

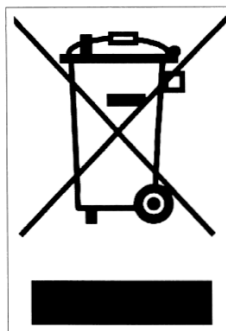


# Light-Manager Air

## Quickstart Guide

**Attention FRITZ!Box User**  
Set WPA Mode to **WPA2**  
please, but **not** to  
WPA + WPA2!

**Note**  
**Hinweis**  
**Remarque**  
**Nota**



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**English**

This symbol [the crossed-out wheeled bin/PICTURE] means that the product should be brought to the return and/or separate collection systems available to end-users, when the product has reached the end of its lifetime. This symbol applies only to the countries within the EEA (\*).

(\* EEA = European Economic Area, which comprises the EU Member States plus Norway, Iceland and Liechtenstein.

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**Deutsch**

Dieses Symbol (die durchgestrichene Abfalltonne) bedeutet, dass dieses Produkt nach der Lebenszeit zu einem für den Endanwender verfügbaren Rücknahme- oder getrenntem Sammelsystem zurückgebracht werden soll. Dieses Symbol gilt nur in den Staaten der EWR (\*).

(\* EWR = Europäischer Wirtschaftsraum, welches die EU Mitgliedstaaten plus den Staaten Norwegen, Island und Lichtenstein umfasst.

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**Français**

Ce symbole (un conteneur à déchets barré d'une croix) signifie que le produit, en fin de vie, doit être retourné à un des systèmes de collecte mis à la disposition des utilisateurs finaux. Ce symbole s'applique uniquement aux pays de l'EEE (\*).

(\* EEE = Espace économique européen, qui regroupe les États membres de l'UE plus la Norvège, l'Islande et le Liechtenstein.

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**Italiano**

Questo simbolo significa che il prodotto, giunto a fine vita, dovrebbe essere conferito ai punti di raccolta differenziata a disposizione dell'utente finale. Questo simbolo si applica ai paesi aderenti all'EEA (\*).

(\* Europea Economic Area che comprende gli stati membri dell'EU, compresi Norvegia, Islanda e Liechtenstein.

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**Español**

Este símbolo (imagen de un cubo de basura tachado) significa que el producto debería ser llevado a los sistemas de recogida dispuestos para los usuarios finales cuando llegue al final de su vida útil. Este símbolo solo tiene validez en los países de la EEA (\*).

(\* La EEA incluye a los países miembros de la UE y Noruega, Islandia y Liechtenstein.

## Overview and scope of delivery

Thank you for choosing the Light-Manager Air. The Light-Manager is the control center for your wireless home automation. For this purpose the device integrates several transmitter and receiver modules as there are

- Radio frequency on 433 MHz
- Radio frequency on 868 MHz
- Infrared on 30-40 kHz
- Wi-Fi according to the 802.11 g standard

Additionally the Light-Manager features an integrated webserver, which allows an autarkic and flexible service, as well as a temperature sensor.

The package includes

- Light-Manager Air
- Antenna for 433 MHz (pre-installed)
- Antenna for 868 MHz (pre- installed)
- 5V power adaptor with micro USB cable (approx. 1.5 m)
- Quickstart guide

## Wi-Fi compatibility

The Light-Manager Air uses the 802.11g standard (54 Mbit) with WPA2 encryption on the channels 1-11. Please ensure that your access point is configured accordingly. The network type can be set to any mode including g, for example 802.11 n+g.

**Note:** The encryption type must be set to WPA2. The outdated mixed mode WPA+WPA2 is **not** supported. This is especially important for FRITZ!Box routers which usually come with mixed mode enabled by default.

## Setup with WPS

A comfortable method to connect the Light-Manager to your Wi-Fi network is by using WPS (Wi-Fi Protected Setup). This just requires a push of a button. Please connect the Light-Manager to the AC adaptor included in delivery. Now activate WPS mode at your router. Most devices offer a dedicated button for this purpose. In case of the FRITZ!Box the Wi-Fi button has to be pressed for 5 seconds. Other models require the WPS mode to be enabled in the configuration interface.

Now press the button of the Light-Manager shortly. The LED starts blinking in green. As soon as the devices have found each other the LED changes its color to yellow. Now network parameters are exchanged, connection establishment can take up to two minutes. When this is done the LED stops blinking and changes its color to dim blue to signal operational readiness. The Light-Manager is successfully connected to your local Wi-Fi network and the IP address is shown in AirStudio under **options -> Light-Manager setup**. This setting can be changed in the options, too.

