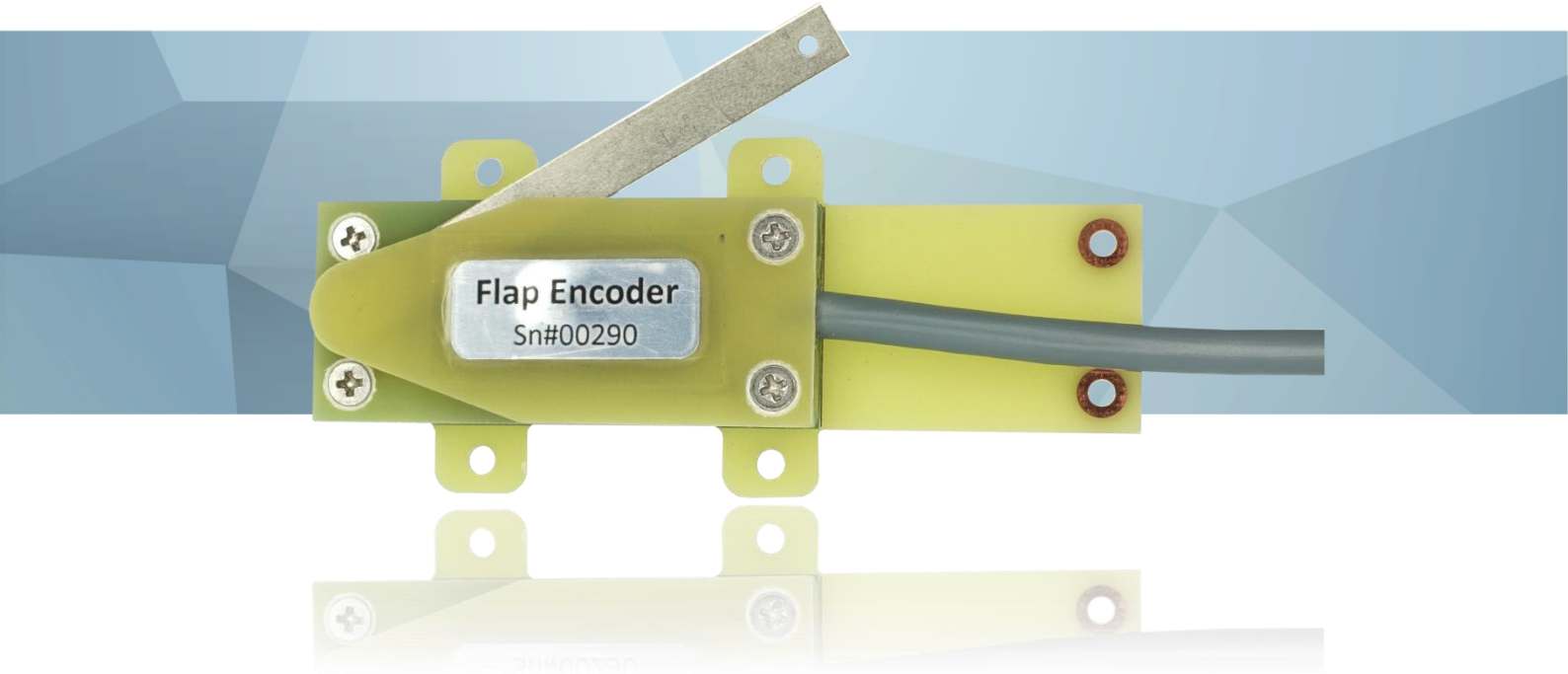
INSTALLATION MANUAL

Flap Encoder

Version 1.5



February 2021

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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 that 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.

December 2019

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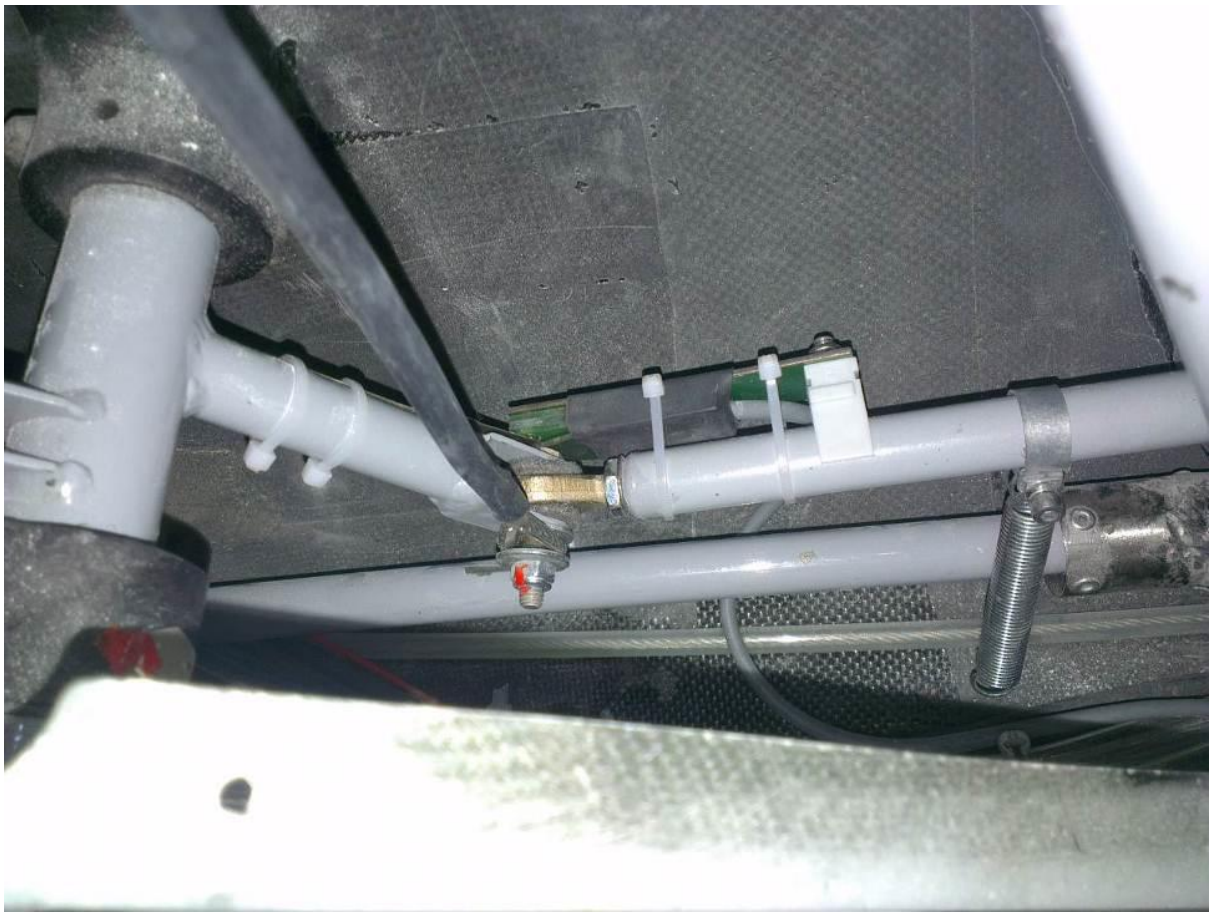
2 Packing Lists

