LXNAVIGATION

NAVIA GRIP

Navia Grip Installation manual

Contents

Document information

0.1 Abstract

This document represents the installation manual for the Navia Grip. 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

Overview

The Navia Grip is a revolutionary Human Machine Interaction (HMI) device designed for pilots within the Navia avionics ecosystem. Designed and manufactured by LX navigation, it serves as the ultimate remote interface, allowing pilots to maintain full control while accessing critical flight information, even in challenging conditions, without ever needing to touch the screen or remove their hands from the flight controls.

Key Features:
The Navia Grip is packed with advanced technology to elevate the pilot's experience, safety, and efficiency:

- **Multitouch Trackpad & Radio Control:** Seamlessly navigate menus, adjust settings, and control your radio directly from the stick.
- **Perforated Leather Finish:** Premium perforated leather provides superior breathability and an ergonomic, tactile finish for a better feeling during long flights.
- **3x Vibration Alerts:** Intuitive haptic feedback motors warn the pilot of critical situations, such as an approaching stall, directly through the grip.
- **Voice AI Assistant Controller:** A dedicated button seamlessly activates the NAVIA Voice Assistant for complete hands-free control.
- **Heated Handle:** Provides unparalleled comfort during cold winter flying days. Users can easily enable and control the heating function directly from the dashboard on the Navia Display.
- **Wireless Capabilities:** Equipped with built-in Bluetooth and Wi-Fi for versatile connectivity options.
- **Standard Aviation Controls:** Includes a dedicated Push-To-Talk (PTT) button for standard radio transmissions.

Special Versions
In addition to the standard configuration, LX navigation offers a special version of the Navia Grip equipped with a **red starter button**. This specific version is intended primarily for Schempp-Hirth self-launcher gliders, integrating engine start capabilities directly into the flight grip for maximum safety and convenience.

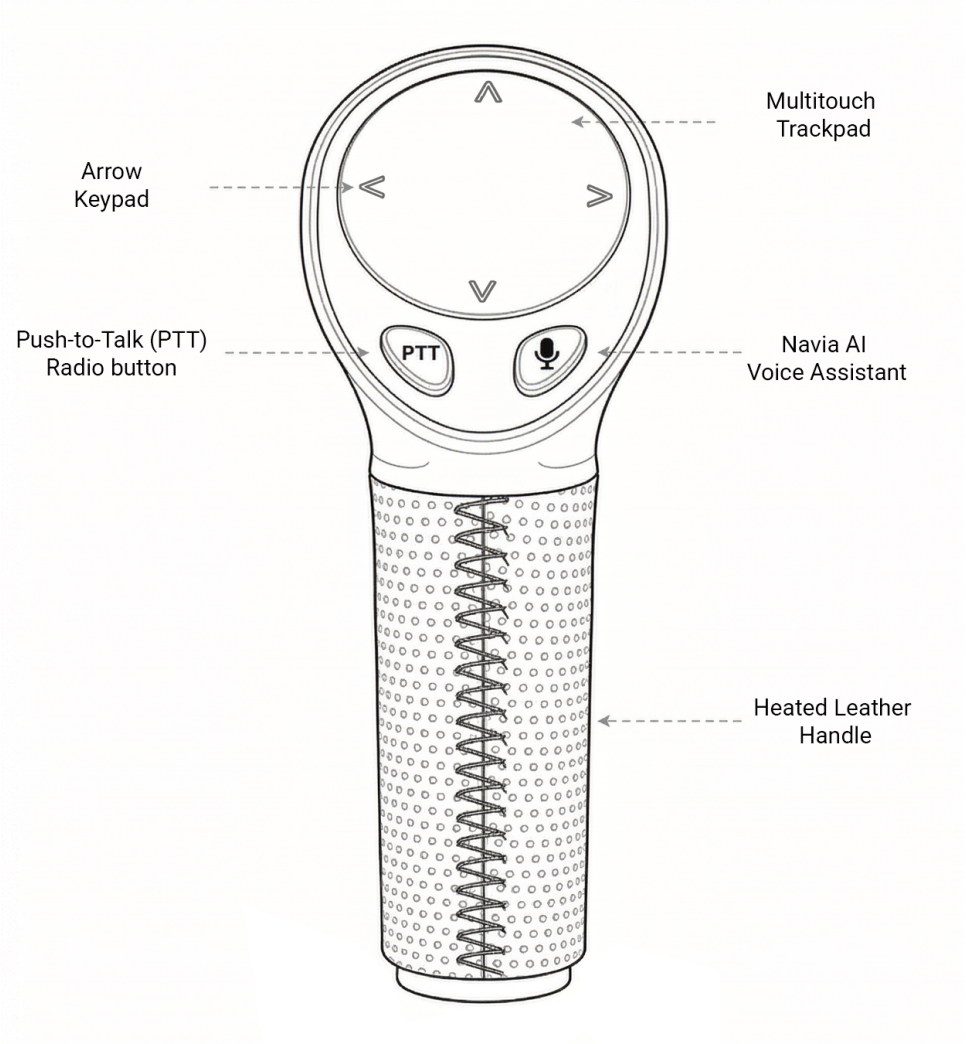

Figure 1. Navia Grip Front View

Ergonomics and Interface Controls

The Navia Grip is ergonomically designed to be completely **ambidextrous**. Whether flying with your right hand or your left hand, the grip provides a comfortable, natural, and intuitive interface for all pilots.

