POLAR®
LISTENS TO YOUR BODY

POLAR V650

V650 USER MANUAL

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GET STARTED

POLAR V650 USER MANUAL
INTRODUCTION

Congratulations on your new V650! Designed for the most ambitious cyclist, the V650 helps you ride with confidence and reach your peak performance.

This user manual includes complete instructions to help you get the most out of your new riding companion. To check the video tutorials and the latest version of this user manual, please go to www.-polar.com/en/support/v650.

V650

View your training data, such as heart rate, speed, distance and altitude at a glance from the big screen.

USB CABLE

Use the USB cable to charge the battery and to sync data between your V650 and the Polar Flow web service via FlowSync software.

BLUETOOTH® SMART HEART RATE SENSOR*

See live, accurate heart rate on your V650 during your training sessions. Your heart rate is used to analyze how your session went.

**Only included in V650 with heart rate sensor sets. If you bought your V650 without a heart rate sensor, not to worry, you can buy one at any time.*

POLAR FLOWSYNC SOFTWARE

Flowsync software allows you to sync data between your V650 and the Flow web service on your computer via the USB cable. Go to flow.polar.com/start to download and install Polar FlowSync software.

POLAR FLOW WEB SERVICE

Plan and analyze every detail of your training, customize your device and learn more about your performance at polar.com/flow.

SET UP YOUR V650

Please do the setup in the Polar Flow web service. There you can fill in all the physical details required for accurate training data at once. You can also select language and get the latest firmware for your V650. To do the setup in the Flow web service, you need a computer with an Internet connection.

Alternatively, if you can't get to a computer with an Internet connection right away, you can start from the device. **Please note that the device contains only part of the settings.** To make sure you get to enjoy your V650 at its best, it's important that you do the setup in the Polar Flow web service later.

SET UP IN THE POLAR FLOW WEB SERVICE

1. Go to flow.polar.com/start and download the Polar FlowSync software, which you need to connect your V650 to the Flow web service.
2. Open the installation package and follow the on-screen instructions for installing the software.
3. Once the installation is complete, FlowSync opens automatically and asks you to connect your Polar product.
4. Wake your V650 by pressing the side button for couple of seconds.
5. Plug V650 into your computer's USB port with the USB cable. Let your computer install any USB drivers if it suggests so.
6. The Flow web service opens automatically on your internet browser. Create a Polar account or sign in if you already have one. Fill in your physical settings precisely as they have an effect on calorie calculation and other Smart Coaching features.
7. To finalize the setup, click **Save**. FlowSync starts syncing the data to your V650. Wait until syncing is completed before unplugging your V650. FlowSync status will change to completed, once the synchronization is done.

*The languages you can choose in the Polar Flow web service are:**Dansk**, **Deutsch**, **English**, **Español**, **Français**, **Italiano**, 日本語, **Nederlands**, **Norsk**, **Polski**, **Português**, 简体中文, **Русскиｊ**, **Suomi** or **Svenska**.*

SET UP FROM THE DEVICE

Plug V650 into your computer's USB port or a USB charger with the cable that came in the box. Wake your V650 by pressing the side button. The first time you do this, your V650 will take you through an initial set up process.

1. Start by choosing your language from the following options: **Dansk**, **Deutsch**, **English**, **Español**, **Français**, **Italiano**, **Nederlands**, **Norsk**, **Português**, **Suomi**, **Svenska**, 日本語 or 简体中文. If your language is not visible, swipe up to scroll the list. Choose a language by tapping it. The field turns red. Confirm and continue to the following setting by tapping ▶ at the bottom of the screen.
2. **Units**: Choose **Metric** (kg/cm) or **Imperial** (lb/ft) units.
3. **Use GPS time**: If you want the V650 to read the Coordinated Universal Time (UTC) from the GPS satellites, tick the box and choose the UTC Time Zone that is closest to you.
4. **Time of day**: Change the time format by touching 12h/24h (1). The chosen time format is written in white. If you choose the **12h** time format, also select **AM** or **PM** (2). Then enter the local time.

5. **Date**: Enter current date.
6. **Sex**: Select **Male** or **Female**.
7. **Height**: Enter your height.
8. **Weight**: Enter your weight.
9. **Date of birth**: Enter your date of birth.
10. To change your settings, tap ◀ at the bottom of the screen to return to the desired setting. To accept the settings, tap ▶. The V650 enters the main view.

To get the most accurate and personal training data, it's important that you're precise with physical settings like your age, weight and sex.

CHARGE THE BATTERY

The V650 has an internal, rechargeable battery. Use the USB cable included in the product set to charge your V650 via the USB connector on your computer. You can also charge the battery via a wall outlet. When charging via a wall outlet use a USB power adapter (not included in the product set). If you use an AC adapter, make sure that the adapter is marked with "output 5Vdc 1A-2A max". Only use an AC adapter which is adequately safety approved (marked with "LPS", "Limited Power Supply" or "UL listed").

1. Push down to open the cap.
2. Lift the cap and plug the micro USB connector into the USB port.
3. Plug the other end of the cable into your PC.
4. The charging animation appears on the display. Charging the battery fully takes up to five hours.

The operating time of the battery is approximately 10 hours. The operating time depends on many factors, such as the temperature of the environment in which you use your V650, the features you select and use, and battery aging. The operating time is significantly reduced in temperatures well below freezing.

Don't leave the battery fully discharged for a long period of time or keep it fully charged all the time, because it might affect the battery life time.

MENU AND FUNCTIONS

MENU ITEMS

1. **HISTORY**: See the details of your sessions and the totals of your cycling history
2. **PULL-DOWN MENU**: Swipe down to open the pull-down menu. There you can adjust the front light, the training sounds and the display brightness.
3. **SETTINGS**: Modify the settings to suit your needs.
4. **ROUTES**: See a list of the routes you've added to favorites in the Flow web service and synced to your V650. Preview routes and choose a route for your ride.
5. **PROFILE**: Choose the profile and the bike for your ride.
6. The indicators displayed at the bottom of the display provide information about the status of the sensors.

BUTTON FUNCTIONS

There is one physical button on the side of the V650 and another button on the front.

Press the side button **(1)** to view the following options:

- **SYNC WITH MOBILE**
- **CALIBRATE ALTITUDE**
- **LOCK DISPLAY**
- **SEARCH FOR SENSORS**
- **TURN OFF V650**

Press the front button **(2)** to start recording, press and hold it to pause.

*Take lap with a regular press. See Sport Profile settings for instructions on setting **FRONT BUTTON TAKES LAP** function on/off.*

TOUCH SCREEN FUNCTIONS

Tap

- Open what you tap.
- Choose an item.
- Confirm and return to the previous level by tapping .
- Continue further by tapping .

Swipe right or left

- Switch training views during training.
- Browse training view layouts in sport profile settings.
- Scroll details of your riding session in **HISTORY**.

Swipe down from the top edge of the screen

Open the pull-down menu. There you can adjust the frontlight, the training sounds and the display brightness.

Swipe up or down

Scroll through what's on the screen.

PAIRING SENSORS WITH V650

Sensors compatible with V650 use Bluetooth Smart ® wireless technology. Before taking a new heart rate sensor or cycling sensor into use, it has to be paired with your V650. Pairing only takes a few seconds, and ensures that your V650 receives signals from your sensors and devices only, and allows disturbance-free training in a group. Before entering an event or race, make sure that you do the pairing at home to prevent interference due to data transmission.

For more information on pairing specific sensors, see Compatible Sensors.

SETTINGS

GENERAL SETTINGS

To view and edit your general settings, go to **Settings** > **General settings**.There you'll find:

- **Pairing**
- **Maps**
- **Use GPS time**
- **Time**
- **Date**
- **Language**
- **Units**
- **Pin code lock**
- **Frontlight**
- **Display backlight**
- **Automatic power off**
- **About V650**

Tap to open the setting you want to change, and edit as you like. Confirm and return to previous menu by tapping ◀.

In certain settings (e.g. UNITS), tap the field until you see the correct value.

PAIRING

Before taking a new sensor into use, it has to be introduced to your V650. This is called pairing and only takes a few seconds. Pairing ensures that the V650 receives signals from your sensor only, and enables disturbance-free training in a group.

Pair new device: Pair a sensor with your V650. For more information on pairing specific sensors, see Compatible Sensors.

Paired devices: View all the devices you have paired with your V650.

To remove pairing with a sensor:

1. Go to **Settings** > **General settings** > **Pairing** > **Paired devices**.

2. Tap the device you want to remove from the list and tap **Remove pairing**.

MAPS

OFFLINE MAP AREA: Define the center point for the offline map area (450 km x 450 km).

- You can browse the map by swiping, and zoom in with a double tap and zoom out with a two-finger tap.
- Once you have defined the area, tap **DOWNLOAD**.
- **Delete old maps?** is displayed. A new offline map area selection will delete the previous maps. Choose **CONTINUE** to confirm the area selection. V650 returns to **MAP SETTINGS**.
- **Synchronization required** is displayed under **OFFLINE MAP AREA**. **New offline map will be downloaded the next time you synchronize your V650 with the Flow web service via the FlowSync software.**

MAP LAYERS: Choose **Topographic**, **Bike routes** and/or **Favorite routes**.

In **Browse offline map**, you can preview the downloaded map before starting a training session. To move the map to your current location, tap the compass needle in the upper right hand corner of the screen. When you browse away from your current location, the compass needle turns from red to white.

USE GPS TIME

If you want the V650 to read the Coordinated Universal Time (UTC) from the GPS satellites, tick the box in **USE GPS TIME** field, and choose the UTC Time Zone that is closest to you.

TIME

Set the time of day.

If you want to change the time format, tap 12h/24h (image). The currently selected format is written in white. If you choose the 12h time format, also select AM or PM.

DATE

Set the date.

LANGUAGE

Choose: **Dansk**, **Deutsch**, **English**, **Español**, **Français**, **Italiano**, **Nederlands**, **Norsk**, **Português**, **Suomi**, **Svenska**, 日本語 or 简体中文.

UNITS

Choose metric or imperial. Set the units used to measure weight, height, distance and speed.

PIN CODE LOCK

Keep your training information safe by setting a PIN code on your V650. It's a handy way to make sure that only you have access to your training information.

Tap **PIN CODE LOCK** to turn the function on. Enter a four-digit PIN code and tap . Re-enter and tap to confirm.

The V650 will ask for your PIN code every time it is turned on.

