LX iris series

Installation manual

- LX navigation -

May, 2025

LXNAVIGATION

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Contents

Document information

0.1 Abstract

This document represents the installation manual for the LX iris series. 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

Device	Size	HW Version
LX iris ASI LX iris altimeter LX iris all-in-one LX iris g-force LX iris chrono LX iris display	57 & 80 mm	1.0 - 1.9

0.4 Revision history

Document name	Document revision	Revised Date	Approved by	by	Notes
LX_ISIM	R1	23.12.2022	A.S.	N.S.	initial release
LX_ISIM	R2	06.05.2025	B.D.	N.S.	minor changes

Overview

LX iris represents a series of 57 mm (2.25") and 80 mm (3.125") standalone instruments, available as:

- iris airspeed indicator (ASI)
- iris altimeter (ALT)
- iris all-in-one (VSI + ALT + ASI)
- iris g-force
- iris chrono
- iris display

Every unit is equipped with integrated backup battery. With its big, sunshine readable display, small dimensions and 3 in 1 function (all-in-one) it is an ultimate backup instrument on your instrument panel. It is designed to be easily and quickly installed as plug-and-play device. Configurable via CAN2WIFI device (refer to CAN2WIFI user's manual), where a user can quickly change the colour ranges, values, units or customize the interface, font size, background, displayed values and their position.

WARNING
This instrument family is not TSO approved as a flight instrument.

Mounting

Tools needed:

- flat head screw driver,
- Philips screw driver.

Installation requires a standard 57 mm or 80 mm aviation size cut-out. Please refer to **Cut-out drawing** to ensure fitting.

Follow the steps below:

1. Unscrew the regular M4 Phillips head screws from the device.
2. If the device is equipped with push-rotary knob, take it's plastic cap off to expose the flat screw. (see figure 1).
3. Unscrew the flat headed screws from within the push-rotary knob while holding the push/rotary knob still by its black plastic (see figure 2).
4. Pull the black plastic part off of the push-rotary shaft (see figure 3).
5. Place the device into its future place in the instrument panel.
6. Check that all of the holes are properly aligned and use M4 Phillips head screws to hold device in place. Use supplied screws only.
7. Attach the rotary knob to the shaft. Make sure there is enough play between the rotary knob and instrument panel. Hold the knob with one hand and tighten the screw. Do not use any other tool to adjust the rotary knob. Put the top cover back. Test if there is enough play for the knob. It should rotate freely and when pressed jump back to its original position. If not, change the position of the knob on the shaft or adjust the size of the hole for the push/rotary shaft screw.

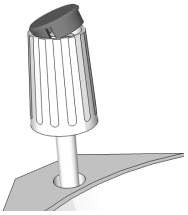

Figure 1. Step 2

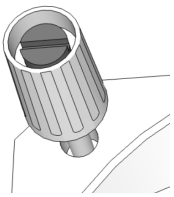

Figure 2. Step 3

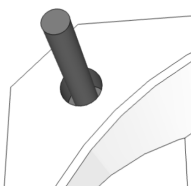

Figure 3. Step 4

Wiring

All needed cables are in the package. Some connections might not be available on your device and are optional upgrades.