- LXNAV FLAP ENCODER

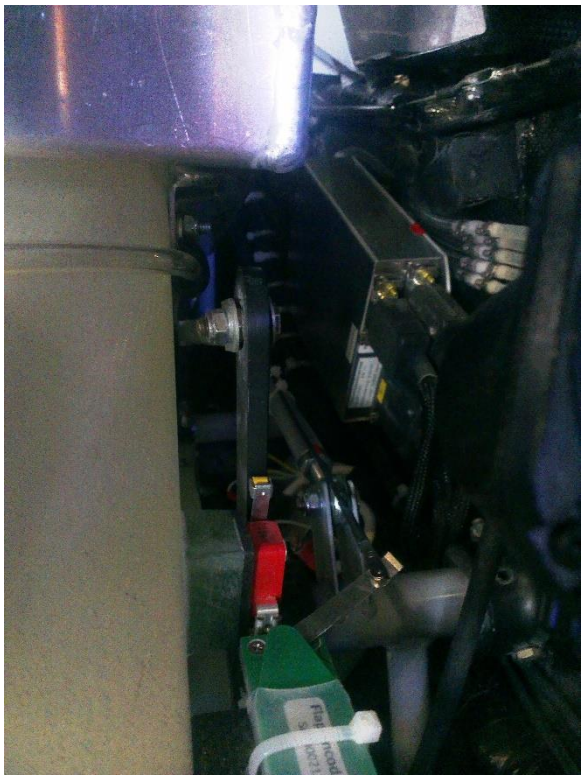
3 Installations

The flap encoder can be 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.

