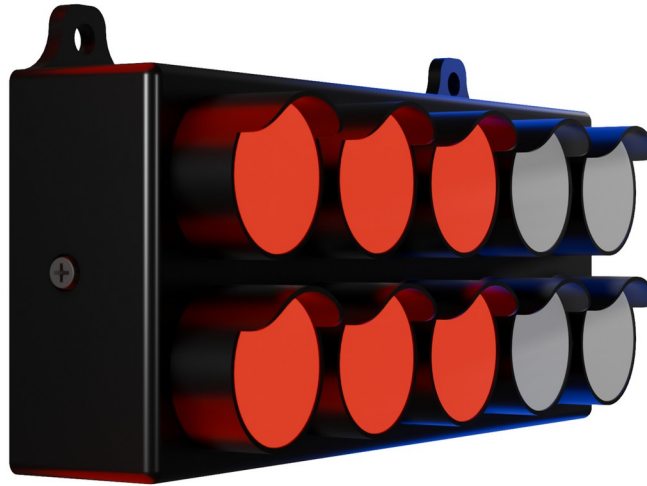


APEX Start Light

User Manual

Hardware V3 | Firmware V5 | SimHub Plugin 2.1.22

Manual Version 1.1 • English • September 2026



A

Welcome to APEX

The APEX Start Light brings start sequences, light colours and racing signals to your desk or sim racing setup. You control it using the integrated web app when connected to the USB-C power supply, or from a Windows PC using SimHub and the APEX plugin.

This manual explains safe setup, the initial connection and operation. Read it before using the device for the first time and keep it for future reference and when passing the device on.

In this manual

- 2 Safety and package contents
- 3 Setup and wall mounting
- 4 Web app setup
- 5 Lighting modes and Live Racing
- 6 Understanding racing signals
- 7 Sim Racing with SimHub
- 8 Features by game
- 9 Games and display behaviour
- 10 Troubleshooting
- 11 Technical data and contact

Safety and package contents

Intended use

The Start Light is a display and decorative device for dry indoor areas and sim racing. Use it only within the specified operating conditions. It is not intended for traffic control, for securing real race tracks or as a safety-related signalling device.

Safe operation

- Use the supplied USB-C power supply or a suitable supply providing 5 V DC and an available current of 3 A. Also follow the instructions for the power supply.
- Check the device, power supply and cable before connecting them. Do not use damaged parts. Disconnect the device from the power supply and contact support if you notice an unusual smell, excessive heat or malfunctions.
- Protect the device and connectors from moisture. Do not use the device outdoors, in the immediate vicinity of water or with wet hands.
- Do not cover the device. Keep it away from heaters, open flames and other strong heat sources. The permitted operating temperature is 10 to 35 °C.
- Do not open or modify the device yourself. Do not insert objects into openings. Arrange repairs with the manufacturer.
- Set up or mount the device securely. Route the cable without tension, crushing or trip hazards. Pull the plug, not the cable, when disconnecting it.

Flashing light effects

Some modes use rapid light changes and bright flashes. Do not use these effects if you or anyone else present is sensitive to flashing light. Start at low brightness, avoid looking directly at the device from close range and stop the effect if you feel unwell.

Check the package contents

APEX Start Light • woven USB-C cable, 2 m • USB-C power supply • Quick Start Guide. Depending on the version ordered, the Table Stand or APEX VESA Monitor Mount is also included.

Check that the delivery is complete and free from transport damage. If parts are missing or damaged, contact kontakt@apex-motorsport.de.

Setup and wall mounting

The light rings with diffusers form the front. The USB-C port is used for the power supply and the data connection to the PC. The two hangers are intended for wall mounting.

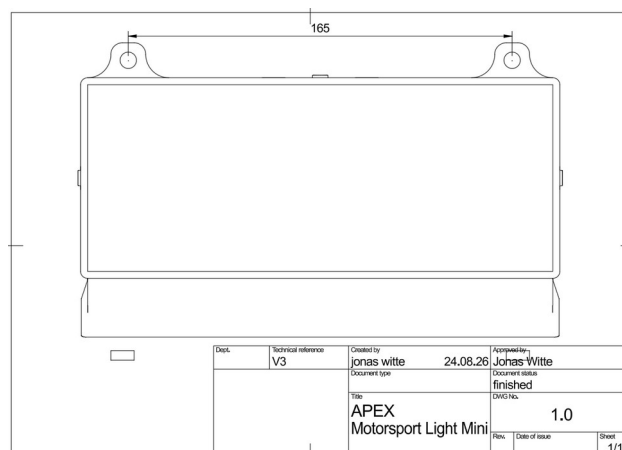
Setup with the Table Stand

1. Disconnect the Start Light from the power supply. Insert it into the separately available Table Stand.
2. Check that it is firmly seated and cannot tip over. Place the stand on a level, stable surface.
3. Route the USB cable to the rear and leave some slack at the connector. Then connect the power supply.