2.1 Trackpad and Scroll Wheel

- **Multitouch Trackpad:** The main touch pad acts as a highly responsive mouse for the Navia Display. It features four directional arrows; pressing on these specific parts of the trackpad is like pressing the arrow keys on a keyboard, allowing for precise panning and movement across the map. Additionally, the entire trackpad is clickable to make

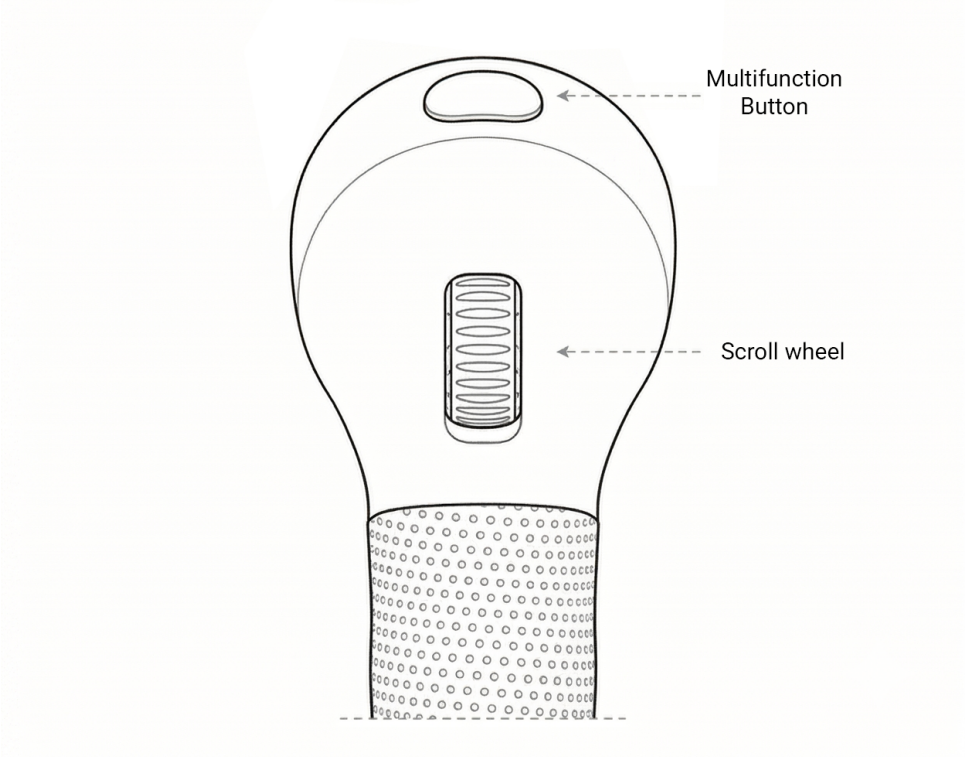

Figure 2. Navia Grip Back

selections.

- **Scroll Wheel:** Located at the back of the grip (operated naturally by the index finger), the scroll wheel allows the pilot to quickly zoom in and out on the map or rapidly scroll through menus.

2.2 Buttons and Functions

- **Primary Buttons (Under Trackpad):** Located just below the trackpad are two main buttons.
  - **Left Button (PTT):** Push-To-Talk. Hold this button to transmit on the radio.
  - **Right Button (Voice AI):** Trigger for the Navia AI Voice Assistant. Hold this button to issue voice commands to the avionics system.
- **Top Multifunction Function Button:** Located at the very top of the Navia Grip, this versatile button reacts differently depending on how it is pressed and the current aircraft configuration:
  - **Gliding Configuration:**
    - *Short click:* Toggles Speed Command (SC) / Vario mode.
    - *Long press:* Triggers a Pilot Event (PEV) on the flight logger.
    - *Double click:* Cycles through map views (Zoom to my position, Track up, North up, Zoom to task).
  - **Motor Plane Configuration:**

* *Short click:* Toggles Autopilot (AP) ON/OFF.
* *Double click:* Cycles through map views (Zoom to my position, Track up, North up, Zoom to task).

2.3 Haptics and Vibration Alerts

To maximize situational awareness, the Navia Grip contains a powerful internal vibration motor. This motor issues physical warnings for critical situations such as **Stall Speed warnings** or **Collision warnings**. By addressing the sense of touch (aligning with the FAA recommendation to stimulate at least three human senses for critical alerts), it adds a vital additional layer of safety.
Furthermore, the Navia Grip triggers a subtle haptic vibration upon any button press, providing the pilot with instant physical confirmation that the input was successfully registered by the system.