If you forget your PIN code, you can do a Factory reset on your V650. It removes V650's connection to your user account and deletes any saved data on it.

1. *Plug in your V650 to your computer's USB port and go to Polar FlowSync software. The Polar FlowSync software transfers your training information to the Polar Flow web service.*
2. *Go to Settings and choose Factory Reset.*
3. *Go to the Polar Flow web service (flow.polar.com/V650) and repeat what you did when you first started using the product.*

FRONT LIGHT

The function of the front light on the top edge of the V650 is to optimize your cycling security in dark conditions. It's an intelligent feature that you can set to turn on automatically when it gets dark and to turn off when it gets bright. Alternatively, you can manage it manually from the pull-down menu.

Manual: Manage the front light manually from the pull-down menu. Adjust the **Blink rate*** by dragging the slider.

Automatic: The V650 turns the front light on and off according to light conditions. Adjust the **Activation level** and the **Blink rate*** by dragging the slider.

Frontlight settings in pull-down menu

	Tap to turn the front light on or off.
	Tap to set blink mode on or off.
A	Tap to set the automatic front light on or off.

DISPLAY BACKLIGHT

Manual: The backlight turns on each time you touch the screen, press a button, get a notification or an alarm. It remains bright for 15 seconds, then goes dim again.

Always on: The backlight is always on.

Automatic: The backlight turns on and off automatically according to light conditions when you're recording a session. In other modes it works the same way as manual backlight. You can adjust the **Activation level** by dragging the slider.

AUTOMATIC POWER OFF

Set **On**/**Off**: The power switches off automatically when you haven't touched the buttons/touch screen in 15 minutes (except when the V650 is recording a training sessions or in the pause mode).

ABOUT V650

Check the device ID, firmware version and HW model of your V650.

SPORT PROFILE SETTINGS

To view or modify sport profile settings, go to **Settings** > **Sport profiles** and choose the profile you want to edit.

You'll find the following settings for each profile:

- **Training views**
- **HR view**
- **Speed view**
- **Training sounds**
- **GPS**
- **Automatic pause**
- **Automatic lap**
- **Front button takes lap**
- **HR zones**
- **Power settings**

Tap to open the setting you want to change, and edit as you like. Confirm and return to previous menu by tapping .

In certain settings (e.g. Training sounds), tap the field until you see the correct value.

TRAINING VIEWS

You can choose to have up to six training views for each profile, each training view containing up to eight items. In addition, you can active the following views: **Lap view**, **AUTOMATIC LAP VIEW** and **Map view**.

1. Tick the box on the left side of the display to activate **View 1**, **View 2**, **View 3**, **View 4**, **View 5** or **View 6**.
2. Tap the view you want to edit.
3. Choose the layout for the view. There are many layout options; simply swipe left or right until you see a layout you like.
4. If you want to change an item, tap it and choose a new item from the list. The content of the list varies slightly between different layouts. This is because some of the items (e.g. graphs) don't fit in all the layouts. You can find a complete list of available items in Training Views.
5. When the layout is complete, confirm and return to the **TRAINING VIEWS** menu by tapping ◀.
6. If you want to set more training views for the profile, repeat the steps 1-5 .
7. To set **Lap view** on, tick the box in the **Lap view** field.
8. Tap ◀ in **TRAINING VIEWS** menu to save your changes.

HR VIEW

Choose **%** (percent of maximum heart rate) or **bpm** (beats per minute).

SPEED VIEW

Choose **km/h** or **min/km**.

TRAINING SOUNDS

Choose **Mute**, **Soft**, **Loud** and **Very loud**.

GPS

Set GPS function **On**/**Off**.

AUTOMATIC PAUSE

Tick the box to turn the function on.

Tap **Activation speed** to set the speed at which recording is paused.

AUTOMATIC LAP

Tick the box to turn the function on, then set the automatic lap **Duration** or **Distance**.

FRONT BUTTON TAKES LAP

Set the function **On**/**Off**. If you set the function on, pressing the front button takes a lap when you're recording a session.

By default, the function is on in **Road cycling**, **Mountain biking** and **Indoor cycling**.

Pressing and holding the front button pauses recording.

HR ZONES

View and change the heart rate zone limits.

POWER SETTINGS

In the **Power settings** you'll find:

- **Power view**: Choose **W** (Watts), **W/kg** (Watts/kg) or **FTP %** (% of FTP).
- **FTP (W)**: Set your FTP value. The range is 60 to 600 watts.
- **Power, rolling average**: Choose 3, 10 or 30 second rolling average of power data, or choose **Set other** to set the rolling average to any value between 1-99 sec.
- **Power zones**: View and change the power zone limits.

BIKE SETTINGS

To view or modify bike settings, go to **Settings** > **Bike settings** and choose the bike. The sensors you have linked to the bike appear under the bike name.

You'll find the following settings:

BIKE NAME: **Bike 1**, **Bike 2**, **Bike 3** or **Bike 4**.

WHEEL SIZE (MM): Set the wheel size in millimeters. For more information, see Measuring the wheel size.

CRANK LENGTH (MM): Set the crank length in millimeters.

SENSORS: View all the sensors you have linked to the bike.

MEASURING THE WHEEL SIZE

Wheel size settings are a prerequisite for accurate cycling information. There are two ways to determine the wheel size of your bike:

Method 1

Measure the wheel manually for the most accurate result.

Use the valve to mark the point where the wheel touches the ground. Draw a line on the ground to mark the point. Move your bike forward on a flat surface for one complete rotation. The tire should be perpendicular to the ground. Draw another line on the ground when the valve is at the starting point to mark a full rotation. Measure the distance between the two lines.

Subtract 4 mm from the distance to account for your weight on the bike to get your wheel circumference. Enter this value in the cycling computer.

Method 2

Look for the diameter in inches or in ETRTO printed on the wheel. Match it to the wheel size in millimeters in the right column of the chart.

You can also check the wheel size from the manufacturer.

ETRTO	Wheel size diameter (inches)	Wheel size setting (mm)
25-559	26 x 1.0	1884
23-571	650 x 23C	1909
35-559	26 x 1.50	1947
37-622	700 x 35C	1958
47-559	26 x 1.95	2022
20-622	700 x 20C	2051
52-559	26 x 2.0	2054
23-622	700 x 23C	2070
25-622	700 x 25C	2080
28-622	700 x 28	2101
32-622	700 x 32C	2126
42-622	700 x 40C	2189
47-622	700 x 47C	2220
55-622	29 x 2.2	2282
55-584	27.5 x 2.2	2124

Wheel sizes on the chart are advisory as wheel size depends on the wheel type and air pressure. Due to te variation of the measurements, Polar cannot be held responsible for their validity.

PHYSICAL SETTINGS

To view and edit your physical settings, go to **Settings** > **Physical settings**. There you'll find:

- **Sex**
- **Height**
- **Weight**
- **Date of birth**
- **HR max**
- **Resting HR**
- **VO2max**

It is important that you are precise with the physical settings, especially when setting your weight, height, date of birth and sex, as they have an impact on the accuracy of the measuring values, such as the heart rate limits and calorie expenditure.

Tap to open the setting you want to change, and edit as you like. Confirm and return to previous menu by tapping .

In certain settings (e.g. SEX), tap the field until you see the correct value.

SEX

Choose **Male** or **Female**.

HEIGHT

Set your height.

WEIGHT

Set your weight.

DATE OF BIRTH

Set your date of birth.

HR MAX

HR MAX:Set your maximum heart rate, if you know your laboratory measured current maximum heart rate value. Your age-predicted maximum heart rate value (220-age) is displayed as a default setting when you set this value for the first time.

About maximum heart rate

HR_{max} is used to estimate energy expenditure. HR_{max} is the highest number of heart-beats per minute during maximum physical exertion. HR_{max} is also useful when determining training intensity. The most accurate method for determining your individual HR_{max} is to perform a maximal exercise stress test in a laboratory.

RESTING HR

RESTING HR: Set your resting heart rate.

About resting heart rate

A person's resting heart rate (HR_{rest}) is the lowest number of heart beats per minute (bpm) when fully relaxed and without distractions. Age, fitness level, genetics, health status and gender affect the HR_{rest}. HR_{rest} is decreased as the result of cardiovascular conditioning. A normal value for an adult is 60-80 bpm, but for top athletes it can be below 30 bpm. An exceptionally high HR_{rest} can be a sign of over-exertion or illness.

VO2 MAX

VO2max: Set your maximal oxygen uptake, $VO2_{max}$.

About $VO2_{max}$

A clear link exists between oxygen consumption (VO2) of the body and cardiorespiratory fitness because oxygen delivery to tissues is dependent on lung and heart function. $VO2_{max}$ (maximal oxygen uptake, maximal aerobic power) is the maximal rate at which oxygen can be used by the body during maximal work; it is related directly to the maximal capacity of the heart to deliver blood to the muscles. $VO2_{max}$ can be measured or predicted by fitness tests (e.g. maximal tests, submaximal tests, Polar Fitness Test). $VO2_{max}$ is a good index of cardiorespiratory fitness and a good predictor of performance capability in aerobic events such as distance running, cycling, cross-country skiing, and swimming.

$VO2_{max}$ can be expressed either as milliliters per minute (ml/min = ml ■ min-1) or this value can be divided by the person's body weight in kilograms (ml/kg/min = ml ■ kg-1■ min-1).

The relationship between oxygen uptake (VO2) and heart rate (HR) is linear within an individual during dynamic exercise. Percentages of VO_{2max} can be changed to % of HR_{max} with the following formula: $\%HR_{max} = (\%VO2_{max} + 28.12)/1.28$.

$VO2_{max}$ is the basic variable of the intensity of exercise. When determining target exercise intensities heart rate is more practical and useful because it is easily and non-invasively obtained, e.g. on-line during exercise with heart rate monitors.

FIRMWARE UPDATE

The firmware of your V650 can be updated. Any time a new firmware version is available, FlowSync will notify you when connecting V650 to your computer with the USB cable. The firmware updates are downloaded via the USB cable and FlowSync software.

Firmware updates are performed to improve the functionality of your V650. They can include improvements to existing features or completely new features, for example.

HOW TO UPDATE FIRMWARE

To update the firmware of your V650, you must have:

- A Flow web service account
- Installed FlowSync software
- Registered your V650 in the Flow web service

Go to flow.polar.com/start, and download and install FlowSync software onto your computer and create your Polar account in the Polar Flow web service.