## Setup with Wi-Fi connection

Another possibility to connect the Light-Manager to your Wi-Fi network is by accessing the device directly through its own network. Right after power has been plugged in, the Light-Manager creates its own Wi-Fi network called **Light-Manager Air**. You can connect to this network with your smartphone, tablet or PC. There is no password required. Afterwards open a browser and navigate to:

- **192.168.100.115**

A website opens up which allows the configuration of the name (SSID) and the passphrase for the Wi-Fi network.



After a click on the OK button the Light-Manager starts connecting to the selected Wi-Fi network. During this phase the LED is blinking in green. When this is done the LED stops blinking and changes its color to dim blue to signal operational readiness. Now the Light-Manager is connected to your Wi-Fi network and the IP address is shown in AirStudio under **options -> Light-Manager setup**. This setting can be changed in the options, too.

## Possible errors during connection establishment

If the LED flashes in red during connection establishment then there is an error. The number of times it flashes in red gives information about the error source.

- **1x** Blinking: the network name (SSID) is wrong
- **2x** Blinking: the passphrase is wrong
- **3x** Blinking: the access point is set to mixed mode (WPA+WPA2)
- **4x** Blinking: the access point is set to WEP or Open

To delete the credentials you have entered, set the device back to factory defaults and start over.

## Reset to factory defaults

To reset the Light-Manager to factory defaults please proceed as follows:

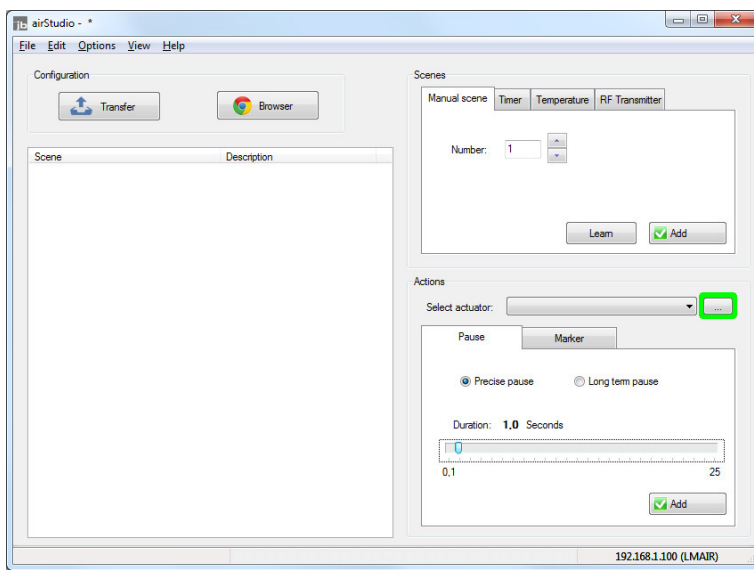
- Disconnect Light-Manager from power
- Keep button at the front of the Light-Manager pressed gently
- Connect AC adaptor
- Wait until the LED flashes red
- Release the button

Now the device has been reset and the Wi-Fi connection can be setup again if required.

**Note:** The web interface data will not get cleared by this procedure. If necessary it can be deleted by uploading an empty configuration.

## airStudio

The configuration of the Light-Manager is done with the software **airStudio** which can be found in the download section of [www.jbmedia.de](http://www.jbmedia.de) free of charge.



On the left side of the main window there is a table which shows the whole configuration. The right part is split into the Scenes section and the Actions section. The first section is used to create new scenarios. Here you can select what kind of trigger is used to start the scenario. The selection consists of:

- Manual scene: Triggers by a press of a button in the web interface or on an infrared remote control
- Timer: Triggers at fixed points of time or by astro function
- Temperature: Triggers by over- or underrun of inside or outside temperature
- By RF transmitter: Triggers by RF signals e.g. from a push button or motion detector