2.4 Schempp-Hirth Self-Launcher Edition

For Schempp-Hirth gliders that require a dedicated button for engine start, the special version of the Navia Grip features an additional red starter button located between the PTT and AI Voice Assistant buttons. Two additional wires are exposed from the Navia Grip's main cable bundle, which must be connected to the appropriate engine start wiring point in the airplane.

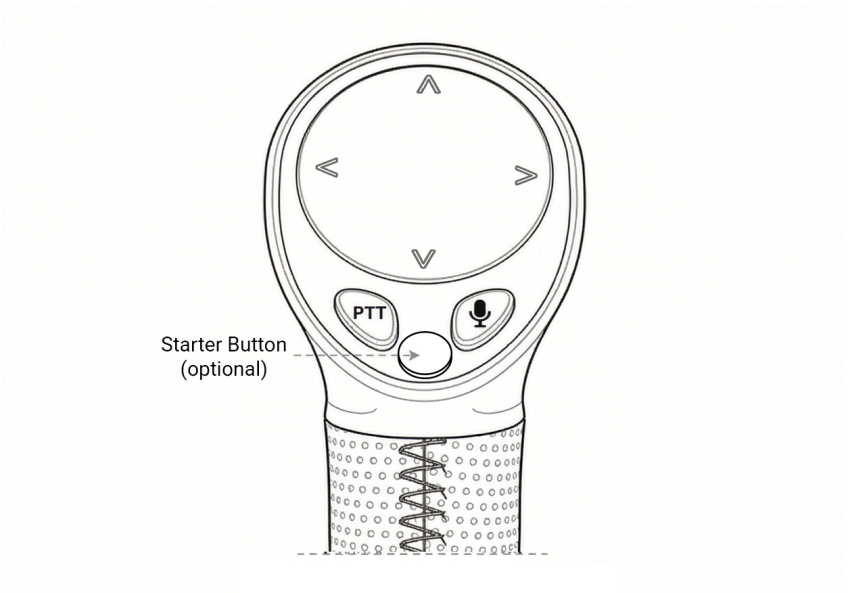

Figure 3. Navia Grip Front View - With Engine Starter Button

AI Voice Assistant

One of the most powerful features unlocked by the Navia Grip is the seamless integration with the **Navia AI Voice Assistant**.

Speaker-Independent & Offline Processing

The AI Voice Assistant runs entirely locally on the **Navia Core Pro**. Because all audio processing is done directly on the edge hardware, it does not require an active internet connection to function. Furthermore, it is a completely **speaker-independent** system. It utilizes advanced machine learning models trained on diverse aviation phraseology, meaning **no user training or voice profiling is required**. Any pilot can step into the aircraft, press the button, and the system will immediately understand them.

How to Use

To issue a command, simply press and hold the **Right Button (Voice AI)** located under the trackpad on the Navia Grip. Speak clearly using standard aviation phraseology and the NATO phonetic alphabet, then release the button.

Audio Keyboard

If you do not use a specific command prefix (like "Search" or "Set"), the system acts as an intelligent **Audio Keyboard**. It will transcribe whatever alphanumeric characters you speak directly into the currently highlighted input field on the screen (e.g., spelling out "Alpha Bravo Charli" or numbers).

Current Audio Commands

Below is a comprehensive summary outlining all available specific voice commands, their allowed aliases (variations of the command), recognizable parameters, and practical examples. To make it easier to read, commands are grouped by their functionality.

1. Communication, Altimeter & Transponder

- **Set Active Frequency** (*Aliases: "set frequency [to]", "frequency [to]", "set radio [to]", "radio [to]"*)
  - *Description:* Used during flight when handed over to a new ATC sector. It automatically tunes your connected COM radio's active frequency to the spoken value without needing to touch the radio panel.
  - *Recognizable Content:* Digits (Zero - Nine-er), "decimal", "point".
  - *Examples:* "Set frequency one two eight decimal zero two five", "Radio to one two one point zero"

- **Set Standby Frequency** (*Aliases: "set standby [to]", "standby [to]"*)

  - *Description:* Used when you want to prepare an upcoming frequency (e.g., tower or ground) in advance. It tunes the standby channel of your radio without switching your active communication.
  - *Recognizable Content:* Digits (Zero - Nine-er), "decimal", "point".
  - *Examples:* "Set standby one two one point zero", "Standby to one one eight decimal five"

- **Swap Frequency** (*Aliases: "swap frequency", "switch frequency"*)

  - *Description:* Used to instantly flip your active and standby radio frequencies. Highly useful when leaving a frequency and returning to the previous one.
  - *Recognizable Content:* None (Standalone command).
  - *Examples:* "Swap frequency", "Switch frequency"

- **Set QNH** (*Aliases: "set qnh [to]", "set baro [to]", "set pressure [to]", "set altimeter [to]"*)