Wall mounting

1. Choose a load-bearing wall and check the mounting area for electrical wiring, water pipes and other utility lines.
2. Mark the two mounting points with a horizontal spacing of 165 mm. Use screws and wall plugs suitable for the wall.
3. Fit the screws to suit the hangers. Hang the switched-off device with the diffusers facing forwards.
4. Check that both hangers are secure. Connect the USB cable without tension.

The dimension indicates the spacing between the mounting points, not the drill diameter. The illustration is not a drilling template; measure the spacing on the device before drilling.



APEX VESA Monitor Mount

The optional APEX VESA Monitor Mount is designed for VESA hole patterns of 75 × 75 mm and 100 × 100 mm. It positions the Start Light above the monitor. Also check the installation situation and the approvals for your monitor or monitor arm; the hole pattern alone does not guarantee that every combination will fit.

Disconnect the monitor and Start Light from the power supply before installation. Secure the monitor against tipping over and follow the installation instructions supplied with the mount. Use the specified mounting parts and a screw length approved for your monitor. Before connecting the equipment, check that it is firmly secured and route the USB cable without tension or crushing.

Web app setup

For operation without a PC, the Start Light is powered by the USB-C power supply. The web app is already integrated into the device; you do not need to install a smartphone app. A smartphone, tablet or computer with Wi-Fi is sufficient.

First connection

1. Connect the USB-C cable to the Start Light and the supplied power supply. Plug the power supply into an easily accessible socket and wait until the device has started.
2. Open the Wi-Fi settings on your smartphone, tablet or computer. Connect to "APEX Control Pro".
3. Open the displayed Wi-Fi sign-in page. The Start Light user interface appears. If "No Internet Connection" is displayed, remain connected to this Wi-Fi network for local operation.
4. Initially set the brightness to a low level. Select a colour and "Farbe setzen" to check the connection.

Set up the home network for Live Racing

1. Open "WLAN EINSTELLUNGEN" in the web app. Enter the name and password of your 2.4 GHz Wi-Fi network exactly. A 5 GHz-only network is not suitable.
2. Select "WLAN Speichern & Neustart". After the save confirmation appears, briefly disconnect the Start Light from the power supply and reconnect it.
3. If necessary, reconnect your control device to "APEX Control Pro" and open the web app.
4. Activate "AUTO-LIVE". For live data, the Start Light needs a working internet connection via your home network.

The start sequence, manual lighting modes and colours do not require an internet connection. For Live mode, connecting your phone to "APEX Control Pro" alone is not sufficient: the Start Light must also be connected to your home network.

Switching between PC and web app

Firmware V5 separates PC operation from operation using the power supply. The device Wi-Fi is switched off during PC operation. To use the web app, disconnect the USB cable completely from the PC and reconnect the Start Light to the power supply. Simply closing SimHub is not sufficient.

Switching off

"AUS" switches off the normal light display. Deactivate Auto-Live first so that new live events do not change the display again. The device is fully switched off only when it is disconnected from the power supply.

Lighting modes and Live Racing

Start sequence and free lighting

Select "START SEQUENZ": five red light columns illuminate one after another. After a random waiting time, all lights go out simultaneously. The display then changes to green. This is a lighting animation; it does not measure reaction time.

Use the colour selection and "Farbe setzen" to set a uniform light colour. The brightness control adjusts the light intensity. Deactivate Auto-Live for a permanent manual display.

Web app section	Available displays
Track signals	Green, Local Yellow, Waving Yellow, Double Yellow, FCY / Caution, Safety Car, VSC, One Lap To Green, Red Flag, Blue Flag, White Flag, Checkered
Driver notifications	Black Flag, Penalty, Orange / Repair, Disqualified, Debris / Hazard
Pit lane and surroundings	Pit Lane, Pit Limiter, Pit Warning, Rain, Spotter Left, Spotter Right, Spotter Both / Three Wide
Show effects	Podium, Victory Firework, Rainbow, Pulse, Cylon

The buttons trigger the corresponding light display manually. They do not detect vehicles, weather conditions or hazards themselves. Automatic displays depend on data received in Live or SimHub operation.

