



## **Autotimer**

Smart Home App for the **APPMODULE**

Documentation

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## Introduction

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Thank you for purchasing the Autotimer Smart Home App for the **APPMODULE** from **BAB Technologie GmbH**.

With the Autotimer App you expand your Smart Home installation with freely configurable, different types of (time) switch clocks and timers. In addition to classic timers (e.g. weekly and annual timers), the Autotimer app also enables the integration of online calendars (iCalendar), the online query of country-specific holidays and much more.

For information on installing the Smart Home App on the **APPMODULE**, please refer to the documentation for the **APPMODULE**.

These can be found on the start page of the **APPMODULE** under "Documentation" or at <https://bab-technologie.com/appmodule/>.

We reserve the right to make technical and formal changes to the product in the interests of technical progress. Therefore, the information in this documentation may differ from the current status. Information about the current status of the Smart Home app can be found at

<https://www.bab-appmarket.de>

This app is an independent product and is not legally connected to BAB Technologie GmbH, BAB APP Market GmbH or the online services used.

### Disclaimer

We do not assume any liability or warranty for errors in the software or damages resulting from the use or inability to use the software. This includes loss of business profits, interruption of business operations, loss of data, and all other tangible and intangible losses and consequential damages.

## Security/data transfer

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The Autotimer app can use online services for some functions or must use online services for some types of timers.

When using these time switches (Holiday time switch with activated use of online holiday database or iCal based time switch with configured use of an online calendar) the **APPMODULE** must have permanent internet access.

### *Function position determination*

For the automatic determination of the latitude and longitude based on an entered address the free geocoding API of [maps.co](https://maps.co) is used. This function is only used during the configuration of the corresponding time switch.

The transmission of data to and from the service is generally encrypted (SSL/TLS). When using this function, in addition to the data entered (address for position determination), the IP address(es) of the Internet access via which the **APPMODULE** communicates externally are also transmitted. Please note the privacy policy of the provider. The (permanent) availability of the functionality cannot be guaranteed.

### *Function online holiday calendar*

The free API of [nager.date](https://nager.date) is used to determine holidays.

The transmission of data to and from the service is generally encrypted (SSL/TLS). When using this function, in addition to the entered data (country), the IP address(es) of the Internet access via which the **APPMODULE** communicates externally are also transmitted.

Please note the privacy policy of the provider. The (permanent) availability of the functionality cannot be guaranteed.

### *iCal based time switch*

For the iCal based timer (with the setting "URL of a published iCal calendar" as iCal data source) you must enter the address of a published calendar. Authentication (Bearer Token, OAuth etc.) is not possible. Whether the data is transmitted encrypted or unencrypted depends on the provider who provides the calendar.

When using this function, the IP address(es) of the Internet access via which the **APPMODULE** communicates externally is/are also transmitted.

Please note the privacy policy of the provider. Availability depends on the provider of the calendar.

## Function overview

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The Autotimer app is available in 3 variants. These differ in the range of functions as follows:

### Pro

The Pro variant contains the full range of functions and allows the setup of up to 10 instances. Please refer to the table below for the individual functions. Functions, settings, and parameters that are only available in the Pro variant are marked in the documentation by the following symbol:



In the standard version of the app, these functions, settings, and parameters are hidden or disabled.

### Standard

In the Standard variant, 2 instances can be configured. The range of functions is limited compared to the Pro variant - please refer to the table below for the available functions.

### Lite

The Lite version is identical to the Pro version in terms of functionality and is primarily intended for trying out the app. After 90 minutes of running time of the app instance, however, no more switching commands are executed, but only logged. Status information - if configured and available - will still be sent.

**The Lite variant is not intended for productive use.**

<i>General</i>	<i>Standard</i>	<i>Pro</i>
Number of instances (time switches)	<b>2</b>	<b>10</b>
Group address to enable/disable	✓	✓
Individual behavior on enable/disable	✗	✓
Group address for status time switch	✗	✓
Output 1 (DPT 1)	✓	✓
Output 2 with adjustable data type	✗	✓
Automatic determination of longitude/latitude based on address <sup>1</sup>	✓	✓
Preview/simulation switching times	✓	✓

<b>Time shift</b>	<b>Standard</b>	<b>Pro</b>
Fixed time shift (-90 to +90 minutes)	✓	✓
Random time shift (configurable range of values)	✗	✓
Earliest switching time	✓	✓
Catch up switching at the earliest switching time optional	✗	✓
Latest switching time	✓	✓
Advance gearshift at latest switching time optional	✗	✓
<b>Pre-run/post-run switching</b>	<b>Standard</b>	<b>Pro</b>
Separate group address for pre-run switching	✗	✓
Lead time adjustable (1 - 30 minutes)	✗	✓
Configurable behavior of the pre-run switching	✗	✓
Separate group address for post-run switching	✗	✓
Follow-up time adjustable (1 - 30 minutes)	✗	✓
Configurable behavior of the post-run switching	✗	✓
<b>More options</b>	<b>Standard</b>	<b>Pro</b>
Configurable switch-off delay by group address	✗	✓
Configurable reminder for all-day events the day before	✗	✓
Output of additional switching information to the bus	✗	✓
<b>Timer</b>	<b>Standard</b>	<b>Pro</b>
Up counter timer (counting up from 0)	✓	✓
Countdown timer (count down to 0)	✗	✓
Start/stop via group address	✓	✓
Configurable behavior on restart when active	✗	✓
Group address to restart the timer (Reset + Restart)	✗	✓
Group address to pause/resume the timer	✗	✓
Configurable transmission behavior (start, stop, end, pause/resume)	✗	✓
Timer duration adjustable via group address	✓	✓
Configurable behavior at new timer duration (Autostart)	✗	✓
Group address for runtime/remaining runtime in minutes	✓	✓
Group address for runtime/remaining runtime as text	✗	✓
Group address to extend/shorten current runtime	✗	✓

<b>Weekly time switch</b>	<b>Standard</b>	<b>Pro</b>
Maximum configurable switching times per instance	16	32
Group address for special day 1 / consideration per switching time	✓	✓
Group address for special day 2 / consideration per switching time	✗	✓
Individual value per switching time for output 2	✗	✓
Output info text Entry on group address as text	✗	✓
<b>Annual time switch</b>	<b>Standard</b>	<b>Pro</b>
Maximum configurable entries per instance	16	32
<n>/last day of the month	✓	✓
<n>/last/every <weekday> of the month	✓	✓
Fixed date	✓	✓
Fixed date range	✗	✓
All day switching	✓	✓
Individual switching time per entry	✗	✓
Individual value per switching time for output 2	✗	✓
Output info text Entry on group address as text	✗	✓
<b>Holiday time switch</b>	<b>Standard</b>	<b>Pro</b>
Maximum configurable individual holidays	16	32
Use worldwide holiday database <sup>2</sup>	✓	✓
Restriction to state/region <sup>2</sup>	✗	✓
Filter by holiday classification <sup>2</sup>	✓	✓
Always consider unofficial holiday on Sundays as a holiday	✗	✓
Output holiday to group address as text	✗	✓

<b>Astro time switch</b>	<b>Standard</b>	<b>Pro</b>
Switching time sunrise/sunset <sup>3</sup>	✓	✓
Switching time solar maximum ("true noon") <sup>3</sup>	✓	✓
Switching time start/end civil twilight <sup>3</sup>	✓	✓
Switching time start/end nautical twilight <sup>3</sup>	✗	✓
Switching time start/end astronomical twilight <sup>3</sup>	✗	✓
Switching time start/end "golden hour" <sup>3</sup>	✗	✓
Switching time start/end "blue hour" <sup>3</sup>	✗	✓
Value to be sent at switching time adjustable	✓	✓
<b>KNX time switch</b>	<b>Standard</b>	<b>Pro</b>
Timer fully controllable via the bus	✓	✓
Preset switch-on/switch-off time via minutes of day via GA	✗	✓
Output of the on/off time to group addresses (DPT 10)	✗	✓
<b>Day/night time switch</b>	<b>Standard</b>	<b>Pro</b>
Configuration of the values to be sent during day/night	✓	✓
Group addresses for output time/date/date & time	✗	✓
<b>iCal based time switch</b>	<b>Standard</b>	<b>Pro</b>
Timer based on an online iCal calendar <sup>4</sup>	✗	✓
Timer based on an ICS file (import)	✗	✓
Output entry name on group address as text	✗	✓
Individual value from calendar entry for output 2	✗	✓

- 1 To automatically determine the longitude and latitude, the entered address is sent to the free geocoding API of maps.co. Please note the privacy policy of the provider. The (permanent) availability of the functionality cannot be guaranteed.
- 2 The availability of holiday information cannot be guaranteed. The database of <https://date.nager.at/> is used as a database. There you can check in advance whether holiday information is available for your country. Please note the privacy policy of the provider. The (permanent) availability of the functionality cannot be guaranteed.
- 3 The calculation of the position of the sun and the dawns is based on a simplified formula. The calculated values may differ from other (more accurate) calculations by a few minutes. Not every switching time can be calculated for every place in the world.
- 4 The app reads an online published RFC 5545 compliant iCalendar. This must be "freely" accessible. Authentication (Bearer, OAuth etc.) is not possible. Please note the privacy policy of the provider. Availability depends on the provider of the calendar.

