INSTALLATION MANUAL

LXNAV RS485/CAN Remote

Control stick

Version 1.11

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www.lxnav.com

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1 Important Notices

The LXNAV CAN Remote is designed for VFR use only. All information is presented for reference only. It is ultimately the pilot's responsibility to ensure the aircraft is being flown in accordance with the manufacturer's aircraft flight manual. The LXNAV CAN Remote must be installed in accordance with applicable airworthiness standards according to the country of registration of the aircraft.

Information in this document is subject to change without notice. LXNAV reserves the right to change or improve their products and to make changes in the content of this material without obligation to notify any person or organisation of such changes or improvements.

A Yellow triangle is shown for parts of the manual which should be read carefully and are important for operating the system.

Notes with a red triangle describe procedures that are critical and may result in loss of data or any other critical situation.

A bulb icon is shown when a useful hint is provided to the reader.

1.1 Limited Warranty

This LXNAV CAN Remote product is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LXNAV will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour, the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident, or unauthorised alterations or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

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To obtain warranty service, contact your local LXNAV dealer or contact LXNAV directly.

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2 Packing list

When ordering, user should specify how the Remote will be used. With two different communication protocols available, we have to supply suitable adapters.

2.1 RS485 (LX90x0, LX80x0)

- LXNAV Remote stick
- RS485 splitter
- Hex key

2.2 CAN (S8x, S10x)

- LXNAV Remote stick
- CAN-485 Remote adapter
- CAN splitter S8x cable
- Hex key

3 Technical Data

- Power input 8-18V DC
- Consumption at 12 V: 60mA
- Weight 300g

4 Versions

4.1 Functionality

Standard version with custom configurable function button "Fn"

Shempp-Hirth version with red starter button for M gliders

EB28 version with trim switch

4.2 Diameter of command handles

Diameter	Gliders
19,3mm	DG, LAK, Shempp-Hirth
20,3mm	LS, Stemme, Apis, EB29
24,0mm	Schleicher, Pipistrel Taurus, Alisport Silent, EB28
25,4mm	JS

4.3 Shapes

Right handed (standard order)

Left handed (optionally)

Symmetrical (optionally)

5 Installation

Remote can be used with LX90x0/LX80x0 navigation units as well as with S8x and S10x standalone variometers. Both Remotes are the same, the only difference is additional converter on S type variometers. Standard version has four coloured wires and one shielded cable for PTT although early versions of Remotes have additional cable for speed command. Depending on the selected options there might additional cables or wires.

5.1 Power and communication wiring

Four separated wires with unique colours (blue, white, yellow and red) must be inserted into spring terminals of RS485 splitter or CAN-485 Remote adapter. Be careful, to connect correct wire to pin, which is marked with same colour.