To update the firmware:

1. Plug the micro USB connector into your V650, and plug the other end of the cable into your PC.
2. FlowSync starts syncing your data.
3. After syncing, you are asked to update the firmware.
4. Choose Yes. New firmware is installed, and V650 reboots.

Before updating the firmware, the data from your V650 is synced to the Flow web service. Therefore you will not lose any data when updating.

COMPATIBLE SENSORS

Polar Heart rate Sensor Bluetooth® Smart 26
Pair a Heart Rate Sensor with V650 26
Polar Speed Sensor Bluetooth® Smart 26
Pair Speed sensor with V650 27
Polar Cadence Sensor Bluetooth® Smart 27
Pair Cadence sensor with V650 27
Polar LOOK Kéo Power Sensor Bluetooth® Smart 28
Pair Kéo Power with V650 28
Power Settings on V650 29
Calibrate Kéo Power 29

POLAR HEART RATE SENSOR BLUETOOTH® SMART

Polar heart rate sensor consists of comfortable strap and connector. It detects your heart rate accurately and sends the data to the V650 in real time.

Heart rate data gives you an insight into your physical condition and how your body responds to training. Although there are many subjective clues as to how your body is doing during exercise (perceived exertion, breathing rate, physical sensations), none is as reliable as measuring heart rate. It is objective and is affected by both internal and external factors - meaning you will have a dependable measure of your physical state.

PAIR A HEART RATE SENSOR WITH V650

1. Wear your heart rate sensor as instructed in Wear the Heart Rate Sensor and go to **Settings** > **General Settings** > **Pairing** > **Pair new device**.
2. V650 lists the devices it finds. Tap the one you want to pair.
3. **Pairing succeeded** tells you that the pairing is complete.

POLAR SPEED SENSOR BLUETOOTH® SMART

There are a range of factors that can affect your cycling speed. Obviously fitness is one of them, however, weather conditions and the varying gradients of the road play a huge part too. The most advanced way of measuring how these factors affect your performance speed is with the aerodynamic speed sensor.

- Measures your current, average and maximum speeds
- Track your average speed to see your progress and performance improve
- Light yet tough, and easy to attach

PAIR SPEED SENSOR WITH V650

Make sure the speed sensor has been correctly installed. For more information on installing the speed sensor refer to the user manual of the speed sensor.

1. Go to **General Settings** > **Pairing** > **Pair new device**. The V650 should be less than three meters from the sensor you want to pair. It's close enough when it's mounted on the handlebar.

2. Activate the sensor you want to pair. Rotate the wheel a few times to activate the sensor. The flashing red light in the sensor indicates that you've activated the sensor.

Do the pairing within 30 seconds of the sensor activation.

3. V650 lists the devices it finds. The device closest to V650 is at the top of the list. Tap the device you want to pair.

4. **Pairing succeeded** tells you that the pairing is complete.

5. Link the sensor to **Bike 1**, **Bike 2**, **Bike 3** or **Bike 4**. You can change the bike later in **Paired devices**.

6. Set the wheel size. Confirm and return to the **PAIRING** menu by tapping

When you select a bike for a ride, your V650 automatically starts searching for the sensors you've linked to the bike. V650 is ready once the green circle around the sensor indicator is static.

POLAR CADENCE SENSOR BLUETOOTH® SMART

The most practical way of measuring your cycling session is with our advanced wireless cadence sensor. It measures your real-time, average and maximum cycling cadence as revolutions per minute so you can compare the technique of your ride against previous rides.

- Improves your cycling technique and identifies your optimal cadence
- Interference-free cadence data lets you evaluate your individual performance
- Designed to be aerodynamic and light

PAIR CADENCE SENSOR WITH V650

Make sure the cadence sensor has been correctly installed. For more information on installing the cadence sensor refer to the user manual of the cadence sensor.

1. Go to **General Settings** > **Pairing** > **Pair new device**. The V650 should be less than three meters from the sensor you want to pair. It's close enough when it's mounted on the handlebar.

2. Activate the sensor you want to pair. Rotate the crank a few times to activate the sensor. The flashing red light in the sensor indicates that you've activated the sensor.

Do the pairing within 30 seconds of the sensor activation.

3. V650 lists the devices it finds. The device closest to V650 is at the top of the list. Tap the device you want to pair.

4. **Pairing succeeded** tells you that the pairing is complete.

5. Link the sensor to **Bike 1**, **Bike 2**, **Bike 3** or **Bike 4**. You can change the bike later in **Paired devices**.

When you select a bike for a ride, your V650 automatically starts searching for the sensors you've linked to the bike. V650 is ready once the green circle around the sensor indicator is static.

POLAR LOOK KÉO POWER SENSOR *BLUETOOTH*® SMART

Truly develop your cycling performance and technique. Perfect for ambitious cyclists, this system uses Bluetooth® Smart technology and consumes only a little energy.

- Gives instant feedback by measuring accurate power output in watts
- Displays your left and right balance as well as the current and average cadence
- Shows how you use force against the pedal with the force vector feature
- Easy to set up and switch between bikes

PAIR KÉO POWER WITH V650

Before pairing Kéo Power make sure you have installed it correctly. For information on mounting the pedals and installing the transmitters see the Polar LOOK Kéo Power user manual that came in the product box, or the video tutorial.

The transmitters need to be paired one at a time. This means that you have to perform the pairing twice when taking Kéo Power into use. After pairing the first transmitter, you can immediately pair the second one by selecting it from the list. Check the device ID on the backside of each transmitter to make sure you find the correct transmitters from the list.

1. Go to **General Settings** > **Pairing** > **Pair new device**. The V650 should be less than three meters from the sensor you want to pair it with. It's close enough when it's mounted on the handlebar.

2. Rotate the cranks to wake up the transmitters. A blinking magenta light in the sensor indicates that you've activated the sensor.

Do the pairing within 30 seconds of the sensor activation.

3. V650 lists the devices it finds. The device closest to V650 is at the top of the list. Tap the device you want to pair.

4. **Pairing succeeded** tells you that the pairing is complete.

5. Link the sensor to **Bike 1**, **Bike 2**, **Bike 3** or **Bike 4**. You can change the bike later in **Paired devices**.

6. Set the crank length in millimeters. Confirm and return to the **PAIRING** menu by tapping

When you select a bike for a ride, your V650 automatically starts searching for the sensors you've linked to the bike. V650 is ready once the green circle around the sensor indicator is static.

POWER SETTINGS ON V650

Adjust the power settings to best suit your training needs. Edit the power settings in **Settings > Sport profiles**, and choose the profile you want to edit, and choose **Power settings**.

In the **Power settings** you'll find:

- **Power view**: Choose **W** (Watts), **W/kg** (Watts/kg) or **FTP %** (% of FTP).
- **FTP (W)**: Set your FTP value. The range is 60 to 600 watts.
- **Power, rolling average**: Choose 3, 10 or 30 second rolling average of power data, or choose **Set other** to set the rolling average to any value between 1-99 sec.
- **Power zones**: View and change the power zone limits.

CALIBRATE KÉO POWER

Calibrate Kéo Power before starting your session. V650 starts the calibration automatically each time the transmitters wake up and V650 is found. The calibration takes a couple of seconds.

The temperature of your training environment affects calibration accuracy. If you're going to train outdoors, for example, take your bike outdoors half an hour before doing the offset calibration. (This way your bike's temperature is about the same as that of your training environment.)

To calibrate Kéo power:

1. Choose the bike to which the sensor is linked and return to the main view by tapping . Keep V650 in the main view during the calibration.
2. Wake up the transmitters by rotating the cranks to start the calibration.
3. Keep the bike upright and cranks in place until calibration is completed.

To ensure the calibration is done properly:

- Do not put any weight on the pedals during calibration.
- Do not interrupt the calibration.

When the calibration is complete a green LED will blink on the transmitters, and you can start your session.

INSTALL BIKE MOUNT

INSTALL BIKE MOUNT

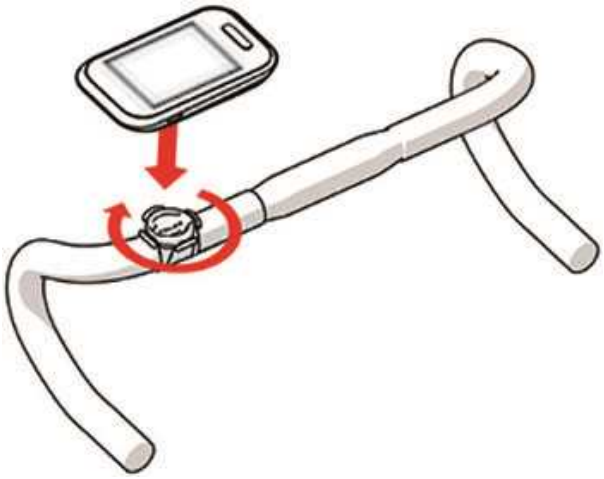
You can install the Polar Adjustable Bike Mount on the stem or on the left- or right-hand side of the handlebar.

1. Place the rubber base on the stem/handlebar

2. Position the bike mount on the rubber base so the POLAR logo is in line with the handlebar.

3. Secure the bike mount on to the stem/handlebar with the O-ring.

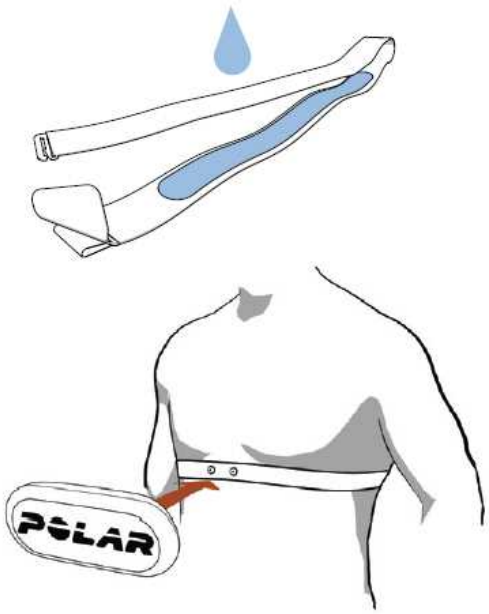
4. Align the ledges on the back of the V650 with the slots on the bike mount and turn clockwise until the V650 is in its place.



TRAINING

WEAR THE HEART RATE SENSOR

1. Moisten the electrode areas of the strap.
2. Attach the connector to the strap.
3. Adjust the strap length to fit tightly but comfortably. Tie the strap around your chest, just below the chest muscles, and attach the hook to the other end of the strap.
4. Check that the moist electrode areas are firmly against your skin and that the Polar logo of the connector is in a central and upright position.