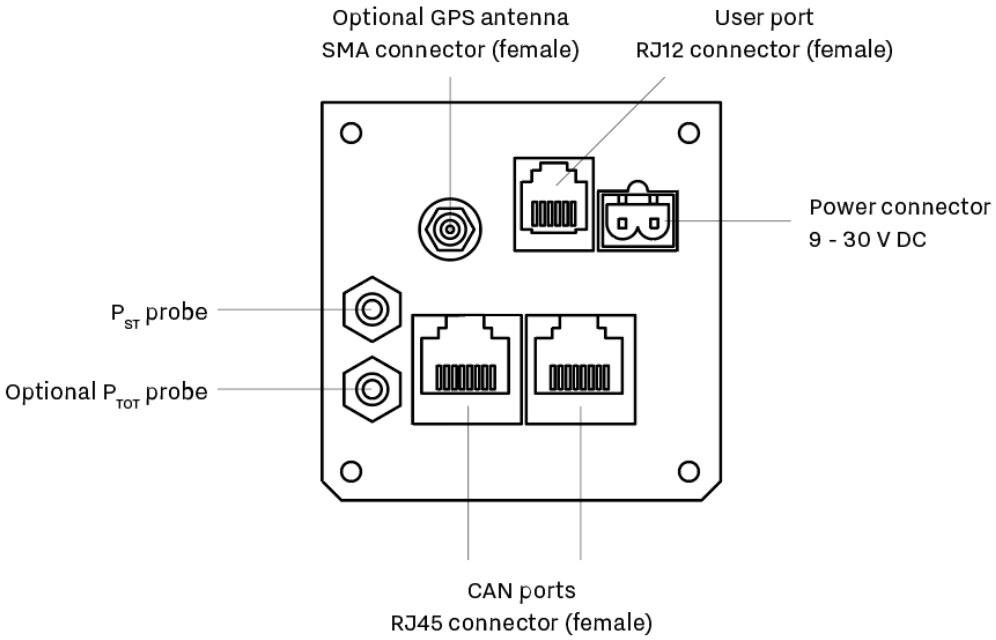

Figure 4. Instrument back side

3.1 Power supply

Device requires DC power input in a range between 9 and 30 V DC. It is compatible with 12V and 24V aircraft systems. Use external fuse, as there is no fuse inside this device. If you connect more than one device to the system over the CAN bus apply power supply only to single device, as other units will get power over CAN bus. To provide the power to the system screw negative (GND) wire (typically blue) to the left side of the power supply connector (–). Connect main power supply to the right side of power supply connector (+). Prior to connecting the power to the device make sure that cables are tight and there is not short-circuits between wires. Plug the connector to the device. The device will turn on as soon as the main power supply is available. It will automatically charge the internal battery all the time. Recommended is wire with 0.75mm2 AWG 18 or greater.

Optionally you can add additional switch for the installed family of the system.

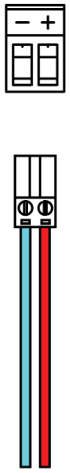

Figure 5. Power connector

3.2 Static pressure (PST)

In any case (except for the repeater) you should connect the unit to the static pressure source. Static pressure source is obtained from the static port usually on the static ports of pitot tube or static ports on the fuselage.

Locate existing PST tube. If no free ports are available use T junction to split the tubes. Connect PST tube to PST port on the device. Make sure the tubing is airtight. It is highly recommended to keep the static tubing as short as possible. The tubing must avoid sharp bends and twists. Water must not be allowed to enter the tubing.

3.3 Total pressure (PTOT)

In case of iris – ASI and iris – All-in-one you should connect the unit to the total pressure source. Total pressure source is obtained from the total port on the pitot tube.

Locate existing PTOT tube. If no free ports are available use T junction to split the tubes. Connect PTOT tube to PTOT port on the device. Make sure the tubing is airtight. It is highly recommended to keep the static tubing as short as possible. The tubing must avoid sharp bends and twists. Water must not be allowed to enter the tubing.

3.4 CAN bus

This connection is optional and is not required for normal operation. It is used when more than one device is installed, for communication and power. When connected to the CAN Bus data will be transmitted and received to/from other devices enabling you to display the data on

other devices.

Use supplied shielded RJ45 1:1 cable to connect it with other LX navigation devices. CAN Bus is compatible with LX navigation devices only.

3.5 Outside air temperature (OAT)

This is optional. If you want to display true air speed (TAS) or if you want to know the outside temperature at any given time it is required to connect OAT probe. Connect OAT probe to the unit. Install OAT probe to the place with as little as possible heat influence from other components on the airplane (heat from engine, direct sunlight, etc.). The ideal position is on the bottom part of the fuselage away from engine and exhaust pipe. Good alternative is air intake for the ventilation in the cockpit.
If OAT (outside air temperature) is available, iris can display TAS (true airspeed).

3.6 GPS

This is optional. If GPS receiver is present, you will see an SMA connector on the back of the device marked with GPS underneath. Connect supplied GPS antenna to the SMA connector. Install antenna horizontally with “GPS” sign pointing to the sky. We supply high gain active antenna with superb reception. Despite that be careful with the placement. Do not install antenna under metal or carbon fiber instrument panel/cover. The antenna should have clear “sight” to the satellites. It can be covered with non-conductive material (eq. Glass fibber, glass, wood, cloth, etc.).
When GPS data is available, iris can display GS (ground speed). Additionally if OAT (outside air temperature) is available, iris can display wind speed and wind direction.