3.1 Installation in a Ventus 2a



3.2 Installation in a Ventus 2cxm



Another installation in a Ventus

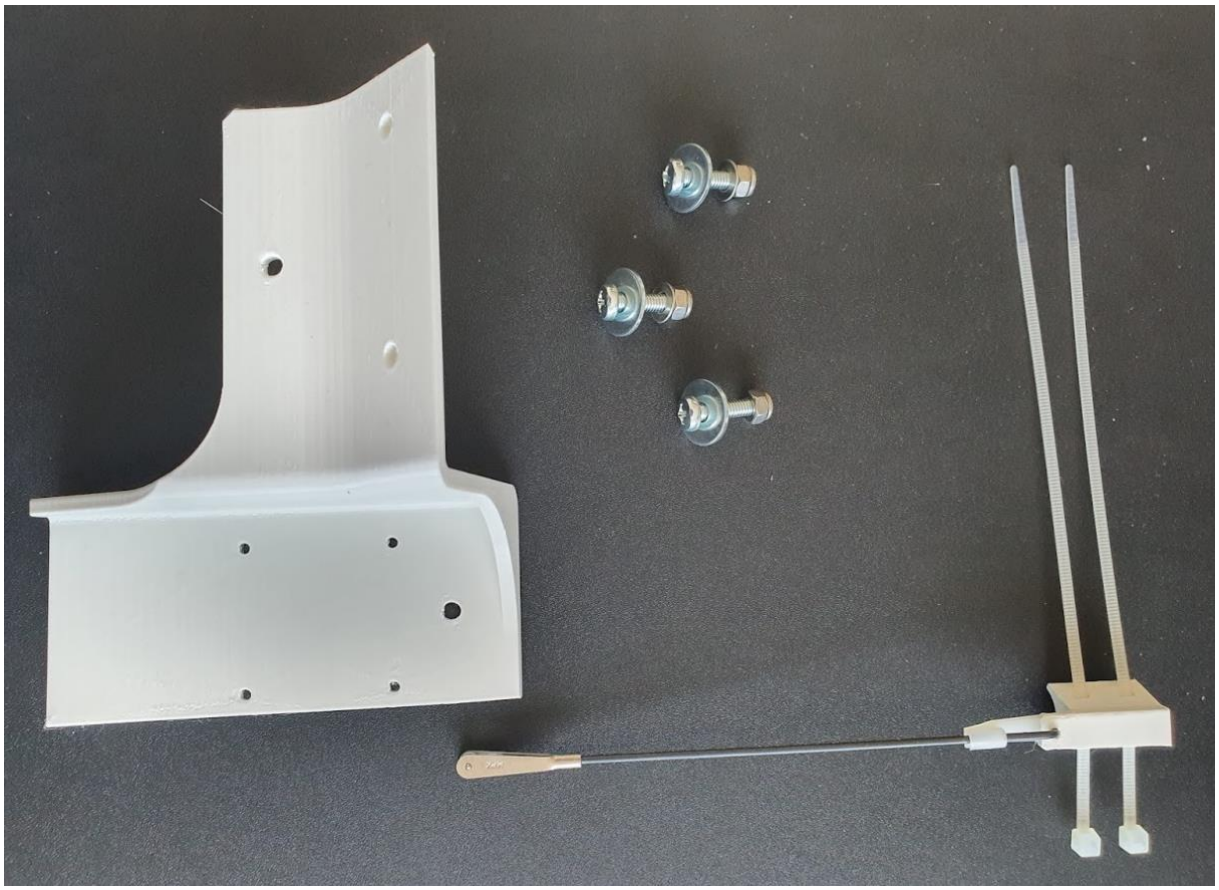
3.3 Installation in a Ventus 2cx

https://docs.google.com/file/d/0B-E9ADBLWVt7UEJJeXlHcm9sbHc/edit