Detach the connector from the strap, and rinse the strap under running water after every training session. Sweat and moisture may keep the heart rate sensor activated, so also remember to wipe it dry.

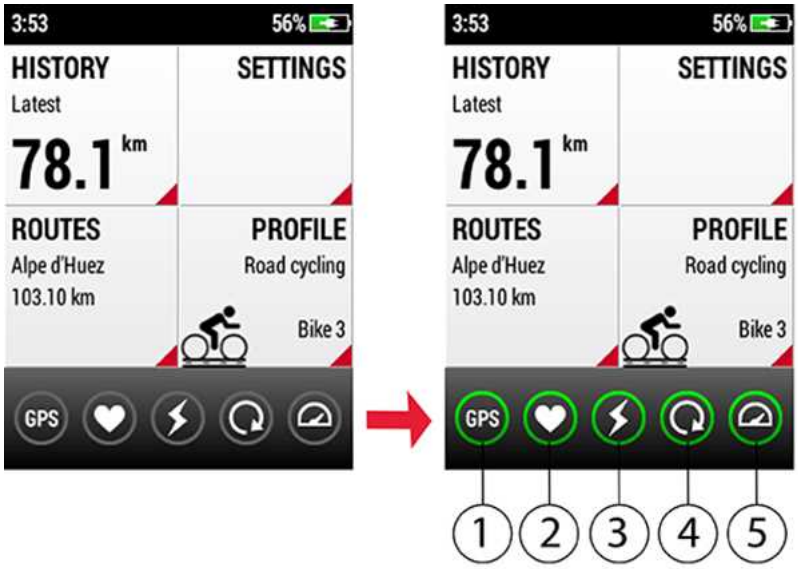
START A TRAINING SESSION

CHOOSE PROFILE AND BIKE FOR THE RIDE

Go to **PROFILE** to choose **Road biking**, **Mountain biking**, **Indoor cycling** or **Other**.Choose **Bike 1**, **Bike 2**, **Bike 3** or **Bike 4**.

If you have turned on GPS in the profile you chose, the V650 automatically starts searching for the GPS satellite signals. Keep your V650 still with the display facing upwards during the search. It typically takes 30-60 seconds the first time. In future it should take only a few seconds. The V650 has found the GPS satellite signals once the green circle around GPS is static.

If you have linked a sensor to the bike, your V650 starts searching for signals from the sensors. The green circle around the sensor indicator is flashing during the search. V650 is ready once the green circle around the sensor indicator is static. Press the front button to begin your ride or continue with the selection of the route.



1. GPS
2. Heart rate sensor
3. Power sensor
4. Cadence sensor
5. Speed sensor

*After finding the satellites, the V650 calibrates the altitude. **Altitude calibration complete** tells you that the calibration is ready. To make sure that the altitude remains accurate, calibrate your V650 manually whenever a reliable reference, such as a peak or a topographic map, is available or when at sea level. To calibrate manually, press the side button and choose **Calibrate altitude**. Then, set the altitude of your current location.*

START A TRAINING SESSION WITH ROUTE GUIDANCE

Go to **ROUTES** to see a list of the routes you've added to favorites in the Flow web service and synced to your V650. Choose the route for your next training session by tapping on the circle on the left side of the route name. Tapping on a route tile brings up a preview of the route.

Return to main view by tapping . The chosen route is shown in the **ROUTES** tile. Press the front button to begin your ride.

For more information on route guidance, and for instructions on adding routes to your V650, see Route Guidance.

BUTTON FUNCTIONS DURING TRAINING

SIDE BUTTON FUNCTIONS

- Change the training view with a short button press.
- Press and hold to view the side menu, or, when the display is locked, press and hold to unlock the display.
- Press and hold for eight seconds to turn V650 off.

In heavy rainfall the rain drops may interfere with the touch screen functions. We recommend locking the display from the side button menu to prevent this.

FRONT BUTTON FUNCTIONS

- Take a lap with a short button press.

  The **FRONT BUTTON TAKES LAP** function must be set on. By default, the function is on. You can set the function on or off in **Settings** > **Sport profiles** (choose the profile you want to edit to view the settings) .

- Press and hold to pause recording. To stop the training session, press and hold **STOP** for three seconds.

TOUCHSCREEN FUNCTIONS

- Swipe across the screen to change the training views.
- The red triangle at the bottom right corner of a data field indicates that you can quickly toggle the information shown, from speed to average speed, for example.
- Swipe down to open the pull-down menu. There you can adjust the front light, the training sounds and the display brightness.

TRAINING VIEWS

The training views of V650 are fully customizable. You can choose to have up to six training views for each profile, each training view containing up to eight items.

All available training view items are presented below. Choose the ones that suit you and your training needs and requirements best. For instructions on customizing the training views, see Sport profile settings.

Some of the items are displayed in either numeric or graphic format (indicated by the graph icon after the item name in the selection list), depending on the selected item size.

Item sizes

You can see available item sizes for each training view item from the tables below.

TIME

Time of day 1/2, 1/4, 1/8	Current time of day
Duration 1/2, 1/4, 1/8	Total duration of your training session so far
Lap time 1/2, 1/4, 1/8	The stopwatch time for the current lap

ENVIRONMENT

Altitude 1/2, 1/4, 1/8	Current altitude in feet or meters
Altitude graph 1/2 , 1/4	Altitude as a graphical trend
Ascent	Ascended meters/feet

1/2, 1/4, 1/8	
Back to start 1/1, 1/2	An arrow points in the direction of your starting point. Also shows the direct distance (beeline) between you and the starting point.
Barometer 1/2, 1/4, 1/8	Current air pressure
Descent 1/2, 1/4, 1/8	Descended meters/feet
Inclination 1/2, 1/4, 1/8	Incline/decline in degrees or in %
Map 1/1	A line drawing of your route on a map allows you to see where you are on the map in real time. See Maps for instructions on down-loading maps on your V650. When viewing the map, you can see the following data on the two 1/8 size items on the bottom quarter of the display: • speed • distance • duration • heart rate • power • cadence Change the data shown by tapping on the item.
Route 1/1	The route guidance feature guides you along routes that you have recorded in previous sessions or routes that other Flow web service users have recorded and shared. • The red map pointer shows your location and the direction you are heading. • The red line shows the route to be followed. • The green circle shows the route start point, and the red circle shows the finish point. • The blue line shows your current route.

BODY MEASUREMENT

Calories 1/2, 1/4, 1/8	The calories you've burned so far.
Heart rate 1/2, 1/4, 1/8	Your heart rate in beats per minute (BPM) or percentage of maximum hear rate (%)
HR zones 1/1, 1/2	Your heart rate and duration of the ride. The bars indicate the time spent on each heart rate zone. You can lock the zone you're currently on by tapping the view. The limits of the locked zone are shown. If your heart rate goes outside the locked zone, you will be notified with audio feedback. Unlock the zone by tapping the view again.
HR graph 1/2, 1/4	Your heart rate as a graphical trend. You can lock the zone you're currently on by tapping the view. The limits of the locked zone are shown. If your heart rate goes outside the locked zone, you will be notified with audio feedback. Unlock the zone by tapping the view again. *Tap to toggle the view.*
HR avg 1/2, 1/4, 1/8	Your average heart rate
HR max 1/2, 1/4, 1/8	Your maximum heart rate
Lap HR max 1/2, 1/4, 1/8	Your maximum heart rate for the current lap
Lap HR avg 1/2, 1/4, 1/8	Your average heart rate for the current lap

DISTANCE

Distance 1/2, 1/4, 1/8	The distance you've traveled during the ride
Lap distance 1/2, 1/4, 1/8	The distance you've traveled during the current lap

SPEED

Speed / **Pace** 1/2, 1/4, 1/8	Current speed (km/h or mph)
Speed avg / **Pace avg** 1/2, 1/4, 1/8	Average speed (km/h or mph)
Speed max / **Pace max** 1/2, 1/4, 1/8	Maximum speed (km/h or mph)
Lap speed avg / **Lap pace avg** 1/2, 1/4, 1/8	Average speed (km/h or mph) for the current lap
Lap speed max / **Lap pace max** 1/2, 1/4, 1/8	Maximum speed (km/h or mph) for the current lap
Speed graph / **Pace graph** 1/2, 1/4	Shows your current speed (km/h or mph) and the latest speed changes as a graphical trend.
VAM 1/2, 1/4, 1/8	Ascended feet/meters per hour

CADENCE

Cadence	Pedaling rate as rotations per minute

1/2, 1/4, 1/8	
Cadence avg 1/2, 1/4, 1/8	Average pedaling rate
Lap Cadence avg 1/2, 1/4, 1/8	Average pedaling rate for the current lap

POWER

*Depending on your power view selection in Sport profile settings, the power output is shown in **W** (Watts), **W/kg** (Watts/kg) or **FTP %** (% of FTP).*

Power 1/2, 1/4, 1/8	Current power output
Power avg 1/2, 1/4, 1/8	Average power for the current training session
Power max 1/2, 1/4, 1/8	Maximum power for the current training session
Power, left 1/2, 1/4, 1/8	Current left leg power output
Power, right 1/2, 1/4, 1/8	Current right leg power output
Power zones 1/1, 1/2	Your power output and duration of the ride. The bars indicate the time spent on each power zone. You can lock the zone you're currently on by tapping the view. The limits of the locked zone are shown. If your power output goes outside the locked zone, you will be notified with audio feedback. Unlock the zone by tapping the view again.
Power graph 1/2, 1/4	Your power output as a graphical trend. You can lock the zone you're currently on by tapping the view. The

	limits of the locked zone are shown. If your power output goes outside the locked zone, you will be notified with audio feedback. Unlock the zone by tapping the view again. *Tap to toggle the view.*
Lap power avg 1/2, 1/4, 1/8	Average power for the current lap
Lap power max 1/2, 1/4, 1/8	Maximum power for the current lap
Left/right balance 1/2, 1/4, 1/8	Power distribution between left and right foot in percentage
Avg left/right balance 1/2, 1/4, 1/8	Average power distribution between left and right leg in percentage
Lap left/right balance 1/2, 1/4, 1/8	Power distribution between left and right leg for the current lap
Force 1/2	A visualization of your left and right pedal stroke. • The green area is the positive force you are using during the pedal stroke. • The orange line indicates the pedal position where the maximum pedaling force is produced.
Force view 1/1	In the **Force view**, you'll see the following information: • A visualization of your left and right pedal stroke (slow data graph / fast data graph) • Maximum force during left and right pedal stroke • The percentage of positive force time in left and right pedal stroke

	If you are using the Kéo Power Essential Bluetooth® Smart (with one power transmitter), you'll see the following information: • A visualization of your pedal stroke (slow data graph / fast data graph) • Current power output / 3, 10, 30 or 1-99 (the value you've set) second average of power output. Tap to change the value. • Maximum force during a pedal stroke • The percentage of positive force time in a pedal stroke • Cadence
Force max of revolution, left 1/2, 1/4, 1/8	Maximum force during a pedal stroke (left)
Force max of revolution, right 1/2, 1/4, 1/8	Maximum force during a pedal stroke (right)

LAP INFORMATION

Every time you take a lap, the lap notification is displayed for a moment. If you'd like to follow the lap information during the lap, you can choose a separate **Lap view**/ **AUTOMATIC LAP VIEW** in Sport profile settings.

