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NOVASAIL NS360 POCKET^{v2}

Operating Manual

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Welcome to the NS360 POCKET^{v2}

A complete racing system derived from the **NS** legacy, the

NS360 POCKET^{v2} includes a GPS speedo, 9 axis gyro-compensated magnetic compass, race timer, distance to the start line and all other essential and advanced race functions.

The new **V2** version has an upgraded button panel and an LCD mounted on a soft silicon pad to withstand the toughest environment. It features also a Bluetooth communication transceiver offering a wide range of functions and applications:

- Record up to 1092 hours of racing (1 point / 30 seconds)
- Replay on Google Earth and other navigational software
- Computer management of 100 waypoints, including their coordinates and descriptions
- Computer management of 20 routes imported from Google Earth and defined by existing waypoints
- Updates with new features

The usage of the **NS360 POCKET^{v2}** is greatly simplified with 3 buttons dedicated to starting the timer and defining the start line points at your finger tips.

The mounting location should be as far as possible from any magnetic objects to avoid any interference with the magnetic compass sensor.

The **NS360 POCKET^{v2}** should be mounted close to the vertical and horizontal planes.



Note: Wherever you mount the **NS360 POCKET^{v2}**, it shouldn't be flush to any thick surface such as the hull, so that the sensitivity of the embedded GPS receiver is not affected.

Note: If your **NS360 POCKET^{v2}** isn't facing the same direction as the boat, you can compensate this difference in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software.

Controls and display description



Switching power on and off

 Make sure the battery is installed with the correct polarity and has enough remaining power (positive pole inserted first).



- Press the lower mode to start the device.
- Press and hold the lower mode for more than 4 seconds until the screen displays OFF and the sequence "3", "2", "1" is finished.

The device will turn off automatically when it remains in the horizontal position for more than 3 minutes.

Upon switching on, the remaining memory time for the data logger is displayed for 5 seconds. This 'GPS LOG' time is given in hours as shown below. The embedded firmware version number is displayed on the lower line.



NOTE: If the device does not turn on, you need to check that the battery is fully charged, that the battery compartment is clean, dry and the polarity is correct. No

liquid should get into the battery compartment otherwise this may cause internal damage. The 2 springs for the +/- battery contacts can be removed/cleaned as well as the bottom of the battery compartment with a small piece of cloth moistened with rubbing alcohol.

Note: <u>Rinse with fresh water, do not use corrosive products. Especially</u> <u>any petroleum/mineral based product will damage permanently the plastics</u> <u>and rubber parts (the warranty will be void). For example never use (non</u> <u>exhaustive list): white spirit, acetone, any spray or liquid contact cleaner,</u> <u>grease remover, do never spray any product into the battery compartment.</u>

NOTE: If the battery is almost discharged, the GPS functions are automatically deactivated ('OFF' is displayed) in order to save power. Only the functions linked to the magnetic compass are activated and the battery indicator will blink.

Note: Until enough satellites are locked, the **NS360 POCKET^{v2}** is not ready for use. For the modes SPE, SLD, VMG and Wxx, the screen displays '---'. For the MAX speed sub-mode, the maximum value is displayed but blinking until ready.

Note: Disposable alkaline batteries are not recommended, but can be used to

reach the maximum 40-hour battery life of the **NS360 POCKET^{V2}**. It is <u>mandatory</u> to remove disposable batteries if the device is not going to be used for a prolonged period of time (a week or more) to avoid <u>battery leakage</u>, as this will <u>irreversibly damage the battery compartment</u>. Therefore we recommend that rechargeable batteries with a low self discharge rate should be used (normal rechargeable batteries lose their stored energy quickly even when they are not being used), and will last for 30 hours or more. Recommended batteries are SANYO ENELOOP, GP RECYKO+, UNIROSS HYBRIO (2000mA or more typical capacity).

Switching backlight on and off

 Press and hold upper mode for more than 1 second until the icon is displayed on the screen.

Operations

Note: When you press and hold the upper mode button to switch on/off the backlight, you will not make any mode selection.

Activate a line, Switching modes and sub-modes

- A line is 'ACTIVE' when the icon **ACTIVE** appears inside. To activate a line, you need to push **mode** once in front of the chosen line. The icon **ACTIVE** appears.
- After activiting a line, choose the mode and sub-mode required on the 'ACTIVE' line by pushing mode and then the arrows < and > for the submode selection.
- You are free to choose any mode on each line independantly.