## Switching times & calculation

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The Autotimer App uses the local date and time of the **APPMODULE** for all calculations, switching and updates. Therefore, make sure that the time zone (mounting location) and the system time of the **APPMODULE** are set correctly and that time synchronization with NTP servers is set up if necessary. Hints for configuration can be found in the documentation of the **APPMODULE**.

Depending on the app variant, the type of timer and any activated options, the switching times are either fixed or variable.

The holiday time switch and the annual time switch operate in principle with an all-day switching. The switching time starts at 00:00:00 on the switching day and ends at 23:59:59.

In the Pro version of the app, it is also possible to change the all-day switching per event for the annual time switch by entering the start and end.

With all other calculating time switches (without "Timer" and without "KNX time switch"), there are two defined switching times (start and end) in each case. With the Astro time switch, there is only one switching time, that of the configured event.

If activated, a fixed or random time offset is first applied to the actual switching time and the result is used as the new switching time.

If it is the "start" switching time or a switching time of the Astro timer, the switching time is checked against the "earliest switching time".

If the check fails (switching time is before the "earliest switching time"), the switching time is ignored, and the calculation is aborted in the standard version of the app or if "Catch up on earlier switching" was not activated. If "Catch up on earlier switching" was activated, the switching time is set to the value of "earliest switching time".

If it is the "end" switching time or a switching time of the Astro timer, the switching time is checked against the "latest switching time".

If the check fails (switching time is after the "latest switching time"), the switching time is ignored, and the calculation is aborted in the standard version of the app or if "Advance later switching" was not activated. If "Advance later switching" was activated, the switching time is set to the value of "latest switching time".

This completes the calculation of the actual switching time. If the switching time has not been ignored, it will now be applied if pre- and post-run switching have been configured.

At the "start" switching time, the pre-run switching is applied and at the "end" switching time, the post-run switching is applied. In the case of an Astro timer, both the pre-run and the post-run switching are applied to the switching time.

## Configuration

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After installing the smart home app Autotimer, the first thing to do is to create an instance of the app.

To do this, click "+ Create instance" and set up the new instance:

### Instance settings

#### Instance name

Select a name for the instance here.

#### Comment

Optional - here you can store a description of the function of this instance.

### General settings

#### Time switch type

Select the type of time switch here. Possible types are:

- Timer
- Weekly time switch
- Annual time switch
- Holiday time switch
- Astro time switch
- iCal based time switch **PRO**
- Day/Night time switch
- KNX time switch

A detailed description of the individual types can be found in the corresponding sections of the time switches.

## Options

Depending on the app variant and type of time switch, various options are available that can be activated or deactivated accordingly.

### **Option: Time switch On/Off via GA**

By activating this option, the corresponding configuration section is shown. This option is available in all available types of time switches.

This option can be used to temporarily deactivate the time switch via a group address.

### **Group address On/Off**

Group address (1-bit - DPT 1), via which this time switch is deactivated or reactivated.

### **Behavior On/Off** PRO

This selection defines the behavior how the time switch should react to incoming telegrams:

- **Standard - Discard switching commands during 'Off'**  
The timer is deactivated when receiving 0, off or false and reactivated when receiving 1, on or true. Changes to the outputs while the timer is deactivated are discarded. The outputs are updated only at the next occurring switching time. This is also the behavior in the standard variant of the app!
- **Standard - catch up switching commands during 'Off' at 'On'**  
The timer is deactivated when receiving 0, off or false and reactivated when receiving 1, on or true. Changes to the outputs while the timer is deactivated are sent to the bus when it is reactivated (by 1, on or true on the group address).
- **Inverted - discard switching commands during 'Off'**  
The input is inverted - the timer is deactivated when receiving 1, on or true and reactivated when receiving 0, off or false. Changes to the outputs while the timer is deactivated are discarded. The outputs are only updated at the next occurring switching time.
- **Inverted - catch up switching commands during 'Off' at 'On'**  
The input is inverted - the timer is deactivated when receiving 1, on or true and reactivated when receiving 0, off or false. Changes to the outputs while the timer is deactivated are sent to the bus when reactivated (by 0, off or false on the group address).

### **Status group address On/Off** PRO

Optional group address (1-bit - DPT 1) on which is signaled whether the timer is active (1/on/true) or deactivated (0/off/false).

*Hint: When the instance is started, the timer is always activated and when the configuration is changed, the timer is always reactivated!*

**Option: Time shift**

By activating this option, the corresponding configuration section is shown. This option is only available in the following types of time switches:

Timer	Weekly time switch	Annual time switch	Holiday time switch	Astro time switch	iCal based time switch	Day/night time switch	KNX time switch
No	Yes	Yes	No	Yes	Yes	Yes	No

**Time shift**

This selection defines the type of time shift:

- **None**  
There is no time shift
- **Fixed**  
A time shift with a fixed value takes place
- **Random** PRO  
A time shift with a random value takes place

**Time shift in minutes**

This field is displayed if the time shift is set to "Fixed". A value in the range from -90 minutes to 90 minutes must then be entered here.

With a fixed time shift, the configured time shift is subtracted from the start time and added to the end time. A negative specification thus results in the value being added to the start time and subtracted from the end time. Examples:

Without time shift	On at 12:15	Off at 16:00
With time shift of 10 minutes	On at 12:05 (- 10)	Off at 16:10 (+ 10)
With time shift of -8 minutes	On at 12:23 (+ 8)	Off at 15:52 (- 8)

For the Astro timer, which only has the switching time of the configured event, the configured time shift is subtracted from the switching time.

**Min. time shift**

This field is displayed if the time shift is set to "Random". A value in the range of -90 minutes to 90 minutes must then be entered here. The value represents the smallest value for the calculation of the random time shift.

**Max. time shift**

This field is displayed if the time shift is set to "Random". A value in the range of -90 minutes to 90 minutes must then be entered here. The value represents the largest value for the calculation of the random time shift.

*Note: With the random time shift, a random value is determined for each switching time. Thus - depending on the setting of the smallest and largest value for the time shift - completely different switching times can be calculated!*

### ***Earliest switching time***

In this field, the earliest time can be entered from which switching is allowed. If no time or an incorrect time is entered, this function is deactivated.

If the switching time (regardless of whether it was calculated or comes from an online calendar, for example) falls before the time specified here, the switching is ignored unless the "Catch up earlier switching" setting (only available in the Pro variant) is activated. Then the switching time is set to the value configured here.

*Note: This setting also affects any configured pre/post switching. If the switching time is ignored due to this restriction, a possibly configured pre-run switching is also ignored!*

### ***Catch up earlier switching*** **PRO**

If the (switch-on) switching time (regardless of whether it has been calculated or comes from an online calendar, for example) falls before the time configured under "Earliest switching time", the switching is ignored. By activating this setting, the switching time will not be ignored and will be set to the value configured under "Earliest switching time".

### ***Latest switching time***

In this field, the latest time can be entered up to which switching is allowed. If no time or an incorrect time is entered, this function is deactivated.

If the switching time (regardless of whether it has been calculated or comes from an online calendar, for example) falls after the time specified here, the switching is ignored unless the "Advance later switching" setting (only available in the Pro variant) is activated. Then the switching time is set to the value configured here.

*Note: This setting also affects any configured pre/post-run switching. If the switching time is ignored due to this restriction, any configured follow-up switching is also ignored!*

### ***Advance later switching*** **PRO**

If the (switch-on) switching time (regardless of whether it has been calculated or comes from an online calendar, for example) falls after the time configured under "Latest switching time", the switching will be ignored. By activating this setting, the switching time will not be ignored and will be set to the value configured under "Latest switching time".