*Tap the screen in the **Lap view** / **AUTOMATIC LAP VIEW** to view the lap notification of your previous lap.*

BACK TO START

The Back to start feature guides your way back to the starting point. When the V650 finds the GPS satellite signals in the beginning of the training session, your location is saved as a starting point.

When it is time to return to your starting point, do the following:

- Browse to the BACK TO START-view.
- Keep moving in order for the V650 to determine which direction you are going. An arrow will point in the direction of your starting point.
- To get back to the starting point, navigate in the direction of the arrow.
- The V650 also shows the direct distance (beeline) between you and the starting point.

Always keep a map at hand in case the V650 loses the satellite signal or the battery runs out.

This feature uses the GPS function. Set GPS on in sport profile settings. For instructions, see Sport Profiles.

PAUSE AND STOP TRAINING

To pause training recording, press and hold the front button.

- To continue training recording, choose **CONTINUE**.
- To stop the training session, press and hold **STOP** for three seconds.

Take care for your heart rate sensor after training. Detach the connector from the strap and rinse the strap under running water after every use. For complete care and maintenance instructions, see Taking care of your V650.

AFTER TRAINING

SUMMARY

After each training session, you'll get an instant summary of your session.The summary includes:

• Duration of your session • Distance • Average and maximum heart rate • Average and maximum speed/pace • Altitude-compensated calories and fat burn % of calories
• Training Benefit: Textual feedback, for example Steady state training+, is displayed if you trained at least a total of 10 minutes in the sport zones. For more information, see Training Benefit. • Time spent on each heart rate zone
• Average and maximum cadence • Ascent and descent • Maximum altitude
• Average and maximum power output • Average and maximum **W/KG** (power to weight ratio) • Average pedaling power distribution between left and right foot in percentage
• Your route on a map
Lap details • Lap number and time • Distance • Average heart rate • Average speed • Average cadence • Average power

To view your training summary later, go to **HISTORY** > **Sessions**.

HISTORY
SESSIONS

The V650 saves the summary of your ride in **HISTORY** > **Sessions**. There you can see a list of your sessions with the following information: date, start time, profile and bike.

- Tap a session to open its summary. Browse the summary by swiping left or right.
- Tap and hold to delete a session.

For deeper analysis, transfer your training history to the Polar Flow web service with the USB cable and FlowSync software. The web service offers various options to analyze the data with.

TOTALS

To view your training totals go to **HISTORY** > **Totals**.

Totals includes cumulative information recorded during training sessions since the last reset:

- Time frame
- **Duration**
- **Distance**
- **Calories**
- Distance ridden on **Bike 1**, **Bike 2**, **Bike 3** and **Bike 4**

Tap the field to reset totals. Bike totals need to be reset separately.

The values are updated automatically when you stop recording.

Use the total values file as a seasonal or monthly counter of riding data.

FEATURES

GPS

The V650 has built-in GPS that provides accurate speed and distance measurement, and allows you to see your route on map in the Flow web service after your session. V650 includes the following GPS features:

- Distance: Gives you accurate distance during and after your session.
- Speed: Accurate speed information during and after your session.
- Back to start: Directs you to your starting point in the shortest distance possible and shows the distance to your starting point. Now you can check out more adventurous routes and explore them safely, knowing that your V650 can take you back to where you started.
- Route: A line-drawing of your route that indicates your current position and starting location.

BAROMETER

V650 measures altitude with an atmospheric air pressure sensor and converts the measured air pressure into an altitude reading. This is the most accurate way to measure altitude and altitude changes (ascent / descent).

The barometer features include:

- Altitude, ascent and descent
- Inclinometer (Requires Speed Sensor Bluetooth® Smart)
- Real time VAM (mean ascent velocity)
- Altitude-compensated calories

To make sure that the altitude remains accurate, it needs to be calibrated whenever a reliable reference, such as a peak or a topographic map, is available or when at sea level. Pressure variations due to weather conditions or indoor air-conditioning may affect altitude readings.

SPORT PROFILES

V650 has three profiles for cycling (and one profile for other sports). You can define specific settings for each one of them. For example, you can customize each profile with up to six different training views, to see the information you really want.

For more information, see Sport Profile Settings.

MAPS

From version 1.2 onwards, the V650 accompanies your ride with offline maps based on OpenStreetMap data. The V650 draws your route on a map as you ride allowing you to see where you are on the map in real time.

You can turn the map view on or off in **Settings** > **Sport profiles**. Choose the sport profile you want to edit, and then choose **Training views**. In **Training views**, scroll down to the last menu item (**MAP VIEW**), and tick/untick the box to turn the map view on or off.

In addition, you can choose a **Map** item to one of your training views (**View 1**, **View 2**, **View 3**, **View 4**, **View 5** or **View 6**). This way you can use the map views in different zoom levels: one showing the roads in detail, and another showing more of the road ahead. For instructions on editing the training views, see Sport Profile Settings.

*The map view is on by default in the following sport profiles: **Road cycling**, **Mountain biking** and **Other**.*

MAP SETTINGS

To view or modify map settings, go to **Settings** > **General settings** > **Maps**. You'll find the following settings:

OFFLINE MAP AREA: Define the center point for the offline map area (450 km x 450 km).

- You can browse the map by swiping, and zoom in with a double tap and zoom out with a two-finger tap.
- Once you have defined the area, tap **DOWNLOAD**.
- **Delete old maps?** is displayed. A new offline map area selection will delete the previous maps. Choose **CONTINUE** to confirm the area selection. V650 returns to **MAP SETTINGS**.
- **Synchronization required** is displayed under **OFFLINE MAP AREA**. **New offline map will be downloaded the next time you synchronize your V650 with the Flow web service via the FlowSync software.**

MAP LAYERS: Choose **Topographic**, **Bike routes** and/or **Favorite routes**.

In **Browse offline map**, you can preview the downloaded map before starting a training session. To move the map to your current location, tap the compass needle in the upper right hand corner of the screen. When you browse away from your current location, the compass needle turns from red to white.

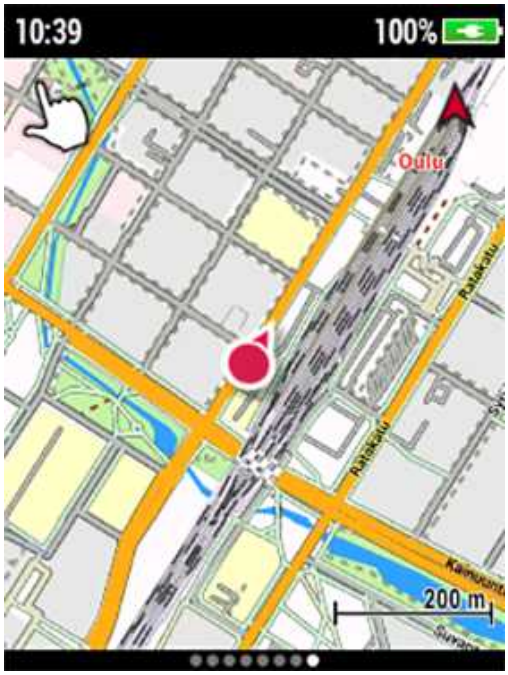
DURING TRAINING

When you tap the map a hand icon will appear on the upper left-hand corner of the screen. You can enter the browse and zoom mode by tapping the hand icon or tapping the upper left-hand corner of the map. The red bar at the bottom and top of the screen together with the hand-icon indicate that the browse and zoom mode is active. You can zoom in with a double-tap or pinch-out and zoom out with a two-finger tap or pinch-in. Browsing the map is possible by swiping it. Center the map by tapping the map type indicator. You will leave the browse and zoom mode automatically if you don’t touch the screen for a couple of seconds or by tapping the hand icon. When you leave the browse and zoom mode your location on the map is centered automatically.

You can also change the map direction (**HEADING UP** or **NORTH UP**) by tapping the map type indicator in the upper right-hand corner of the screen

HEADING UP: The location pointer remains pointed towards the top of the screen regardless of the direction you're heading. When you turn, the map view rotates accordingly, so that the location pointer remains pointed towards the top of the screen. The **HEADING UP** map type indicator in the upper right hand corner of the screen points north.

NORTH UP: The location pointer is centered. The orientation of the location pointer changes as you turn, and points towards the top of the screen only when you're heading north.



ROUTE GUIDANCE

The route guidance feature guides you along routes that you have recorded in previous sessions or routes that other Flow web service users have recorded and shared.

ADDING A ROUTE TO V650

To add a route to your V650, you must first add it to your **Favorites** list in the Flow web service, and then sync it to your V650.

1. When viewing a route in the analysis view, click the favorites icon ☆ in the lower right corner of the map.
2. Name the route, and choose **Save**.
3. The route is added to your **Favorites** list.
4. Sync the route to your V650.

The number of favorites in the Flow web service is not limited, but your V650 can have a maximum of 20 routes at a time. If you have over 20 favorites on your **Favorites** list, only the routes that are among the first 20

favorites are transferred to your V650 when syncing. To sync a route that is not among the first 20 favorites, change the order of your favorites by dragging and dropping them. If you want to remove a route from the favorites list, click the delete icon in upper right corner of the route.

GUIDANCE ON THE DISPLAY

- The red map pointer shows your location and the direction you are heading.
- The red line shows the route to be followed.
- The green circle shows the route start point, and the red circle shows the finish point.
- The blue line shows your current route.

For information on starting a session with route guidance, see Start a Training Session.

