

Flap Encoder

Installation manual

Version 1.0



LXNAV d.o.o. • Kidričeva 24a, 3000 Celje, Slovenia • tel +386 592 33 400 fax +386 599 33 522
info@lxnav.com • www.lxnav.com

1	Important Notices	3
1.1	Limited Warranty	3
2	Packing Lists	4
3	Installation	5
3.1	Connecting LXNAV FLAP ENCODER	7
3.2	Updating firmware of FLAP ENCODER	Error! Bookmark not defined.
3.2.1	Updating via RS485 from main unit	9

1 Important Notices

The LXNAV FLAPENCODER system is designed for VFR use only as an aid to flap management. 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 flap encoder 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 LXNAV FLAP ENCODER 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 FLAP ENCODER 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.

IN NO EVENT SHALL LXNAV BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. LXNAV retains the exclusive right to repair or replace the unit or software, or to offer a full refund of the purchase price, at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

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

2 Packing Lists

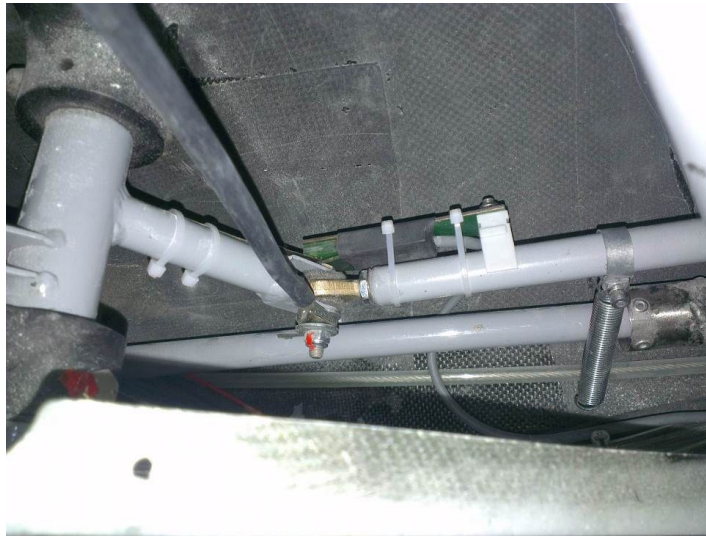
- LXNAV FLAP ENCODER

3 Installation

The flap encoder is connected to LX90x, Lx80xx via the RS485 bus. It is physically mounted near the flap mechanism. The flap encoder is very sensitive and accurate and can detect very small movements.

Examples of installation

Ventus 2a



Ventus 2cxm



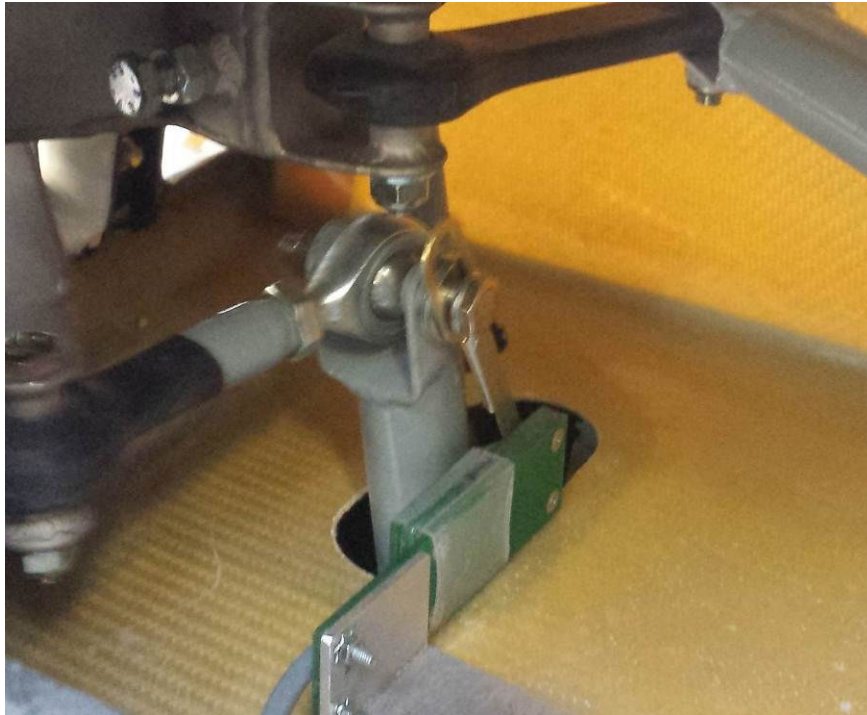
Another installation in ventus



installation for JS1



Installation at Alexander Schleicher



Everything else is configured on main unit.

