



# FES Bridge

## FCU to LXNAV flight computers

User manual, Version 1.11



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## 1. Important notices

This user manual contains important information about proper and safe usage of FES Bridge.

Information in this document are subject to change without notice. LZ design reserves the right to change or improve this product and to make changes in the content of this material without obligation to notify any person or organization of such changes or improvements.



**Caution:** A Yellow triangle is shown for parts of the manual which should be read carefully and are important.



**Warning:** Notes with a red triangle describe procedures that are critical and may result in reduced safety or may lead to critical situation.



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

If you need more information, please contact the manufacturer LZ design.

### 1.1 Limited Warranty

This product is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LZ design will, at its sole option, repair or replace any components that fail in normal use. Such repair or replacement will be made at no charge to the customer for parts and labour, however the customer is responsible for any transportation cost.

Usage of device is at user's own risk. LZ design will not under any circumstances accept any responsibility or will be liable for possible damage on people, animals, or things, which might directly or indirectly happen from using FES Bridge.

In the case of a fault/damage or to obtain a warranty service, contact LZ design directly. Only authorized persons can repair the module.

### 1.2 Invalid Warranty

The warranty does not cover failures due to abuse, misuse, accident, or unauthorized alterations or repairs.

## 2. Description

FES Bridge is a small device used to connect FCU (Fes Control Unit) to LXNAV flight computers (FCU CAN bus and a LX80/90xx RS485 bus). It enables FES parameters to be presented on the big screen of flight computer. Six of the FES parameters can be logged to "igc" file.



FES Bridge, top view



FES Bridge, back view

FES bridge has a DB9 Male connector on the side that connects to the FCU and a connector with four pins on the side that connects to the LXxxx or RS485 splitter.



DB9 Male connector



Connector with four pins

### 3. How to use

A short cable with DB9 Female connector is coming out of the back side of the FCU instrument.



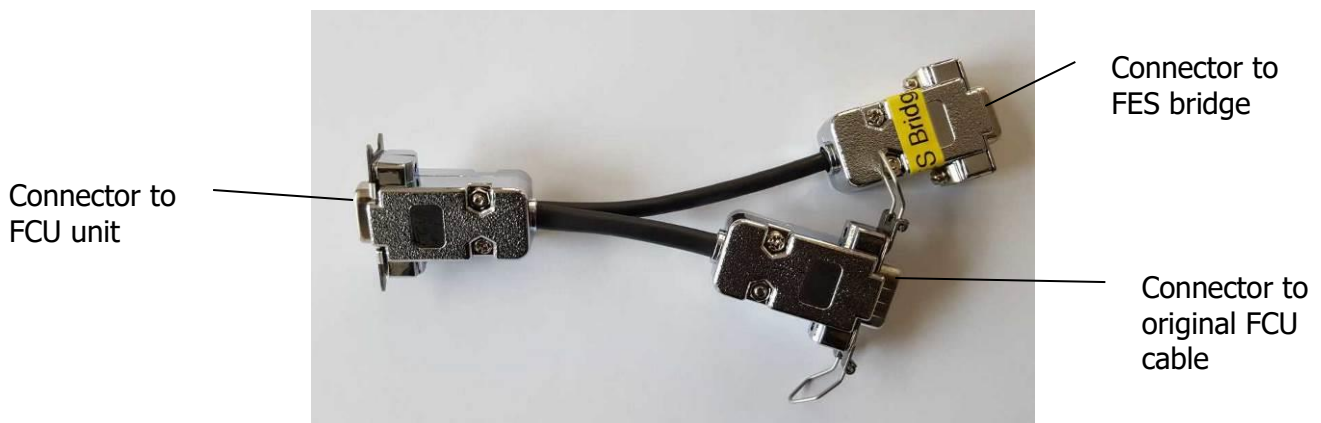
DB9 female connector to FCU



**Caution:** Please check if a short cable with DB9 Female connector is installed on the FCU. Now it is a standard to install it, but it was not always like this.

DB9 Male connector on the FES bridge should be inserted directly to the DB9 Female connector on the short cable.

If there is no short cable with DB9 connector coming out of the FCU, an adaptor is needed.