*Note: All time switches usually have an ON and an OFF switching time. In this case, the earliest switching time refers to the on switching time and the latest switching time refers to the off switching time.*

*With the Astro time switch, there is only one switching time (time of the configured event). Here, both the earliest switching time and the latest switching time refer to this one time.*

**Option: Output 2** PRO

By activating this option, the corresponding configuration section is shown.

This option is available only in the following types of time switches:

Timer	Weekly time switch	Annual time switch	Holiday time switch	Astro time switch	iCal based time switch	Day/night time switch	KNX time switch
Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

By activating output 2 you have the possibility to output an additional value to another output besides the output of an on/off value to output 1.

**Output 2 data type**

Select here the data type to be used for the group address output 2. Available data types:

- DPT 1: 1 Bit
- DPT 9: 2 Byte Float
- DPT 5: 0%..100%
- DPT 14: 4 Bytes Float
- DPT 8: 2 Byte (-32768..32767)
- DPT 7: 2 Byte (0..65535)
- DPT 13: 4 Byte (-2147483648..2147483647)
- DPT 12: 4 Byte (0..4294967295)
- DPT 6: 1 Byte (-128..127)
- DPT 5: 1 Byte (0..255)
- DPT 16: Text

**Group address output 2**

The group address on which the values for output 2 are to be output. If the option is activated, a group address must be entered here.

**Default value for output 2 for 'Off'**

Default value to be sent at an "Off" switching time.

**Default value for output 2 for 'On'**

Default value to be sent at an "On" switching time. In some time switches, it is possible to specify the value to be sent for output 2. If no deviating value is entered there, the default value is sent.

***Send output value for output 2 cyclically***

If available, it can be set here whether the value for output 2 is to be sent cyclically.

Possible values:

- off
- 1 minute
- 2 minutes
- 3 minutes
- 4 minutes
- 5 minutes
- 10 minutes
- 15 minutes
- 20 minutes
- 30 minutes

The cycle always starts again when a new value has been sent by a timer.

*Notes: If the output 2 option is activated, no group address must be specified for output 1. Output 1 is then optional.*

*There is no check for the default values for On and Off for output 2 to see if they match the configured data type.*

**Option: Pre-run/post-run switching** PRO

By activating this option, the corresponding configuration section is shown. This option is only available in the following types of time switches:

Timer	Weekly time switch	Annual time switch	Holiday time switch	Astro time switch	iCal based time switch	Day/night time switch	KNX time switch
No	Yes	Yes	No	Yes	Yes	Yes	No

With this option it is possible, in addition to the actual switching, to control two further group addresses (one each for the pre-run and one for the post-run switching) at a definable time interval (1 - 45) before and after the actual switching.

***Pre-run switching group address On/Off***

Optional group address (1-bit - DPT 1) for the pre-run switching. If no address is specified, no pre-run switching takes place. Pre-run and post-run switching can be configured with the same group address.

***Pre-run switching lead time***

Lead time in minutes (1-45). This number of minutes before the actual (switch-on) switching time starts the lead time and ends when the actual (switch-on) switching time is reached.

***Pre-run switching behavior***

This selection is used to define how the pre-run switching should behave:

- Send ON at the beginning of the pre-run switching and send OFF at the real switching time
- Send OFF at the beginning of the pre-run switching and send ON at the real switching time
- Send ON at the beginning of the pre-run switching and send nothing at the real switching time
- Send OFF at the beginning of the pre-run switching and send nothing at the real switching time

***Post-run switching group address On/Off***

Optional group address (1-bit - DPT 1) for overtravel switching. If no address is specified, no overrun switching takes place. Pre-run and post-run switching can be configured with the same group address.

***Post-run switching follow-up time***

Follow-up time in minutes (1-45). The post-run switching starts with the actual (off) switching time point and ends after the minutes specified here.

### ***Post-run switching behavior***

This selection is used to define how the post-run switching should behave:

- Send ON at the beginning of the post-run switching time and send OFF at the end
- Send OFF at the beginning of the post-run switching time and send ON at the end
- Send nothing at the beginning of the post-run switching time and send ON at the end
- Send nothing at the beginning of the post-run switching time and send OFF at the end

*Note: All time switches usually have an ON- and an OFF-switching time. In this case, the pre-switching refers to the on-switching time and the post-switching refers to the off-switching time.*

*With the Astro time switch, there is only one switching time (time of the configured event). Here, both pre-run and post-run switching refer to this one time.*

*The pre-run and post-run switching depends on the actual switching time. If the actual switching time is ignored, e.g. due to a time shift, the associated pre- or post-run switching is also ignored.*

**Option: Switch-off delay** PRO

By activating this option, the corresponding configuration section is shown. This option is only available in the following types of time switches:

Timer	Weekly time switch	Annual time switch	Holiday time switch	Astro time switch	iCal based time switch	Day/night time switch	KNX time switch
No	Yes	Yes	No	No	Yes	No	Yes

With the switch-off delay it is possible to delay pending switch-off(s) via a separate group address, if a 1/on/truth is present on the group address.

If the value changes to 0/off/false, the switch-off is repeated. A possibly configured post-run switching will also be made up for.

Application example:

You have an iCal-based timer for your meeting room that switches, for example, the lights and an "occupied" indicator outside the meeting room.

You configure the timer with a switch-off delay and use the group address of the presence detector in the meeting room as the input for this. The output of the presence detector itself is configured with a follow-up time of 5 minutes.

A meeting is scheduled in the calendar from 14:00 to 16:00. However, the meeting does not end at 16:00 as scheduled (and entered in the calendar) but lasts longer. Without the switch-off delay enabled, the Autotimer app would simply turn off the lights and the "busy" indicator at 15:59:59.

With activated switch-off delay, the Autotimer App extends the switch-off time as long as a 1/on/true is signaled on the group address.

As soon as the meeting room is empty, the presence detector no longer detects a presence and switches the output (group address of the switch-off delay) to 0/off/false after the follow-up time of 5 minutes.

The Autotimer app no longer extends the switch-off time and then switches off the lighting and the "occupied" indicator. A possibly configured post-run switching then also starts.

The switch-off delay can be activated for the weekly time switch, the annual time switch, the iCal-based time switch and for the KNX time switch. For the annual time switch and the iCal-based time switch, however, the switch-off delay is only taken into account if it is not a matter of all-day switching!

In addition, the Autotimer app signals via an optional group address whether the switch-off delay can be activated. For example, to activate/deactivate a control of a visualization via which the switch-off delay can be activated manually.

***GA Switch-off delay On/Off***

Group address (1-bit - DPT 1) to activate the switch-off delay. If the next switch-off can be delayed and a 1/on/truth is present on this group address, the switch-off time and dependent switching operations are delayed.

If the Autotimer App receives a 0/off/false on this group address, the switch-off is made up for and any dependent switching (overrun switching) is carried out.

***Status GA Switch-off delay Active/Inactive***

Optional group address (1-bit - DPT 1) on which is signaled whether a switch-off delay is currently active (1/on/true) or inactive (0/off/false).

***GA Switch-off delay can be activated***

Optional group address (1-bit - DPT 1) on which it is signaled whether a switch-off delay can be activated for the current on-switching. If it can be activated (1/on/true), the "GA switch-off delay on/off" is monitored and evaluated.

***Max. Duration switch-off delay***

This selection is used to define the maximum time for which a switch-off delay may be active before it is forcibly terminated.

Possible values:

- 15 minutes
- 30 minutes
- 45 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- 8 hours
- 10 hours
- 12 hours

**Option: Calendar reminder** PRO

By activating this option, the corresponding configuration section is shown. This option is only available in the following types of time switches:

Timer	Weekly time switch	Annual time switch	Holiday time switch	Astro time switch	iCal based time switch	Day/night time switch	KNX time switch
No	No	Yes	Yes	No	Yes	No	No

With the calendar reminder it is possible to signal exclusively all-day events additionally the day before at configurable times to a separate group address.

*Hint: If there are several all-day events on one day, only one on the previous day will be remembered.*

**Calendar reminder time start**

Time on the previous day at which the reminder is to be activated. At this time a 1/on/true is sent to the status group address. If "Status group address Text" is configured, the name of the calendar entry is sent on it.

If no start is specified or the specification is invalid, the option is deactivated!

**Calendar reminder time end**

Time on the previous day at which the reminder is to be deactivated. At this time, a 0/on/true is sent to the status group address. If "Status group address Text" is configured, an empty string is sent on it.

If no end is specified or the specification is invalid, the signal is sent until midnight.

**Status group address**

Group address (1-bit - DPT 1) through which the reminder is signaled.

