SplendoMonitor

User manual

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Disclaimer

- SplendoMonitor is NOT A MEDICAL DEVICE. It should not be used to treat or diagnose patients in a life-threatening healthcare situation.
- SplendoMonitor should be used by professionals.
- SplendoMonitor assessments often require physical exercise. Before doing any exercise, it is important to consult with a medical professional to ensure it is suitable for your individual needs and health condition. They can provide personalized recommendations and guidance to maximize the benefits of using SplendoMonitor.
- Using SplendoMonitor for personal or healthcare purposes may lead to inaccurate results and could pose potential risks to your health. It is important to consult a qualified healthcare professional before making any decisions based on the information provided by SplendoMonitor.
- Please note that SplendoMonitor is not intended for personal or healthcare use. It is a fitness assessment app designed for general informational purposes only. It should not be used as a substitute for professional medical advice or diagnosis.
- The use of SplendoMonitor is at your own risk. The developers and creators of SplendoMonitor are not liable for any damages or injuries that may result from the improper use of the app.
- Please use SplendoMonitor responsibly and in accordance with the intended purpose outlined in this user manual.
- Always follow the guidelines and recommendations provided by your healthcare provider. If you have any concerns or questions regarding your health, please seek medical advice from a licensed professional.

Device Compatibility

SplendoMonitor is compatible with recent Apple iPads. Please note that the app may not be compatible with older iPad models. To ensure optimal performance, we recommend using SplendoMonitor on the following iPad models:

- iPad (7th generation)
- iPad (8th generation)
- iPad Air (3rd generation)
- iPad Air (4th generation)
- iPad Pro (2nd generation)
- iPad Pro (3rd generation)
- iPad Pro (4th generation)
- iPad Pro (5th generation)

Please make sure your iPad is running the latest version of iOS or iPadOS to ensure compatibility with SplendoMonitor.

If you are experiencing any compatibility issues or have any questions, please refer to the SplendoMonitor support documentation or contact our customer support team.

Download and install

To start using SplendoMonitor, follow these steps to download the app from the App Store:

1. Go to https://apps.apple.com/tr/app/splendomonitor/id1521668317 or open the App Store on your iPad.
2. Search for "SplendoMonitor" in the search bar
3. Locate the SplendoMonitor app in the search results and tap on it.
4. On the app's page, tap the "Download" or "Get" button.
5. Wait for the download to complete. This may take a few moments depending on your internet connection.
6. Once the app is downloaded, tap the "Open" button to launch SplendoMonitor.

Note: The availability of the SplendoMonitor app may vary depending on your device and App Store (check the 'Device compatibility' section). Make sure you have a stable internet connection before downloading the app.

Authentication

Workspace and environment selection

Before logging in, you need to specify what workspace you would like to log in to. By default, your workspace will be accessed by tapping the blue 'Log in' button.

Dedicated environments

If your organization opted for a dedicated environment, this can be selected in the list below the 'Log in' button.

Email and password

To log in to SplendoMonitor using your email and password, follow these steps:

1. Open the SplendoMonitor app and follow the environment selection steps described above.
2. On the login screen, enter your registered email address in the designated field.
3. Enter your password in the password field. Make sure to enter it accurately, as passwords are case-sensitive.
4. Click on the "Log in" button to proceed.

If the entered email and password match the ones associated with your SplendoMonitor account, you will be successfully logged in and directed to the main dashboard.

Reset password

If you encounter any issues while logging in, such as forgetting your password, open your environment's portal in any internet browser. Click on the "Forgot Password" link on the login screen. Follow the instructions provided to reset your password.

Return to the monitor app to log in with your new password.

Multi-Factor Authentication (MFA)

If you have previously set up multi-factor authentication via text message for your SplendoHealth account, you can follow these steps to log in using this method:

