LXNAVIGATION

NAVIA

Navia Hub Installation manual

Contents

Document information

0.1 Abstract

This document represents the installation manual for the Navia Hub. The user manual, release notes, dataport and additional info can be found on **www.lxnavigation.com**.

0.2 Document status

Document status: PUBLIC

Document status	Explanation
Internal	Intended only for LX navigation staff
Public	Available publicly to all
Personal	Intended for a specific person and/or company, noted on this page
Dealer	Intended for a specific dealer, noted on this page
Manufacturer	Intended for a specific manufacturer, noted on this page

0.3 List of applicable products

Device	Part number	HW Version
Navia Hub	LX02000500	1.0

0.4 Revision history

Document name	Document revision	Date	Revised by	Approved by	Notes
N_HIM	R1	20.03.2026	N.S.	N.S.	initial release

Overview

The Navia Hub is a robust, high-performance 5-port Power over Ethernet (PoE) Gigabit switch designed specifically for the Navia avionics ecosystem. It acts as the central networking expansion module for the Navia Core Pro.

System Expansion and Use Cases
The Navia Core Pro features a single primary PoE port. The Navia Hub is required whenever a user needs to connect more than one Navia Display or other Ethernet-based Navia Family devices to the system. This makes the Navia Hub an essential component for multi-seat gliders and powered airplanes that utilize dual-screen or multi-screen instrument panels.

Power and Data Delivery
Designed to handle demanding avionics loads, the Navia Hub is capable of running up to **100W of power per port** alongside high-speed gigabit data transfer. The Hub itself does not require a separate connection to the aircraft's main power bus; it is powered directly by connecting it to the Navia Core Pro.

Inventory of Materials

Before beginning installation, please verify your materials against the lists below. Doing so ensures you have received all ordered parts from LX navigation in good condition. We advise keeping the original packaging for future storage or transport.

2.1 In the Box

- 1x Navia Hub Unit
- 1x Device Registration Card (with QR code and portal link)
- 4x M2 Mounting screws

2.2 Additional Required Equipment (Not Included)

To fully install and utilize the Navia Hub, you will need corresponding Ethernet cabling.

- High-quality Ethernet PoE cables (Available directly from LX navigation in 0.4m, 1m, 3m, and 5m lengths. Custom shielded Cat5e/Cat6 cables wired to the T568B standard may also be used).

Required Tools

- PH1 Screwdriver
- **Non-magnetic tools** (e.g., beryllium, copper, or titanium) if installing in close proximity to a Navia Sense or other AHRS modules.

Mounting

The dimensions of the Navia Hub are shown in the figure 1.