**Status group address Text**

Optional group address (Text - DPT 16) through which the name of the calendar entry is sent to the bus at the specified time. At the end of the reminder, an empty string is sent.

*Hint: Please note the limitations of this data type. A maximum of 14 characters are displayed. If necessary, set the data type of the group address to 16.001 characters (ISO 8859-1) to display umlauts.*

**Option: Time information** PRO

By activating this option, the corresponding configuration section is shown. This option is only available in the following types of time switches:

Timer	Weekly time switch	Annual time switch	Holiday time switch	Astro time switch	iCal based time switch	Day/night time switch	KNX time switch
No	Yes	Yes	No	No	Yes	No	Yes

With this option it is possible to output additional time information about the next upcoming or current switching.

*Note:* In the case of the weekly time switch, entries can be recorded which are only pending for switching depending on the group addresses special day 1 and/or special day 2. These entries are not signaled on the group addresses "GA Next switching ...".

**GA Next switching time**

Optional group address (Time - DPT 10) to which the time of the next "on" switching can be output.

**GA Next switching date**

Optional group address (Date - DPT 11), to which the date of the next "On" switching can be output.

**GA Next switching date & time**

Optional group address (Time & Date - DPT 19.001), which can be used to output the date and time of the next "on" switching.

**GA Current switching duration**

Optional group address (Time - DPT 10) to which the duration of the current "On" switching (i.e. the elapsed time) can be output. If no "On" switching is active or the "Off" switching takes place, 00:00:00 is sent.

**GA Current switching remaining time**

Optional group address (Time - DPT 10), to which the remaining time of the current "On" switching (i.e., the time until the "Off" switching) can be output. If no "On" switching is active or the "Off" switching takes place, 00:00:00 is sent.

**Current switching remaining time reminder**

If the remaining time falls below the minute value specified here (1-60), a signal is sent to the group address specified under "GA Current switching remaining time reminder".

**GA Current switching remaining time reminder**

Optional group address (1-bit - DPT 1) to which a 1/on/true is signaled if the remaining time is less than the time configured above. Is only reset with the "Off" switch.

***GA Current switching delay***

Optional group address (Time - DPT 10) to which the duration of the current off-delay (i.e., the time for which the off-delay is already active) can be output. If no switch-off delay is active, 00:00:00 is sent.

### **Group address special day 1**

Optional group address (1-bit - DPT 1), via which it can be signaled for the weekly time switch or for the KNX time switch that it is a special day 1. This can be, for example, a holiday time switch that signals via this group address that it is a holiday, or an external signal.

### **Group address special day 2** PRO

Optional group address (1-bit - DPT 1), via which it can be signaled for the weekly time switch or for the KNX time switch that it is a special day 1. This can be, for example, a holiday time switch that signals via this group address that it is a holiday, or an external signal.

### **Status GA online error**

Optional group address (1-bit - DPT 1) which is used to signal any error that may have occurred on the iCal-based time switch (only when using the online calendar) and on the holiday time switch (only when using the online holiday database). If no data can be retrieved, ON is signaled on this group address to indicate that an error has occurred. If online access is successful again, OFF is sent again.

## Settings time zone

For all time switches, except for the timer, the app requires the specification of a time zone. This is used for the calculation of the switching times and for the switching operations.

The system time of the **APPMODULE** is also related to a time zone. To switch correctly, this is "calculated back" to the coordinated world time (UTC) and then converted to the set time zone.

### Time zone

Select here the correct time zone for which the switching times are to be calculated. If possible, use the time zone that corresponds to the continent and the nearest city (e.g. Europe/Berlin for Germany).

The time zone set in the **APPMODULE** is at the top of the list as "APPMODULE Standard" followed by the time zone set there in brackets. If you use this entry and change the time zone of the **APPMODULE**, the time zone for the timer will also change.

The time zone itself set in the **APPMODULE** is marked with \* in the list:

#### Time zone settings

Time zone	APPMODULE Standard (Europe/Berlin) ▾
<hr/>	
Location information	
<hr/>	
Longitude (-180–180)	Europe/Amsterdam (UTC +01:00)
	Europe/Andorra (UTC +01:00)
	Europe/Astrakhan (UTC +04:00)
	Europe/Athens (UTC +02:00)
	Europe/Belfast (UTC +00:00)
	Europe/Belgrade (UTC +01:00)
	<b>Europe/Berlin (UTC +01:00) *</b>
	Europe/Bratislava (UTC +01:00)
	Europe/Brussels (UTC +01:00)
	Europe/Bucharest (UTC +02:00)
	Europe/Budapest (UTC +01:00)
	Europe/Busingen (UTC +01:00)
	Europe/Chisinau (UTC +02:00)
	Europe/Copenhagen (UTC +01:00)
	Europe/Dublin (UTC +00:00)
	Europe/Gibraltar (UTC +01:00)
	Europe/Guernsey (UTC +00:00)
	Europe/Helsinki (UTC +02:00)
	Europe/Isle of Man (UTC +00:00)
Latitude (-90–90)	
Address for position determination	
<hr/>	
Day/night time switch settings	

*Hint: The correct setting of the time zone is very important for the calculation of the correct switching times. You can display the calculated values of the respective time switch after changing the time zone via the "Preview/Simulation" link.*

## **Location information**

For the Astro timer and the Day/Night timer, the app requires location information.

The latitude (latitude) and longitude (longitude) must be entered as decimal degrees. Alternatively, using maps.co's free geocoding API, you can try to determine these automatically for an address.

### **Longitude**

Enter here the longitude (as decimal degree) of the location in the range from  $-180^{\circ}$  to  $180^{\circ}$  for which the switching times are to be calculated. The more exact the input, the more exact the calculations. 4 decimal places are completely sufficient.

### **Latitude**

Enter here the latitude (as decimal degree) of the location in the range of  $-90^{\circ}$  to  $90^{\circ}$  for which the switching times are to be calculated. The more exact the input, the more exact the calculations. 4 decimal places are completely sufficient.

### **Address for position determination**

If you do not know the coordinates for the location, you have the option here to enter an address or location and click on "Determine latitude/longitude" to try to determine the coordinates online.

If a unique result was found, the coordinates are automatically entered in the corresponding fields. The message "Coordinates found for ..." then appears under the button followed by the determined address. If this is not correct, check the address entered and refine it if possible. Complete information (street, house number, postal code, city, country) increases the hit rate.

If more than one entry was found for the address entered, the message "More than one result found" appears below the button. Please click on the button with the matching address to apply the coordinates:" and below that the found addresses each as a button.

If you click on one of the buttons, the coordinates to the address will be entered into the fields.

## Output 1

### Group address output 1

The group address (1-bit - DPT 1) on which the switching command are sent. The specification is optional if output 2 has been activated.

### Send output value for output 1 cyclically

If available, it can be set here whether the value for output 1 is to be sent cyclically.

Possible values:

- off
- 1 minute
- 2 minutes
- 3 minutes
- 4 minutes
- 5 minutes
- 10 minutes
- 15 minutes
- 20 minutes
- 30 minutes

The cycle always starts again when a new value has been sent by a timer.

*Note: If the output 2 option is activated, no group address must be specified for output 1. Output 1 is then optional.*

## Preview/Simulation

Except for the KNX time switch and the timer, all time switches offer the possibility to display the calculated switching times in a preview/simulation (English only). For this, the instance must be started!

To do this, go to the instance overview of the app and expand the instance by clicking on the arrow (>) in front of the instance.

[Instances \(7/10\)](#)

---

> Holidays Germany/North Rhine-Westphalia     

---

> iCloud calendar     

---

In the advanced instance view, you will find a link under "Preview/Simulation":

[Instances \(7/10\)](#)

---

✓ Holidays Germany/North Rhine-Westphalia     

**Preview/Simulation** [Preview/simulation of switching times based on current configuration](#)

**Logging**

---

If you click on this, a new window opens and the calculation of the next 30 switching times is displayed.

With the astro time switch and the day/night time switch you have the possibility to click on another link in the preview window, where then the calculated astro data for the next 365 days are displayed. The display of this preview can - depending on the load of the **APPMODULE** - take a little longer.

*Hint: The preview of the switching times and that of the astro data are displayed as a tabular list. Lines with a light and dark green background mean that daylight saving time (DST) is active at the time.*

## Timer

---

This is a timer that can be controlled via group addresses. The standard version of the app is a normal counter (counts up from 0). In the Pro version of the app you can choose between up counter and countdown (counts down to 0).

