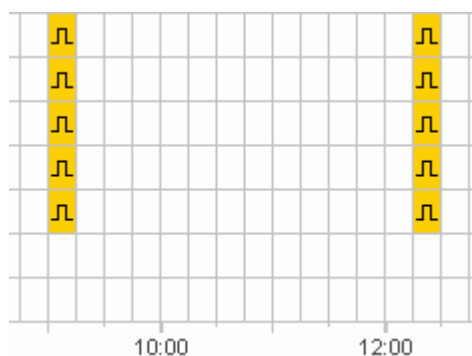


Fig. 24: First and second pulse

- 5) Enter the 5 s pulse duration via the table.

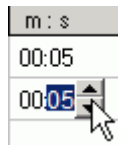


Fig. 25: Set pulse duration

6.3.2 Table

Pulses can also be programmed as a table.

Example: Pause gong

Proceed as follows to program a pause gong Monday to Friday at 12.15pm:

- 1) Click on New in the table.

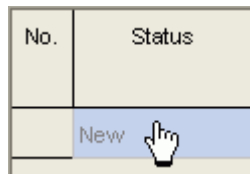


Fig. 26: New pulse time

- 2) Select Pulse.
- 3) Enter the time for the pulse.

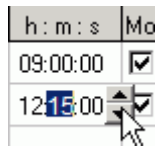


Fig. 27: Enter pulse time

- 4) Select the weekdays.



Fig. 28: Check weekdays

- 5) Enter the pulse duration 5 s.

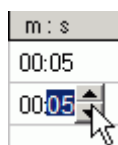


Fig. 29: Set pulse duration

6.4 Cycle programming

Cycle programming is only available for certain types of device: See 15 "Device properties" chapter.




The cycle can be programmed graphically or in tabular form. Always enter the cycle pulse and the cycle pause via the table.

6.4.1 Graphical

Use the following button for graphical programming .

Example: Watering a garden

A garden is to be watered for 10 minutes each hour during the day. Proceed as follows to enter this cycle:

- 1) Click on the  button.
- 2) Click on the field for 8am and then on the field for 6pm in the Monday line of the graph.

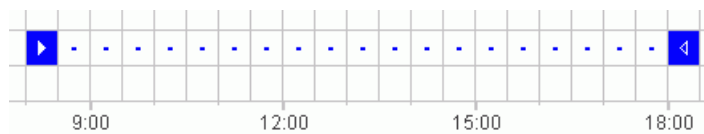


Fig. 30: Graphical display of the cycle

- 3) Enter the cycle pulse (10 min) and the cycle pause (50 min) via the table.

h:m:s	h:m:s	h:m
00:10:00	00:50:00	18:00

Fig. 31: Tabular display of the cycle

- 4) Repeat steps 2 and 3 for other weekdays.

Continuous cycle

- In order to program a continuous cycle, click on the same box twice.



Fig. 32: Continuous cycle

6.4.2 Tabular

A cycle can also be programmed as a table.

Example: Watering a garden

Proceed as follows to water a garden for 10 minutes each hour during the day:

- 1) Click on New in the table.

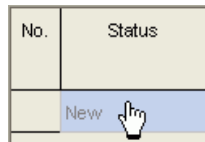


Fig. 33: New cycle

- 2) Select cycle.
- 3) Enter the start time for the cycle.



Fig. 345: Enter the cycle start time

- 4) Select a weekday for the start time.
- 5) Enter the cycle pulse (10 min) and the cycle pause (50 min).

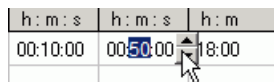


Fig. 35: Tabular display of the cycle

- 6) Repeat steps 1 to 5 for other weekdays.

Continuous cycle

A continuous cycle can be set via the weekday column:

- Click on the column End Weekday and select Continuous.



Fig. 36: Select continuous cycle

6.5 Change switching program

It is possible to copy, move or delete a switching program in the graphical presentation. In the table, you can delete or overwrite a switching program.

6.5.1 Copy switching program

The switching program can be copied from one channel to another channel or from one project to another project for graphs and tables.



A switching program which is not possible in the new project cannot be copied.

Graph

- 1) Click on the  button and select the switch blocks.

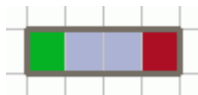


Fig. 37: Selected switch block

- 2) Click on Copy under Edit.
- 3) Select a new channel or a new project.

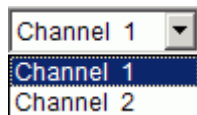


Fig. 38: Select channel



Fig. 39 : New project

- 4) Click on Paste under Edit.



A switching program can also be graphically copied by selecting and then moving it with the Ctrl key pressed.

Table

- 1) Click on the number of the switching program you wish to copy.



Fig. 40: Switching program number

- 2) Click on Copy under Edit.
- 3) Select a new channel or a new project.

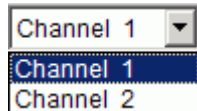


Fig. 41: Select channel



Fig. 42: Create new project

- 4) Click on Paste under Edit.

6.5.2 Move switching program

- 1) Click on the  button and select the switch block.



Fig. 43: Selected switch block

- 2) Click on the selected switching program and move it using the mouse.

6.5.3 Delete switching program

- 1) Click on the  button and select the switch block.

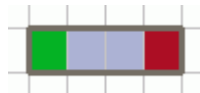


Fig. 44: Selected switch block

- 2) Click on Delete under Edit.

6.6 Sort and optimize project

A switching program can be sorted according to the time, weekday, status or type.

6.6.1 Sort switching program

1) Click on the button for sorting the switching program .

→ The dialog window Sort appears.

2) Select the sort criteria (time, weekday, status) and the order (ascending/descending), and click on OK to confirm it.

6.6.2 Optimize switching program


The following occurs at all the channels:

- Identical switching programs on different weekdays are combined
- Duplicate switching programs are deleted
- Switching program is sorted according to the time and weekday

Initial status:

No.	Type	Status	Time	Weekday						
				h : m : s	Mon	Tus	Wed	Thu	Fri	Sat
1	Switch	On	09:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Switch	Off	12:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Switch	On	09:00	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Switch	Off	12:00	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Switch	On	09:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Switch	Off	12:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Switch	On	08:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Switch	Off	13:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 45: Project prior to optimization

- Click on the button for optimizing the switching program  and confirm the message window with Yes.

No.	Type	Status	Time	Weekday						
				h : m : s	Mon	Tus	Wed	Thu	Fri	Sat
1	Switch	On	08:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Switch	On	09:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Switch	Off	12:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Switch	Off	13:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 46: Project after optimization

6.7 Project options

You can enter the project title, customer data, creator data etc. under Project Options and save them in the project file.



Project options are only saved in the project file and are **not** transferred to the programming key.