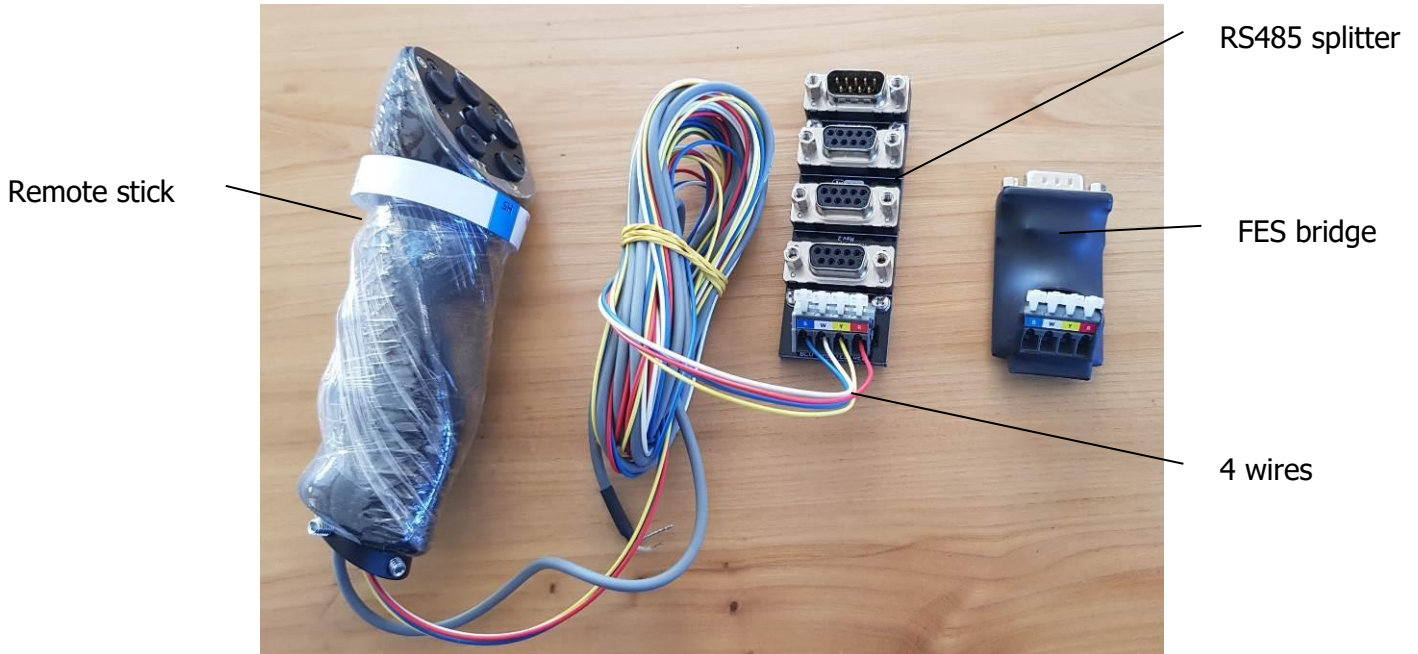


FES bridge special adaptor

A spring connector with four pins (on the FES bridge) should be connected to RS485 splitter with four wires (white, blue, red and yellow). The wires are not included - usually the wires from remote control are too long, so you can use 30 cm of them to connect the FES bridge to the splitter unit, **in parallel** to wires from control stick.



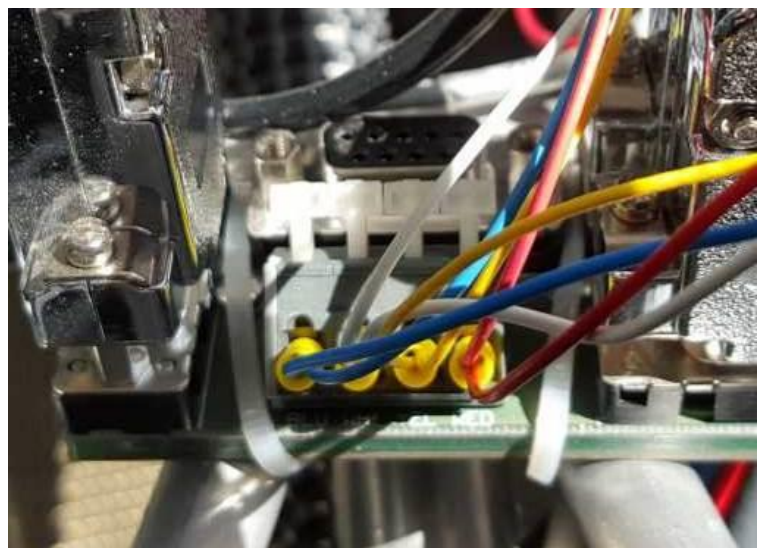
**Caution:** Be careful - red goes to red, yellow to yellow, white to white and blue to blue. Do not mix them!