SMART COACHING

Whether it's working out at the right intensity or receiving instant feedback, Smart Coaching offers a choice of unique, easy-to-use features, personalized to your needs and designed for maximum enjoyment and motivation when training.

V650 includes the following Smart Coaching features:

- Heart rate zones: Heart rate zones provide an easy way to select and monitor the intensity of your training and to follow heart rate-based training programs.
- Smart calories: The most accurate calorie counter on the market counts the number of calories burned.
- Training Benefit: The V650 gives motivating feedback about the effect of your training immediately after your session.

POLAR HEART RATE ZONES

Polar heart rate zones introduce a new level of effectiveness in heart rate-based training. Training is divided into five heart rate zones based on percentages of maximum heart rate. With heart rate zones, you can easily select and monitor training intensities.

Target zone	Intensity % of HRmax*, bpm	Example durations	Training effect
MAXIMUM	90–100% 171–190 bpm	less than 5 minutes	Benefits: Maximal or near maximal effort for breathing and muscles. Feels like: Very exhausting for breathing and muscles. Recommended for: Very experienced and fit athletes. Short intervals only, usually in final preparation for short events.

Target zone	Intensity % of HRmax*, bpm	Example durations	Training effect
HARD	80–90% 152–172 bpm	2–10 minutes	Benefits: Increased ability to sustain high speed endurance. Feels like: Causes muscular fatigue and heavy breathing. Recommended for: Experienced athletes for year-round training, and for various durations. Becomes more important during pre competition season.
MODERATE	70–80% 133–152 bpm	10–40 minutes	Benefits: Enhances general training pace, makes moderate intensity efforts easier and improves efficiency. Feels like: Steady, controlled, fast breathing. Recommended for: Athletes training for events, or looking for performance gains.
LIGHT	60–70% 114-133 bpm	40–80 minutes	Benefits: Improves general base fitness, improves recovery and boosts metabolism. Feels like: Comfortable and easy, low muscle and cardiovascular load. Recommended for: Everybody for long training sessions during base training periods and for recovery exercises during competition season.
VERY LIGHT	50–60% 104–114 bpm	20–40 minutes	Benefits: Helps to warm up and cool down and assists recovery. Feels like: Very easy, little strain.

Target zone	Intensity % of HRmax*, bpm	Example durations	Training effect
			Recommended for: For recovery and cool-down, throughout training season.

HRmax = Maximum heart rate (220-age). Example: 30 years old, 220–30=190 bpm.

Training in heart rate zone 1 is done at a very low intensity. The main training principle is that performance improves when recovering after, and not only during training. Accelerate the recovery process with very light intensity training.

Training in heart rate zone 2 is for endurance training, an essential part of any training program. Training sessions in this zone are easy and aerobic. Long-duration training in this light zone results in effective energy expenditure. Progress will require persistence.

Aerobic power is enhanced in heart rate zone 3. The training intensity is higher than in sport zones 1 and 2, but still mainly aerobic. Training in sport zone 3 may, for example, consist of intervals followed by recovery. Training in this zone is especially effective for improving the efficiency of blood circulation in the heart and skeletal muscles.

If your goal is to compete at top potential, you will have to train in heart rate zones 4 and 5. In these zones, you exercise anaerobically in intervals of up to 10 minutes. The shorter the interval, the higher the intensity. Sufficient recovery between intervals is very important. The training pattern in zones 4 and 5 is designed to produce peak performance.

The Polar target heart rate zones can be personalized by using a laboratory measured HRmax value, or by taking a field test to measure the value yourself. When training in a target heart rate zone, try to make use of the entire zone. The mid-zone is a good target, but keeping your heart rate at that exact level all the time is not necessary. Heart rate gradually adjusts to training intensity. For instance, when crossing from heart rate target zone 1 to 3, the circulatory system and heart rate will adjust in 3-5 minutes.

Heart rate responds to training intensity depending on factors such as fitness and recovery levels, as well as environmental factors. It is important to look out for subjective feelings of fatigue, and to adjust your training program accordingly.

SMART CALORIES

The most accurate calorie counter on the market calculates the number of calories burned. The energy expenditure calculation is based on:

- Body weight, height, age, gender
- Individual maximum heart rate (HR_{max})
- Heart rate during training
- Individual resting heart rate value (HR_{rest})
- Individual maximal oxygen uptake ($VO2_{max}$)
- *Altitude*

For best possible Smart Calories information accuracy, please give V650 your measured VO2max and HRmax values if you have them.

TRAINING BENEFIT

The Training Benefit feature helps you better understand the effectiveness of your training. This feature requires the use of the heart rate sensor. After each training session you get textual feedback on your performance providing that you have trained at least a total of 10 minutes in the sport zones. The feedback is based on training time distribution on sport zones, calorie expenditure and duration. In Training Files you get the feedback in more detail. The descriptions of different training benefit options are listed in the table below

Feedback	Benefit
Maximum training+	That was a hard session! You improved your sprint speed and the nervous system of your muscles, which make you more efficient. This session also increased your resistance to fatigue.
Maximum training	That was a hard session! You improved your sprint speed and the nervous system of your muscles, which make you more efficient.
Maximum & Tempo training	What a session! You improved your speed and efficiency. This session also significantly developed your aerobic fitness and your ability to sustain high intensity effort for longer.
Tempo & Maximum training	What a session! You significantly improved your aerobic fitness and your ability to sustain high intensity effort for longer. This session also developed your speed and efficiency.
Tempo training+	Great pace in a long session! You improved your aerobic fitness, speed, and ability to sustain high intensity effort for longer. This session also increased your resistance to fatigue.
Tempo training	Great pace! You improved your aerobic fitness, speed, and ability to sustain high intensity effort for longer.
Tempo & Steady state training	Good pace! You improved your ability to sustain high intensity effort for longer. This session also developed your aerobic fitness and the endurance of your muscles.
Steady state & Tempo training	Good pace! You improved your aerobic fitness and the endurance of your muscles. This session also developed your ability to sus-

Feedback	Benefit
	tain high intensity effort for longer.
Steady state training +	Excellent! This long session improved the endurance of your muscles and your aerobic fitness. It also increased your resistance to fatigue.
Steady state training	Excellent! You improved the endurance of your muscles and your aerobic fitness.
Steady state & Basic training, long	Excellent! This long session improved the endurance of your muscles and your aerobic fitness. It also developed your basic endurance and your body's ability to burn fat during exercise.
Steady state & Basic training	Excellent! You improved the endurance of your muscles and your aerobic fitness. This session also developed your basic endurance and your body's ability to burn fat during exercise.
Basic & Steady state training, long	Great! This long session improved your basic endurance and your body's ability to burn fat during exercise. It also developed the endurance of your muscles and your aerobic fitness.
Basic & Steady state training	Great! You improved your basic endurance and your body's ability to burn fat during exercise. This session also developed the endurance of your muscles and your aerobic fitness.
Basic training, long	Great! This long, low intensity session improved your basic endurance and your body's ability to burn fat during exercise.
Basic training	Well done! This low intensity session improved your basic endurance and your body's ability to burn fat during exercise.
Recovery training	Very nice session for your recovery. Light exercise like this allows your body to adapt to your training.

TRAINING LOAD

The training load feature in the Diary in Polar Flow web service will conveniently tell you how hard your training session was, and how much time is needed for complete recovery.This feature tells you if you have recovered enough for your next session, helping you find the balance between rest and training. In Polar Flow web service you can control your total workload, optimize your training, and monitor your performance development.

Training load takes into consideration different factors which affect your training load and recovery time, such as heart rate during training, duration of training, and your individual factors, e.g. sex, age, height, and weight. Continuous monitoring of training load and recovery will help you recognize personal limits, avoid over or under training, and adjust training intensity and duration according to your daily and weekly targets.

Training Load feature helps you to control total workload, optimize your training, and monitor your performance development. The feature makes different kinds of training sessions comparable with each other, and helps you to find the perfect balance between rest and training.

POLAR FLOW WEB SERVICE

The Polar Flow web service allows you to plan and analyze every detail of your training and learn more about your performance. Follow and visually analyze your progress, create training targets,and add them and your favorite routes to your favorites.

With the Flow web service you can:

- Analyze all of your training details with visual graphs and a route view
- Compare specific data with others like laps or speed vs. heart rate
- See long-term progress by following the trends and details which matter to you the most
- Compare training sessions with your own and others' sessions
- Share highlights with your followers
- Relive your and other users' sessions afterward

To start using the Flow web service, go to flow.polar.com/V650, and create your Polar account. **If you already have a Polar Account, you don't need to register a new account in the Flow web service.** You can sign in with the same username and password you are using e.g. with polarpersonaltrainer.com.

Download and install FlowSync software from the same place to allow you to sync data between V650 and Flow web service.

Feed

In Feed you can see what you've been up to lately, plus you can see your friends' activities and comment.

Explore

In Explore you can discover routes by browsing the map. See public training sessions that other users have shared, and relive your own or other people's routes and see where the highlights happened.

Diary

In Diary you can see your scheduled training sessions, as well as review past sessions. Information shown includes: training plans in day, week or month view, individual sessions and weekly summaries.

Progress

In Progress you can follow your development with reports. Reports are a handy way to follow your progress in training over longer periods. In week, month and year reports you can choose the sport for the report. In custom period, you can choose both the period and the sport. Choose the time period and sport for report from the drop down lists, and press the wheel icon to choose what data you want to view in the report graph.

For support and more information about using the Flow web service, go to www.-polar.com/en/support/flow.

POLAR FLOW APP

Polar Flow app allows you to get a quick overview of your training data straight after your session. You'll also see weekly summaries of your training in the training diary. Flow app is the easiest way to sync your training data from your V650 with the Flow web service.

Polar V650 is compatible with the Polar Flow app v.3.0 and later for iOS and Android. You'll also need firmware version 1.4.5 or later on your V650 to be able to use it with Flow app. Polar FlowSync will offer the update when you connect V650 to your computer with the provided USB cable.

With Flow app you'll see:

- Route view on a map
- Training Benefit
- Training Load and recovery time
- Start time and duration of your session
- Average and maximum speed/pace and distance
- Average and maximum heart rate, cumulative heart rate zones
- Calories and fat burn % of calories
- Maximum altitude, ascent and descent
- Lap details

Before you can start using the Flow app, you need have your V650 registered in the Flow web service. The registration takes place when you set up your V650 at flow.polar.com/start. For more information, see Set Up Your V650.