- 1) Click on Options under Project.
- 2) Select a tab and enter the titles.
- 3) If you wish to name the channels, enter a new title on the Channel tab. This title appears in the toolbar for the channel selection.

6.8 Change device setting

The possible settings in the Device settings register vary according to the type of device, see chapter 15 "Device properties".



The settings in the Device settings register are stored in the project file and transferred to the device via the programming key. They do not effect the display in the PC software.

Time/date

The time/date format and the first day of the week can be adapted to individual countries.

<input type="checkbox"/> Time/Date	
Time Format	24h
Date Format	31.12.00
First day of the week	Monday

Fig. 47: Device settings: time/date

Summer/winter rule

Various options are available for the summer/winter rule:

Fig. 48: Device settings: summer/winter rule, selection field

Summer/winter rule	Meaning
Without summer/winter	No summer/winter rule
Europe, Western Europe, Eastern Europe, Canada, USA, IRAN	Country specific rules are preset ex works
Free choice	Time changeovers always fall on the preset day of the week (e.g. fourth Sunday in October).
Fixed date	Time changeovers always fall on the set date (e. g. 01.04.).

Tab. 5: Summer/winter rule selection fields

Holiday

Different conditions can be set for each channel.

Fig. 49: Device settings: Holiday

Holiday	Meaning
Inactive	No holiday program active
Off	Channel always off
On	Channel always on



The settings in the Holidays have priority over all other programs.

Options

the following selection fields are available in the Options range:

- The Elapsed-time counter setting allows the service interval to be set for each channel. A message is displayed on the device screen once the set number of operating hours has been reached.
- Additional switching possibilities can be selected for the external inputs (see the following table for possible settings).

The screenshot shows a settings menu titled 'Options'. Under 'Operating Hour', there is a 'Service Interval' field with a numeric input set to '10000' and a unit 'h', with a maximum value of 'max. 199.999h'. Below this, the 'External Input' is set to 'Push Button' and 'Override'.

Fig. 50: Device settings: Options

The possible external input settings Switch, Key or Inactive are explained in the table.

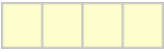
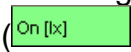
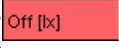



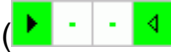
Keys or switches can be connected to the external switches. Depending on that, you can set various functions for the keys or switches.

External output		Meaning
Switch	Permanently on	Switch on: Channel always on Switch off: Programs/light function active
	Permanently off	Switch on: Channel always off Switch off: Programs/light function active
Push button	Manual	Channel is switched over to the next regular switch
	Timer	Timer on/off: Set on/off switching condition for set period
Inactive	–	External input without function

Tab. 6: External input

7 IC 100k

All devices in the IC 100k product group have a light sensor. In the factory settings, the light function of the light sensor is always activated (Light function active ). You can freely define the lux values for switching the connected devices on and off. If the defined lux value (On [lx] ) is not reached, the device switches on after the delay time has passed. If the defined lux value (Off [lx] ) is exceeded, the device switches off after the delay time has passed.

The Off period () button can be used to switch the device off irrespective of the defined lux values for a defined period. The On period () button can be used to switch the device on irrespective of the defined lux values for a defined period.

7.1 Select channel

- For devices with several channels, first select one channel.

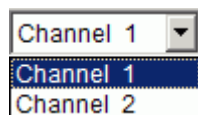


Fig. 512: Channel selection

7.2 Set lux value of the light sensor

Setting the lux values differs depending on the device type, see chapter 15 "Device properties", page 53.

Because the eye is already accustomed to the darkness when e.g. street lighting is turned off, the lux value for switching off can be set to a lower value than the value for switching on. As a result, earlier switching off is possible (e.g. switching on in the evenings at 25 lux, switching off in the mornings at 15 lux).

- 1) Select the Light tab.
- 2) Enter a lux value for switching on and off.

Lux Values	
On [lx]	Off [lx]
15	12

Fig. 52: Lux values for switching on and off

- 3) In order to avoid the device being switched back off or on unintentionally, you set delay times for the existing conditions.

Delay Time		
On	<input type="text" value="02:00"/>	mm:ss
Off	<input type="text" value="02:00"/>	mm:ss

Fig. 53: Delay time



The delay times and lux values of the switching program, which you enter on the Light tab, apply for the program.

7.3 Configure program

On the Program tab, you configure the switching program, which is repeated weekly.

- Select the Program tab.

7.3.1 Graph

Graphical programming of the switching program occurs via the following buttons:

Button	Command
	Cursor to select or move a switching program
	Set off period
	Set on period

Tab. 7: Buttons for graphical presentation

Chapter 6.5 "Change switching program", page 21 describes how you can change, copy, move or delete switching programs.

Example: Street lighting

In order to switch off street lighting in the night (Monday to Friday 0:30am – 4:30am, Saturday and Sunday 1:30am – 5 am) program the Kit LTS software as follows:

- 1) Select the Program tab.
- 2) Click on the Off period button.
- 3) In the column for 0:30 (street lighting switched off), press the left mouse button and drag the cursor from top to bottom (Monday to Friday) and to the right to the column for 4:30 (switching off ends).
- 4) Release the left mouse button.

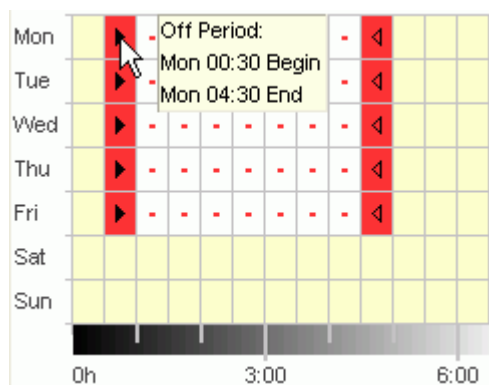


Fig. 54: Street lighting switched off, working days

- 5) In the column for 1:30 (street lighting switched off), press the left mouse button and drag the cursor from top to bottom (Saturday to Sunday) and to the right to the column for 5:00 (switching off ends).
- 6) Release the left mouse button.

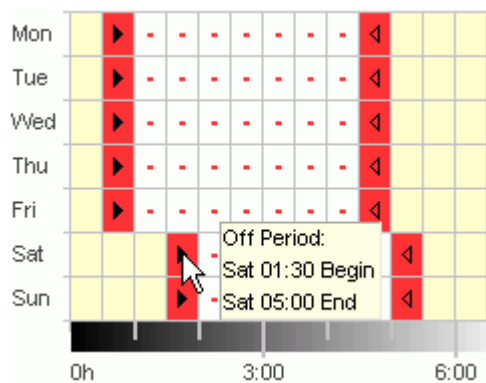


Fig. 55: Street lighting switched off weekend

7.3.2 Table

A switching program can also be configured as a table.