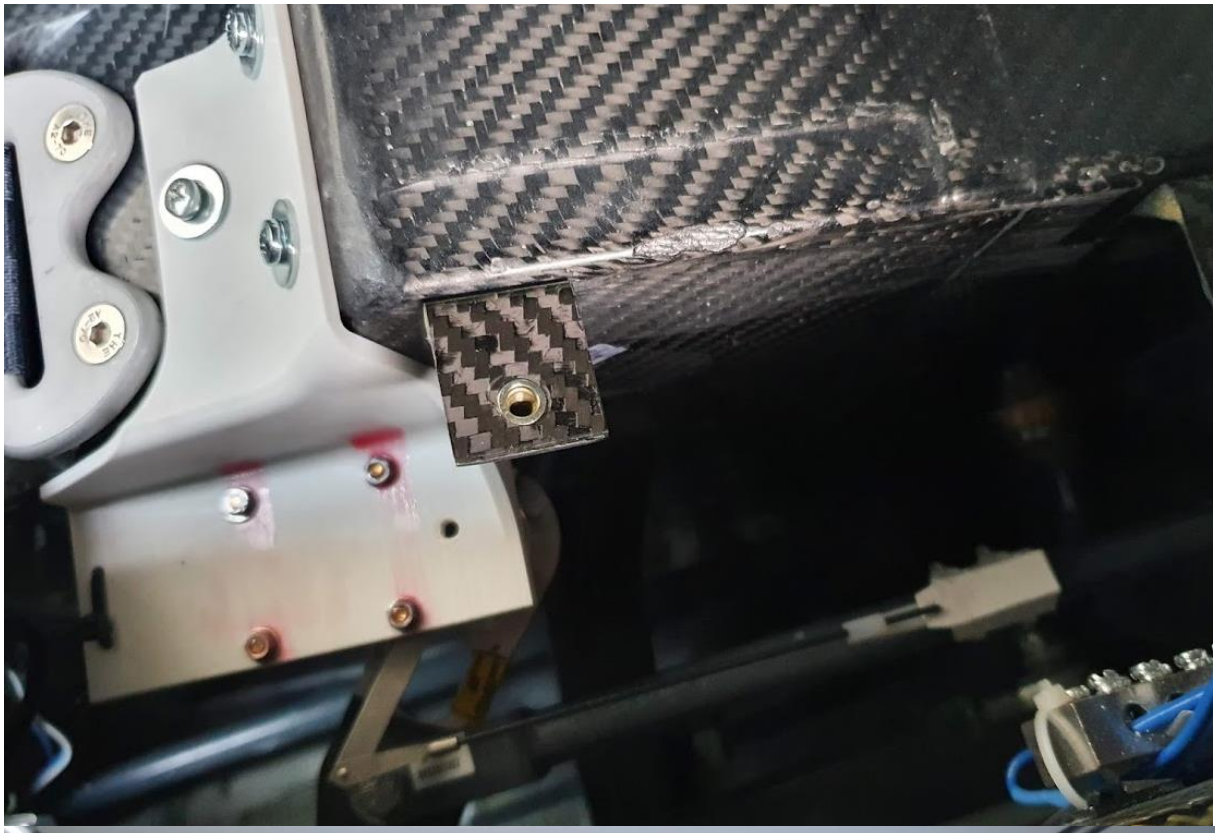
3.4 Installation in a JS1

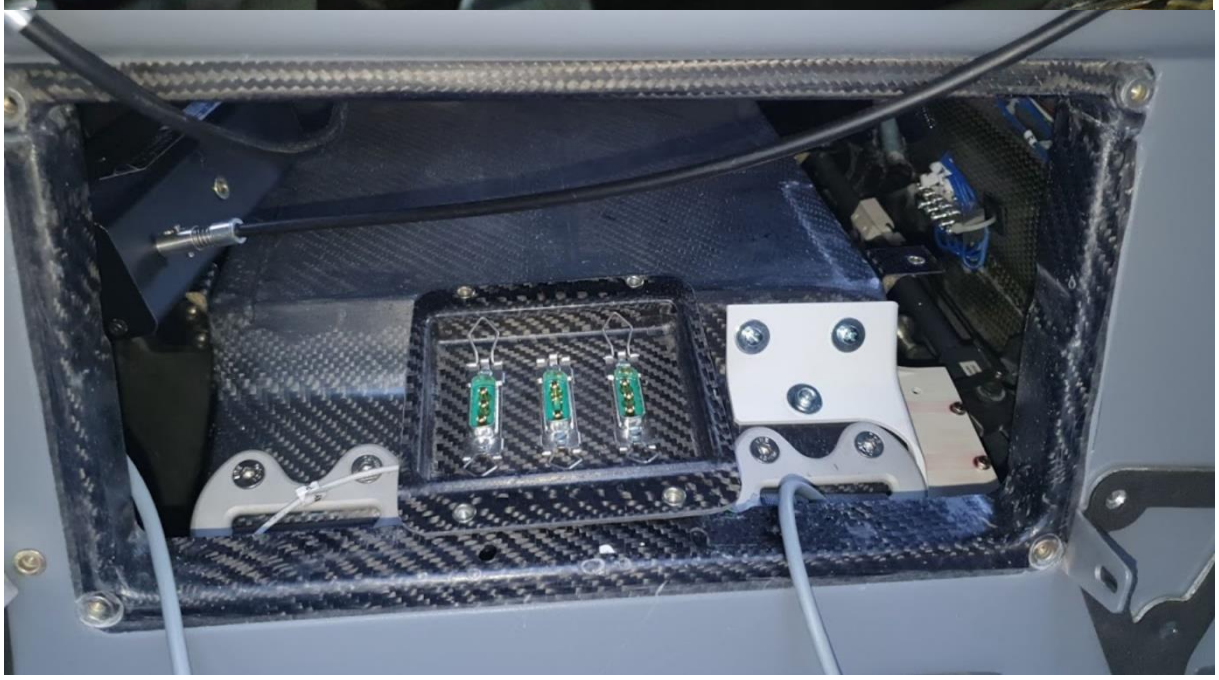
3.5 Installation in JS3

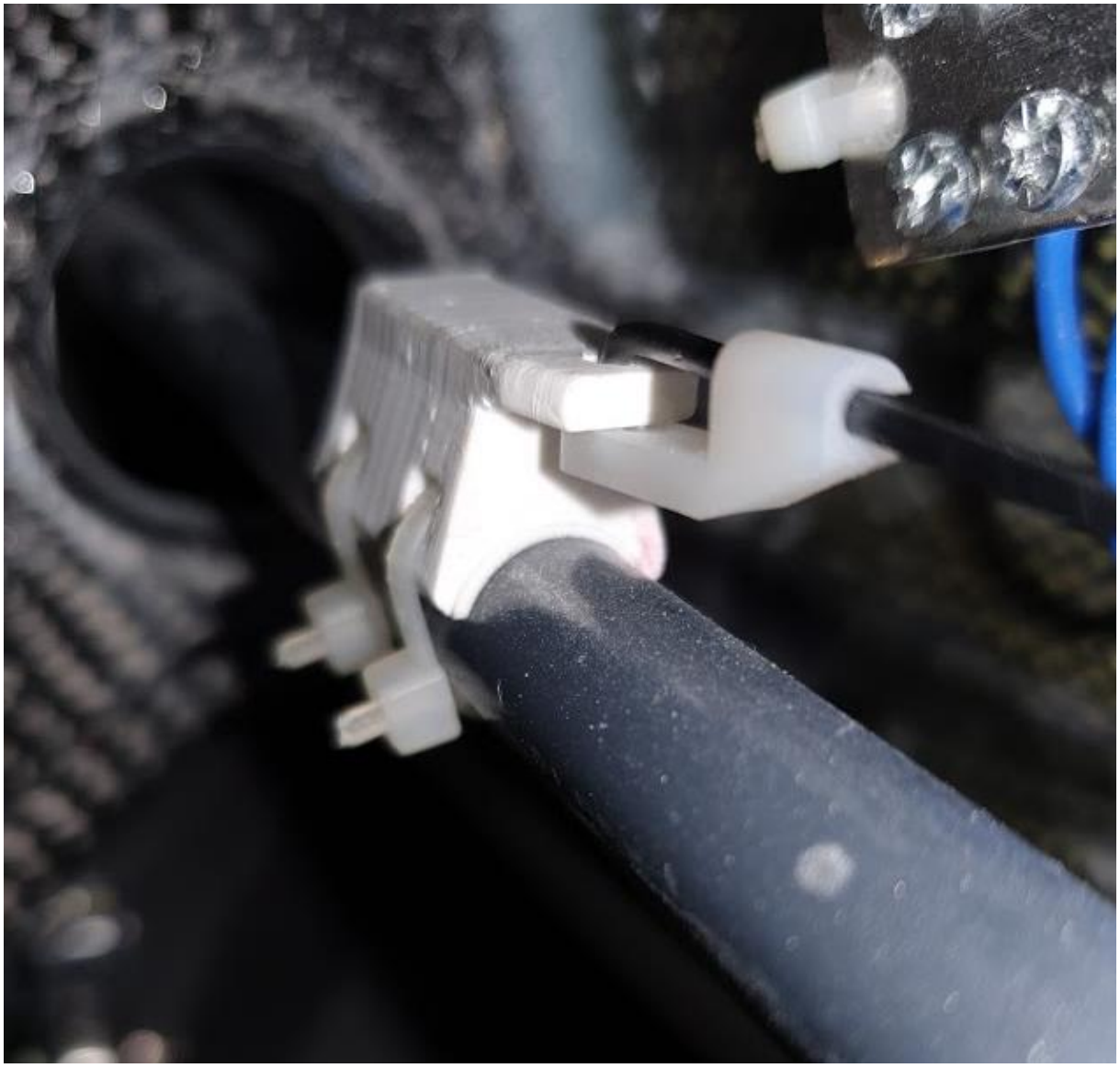
A special mounting bracket is required.
For more information, please write to info@lxnav.com