To start using the Flow app, download it from the App Store or Google Play onto your mobile device. For support and more information on using the Polar Flow app, go to www.polar.com/en/support/Flow_app. To see your training data in the Flow app, you must sync your V650 with it after your session. For information on syncing V650 with the Flow app, see Syncing.

SYNCING

You can transfer data from your V650 via the USB cable with the FlowSync software or wirelessly via Bluetooth Smart® with the Polar Flow app. To be able sync data between your V650 and the Flow web service and app, you need to have a Polar account and the FlowSync software. Go to flow.polar.com/start, and create your Polar account in the Polar Flow web service and download and install the FlowSync software onto your PC. Download the Flow app onto your mobile from the App Store or Google Play.

Remember to sync and keep your data up-to-date between your V650, the web service and the mobile app wherever you are.

SYNC WITH FLOW WEB SERVICE VIA FLOWSYNC

To sync data with the Flow web service you need FlowSync software. Go to flow.polar.com/start, and download and install the software before trying to sync.

1. Plug the micro USB connector into the USB port and the other end of the cable into your PC.
2. Make sure FlowSync software is running.
3. The FlowSync window opens on your computer, and the syncing starts.
4. Completed is displayed when you are done.

Every time you plug in your V650 to your computer, the Polar FlowSync software will transfer your data to the Polar Flow web service and sync any settings you may have changed. If the syncing does not automatically start, start FlowSync from the desktop icon (Windows) or from the applications folder (Mac OS X). Every time a firmware update is available, FlowSync will notify you, and request you to install it.

If you change settings in the Flow web service while your V650 is plugged into your computer, press the synchronize on FlowSync to transfer to the settings to your V650.

For support and more information about using FlowSync software, go to www.polar.com/en/support/FlowSync.

SYNC WITH FLOW APP

Before syncing make sure:

- You have a Polar account and have downloaded and installed Flow app onto your mobile device
- You have registered your V650 in the Flow web service and synced data via FlowSync software at least once
- Your mobile device has Bluetooth turned on, and airplane mode/flight mode is not turned on.

To sync your data with iOs mobile:

1. Sign into Flow app on your mobile.
2. Press the side button on your V650 to view the side menu, and choose **SYNC WITH MOBILE** from the menu to start syncing.
3. When you sync for the first time, you'll be asked whether you're connecting to **iOS mobile** or **Android mobile**. Choose **iOS mobile**.
4. **CONNECTING** is displayed, followed by **SYNCING**. The progress bar shows the status of the sync. Please notice that the sync may take a while if you have lots of training data on your V650. **Syncing complete** is displayed when you are done.

To sync your data with Android mobile:

1. Sign into Flow app on your mobile.
2. If you have other Polar training devices in use with Flow app Android, make sure that V650 is chosen as the active device in Flow app. This way Flow app knows to connect to your V650. In Flow app, go to **Settings** > **PRODUCTS** and tap on V650 to activate it.
3. Press the side button on your V650 to view the side menu, and choose **SYNC WITH MOBILE** from the menu to start syncing.
4. When you sync for the first time, you'll be asked whether you're connecting to **iOS mobile** or **Android mobile**. Choose **Android mobile**.
5. If your mobile device prompts to accept pairing, choose to accept.
6. **To pair the devices type XXXXXX on your mobile** is displayed on V650. To pair V650 with your mobile device, enter the pin code from the V650 on your mobile device. The pairing starts. **Paired** is displayed when pairing is completed successfully.
7. **CONNECTING** is displayed, followed by **SYNCING**. The progress bar shows the status of the sync. Please notice that the sync may take a while if you have lots of training data on your V650. **Syncing complete** is displayed when you are done.

When you sync your V650 with Flow app, your training data is also synced automatically via an internet connection to the Flow web service.

*If necessary, you can change the iOS mobile / Android mobile setting afterwards in **General settings** > **About V650**. Scroll to the bottom of the page to change the setting.*

For support and more information about using Polar Flow app, go to www.polar.com/en/support/Flow_app.

CARING FOR YOUR V650

Like any electronic device, the Polar V650 should be treated with care. The suggestions below will help you fulfil guarantee obligations and enjoy this product for many years to come.

POLAR V650

Keep your training device clean. Use a damp paper towel to wipe dirt from the training device. To maintain the water resistance, do not wash the training device with a pressure washer. Do not immerse the training device in water. Never use alcohol or any abrasive material such as steel wool or cleaning chemicals.

After each time of using the USB port of the training device, check visually that there is no hair, dust or other dirt on the sealing surface area of the lid/back case. Gently wipe to remove any dirt. Do not use any sharp tools or equipment for cleaning, which could cause scratches to the plastic parts.

Not suitable for bathing or swimming. Protected against wash splashes and raindrops. Do not immerse the training device in water. Using the training device in excessive rainfall may cause interference on GPS reception.

HEART RATE SENSOR

Connector: Detach the connector from the strap after every use and dry the connector with a soft towel. Clean the connector with a mild soap and water solution when needed. Never use alcohol or any abrasive material (eg. steel wool or cleaning chemicals).

Strap: Rinse the strap under running water after every use and hang to dry. Clean the strap gently with a mild soap and water solution when needed. Do not use moisturizing soaps, because they can leave residue on the strap. Do not soak, iron, dry clean or bleach the strap. Do not stretch the strap or bend the electrode areas sharply.

Check the washing instructions on the label of the strap.

SPEED SENSOR *BLUETOOTH*® SMART AND CADENCE SENSOR *BLUETOOTH*® SMART

Clean the sensors with a mild soap and water solution and rinse them with clean water. To maintain the water resistance, do not wash the sensors with a pressure washer. Do not immerse the speed sensor or cadence sensor in water. Never use alcohol or any abrasive material such as steel wool or cleaning chemicals. Avoid hard hits to the sensors, as these may damage the sensor units.

STORING

Keep your training device and sensors in a cool and dry place. Do not keep them in a damp environment, in non-breathable material (a plastic bag or a sports bag) nor with conductive material (a wet towel). Do not expose the training device to direct sunlight for extended periods, such as by leaving it in a car or mounted on the bike mount.

We recommend that you store the V650 charged. The battery slowly loses its charge when it is stored. If you are going to store your V650 for several months, we recommend that you recharge it after a few months. This will prolong the battery lifetime.

Dry and store the strap and the connector separately to maximize the heart rate sensor battery lifetime. Keep the heart rate sensor in a cool and dry place. To prevent snap oxidation, do not store the heart rate sensor wet in non-breathing material, such as a sports bag. Do not expose the heart rate sensor to direct sunlight for extended periods.

SERVICE

During the two-year guarantee/warranty period we recommend that you have service done by an authorized Polar Service Center only. The warranty does not cover damage or consequential damage caused by service not authorized by Polar Electro. For further information, see Limited International Polar Guarantee.

For contact information and all Polar Service Center addresses, visit www.polar.com/support and country-specific websites.

Register your Polar product at http://register.polar.fi/ to ensure we can keep improving our products and services to better meet your needs.

The username for your Polar Account is always your email address. The same username and password are valid for Polar product registration, polarpersonaltrainer.com, Polar discussion forum and newsletter registration.

IMPORTANT INFORMATION

BATTERIES

The Polar V650 training device has an internal, rechargable battery. Rechargeable batteries have a limited number of charge cycles. You can charge and discharge the battery over 300 times before a notable decrease in its capacity. The number of charge cycles also varies according to use and operating conditions.

At the end of the working life of the product Polar encourages you to minimize possible effects of waste on the environment and human health by following local waste disposal regulations and, where possible, utilizing separate collection of electronic devices. Do not dispose of this product as unsorted municipal waste.

The Polar *Bluetooth* Smart® heart rate sensor has a user changeable battery. To change the battery yourself, please follow the instructions carefully as instructed in chapter Change the Heart Rate Sensor Battery.

The batteries for the speed sensor *Bluetooth* Smart® , and cadence sensor *Bluetooth* Smart® cannot be replaced. Polar has designed the sensors to be sealed in order to maximize mechanical longevity and reliability. The sensors have long-life batteries inside. To purchase a new sensor contact your authorized Polar Service Center or retailer.

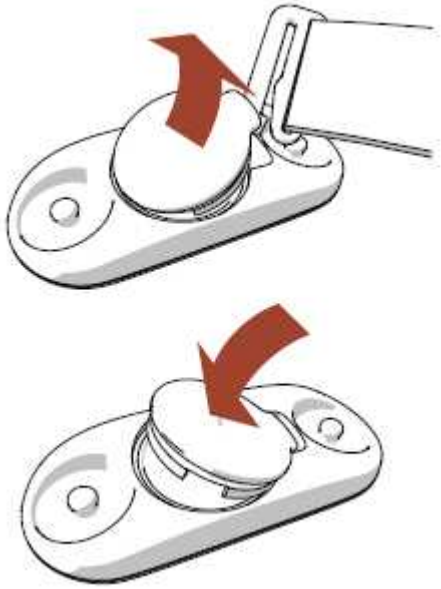
Keep the batteries away from children. If swallowed, contact a doctor immediately. Batteries should be disposed of properly according to local regulations.

CHANGE THE HEART RATE SENSOR BATTERY

To change the battery of the heart rate sensor yourself, carefully follow the instructions below:

When changing the battery, make sure the sealing ring is not damaged, in which case you should replace it with a new one. You can purchase the sealing ring/battery kits at well-equipped Polar retailers and authorized Polar Services. In the USA and Canada, the additional sealing rings are available at authorized Polar Service Centers. In the USA the sealing ring/battery kits are also available at www.shoppolar.com.

When handling a new, fully charged battery, avoid clasp-like contact, i.e. simultaneously from both sides, with metal or electrically conducting tools, like tweezers. This may short circuit the battery, causing it to discharge more rapidly. Typically, short circuiting does not damage the battery, but it may decrease the capacity and the lifetime of the battery.

1. Lever the battery cover open by using the clip on the strap. 2. Remove the old battery from the battery cover with a suitable sized small rigid stick or bar, such as a tooth-pick. A non-metal tool is preferable. Be careful not to damage the battery cover. 3. Insert a new battery (CR 2025) inside the cover with the negative (-) side facing up. 4. Align the ledge on the battery cover with the slot on the connector and press the battery cover back into place. You should hear a snap.	

⚠ Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

PRECAUTIONS

The Polar V650 shows your performance indicators. The training device is designed to indicate the level of physiological strain and recovery during and after an exercise session. It measures heart rate, speed and distance. It also measures cycling cadence when used with a cadence sensor. No other use is intended or implied.