Example: Street lighting (see chapter 7.3.1 Graph)

- 1) Select the Program tab.
- 2) Click on New in the table.

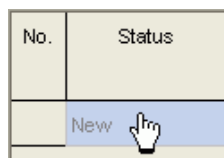


Fig. 56: New switching program

- 3) Select Off period.
- 4) Enter the start time (0:30).

No.	Status	Start Time							Duration Until								
		hh:mm	Mon	Tue	Wed	Thu	Fri	Sat	Sun	hh:mm	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	Off Period	00:30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New																

Fig. 57: Program start time

- 5) Select the weekdays (Monday to Friday).
- 6) Enter the duration until (4:30).

No.	Status	Start Time							Duration Until								
		hh:mm	Mon	Tue	Wed	Thu	Fri	Sat	Sun	hh:mm	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	Off Period	00:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	04:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New																

Fig. 589: Duration of the off period

- 7) Repeat steps 1 to 5 for the switching program for the weekend.

No.	Status	Start Time							Duration Until								
		hh:mm	Mon	Tue	Wed	Thu	Fri	Sat	Sun	hh:mm	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	Off Period	00:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	04:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Off Period	01:30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Fig. 59: Switching program Monday to Sunday

7.3.3 Off period and on period

The following example contains one off period and one on period. The remaining time is controlled by the light sensor.

Example: Shop window lighting

Shop window lighting should be switched on from 6:30am to 8am and 4pm to 6pm on working days. It should be switched off overnight from 8pm to 6:30am on working days. On the weekend (from Friday 8pm to Monday 6:30am), the lighting should also be switched off. At the other times, the light function is active, which means the lighting is switched on and off depending on the defined lux values.

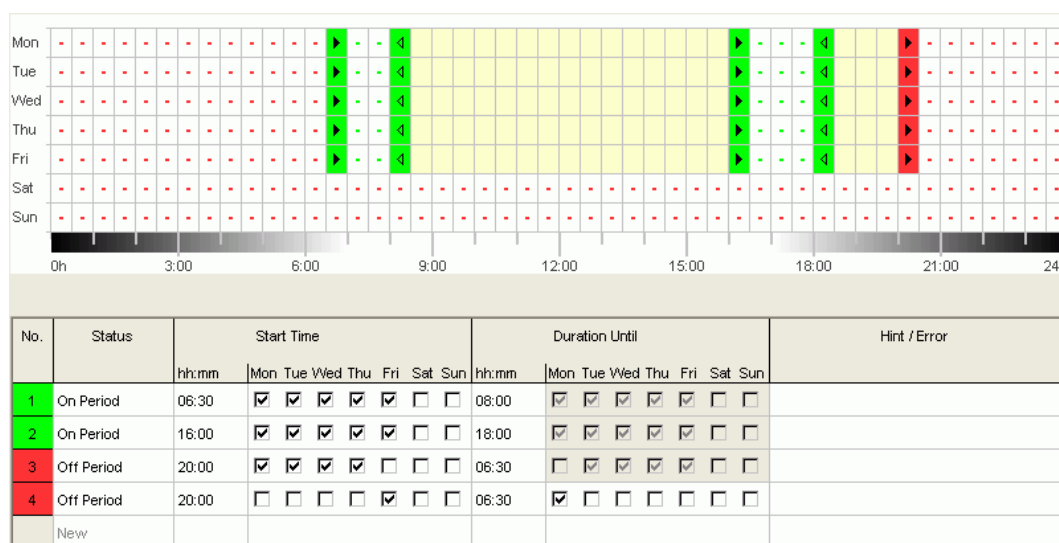


Fig. 60: Example of switching program for shop window lighting



Chapter 6.5 "Change switching program", page 21 and chapter 6.6 "Sort and optimize project", page 23 explain how you change, sort and optimize switching programs.

7.4 Change device settings

The setting options on the Device settings tab differ depending on the device type, see chapter 15 "Device properties", page 53.



The settings on the Device settings tab are saved in the project file and transferred to the device with the programming key. They do not affect the display in the PC software.

Time/date

You can adjust the time/date format and the day for the start of the week on a country-specific basis.

Fig. 61: Device settings: Time/date

Summer/winter rule

You have several options for the summer/winter rule:

Fig. 62: Device settings: Summer/winter rule selection field

Summer/winter rule	Meaning
No Su/Wi	No summer/winter rule
Europe, Europe West, Europe East, Canada	Country-specific rules preset in the factory
Free Rule	The clocks are always changed on the defined weekday (e.g. Sunday in the 4th week of October)
Fix Date	The clocks are always changed on the defined date (e.g. 01.04.)

Tab. 8: Summer/winter rule selection fields

Holiday

You can define different statuses for each channel.

Holiday		Begin		End	
	Status	Date	Hour	Date	Hour
C 1	Only Lux	31.12.2008	00:00	01.01.2010	00:00
C 2	Off	15.08.2008	00:00	16.08.2008	00:00

Fig. 63: Device settings: Holidays

Holidays	Meaning
Inactive	No holiday program active
Off	Channel always off
On	Channel always on
Lux only	Light function active, programs inactive



The settings in the Holidays area take priority over all programs.

Options

You have the following selection fields in the Options area:

- For the external inputs, you can select additional switching options (see the table below for the configuration options).
- You can set the device's LCD illumination. You can choose between: Off after 1 minute or Always on.

The screenshot shows a configuration window titled 'Options'. Under 'External Input', there are two rows: C 1 and C 2. C 1 has three dropdown menus: 'Push Button', 'Staircase Light', and 'Resettable', followed by a time field '00:03' and the unit 'hh:mm'. C 2 has two dropdown menus: 'Switch Button' and 'Permanent On'. Below this, 'LCD Illumination' is set to 'Off after 1 Minute' via a dropdown menu.

Fig. 64: Device settings: Options


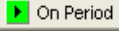
The table explains the configuration options for the external inputs switch button, push button and not active.



You can connect push buttons or switches to the external inputs. Depending on this, you set different functions for push buttons and switches.

External input		Meaning
Switch button	Permanent on	Switch on: Channel always on Switch off: Programs/light function active
	Permanent off	Switch on: Channel always off Switch off: Programs/light function active
	Only Lux	Switch on: Light function active, programs inactive Switch off: Programs, light function active
Push button	Override	Channel switched over until next regular switching
	Timer Short-Term Circuit	Timer on/off: Set switching status on/off for a particular time
	Staircase Light	Channel on for the set time Resettable: The second time the button is pressed, the set time is restarted Early cutout: The second time the button is pressed, the time ends immediately
Not active	–	No function for external input

8 IC Astro

The devices in the IC Astro product group are astronomical timers. They calculate the exact switching program for sunrise and sunset depending on location and time zone. The Off period () button can be used to switch the device off irrespective of the astronomical functions for a defined period. The On period () button can be used to switch the device on irrespective of the astronomical functions for a defined period.