GPS record status

- When the icon **LOG** is displayed, the GPS trace is recording.
- The "NS360 Pocket V2 Wireless Manager" PC software gives you three options at startup : GPS trace record disabled, GPS trace record always ON and GPS trace record starts at the end of timer countdown.
- For more information please refer to the online manual of the "NS360 Pocket V2 Wireless Manager" PC software.

Speed mode: SPE

This mode provides the speed over ground of the boat as measured by the GPS receiver. The sub-modes provide several speed resolutions, the trip distance and the maximum speed. The boat speed is displayed in knots (kts) with an accuracy of 0.1 knots. The minimum speed is 0.5 knots.

Use the arrows <i>≤ and > to scroll the sub-modes.

Speed sub-modes

• Hi: High sensitivity

The high sensitivity speed allows a very sensitive reading of any speed variation.

• Med: Medium sensitivity

This sub-mode provides an average speed of the boat over a short period of time. This is particularly useful when sailing with big waves upwind or downwind.

• Low: Low sensitivity

This sub-mode provides an average speed of the boat over a longer period of time. This is particularly useful in rough conditions with lots of speed changes.

• Max: Speed MAXimum

The maximum speed that the boat has reached since the last reset.

Note: For the 'Max' sub-mode, don't forget to reset the maximum speed before your next sail begins to ensure the value displayed refers to the new trip.

• TRP: TRiP distance

The TRP mode displays the total distance made by the vessel since the last reset.

Note: For the 'TRP' sub-mode don't forget to reset the trip before your next sail begins to ensure the value displayed refers to the new trip.

To reset the maximum speed or trip distance:

- Select the maximum speed or the trip distance in the sub-mode
- Tilt the device 90 degrees to the right or left for more than 3 seconds
- The selected sub-mode is reset

Velocity made good mode: VMG

This mode provides the projected speed of the boat on the reference (wind) direction. The VMG is shown in knots (kts).

To set and adjust the wind direction in VMG mode

You can adjust the wind direction reference with the arrows < ≤ and >

Note: The VMG speed sensitivity is adjusted (High/Med/Low) by using the sensitivity of the speed in SPE mode on the opposite line (lines are independent, therefore the sensitivity can be different on the upper and lower line).



Magnetic Heading compass mode: HDG

To win races you need to react to the smallest wind shifts. The

NS360 POCKET^{v2} digital compass delivers precise and reliable heading information to help you to tack and jibe at the most suitable times.

The sensitivity of the compass can easily be adjusted to High, Medium or Low by scrolling through the sub-modes.

Use the arrows <i>≤ and <i>≥ to scroll the sub-modes

Sub-modes of the Magnetic Heading compass:

• *Hi*: High sensitivity

When sailing with light winds and flat seas, high sensitivity allows you to appreciate very small wind variation.

• *Med*: Medium sensitivity

Medium sensitivity is more suitable for race boats under medium wind and sea conditions. Dinghy racers will appreciate this mode.

Low: Low sensitivity

Under low sensitivity more subtle variations due to big waves and sudden gusts are filtered.

Note: The magnetic variation of your geographical location can be compensated in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software.

• GPS: GPS based compass

This sub-mode provides the route followed by the boat measured by the GPS receiver.

Operations

• ROL: Roll angle indicator mode

Used in Roll angle indicator (ROL) mode, the **NS360 POCKET**^{v2} displays the roll angle of the boat.

Note: The roll angle displayed is based on the **NS360 POCKET^{v2}** roll angle.

TIMER mode: TIM

This mode offers a 5-minute countdown timer which can be synchronized to 4/3/2 and 1 minutes.

Start and stop the TIMER:

- Press (1) to start the timer countdown at the last synchronized minute (5/4/ 3/2 or 1 minute)
- Press and hold (1) to stop the timer and reset to the last synchronized minute

Synchronize the TIMER:

- In any mode press (b) will display the timer on the upper line and result in the following action:
 - if the timer is stopped, start and set the timer value to the last synchronized minute
 - if the timer is down-counting and the timer value is lower than 3:45, set the timer value to the lower minute
 - if the timer is down-counting and the timer value is greater than 3:45, set the timer value to 4 minutes
- With the timer mode displayed and the timer stopped, press the upper < to

synchronize to the lower minute or press the upper > to synchronize to the upper minute. The upper/lower minute selected will be used as the new synchronized minute value (the timer will re-start from this value)

Note: With the GPS logger synchronized to the upcounting of the timer (see in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software), the GPS logger stops when the timer is stopped or restarted.

