

QUICK START  
GUIDE

**OCTANS NANO**



### Objective

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This guide describes the OCTANS NANO installation and the basic configuration.

For more information, please refer to the CD-ROM available in the product package. It contains:

- the required softwares for the use of the web-based user interface
- the full user manuals to get detailed technical information about the product, including product specifications/performances. These documents will help you configuring and operating the product in specific installation or applications.

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## OCTANS NANO SYSTEM OVERVIEW

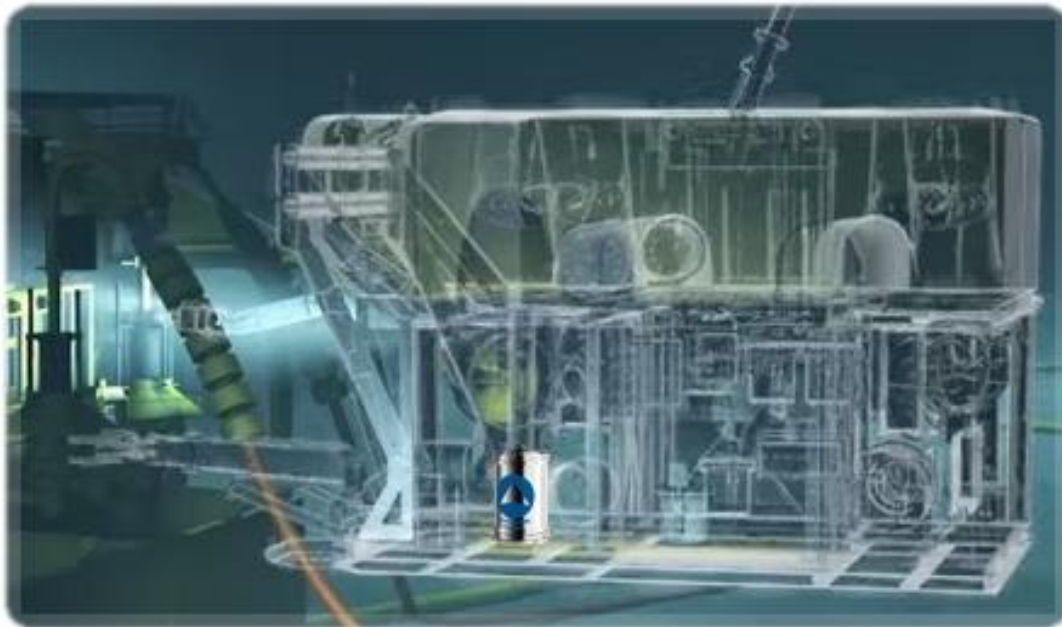
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OCTANS NANO is a 4,000m depth rated fiber-optic gyrocompass and Attitude sensor for subsea applications such as ROV or any subsea vehicle navigation as well as attitude monitoring of subsea structures. OCTANS NANO provides true heading, roll, pitch, as well as heading, roll and pitch rates of turns and accelerations even in highly dynamic and harsh environments.

## TYPICAL ROV INSTALLATION

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This guide describes how to install OCTANS NANO for ROV navigation. No lever arm measurements are required. OCTANS NANO being versatile, you have to define its configuration to insure optimal operation.



## PACK CONTENTS VERIFYING

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You will find in the shipping case a Packing List detailing all the items delivered.

However, **we recommend checking the equipment of the pack immediately after reception against the delivery packing list** and that none has sustained damage. The below items are typical and optional.

If you observe any non-conformity or damage, please inform the carrier and iXBlue without delay by certified mail, describing in detail the problem encountered.