8.1 Set astronomical function

The data relevant for determining the astrotime is set on the Astro tab. This data relates to the offset, astromode and position.

- 1) Select the Astro tab.
- 2) If necessary, enter the offset values for sunrise and sunset.

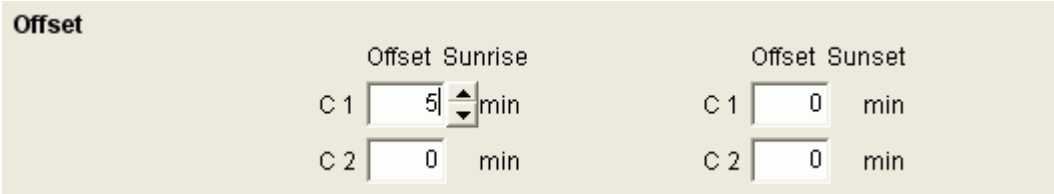


Fig. 65: Astro settings: Offset

- 3) Under Astromode, you can choose between On at sunset + Off at sunrise, Off at sunset + On at sunrise and Astro Inactive.

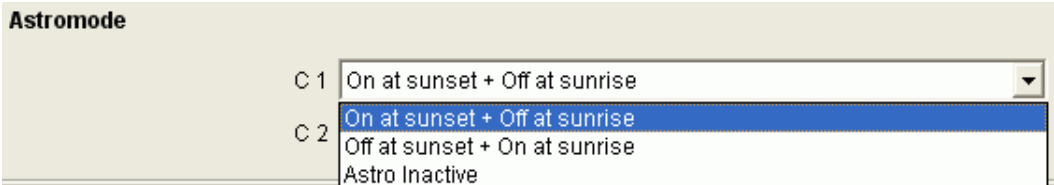


Fig. 66: Astro settings: Astromode

- 4) Define your position: Either by selecting the country and city/town or directly entering the degree of longitude/latitude and the time zone.

Location

Countrylist

Country

City

Coordinates

Latitude ° North

Longitude ° East

Timezone

Summer/Winter Rule

Fig. 67: Astro settings: Position

The time zone can be determined using the stored time zone map.

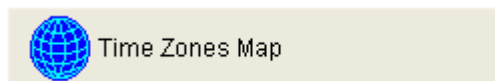


Fig. 68: Time zone display

It is essential that you enter the position so that the astrotime can be calculated exactly.

You can use the [Show Astrotimes](#) button to read all astrotimes for the selected location. You can print these times or export them as a CSV file.

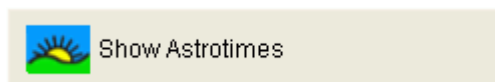


Fig. 69: Show astrotimes

Edit favourites

By clicking on this button, you can create up to 10 preferred cities/towns (known as "favourites"). You must enter the town's name, longitude, latitude and time zone. These towns then appear under Favourites in the list of towns.

8.2 Configure program

On the Program tab, you can enter additional switching programs (on period, off period) irrespective of the astrotimes. This switching program is repeated weekly.

- Select the Program tab.

For information on configuring the switching program, see chapter 7.3 "Configure program", page 28.

Yellow symbolizes the astrotimes.

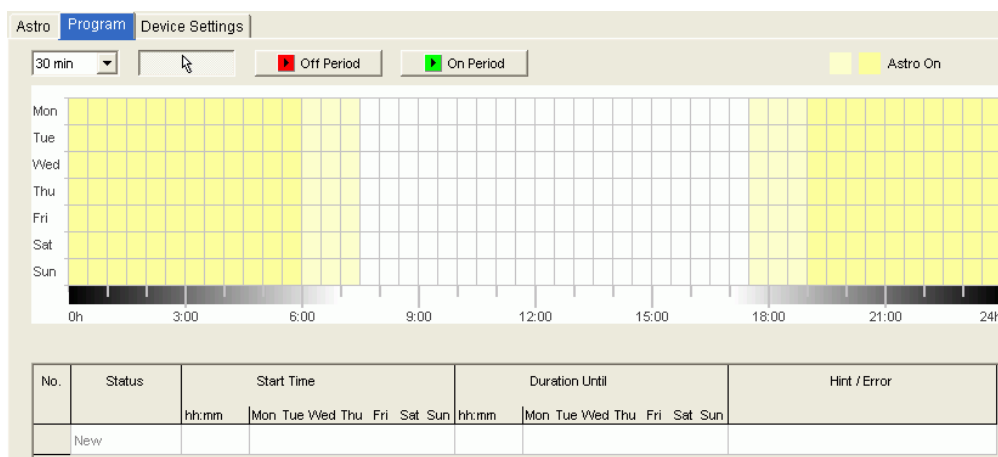


Fig. 70: Configure program


8.3 Change device settings

The setting options on the Device Settings tab differ depending on the device type.

For information on changing the settings, see chapter 7.4 "Change device settings", page 32.

8.4 Simulation

All switching operations can be graphically displayed in the simulation. This shows which switching program causes a change to the switching status.

- 1) Click the Simulation button .
 - The dialog window appears.

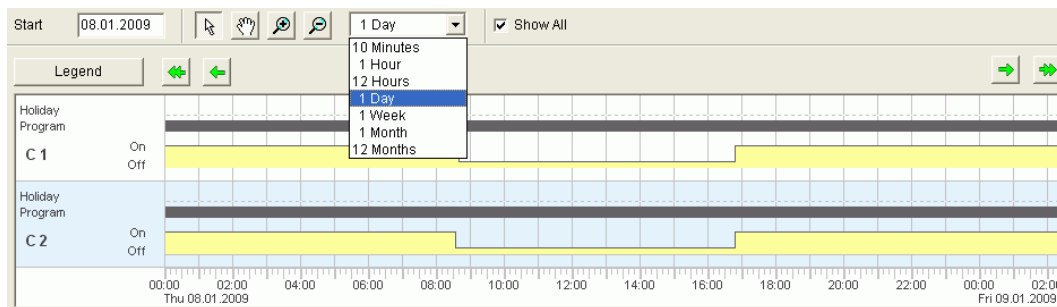



Fig. 71: Simulation display

2) Select the start time and resolution.

8.5 Analysis

In the analysis, you can calculate the energy costs for a defined period.

- 1) Click the Analysis button .
 - The dialog window Analysis appears.
- 2) Select the analysis period: Start and end.
- 3) Under Energy costs, enter the price for one kWh. You can enter a second tariff (e.g. for day and night). In this case, different times must be specified for tariff 1.
- 4) Enter the consumer's power.