  - *Description:* Used during transition through different altitudes or when receiving a new altimeter setting from ATC. It instantly calibrates the altimeter's pressure baseline to the spoken value. If "point" or "decimal" is used, it automatically assumes inHg; otherwise, it assumes hPa.
  - *Recognizable Content:* Digits (Zero - Nine-er), "decimal", "point".
  - *Examples:* "Set qnh one zero two zero" (1020 hPa), "Set baro to two niner point three one" (29.31 inHg)

- **Set Squawk** (*Aliases: "set squawk [to]", "set squak [to]", "set transponder [to]"*)

  - *Description:* Used when ATC assigns you a new transponder code. It digitally sends the 4-digit code to your connected transponder, drastically reducing heads-down time in busy airspace.
  - *Recognizable Content:* Digits (Zero - Seven), "VFR".
  - *Examples:* "Set transponder to seven one zero five", "Set squawk VFR"

- **Say Again** (*Aliases: "say again"*)

  - *Description:* Used when you missed or misunderstood an incoming radio transmission. It replays the last recorded audio clip from the radio directly through your headset.
  - *Recognizable Content:* None (Standalone command).
  - *Examples:* "Say again"

2. Navigation & Routing

- **Search** (*Aliases: "search", "open search"*)

  - *Description:* Used when you need to find a specific waypoint. It opens the search bar and automatically types the spoken alphanumeric content, allowing you to review the results before selecting one.
  - *Recognizable Content:* Alphanumeric characters (e.g., "Alfa", "Bravo", ..., "Zero", "Nineer").
  - *Examples:* "Open search lima Juliett charli echo" (searches "ljce"), "Search Portoroz"

- **Direct To** (*Aliases: "direct to", "navigate to", "go to"*)
  - *Description:* Used when you want to immediately set a course to a known destination. It searches for the specified waypoint and instantly sets it as your active navigation target.
  - *Recognizable Content:* Alphanumeric characters.
  - *Examples:* "Navigate to lima Juliett charli echo", "Go to Papa Oscar Romeo"

- **Direct To Shortcuts** (*Aliases: "direct to home", "go to nearest", etc.*)
  - *Description:* Emergency and convenience shortcuts. Saying "home" instantly routes you to your pre-configured home base. Saying "nearest" instantly calculates and routes you to the closest landable airport/field.
  - *Recognizable Content:* None (Standalone command).
  - *Examples:* "Navigate to home", "Direct to nearest"

- **Task Navigation** (*Aliases: "[task] next", "[task] previous", "[task] revert"*)
  - *Description:* Used while flying a predefined route or competition task. It allows you to quickly cycle through your task waypoints (next/previous) or revert a turnpoint selection.
  - *Recognizable Content:* None (Standalone commands).
  - *Examples:* "Task next", "Previous", "Revert"

3. Interface Panels & Tools

- **Home Screen** (*Aliases: "open home", "close home", "go fly"*)
  - *Description:* "Open home" brings up the main system menu. "Go fly" (or "close home") is a rapid command used to instantly drop all menus and return strictly to the active moving map.
  - *Examples:* "Open home", "Go fly"

- **Map Layers** (*Aliases: "open layers", "close layers"*)
  - *Description:* Opens or closes the map layers panel, allowing you to toggle the visibility of airspace, weather overlays, and terrain features.
  - *Examples:* "Open layers"

- **Navigation & Widgets Panels** (*Aliases: "open/close navigation", "open/close widgets"*)
  - *Description:* Toggles the side panels. Opening the navigation panel shows task details; opening widgets displays your customized flight data instruments.
  - *Examples:* "Close widgets", "Open navigation"

- **Map Tools** (*Aliases: "open/close draw [panel]", "open/close measurement [tool]"*)
  - *Description:* Opens the interactive map tools. The measurement tool allows you to calculate distance and bearing between points, while the draw tool lets you annotate the map.
  - *Examples:* "Open measurement tool", "Close draw"

- **Checklists** (*Aliases: "open checklist", "checklist", "check", "skip"*)
  - *Description:* Used during critical flight phases (pre-takeoff/landing). Opens the electronic checklist and allows you to advance through items hands-free.
  - *Examples:* "Checklist", "Check", "Skip"

4. Map Views, Zoom & Glider Specifics

- **Map Orientation** (*Aliases: "north up [zoom]", "track up [zoom]"*)
  - *Description:* Rapidly changes how the map rotates. "North up" locks True North to the top of the screen, while "Track up" aligns the top of the screen with your current direction of flight.
  - *Examples:* "Track up", "North up zoom"

- **Task View** (*Aliases: "task view"*)
  - *Description:* Instantly adjusts the map's pan and zoom level to perfectly fit your entire active route or competition task on the screen.
  - *Examples:* "Task view"

- **MacCready & Bugs** (*Aliases: "[set] macready", "[set] bugs"*)
  - *Description:* Used specifically by glider pilots to adjust the speed-to-fly and variometer calculations in real-time based on changing soaring conditions.
  - *Recognizable Content:* Numeric values.
  - *Examples:* "Set Macready two", "Bugs one one"

- **Audio Keyboard** (*No specific command prefix*)
  - *Description:* Used anytime a text or number input field is active on the screen (e.g., typing a custom pilot name). It simply acts as a voice-to-text keyboard.