1. Go to the SplendoMonitor login page and enter your email address and password.
2. After entering your credentials, you will be prompted for a verification code.
3. Open your messaging app and locate the text message containing the verification code.
4. Enter the verification code into the designated field on the login page.
5. Click the "Verify" button to complete the authentication process.
6. If the code is correct, you will be successfully logged into SplendoMonitor.
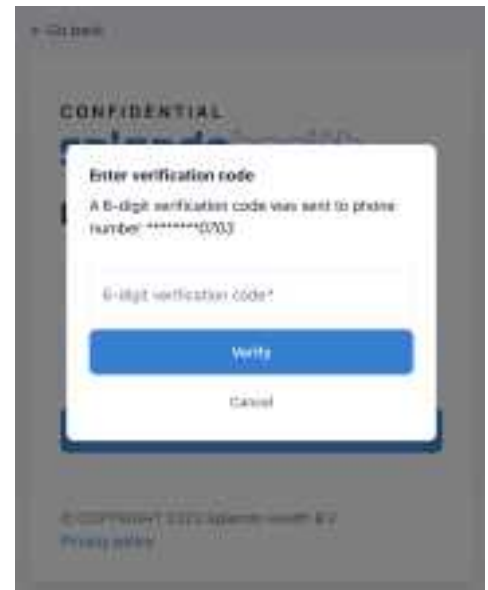

Please note that multi-factor authentication via text message adds an extra layer of security to your account by requiring both your password and a verification code sent to your mobile device. Ensure that you have a reliable mobile network connection to receive the verification code promptly.

Single Sign-On

For dedicated environments, we provide the flexibility to utilize your organization's Single Sign-On (SSO) provider. This means that if SSO has been configured for your environment, you will have the convenience of accessing SplendoMonitor through the familiar SSO authentication screen. You will be guided through the standard authentication process to securely log into SplendoMonitor and access its features and functionalities.

Selection

In the selection process, you specify the subject for which you would like to conduct an assessment.
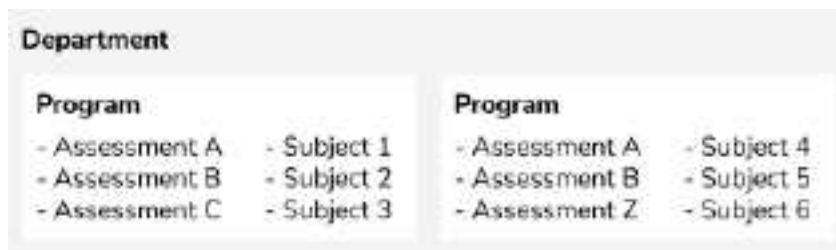
The sidebar on the left of the screen shows your current selection and allows you to navigate to the departments, program, subjects, and assessments lists.

Select a department

The departments you have access to are visible in the departments list. By default you will see a single department linked to your organization.

If your organization opted for a dedicated environment, your environment administrator can create additional departments to compartmentalize the environment. Departments can be used to create individual workspaces for locations, teams, or any other structure. Every user in your environment can get permission to access one or more departments. Contact your environment administrator if you do not see the department you are looking for.

After selecting a department, you will be navigated to the list of programs.

Select a program

Programs can be used for individual projects, groups of subjects, or any other structure. Programs contain a specific set of assessments and a list of subjects and their data. After selecting a program, you will be navigated to the list of subjects. You can remove your selection by tapping the 'X' icon in the sidebar.

Select an assessment

Programs contain a specific set of assessments.

1. Tap the assessment you would like to do from the list of assessments.
2. Review the assessment details in the pop-up window to ensure the correct assessment was selected.
3. Tap 'Select assessment' in the bottom right hand corner to confirm you selection

Select a subject

Programs contain list of subjects and their data.

1. Tap the subject you would like to assess from the list of subjects.
   - If the subject is not in the list, make sure you have a stable internet connection.
   - To add a new subject to the program, go to the SplendoHealth portal.
2. Review the subject details in the pop-up window to ensure the correct subject was selected.
3. Tap 'Select subject' in the bottom right hand corner to confirm you selection

Search subjects

Use the search field in the top right to search for a subject's first name, last name, or ID.

1. Enter your search query in the search field.
2. Find the subject you are looking for
3. Tap 'X' to remove your query.
4. Tap 'cancel' to close the search results.

Assessment setup

During the assessment setup process, the necessary sensors for the assessment are configured and prepared.

Assessment sensors overview

The assessment setup screen provides an overview of the required sensors for the assessment and their respective statuses. To begin setting up a sensor, simply tap on its corresponding row. The app will then guide you through the necessary steps.

Continue to assessment

Tap the 'Continue to assessment' button when you are ready to start. An alert will appear if some sensors are not set up correctly. You can choose to ignore the alert and continue regardless. Please note that sensors that are incorrectly set up will **not** collect any data.