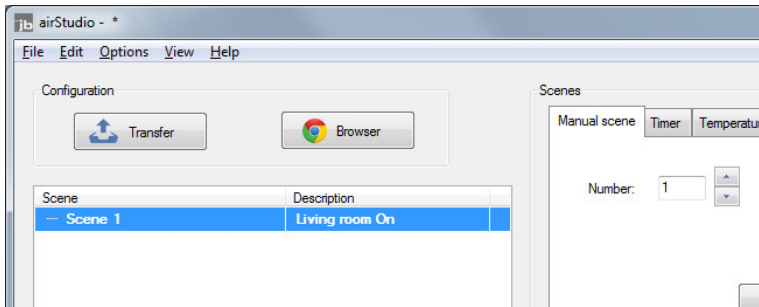
In the Actions section you can select actions which are performed when a scenario has been triggered. Among others the selection consists of:

- Actuator commands
- Infrared commands
- SONOS commands
- Network commands
- Long-term and short-term pauses
- Marker commands

## Manual scene

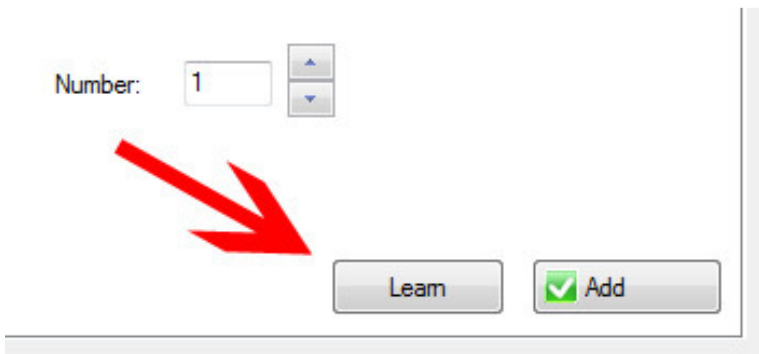
To create a scenario, which is triggered by a button in the web interface or by a button on an infrared remote control, a click on the Add button is sufficient. Right after the click a new scenario appears in the table on the left side. A scene number is increased automatically. In the right column of the table a short description can be entered. This will be used to display the scenario in the web interface.





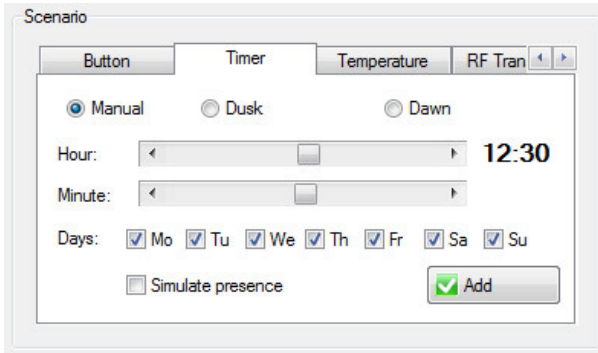
To start this scenario with a Logitech Harmony remote control, please add the device Light-Manager Air from the Logitech database to your remote control. This will install buttons with the names L001 until L255 on your Harmony. The number behind the letter L corresponds to the scene number configured in AirStudio. Of course the button names appearing on the display of the Harmony can be renamed with the Logitech software.

If a different remote control other than a Harmony is to be used, then the IR code for each button has to be taught to the remote control manually. For this purpose there is the learn button on the tab:



## Timer

With the integrated real time clock of the Light-Manager it is possible to trigger scenarios at certain points of times at certain days.



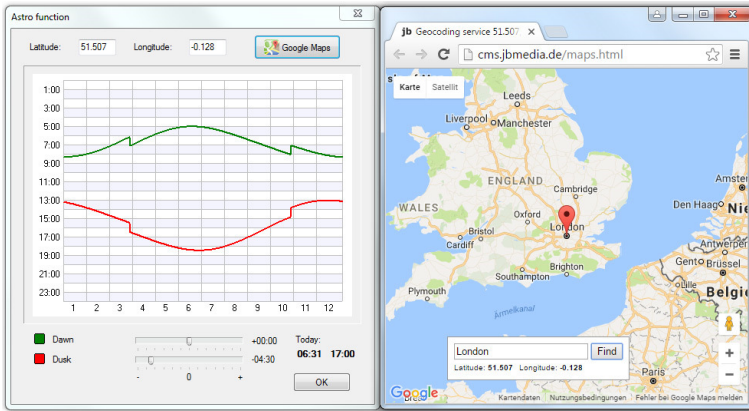
The internal clock of the Light-Manager is synchronized with an Internet time server resulting in a very accurate time adjustment at any time.

The option **Simulate presence** will move points of time in the range of +/- 60 minutes randomly. So for an observer from outside it is not obvious that this is an automated process.