Threadlock
Anaerobic Adhesive

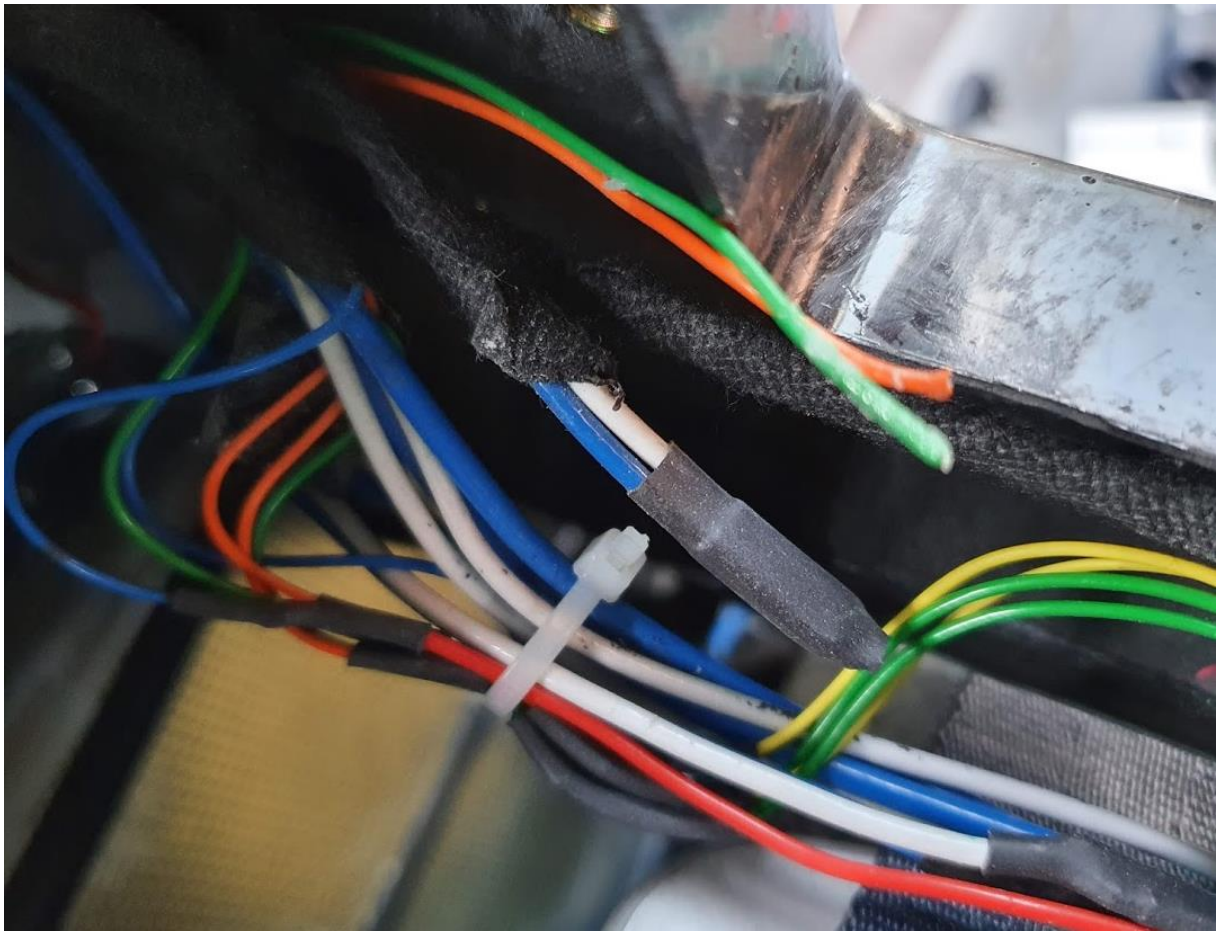






3.5.1 Wiring

Use the pre-wired cable.
For more information, please read the aircraft's manual.



From		Wire			To		
Plug / Comp.	Pin	Marking	Gauge	Loom path	System	Plug / Comp.	Pin
ICC-S	3	Black	22	R1, R4	Landing gear	L/S	c
ICC-S	4	Red	22	L1, L2, L9, L10, L10b	Airbrake system	L/S	c
ICC-S	5	Red	22	R1, R4	Landing gear	L/S	c
ICC-S	6	Yellow	22	L1, L3, L4	Control stick	Unit	Yellow
ICC-S	7	Blue	22	L1, L3, L4	Control stick	Unit	Blue
ICC-S	8		22	L1, L3, L4	PTT	Unit	
ICC-S	9		22	L1, L3, L4	PTT	Unit	
ICC-S	10	Green	22	R1, R4	ELT	Unit	TX
ICC-S	10	Green	22	L1, L2, L9, L10, L10e	Flap sensor	Unit	TX
ICC-S	11	Blue	22	R1, R4	ELT	Unit	GND
ICC-S	11	Blue	22	L1, L2, L9, L10, L10e	Flap sensor	Unit	GND
ICC-S	12	Green	22	L1, L2, L9, L10, L11, L13, L14	MOP	Unit	TX
ICC-S	13	Blue	22	L1, L2, L9, L10, L11, L13, L14	MOP	Unit	GND
ICC-S	14	White	22	R1, R2, R9, R11, R12	Jet relay box	Unit	White
ICC-S	15	Orange	22	R1, R2, R9, R11, R13	Jet relay box	Unit	Orange
ICC-S	16	Black	22	L1, L2, L9, L10, L11, L13, L14	Jet instruments	Unit	
ICC-S	17	Green	22	L1, L2, L9, L10, L11, L13, L14	Jet instruments	Unit	
ICC-S	18	Yellow	22	L1, L2, L9, L10, L11, L13, L14	Jet instruments	Unit	
ICC-S	19	Orange	22	L1, L2, L9, L10, L11, L13, L14	Jet instruments	Unit	
ICC-S	20	Red	22	L1, L2, L8	Left speaker	Unit	-
ICC-S	21	Red	22	R1, R2, R8	Right speaker	Unit	-
ICC-S	22	Red	22	R1, R2, R3	Water system	L/S	c
ICC-S	23	Red	22	L1, L2, L9, L10, L10e	Flap system	L/S	c
ICC-S	24	Red	22	L1, L3, L4	Control stick	Unit	Red
ICC-S	25	White	22	L1, L3, L4	Control stick	Unit	White
ICC-S	26		22	L1, L3, L4	SC	Unit	
ICC-S	27		22	L1, L3, L4	SC	Unit	
ICC-S	28	Orange	22	R1, R4	ELT	Unit	RX
ICC-S	28	Orange	22	L1, L2, L9, L10, L10e	Flap sensor	Unit	RX
ICC-S	29	White	22	R1, R4	ELT	Unit	White
ICC-S	29	White	22	L1, L2, L9, L10, L10e	Flap sensor	Unit	White
ICC-S	30	Orange	22	L1, L2, L9, L10, L11, L13, L14	MOP	Unit	RX

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Wire Harness Routing

Figure 92-4 illustrates the wire harness schematic layout and routing through the left-hand side of the fuselage.