### Timer type **PRO**

Selection between Up counter (starts at 0 and counts down to the preset time and then ends) and Countdown (starts at the preset time and counts down to 0 and then ends).

### Group address start/stop

Group address (1-bit - DPT 1) via which the timer can be started and stopped.

### Behavior start at start/pause **PRO**

Defines the behavior of the timer when a start command is received although the timer is already running, or it is paused:

- **do nothing**  
The timer ignores the restart command
- **reset and restart**  
The timer is reset and restarted. Any change to the runtime via the "Group address runtime change" is deleted and the default duration from the configuration or the value that was last received via "Group address time default" is used as the duration
- **pause or resume when paused**  
When the timer is running, it is paused. If it is already paused, it will be resumed

### Group address restart **PRO**

Optional group address (1-bit - DPT 1) via which the timer can be restarted. If 1/on/true is received on this group address, the timer will be reset and then restarted.

A possible change of the runtime via "Group address change runtime " is deleted and the default duration from the configuration or the value that was received last via "Group address default time" is used as duration.

### Group address pause/resume **PRO**

Optional group address (1-bit - DPT 1) via which the timer is paused or continued. On reception of 1/on/true the timer is paused and on reception of 0/off/false the timer is continued.

### **Value to be sent at start/restart** PRO

Defines what should be sent when the timer is started or restarted:

- Send nothing
- Send ON
- Send OFF

If output 2 is activated, the corresponding default value is sent on output 2 if "Send ON" or "Send OFF" has been selected.

Default value and behavior for the standard variant is **Send ON**

### **Value to be sent at stop** PRO

Defines what should be sent via the GA when the timer stops:

- Send nothing
- Send ON
- Send OFF

If output 2 is activated, the corresponding default value is sent on output 2 if "Send ON" or "Send OFF" has been selected.

Default value and behavior for the standard variant is Send **OFF**

### **Value to be sent at the end of the timer** PRO

Defines which value is to be sent when the timer has expired:

- Send nothing
- Send ON
- Send OFF

If output 2 is activated, the corresponding default value is sent on output 2 if "Send ON" or "Send OFF" has been selected.

Default value and behavior for the standard variant is Send **OFF**

### **Values to be sent at pause/resume** PRO

Defines which values should be sent when the timer is paused or resumed:

- Send nothing
- Pause: Send ON / Resume: Send OFF
- Pause: Send OFF / Resume: Send ON

If output 2 is activated, the corresponding default value is sent on output 2.

Default value and behavior with the standard variant is send **nothing**

### **Default duration**

Preset duration in minutes for the timer if no time preset was received via the GA. Values from 1 to 240 minutes are possible.

**Group address default time** PRO

Optional group address (1-byte - DPT 5), which can be used to set the duration of the timer via the bus. Values from 1 to 240 are accepted.

**Autostart at new time specification** PRO

If enabled, the timer will be restarted when a new timer is received.

**Group address change runtime** PRO

Optional group address (1-byte - DPT 6), which can be used to change the runtime of the currently active timer via the bus. Values from -30 to 30 minutes are accepted.

If the timer is currently inactive (not started, stopped, or terminated) the received value is ignored.

If a negative value is received and thus shortens the runtime of the currently active timer, the app checks whether the time already elapsed exceeds the new runtime of the timer and in this case terminates it immediately and the behavior configured under "Value to be sent at end of timer" is triggered.

**Status group address**

Optional group address (1-byte - DPT 5), via which the minutes already elapsed (for Counter type) or the minutes remaining (for Countdown type) are sent on the bus. When the timer is off or finished, 0 is sent. The value is updated as soon as the minutes change.

**Status group address Text** PRO

Optional group address (Text - DPT 16), via which the current status of the timer can be sent as text to the bus.

Example: 00:12\*(01:10)

00:12 the already elapsed time (for up counter type) or the remaining time (for countdown type) in hours:minutes.

\* the current status of the timer  
not yet started or stopped ( ), running (\*),  
paused (P), ended (E)

(01:10) the total duration of the timer in hours:minutes

The value is updated as soon as the minutes, status, or total duration of the timer changes. If the remaining time is less than 60 seconds, the default time is displayed as time already elapsed (for up counter type) or "00:00" as time remaining (for countdown type). The \* between the two time entries then shows the current status (see above).

## Weekly time switch

---

This is a classic weekly time switch.

In the list under "Edit switching times" in the "Weekly time switch settings" area, you will find the switching times that have already been configured. You can create a new switching time by clicking the "Add" button. You can copy, edit and delete a selected switching time with the buttons of the same name.

Note: Changes to the switching times are only applied and saved after the instance has been saved. If you have accidentally deleted a switching time in an instance that has already been saved, cancel the complete configuration by clicking on the **APPMODULE** logo at the top left. All changes since the last save will then be discarded.

### Settings weekly timer

#### Edit switching times

##### **Enabled**

Only if this option is activated, the switching time is also taken into account. Switching times that are not activated are saved but not executed.

##### **Description**

Enter a meaningful description for the switching time here. The description represents the switching time in the list. If no description is entered, the description of the switching time in the list is automatically generated from the configuration.

##### **Output 2 - value to be sent at the switching time** PRO

If the Output 2 option has been activated in the instance configuration, you can enter a value for this switching time here, which will be sent to Output 2 at the On switching time. If nothing is entered here, the On default value for output 2 is sent. The Off default value from the Configuration instance is always sent at the Off switching time.

##### **Start**

Time at which the switching time begins (ON switching time). At this time, ON is then sent to output 1 or the value defined in the previous field (or the default value for ON if nothing was entered) to output 2.

##### **End**

Time at which the switching time ends (switch-on time). At this time, OFF is then sent to output 1 or the default value for OFF is sent to output 2.

##### **Weekdays**

In this area, activate the weekdays on which the switching should be executed. To simplify the configuration, you can also use the buttons to activate/deactivate the weekdays accordingly:

Edit switching times

Enabled

---

Description

---

Start  🕒

---

End  🕒

---

Weekdays

All	None	Mon - Fri
Workdays	Weekend	

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

---

Special days

Special day 1

Special day 2

---

Cancel
OK

### Special days

In this area, activate special day 1 and/or special day 2 **PRO**. The special days are signaled via the corresponding group addresses in the instance configuration.

At the respective switching time, it is checked whether an ON has been received on the group address of the corresponding special day and only then switched.

The special days are linked to each other and to the weekdays "or". This means that switching takes place when, for example, the current weekday is activated, regardless of whether the configured special day is ON or OFF.

If you want to ensure that switching only takes place on a signaled special day, then deactivate all weekdays in the configuration.

### Status group address Text **PRO**

Optional group address (Text - DPT 16), via which the name or description of the entry is sent to the bus at the switch-on time. An empty character string is sent at the switch-off time.

*Hint: Please note the limitations of this data type. A maximum of 14 characters are displayed. If necessary, set the data type of the group address to 16.001 characters (ISO 8859-1) to display umlauts.*

## Annual time switch

---

In the list under "Edit switching times" in the "Annual time switch settings" area, you will find the switching times that have already been configured. You can create a new switching time by clicking the "Add" button. You can copy, edit and delete a selected switching time with the buttons of the same name.

Note: Changes to the switching times are only applied and saved after the instance has been saved. If you have accidentally deleted a switching time in an instance that has already been saved, cancel the complete configuration by clicking on the **APPMODULE** logo at the top left. All changes since the last save will then be discarded.

### Settings annual time switch

#### Edit switching times

##### **Enabled**

Only if this option is enabled, the switching time is also taken into account. Switching times that are not activated are saved but not executed.

##### **Description**

Enter a meaningful description for the switching time here. The description represents the switching time in the list. If no description is entered, the description of the switching time in the list is automatically generated from the configuration.

##### **Output 2 - value to be sent at the switching time** **PRO**

If the Output 2 option has been activated in the instance configuration, you can enter a value for this switching time here, which will be sent to Output 2 at the On switching time. If nothing is entered here, the On default value for output 2 is sent. The Off default value from the Configuration instance is always sent at the Off switching time.

##### **Type**

Here you must select the type of the switching time. By changing the type, the corresponding configuration fields are displayed. The following types are available:

- Day of a year
- Weekday of a month
- Fixed date
- Date range **PRO**

**Type "Day of a year"**

This type specifies a fixed (1st to 31st or "last day") day in a month or range of months:

- **Day in month**

Specify the day here. The selection ranges from the 1st to the 31st and the last day in a month or in a month range. If the switching time is to be executed on the last day in each case, please select "last day".