## Astro function

Instead of using fixed points of time it is often desired to couple lighting control to dusk or dawn. The Light-Manager offers an extensive astro function for this purpose which calculates the times for civil twilight for each day and each location precisely. Civil twilight is defined as the point of time where it is not possible anymore to read a newspaper outside in the evening.

You can define your location in airStudio under **Options -> Astro function** comfortably by a Google maps application.



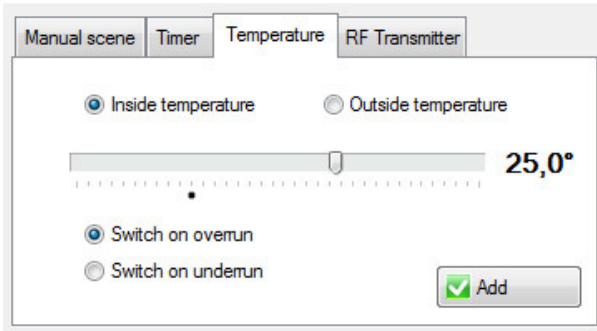
The hops in the curves are changes from summer to winter time and back. For control purposes the dusk and dawn times for the current day are displayed in the lower right corner of the window. On the left there are two sliders which allow the adjustment of the curves in the range of +/- 6 hours.

## [Perform actions only by night or by day](#)

Sometimes it is useful to perform certain actions within a scenario only by day or at night. For example you might turn on the living room lights automatically when starting the activity **Watch TV** on your remote control, but only when it is dark outside. For this purpose the Light-Manager offers the options **Only by day** and **Only at night** in the edit menu and context menu of each action within a scenario. The underlying periods of time are defined by the astro function. At night is defined as the sector between the dusk and dawn curves, by day vice versa.

## Temperature

Scenarios can be triggered when the temperature rises above or falls below a certain level. For this purpose the Light-Manager measures temperature every minute and triggers scenarios if required. This function is useful to control a fan or electric blinds for example.



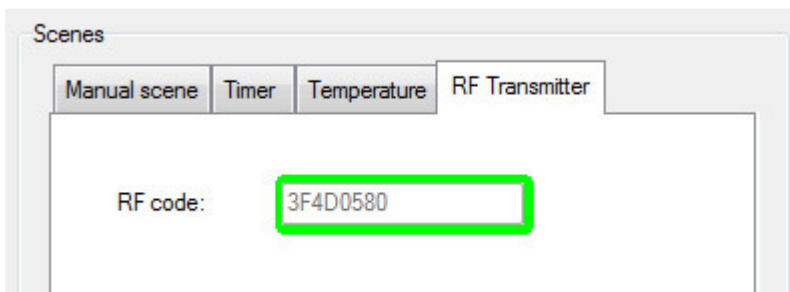
Besides the inside temperature, which is measured by the device itself, also the outside temperature can be used as control factor. The source for the outside temperature is a network of weather stations (openweathermap.org), out of which the Light-Manager selects the station which is closest to the location defined in the astro function settings.

**Note:** The temperature sensor is located on the layer board of the device. Therefore it will heat up slightly after startup, when connecting the Light-Manager to power. This calefaction is compensated automatically. However during the first 30 minutes the device will display a lower temperature than there is actually.

The Light-Manager can measure precise temperatures only if it is not exposed to direct sun light or to another source of heat. Fine tuning can be applied under **Options -> Light-Manager setup -> Extended settings**.

## RF Transmitter

A very powerful feature is the ability to trigger scenarios by signals of RF transmitters, e.g. wall switches, motion detectors, magnet switches, brightness detectors or other components. To create such a scenario it is sufficient to send an RF signal with one of these components.