Period	Start	End	Total	
	01.01.2008 00:00	01.01.2009 24:00	367 d 0 h	<input type="button" value="Print"/>
Energy Costs	EUR/kWh	From	Until	<input type="button" value="Export"/>
Tariff 1	0,20	06:00	22:00	
Tariff 2	0,15	22:00	06:00	
Electrical Power	Channel 1	Channel 2		
	1000 W	120 W		
Analysis	Channel 1	Channel 2		
On-Time Total	181 d 0 h 23 min	179 d 17 h 48 min		
Number of On Switching	368	368		
Power Consumption	4.344,383 kWh	517,656 kWh		
Energy Costs	723,51 EUR	86,13 EUR		

Fig. 72: Analysis display

5) You can print the data or export it as a CSV file.

9 REG-K/8/800

With the year time switches REG-K/8/800 (1-8 channel time switches) you have the option of programming and switching time or Astro programs for each channel.

9.1 Time switch programs

The time switch programs allow you to choose between standard and extra programs:

- 1 standard program (weekly program with switching times, pulse and cycle times)
- 16 extra programs consisting of:
 - 14 extra programs P1-P14 (weekly programmes with switching times, pulse and cycle times, with variable date ranges (fixed date range, date depending on Easter etc.), plus
 - extra program P15 (Continuous On) and
 - extra program P16 (Continuous Off) (with adjustable date ranges)

9.2 Astro programs

The time switch function can be activated for each channel instead of the Astro function. The Astro programs allow you to select from:

- 1 Astro standard program (weekly program with fixed On/ fixed Off times)
- 16 extra programs consisting of:
 - 14 Astro extra programs P1-P14 (weekly program with Fixed On / Fixed Off times) with variable date ranges (fixed date range, date dependant on Easter etc.), with
 - extra program P15 (Continuous On) and
 - extra program P16 (Continuous Off) (with adjustable date ranges)

9.3 Setting a standard program

The standard program is always active but has the lowest priority and can be overridden by extra programs P1-P16.

- Select the Standard program register.
See chapter 6.2 ff for programming switching times.

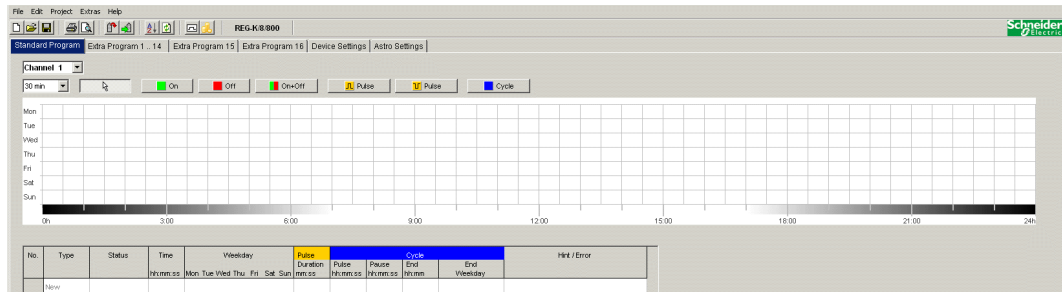


Fig. 73: Standard program: Time switch program

If an Astro program is set (in the Settings device/channel function), the following appears

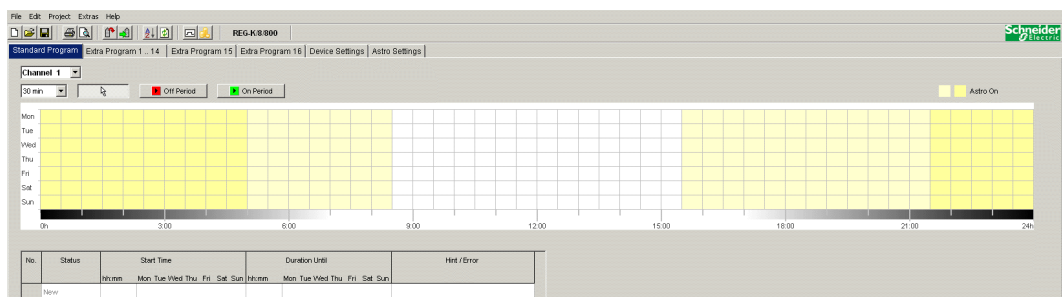


Fig. 74: Standard program: Astro program

See chapter 7.3. for setting switching times.

9.4 Setting extra programs (extra programs 1-14)

Extra programs 1-14 allows you to choose programs that differ from the standard programming for one or more date ranges, e.g public holidays, holidays etc.

The following applies to the extra programs: The higher the number, the higher the priority. Extra program 16 has the highest, extra program 1 the lowest, priority. A extra program becomes active if at least one date range is set and it is not overridden by another extra program with a higher priority in this time range.

The following calendar-dependent date ranges can be set:

Fixed date (once, example: Start on 02.04.2010 at 4pm, end on 24.04.2010 at 10am)

Fixed date each year (Example: Christmas every year: Start on 24.12. at 6pm, end on 26.04. at 11pm)

Easter rule (Easter-dependent date range: 81 days before and 174 days after Easter, example: Whit Sunday and Whit Monday each year: Start 49 days after Easter at midnight, end 51 days after Easter at midnight)

Specimens (Date series, example: Every 2 weeks from November 2010: Start on Monday 01.11.2010 at midnight, end on Monday 08.11.2010 at midnight, repeat start after 14 days)

Day of the week rule (Example: Every month on the first weekend from Saturday 6am until Sunday 6pm: Start on the first Sunday each month at 6am, duration 36 hours)

Chinese New Year (date range dependent on Chinese New Year: 20 days before and 20 days after Chinese New Year)

Transfer public holiday settings: The public holidays entered in the public holiday setting can be transferred to the date range.

Example of programming standard and extra programs

Switch on street lighting at midday 30 April to midday 1 May

The **standard program** switches on street lighting depending on Astro times. A night-time interruption is programmed from 11pm to 4am.

The **extra program** 1 is active in the date range from midday 30 April to midday 1 May. Night-time interruption is not programmed so that the street lighting is not on all night.

See chapter 7.4 (entering date ranges) for entering extra programs; see chapter 5.4 for creating and editing public holiday settings.