For example, if you select 31st but the corresponding month has less than 31 days, the switching time will not be executed.
- **Month**

Enter here the month or the month range when the switching time is to be executed. In addition to a single month (January to December), there is also the option to select "every month (January - December)" as well as month ranges:

  - 1st quarter (January - March)
  - 2nd quarter (April - June)
  - 3rd quarter (July - September)
  - 4th quarter (October - December)
  - 1st half-year (January - June)
  - 2nd half-year (July - December)
  - First month of the quarter (January, April, July & October)
  - Second month of the quarter (February, May, August & November)
  - Third month in quarter (March, June, September & December)

**Type "Weekday of a month"**

With this type the switching time is defined by the first, second, third, fourth, fifth, last or every weekday in a month or month range:

- **Occurrence**

Specify the occurrence of the day of the week here. The choices are "First", "Second", "Third", "Fourth", "Fifth", "Last" and "Every".

If the switching time is to be executed on the last day of the week in each case, please select "Last". If you select "Fifth", for example, but the corresponding month/month range does not have a fifth weekday, the switching time will not be executed.
- **Weekday**

Enter the day of the week to be checked for here.
- **Month**

Enter here the month or the month range when the switching time should be executed. In addition to a single month (January to December), there is also the option to select "every month (January - December)" as well as month ranges:

  - 1st quarter (January - March)
  - 2nd quarter (April - June)
  - 3rd quarter (July - September)
  - 4th quarter (October - December)
  - 1st half-year (January - June)
  - 2nd half-year (July - December)

- First month of the quarter (January, April, July & October)
- Second month of the quarter (February, May, August & November)
- Third month in quarter (March, June, September & December)

**Type "Fixed date"**

With this type the switching time is set by entering a fixed date. The switching is executed only on this date.

**Type "Date Range" PRO**

With this type the switching time is defined by a period. The period is defined by the entry in the Start date and End date fields. The switching is executed on the start date, on the end date and all days in between.

**Start PRO**

Optional time at which the switching time begins (ON switching time). At this time, ON is then sent to output 1 or the value defined in the previous field (or the default value for ON if nothing was entered) to output 2. If no time is specified, the switching time starts at 00:00:00.

**End PRO**

Optional time at which the switching time ends (switch-on time). At this time, OFF is then sent to output 1 or the default value for OFF is sent to output 2. If no time is specified, the switching time ends at 23:59:59.

**Status group address Text PRO**

Optional group address (Text - DPT 16) via which the name or description of the entry is sent to the bus at the switch-on time. An empty character string is sent at the switch-off time.

*Hint: Please note the limitations of this data type. A maximum of 14 characters are displayed. If necessary, set the data type of the group address to 16.001 characters (ISO 8859-1) to display umlauts.*

## Holiday time switch

---

In the list at "Edit individual holidays" in the "Holiday time switch settings" area, you will find the holidays that have already been configured. You can create a new holiday by clicking the "Add" button. You can copy, edit and delete a selected entry with the buttons of the same name.

Note: Changes to individual holidays are applied and saved only after the instance has been saved. If you have accidentally deleted a holiday in an instance that has already been saved, cancel the complete configuration by clicking on the **APPMODULE** logo in the upper left corner. All changes since the last save will then be discarded.

### Holiday timer settings

#### Edit individual holidays

##### **Enabled**

Only if this option is activated, this individual holiday will also be taken into account. Holidays that are not activated are saved but not executed.

##### **Description**

Enter a meaningful description for this individual holiday here. The description represents the holiday in the list.

##### **Type**

Here you have to select the type of the switching time. By changing the type, the corresponding configuration fields are displayed. The following types are available:

- Day of a year
- Weekday of a month
- Relative to Easter

##### **Type "Day of a year"**

This type specifies a fixed (1st to 31st or "last day") day in a month.

##### **Day in month**

Specify the day here. The selection ranges from the 1st to the 31st and the last day in a month. If the switching time is to be executed on the last day, please select "last day". For example, if you select 31st but the corresponding month has less than 31 days, the switching time will not be executed.

##### **Month**

Enter here the month when the switching time is to be executed.

### **Type "Weekday of a month"**

With this type, the switching time is defined by the first, second, third, fourth, fifth or last day of the week in a month:

- **Occurrence**  
Specify the occurrence of the day of the week here. The choices are "First", "Second", "Third", "Fourth", "Fifth" and "Last".  
If the switching time is to be executed on the last day of the week in each case, please select "Last". If you select "Fifth", for example, but the corresponding month/month range does not have a fifth weekday, the switching time will not be executed.
- **Weekday**  
Enter the day of the week to be checked for here.
- **Month**  
Enter here the month when the switching time is to be executed.

### **Type "Relative to Easter"**

Many holidays are based on the date of Easter. Easter Sunday is always the first Sunday after the first full moon after the beginning of spring. Easter Sunday is always calculated by the app.

With this type you have the possibility to define the switching time by specifying days relative to Easter Sunday (-180 to 180) in the "Days relative to Easter" field.

Example: Easter Sunday in 2024 is on 31.03.2024. Shrove Monday 48 days before (12.02.2024), Good Friday 2 days before (29.03.2024) and Whit Sunday 49 days after (19.05.2024).

### **Status group address Text PRO**

Optional group address (Text - DPT 16) via which the name of the holiday is sent to the bus at the switch-on time. An empty character string is sent at the off-switching time.

*Hint: Please note the limitations of this data type. A maximum of 14 characters are displayed. If necessary, set the data type of the group address to 16.001 characters (ISO 8859-1) to display umlauts.*

## Online holiday database

You have the possibility, in addition to entering individual holidays, to use the online holiday database [Nager.Date](#). This database contains the public holidays for over 100 countries.

### **Use online holiday database**

If you enable this option, the configuration for using the API of Nager.Date will be shown.

### **Country**

Select here the country for which the holidays are to be loaded. As soon as you change the selection, the data for the country will be loaded automatically in the background.

### **State/Region** PRO

In the Standard variant of the app, only the uniform holidays of the country are used. In the Pro variant, you have the option to select a state or region. If you select "All", all non-uniform holidays will be used.

*Notice: As soon as you change a setting in the configuration of the online holiday database, the holidays are automatically reloaded in the background and the "Preview holidays" area is updated.*

### **Filter - Consider general holidays**

If enabled, general holidays are taken into account. Almost every holiday in the database is defined as a general holiday - therefore it is better not to deactivate it!

### **Filter - Consider bank holidays**

If enabled, bank holidays are taken into account. Banks and offices are closed on bank holidays. This classification is not used in all countries.

### **Filter - Consider school holidays**

If enabled, school holidays are taken into account. Schools are closed on school holidays. This classification is not used in all countries.

### **Filter - Consider authority holidays**

If enabled, authority holidays are taken into account. Authorities are closed on these holidays. This classification is not used in all countries.

### **Filter - Consider optional holidays**

If enabled, optional holidays are taken into account. Optional holidays are not real holidays - but days when the vast majority take vacation. This classification is not used in all countries.

### **Filter - Consider optional festivity**

If enabled, optional festivities are taken into account. Optional festivities are not real holidays - but days that are like a holiday. This classification is not used in all countries.

### **Holidays on Sundays** PRO

When activated, public holidays that fall on a Sunday are considered a public holiday across the board. In Germany, for example, Easter Sunday and Whit Sunday are public holidays only in certain states (e.g., Brandenburg but not North Rhine-Westphalia).

### **Preview holidays**

Here the results of the query to the online holiday database are displayed, taking into account the filters and settings. All holidays for the country for the next 365 days are always displayed. The display is in the language of the selected country or, if not available, in English.

The color of the entry indicates whether the holiday would be used as a holiday based on the state/region selection, the configuration of the filters, or the "Holidays on Sundays" setting. Green corresponds to the filters/settings and red does not.

*Notice: The app automatically updates the holidays from the online holiday database after each day change (i.e., at 00:00).*

## Astro time switch

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The Astro time switch calculates the position of the sun and its visibility at the set location using geographical coordinates (longitude and latitude).

Instructions on how to set the location details can be found here: [Location details](#)

For correct calculation of the switching times, it is necessary to set the time zone valid for the location.

Instructions for setting the time zone can be found here: [Time zone settings](#)

Unlike all other time switches, the Astro time switch has only one switching time, and that is the set event.

### Notes on the calculation and availability of Astro switching times

All "events" that can be selected here are calculated based on the entered location data (longitude and latitude).