Sensor setup

The sensor setup will guide you through all the necessary steps to ensure anyone can perform assessments. To ensure high-quality data collection, it is important to set up each sensor correctly. Setting up some sensors is a simple process of turning them on, tapping connect, and placing them in the correct location. However, for other sensors, the setup process may be more complex, requiring configuration or calibration.

The paragraphs below describe the general order of operations. Some sensors might have additional steps or a slightly different order. Check the appendix for detailed instructions for individual sensors.

Power on

Most sensor setups start by powering on the device. The instructions and image describe how to turn the sensor on. This includes things like button location, how long to press, and how to confirm the sensor was turned on correctly. Tap 'Next' after following all the steps.

Set to correct mode

Some sensors require an additional steps to set the correct mode or enable Bluetooth connection mode. Tap 'Next' after following all the steps.

Connection

When the sensor is turned on and set to the correct mode, it can be connected to the iPad. Typically, there is an ID or serial number printed on the device. The instructions and image will indicate where to locate the ID for sensor identification.

You can then match the ID with the list of available devices and tap 'Connect'.

Please note that the list will only display sensors of the type you are setting up. If you only have one sensor of that type, the list will only show a single sensor, making the ID less significant.

Configuration

Some sensors require configuration before use. Configuration could include additional subject details required by the firmware, accesoires used, or calibration settings. Check the appendix for detailed instructions for individual sensors.

Calibration

Some sensors require manual calibration before use. Calibration improves the accuracy of the sensor and adjusts the sensor to the conditions. In some cases the sensor needs to be attached before calibration. In that case the order of steps will be different. Check the appendix for detailed instructions for individual sensors.

Placement

The placement or attachment instructions show how and where to place the sensor on the subject's body. Correct placement is critical to ensure high-quality data is collected. Check the appendix for detailed instructions for individual sensors.

Assessment

The assessment page is the core of the SplendoMonitor app. On this page you will perform the assessments and collect data.

Header

The header shows the selected assessment and subject details. Always check these details to confirm the correct assessment and subject was selected.

Assessment protocol section

The assessment protocol section shows the steps required for the assessment. In most cases the protocol includes a baseline, preconditioning, exercise, and recovery interval.

Interval types

There are three types of intervals.
- Fixed: has a predetermined duration and cannot be ended prematurely.
- Flexible: has a predetermined duration and can be ended prematurely.
- Open: does not have a predetermined duration and will continue to run indefinitely. Open intervals have to be ended by the user.

Controls

- Start: when the subjects and sensors are ready, you can start the assessment by tapping 'Start'. The countdown timer will start running for the first interval and automatically continue to the next.
- Next: if the current interval can be ended manually, the 'Next' button is enabled. Tapping 'Next' will jump to the next interval.
- Done: when the last interval is finished, the 'Done' button will be enabled. You can review the data on screen. When you are ready to move on, tap 'Done' to navigate to the follow-up questionnaire.

Instructions

The exercise section includes some instructions about the current interval. You can choose to show the countdown clock and instructions to the subject, or use the elements on screen as a guide for your vocal instructions.

Status row

Below the protocol section is a row of status tiles. Each tile represents a sensor or related quality metric.

Sensor tile

The status row includes a sensor tile for each sensor in the assessment. These tiles indicate the Bluetooth connection status of the sensor.

- Not connected (red): The sensor has either not been set up or has lost connection since being set up.
- No data (orange): The sensor is connected, but the app is not receiving any data. This may be due to incorrect sensor placement.
- Connected (green): The connection is stable, and data is being received.

In addition to displaying the Bluetooth status, the status tiles also show any errors reported by the sensor. Even if the sensor is connected and placed correctly, issues may still arise. When an error occurs, an icon will appear in the top right corner of the tile, and the tile color will change accordingly. Tapping on the tile will display an alert with the corresponding error message.

- Fatal error (red): a serious error that will impact the assessment.
- Warning (orange): an error that should be addressed to ensure high-quality data for the rest of the assessment.
- Diagnostic error (icon only): may provide insights to further improve the data.

Status Tiles

Some sensors have additional metrics to help assess the quality of the data (see the orange 'PhysioFlow' tile in the image above). Metrics like 'signal quality' are displayed in separate status tiles with colors corresponding to the data sent by the sensor.