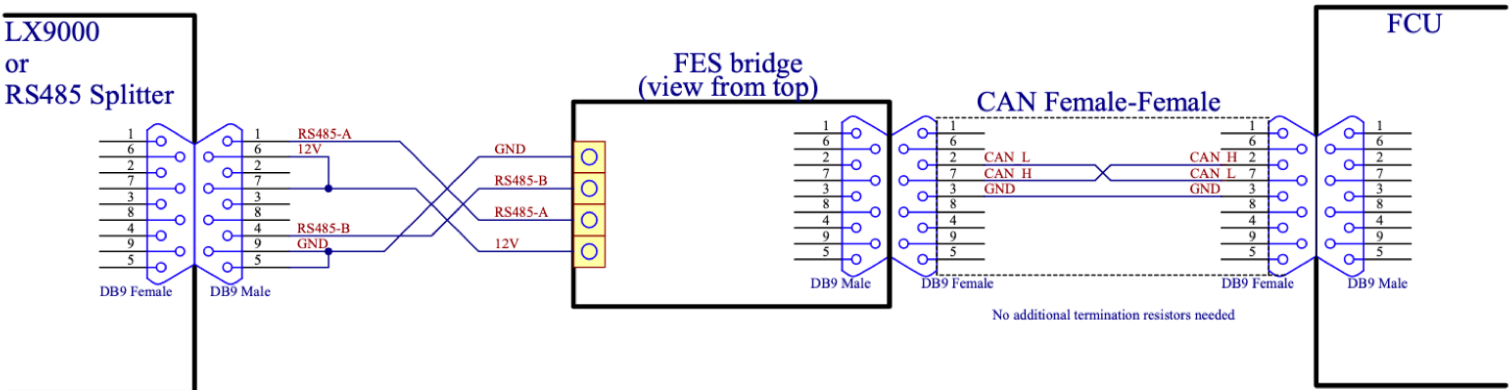
When connecting the wires to the RS485 splitter the Tube insulated terminals should be used.



Tube insulated terminals



The other possibility is to connect the FES bridge directly to the LXxxxx. The connection should be as on the schematic below:



### 3.1 Removing the module

It's a very simple matter to remove the module – remove the binnacle cover and disconnect the FES Bridge where it is connected to DB9 connector which goes to FCU. You will temporarily lose the FES displays on the LXxxx – the FES Bridge is re-installed.

### 4. FES system parameters on the big screen

FES Bridge enables **FES parameters and warnings** to be seen on the big screen of the flight computer.



FES system data on LX9000 with "Power switch" ON

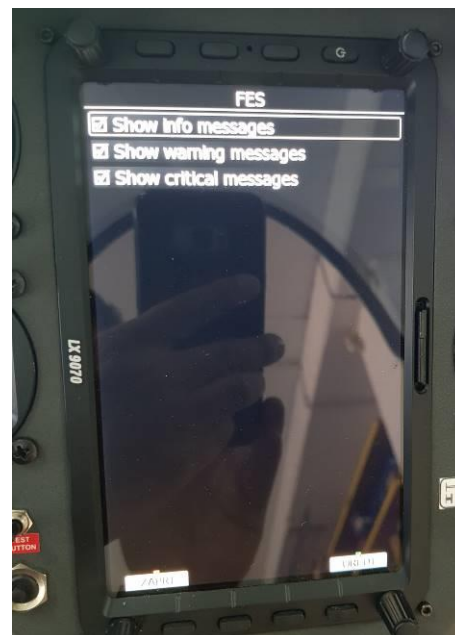
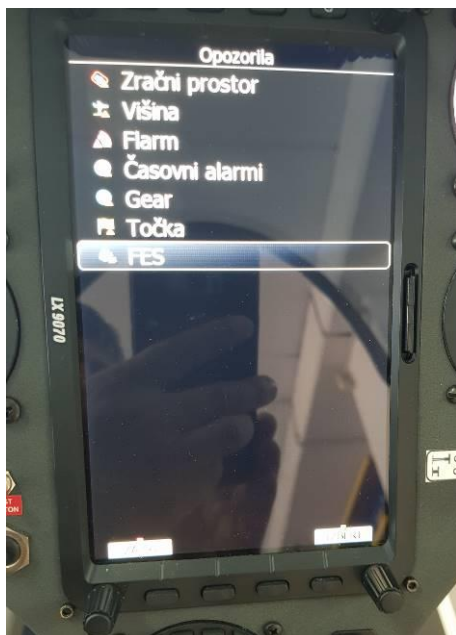