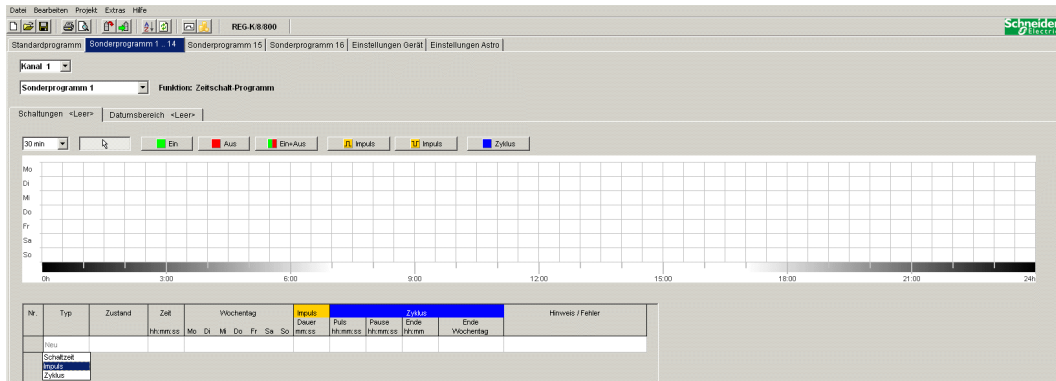


Fig. 75: Extra programs 1 -14: Date ranges

9.5 Set extra program 15 (On)

Extra program 15 (continuous On function) allows you to set a date range where the channel is always switched on.

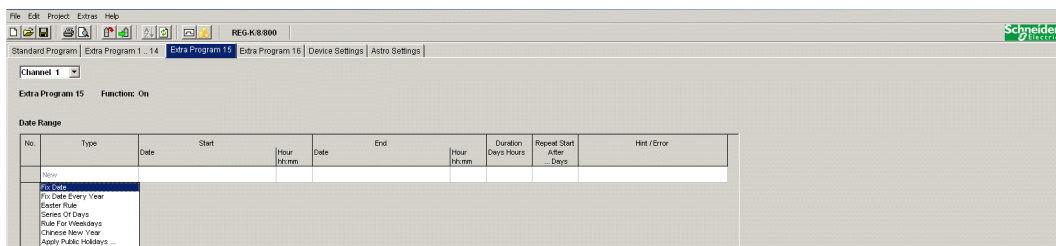


Fig. 76: Extra program 15

9.6 Set extra program 16 (Off)

Extra program 16 (continuous Off function) allows you to set a date range where the channel is always switched off.

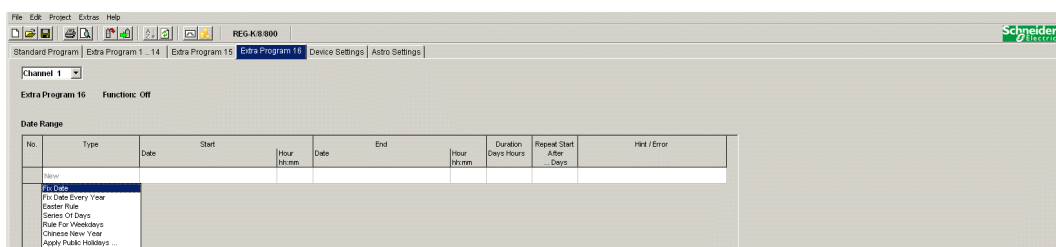


Fig. 77: Extra program 16

Example: Car park lighting

The standard program switches on the car park lighting at set times from Monday to Friday according to Astro times. The extra program ensures that the lighting is not switched on every public holiday.

9.7 Change device settings

The possible settings in the Device settings vary according to the type of device.

See chapters 6.8 and 7.5 ff for changing settings (Time/date, summer/winter time, options).

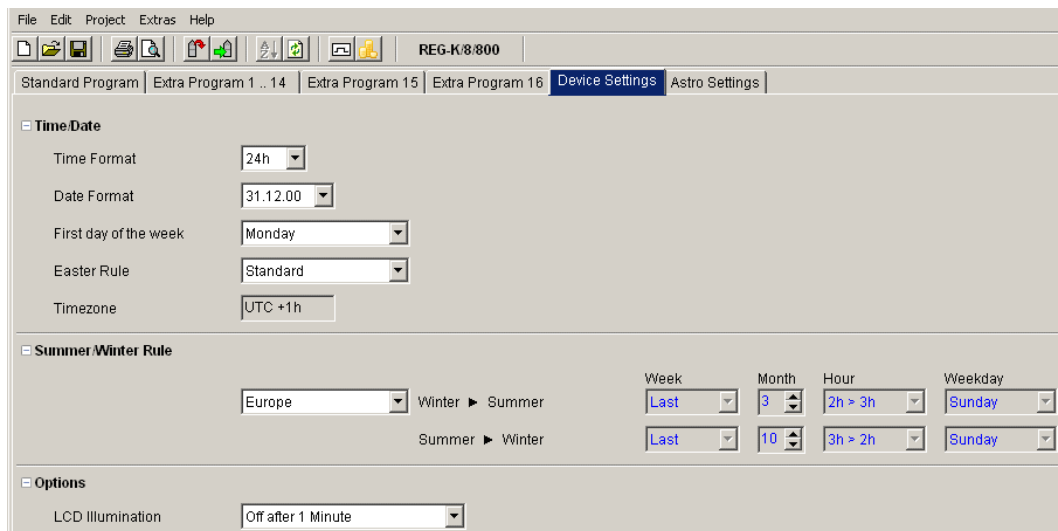


Fig. 78: Device settings: Time/date, summer/winter rule

You can also use **Channel settings** to make other changes.

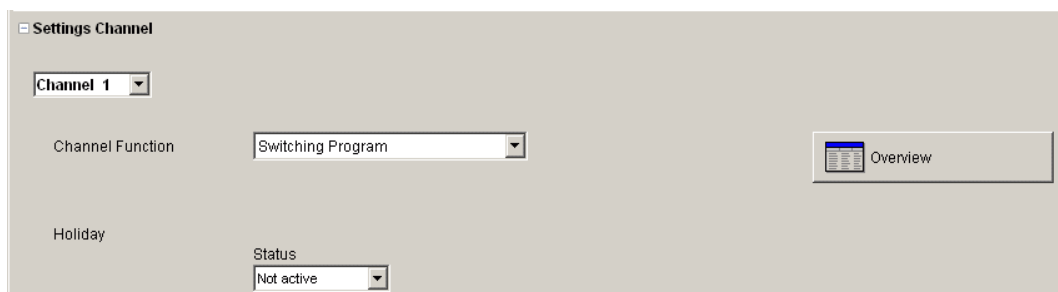


Fig. 79: Device settings: Channel settings

1. **Upgrade module:** You can choose whether an upgrade module should be active. Channels 5-8 are also available for this purpose.
2. **Channel function:** This allows you to choose between time switch program or Astro program. Changing the channel function deletes the entered program.
3. **Overview:** The Overview button allows you to review the entered data.