- *Recognizable Content:* Alphanumeric characters.
- *Examples:* "Alpha Bravo Charli", "Zero one two"

Compatible Devices

The Navia Grip is designed to integrate seamlessly with the following Navia Family devices. While the physical connection is made to the display, the Grip relies on the Core Pro for advanced functions such as AI Voice processing.

Product Name	Part Number	Connection	Description
Navia Core Pro	LX02000490	Wireless / Network	Central server for AI Voice Assistant processing and system logic.
Navia Display 12	LX02000540	9-pin D-Sub	Primary control interface and power source.
Navia Display 7	LX02000530	9-pin D-Sub	Primary control interface and power source.
Navia Display 4	LX02000550	9-pin D-Sub	Primary control interface and power source.

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.

5.1 In the Box

- 1x Navia Grip (Standard or Self-Launcher version)
- 1x Pre-wired adapter enclosed in a 9-pin Sub-D backshell (with quick-release pins and an internal 10-pin terminal block)
- Set of plastic sizing inserts (19.3 mm, 20 mm, 24 mm)
- 3x M2.5 fastening screws
- 5x AWG 22 Wire Ferrules (PN: BM005005)
- 1x Device Registration Card (with QR code and portal link)

Required Tools

- Appropriate screwdriver or Allen/Hex key for M2.5 fastening screws
- Small flathead screwdriver (for the 10-pin terminal block)

- Wire stripper and dedicated Ferrule crimping tool
- Wire routing tools (e.g., fish tape or stiff wire for routing through the control stick)

Mechanical Mounting

The Navia Grip is designed to securely mount to the top of your aircraft's control stick. To accommodate virtually every control stick diameter found in the aviation world, the main aluminum base insert of the Navia Grip has an internal diameter of **25.4 mm (1 inch)**.

7.1 Stick Diameters and Inserts

If your control stick is exactly 25.4 mm (e.g., Jonker Sailplanes JS1), the Navia Grip mounts directly onto the bare stick. For all other smaller stick diameters, LX navigation provides custom-machined plastic inserts.

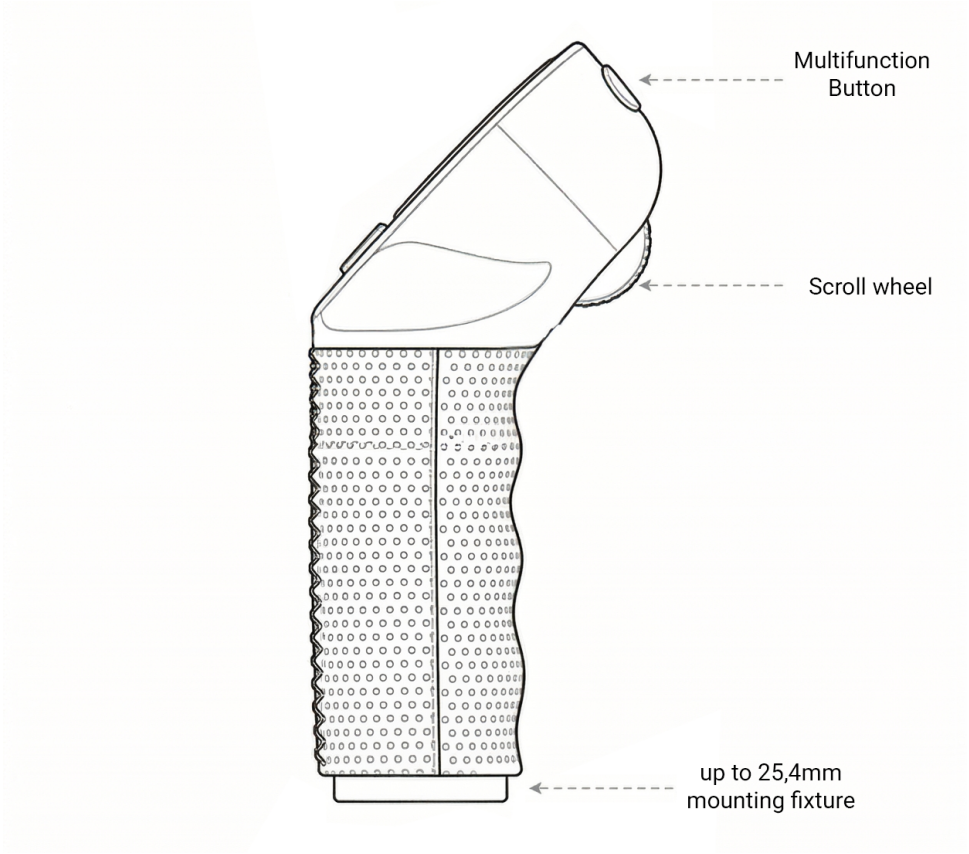

Figure 4. Navia Grip Side View

Select the appropriate plastic insert based on your aircraft manufacturer and standard stick dimensions:

- **19.3 mm Insert:** DG, LAK, Schempp-Hirth
- **20 mm Insert:** LS, Stemme, Apis, EB29
- **24 mm Insert:** Schleicher, Pipistrel Taurus, Alisport Silent, EB28, JS3
- **25.4 mm (No Insert Required):** JS1

7.2 Fastening the Grip

Once you have selected the correct insert for your control stick:

1. Carefully route the main wires from the Navia Grip down through the center of your control stick (or externally alongside it, depending on your airframe's specific design).
2. Slide the appropriate plastic insert onto your control stick.
3. Slide the Navia Grip's aluminum base over the plastic insert.
4. Align the grip ergonomically to suit the pilot's natural hand resting position and viewing angle for the stick.
5. Fasten the grip securely by tightening the **three M2.5 screws** located on the side of the aluminum base.

WARNING

Flight Control Freedom & Clearance (Crucial):

It is absolutely critical that the grip and its wiring do not obstruct stick movement in any case.

- **Top Clearance:** Ensure there is adequate clearance on the top of the stick so that the grip does not hit the instrument panel, canopy, or pilot's legs at full control stick deflection (full pitch and full roll).
- **Wire Routing:** Secure the cables tightly along the stick using zip-ties or similar fasteners. However, you **must** leave enough slack at the base of the stick to allow for full, unrestricted control deflection without binding, pulling, or chafing the wires.

Wiring and Electrical Connections

The Navia Grip features an incredibly simple plug-and-play installation for its electrical connections, eliminating the need for complex pin crimping or soldering during the final display connection.

8.1 Main Connection Wires

Exactly **5 wires** exit the main body of the standard Navia Grip. These wires handle power, ground, serial communication, and radio transmission:

- **12V** (Power Supply)
- **GND** (Ground)
- **RS232 RX** (Data Receive)
- **RS232 TX** (Data Transmit)
- **PTT** (Push-To-Talk)

NOTE
Schempp-Hirth Self-Launcher Wires:
If you are installing the Schempp-Hirth version with the red starter button, there will be **two additional exposed wires** exiting the grip. These two wires act as a simple momentary switch closure and must be routed and connected to the appropriate engine start circuit in your aircraft.

NOTE
Wire Length Modification:
If the pre-installed cable is too long for your specific airframe, it can be safely cut and shortened. Conversely, if it is too short, it can be extended using high-quality shielded aviation wire. Ensure any splices are made using proper aviation-grade environmental splices (e.g., crimp butt-splices with dual-wall heat shrink) to prevent signal loss or interference.

8.2 Push-To-Talk (PTT) Connection Options

There are two distinct methods for integrating the Push-To-Talk (PTT) button on the Navia Grip into your aircraft's communication system.
Method 1: Digital Routing via Navia Core Pro (Recommended)
In this modern setup, the PTT signal is routed digitally through the Navia system.

- Leave the dedicated PTT wire from the Navia Grip unconnected (you may cut the cable short and keep the wire safely isolated).
- Connect your radio or audio panel directly to the corresponding PTT output pins on the **Navia Core Pro**.

- When the pilot presses the PTT button on the Navia Grip, the grip digitally informs the Navia Core Pro over the data interface, and the Navia Core Pro subsequently triggers the PTT on the radio.

Method 2: Traditional Analog Direct Connection
For older setups or specific audio panel requirements, the Navia Grip can act as a standard hardware switch.

- Connect the PTT wire from the Navia Grip directly to the PTT input on your radio or audio panel (bypassing the Navia Core Pro PTT outputs).
- In this configuration, the Navia Grip PTT button acts as a traditional analog switch. While pressed, it physically pulls the connected PTT wire to Ground (GND), keying the radio.

8.3 Wire Preparation and Ferrule Crimping

The main wires exiting the Navia Grip are deliberately left bare and are not pre-crimped at the factory. This design choice allows installers to easily guide the thin wire bundle through the narrow inner channels of the aircraft's control stick, and subsequently trim the wires to the exact required length for a clean, customized installation behind the panel.
Before connecting these trimmed wires to the 10-pin terminal block, it is highly advised to crimp the provided **AWG 22 wire ferrules (PN: BM005005)** onto the ends of the wires.
Why use ferrules instead of bare wire?

- **Prevents Fraying:** Ferrules keep the fine, stranded copper wires bound tightly together, preventing them from fraying or breaking under the mechanical pressure of the terminal block.
- **Secure Connection:** They provide a solid, uniform metal surface for the terminal block's internal cage to clamp down on. This ensures a robust electrical connection that will not loosen over time due to severe aircraft vibration.
- **Prevents Short Circuits:** By encasing all stray copper strands, ferrules completely eliminate the risk of a loose strand bending outward, bridging across to an adjacent terminal, and causing a catastrophic short circuit.