**OCTANS NANO**



**Power supply converter**



**Cable AC cord**



**O-Ring kit**



**Tool – O-Ring insertion**



**Pressure cap**



**Setup & Config cable**



**Seacon 26 pin pigtail**



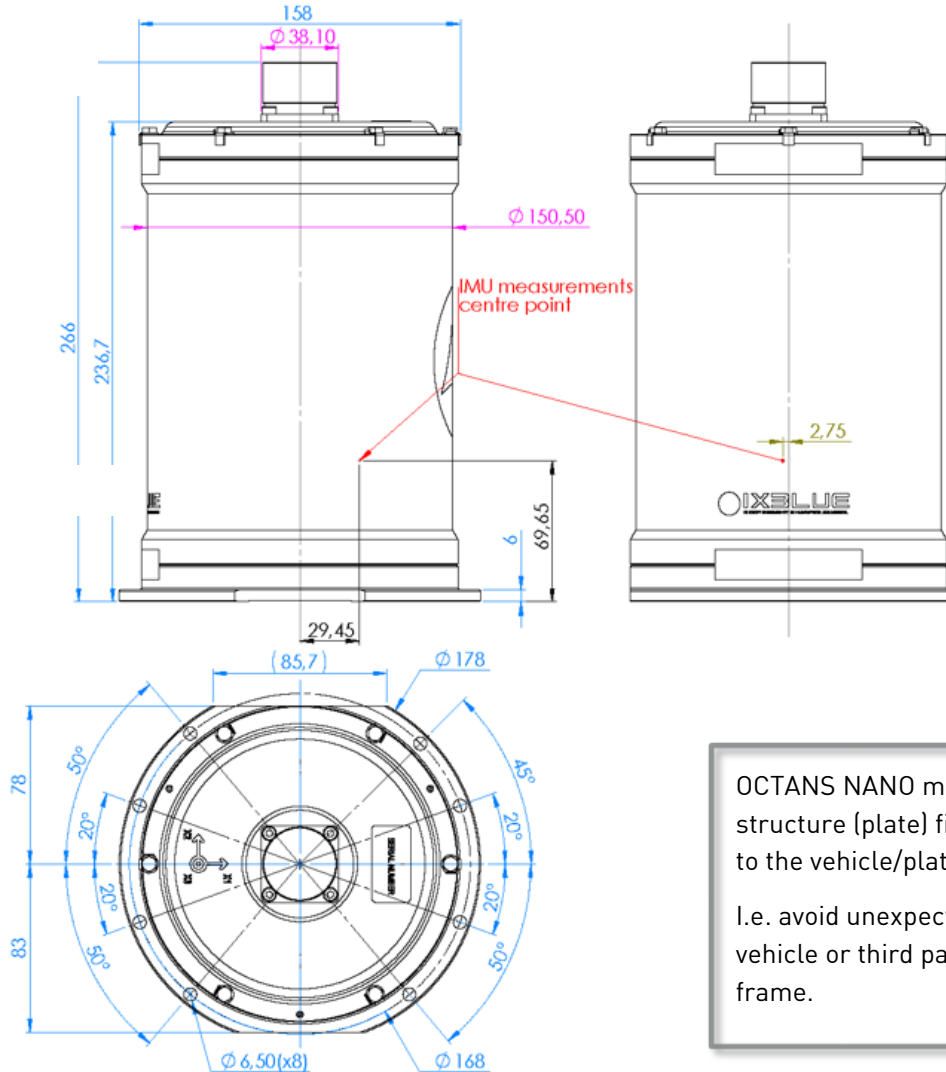
**Certificate documents**



## INSTALLING & CONNECTING OCTANS NANO

### Step 1 Place OCTANS NANO on the mounting plate/surface

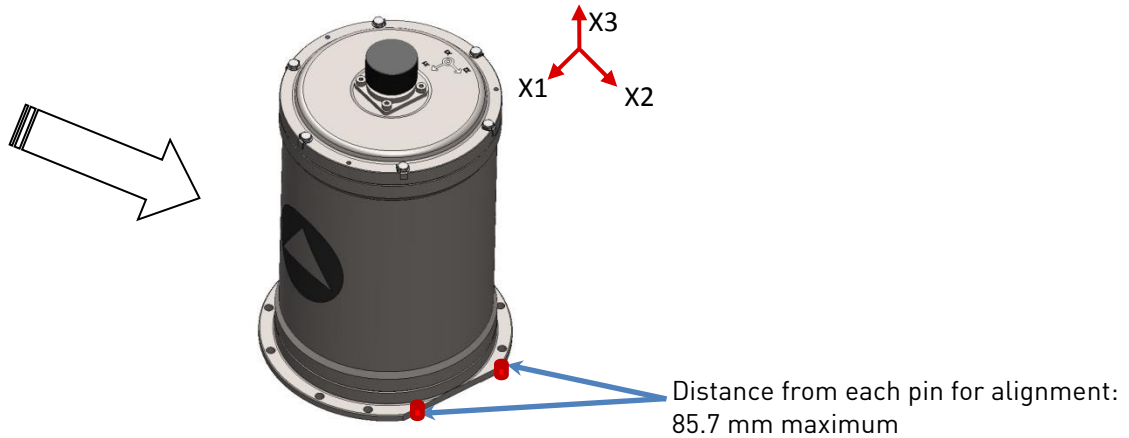
OCTANS NANO has to be aligned either with vessel/ROV reference frame either with imagery survey sensor. Reference frame center is defined by (P) and shown in the figure below, it is not located at the center of the unit. **iXBlue product reference frame may differ from 3<sup>rd</sup> party equipment convention.**