FCU data with map background



FES system data on LX900

If you want FES warning messages to be seen on the screen of the flight computer, you must mark (tick) it in the menu:





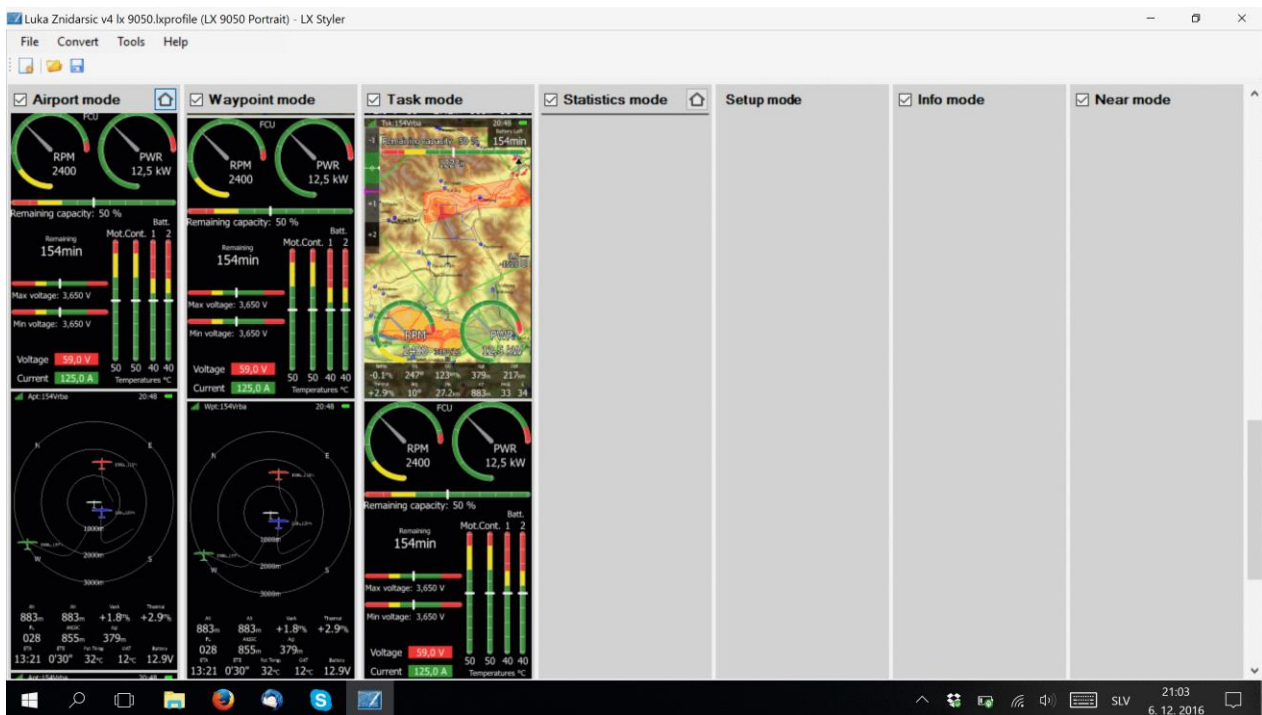


**Caution:** *LXstyler (see chapter 5.) allows the user a variety of settings, that can affect the appearance of warning messages on the screen of the flight computer. Thus, the data shown on the screen of the flight computer may deviate from the data on the FCU. Please note that data shown on the FCU are more relevant.*

## 5. Creating FES gauges with LXStyler

LX Styler is a customization tool for the LX8000, LX8080, LX9000, LX9050 and LX9070. It can create FES indication gauges - a set of gauges designed for glider equipped with FES system. These gauges are: Voltage, minimum Voltage, maximum Voltage, Current, Power, RPM, Throttle, Engine temperature, Controller temperature, Battery temperature and Battery level.

In order that something will be visible you need to use proper `***.lx` profile with FES features.



The easiest way to get or to create suitable file is to visit LXNAV Profile collection (<https://gliding.lxnav.com/lxdownloads/profile-collection/>).

Search for profiles of Luka Žnidaršič. Download most suitable profile regarding device and orientation. You can modify existing profile. Another possibility is to copy FES dedicated pages to your profile. Place them where you would like to have them available. When saving your profile, make sure you will save it for proper orientation and device. If you want, you can share your profile with other pilots.

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**6. Revision history**

October 2019	Initial release of manual v1.0
January 2020	Minor additional informations v1.1
September 2020	Minor update v1.11