

GARMIN Forerunner® 405

GPS sports watch

Though marketed as a sports watch, the GARMIN Forerunner® 405 poses some interaction challenges during workouts due to its multifunction touch-sensitive bezel.

The bezel control is used to

- activate different modes: time/date, training, menu, GPS (press & hold)
- navigate through multiple pages in a given mode (tap)
- scroll through on-screen lists (slide along edge)
- make on-screen selections (tap)
- toggle the backlight (press & hold in two places)

The wearer must look at the bezel to perform these actions and needs to check the watch display for feedback. Such sustained visual demands make operating the watch difficult during a workout.

Even worse, the bezel does not respond when wet (even though the typical user sweats during exercise), and it requires contact lasting at least one second to distinguish a press from a tap.

To make a selection requires tapping on a section of the bezel that is labeled with text irrelevant to the current action, and during scrolling the user's finger blocks the screen.

Because the bezel responds to inadvertent contact, it must be locked and unlocked by pressing both buttons during a workout if the user is wearing long sleeves or gloves. While pressing both buttons on the same side simultaneously with one hand is manageable, their placement makes it too likely for both buttons to get pressed at the same time inadvertently while the watch is in a bag.



The lap/reset button has moved from the lower right to the upper left side of the watch to decrease the chance that both buttons will inadvertently get pressed at the same time when the watch is in storage.

Pressing both buttons at the same time unlocks/locks the new mode keys and scroll wheel.

A grooved scroll wheel replaces the bezel's scrolling function, so a scrolling finger will no longer block the screen.

Instead of tapping an irrelevant label on the bezel to make an onscreen selection, press the scroll wheel to click.

Press and hold the scroll wheel to toggle the backlight. The wheel has less touchable surface area and requires more force to activate than the bezel used to, so accidental activation is less likely.

Inspired by the Blackberry scroll wheel



Inspired by stopwatch buttons

To access modes more quickly and reliably, the bezel's touch-sensitive mode regions have been replaced with slightly raised one-shot keys that work when wet and will not be affected by incidental contact with clothing.

To cycle through the pages in a given mode, press its corresponding key as many times as desired.

Customize the number and order of pages viewable in training mode (up to 3) from the settings.

A discrete sliding switch turns the GPS on and off, making it easier to set depending on the outdoor or indoor nature of the workout and making its current state visible at a glance.

The switch illuminates in a blinking pattern during the satellite search, so the screen-dependent watch features can be used during the search, and you know as soon as the blinking stops that the GPS is fully active.

Inspired by a microphone on/off switch

Redesigned.