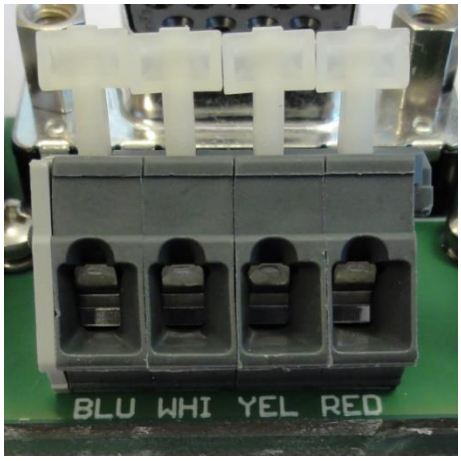


Figure 1: Spring terminals on RS485 splitter for LX90x0/LX80x0 navigation units

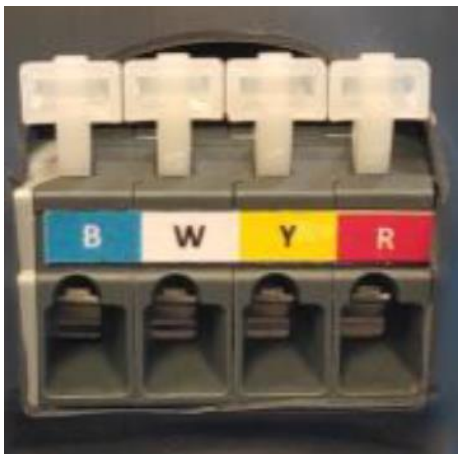
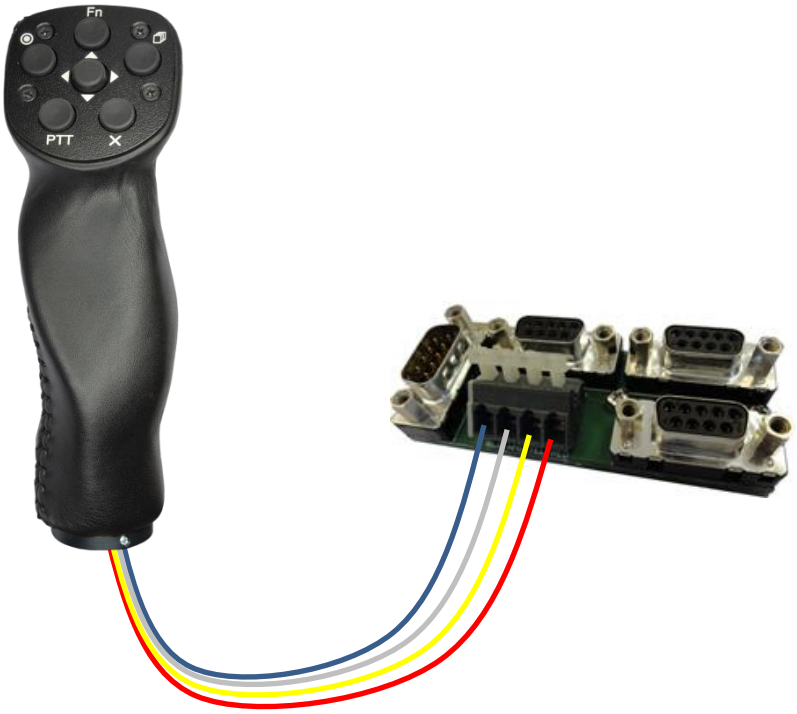


Figure 2: Spring terminals on RS485-CAN Remote adapter for S8x/S10x variometers

5.1.1 RS485 (LX90x0, LX80x0)

LXNAV remote stick is connected to RS485 bus directly through spring terminals on RS485 splitter.