Note: The timer is displayed until it reaches 0:00, unless you press and hold **1** to stop the timer.

Note: When the down counter reaches 0:00, the timer and the Start Line Distance will switch automatically to the modes selected in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software.

Start Line Distance: SLD

Knowing the exact distance in meters to the start line gives a huge advantage in helping you start ahead of the fleet and even win the race. The

NS360 POCKET^{V2} start line distance function is the most advanced on the market as it combines 1 meter accuracy and a dynamic boat offset compensation calculated with the real boat magnetic heading to the start line. The maximum distance displayed is 999 meters to the start line.

The start line consists of 2 points that have to be aligned with the start line:

- Committee boat
- 📋 : Pin





To memorize the start line points

- Press (1) when you reach the committee boat reference point
- The distance in meters is now displayed on the data line

Note: If the start line is modified by the committee, you may be required to reenter one or both reference points.

Note: The distance from the front of the boat to the **NS360 POCKET^{v2}** can be defined in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software.

Note: When the down counter reaches 0:00, the timer and the Start Line Distance will switch automatically to the modes selected in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software.

Waypoint mode: Wxx

The waypoint mode has been made for those who are sailing island races and require information such as the direction, speed and distance to reach the selected pre-defined waypoint. Up to 100 waypoints can be memorized: W00 to

W99. For each waypoint selected on the **NS360 POCKET^{v2}**, the direction, the heading difference between the boat and the direction to the waypoint, speed and distance needed to reach it are displayed sequentially.

Note: The display timings of the directions, speed and distance are defined by the parameters Waypoint Heading, Waypoint Speed and Waypoint Distance in the Novasail Wireles Manager PC software. Please refer to the installed online documentation for more details.

To use a waypoint

- By default, W00 is displayed on the mode line.
- Use the arrows < and > to select the required waypoint, from W00 to W99.
- The direction, speed and distance are displayed sequentially.

The waypoint speed displayed in knots is calculated using the waypoint position, the boat position, the boat speed and the heading.

WayPoint Speed DIAGRAM



The Route mode has been made for those who are sailing island races and require information such as the direction and distance to reach the series of predefined waypoints. Up to 20 routes, made up of up to 500 waypoints can be memorized: R01 to R20. Each time a route is selected, the direction, speed and distance needed to reach its wayoints are displayed sequentially. When getting within 50 to 500 meters (settable thanks to the "NS360 Pocket V2 Wireless Manager" PC software) to a waypoint, the route will switch to the next waypoint automatically.

To use a route

- By default, R01 is displayed.
- A long push on < or > will select the route from R01 to R20 then a short push on < or > will decrease/increase the route number.
- The name and the waypoint number are displayed sequentially on the submode column.

- A push on < or > will select the previous or the next waypoint into the current route.
- The direction, speed and distance to the target waypoint on the chosen route will be displayed sequentially on the main screen.



Note: It is necessary to upload the routes into the NS360 POCKET^{v2}

Note: The display timings of the direction, speed and distance are defined by the parameters Waypoint Heading, Waypoint Speed and Waypoint Distance in the Novasail Wireles Manager PC software. Please refer to the online documentation for more details.

Current GPS coordinates

This mode allows the latitude and longitude of the current position to display (in degrees and decimal minutes). To activate this mode, you need to press the

arrows < and > simultaneously. The latitude is displayed on the upper line and the longitude on the lower line.

Press (mode) on to exit this mode.

Central Bar Graph

The central bar graph allows the visualization of the heading variations. After a tack or a jibe, during the average heading calculation, the bar graph displays:

Once calculated, the average heading is used as the reference to display the

variations in degrees. For example **A** means that the current

heading is 3 degrees starboard compared to the average reference heading, with a 1 degree value for each segment.

WAY Mode

The **WAY** mode allows waypoints in your **NS360 POCKET^{v2}** to be memorized with a name (3 characters) and the geographical coordinates.

To enter the WAY mode:

- With the product switched off, press the arrow > then the lower mode simultaneously. WAY is displayed on the data line of the upper screen.
- The waypoint number and name are displayed in the mode lines of the upper screen.
- The geographical coordinates are displayed in the lower screen.
- To exit, press and hold the lower mode.

How to input the name and coordinates of a waypoint

- The arrows < and > allow the value from 0 to 9 for numbers and from 'a' to 'z' for letters to be changed.
- The lower (mode) switches to the next character.
- The upper mode switches to the previous character.