Graphs

The graphs display sensor output in line or scatter graphs. The X-axis always represents time in seconds. The Y-axis is dynamic and adjusts to match the data in the graph. Some graphs have two Y-axes to accommodate the scales of multiple metrics.

Each graph includes a legend that shows the color for each metric. In most cases, the color also matches a tile above or below the graph.
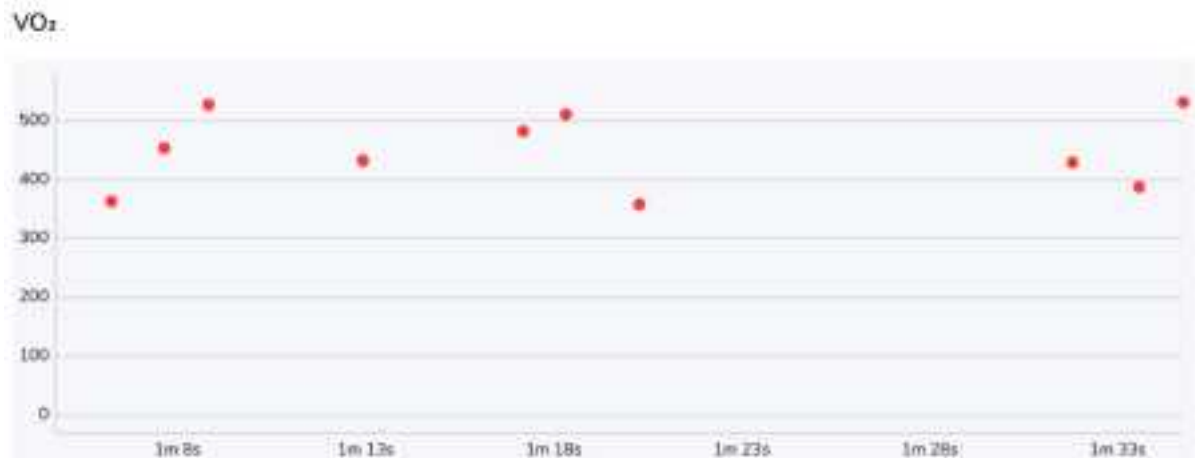
Tiles

Metrics are also presented numerically in tiles. Some tiles display metrics that are also shown in the graphs. Usually, the color of these tiles matches the color in the corresponding graph. If a metric is not represented in a graph, the color is typically the default color, which depends on the light or dark screen mode.

Follow-up questionnaire

After finishing the assessment and tapping 'Done' the app navigates to the follow-up questionnaire screen. The follow-up questionnaire includes questions related to the exercise protocol. Use these questions to save details about the assessment in the data set.

Appendix 1: VO2 Master Analyzer

Setup

Always clean the mask and sensor before and after use. Replace the filter before every assessment.

Battery

Ensure that the AAA battery in the device is either new or fully charged. It is recommended to avoid replacing the battery during an assessment as it will reset all configuration, calibration, and data.

The battery cap is located on the inside of the device next to the mouthpiece. To open the battery door, unscrew the mouth/user piece.

Power On

1. To turn on the device, press the power button located at the end of the black caps on either end of the device.
    ○ Note: In a hardware update, the location of the power button was changed. For older models, the power button is located on the opposite side.
2. After turning on the VO2 Master Analyzer, place the device on a flat surface while it zero-calibrates (indicated by a dark blue status LED).
3. When the status LED turns pale blue, the device is ready to connect.
4. Tap 'Next' to proceed to the connect page.

Connection

1. Wait for a few seconds while the app scans for Bluetooth devices. The list will be updated with all the VO2 Master Analyzers in range.
2. Match the ID in the list with the ID of your VO2 Master Analyzer.
    ○ Note: You can find the VO2 Master Analyzer ID on the card that came with the device. It is recommended to transfer the ID to a sticker on the device if you have multiple analyzers.
3. Tap 'Connect' in the row next to the device ID.
4. The app will navigate to the connection status screen.
    ○ You can abort the connection process by tapping 'X' in the top left hand corner.

Configuration

Mask Size

Ensure that the blue mask fits the subject's face properly.
● A mask that is too small may restrict breathing, which can impact performance.

- A mask that is too big may not seal correctly, which can affect the accuracy of measurements.