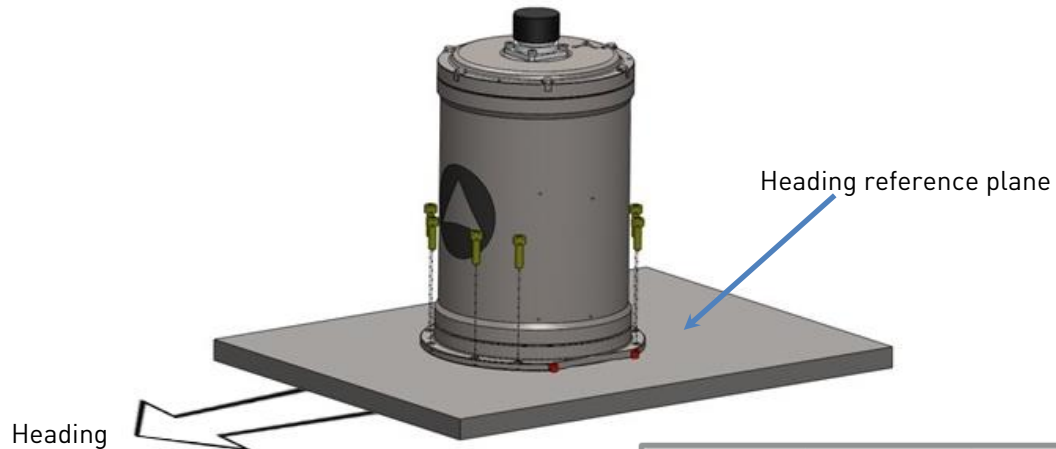
OCTANS NANO must be mounted on a rigid structure (plate) firmly linked/attached to the vehicle/platform.

I.e. avoid unexpected displacement against vehicle or third party equipment reference frame.

**Step 2** Pressing the OCTANS NANO left edge against the reference baseline or pins along X2 direction

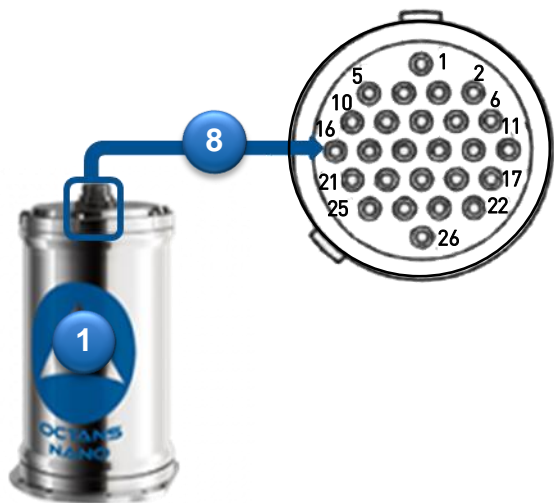


**Step 3** Fixing OCTANS NANO with 8 screws (not part of standard delivery).



For mechanical installation recommendations, refer to:  
Inertial Products – Application Note – Mechanical Integration of Inertial Systems  
(Ref.: MU-MECHAAPN-AN-001)