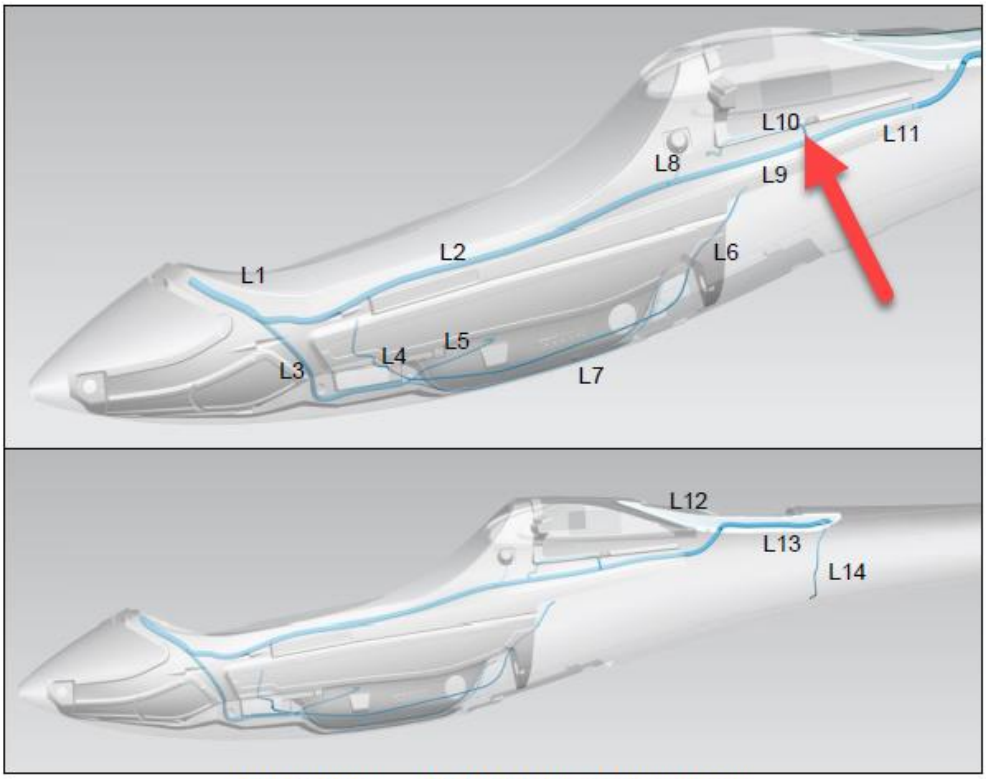
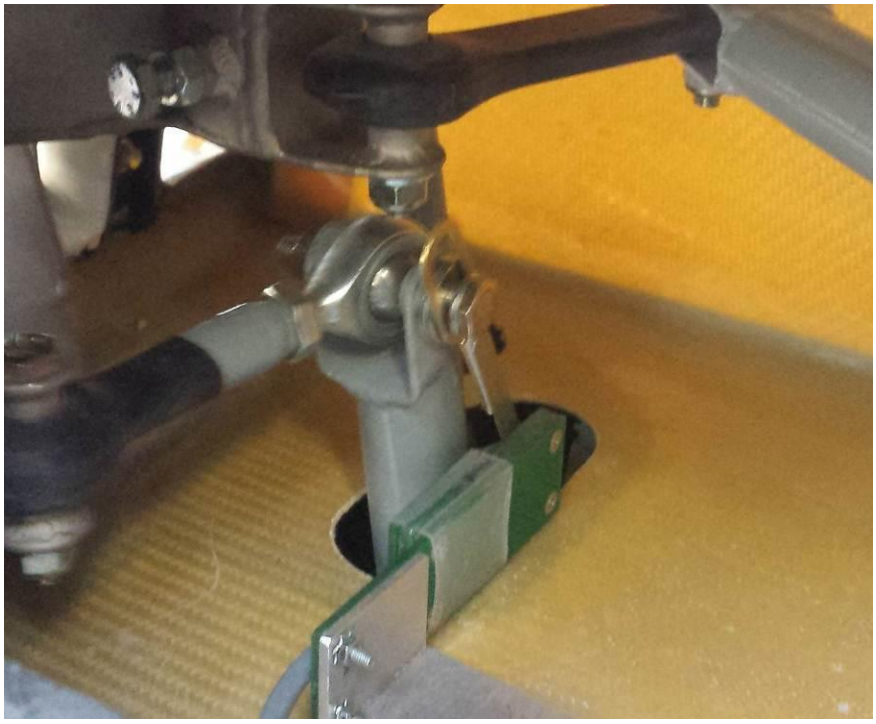


Figure 92-4: JS-MD 3 Left side wiring loom

Figure 92-5 illustrates the wire harness schematic layout and routing through the right-hand side of the fuselage.

3.6 Installation in an Arcus

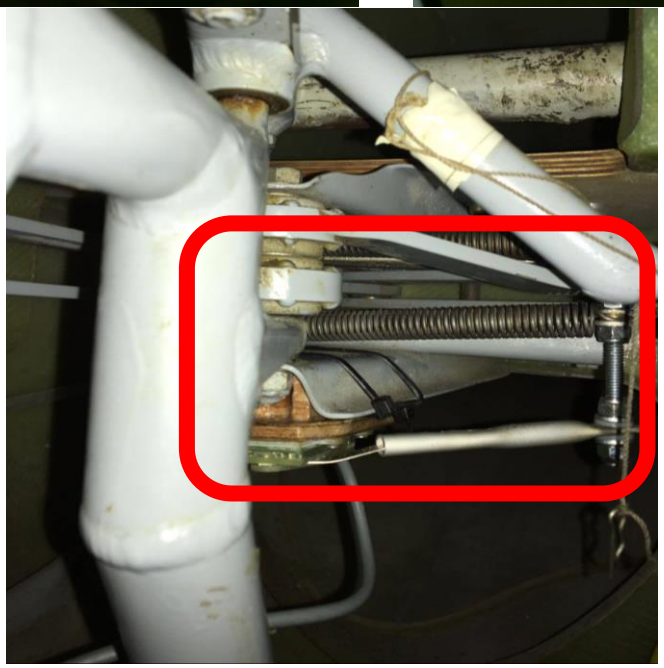
3.7 Installation at Alexander Schleicher



3.8 Installation in an ASG 29:

Everything else is configured on main unit.