Using Live Racing

1. Set up the internet connection as described on page 4 and activate "AUTO-LIVE".
2. The device retrieves available Race Control messages for supported Formula 1 practice sessions, qualifying sessions and races via the integrated OpenF1 service. Without suitable live data, a current status display cannot be guaranteed.
3. Adjust "STREAM DELAY" if your video feed is delayed. Settings from 0 to 120 seconds are available in 10-second increments. Compare a status change with the picture and correct the delay if necessary.
4. Deactivate Auto-Live if you want to use manual lighting modes exclusively again.

Live data may arrive late or fail. The service does not automatically cover every racing series or event. The display provides supplementary information; it does not replace official information. A light ring flashing blue while Auto-Live is active indicates that the Wi-Fi connection is missing.

Understanding racing signals

The English names correspond to the buttons in the web app and the signals in the plugin. The following overview explains the displays. Their specific meaning in a race is governed by the rules and messages of the relevant simulation or event.

Display	Meaning or display
Green / Red Flag	Green signal or clearance / red signal for an interruption.
Local / Waving / Double Yellow	Local, waving or double yellow warning. Waving Yellow uses a dynamic yellow pattern.
FCY / Caution	Full Course Yellow or Caution; symmetrically moving yellow pattern.
Safety Car / VSC	Safety Car or Virtual Safety Car phase. Safety Car displays an alternating yellow pattern; VSC displays a pulsing yellow effect.
One Lap To Green	Announced upcoming restart; yellow display with a moving green signal.
Blue / White / Checkered	Blue flag / white flag / chequered flag. The meaning of the white flag differs depending on the racing series.
Black / Penalty / Disqualified	Black flag, penalty notification or disqualification. The simulation displays details of the action.
Orange / Repair / Debris	Repair or mechanical notification, or a warning about debris or hazards on the track.
Pit Lane / Limiter / Warning	Pit lane, active speed limiter or pit warning. Pit Lane uses a blue effect.
Spotter Left / Right / Both	Vehicle on the left, right or both sides, or Three Wide, if the simulation provides this data.
Rain	Rain or wet-weather display, if the relevant data is available.

In standalone operation, you select these effects yourself. Live Racing displays the Race Control messages supported by the live service, particularly Green, Yellow, Double Yellow, Safety Car, VSC, Red and Checkered. For automatic sim racing signals, see the overview on page 8 and the explanations on page 9.

Light configuration

80 individually controllable LEDs operate behind ten separate light panels. Matt diffusers distribute the light. Different movements and pulse sequences make many racing states distinguishable in addition to the colour. The brightness can be adjusted to suit the room and viewing distance.

Sim Racing with SimHub

For PC operation, you need Windows 11 x64, SimHub 9.12.2 or a compatible newer version and the APEX SimHub Plugin 2.1.22. The Start Light is supplied with Firmware V5; you do not need to reinstall the firmware for normal initial setup.

Installing the plugin

Download: <http://apex-motorsport.de/downloads/software/index.html>

1. Download the APEX SimHub Plugin 2.1.22 (.dll file).
2. Close SimHub completely. If the old plugin version ASL_SP_001 is installed, uninstall it. ASL_SP_001 and ASL_SP_002 must not be active at the same time.
3. Open the SimHub folder (usually under Program Files (x86)).
4. Place the .dll file in the SimHub folder.
4. Start SimHub and enable "APEX Start Light" under "Settings > Plugins". Restart SimHub when prompted. After restarting SimHub, you may also be asked whether you want to use the plugin; confirm this.

Connecting and testing the Start Light

1. Connect the Start Light to a suitable USB port on the PC. Use a USB data cable; charging-only cables do not transmit commands (at least USB 3.x).
2. Open the APEX plugin page. Leave "Auto Detect" enabled and select "Connect". Alternatively, you can disable Auto Detect and select the device COM port manually.
3. Select "Test Connection". If the connection is successful, "APEX:PONG received" appears.
4. First set a low brightness under "Features". Test a lighting effect, then select "Stop Test / Return to Live" to display game data again.
5. Start a supported simulation and check that SimHub detects the game and is receiving active data.