User Piece Size

The user piece determines the amount of air that can flow through the device.
- Using a user piece that is too small for the volume of air may restrict airflow, leading to performance issues.
- Using a user piece that is too large for the volume of air may result in insufficient pressure, causing inaccurate values.

Select the appropriate user piece based on your intended exercise intensity:
- Rest (R): For breath analysis at rest.
- Medium (M): For breath analysis during exercise.
- Large (L): For breath analysis during very intense exercise.

Syringe Calibration

Syringe calibration enhances the accuracy of the VO2 Master device by a few percentage points. You have the option to choose the size of the syringe to be used for calibration, or skip syringe calibration altogether.

Filter

Insert a new filter before each assessment.

Syringe calibration

Syringe calibration, also known as volume calibration, is essential for calibrating the air volume sensors in the VO2 Master Analyzer. This calibration process enhances the accuracy of the VO2 Master device by a few percentage points. During the initial configuration, you have the option to select the desired syringe size for calibration or choose to skip this step. If you choose to skip syringe calibration, you can proceed to the next steps directly.

To perform syringe calibration, follow these steps:

1. Attach the silicone spacer to the device.
2. Screw the hose adapter to the user piece securely.
3. Connect the hose to both the adapter and the syringe.
4. Place the device on a flat surface, preferably upside down to ensure the air outlet is unobstructed.
5. Tap 'Next' on the device to proceed to the syringe calibration page.
6. Push the syringe handle in and out at the same pace as the animated bar displayed on the screen.
7. Continue this movement until the progress bar reaches 100%.
8. Once the calibration is complete, carefully remove the syringe, adapter, and silicone spacer.

Placement

1. Attach the sensor to the mask, ensuring that the opening faces towards the chin-side of the mask.
2. Secure the mask by screwing on the locking ring.
3. Position the mask over the subject's nose and mouth.
4. Wrap the straps around the subject's head and click them into the slots on the clear plastic tabs.
5. Verify with the subject that they can breathe comfortably through their nose and mouth without any obstruction.

Gas calibration

Gas calibration, also known as breath calibration, is essential for calibrating the air content sensors in the VO2 Master Analyzer. This calibration process is required before use of the sensor.

To perform gas calibration, follow these steps:

1. Attach the VO2 Master sensor to the mask.
2. Place the mask on the subject's face and attach the straps.
3. Tap 'Next' on the device to proceed to the gas calibration page.
4. Breath in and out continually.
5. Continue this until the progress bar reaches 100%.
6. Once the calibration is complete tap 'Next'.

Appendix 2: Polar Sense

Setup

Battery

Make sure the battery is fully charged before use. Put the sensor in the USB charging holder.

Power On

1. Press and hold the button on the side of the device to power on. The lights will show a short animation while booting up. Afterwards a single button will light up indicating the current mode.
2. Press the button again to move the light to the heart rate monitor mode (heart icon)

Connection

3. Wait for a few seconds while the app scans for Bluetooth devices. The list will be updated with all the Polar Sense devices in range.
4. Match the ID in the list with the ID on the side of the Polar Sense device.
5. Tap 'Connect' in the row next to the device ID.
6. The app will navigate to the connection status screen.
   a. You can abort the connection process by tapping 'X' in the top left hand corner.

Placement

1. Press the sensor into the bracelet with the light facing the inside.
2. Place the bracelet around the subject's arm and adjust the tension.

Appendix 3: Train.Red FYER

Setup

Battery

Make sure the battery is fully charged before use.

Power On

1. Press and hold the button on the side of the device to power on. The lights will show a short animation while booting up. Afterwards a single button will light up indicating the current mode.
2. Press the button again to move the light to the heart rate monitor mode (heart icon)

Connection

1. Wait for a few seconds while the app scans for Bluetooth devices. The list will be updated with all the Polar Sense devices in range.
2. Match the ID in the list with the ID on the side of the Polar Sense device.
3. Tap 'Connect' in the row next to the device ID.
4. The app will navigate to the connection status screen.
    a. You can abort the connection process by tapping 'X' in the top left hand corner.

Placement

1. Loop the strap through the slots. Make sure the light is on the inside of the loop.
2. Place the bracelet around the subject's upper arm or upper leg.
3. Make sure the sensor is on the belly of the muscle.