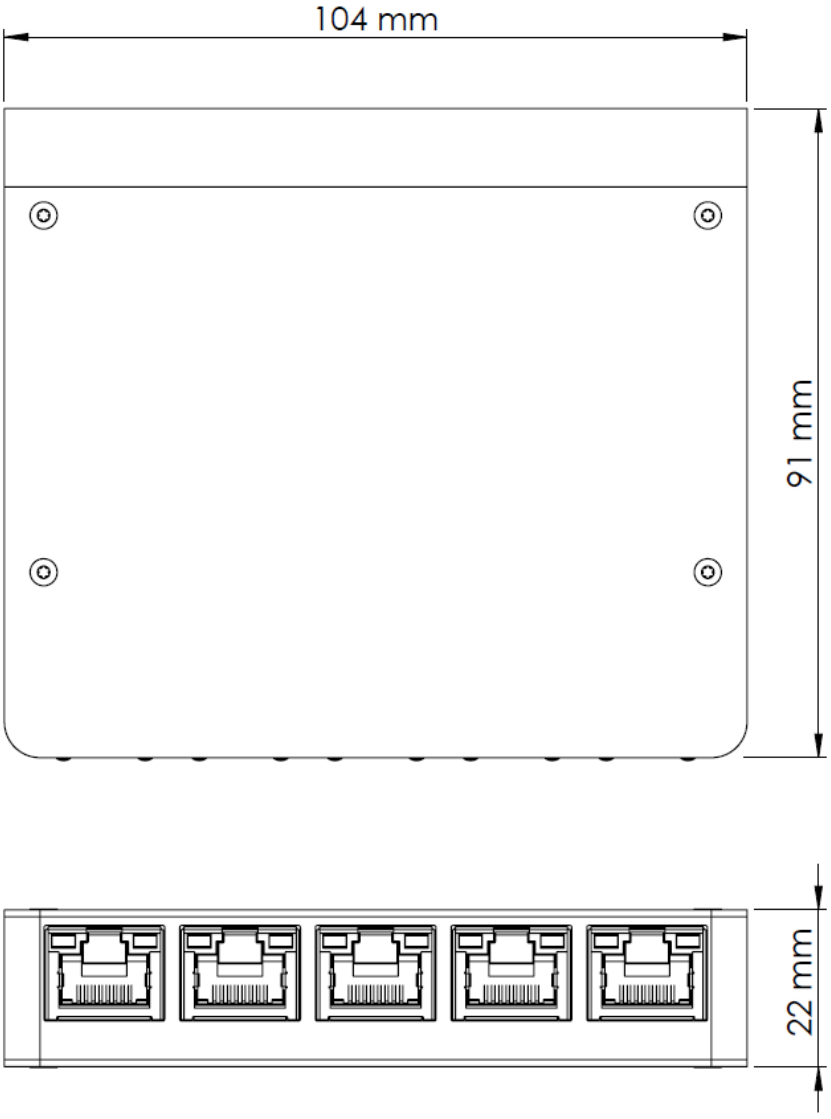

Figure 1. Device overview

The Navia Hub is designed with two M2 threaded holes on each side. The use of M2 DIN 7985 screws is recommended.

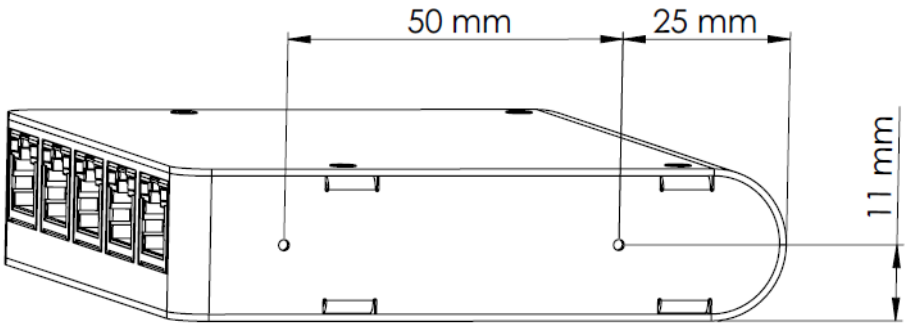

Figure 2. Mounting points

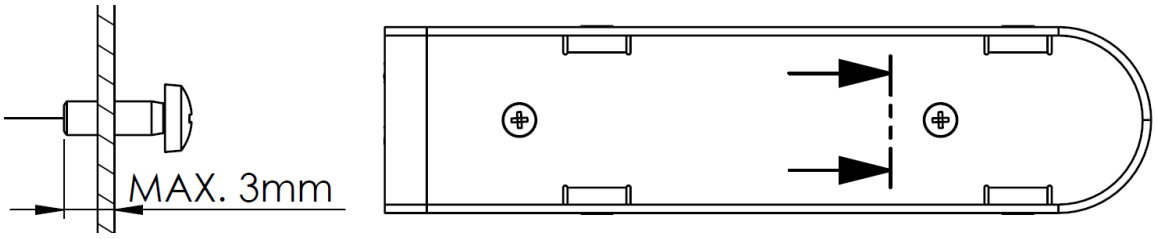

Figure 3. Length of screws

WARNING
Always use appropriate length of screws; using too long screws can damage internal components of the Navia Hub.

The Navia Hub is designed to be mounted in the avionics compartment or behind the instrument panel of the aircraft. Depending on the aircraft's individual requirements, other locations may be suitable as well.

The Navia Hub does not require additional external cooling. Make sure that installation is performed behind the engine firewall.

Two mounting options are possible:

- mounting in a Navia mounting rack,
- on a flat surface using two mounting brackets.