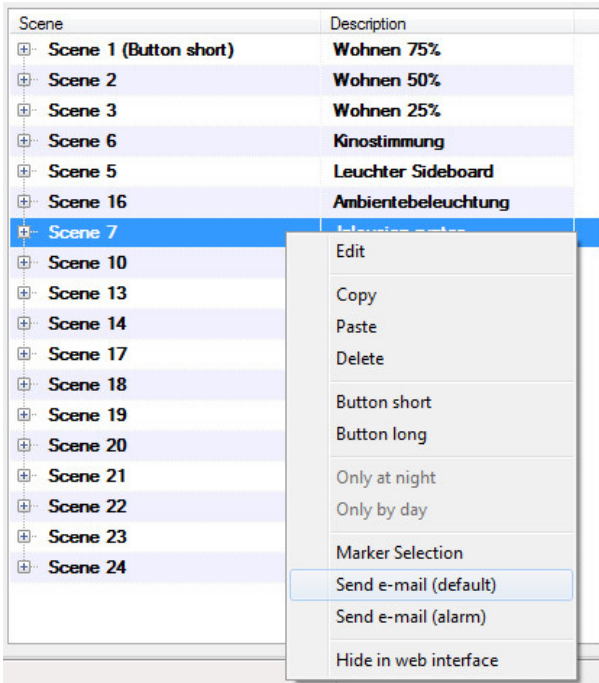
Instantly the corresponding RF code will be displayed in AirStudio. This scenario will be triggered each time this code has been received. If it is received several times in a row, the Light-Manager waits three seconds before it triggers the scenario again. This prevents unintended multiple execution of scenarios.

## Front button

The button of the Light-Manager is an additional convenient input source to trigger two scenarios of your choice, depending if the button has been pressed short or long (> 2 sec.). The selection is done by the menu items **Button short** and **Button long** from the context and edit menu. This function is suitable for turning off the whole lighting when going to bed for example.

## Email notification

The Light-Manager allows getting a notification by e-mail when a scenario has been executed. This is especially suitable for scenarios which are triggered by sensors. So you could get an e-mail as soon as a window or a door has been opened or motion has been detected. If you want to go a step further you can also enter the address of an SMS provider. Then you will get an SMS notification on your phone within a few seconds worldwide. This can be very useful for alarm events.



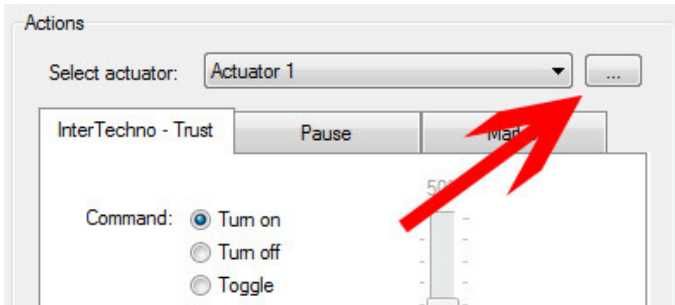
It is possible to configure two different e-mail addresses, one for standard notifications and one for alarm notifications with higher priority. These addresses can be entered under **Options -> Light-Manager setup -> E-mail setup.**

You can activate the notification feature by selecting a scenario in the table, and then from the edit

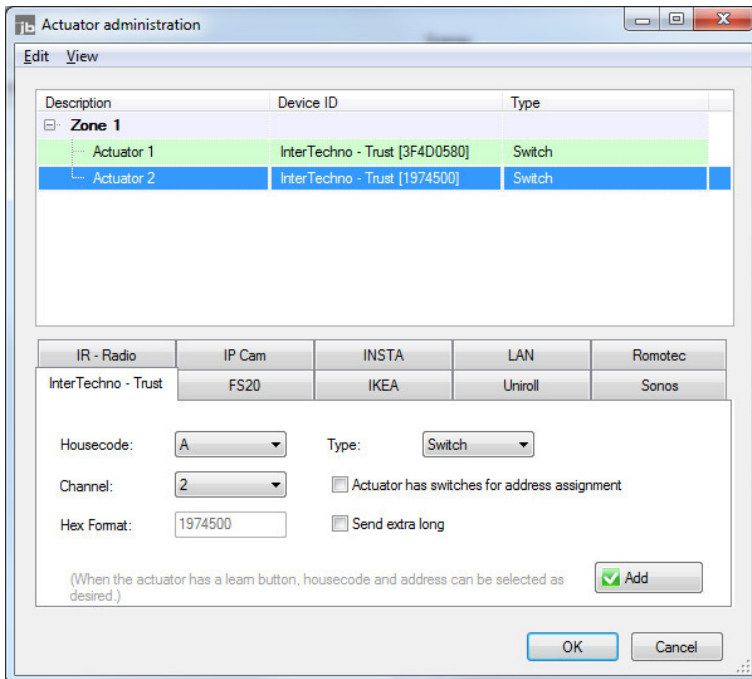
or context menu (right click) select **Send e-mail (default)** or **Send e-mail (alarm)**. Both options can be enabled for the same scenario if desired. So one could send an e-mail to two recipients or send one e-mail and one SMS.