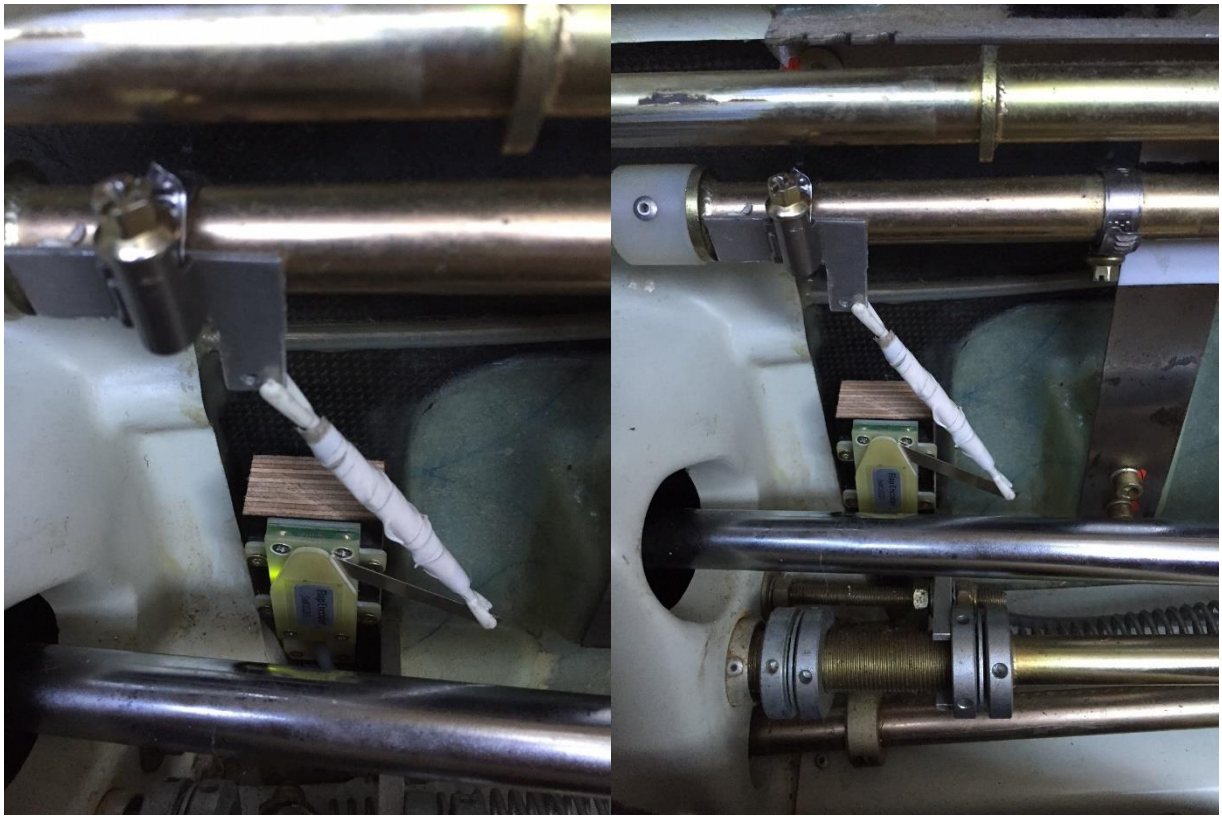
3.9 Installation in an ASW20



Instructions:

- Replace the bolt that holds the flap springs at the mixer.
- With: M6 x 80 (better is 100mm) 8.8
- Make a bracket for the flap sensor from multiplex as attached.
- Place this bracket centred to the main mixer bolt
- We used a 6mm aluminium tube, wall thickness 1mm to lengthen the sensor arm.
- Formed it in the right shape by heating it slightly.
- Drill a 6mm hole on the flattened side
- This was attached to the 80mm bolt with two self-locking nuts, 2 washers and two Teflon washers.

3.10 Installation in a DG800



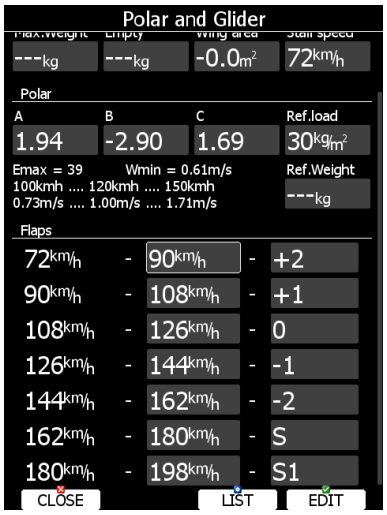
3.11 Installation in a Ventus Ct

3.12 Connecting LXNAV FLAP ENCODER

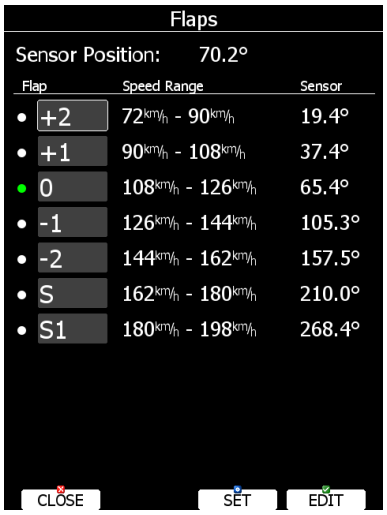
LXNAV FLAP ENCODER is connected to main unit through RS485 bus.

3.13 Flap encoder configuration

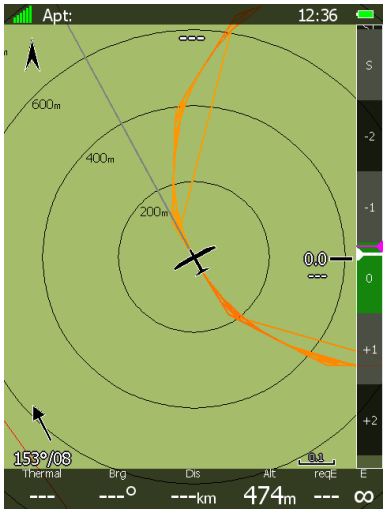
The first step is to enter all flap positions in the LX90XX/80XX. This can be done under the Setup->Polar and the Glider's menu. The information required to complete this step can be found in the aircraft flight manual.