Memorization of a waypoint

- Select first the number of the waypoint: W00 to W99.
- Enter a name of 3 characters.
- Select 'NOR' (North) if the longitude is in the northern hemisphere or 'SOU' (South) if it is in the southern hemisphere.
- Memorize the longitude coordinate. For example 45'36.222.
- Select 'EAS' if the latitude is east or 'WES' if west.
- Memorize the latitude coordinate. For example: 23'46.345.
- When the latitude coordinate is completed, it rolls back to the selection of the waypoint number.

PC Mode

The PC mode is activated to exchange data between the

NS360 POCKET^{V2} Bluetooth wireless transceiver and the computer. The "NS360 Pocket V2 Wireless Manager" software allows you to check the communication status, upgrade the embedded firmware, store routes and waypoints, setup the device. Please refer to the Novasail Wireles Manager documentation for more details; the online manual can be open with a right click on the "NS360 Pocket V2 Wireless Manager" main window.

To enter in PC connectivity mode

- With the product switched off, press the buttons < first and the lower mode simultaneously. PC is displayed on the data line of the lower screen (blinking) with "blu" (bluetooth) shown
- To exit the PC mode, switch off by pressing and holding the lower mode

Troubleshooting

- Make sure the Bluetooth connectivity is activated on the PC
- Make sure to allow any Bluetooth device to find the PC in the operating system
- Close/re-open the "NS360 Pocket V2 Wireless Manager" app. Remove the **NS360 POCKET**^{v2} from the previously paired bluetooth devices and launch a new pairing process
- Make sure the PC mode on the NS360 POCKET^{v2} is turned on: "PC" <u>must</u> be blinking on the main display and "blu" (Bluetooth) must be shown on the lower line
- Confirm the NS360 POCKET^{v2} is indicated on the available Bluetooth devices on the PC
- The message 'connected' should appear in green at the bottom of the "NS360 Pocket V2 Wireless Manager" window within a minute (the delay is PC hardware dependant)

Note: to save batteries the **NS360 POCKET^{v2}** will shut down automatically if no PC connectivity is detected for 10 minutes.

Screen capture example, Windows 10 Bluetooth settings. Once the

NS360 POCKET^{v2} is paired <u>AND</u> in an active connection (otherwise it will show as paired only) the device appears as followed:

Settin	igs		
ŝ	Home	Manage Bluetooth devices	
Fir	nd a setting $ ho$	Bluetooth	
Devi	ces	On On	
ц.	Printers & scanners	Your PC is searching for and can be discovered by Bluetooth devices.	
⊊ <u>∎</u>	Connected devices	NOVASAIL NS360 Pocket V2	
*	Bluetooth	Connected	
Ů	Mouse & touchpad		
t=1	Typing		
P	Pen & Windows Ink		
(Þ)	AutoPlay	Related settings	
Ö	USB	Send or receive files via Bluetooth	
		Send or receive files via Bluetooth	

In the Bluetooth options (Windows 10 screen capture), additional information should be displayed as followed (the COM port numbers may be different):

Bluetoot	h Settings		× 8 Bluetooth Settings	
ptions CON	1 Ports Hardwar	re	Options COM Ports Hardware	
This PC is a determine	using the COM whether you n	(serial) ports listed below. To eed a COM port, read the	Discovery	\sum
Port	Disation	Name	Bluetooth devices will see the name of the name o	his PC.
Port	Direction Incoming	Name NOVASAIL NS360 Pocket V2	Bluetooth devices will see the name of th	nis PC.
Port COM9	Direction Incoming Outgoing	Name NOVASAIL NS360 Pocket V2 NOVASAIL NS360 Pocket V2	A Bluetooth devices will see the name of the Notifications ☐ Alert me when a new Bluetooth device wan	ts to connect

User Calibration of the magnetic compass: CAL

This mode is enabled in the parameter tab of the "NS360 Pocket V2 Wireless Manager" PC software or when the upper mode button (first) and the lower mode buttons are pushed **simultaneously** to power on the device. The

NS360 POCKET^{V2} enters automatically a set of sub-menus to allow a self calibration of the magnetic compass. There are 7 sub-menus that have to be followed in the sequence described below.

To allow the maximum accuracy of the calibration procedure, it is recommended to perform this outdoors to avoid any magnetic disturbing fields. A wooden surface is highly recommended (eg a table) and it is necessary to ensure that there are no ferrous materials nearby (wrist watches should be removed).