## [Adding actuators](#)

Before you can select an actuator from the drop down list it has to be added to the actuator administration. To get there click on the little button next the drop down list.



The actuator administration will show up in a new window.



In the upper part of the window all actuators and zones are listed which have been added already. Zones make it possible to group actuators into logical units, like rooms or

areas of your home. Below the table there are tabs for each supported system. On these you can configure each actuator. Please note that some tabs are meant for more than one brand. So the **InterTechno – Trust** tab is also made for brands like **COCO**, **KlikAanKlikUit**, **Trust**, **HomeEasy UK**, **Elro**, **Chacon**, **Nexa** and more. The **INSTA** tab is for **Gira**, **Berker**, **Jung** and **Busch-Jäger** (433.42 MHz).

After an actuator has been added, it can be named by clicking on it. A right click opens a context menu with more menu items. There you find options to check in and out the actuator from the Light-Manager.

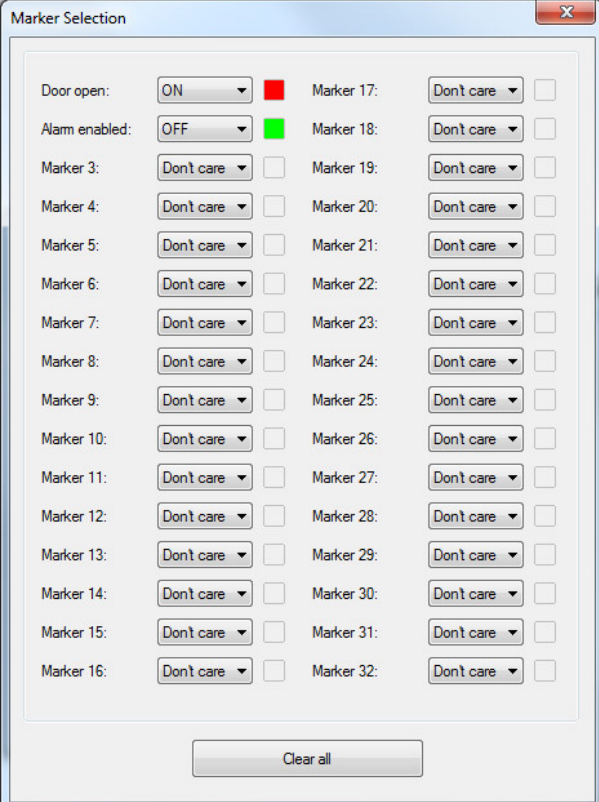
**Note:** If you have an RF remote control for your actuators, it is sufficient to press a button on the remote control to add the corresponding actuator automatically. The Light-Manager processes the received signals and calculates the parameters like housecode and channel for you. This method is not yet supported for all systems.



## Markers

Markers are a powerful tool for advanced programming technics. Markers are variables which can have the values 1 (ON) and 0 (OFF) only. The value of each marker can be altered by actions within scenarios. This makes it possible to visualize certain information

in the marker section of the web interface. So you could visualize if a window is open or if the alarm system is armed. Also marker states can be tied to scenarios in form of conditions, so that a scenario is executed only if one or more markers have a defined state. This is done by selecting a scenario in the table and opening the **Marker Selection** window from the edit- or context menu. In this window the desired states of the markers can be configured which are



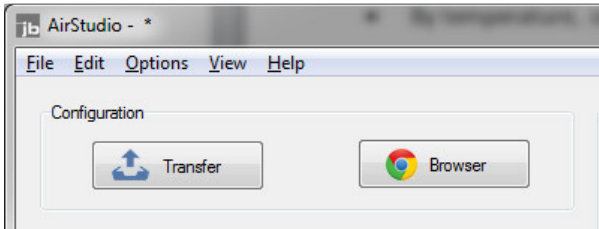
The screenshot shows a window titled "Marker Selection" with a close button in the top right corner. The window contains a grid of 32 markers, each with a label, a dropdown menu, and a checkbox. The first two markers, "Door open:" and "Alarm enabled:", have colored squares next to their dropdown menus: a red square for "ON" and a green square for "OFF". The remaining 30 markers are labeled "Marker 3:" through "Marker 32:" and all have "Don't care" selected in their dropdown menus. A "Clear all" button is located at the bottom center of the window.