Power supply and switching to Wi-Fi

Firmware V5 adjusts the light output to the available power supply. The brightness may therefore be lower on a PC than when using the power supply. Do not use improvised Y-cables to supply power from the PC and power supply at the same time.

To use the web app, disconnect the device completely from the PC and reconnect it to the power supply. The device Wi-Fi is switched off during PC operation.

Updates

Use only approved APEX updates. Close SimHub before updating the plugin and follow the instructions supplied with the new package. A firmware update is a separate process; perform it only in accordance with the relevant APEX instructions and do not interrupt the transfer.

Features by game

Valid for APEX SimHub Plugin 2.1.22. Yes = available. Cond. = depends on data, configuration or derived detection. No = no automatic support. AC = Assetto Corsa; ACC = Assetto Corsa Competizione.

Light or effect	AC	ACC	iRacing	Use
Start Sequence	Cond.	Estimated	Yes	Race start; explanations on page 9
Green	Cond.	Yes	Yes	Track clear or race start
Local Yellow	Yes	Yes	Yes	Local hazard
Waving Yellow	No	Cond.	Yes	Urgent local yellow warning
Double Yellow	No	No	No	Primarily in OpenF1 Live mode
FCY / Caution	No	Cond.	Yes	Entire track neutralised
Safety Car	No	No	Cond.	Safety Car or Caution-like state
VSC	No	No	No	Primarily in OpenF1 Live mode
Blue Flag	Yes	Yes	Yes	Overtaking notification
Red Flag	No	Yes	Yes	Race interruption or cancellation
White Flag	Yes	Yes	Yes	Game-dependent white flag
Checkered	Yes	Yes	Yes	End of race
Black Flag	Yes	Yes	Yes	Penalty notification
Penalty	Yes	Yes	Yes	Driver penalty
Orange / Repair	No	Yes	Yes	Technical fault or repair notification
Disqualified	Cond.	Yes	Yes	Disqualification
Debris / Hazard	No	No	Yes	Debris on the track or hazard
One Lap To Green	No	No	Yes	Restart in one lap
Pit Lane	Yes	Yes	Yes	Vehicle in the pit lane
Pit Limiter	Yes	Yes	Yes	Limiter active
Pit Warning	Yes	Yes	Yes	Pit lane and limiter off
Spotter Left	Cond.	Cond.	Yes	Vehicle on the left
Spotter Right	Cond.	Cond.	Yes	Vehicle on the right
Spotter Both	Cond.	Cond.	Yes	Vehicles on both sides / Three Wide
Rain	CSP	Yes	Yes	Rain or wet conditions

The ACC Start Sequence is fully available as an estimated sequence and is enabled optionally. Rain in AC requires a suitable CSP data channel. The table describes automatic game integration; manual web app effects remain available independently of it.

Games and display behaviour

Plugin 2.1.22 supports iRacing, Assetto Corsa Competizione and Assetto Corsa. Features differ depending on the game and the available data. Missing data for a special function does not mean that the entire plugin has failed.

iRacing

The plugin uses the native race status and start signals. It generates the timing of the red start stages itself; the GO signal comes from the game. Spotter notifications use the positional data of nearby vehicles. Pit warnings require suitable data. Rain and wet-weather displays are available when the relevant telemetry data is present.

Assetto Corsa Competizione

By default, the start display follows the game's red and green signals. Enable the optional five-light sequence under "Features" using "Derived Start Sync · ACC". This option is initially switched off.

ACC does not provide five individual start-light stages. When the option is enabled, the plugin generates an approximate sequence based on track position and movement. On the first run, it may lag behind the game's green signal because missing red stages still need to be added. Always base your actual race start on the display in the game.

Flags, pit signals and rain are supported when game data is available. Spotter notifications are only conditionally available in ACC and require suitable data.

Assetto Corsa

"Derived Start Sync" is enabled by default. It derives the start sequence from the detected starting grid and the start of the race. Because AC does not provide native five-light telemetry, the sequence may differ from the display in the game. Basic flags, pit signals and certain penalty notifications are supported. Rain requires a verified CSP or SimHub data channel; spotter notifications are only conditionally available.

Manual test and priorities

In test mode, the selected test effect takes priority over live telemetry. "Stop Test / Return to Live" restores the current race state. Alternatively, the test ends after the set time.