## Step 1 Wiring OCTANS NANO with the SEACON 26 pins connector



PIN SEACON MINM26-CCP	Signal	Cable mapping
1	PHINS Power In (+24V)	Pair 9
2	PHINS Power In GND (0/24 V) (*)	Pair 9
3	Reserved	Pair 10
4	Reserved	Pair 10
5	Repeater : GND REP	Pair 2
9	Repeater : RS422 TX(+)/RS232 TX(+)	Pair 2
10	Repeater : RS422 TX(-)	Pair 2
5	Repeater : GND REP	Pair 3
15	Repeater : RS422 RX(-)/RS232 RX(+)	Pair 3
16	Repeater : RS422 RX(+)	Pair 3
8	Port A: GND A	Pair 4
11	Port A: RS422 TX(+)/RS232 TX(+)	Pair 4
12	Port A: RS422 TX(-)	Pair 4
8	Port A: GND A	Pair 5
13	Port A: RS422 RX(-)/RS232 RX(+)	Pair 5
14	Port A: RS422 RX(+)	Pair 5
26	Port B: GND B	Pair 6
17	Port B: RS422 TX(+)/RS232 TX(+)	Pair 6
18	Port B: RS422 TX(-)	Pair 6
26	Port B: GND B	Pair 7
22	Port B: RS422 RX(-)/RS232 RX(+)	Pair 7
23	Port B: RS422 RX(+)	Pair 7
6	Pulse A: GND A	Pair 8
7	Pulse A: IN TTL	Pair 8
19	Ethernet TX(+)	Pair 1
20	Ethernet TX(-)	Pair 1
21	Ethernet RX(+)	Pair 1
24	Ethernet RX(-)	Pair 1
25	Shield Ethernet	Pair 1

Check the presence of the O-ring before connecting:



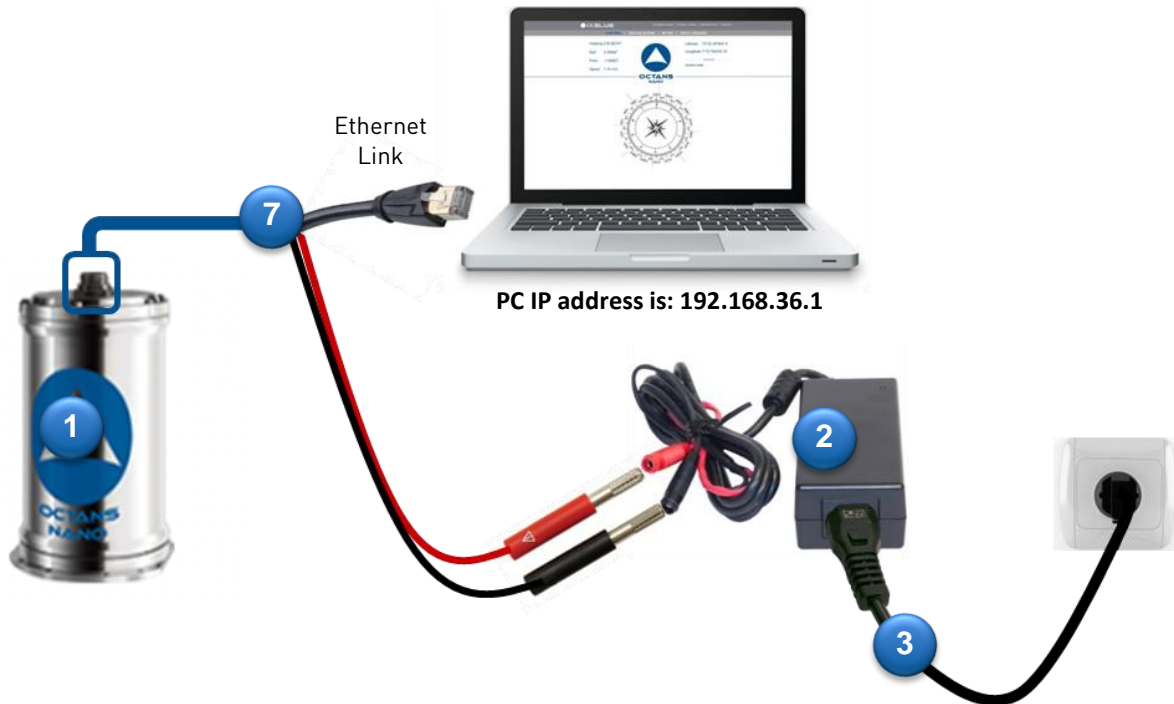
Important

Shield link should be done at one end only to avoid ground loops unless shield is used as an electrical ground.  
It is recommended to link external cable shielding to mechanical ground.



### Step 3 Connecting OCTANS NANO for setup and configuration

For OCTANS NANO configuration through the Web-Based User Interface



In case of DHCP network, refer to "Inertial Products-Network set-up guide" document.  
(Ref.: MU-INS&AHRS-AN-005)

## LAUNCHING THE WEB-BASED USER INTERFACE

### Step 1 Checking the version of the required software available on the CD-ROM



Firefox

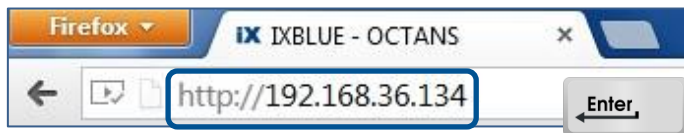


Flash Player



Java Environment

### Step 2 Launching the web-based user interface with Firefox



The control page is displayed with the compass.



#### Factory default TCP/IP address

Note the two last numbers of the OCTANS NANO serial number from product label ID.

Type the following URL address:

192.168.36.1xx

xx is the two last numbers of the OCTANS NANO serial number.

For example: in the screen capture the two last numbers of the OCTANS NANO is 34 and the URL address is:

192.168.36.134

To change this URL address, refer to "Inertial Products-Network set-up guide" document.

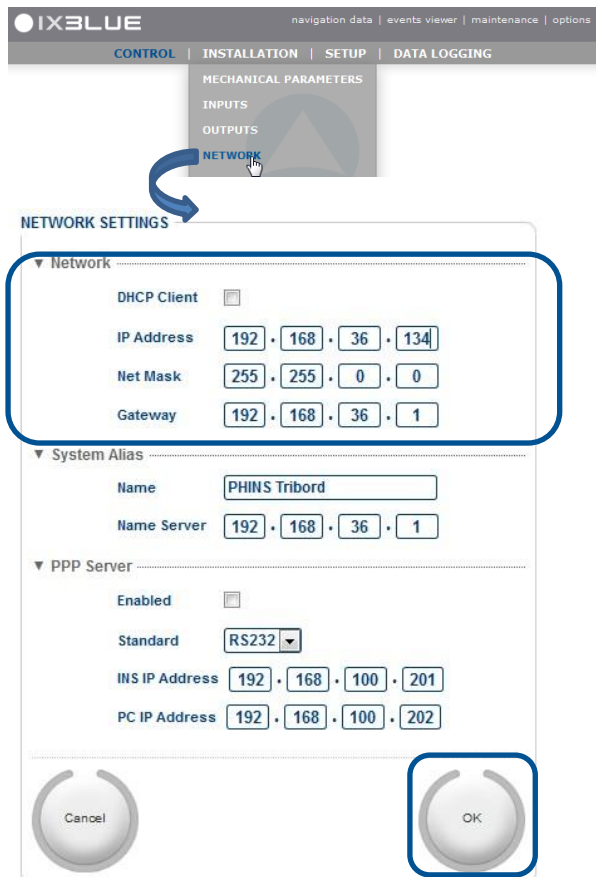
Ref.: MU-INS&AHRs-AN-005

## CONFIGURING THE SYSTEM

### Step 1 Choosing the language, if needed



### Step 2 Configuring the network



TCP/IP address change may require to change as well your computer own TCP/IP.