Door open:	ON	<input checked="" type="checkbox"/>	Marker 17:	Don't care	<input type="checkbox"/>
Alarm enabled:	OFF	<input checked="" type="checkbox"/>	Marker 18:	Don't care	<input type="checkbox"/>
Marker 3:	Don't care	<input type="checkbox"/>	Marker 19:	Don't care	<input type="checkbox"/>
Marker 4:	Don't care	<input type="checkbox"/>	Marker 20:	Don't care	<input type="checkbox"/>
Marker 5:	Don't care	<input type="checkbox"/>	Marker 21:	Don't care	<input type="checkbox"/>
Marker 6:	Don't care	<input type="checkbox"/>	Marker 22:	Don't care	<input type="checkbox"/>
Marker 7:	Don't care	<input type="checkbox"/>	Marker 23:	Don't care	<input type="checkbox"/>
Marker 8:	Don't care	<input type="checkbox"/>	Marker 24:	Don't care	<input type="checkbox"/>
Marker 9:	Don't care	<input type="checkbox"/>	Marker 25:	Don't care	<input type="checkbox"/>
Marker 10:	Don't care	<input type="checkbox"/>	Marker 26:	Don't care	<input type="checkbox"/>
Marker 11:	Don't care	<input type="checkbox"/>	Marker 27:	Don't care	<input type="checkbox"/>
Marker 12:	Don't care	<input type="checkbox"/>	Marker 28:	Don't care	<input type="checkbox"/>
Marker 13:	Don't care	<input type="checkbox"/>	Marker 29:	Don't care	<input type="checkbox"/>
Marker 14:	Don't care	<input type="checkbox"/>	Marker 30:	Don't care	<input type="checkbox"/>
Marker 15:	Don't care	<input type="checkbox"/>	Marker 31:	Don't care	<input type="checkbox"/>
Marker 16:	Don't care	<input type="checkbox"/>	Marker 32:	Don't care	<input type="checkbox"/>

required to make this scenario executable. (All markers are in an AND-relation.) If these states are not met the scenario will not be executed. This allows the creation of so called IF-THEN statements. Using markers makes it possible to create complex courses of actions with simple programming tasks.

## Transferring the configuration

When configuration is completed it has to be transferred to the Light-Manager. This is done with the **Transfer** button.

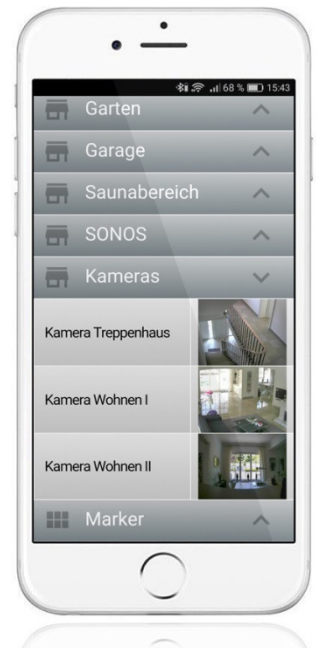
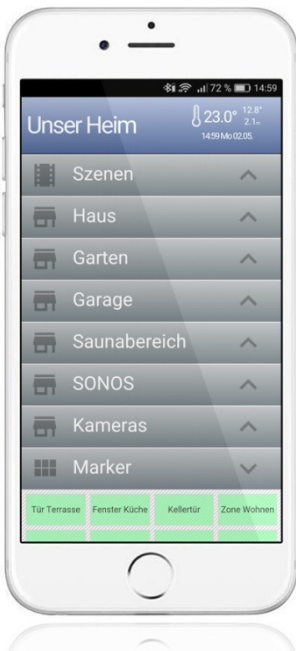


Finally the Light-Manager is ready for action. A click on the Browser button opens up the web interface in the default browser instantly. There it can be verified and used instantly.

## Web Interface

The web interface is the central operating interface for the Light-Manager. It works on all devices which features a web browser, even on a smart watch (available for Android Wear and Apple Watch).

The head line shows the name of the configuration, also the inside- and outside-





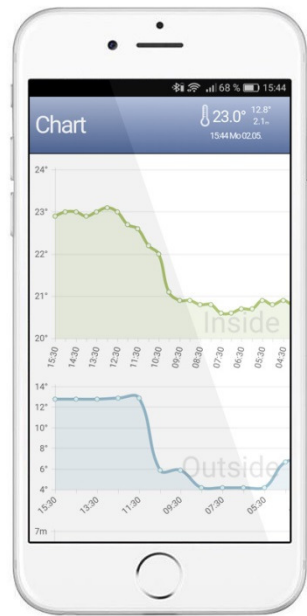
temperature is shown as well as the current time, date and wind speed. Below the head line there are several areas which can be opened and closed individually. The first area includes all scenes defined in airStudio. The adjacent areas are the zones, defined in the actuator administration of airStudio. Each zone lists all actuators which are part of the zone, and shows proper control elements for each of them. The last area is the marker section, which displays the state of each marker. By touching a marker its state can be toggled.