When several messages occur at the same time, the plugin displays the state with the higher priority. For example, an active penalty can be temporarily replaced by a yellow flag or pit notification and then reappear. Green is normally displayed briefly as an event; a later dark display is therefore not necessarily an error.

If the connection drops

The plugin checks the connection regularly and attempts to reconnect the device if the connection fails. If Firmware V5 receives no SimHub commands for more than approximately 2.5 seconds, it switches off the light display. "Auto Detect" also helps if Windows assigns the device a new COM number.

Troubleshooting

The device remains dark

Check the plug, cable and power source. Use the supplied power supply as a cross-check. Open the web app, deactivate Auto-Live and select "Farbe setzen" at a visible brightness. "AUS", a brightness setting of zero or missing SimHub data can explain a dark display.

APEX Control Pro does not appear

Disconnect the Start Light completely from the PC and connect it to the power supply. Wait for it to start and refresh the Wi-Fi list. Move closer to the device. If the Wi-Fi network remains invisible, check the cable and power supply and restart the device by briefly disconnecting the power.

The web app does not open

Check whether your control device is still connected to "APEX Control Pro". If necessary, select the Wi-Fi sign-in notification. Disconnect the Wi-Fi connection and reconnect it. If the phone automatically changes networks because there is no internet connection, select "stay connected" for this connection. Switching flight mode off and on usually solves the problem.

One light ring flashes blue or Live Racing is missing

Blue flashing while Auto-Live is active means that the connection to the home Wi-Fi network is missing. Check the Wi-Fi name, password and availability of 2.4 GHz. Save the corrected data and restart the Start Light. If a connection exists, also check internet access, Auto-Live and the availability of a suitable live session. Deactivate Auto-Live for normal lighting operation.

SimHub does not detect the Start Light

Use a USB data cable and test another suitable PC port. Check whether Windows detects the device. Close other programs that are accessing the device port. Check that the APEX plugin is enabled and that the correct port is selected. If the lamp test still produces no response, note the error message for support.

The lamp test works, but the game does not

First check whether SimHub detects the running game and receives telemetry data. End an active test with "Stop Test / Return to Live". Then check the game configuration and the plugin signals supported on pages 8 and 9. Not every game provides every signal. A successful manual display alone does not confirm automatic support.

Cleaning and APEX support

Disconnect the device and power supply from the mains before cleaning. Use a soft, dry or slightly damp cloth. Do not allow solvents, abrasive cleaners or liquids to enter openings. Do not reconnect the device until it is completely dry.

For support, email a brief description of the fault, the firmware and plugin versions, the plugin diagnostic text and the power source used, as well as the Windows, SimHub and game versions if applicable, to kontakt@apex-motorsport.de. Photos or error messages help with assessment. Do not send Wi-Fi passwords.

Technical data and contact

APEX Start Light • Model APEX-SL-V3 • Hardware V3

Property	Specification
Microcontroller	ESP32-S3
Power supply	5 V DC via USB-C
Recommended power supply capacity	3 A at 5 V
Maximum power consumption	10 W
Connection	USB-C for power supply and PC data
Wireless connection	Wi-Fi IEEE 802.11 b/g/n in the 2,400 to 2,483.5 MHz frequency band when powered by the power supply; maximum RF transmit power
Display	80 LEDs behind 10 light panels in 5 columns
Width × height	206 mm × 100 mm x 61 mm
Weight	275 g
Operating temperature	10 to 35 °C
Operating environment	Dry indoor areas
Software version covered by this manual	Firmware V5; APEX SimHub Plugin 2.1.22

Manufacturer and support

Jonas Witte · APEX Motorsport
Sole proprietorship
Hans-Sachs-Str. 43
97204 Höchberg
Germany

Email: kontakt@apex-motorsport.de

Website: apex-motorsport.de

The serial number is located on the circuit board. Do not open the device to read it. If the number is not visible without opening the device, support can use your order to identify it.

APEX Motorsport is independent and is not affiliated with Formula 1, Formula One Licensing B.V. or the Formula 1 Companies. The product is neither authorised nor supported by them.

EU conformity

Hereby, Jonas Witte · APEX Motorsport declares that the radio equipment type APEX Start Light, model APEX-SL-V3, is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <http://apex-motorsport.de/impressum.html>

Disposal

Do not dispose of the device or power supply with household waste. Take waste electrical equipment to a suitable municipal collection point or an authorised take-back point. The crossed-out wheellie bin symbol indicates separate collection. Dispose of the packaging in accordance with local regulations.