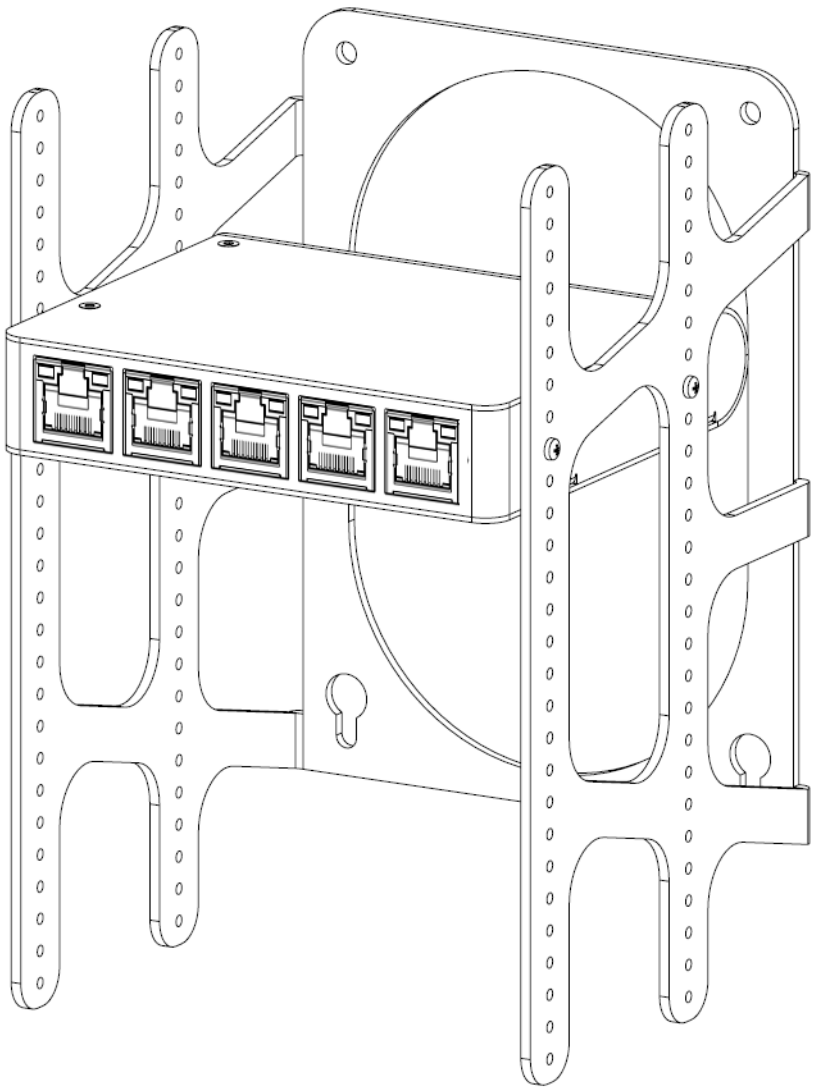

Figure 4. Mounting in Navia mounting rack

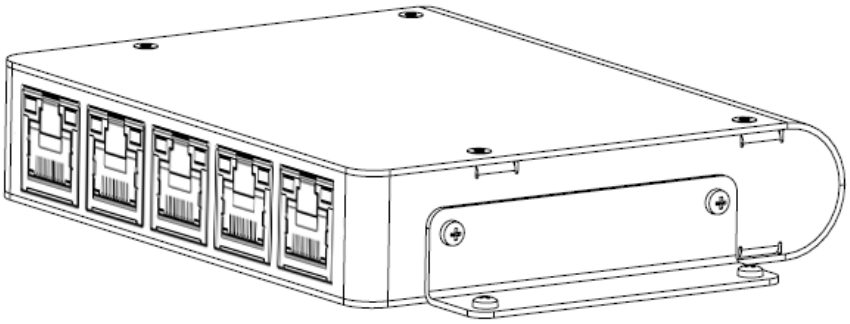

Figure 5. Mounting with two mounting brackets

Electrical and Data Connections (PoE)

The Navia Hub acts as an intelligent expansion switch. All 5 RJ45 ports on the Navia Hub are functionally equal, allowing you to plug your uplink connection and downstream devices into any available port effortlessly.

5.1 Connecting to the Navia Core Pro

The Navia Hub receives both its passive 48V power supply and its main data uplink directly from the Navia Core Pro.

1. Connect one end of a high-quality Ethernet cable to the PoE port on the Navia Core Pro.
2. Connect the other end of the cable to any of the 5 available RJ45 ports on the Navia Hub.
3. Once connected, the Navia Hub is energized and ready to distribute power and data to the remaining 4 ports.