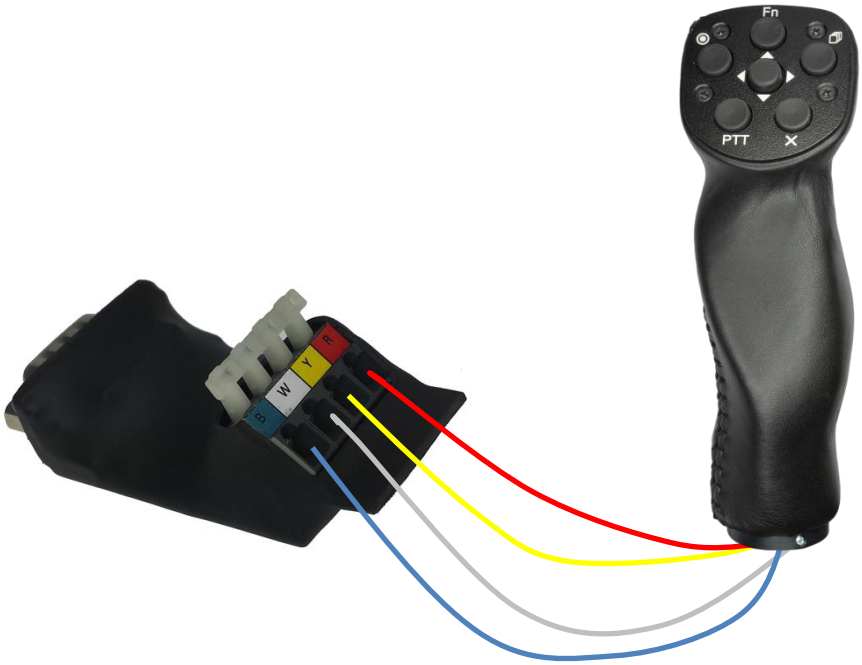


If you are installing remote stick into double seater gliders or aircraft, be careful. Stick for rear seat is marked as DS. DS remote stick is programmed to control repeater unit, which is installed on 2nd seat.

For detailed description, correct settings and remote functionality read user manual of LX90x0 and LX80x0 units.

5.1.2 CAN (S8x, S10x)

LXNAV remote stick is connected to CAN bus through 485-CAN Remote adapter. Spring terminals are wired to remote and SUB D9 connector to S8x cable set via enclosed CAN Splitter S8x cable.



Remote stick will not operate, until is registered on device. Remote stick can be registered under setup-hardware-Remote stick. Registration must be done on each unit (front and back seat).

For detailed description, correct settings and remote functionality read user manual of S8x and S10x varios.

5.2 Push to talk – PTT

Coaxial cable labeled "**PTT**" is wired directly to PTT button and is independent of other remote's functionality. It should be wired to VHF radio as per their installation manual. Shield usually goes to ground and center wire to pin on radio connector.

5.3 Speed command – SC

We have been working very hard to simplify the remote stick so that we can have the same functionality but use fewer cables. The new version of LXNAV remote stick comes without the standard SC cable but the functionality is still available. With the new stick, there is no more need to solder these wires to the vario wiring loom. The SC function is programmable through LX90x0/LX80x0/S8x/S10x. To make the SC function work with the new stick, please check the SC setting in the configuration/setup page. Go to **Setup->Hardware->Digital inputs.** Please make sure that NONE of inputs is set to "**SC on/off switch**" or "**SC toggle button**".

However there is still an option for the customer to have previous version of remote stick, where "**SC**" cable should be wired to **V5** or **S8x** cable set, depending on the instrument used.