For more information refer to "Inertial Products-Network set-up guide" document.  
Ref.: MU-INS&AHRs-AN-005

### Step 3 Entering the initial latitude and vessel speed

IX3BLUE navigation data | events viewer | maintenance | options

CONTROL | INSTALLATION | **SETUP** | DATA LOGGING

POSITION & SPEED FIXES  
WARNING CONFIGURATION

POSITION & SPEED FIXES

▼ Manual Position

Latitude 48° 52.8' N

Longitude 3° 7.38' E

Label

Shortcuts

Delete

Replace By Current Position

▼ Manual Speed

Speed 0 m/s

Cancel OK

Accuracy required on the latitude input is less than 1°.

Enter the vessel speed or the estimated adrift speed.

The heading output is sensitive to the vessel speed towards North. This error is given by the following formula:

$\Delta\text{Heading}[\text{deg}] = (\Delta V_{\text{north}}[\text{knot}] / 5\pi) \cdot \text{seclat}$   
The required speed input accuracy is better than 4 knots.

Manual position can be configured via advanced commands (i.e. ASCII commands) on the repeater port. For more information refer to “AHRS – Advanced configuration” document: Ref.: MU-AHRS-AN-002.

### Step 4 Restarting the system

IX3BLUE navigation data | events viewer | **maintenance** | options

CONTROL | INSTALLATION | **SETUP** | DATA LOGGING

RESTART SYSTEM

Click to restart the system.

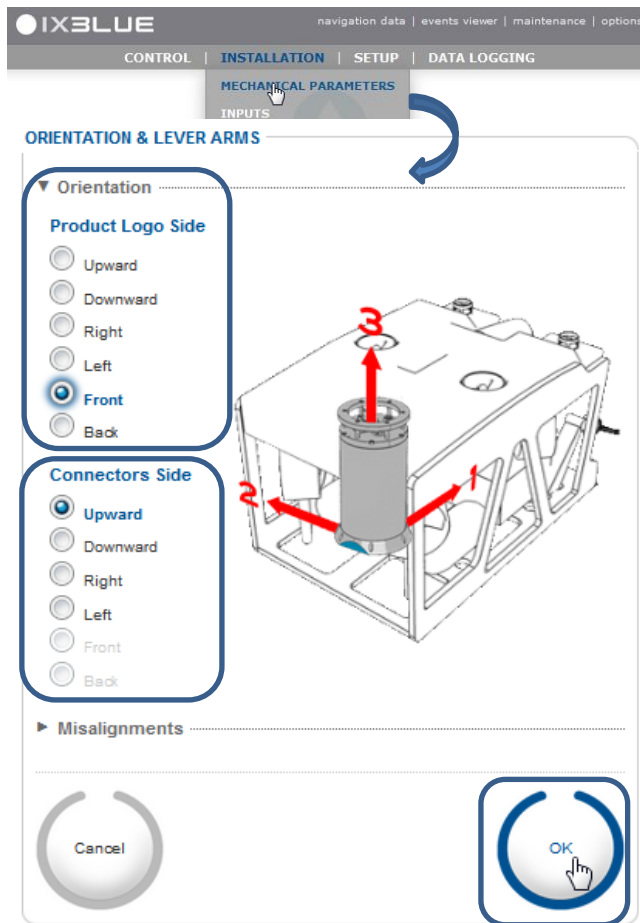
Restart

As soon as you have clicked on the Restart button, OCTANS NANO starts its alignment phase with the manually input position.

During the initial alignment phase, the system should be kept static or follow constant speed and heading.

## CONFIGURING THE MECHANICAL PARAMETERS

### Step 1 Configuring OCTANS NANO orientation with respect to vehicle



It is considered that the OCTANS NANO is mechanically aligned with the vehicle. However OCTANS NANO can be mounted in any orientation and it is possible to align the output.