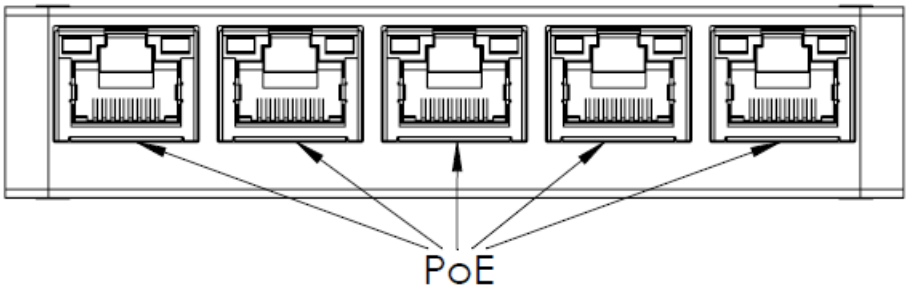

Figure 6. Connection ports

5.2 Connecting Peripherals

Connect your peripheral devices (such as a primary Navia Display, a secondary Navia Display, or a Navia EMU) into the remaining available ports on the Navia Hub. The Hub will safely distribute up to 100W per port to drive these connected devices.

Cascading Multiple Hubs
If your installation requires more ports than a single Navia Hub can provide, you can easily cascade multiple Navia Hubs together by connecting an Ethernet cable from a port on the first Hub to any port on the second Hub.

WARNING
Cascading Power Limitation:
When cascading multiple Hubs, it is critical to calculate your total power budget. The Navia Core Pro (and the uplink port on the primary Navia Hub) supplies a maximum of 100W in total. Therefore, the combined power consumption of **all** devices connected downstream through the cascaded Hubs must **not exceed 100W**.

WARNING
NEVER HOT-PLUG POE DEVICES:
It is strictly forbidden to hot-plug any devices into the Navia Hub. Always ensure the Navia Core Pro (and thus the Navia Hub) is completely powered **off** before connecting or disconnecting any PoE Ethernet cables. "Hot-plugging" devices while the passive 48V PoE system is live carries a significant risk of electrical arcing and high-voltage spikes, which can permanently damage the internal components of the Hub, the displays, and the Navia Core.

WARNING
RJ45 Port Compatibility Hazard:
Do **not** confuse the Navia Hub's PoE ports with standard networking RJ45 ports or similar-looking connectors found on third-party FLARM units, or older LX navigation products. The Navia PoE system utilizes a passive 48V PoE pinout that is strictly incompatible with these older systems. **Especially avoid connecting CAN bus cables from legacy LX navigation equipment.** Unlike the Navia Core Pro, the Navia Hub **does not contain an internal fuse**. Misconnecting these ports will cause a catastrophic electrical short, resulting in permanent damage to the Hub and any connected devices.

5.3 Custom Ethernet Cabling and Securing

While LX navigation offers pre-made, rigorously tested Gigabit Ethernet cables in various lengths (0.4m, 1m, 3m, and 5m), you may need to assemble custom cables for specific routing requirements. If you choose to crimp your own cables, you **must** wire the RJ45 connectors according to the standard **T568B** Ethernet wiring scheme.

RJ45 Pin	T568B Wire Color
1	White/Orange
2	Orange
3	White/Green
4	Blue
5	White/Blue
6	Green
7	White/Brown
8	Brown

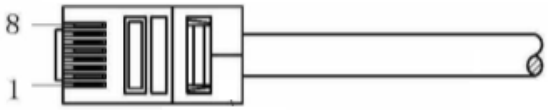

Figure 7. Mounting with two mounting brackets

It is highly advised to use shielded, aviation-grade Cat5e or Cat6 cables to guarantee stable Gigabit data speeds and efficiently handle the 48V power delivery without significant voltage drops or EMI interference.

WARNING
Gigabit PoE Cable Securing:
Do **not** over-tighten standard nylon zip-ties around Ethernet or PoE cables. Crushing a Cat5e/Cat6 cable alters the internal twisted-pair geometry, which can severely degrade Gigabit data speeds and PoE power delivery, or even cause electrical shorts. Use aviation lacing cord or wide hook-and-loop (Velcro) ties for safely securing high-speed data cables.