5.4 Wiring of function switches

5.4.1 Trim switch

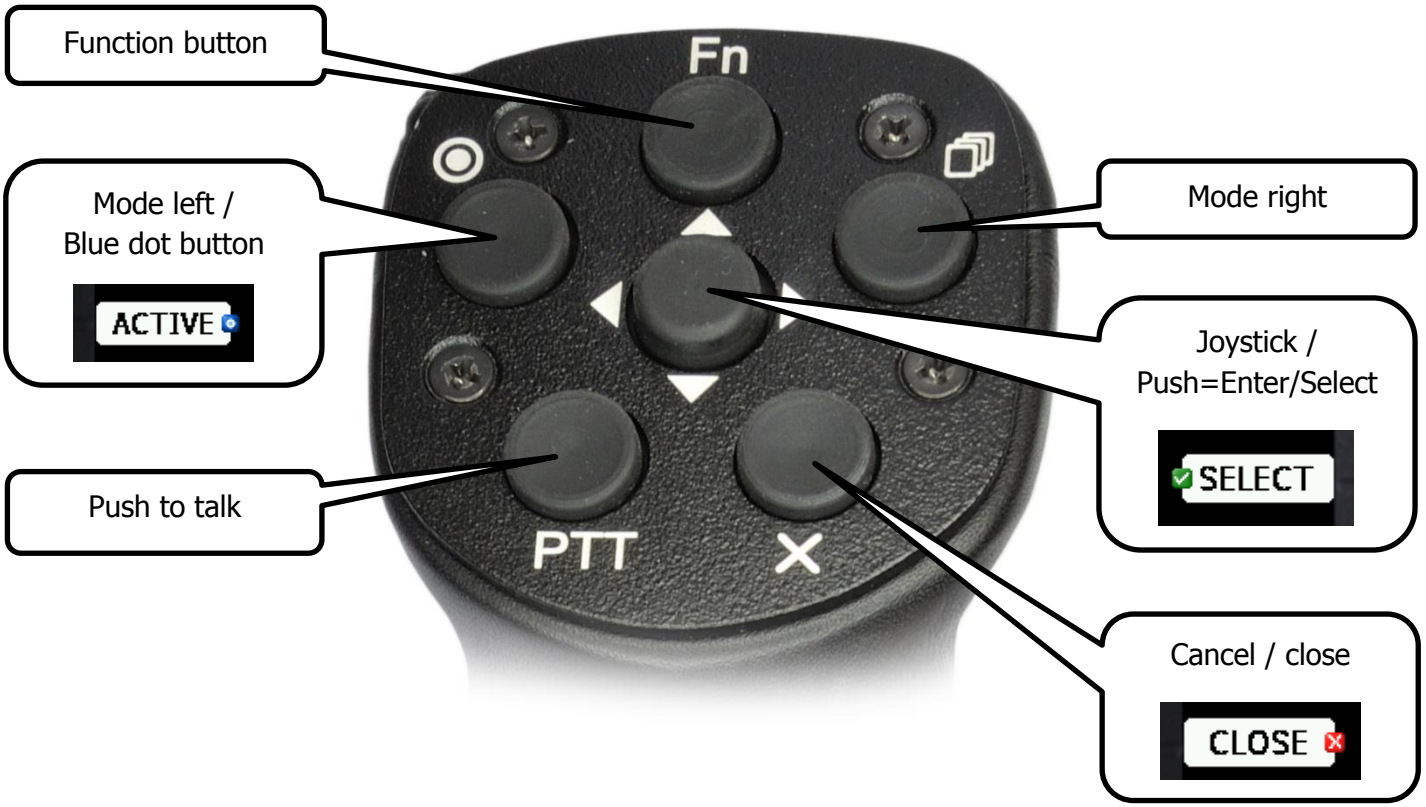
Remote can be ordered with 3 position momentary switch for trimming purpose. Such remote has four additional wires with label "**IN:WHITE, OUT:RED**" where two white wires should be wired to positive and negative potential in glider, and the second pair of red wires go to trim driver. Polarity is not important, if trimmer has wrong moving direction simply switch one pair of wires between them and the direction will be reversed.

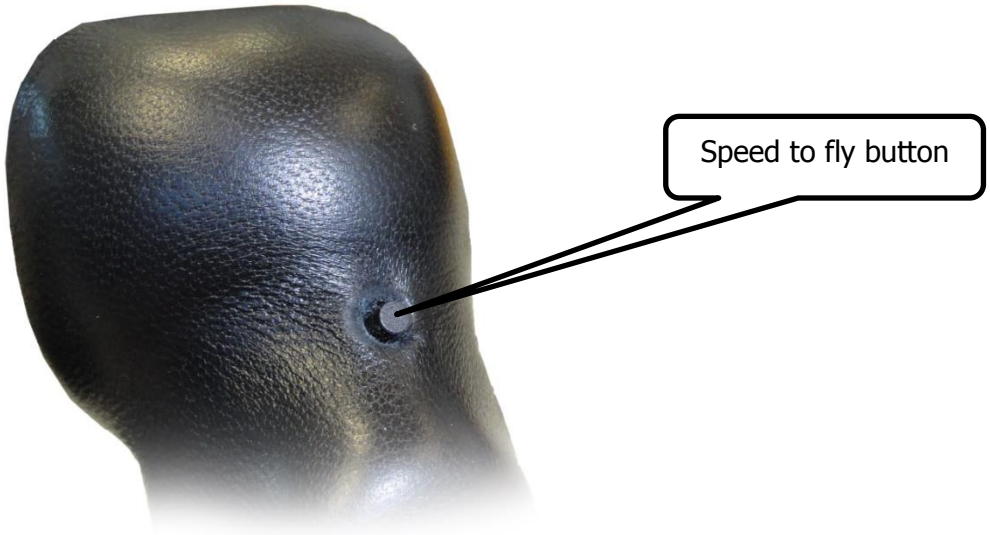
5.4.2 Starter button

This option is for gliders with electric starter on internal engines. Remote has red momentary button for starting engines on the ground or in the air. Button is in normally open configuration and makes contact when it is pressed. Coaxial cable is separated from other wires and labelled as "**Starter**" and should be wired to engine control unit as stated in their manual.