Whether the time of one of these events can be calculated or not depends mainly on the physical conditions (ecliptic, inclination of the earth's axis, atmospheric refraction effects, etc.) and the location for which they are to be calculated. Not every event always occurs at every location in the world.

At the South Pole (longitude: 0 / latitude: -90) there is a sunrise and a sunset only once a year, because there is polar day for about half a year and polar night for the rest of the year. The same is true for the North Pole (longitude: 0 / latitude: 90).

It may well happen that at times there is no astronomical, nautical and/or civil twilight at certain places in the world, for example, because the sun does not reach the necessary depth angle below the horizon. It can also happen that, for example, astronomical twilight begins in the evening but does not end until the following day.

After correct configuration of the Astro timer, check the calculated switching times in the [preview/simulation](#). There - also in the standard variant off the app - all calculated astro events are displayed.

*Hint: Astronomical calculations are very complex and require a lot of computing time depending on the accuracy. The calculation library used in the Autotimer app provides an acceptable accuracy (approx. 1 minute) for the purpose of a time switch. So, when comparing with other calculations, there may be discrepancies accordingly. A reputable source with high accuracy is e.g., the [NOAA Solar Calculator](#).*

Here is a brief explanation of the individual events without guarantee of correctness:

***Astronomical twilight***

Astronomical twilight is the period in the morning and evening when the sun is between 12° and 18° below the horizon. The horizon itself is no longer visible. The visibility of the stars increases in the evening and decreases accordingly in the morning. In the evening, astronomical twilight is followed by night. In the morning, the night ends with the beginning of astronomical twilight.

***Nautical twilight***

Nautical twilight is the period in the morning and evening when the sun is between 6° and 12° below the horizon. During this period, the most important fixed stars and the horizon are still visible, which is necessary for determining position with nautical instruments (hence the name).

***"Blue hour"***

The "blue hour" is the period in the morning and evening when the sun is between 4° and 8° below the horizon. During this period, the blue light spectrum of sunlight dominates. Due to physical effects, the sky appears dark blue and has a special significance for photography.

***"Golden hour"***

The "golden hour" is the period in the morning and evening when the sun is between 6° above the horizon and 6° below the horizon. During this period, the light appears "golden and soft". As with the "blue hour", this impression is created by physical effects and has a special significance for photography.

***Civil twilight***

Civil twilight is the period in the morning and evening when the sun is between 0° and 6° below the horizon. During this period, the brightest fixed stars and the horizon are visible. Civil twilight is followed by sunrise in the morning and civil twilight begins with sunset in the evening.

***Sunrise***

The time when the upper edge of the sun crosses the horizon and becomes visible. During a polar night there is no sunrise - the sun remains below the horizon during this time.

***Sunset***

The time when the upper edge of the sun disappears below the horizon and is no longer visible. During a polar day there is no sunset - the sun remains above the horizon during this time.

***Solar maximum***

The time when the Sun crosses its own longitude and reaches the highest point in its orbit (except at the North and South Poles). Also called "true noon" or "astronomical noon".

## Astro time switch settings

### Switching time

Select the event to be switched to here.

- Start of astronomical twilight (end of night) **PRO**
- Start of nautical twilight (end of astronomical twilight) **PRO**
- Beginning of the "blue hour" in the morning **PRO**
- Start of the "golden hour" in the morning (end of the "blue hour" in the morning) **PRO**
- End of the "golden hour" in the morning **PRO**
- Start of civil twilight (end of nautical twilight)
- Sunrise (end of civil twilight & beginning of day)
- Solar maximum ("true noon")
- Sunset (start civil twilight & end day)
- Beginning of the "golden hour" in the evening **PRO**
- Beginning of the "blue hour" in the evening (end of the "golden hour" in the evening) **PRO**
- End of the "blue hour" in the evening **PRO**
- End of civil twilight (beginning of nautical twilight)
- End of nautical twilight (beginning of astronomical twilight) **PRO**
- End of astronomical twilight (beginning of night) **PRO**

### Value to be sent at switching time

Select here between "On" and "Off" the value to be sent at the switching time.

The selected value is then sent to output 1 at the time of switching or the corresponding default value is sent to output 2.

## iCal based time switch **PRO**

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With this time switch, the switching information is loaded and evaluated from an RFC 5545 compliant iCalendar.

You have the option to automatically load the calendar from a specified URL (incl. updating) or upload an ICS file in the configuration.

For correct calculation of the switching times, it is necessary to set the time zone valid for the location. Notes on setting the time zone can be found under [Time zone settings](#)

The app evaluates single appointments as well as appointment series or appointments over several days.

Appointment series are calculated based on the recurrence rule(s) in the calendar entry.

Events that extend over several days have a start time and an end time. At the start time "On" is sent to the output, at the end time "Off" is sent.

The end time of an entered appointment is usually exclusive of the end time. For example, an appointment from 11:00 to 13:00 generates a switching time from 11:00:00 to 12:59:59.

### Individual values from calendar entries

If you have activated output 2, you can also send an individual value to output 2 per appointment. To do this, enter the value to be sent in double curly brackets in the "Description" (or "Notes") field. Examples:

{{12}} or {{test}} or {{14.5}}

*Hints: Use a dot (.) as decimal separator for floating point values!*

*There is no check whether the values match the configured data type of output 2.*

The app has been tested with some providers (including Apple iCloud, Google Calendar and Microsoft 365). The availability of this feature depends on the provider and cannot be guaranteed.

### iCal based time switch settings

#### iCal data source

Here you must specify if you want to load the data from a published URL or if you want to upload an ICS file:

- URL of an online iCal calendar
- Upload ICS file

Further parameters are shown or hidden according to the selection.

### URL iCal calendar

Only available if "URL of an online iCal calendar" is selected as iCal data source.

Enter the URL of the published calendar here. The app does not support authentication (Bearer, OAuth etc.) - so the address must be directly accessible.

The address must start with https:// or http:// (not recommended because unencrypted).

Apple iCloud shared calendar addresses usually start with webcal:// - replace webcal with https here. Example:

Original link:            webcal://x12-caldav.icloud.com/published/834jjkf...

Link for Autotimer:    https://x12-caldav.icloud.com/published/834jjkf...

For Google Calendar, please use the address specified under "Settings and sharing" under "Secret address in iCal format".

Instructions for sharing a calendar can be found at the respective provider or on the Internet.

*Notice:            Please follow the appropriate instructions when setting up a calendar share so that you do not accidentally share the calendar with everyone!*

After entering the URL, you can use the "Test calendar" button to check if the calendar is loaded correctly. The status is displayed directly below the button:

**Test successful - <xx> (<yy>) entries were found in calendar <name>.**

Calendar with name <name> could be loaded successfully and <xx> future entries were found. The <yy> value indicates the total number of entries.

**Test successful - but no entries could be found in calendar <name>.**

Calendar with the name <name> could be loaded successfully, but no future entries are released yet.

*Hint:            If the online service does not supply a calendar name, "unknown" is displayed for <name>.*

**Test failed: <error>**

Calendar could not be loaded. <Error> contains the error description.

### Time window update start

Only available if "URL of an online iCal calendar" is selected as iCal data source.

Enter here the time when or from when the update of the calendar should take place. If no entry is made, the (first) update will take place at 00:00 on each day.

**Time window update end**

Only available if "URL of an online iCal calendar" is selected as iCal data source.

Enter the time until which the calendar is to be updated. If no entry is made, a periodic update (provided an interval has been set under "Interval update") takes place around the clock.

**Update interval**

Only available if "URL of an online iCal calendar" is selected as iCal data source.

Select here how often the calendar should be updated. If you select "no update", then the calendar will be updated only once a day (at the time specified under "Time window update start" or 00:00 if not specified) instead of.

If you select an interval here, an attempt will be made to update the calendar at appropriate intervals. Decisive for the time of the update is the parameter "Time window update start". If a time has been entered there, the first update takes place at this time, otherwise at 00:00.

Examples:

Time window update start	Time window update end	Interval update	Update(s)
Not specified	Not specified	30 minutes	00:00 00:30 ... 23:00 23:30
08:20	13:10	45 minutes	08:20 09:05 09:50 10:35 11:20 12:05 12:50
09:00	15:00	No update	09:00

### Upload ICS file

Only available if "Upload ICS file" is selected as iCal data source.

Select an ICS file (maximum file size: 512 KB) and then click on the "Load and test file" button. The file is sent to the **APPMODULE** for testing and evaluated. The result of the test is displayed directly below the button:

#### **Test successful - <xx> (<yy>) entries were found in calendar <name>.**

Calendar with name <name> could be loaded successfully and <xx> future entries were found. The <yy> value indicates the total number of entries.