System Status and Indicators

You can verify the operational status of the Navia Hub and its connected peripherals via the integrated LED lights located directly on the RJ45 connectors.

- **Active Ports:** When a PoE device is properly connected and the Navia Core Pro is powered on, the LED lights on the corresponding RJ45 port of the Navia Hub will illuminate.
- **Data Activity:** The LEDs will blink or flash to indicate active data communication between the Navia Hub and the connected device. If a port is connected but the LED remains completely dark, check your cable integrity and ensure the Navia Core Pro is supplying power.

Maintenance and Service

The Navia Hub is a solid-state device requiring no regular internal maintenance by the pilot or installer.

WARNING

No User-Serviceable Parts: There are absolutely no user-serviceable parts inside the Navia Hub. Do not attempt to open the device enclosure. If your device experiences a hardware failure or port malfunction, the unit must be removed from the aircraft and sent directly to LX navigation or to a certified, authorized partner for service.

Declaration of Conformity

Identification of product
Product Name: Navia Hub
Part Number(s): LX02000500

Manufacturer
LX navigation d.o.o., Tkalska ulica 10, SI-3000 Celje, Slovenia

Related Directives
LX navigation d.o.o. declares under our sole responsibility that the product complies with the essential requirements of the following European Directives and therefore bears the **CE marking**:

- **2014/53/EU** Radio Equipment Directive (RED)
- **2015/863/EU** Restriction of Hazardous Substances (RoHS 3)

Harmonized Standards Applied
The following harmonized standards have been applied to demonstrate conformity:

- **Health & Safety (Article 3.1a):** EN 62368-1:2014+A11:2017 (Product Safety), EN 62311:2008 (RF Exposure)
- **Electromagnetic Compatibility / EMC (Article 3.1b):** EN 301 489-1 V2.2.3, EN 301 489-3 V2.1.1, EN 301 489-17 V3.2.4, EN 301 489-19 V2.1.1
- **Radio Spectrum Efficiency (Article 3.2):** EN 300 328 V2.2.2, EN 301 413 V1.1.1, EN 300 220-1 V3.1.1, EN 300 220-2 V3.1.1
- **Additional Compliance:** EN 63000:2018 (RoHS)

Aviation Environmental Testing
While this device does not hold a formal aviation certification (such as an ETSO/TSO), it has been rigorously tested to meet the demanding environmental conditions for airborne equipment outlined in **RTCA DO-160**.

Signed for and on behalf of LX navigation d.o.o.
Name / Title: Nik Šalej, CEO
Date: March 20, 2026
Location: Celje, Slovenia

Disclaimer and Legal Notice

Accuracy of Information

While every effort has been made to ensure that the information contained in this manual is accurate and complete, LX navigation d.o.o. assumes no responsibility or liability for any errors, omissions, or inaccuracies. The information in this document is provided "as is" and is subject to change without prior notice. LX navigation reserves the right to continually improve its products, software, and documentation without obligation to notify any person or organization of such revisions or changes.

Operational Responsibility

The Navia avionics system is designed to provide supplementary flight data and enhanced situational awareness. It is **not** a certified primary flight instrument and must not be used as the sole means of navigation, collision avoidance, or instrument flight (IMC/IFR). The pilot in command is solely responsible for the safe operation of the aircraft, adherence to all applicable aviation regulations, and the proactive separation from other aircraft, terrain, and obstacles.

Limited Warranty

Two-Year Hardware Warranty
LX navigation warrants this hardware product to be free from defects in materials and workmanship under normal aviation use for a period of **two (2) years** from the date of original retail purchase.
During this warranty period, if a defect arises, LX navigation will, at its sole discretion and to the extent permitted by law, either:

1. Repair the product at no charge using new or refurbished replacement parts.
2. Exchange the product with a new or refurbished product that is functionally equivalent to the original.

Warranty Exclusions
This Limited Warranty does not apply to any software (including the operating system and internal firmware), databases, or any third-party equipment. Furthermore, this warranty does not cover damage caused by:

- Misuse, abuse, accidents, or neglect (including physical impact or water damage).
- Unauthorized modifications, alterations, or repairs performed by anyone other than LX navigation or an officially certified service partner.
- Opening the device enclosure or breaking the factory security seals.
- Improper installation, wiring, or application of incorrect voltage.
- Environmental damage extending beyond the certified limits of the device, including concentrated solar heat damage ("sunburns") on LCD screens.