6 Functions

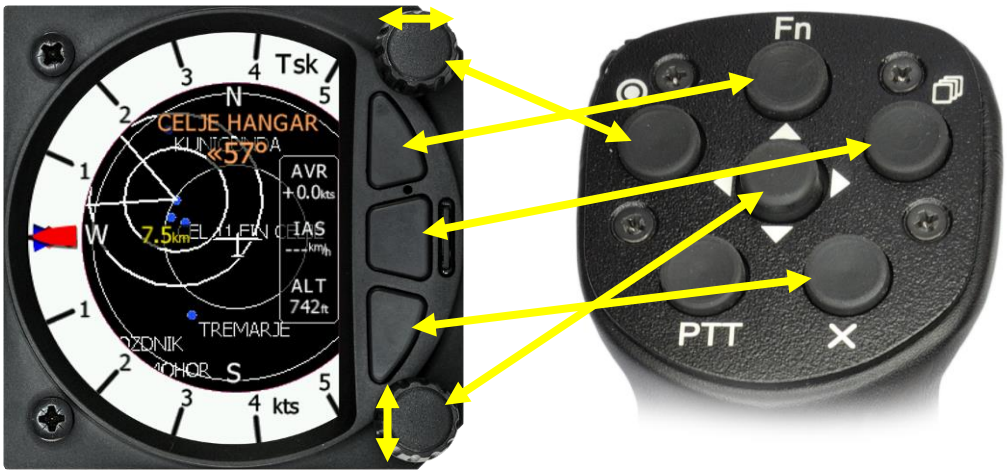
6.1 RS485 (LX90x0, LX80x0)

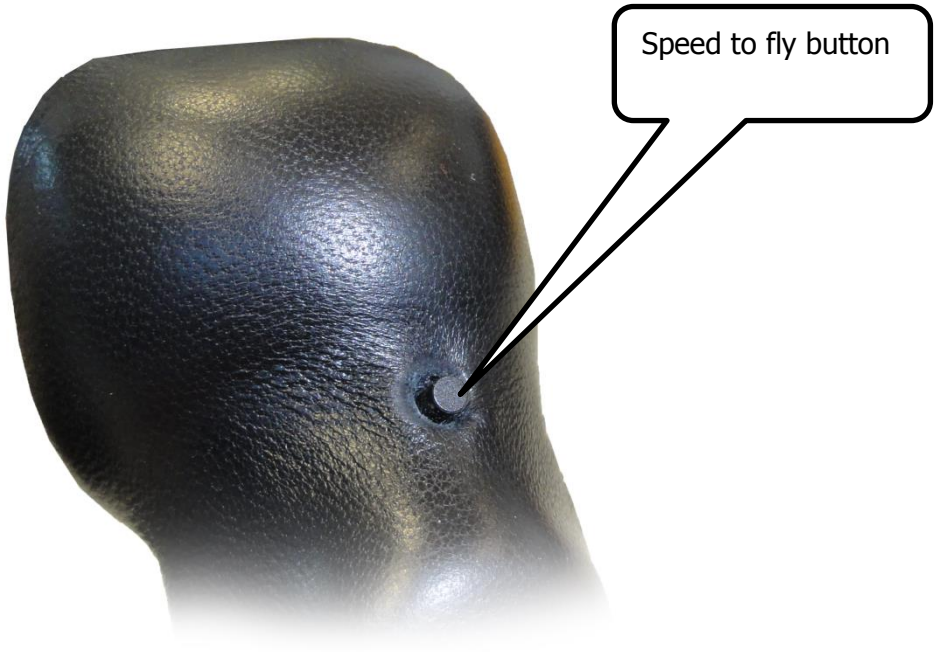




Function button (Fn) has customisable functionality, which can be set by the user in **Setup–>Hardware–>Remote** menu.