The training device should not be used for obtaining environmental measurements that require professional or industrial precision.

INTERFERENCE DURING TRAINING

Electromagnetic Interference and Training Equipment

Disturbance may occur near electrical devices. Also WLAN base stations may cause interference when training with the training device. To avoid erratic reading or misbehavior, move away from possible sources of disturbance.

MINIMIZING RISKS WHEN TRAINING

Training may include some risk. Before beginning a regular training program, it is recommended that you answer the following questions concerning your health status. If you answer yes to any of these questions,

we recommend that you consult a doctor before starting any training program.

• Have you been physically inactive for the past 5 years?

• Do you have high blood pressure or high blood cholesterol?

• Are you taking any blood pressure or heart medication?

• Do you have a history of breathing problems?

• Do you have symptoms of any disease?

• Are you recovering from a serious illness or medical treatment?

• Do you use a pacemaker or other implanted electronic device?

• Do you smoke?

• Are you pregnant?

Note that in addition to training intensity, medications for heart conditions, blood pressure, psychological conditions, asthma, breathing, etc., as well as some energy drinks, alcohol, and nicotine may also affect heart rate.

It is important to be sensitive to your body's responses during training. **If you feel unexpected pain or excessive fatigue when training, it is recommended that you stop the training or continue at a lighter intensity.**

Note!If you are using a pacemaker or other implanted electronic device, you can use Polar products. In theory interference to pacemaker caused by Polar products should not be possible. In practice no reports exist to suggest anyone ever having experienced interference. We cannot however issue an official guarantee on our products' suitability with all pacemakers or other implanted devices due to the variety of devices available. If you have any doubts, or if you experience any unusual sensations while using Polar products, please consult your physician or contact the implanted electronic device manufacturer to determine safety in your case.

If you are allergic to any substance that comes into contact with your skin or if you suspect an allergic reaction due to using the product, check the listed materials in Technical Specifications. To avoid any skin reaction to the heart rate sensor, wear it over a shirt, but moisten the shirt well under the electrodes to ensure flawless operation.

The combined impact of moisture and intense abrasion may cause color to come off the heart rate sensor's surface, possibly staining clothes. If you use perfume, suntan/sunscreen lotion or insect repellent on your skin, you must ensure that it does not come into contact with the training device or the heart rate sensor. Please avoid clothing with colors that might transfer onto the training device (especially training devices with light/bright colors) when worn together.

TECHNICAL SPECIFICATIONS
POLAR V650

Battery type:	Rechargeable 1900 mAh Li-ion Polymer battery
Operating time:	10 h
Operating temperature:	-20 °C to +50 °C / -4 °F to 122 °F
V650 materials:	Acrylonitrile butadiene styrene (ABS), Polycarbonate (PC), Asahi Dragontrail (glass), Polyamide (PA)
Bikemount materials:	Polyoxymethylene (POM)
Watch accuracy:	Better than ± 0.5 seconds / day at 25 °C / 77 °F temperature
GPS accuracy:	distance ±2%, speed ±2km/h
Altitude accuracy:	±20 m / 65 ft
Ascent/Descent resolution:	5 m
Maximum altitude:	9000 m / 29528 ft
Sample rate:	1 Hz
Accuracy of the heart rate monitor:	± 1% or 1 bpm, whichever larger. Definition applies to stable conditions
Heart rate measuring range:	15-240 bpm
Current speed display range:	0-399 km/h or 248 mph
Water resistance:	Water proof IPX7 Protected against wash splashes and raindrops. Do not immerse the V650 in water. Using the V650 in heavy rainfall may cause interference on GPS reception.

V650 limit values

Maximum number of saved sessions:	The V650 stores the sessions from the current week and the previous four weeks.
Maximum time recorded in one session:	99 h 59 min 59 s
Maximum number of laps recorded in one session:	999
Maximum number of automatic laps recorded in one session:	999
Total calories:	65535

HEART RATE SENSOR

Battery life:	300 h
Battery type:	CR2025
Battery sealing ring:	O-ring 20.0 x 0.90 Material Silicone
Operating temperature:	-10 °C to +50 °C / 14 °F to 122 °F
Connector material:	ABS
Strap material:	38% Polyamide, 29% Polyurethane, 20% Elastane, 13% Polyester
Water resistance:	30 m

Uses Bluetooth® Smart wireless technology.

POLAR FLOWSYNC SOFTWARE AND USB CABLE

To use FlowSync software you need a computer with Microsoft Windows or Mac OS X operating system with an internet connection and a free USB port for USB cable.

FlowSync is compatible with the following operating systems:

Computer operating system	32-bit	64-bit
Windows 7	X	X
Windows 8	X	X
Windows 8.1	X	X
Windows 10	X	X
Mac OS X 10.6	X	X
OS X 10.7		X
OS X 10.8		X
OS X 10.9		X
OS X 10.10		X
OS X 10.11*		X
macOS 10.12		X

*To enable the compatibility mode for OS X 10.11 El Capitan in V650, perform the following steps:

1. You need a PC with either a Windows operating system (7 or later) or Mac OS X earlier than 10.11. If you have Mac OS X 10.11 El Capitan or later, please contact your local Polar Customer Service for updating your V650.
2. Using the computer, sync your V650 and update the V650 software version to 1.2.7 or later. Wait until the sync has finished.
3. In V650, go to **General settings** > **About V650**. Scroll to the bottom of the page and choose your computer's operating system: Mac OS X. Restart V650 to save the setting
4. Remove FlowSync from your Mac with OS X El Capitan. Download and install the latest FlowSync version from flow.polar.com/start. You need to reinstall Flowsync after updating to OS X El Capitan even if you already have the latest version installed.
5. After you have installed the latest version of FlowSync, you can start using your V650 with your Mac with OS X El Capitan.

POLAR FLOW MOBILE APPLICATION COMPATIBILITY

The Polar Flow mobile app compatibility information is available on this link: Polar Flow app compatibility with Polar V650.

WATER RESISTANCE OF POLAR PRODUCTS

Most Polar products can be worn when swimming. They are not, however, diving instruments. To maintain water resistance, do not press the buttons of the device under water. When measuring heart rate in water with **a Polar heart rate sensor attached around your chest**, you may experience interference for the following reasons:

- Pool water with high chlorine content, and seawater are very conductive. The electrodes of the heart rate sensor may short-circuit, preventing ECG signals from being detected by the heart rate sensor.
- Jumping into water or strenuous muscle movement during competitive swimming may shift the heart rate sensor to a location on the body where ECG signals cannot be picked up.
- The ECG signal strength is individual and may vary depending on the individual's tissue composition. Problems occur more frequently when measuring heart rate in water.

Polar devices with wrist-based heart rate measurement (A360, M200 and M600) are suitable for swimming and bathing. They will collect your activity data from your wrist movements also when swimming. In our tests, however, we found that the wrist-based heart rate measurement doesn't work optimally in water, so we cannot recommend wrist-based heart rate measurement for swimming.

In the watch industry, water resistance is generally indicated as meters, which means the static water pressure of that depth. Polar uses this same indication system. Water resistance of Polar products is tested according to International Standard **ISO 22810** or **IEC60529**. Every Polar device that has water resistance indication is tested before the delivery to stand water pressure.

Polar products are divided into four different categories according to their water resistance. Check the back of your Polar product for the water resistance category, and compare it to the chart below. Please note that these definitions do not necessarily apply to products of other manufacturers.

When performing any underwater activity, the dynamic pressure generated by moving in water is greater than the static pressure. This means that moving the product under water subjects it to a greater pressure than if the product were stationary.

Marking on the back of the product	**Wash splashes, sweat, raindrops etc.**	**Bathing and swimming**	**Skin diving with snorkel (no air tanks)**	**SCUBA diving (with air tanks)**	**Water resistant characteristics**
Water resistant IPX7	OK	-	-	-	Do not wash with a pressure washer. Protected against splashes, raindrops etc. Reference standard: IEC60529.
Water resistant IPX8	OK	OK	-	-	Minimum for bathing and swimming. Reference standard: IEC60529.
Water resistant Water resistant 20/30/50 meters Suitable for swimming	OK	OK	-	-	Minimum for bathing and swimming. Reference standard: ISO22810.
Water resistant 100 meters	OK	OK	OK	-	For frequent use in water but not SCUBA diving. Reference standard: ISO22810.

LIMITED INTERNATIONAL POLAR GUARANTEE

- This guarantee does not affect the consumer's statutory rights under applicable national or state laws in force, or the consumer's rights against the dealer arising from their sales/purchase contract.
- This limited Polar international guarantee is issued by Polar Electro Inc. for consumers who have purchased this product in the USA or Canada. This limited Polar international guarantee is issued by Polar Electro Oy for consumers who have purchased this product in other countries.
- Polar Electro Oy/Polar Electro Inc. guarantees the original consumer/purchaser of this device that the product will be free from defects in material or workmanship for two (2) years from the date of purchase.
- The receipt of the original purchase is your proof of purchase!
- The guarantee does not cover the battery, normal wear and tear, damage due to misuse, abuse, accidents or non-compliance with the precautions; improper maintenance, commercial use, cracked, broken or scratched cases/displays, armband, elastic strap and Polar apparel.

- The guarantee does not cover any damage/s, losses, costs or expenses, direct, indirect or incidental, consequential or special, arising out of, or related to the product.
- Items purchased second hand are not covered by the two (2) year warranty, unless otherwise stipulated by local law.
- During the guarantee period, the product will be either repaired or replaced at any of the authorized Polar Service Centers regardless of the country of purchase.

Guarantee with respect to any product will be limited to countries where the product has been initially marketed.

This product is compliant with Directives 1999/5/EC and 2011/65/EU. The relevant Declaration of Conformity is available at www.polar.com/en/regulatory_information.

Regulatory information is available at www.polar.com/support.

This crossed out wheeled bin marking shows that Polar products are electronic devices and are in the scope of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) and batteries and accumulators used in products are in the scope of Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators. These products and batteries/accumulators inside Polar products should thus be disposed of separately in EU countries. Polar encourages you to minimize possible effects of waste on the environment and human health also outside the European Union by following local waste disposal regulations and, where possible, utilize separate collection of electronic devices for products, and battery and accumulator collection for batteries and accumulators.

This marking shows that the product is protected against electric shocks.

Polar Electro Oy is a ISO 9001:2008 certified company.

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