For more information refer to "Web-based interface user guide" document. Ref.: MU-INSIII -AN-021

## Step 2 Configuring the output parameters in the Web-Based User Interface

IXBLUE navigation data | events viewer | maintenance | options

CONTROL | INSTALLATION | SETUP | DATA LOGGING

Heading 309.19098° Roll -2.75540° Pitch -3.9933°

MECHANICAL PARAMETERS

Latitude 86°13.041110' N Longitude 20°38.019504' W Altitude 24.625 m

INPUTS

OUTPUTS

NETWORK

Protocol

Protocol HETHS\_HEROT

Rate None

Synchro In None

Physical Link

Physical Link Serial only

Serial

Parity None

Stopbits 1.0 bitstop

Standard RS422

Baudrate 9.6 kbauds

Advanced Settings

Cancel Ok

User can freely configure each output.

To select an UDP Protocol (User Defined Protocol) select **From the library** in the Protocol drop-down list then click on the Browse button to reach the script file available on the CD-ROM.

### Step 1 Starting OCTANS NANO

As soon as OCTANS NANO is powered up, it starts its alignment phase.

Alignment uses as initialization parameters the "Manual position" and "Manual velocity" (see page 11) saved in the nonvolatile memory of the system; alternatively, if available, any external input position and velocity.

During the alignment phase, heading and attitude data are available, but have not reached full accuracy.

Specified accuracy on heading, roll and pitch is reached at the end of the alignment phase.

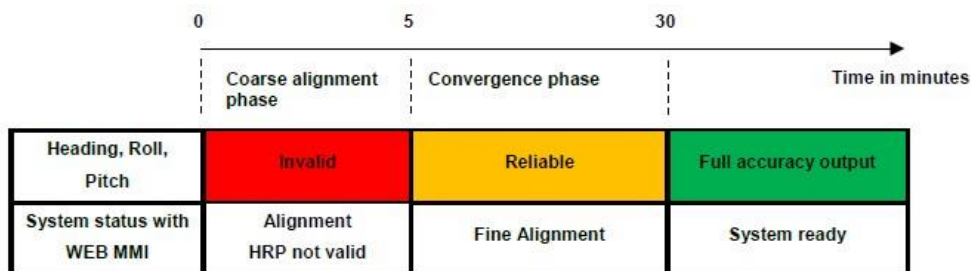


Figure 1 – OCTANS NANO Starting Sequence (at powering on or software restart)

#### Important

OCTANS NANO is delivered with default latitude set to iXBlue's factory location.

Without user update or external GPS connected, OCTANS NANO will start seeking north with France latitude, which may be quite different from the current latitude.

Latitude has to be modified by the user (see page 11). Once this modification is performed, it is recommended to save it and restart the system. This procedure allows OCTANS NANO to enter the correct latitude value as an input in the North finder algorithm as soon as computation starts. OCTANS NANO will then reach full accuracy after the alignment phase.

Otherwise OCTANS NANO will not perform according to its specification.

At any power supply outage, OCTANS NANO restarts its full alignment process. It is recommended to secure power supply on UPS.

## Step 2 Monitoring OCTANS NANO

IXBLUE navigation data | events viewer | maintenance | options

CONTROL | INSTALLATION | SETUP | DATA LOGGING

IXBLUE navigation data | events viewer | maintenance | options

CONTROL | INSTALLATION | SETUP | DATA LOGGING

Polar Heading 1.00000° Latitude 47°06.480929' N

Roll 3.14325° Longitude 109°42.627865' W

Pitch 0.70717° STATUS

Speed 1.18 m/s System ready

OCTANS NANO

DETAILED STATUS

Input / Output	System	Ext. Sensors
<ul style="list-style-type: none"><li>Inputs</li><li>Input A</li><li>Outputs</li><li>Pulses In</li><li>Others</li></ul>	<ul style="list-style-type: none"><li>Navigation<ul style="list-style-type: none"><li>Alignment</li><li>Fine alignment</li><li>Manual latitude</li><li>Manual longitude</li><li>Manual speed</li><li>Polar Heading not valid</li></ul></li><li>System</li><li>Sensors</li></ul>	<ul style="list-style-type: none"><li>Position<ul style="list-style-type: none"><li>Latitude received</li><li>Longitude received</li></ul></li><li>Speed<ul style="list-style-type: none"><li>Speed received</li></ul></li><li>Time<ul style="list-style-type: none"><li>Internal time</li><li>Ext. time received</li><li>Ext. time sync.</li></ul></li></ul>

The embedded Built In Test, also called Status, monitors OCTANS NANO status warning and failures thanks to large set of flags.