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



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



3.14 Wiring

3.15 Updating firmware of FLAP ENCODER

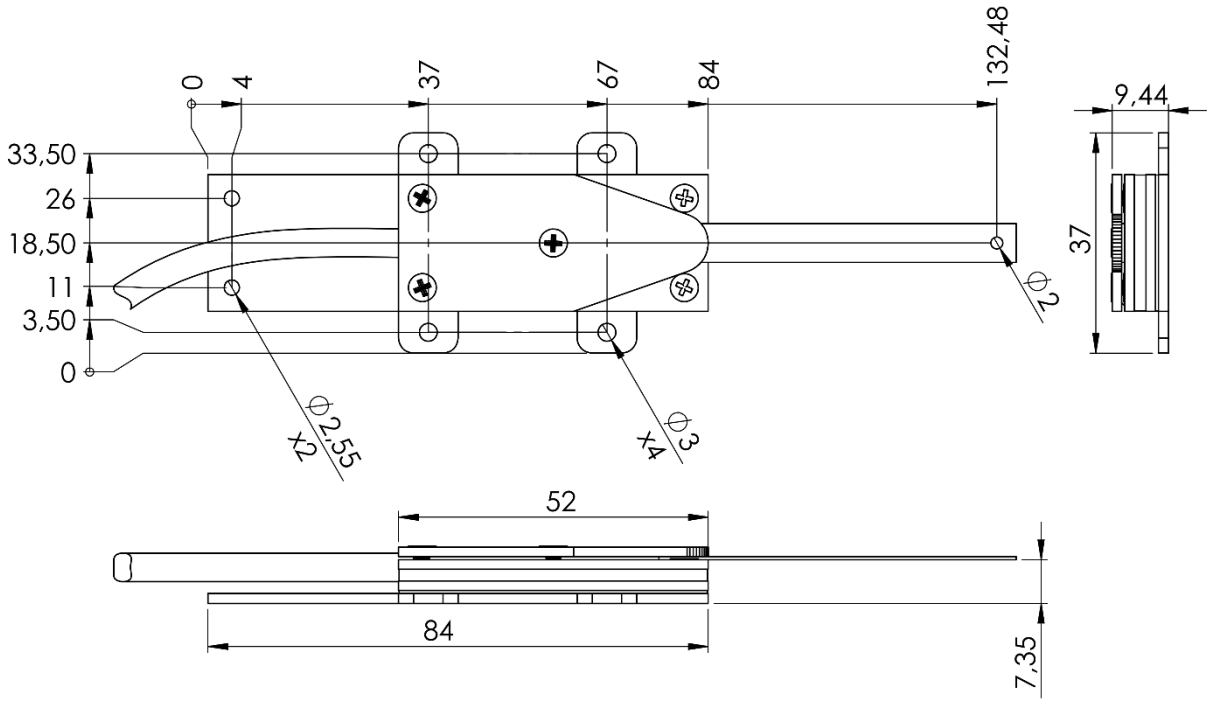
Firmware updates can be performed from the LX90XX/80XX.

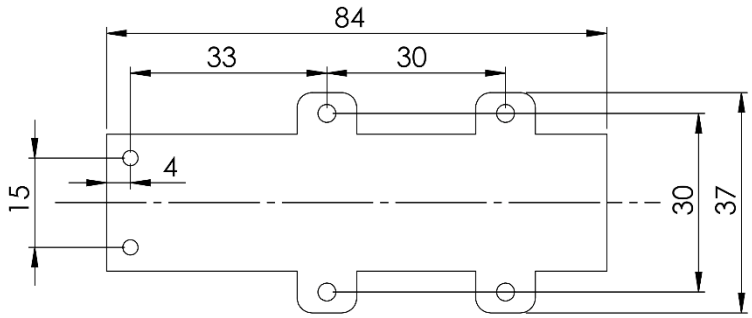
3.15.1 Updating via RS485 from main unit

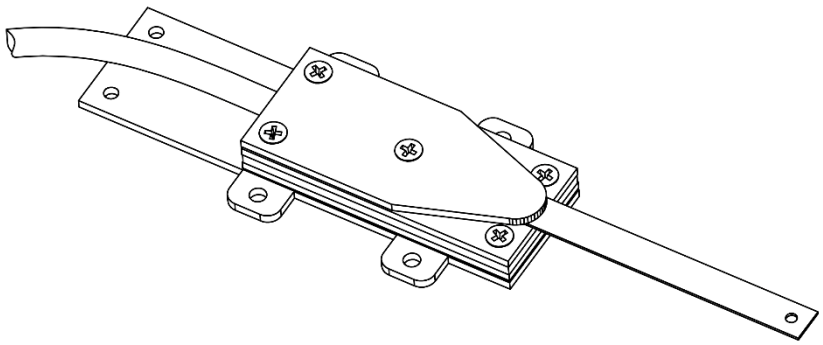
Start the LX9000 and go to the Setup->Password menu option.
Enter password **89891** and press **ENTER**.

The LX90XX/80XX will automatically search for an update file. If more than one update file is found a selection dialogue will appear.
Select the appropriate update file, and wait until the update has finished.

4 Dimensions and mounting pattern







Not to scale

5 Revision history

Rev	Date	Comment
1	January 2015	Added installations in DG800, Ventus Ct
2	December 2016	Added installations in ASW20
3	August 2018	English correction done by JR
4	December 2019	Added chapter 4 with dimensions of Flap Encoder
5	July 2020	Added chapter 3.5 (JS3)
6	January 2021	Style update
7	February 2021	Style fix

The pilot's choice

LXNAV d.o.o.
Kidričeva 24, SI-3000 Celje, Slovenia
T: +386 592 334 00 I F:+386 599 335 22 I info@lxnav.com
www.lxnav.com