3.1 Connecting LXNAV FLAP ENCODER

LXNAV FLAP ENCODER is connected to main unit through RS485 bus.

3.2 Flap encoder configuration

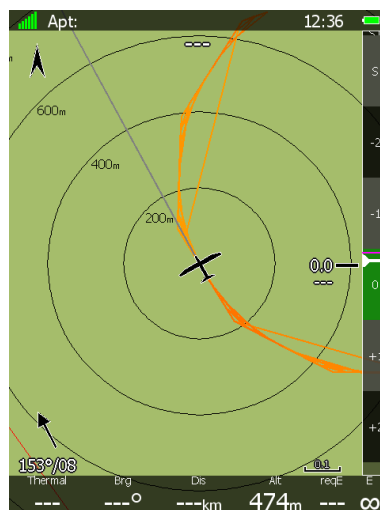
The first step is to enter all flap positions in the LX90XX/80XX. This can be done under the Setup-Polars and Gliders menu. The information required to complete this step can be found in the aircraft flight manual.

Polar and Glider			
Max. weight	Empty	Wing area	Stall speed
---kg	---kg	-0.0m ²	72km/h
Polar			
A	B	C	Ref. load
1.94	-2.90	1.69	30kg/m ²
Emax = 39 Wmin = 0.61m/s			Ref. Weight
100kmh 120kmh 150kmh			---kg
0.73m/s 1.00m/s 1.71m/s			
Flaps			
72km/h	-	90km/h	- +2
90km/h	-	108km/h	- +1
108km/h	-	126km/h	- 0
126km/h	-	144km/h	- -1
144km/h	-	162km/h	- -2
162km/h	-	180km/h	- S
180km/h	-	198km/h	- S1
CLOSE		LIST	EDIT

The second step is to program the flap positions under the Setup-Hardware-Flaps menu.

Flaps		
Sensor Position: 70.2°		
Flap	Speed Range	Sensor
• +2	72 ^{km/h} - 90 ^{km/h}	19.4°
• +1	90 ^{km/h} - 108 ^{km/h}	37.4°
• 0	108 ^{km/h} - 126 ^{km/h}	65.4°
• -1	126 ^{km/h} - 144 ^{km/h}	105.3°
• -2	144 ^{km/h} - 162 ^{km/h}	157.5°
• S	162 ^{km/h} - 180 ^{km/h}	210.0°
• S1	180 ^{km/h} - 198 ^{km/h}	268.4°
CLOSE SET EDIT		

After configuring the flap encoder in the previous steps, the last step is to use LXstyle to display the flap tape on the main screen.



3.3 Wiring

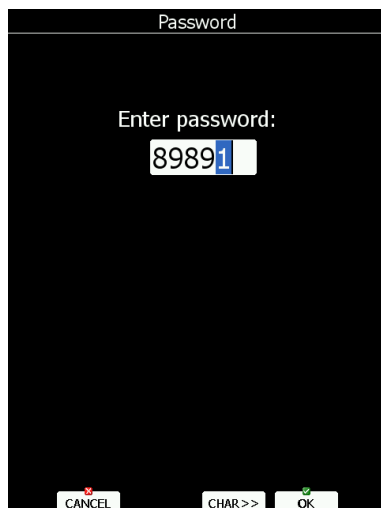
485 CABLE



3.4 Updating firmware of FLAP ENCODER

Firmware updates can be performed from the LX90XX/80XX.

3.4.1 Updating via RS485 from main unit



Start the LX9000 and go to the Setup->Password menu option.

Enter password **89891** and press **ENTER**.

The LX90XX/80XX will automatically search for an update file. If more than one update file is found a selection dialogue will appear.

Select appropriate update file and wait until update will finish.