48 hours. The state of the web interface is saved automatically and restored on startup.

Under Android and iOS the web interface can be turned into a web app. That means that the application will no longer be displayed as a web page in the browser. Instead it will have its own icon on the home screen and will be opened full screen as a standalone application, just like other apps on the phone or tablet. For this purpose it is sufficient to select **Add to home screen** from the browser's menu.

If you have configured login data for the web interface then this data can be used in the web app, too, without the need to enter it manually each time.

Just open the interface in the browser by a link which has this format:



<http://IP-address/?user=xxx&pass=yyy>

(Example:

<http://192.168.1.100/?user=admin&pass=123456>).

Afterwards select **Add to home screen** as described before.

From now on the web app will use this data automatically.

We recommend to delete the browser history eventually as the login data would show up there.



## Access through the Internet

Access to the web interface is not limited to your home network. Instead you can access the interface from any point of the world where you have Internet connection. So you could turn on your home coffee machine from on the way already for example.

For this purpose it is necessary to open port 80 in the router and forward it to the IP address of the Light-Manager. For testing you can disable Wi-Fi in your phone and enter the external IP address of your router (given from your Internet provider) in the browser. The web interface should open up immediately if you have mobile data. Now the web interface is reachable from on the go.

Most DSL connections use dynamic IP addresses. This means that the IP address changes once within 24 hours. To keep access to your web interface the Light-Manager offers DynDNS service free of charge.

This has just to be enabled under **options** → **Light-Manager setup** → **Extended settings**.

From now on the web interface is always available under the shown URL. If a different port than port 80 is used, the port number has to be appended with a colon. So the final URL might be:

The screenshot shows the 'Extended settings' tab of the Light-Manager configuration page. The settings are as follows:

- Login: [ ] Pass: [ ]
- Description: LMAIR
- HTTP port: 80
- Temp. offset: [ ] 0.0°C
- Time zone: GMT + 1 (Berlin)
- Time server: pool.ntp.org
- Weather URL: [ ]
- DNS Service <http://0123456789ab.dns.ibmedia.de> : ext.Port
- LEDs always off

A green checkmark and 'Set' button are visible at the bottom of the settings area.

<http://0123456789ab.dns.ibmedia.de:100>

As this URL is not easy to remember, it is useful to send the URL to yourself by e-mail. By double click it will be opened in the default browser automatically. This URL can also be used for other devices in your household, which you might want to access online. By using different ports an unlimited number of devices like IP cams can be connected this way.

## Modification of the Web Interface

The template used for creation of the web interface is stored in the subfolder /html of the airStudio installation. Smaller changes like colors or font sizes can be done directly in the CSS file in this folder. When clicking the transfer button AirStudio loads this template and generates your individual web interface. This is stored in the folder %appdata%/AirStudio/html\_temp before it is compressed and uploaded to the webserver of the Light-Manager finally. In contrast to the /html folder the /temp\_temp folder contains all your personal scenarios and actuators.

Larger modifications require changes of the file index.htm and possibly of the file lightman.js, which contains Javascript. We recommend this procedure to skilled users with HTML, CSS and Javascript knowledge only.

## Technical data

**Operating voltage:** 5 Volts

**Power consumption:** ca. 0.9 Watts

**Dimensions (W x H x D):** ca. 6 x 6 x 2 cm

**Wi-Fi types:** Infrastructure and Virtual Access Point

**Wi-Fi standards:** 802.11 g with WPS function

**Wi-Fi channels:** 1 – 11

**Wi-Fi encryption:** WPA2

**Radio transmission frequencies:** 433.42, 433.92 and 868.35 MHz

**Radio reception frequencies:** 433.42, 433.92 and 868.35 MHz

**Infrared transmission frequency:** 38 kHz

**Infrared reception frequencies:** 30-40 kHz

**Memory capacity:** 2 Megabyte flash available memory for web interface

**Supported operating systems of AirStudio software:**

Windows 2000, Windows XP, Windows Vista, Windows 7 and 8