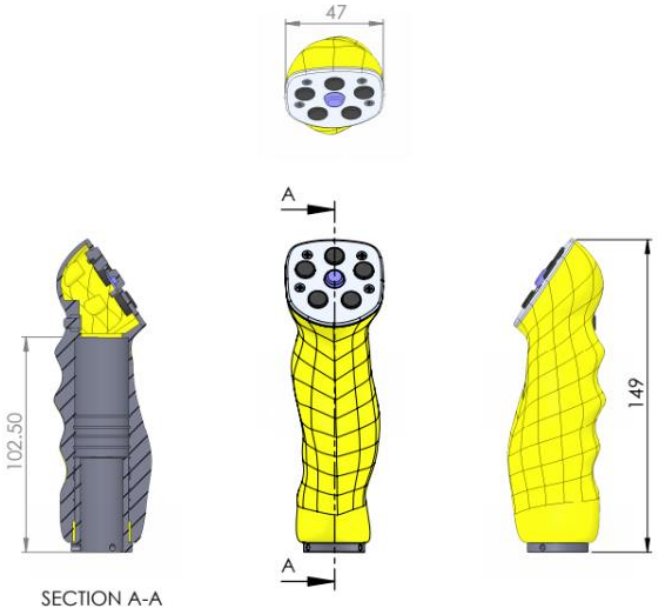
6.2 CAN (S8x, S10x)



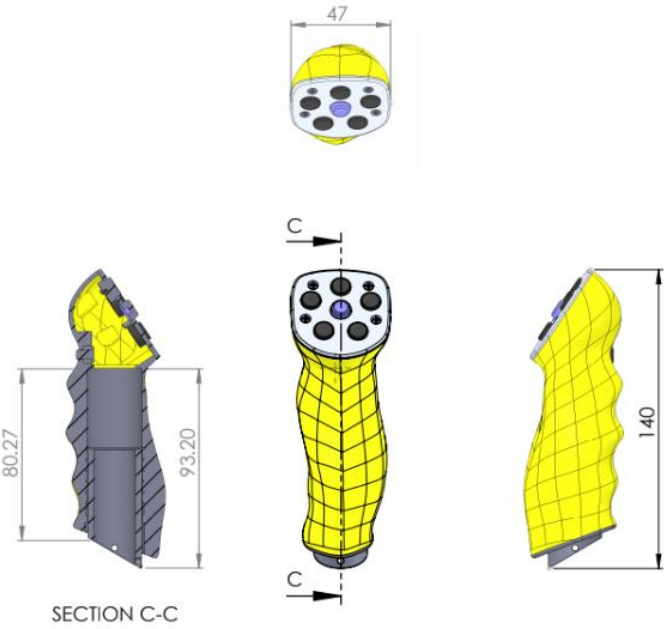


7 Dimensions

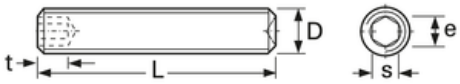
7.1 Normal insert



7.2 Slanted insert



7.2.1 Mounting screws (DIN 916/ISO 4029 M 3 x 6)



D = 3	L = 6	s = 1,5
e = 1,73	t = 2	

8 Revision history

Rev	Date	Comment
1	April 2018	Added chapter 1, 3, 6 and 7
2	May 2020	Added chapte7
3	January 2021	Style update
4	February 2021	Updated chapter 7
5	May 2021	Added chapters 5.2 and 5.4.2 Updated chapter 7
6	May 2021	Combined manuals for RS485 and CAN versions of Remote

The pilot's choice

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