Ferrule Crimping Process:

1. **Trim and Strip:** Cut the required Navia Grip wires (Red, Yellow, Green, Black, and optionally PTT) to their final installation length. Carefully strip approximately 6 to 8 mm of insulation from the end of each wire.
2. **Insert:** Slide the bare copper strands fully into the metal barrel of the ferrule until the wire insulation butts up securely against the plastic collar. Ensure no stray strands are left outside the ferrule.
3. **Crimp:** Use a dedicated ferrule crimping tool to firmly compress the metal barrel around the copper strands.
4. **Verify:** Give the ferrule a gentle pull to ensure it is permanently attached to the wire before proceeding to the terminal block installation.

8.4 Navia Grip Adapter and 10-Pin Terminal Block

The Navia Grip connects to the Navia Display (or Navia Sense) via a specialized **Navia Grip Adapter** (enclosed in a 9-pin Sub-D backshell). This adapter is internally pre-wired to extract

the necessary 12V, 3.3V, GND, and USB data lines required for the Grip's trackpad, buttons, and AI Voice controller to function natively.

To easily interface with the Navia Grip's secondary wiring and other peripherals (like a Navia Indicator), the adapter exposes a **10-pin terminal block** at the rear.

NOTE

Terminal Block Layout: The 10-pin terminal block is actually constructed from two separate 5-pin terminal blocks (internally designated as J3 and J1 on the circuit board) placed perfectly in-line. To the user, it appears as a single continuous 10-pin block. The first half (Pins 1-5) corresponds to J3, and the second half (Pins 6-10) corresponds to J1.

Wiring the Navia Grip Data and Power

From the Navia Grip main cable, you must connect 4 specifically color-coded wires to the corresponding terminals on the second half of the block (Pins 6 through 9):

- **Red Wire (12V):** Connect to **Pin 6**
- **Yellow Wire (RS232 TX):** Connect to **Pin 7**
- **Green Wire (RS232 RX):** Connect to **Pin 8**
- **Black Wire (GND):** Connect to **Pin 9**

Note: Output 1 and Output 2 on the terminal block are not used at the moment and are strictly reserved for future expansion. The 5th wire (PTT) is routed according to your chosen PTT configuration (see Section 8.2).

1. After routing the wires from the control stick through your instrument panel, connect the 4 color-coded wires to their respective terminals on the block.
2. If installing a Navia Indicator, wire its cables to the remaining dedicated terminals on the first half of the block (J3).
3. Once the wires are secured in the terminal block, simply plug the entire 9-pin Sub-D quick-release connector straight into the dedicated 9-pin expansion port on the **back of the Navia Display** (or Navia Sense).
4. Push firmly until the quick-release locking mechanism clicks into place.

8.5 Pinout References

10-Pin Terminal Block Pinout

Terminal	Signal Name	Connected Device / Wire Color
1	OUTPUT2	Reserved for future expansion
2	GND	Navia Indicator (Ground)
3	RS232_TX2	Navia Indicator (Data)
4	NC	Do not connect
5	12V	Navia Indicator (Power)
6	12V	**Red wire** (from Navia Grip)
7	RS232_TX1	**Yellow wire** (from Navia Grip)
8	RS232_RX1	**Green wire** (from Navia Grip)
9	GND	**Black wire** (from Navia Grip)
10	OUTPUT1	Reserved for future expansion

9-Pin Sub-D Pinout (Adapter to Display/Sense)

The 9-pin Sub-D connector plugs directly into the back of the Navia Display (or Navia Sense), routing the combined signals from the terminal block and the internal USB converter into the main avionics system.

D-Sub Pin	Signal Name	Description
1	12V	Power supply output
2	USB_DATA_N	USB Data (-) for Navia Grip
3	USB_DATA_P	USB Data (+) for Navia Grip
4	GND	System Ground
5	NC	Not connected (Reserved for future use)
6	3.3V	Logic power supply for Navia Grip
7	RS232_RX	Data receive (from Terminal Block)
8	RS232_TX	Data transmit (from Terminal Block)
9	GND	System Ground

WARNING

NO HOT-PLUGGING ALLOWED:

Always ensure the Navia Core Pro (and thereby the Navia Display) is completely powered **off** before plugging the Navia Grip's 9-pin connector into the display. Connecting devices while the system is live can cause electrical arcing and permanently damage the digital communication interfaces.

Configuration and Seat Assignment

To configure the Navia Grip properly, you must assign it to the specific seat or display it is intended to control.
The Navia Grip hardware is entirely universal; there are no dedicated "pilot" or "co-pilot" versions, nor are there specific "front seat" or "rear seat" models. Any Navia Grip can be installed at any seat position in the aircraft.
Once the physical installation and wiring are complete, power on the system and navigate to **Airplane Settings > Devices** on your primary Navia Display. Locate the connected Navia Grip in the device list and assign it to the correct seat position and corresponding display. This ensures that the trackpad inputs, buttons, and PTT functions correctly target the intended screen and radio in a multi-display or multi-seat cockpit.

Software Updates

The Navia Grip is an intelligent device equipped with its own internal firmware to handle trackpad data, Bluetooth, and internal sensors.
However, **no manual updates are required** by the user. Whenever the Navia Core Pro receives a system-wide software update (via Wi-Fi or cellular connection), it will automatically push any necessary firmware updates to the Navia Grip through the connected Navia Display. During this process, ensure the system power remains uninterrupted.