On the lower screen of the display, the calibration sub-menu number is displayed. There are 7 steps to follow in order to complete the calibration of your

NS360 POCKET^{v2}. Upon completion of the sequence, the

NS360 POCKET^{v2} will memorize the new values

If the **NS360 POCKET^{v2}** is shut down during the calibration, nothing will be memorized.

Note: Whenever necessary, the factory calibration values can be restored at any time in the compass calibration menu of the "NS360 Pocket V2 Wireless Manager".

 Step 1: '1' is displayed. The NS360 POCKET^{v2} must be oriented as follows and stand still (perpendicular to the horizontal XYplan):



Push the lower mode key when ready. The **NS360 POCKET^{v2}** will enter the calibration along the axis.

 Step 2: '2' is displayed. The NS360 POCKET^{v2} must be oriented as follows and stand still (perpendicular to the horizontal XYplan)::



Push the lower mode key when ready. The **NS360 POCKET^{v2}** will enter the calibration along the axis.

 Step 3: '3' is displayed. The NS360 POCKET^{v2} must be oriented as follows and stand still (perpendicular to the horizontal XYplan)::



Push the lower mode key when ready. The **NS360 POCKET^{v2}** will enter the calibration along the axis.

 Step 4: '4' is displayed. The NS360 POCKET^{v2} must be oriented as follows and stand still (perpendicular to the horizontal XYplan as follow)::



Push the lower mode key when ready. The **NS360 POCKET^{v2}** will enter the calibration along the axis.

• Step 5 : '5' is displayed. The **NS360 POCKET^{V2}** must be rotated at least 1.5 to 2 turns while being maintained roughly perpendicular to an horizontal XY plan. The rotation (clockwise or anti clockwise) shall be done at an approximate rate of 30 seconds per turn while keeping the rotation axis centered along the Z axis.



Push the lower mode key when ready. The NS360 POCKET^{v2} will enter

the calibration along the axis. The **NS360 POCKET^{v2}** will record the new calibration values once the end of the rotation is detected (2 turns or more might be necessary).

• Step 6 : '6' is displayed. The **NS360 POCKET^{v2}** must be rotated at least 1.5 to 2 turns while being maintained roughly perpendicular to an horizontal XY plan. The rotation (clockwise or anti clockwise) shall be done at an approximate rate of 30 seconds per turn while keeping the rotation axis centered along the Z axis.



Push the lower **mode** key when ready. The **NS360 POCKET^{v2}** will enter the calibration along the axis. The **NS360 POCKET^{v2}** will record the new calibration values once the end of the rotation is detected (2 turns or more might be necessary).

• Step 7 : '7' is displayed. The **NS360 POCKET**^{v2} must be rotated at least 1.5 to 2 turns while being maintained roughly perpendicular to an horizontal XY plan. The rotation (clockwise or anti clockwise) shall be done at an approximate rate of 30 seconds per turn while keeping the rotation axis centered along the Z axis.:



Push the lower **mode** key when ready. The **NS360 POCKET^{v2}** will enter the calibration along the axis. The **NS360 POCKET^{v2}** will record the new calibration values once the end of the rotation is detected (2 turns or more might be necessary).

"END" will be displayed on the lower line, push the lower mode key to switch off the device.

Document history

Version 1.0: First version

Version 1.1: Added VMG mode

Version 1.2: Updated route mode chapter

Version 1.3: Modified 'Switching power ON/OFF' chapter: corrosive products

Version 1.4: Modified 'Calibration' chapter (new user calibration process)

Please visit www.nova-sail.com for the latest user manuals.and updates.

This product meets or exceeds all of Novasail's rigorous quality controls and inspection standards. Complete services will be provided in accordance with the statement of warranty set forth below if any manufacturing defect or natural failure occurs within the warranty period.

Warranty Terms and Conditions

- If any defect arises under normal conditions of use within the warranty period, our customer service center or specified partner will provide the required repair services at no charge, or legally applicable services according to the appropriate consumer protection laws and regulations of the country in which the product was purchased by the warranty holder.
- The product has to be registered using the online service available on the Novasail web site: www.nova-sail.com
- Please submit the proof of purchase (invoice) when requesting service.
- The actual cost of repair may be charged to the customer or the performance of warranty service may be rendered impossible, even within the warranty period, under the following circumstances:
 - Product failure caused by accident or carelessness
 - Disassembly or modification for purposes other than it was originally intended for
 - Failure caused by a fire, earthquake or flood
 - Damage/failure caused by an impact
 - Failure caused by inappropriate services performed by anyone other than Novasail's customer service center or one of Novasail's service specified partners
- For assitance please contact Novasail service center:

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