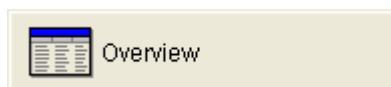


Fig. 80: Channel settings: Overview

9.8 Change Astro settings

This menu only appears if at least one channel is set to Astro program.

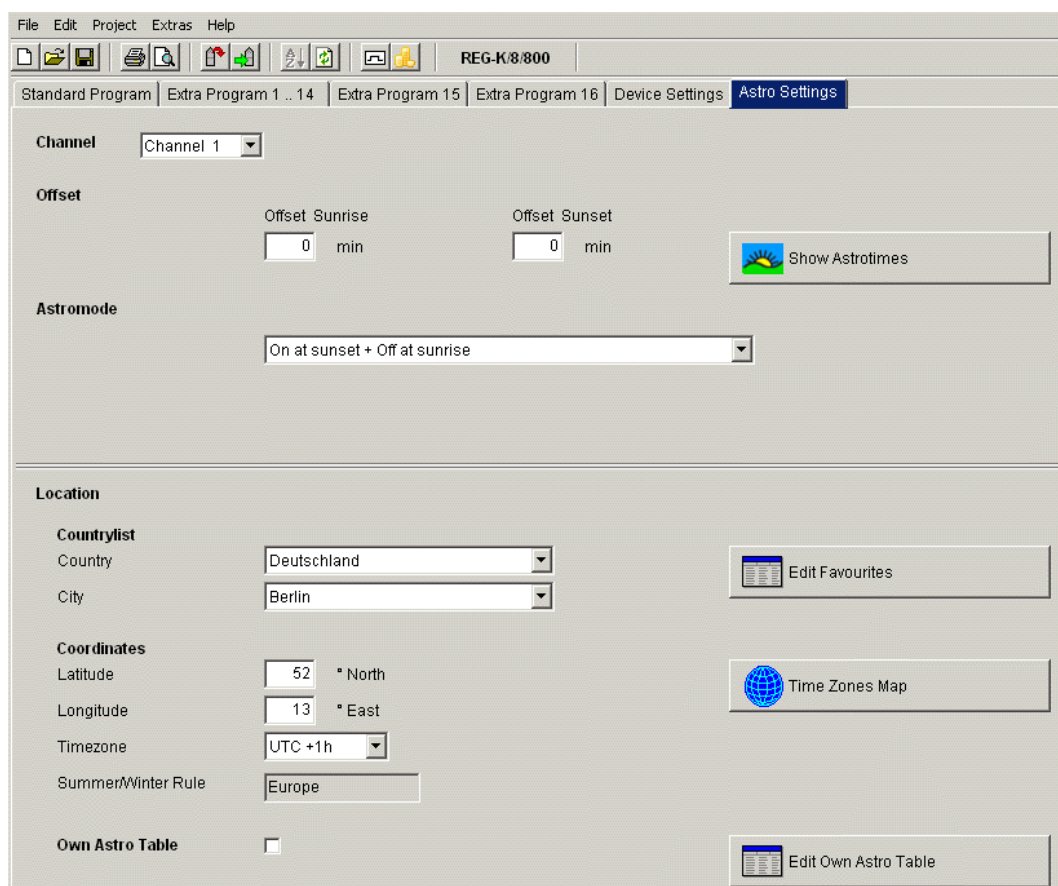


Fig. 81: Astro settings

You can enter the relevant data for entering the Astro time described in chapter 8.1 or create your own Astro table.



Fig. 82: Astro settings: Edit own Astro table

You can enter your own time for sunrise and sunset for every day of the year. These times must be entered as winter time for the whole year.

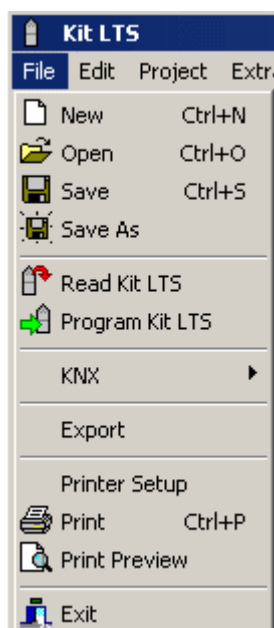
If the **Own Astro table** function is selected then the sunrise and sunset times in the table are used.

These times are corrected according to the summer/winter time rule for the switching time of the relay. Functions are available to complete this table automatically.

9.9 KNX settings

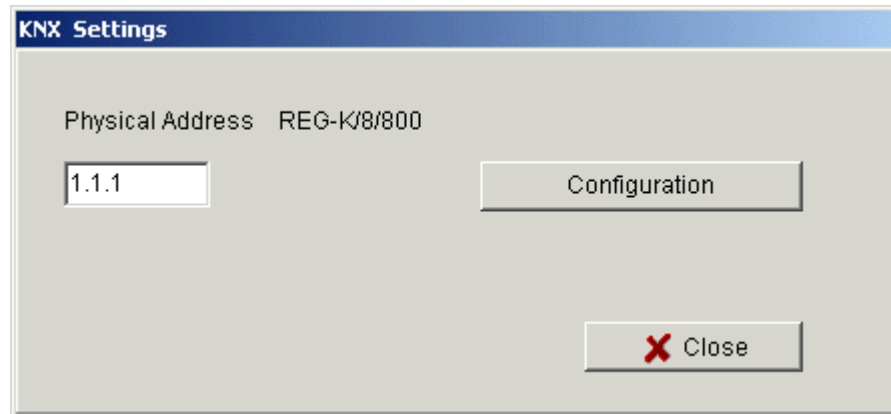
With the year time switch, the **KNX sub menu appears in the main menu** with the following setting options:

Settings – Read – Send Program– Send All

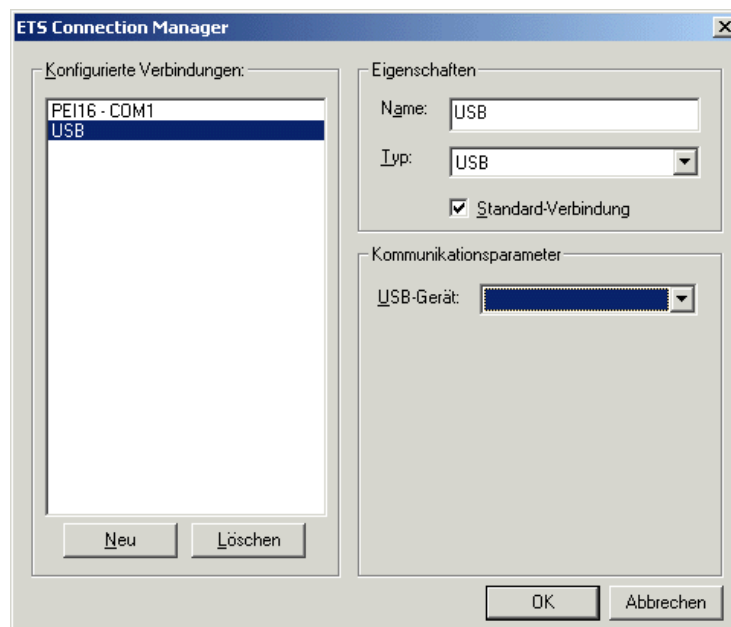


Settings

1. Enter the **Physical address** of the year time switch (e.g. evident in the ETS software etc.).



2. Connect USB interface to computer.
3. Then click on Configuration.
4. Select USB in Configured connections, for example .
5. Select the USB Type in Features plus the standard connection. KNX USB interface now appears on connection field (if connected).
6. Confirm your selection and close the window.