To obtain warranty service, the customer must contact LX navigation support. Shipping costs to the LX navigation repair facility are the responsibility of the customer.

End User License Agreement (EULA)

By purchasing, installing, or using any Navia device, or by downloading, accessing, or using any LX navigation software, firmware, license key, or data, you agree to the following terms and conditions. If you do not agree with these terms, do not install or use the device, software, or data.

11.1 License and Limitation of Use

1.1. License. Subject to the terms of this Agreement, LX navigation hereby grants you a non-exclusive, non-transferable right to use the software, firmware, license keys, and data embedded in binary executable form solely for your own personal or internal flight operations. You acknowledge that all software, algorithms, and related data are proprietary intellectual property of LX navigation and its suppliers.

1.2. Limitation. Software, firmware, and license keys may only be used as embedded in devices manufactured by LX navigation. No other licenses are granted by implication or otherwise. You may not reverse engineer, decompile, disassemble, or manipulate the software or hardware in any way.

11.2 Terms of Use in Aviation

2.1. Installation. The device must be installed according to the official LX navigation Installation Instructions and must comply with the applicable national aviation regulations (e.g., EASA Standard Change or Minor Change). Installation must be verified by certified maintenance staff where required by law.

2.2. Safety Limitations. The Navia system cannot warn or provide data in all situations. Sensors may be degraded by GPS outages, poor antenna placement, or environmental factors. The system does not issue resolution advisories. It is the sole responsibility of the pilot in command to decide upon the use of the system and to maintain safe flight conduct.

2.3. Mandatory Updates. System firmware and applicable databases (e.g., Obstacles, Airspace) must be updated regularly. LX navigation reserves the right to render outdated firmware versions inoperable to ensure network compatibility and system safety.

11.3 Data Privacy and Telemetry

3.1. Data Collection. Navia devices may collect, store, and transmit flight data, including aircraft identification, GPS position, altitude, and system diagnostics. LX navigation may use this data for system improvement, troubleshooting, and Search and Rescue (SAR) purposes.

3.2. Data Sharing. LX navigation is not responsible for any third-party device, software, application, or network that receives, intercepts, stores, or broadcasts data transmitted by your Navia device.

11.4 Limitation of Liability

4.1. "As Is" Provision. While the hardware is covered by a 2-year warranty, all software, firmware, databases, and digital services are provided on an "as is" and "as available" basis without any implied warranties of merchantability or fitness for a particular purpose.

4.2. Total Liability Cap. In no event shall LX navigation, its directors, employees, or suppliers be liable to you or any third party for any direct, indirect, incidental, consequential, special, or punitive damages. This includes, without limitation, damages for loss of life, personal injury, loss of the aircraft, loss of business profits, or loss of data, whether under a theory of contract, warranty, or tort (including negligence).

4.3. Maximum Compensation. In no event will LX navigation's total aggregate liability to you for any and all claims arising out of the use of the system exceed the amount actually paid by you for the specific device giving rise to the claim.

11.5 Indemnification

You agree to indemnify and hold LX navigation harmless from and against any and all claims, actions, liabilities, losses, damages, costs, and expenses (including reasonable attorneys' fees) arising out of your improper installation, misuse of the device, or violation of any aviation regulations.

11.6 Governing Law and General Terms

6.1. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Republic of Slovenia, without regard to its conflict of law principles.

6.2. Severability. If any provision of this Agreement is found to be void or unenforceable, that provision shall be severed, and the remaining provisions will continue in full force and effect.

6.3. Amendments. LX navigation reserves the right to amend this Agreement at its sole discretion by publishing updated documentation. Continued use of the device and software constitutes acceptance of the amended terms.

Contact

Headquarters
LX navigation d.o.o.
Tkalska ulica 10
SI-3000 Celje
Slovenia

VAT ID
Company is registered in Slovenia, EU under the VAT ID: SI40539601

US Office
LX navigation US
1704 Kennedy Point 1124
Oviedo, FL 32765
USA

Webpage
www.lxnavigation.com

Phone
+386 (0)3 490 46 70

Fax
+386 (0)3 490 46 71

Sales
sales@lxnavigation.com

Support
info@lxnavigation.com

LXNAVIGATION