Maintenance and Care (Perforated Leather)

The Navia Grip is finished with high-quality perforated leather to ensure a premium feel and superior breathability. To maintain its appearance and longevity, specific care must be taken:

- **Moisture Protection:** Leather and internal electronics are sensitive to excessive moisture. If your aircraft is parked outside with an open canopy, always cover the Navia Grip to protect it from sudden rain or morning dew.
- **Cleaning:** Wipe the leather gently with a slightly damp, soft microfiber cloth. For deeper cleaning, use a dedicated, high-quality automotive or aviation leather cleaner.
- **What to Avoid: Never** use harsh chemicals, alcohol, window cleaners (like Windex), or abrasive solvents on the Grip. Do not soak the leather, as liquid can seep through the perforations and damage the internal heating elements and electronics.

Post-Installation Checkout

NOTE
After finishing the installation, check that the device is fully operational before your first flight.

1. **Control Sweep:** Move the control stick through its full range of motion. Ensure the grip does not hit the instrument panel or pilot's legs, and verify the internal wires do not pull or snag at the base.
2. **Power On:** Turn on the Navia Core Pro and Navia Display.
3. **Trackpad Test:** Use the trackpad on the Navia Grip to navigate the menus on the Navia Display. Verify that the cursor moves smoothly and clicks register correctly.
4. **PTT & AI Voice:** Test the Push-To-Talk button and the AI Voice Assistant trigger button to ensure they activate the appropriate software functions.
5. **Heater Functionality:** Open the dashboard on the Navia Display, enable the grip heating, and physically verify that the handle begins to warm up.

NOTE
If you run into any issues, contact us at info@lxnavigation.com for assistance.

Weight and Balance Data

After installing the Navia Grip, it is a regulatory requirement that the aircraft's Weight and Balance records be updated to reflect the new equipment list.
To assist your mechanic or installer, LX navigation provides a dedicated **Equipment Datasheet** that contains the exact mass and center-of-gravity (CG) moment/arm data for all devices in the Navia system. Ensure the new empty weight and CG are physically calculated and logged in the aircraft's official records before flight.

Technical specification

Description	Unit	Value
Dimensions	[mm]	143 x 54 x 63
Power supply	[V DC]	12
Nominal Voltage	[V DC]	12
Average Power Consumption	[W]	5
Mass	[g]	141
Compatible tube size	[mm]	25.4 (1 inch)
Ground Survival Temperature	[°C]	-55 - +85
Operating Temperature	[°C]	-20 - +55
Relative Humidity	[%]	0 - 98
Max. Operational Altitude	[ft]	45,000
Operational Shock		10 g
Crash Safety Shock		20 g
Vibration		DO-160D U F/F1

Environmental data

Description	Section	Category	Conditions
Temperature / Altitude	4.0	D1	
Low Ground Survival Temperature	4.5.1	D1	-55℃
Low Operating Temperature	4.5.1	D1	-40℃
High Ground Survival Temperature	4.5.2	D1	+85℃
High Short Time Operating Temperature	4.5.2	D1	+70℃
High Operating Temperature	4.5.3	D1	+55℃
In Flight Loss of Cooling	4.5.4	Z	No auxiliary cooling required
Altitude	4.6.1	D1	45,000 ft
Temperature Variation	5.0	B	
Humidity	6.0	A	
Shock	7.0	B	
Vibration	8.0	U/U2	Vibration curve F/F1 (robust vibration, helicopter)
Explosion Proofness	9.0	X	not tested
Water Proofness	10.0	X	not tested
Fluids Susceptibilities	11.0	X	not tested
Sand and Dust	12.0	X	not tested
Fungus Resistance	13.0	X	not tested
Salt Spray	14.0	X	not tested
Magnetic Effect	15.0	Z	less than 0.3m
Power Input (DC)	16.0	B	
Voltage Spike Conducted	17.0	B	
Audio Frequency Conducted Susceptibility	18.0	B	
Induced Signal Susceptibility	19.0	X	not tested
Radio Frequency Susceptibility	20.0	T	Radiated Susceptibility T
Conducted Susceptibility Emission of RF	21.0	M	Except intended operating frequencies (868/915 MHz 6 and 2.4/5 GHz)
Lightning Induced Transient Susceptibility	22.0	A2XXX	
Lightning Direct Effects	23.0	X	not tested
Icing	24.0	X	not tested
Electrostatic Discharge (ESD)	25.0	A	
Fire, Flammability	26.0	X	enclosure made of aluminum (Al) sheet

Environmental tests are performed in accordance with RTCA DO-160.

Declaration of Conformity

Identification of product
Product Name: Navia Grip, Navia Grip Starter Button
Part Number(s): LX02000560, LX02000561

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.

19.1 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.

19.2 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.

19.3 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.

19.4 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.

19.5 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.

19.6 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.

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