Read

The entered switching times and programmes, which are programmed on the time switch, are transferred to the Kit LTS computer program. "KNX access" appears on screen.

Send program

The switching times and programs produced with the Kit LTS software are sent to the year time switch. "KNX access" appears on screen.

Send all

Switching times, programs and settings (Date/time, holidays, summer/winter time etc.) are sent to the year time switch.

Requirements for KNX program transmission

For bus communication, the Falcon driver (*FalconRuntime_V20_ObeliskKNX.msi*) must be installed. This program is installed on the Kit LTS CD in the "Driver" directory.

➤ Windows 7 and Vista

No further software required.

➤ Windows XP

Absolutely essential to the Falcon driver installation under Windows XP is a **Microsoft .NET Framework 2.0 SP2*** or **.NET Framework 3.5 SP1** (see Settings à System control à Software).

If neither software is available, install Version 3.5 Service Pack 1 (see below).

Version 4 and higher are not suitable.

Download Links

.NET Framework 3.5 Service Pack 1 Download (Internet setup German 2.8 MB):

<http://www.microsoft.com/de-de/download/details.aspx?id=22>

or:

.NET Framework 3.5 Service Pack 1 Download (Internet Setup English 2.8 MB):

<http://www.microsoft.com/en-us/download/details.aspx?id=22>

Please read the **instructions** on the aforementioned websites carefully. The installation file is available as a **complete package** (231 MB) for download.

*.NET Framework 2.0 SP2 is automatically installed with the ETS 4.

10 Program programming key


When you program the programming key, the project you configured (programs and settings) is saved on the programming key. All switching programs are automatically optimized.



The programs and settings for all channels are saved on the programming key, and the existing data on the programming key is deleted.

The entries for the project options are not saved on the programming key.


Proceed as follows to program the programming key:

- 1) Insert the programming key into the programming interface and then insert the interface into your PC's USB port.
 - 2) Click on the button for programming Kit LTS .
 - 3) Confirm the message window with Yes.
- The programs and settings are saved on the programming key and can then be transferred to the device.

11 Read programming key

Programs and settings saved on the programming key are transferred to the Kit LTS software.

1) Insert the programming key into the programming interface and then insert the interface into your PC's USB port.

2) Click on the button for reading Kit LTS .

→ The programs and settings on the programming key are transferred to the software.

12 Export

Project data, programs and settings can be saved in a CSV file and opened and edited with a spreadsheet program or another program (e.g. Editor).

1) Click on Export under File.

→ The dialog window Export CSV file appears.

2) Select a file location and enter a file name.

3) Click on Save.


13 Language Kit LTS

It is possible to transfer an additional language to your device via the programming key.

1) Insert the programming key into the programming interface and then insert the interface into your PC's USB port.

2) Click on Create Language Kit LTS under Extras.

→ The dialog window Create Language Kit LTS appears.

3) Click on  next to the field File name.

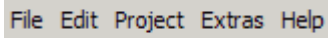
4) First, select a language folder and then the appropriate TXS file for your device.

5) Click on the  **Program Kit LTS** button.

→ The language file is saved on the programming key and can then be transferred to the device.

14 Menu commands

This chapter contains short explanations of all the menu commands.



File Edit Project Extras Help

Fig. 83: Menu bar

Menu	Command	Meaning
File	New	Create new project
	Open	Open existing project
	Save	Save project
	Save As	Save project as new name
	Read Kit LTS	Transfer programs and settings from the programming key
	Program Kit LTS	Save programs and settings on the programming key
	Export	Save programs and settings in a CSV file
	Printer Setup	Change printer settings
	Print	Print project
	Print Preview	Display the print preview
	Exit	Exit software
Edit	Undo	Undo the most recent actions on the current tab (max. 10 actions)
	Redo	Redo undone actions
	Cut	Move selected data to the intermediate memory
	Copy	Copy selected data
	Paste	Insert cut/copied data
	Select All	Select all data or date ranges
	Delete	Delete selected data
Project	Simulation	Simulate data
	Analysis	Analyze data
	Sort	Sort data
	Optimize	Optimize data
	Options	Enter further data for the project (title, customer, creator, etc.)

Menu	Command	Meaning
Extras	Create Language Kit LTS	Save additional language on the programming key
	PC software settings	Set the language and the first day of the week
Help	Kit LTS help	Open the software help
	About...	Open information about the software

Tab. 9: Menu commands

15 Device properties

There are different properties depending on the product group and device type.

15.1 IHP

Properties	IHP+ 1C	IHP+ 2C	IHP 1C 18mm	IHP+ 1C 18mm
Channels	1	2	1	1
Memory locations	84	84	56	84
Switching program on/off	•	•	•	•
Pulse	•	•		•
Cycle				•
External inputs	1	2		1

Tab. 10: IHP device types

15.2 IC 100k

Properties	IC100k+ 1C	IC100k+ 2C	IC100kp+ 1C	IC100kp+ 2C
Channels	1	2	1	2
Memory locations			84	84
Light sensor	•	•	•	•
Program switching program			•	•
Set lux values	•	•	• ¹⁾	• ¹⁾
Programs			•	•
External inputs	1	2	1	2

x¹⁾ Different lux values possible for each day of the week

Tab. 11: IC 100k device types

15.3 IC Astro

Properties	IC Astro 1C	IC Astro 2C
Channels	1	2
Memory locations	84	84
Program switching program	•	•
External inputs	1	2

Tab. 12: IC Astro device types

15.4 KNX year time switch REG-K/8/800

Features	REG-K/8/800
Channels	8
Memory locations	800
Program switching times	•
Programming Astro times	•
Pulse	•
Cycle	•
Extra programs	16
External, remote-controlled antenna	•
External outputs	-

Tab. 13: KNX year time switch device type

16 Imprint

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Kit LTS V1.3

If you have technical questions, please contact the central customer support in your country.

www.schneider-electric.com

Because standards and materials are continuously developed, the technical data and information relating to dimensions is only valid after confirmation from our technical departments.

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