Status are displayed on the web-based user interface with the following colors:

- **Message in blue:** information message
- **Message in orange:** warning message
- **Message in red:** error message
- **Grey:** disabled

For explanation of the status, refer to AHRS-Interface Library (ref: MU-AHRS-AN-005).

For this example:

- OCTANS NANO is ready
- Manual Latitude and Manual Longitude are used
- Polar Heading is not valid



## CONTACTING IXBLUE SUPPORT

The screenshot shows the iXBlue web interface. At the top, there is a navigation bar with the iXBLUE logo and links for 'navigation data', 'events viewer', 'maintenance', and 'options'. Below this is a secondary navigation bar with 'CONTROL', 'INSTALLATION', 'SETUP', and 'DATA LOGGING'. The main content area is titled 'CONTACT SUPPORT' and contains the text: 'Click to create a support ticket.' and 'You can attach the last recorded log file (max 500 KB)'. A circular button labeled 'Contact Support' is highlighted with a hand cursor. Below this is a 'Statistics' link. A blue arrow points from the 'Contact Support' button to an email form below. The email form has a 'Send' button, a 'To:' field with 'support@ixblue.com', a 'Subject:' field with 'Support ticket 3453-1052/20150417162659', and a large text area containing the following information: 'Product name : OCTANS NANO', 'Serial number : 3453-1052', 'Owning company :', 'Operating company :', 'Your contact details :', 'You can attach the last recorded log file (max 500KB).', and 'Comments :'.

**CONTACT SUPPORT**

Click to create a support ticket.

You can attach the last recorded log file (max 500 KB).

► Statistics

To: support@ixblue.com

Send

Subject: Support ticket 3453-1052/20150417162659

Product name : OCTANS NANO  
Serial number : 3453-1052  
Owning company :  
Operating company :  
Your contact details :  
You can attach the last recorded log file (max 500KB).  
Comments :

Complete all the information before sending the mail to iXBlue support.

## TROUBLESHOOTING

OCTANS NANO has a Built-In status and error Test (BIT) which raises alarms (through the color of the iXBlue Logo) and displays messages in the OCTANS NANO User Interface.

If you encounter problems when installing or using OCTANS NANO, please refer to the following table.

If you still cannot resolve the problem, please contact IXBlue support (see previous page).

Symptom	Possible causes	Solution
Impossible to display the Web-based User interface	Incorrect URL address entered in the Web browser	Type in back the URL address Default address is 192.168.36.1xx, xx being the last two numbers of your OCTANS NANO serial number  Check computer IP address should be in the same range as the unit.
	The URL address has been changed by another person	1) Retrieve the new OCTANS NANO IP address: connect the repeater cable to your PC and start a serial terminal (HyperTerminal, BBTALK, etc.) configured at 19200 baud, no parity, 1 stop bit, 8 data bits. Reboot OCTANS NANO once connected. You will get the OCTANS NANO boot sequence message that contains its attributed IP address (line beginning with "IFCONF")  2) Enter this URL address in the Web browser
The compass does not display on the Web-Based User Interface	Flash player not installed on the PC or its version is too old	Install Flash player which is provided on the CD-ROM

Symptom	Possible causes	Solution
Heading out of the specifications	Wrong initial latitude	Check that the latitude entered in the POSITION FIX page is the current one. Restart the unit.
Status displayed red	Error message	Refer to “AHRS Interface Library” document to get the explanation of the messages
Status displayed orange	Warning message	Refer to “AHRS Interface Library” document to get the explanation of the messages
After clicking on “Contact support” button, a message is displayed	No mail software is installed	Install a mail software on the computer (Outlook for example)