If you save the instance now, the calendar data is transferred to the **APPMODULE** and becomes active.

#### **Test successful - but no entries could be found in calendar <name>.**

Calendar with name <name> could be loaded successfully, but no future entries are included.

If you save the instance now, the empty calendar data will be transferred to the **APPMODULE**.

*Hint: If no name was assigned to the calendar in the ICS file, "unknown" is displayed at <name>.*

#### **Test failed: <error>**

Calendar could not be loaded. <Error> contains the error description.

If you save the instance now, any existing calendar data in the **APPMODULE** will be deleted.

### Check time zone data

When enabled, the app checks the data provided by the calendar and corrects it if necessary.

This setting should be enabled especially for Microsoft 365 calendars, e.g., if repetitive appointments have been created beyond the start/end of daylight-saving time.

After correct configuration of the time switch, check the loaded switching times in the [preview/simulation](#). Compare the switching times against the calendar and activate or deactivate this setting as required.

### Status group address Text

Optional group address (Text - DPT 16), via which the name of the calendar entry is sent to the bus at the switch-on time. An empty string is sent at the switch-off time.

*Hint: Please note the limitations of this data type. A maximum of 14 characters are displayed. If necessary, set the data type of the group address to 16.001 characters (ISO 8859-1) to display umlauts.*

## Day/night time switch

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This time switch is a modified form of the astro time switch.

For correct calculation, the location and time zone must also be set correctly here.

Instructions on how to set the location details can be found here: [Location details](#)

Hints for setting the time zone can be found here: [Time zone settings](#)

Here a switching time is generated for sunrise and sunset, if these can be calculated for the specified location and set time zone. As with the Astro timer, there are also restrictions here regarding the calculability of sunrise and sunset depending on the location. Please read the section [Notes on the calculation and availability of astro switching times](#).

### Day/night time switch settings

#### Day/night setting

Specify here which value is to be sent during the day and which value is to be sent at night.

- Day = On / Night = Off  
Here, an "On" is sent to the output at sunrise and an "Off" at sunset. When using output 2, the corresponding default values are sent to output 2.
- Day = Off / Night = On  
Here, an "Off" is sent to the output at sunrise and an "On" at sunset. When using output 2, the corresponding default values are sent to output 2.

#### Group address time **PRO**

Optional group address (Time - DPT 10) via which the current time is to be output considering the set time zone. The time is updated every full minute.

#### Group address date **PRO**

Optional group address (Date - DPT 11) via which the current date is to be output considering the set time zone. The date is updated when the day changes.

#### Group address date & time **PRO**

Optional group address (Date & Time - DPT 19.001) via which the current time and date are to be output considering the set time zone. The value is updated every full minute.

## KNX time switch

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With the KNX time switch, all parameters of the time switch can be controlled via the bus.

Please note that the times that can be set for the KNX time switch refer to the time zone set for the time switch.

### KNX time switch settings

#### Default switch-on time

Optional presetting for the switch-on time for the KNX time switch. If no value is entered, the switch-on time must be set via the bus before the time switch can be used.

#### Default switch-off time

Optional presetting for the switch-off time for the KNX time switch. If no value is entered, the switch-off time must be set via the bus before the time switch can be used.

#### Type inputs time setting

Select here which data point types are to be used to set the switch-on and switch-off times:

- **Separate inputs for hours and minutes**  
If, for example, the visualization does not offer the possibility of sending a time value (DPT 10), you can also set the hours and minutes per switching time via two separate inputs (DPT 5)
- **Time GA**  
Transmission of the switch-on and switch-off time each via an DPT 10 group address
- **Minutes of day** PRO  
Transmission of the switch-on and switch-off time each via an DPT 7 group address as minutes of day. A day has 1,440 minutes. 00:00 corresponds to 0 minutes and 23:59 to 1439 minutes of the day. In this way the time can also be set with a simple value (e.g. with a slider)

#### GA Switch-on time - hour / minute

Only visible if "Separate inputs for hours and minutes" has been selected. Group addresses (DPT 5) via which the hour (0 - 23) or minute (0 - 59) for the switch-on time is set.

#### GA Switch-off time - hour / minute

Only visible if "Separate inputs for hours and minutes" has been selected. Group addresses (DPT 5) via which the hour (0 - 23) or minute (0 - 59) for the switch-off time is set.

#### GA Switch-on time

Only visible if "Time GA" has been selected. Group address (DPT 10) via which the switch-on time is set. The second's specification is ignored.

### **GA switch-off time**

Only visible if "Time GA" has been selected. Group address (DPT 10) via which the switch-off time is set. The second's specification is ignored.

### **GA switch-on time in minutes** PRO

Only visible if "Minutes of day" has been selected. Group address (DPT 7) via which the switch-on time is set in minutes of day (0 - 1439).

### **GA switch-off time in minutes** PRO

Only visible if "Minutes of day" has been selected. Group address (DPT 7) via which the switch-off time is set in minutes of day (0 - 1439).

### **Switch-on/switch-off time minutes relative** PRO

Time in minutes used for the relative adjustment of the switch-on and switch-off time. Values from 1 to 60 are possible.

### **GA switch-on time relative +/-** PRO

Optional (1 bit - DPT 1) group address via which the switch-on time can be changed relatively. When 0/off/false is received at the group address, the number of minutes entered at "Switch-on/switch-off time minutes relative" is subtracted from the current switch-on time.

When 1/on/true is received at the group address, the number of minutes entered at "Switch-on/switch-off time minutes relative" is added to the current switch-on time.

### **GA switch-off time relative +/-** PRO

Optional (1 bit - DPT 1) group address via which the switch-off time can be changed relatively. When 0/off/false is received at the group address, the number of minutes entered at "Switch-on/switch-off time minutes relative" is subtracted from the current switch-off time.

When 1/on/true is received at the group address, the number of minutes entered at "Switch-on/switch-off time minutes relative" is added to the current switch-off time.

### **Status group address switch-on time** PRO

Optional time (DPT 10) Group address on which the switch-on time is output if these are changed via the group address. Is only sent when a valid time has been set.

### **Status group address switch-off time** PRO

Optional time (DPT 10) Group address on which the switch-off time is output if this is changed via the group address. Is only sent when a valid time has been set.

### **<day of week> on/off**

Specifies whether the time switch is to switch on the weekday or not. Can be overwritten via a group address.

**Special day 1 on/off**

Specifies whether the time switch is to switch on special day 1 or not. Can be overwritten via a group address. At the respective switching time, it is checked whether an ON has been received at the group address of the corresponding special day and only then is switching performed.

The special days are linked to each other and to the weekdays "or". This means that switching takes place when, for example, the current weekday is activated, regardless of whether the configured special day is ON or OFF.

If you want to ensure that switching only takes place on a signaled special day, then deactivate all weekdays in the configuration.

**Special day 2 on/off** PRO

Specifies whether the time switch is to switch on special day 2 or not. Can be overwritten via a group address. At the respective switching time, it is checked whether an ON has been received at the group address of the corresponding special day and only then is switching performed.

The special days are linked to each other and to the weekdays "or". This means that switching takes place when, for example, the current weekday is activated, regardless of whether the configured special day is ON or OFF.

If you want to ensure that switching only takes place on a signaled special day, then deactivate all weekdays in the configuration.

**GA <day of week> on/off**

Optional group address (1-bit - DPT 1) via which it can be set whether the time switch is to switch on this weekday (1/on/true) or not (0/off/false). Overwrites the respective default value of the configuration.

**GA Special day 1 on/off**

Optional group address (1-bit - DPT 1) via which it can be set whether the time switch is to switch on special day 1 (1/on/true) or not (0/off/false). Overwrites the respective default value of the configuration.

**GA Special day 2 on/off** PRO

Optional group address (1-bit - DPT 1) via which it can be set whether the time switch is to switch on special day 2 (1/on/true) or not (0/off/false). Overwrites the respective default value of the configuration.

*Hint: When the instance is started, the configured default values for the respective weekday (<weekday> on/off) are sent to the associated GA (GA <weekday> on/off), but these are configured. The same applies to special day 1 and special day 2.*

*If, while a configured switch-off delay for the KNX time switch is active, any parameter of the time switch (switching days, switch-on or switch-off time) is changed via the bus, this has no effect on the current switching state, as the switch-off delay is still active.*

*Only when the switch-off delay is deactivated by the corresponding group address, the new parameters are taken into account.*