Cut-out drawing

LX navigation uses standard aviation dimensions - 57 mm (2.25 inch) adn 90 mm (3.125 inch). Print this and next page on a regular or transparent paper to transfer the cut-out to the instrument panel. Before cutting make sure, the dimensions are correct according to given dimensions indicated below.

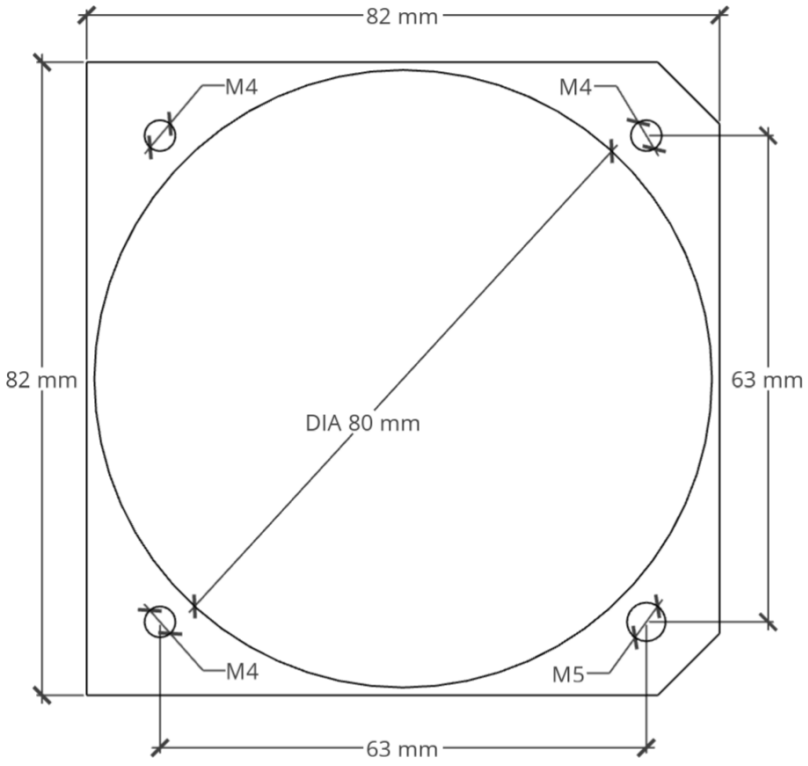

Figure 6. 80 mm cut-out template

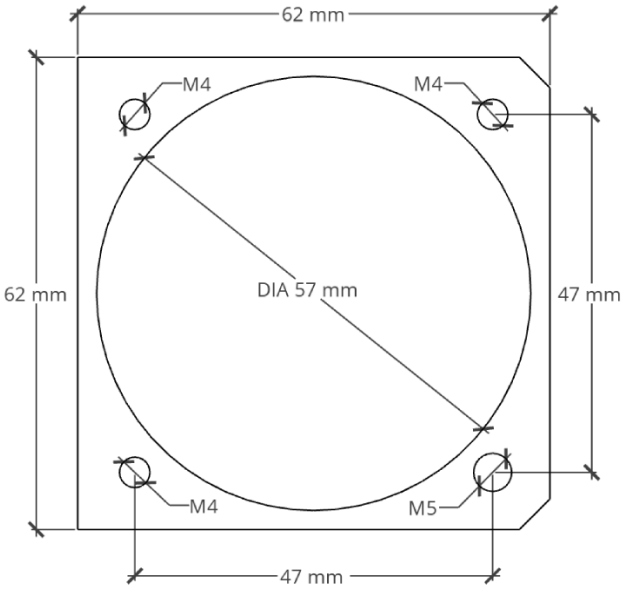

Figure 7. 57 mm cut-out template

Software Update

Normally it's not needed to update the LX iris firmware. However if this turns out necessary, it can be done using using CAN2WIFI device. For more information please refer to the CAN2WIFI manual.

Technical specification

6.1 General

Description	Unit	LX iris 57	LX iris 80
Dimensions (all-in-one)	[mm]	62 x 62 x 98∗	82 x 82 x 89∗
Power supply	[V DC]	9.0 - 29.0	
Nominal Voltage	[V DC]	13.8	
Average Power Consumption	[W]	1.8	
Mass (all-in-one)	[g]	217∗	276∗
Mounting Panel Cutout	[mm]	57	80
Ground Survival Temperature	[°C]	-55 - +85	
Operating Temperature	[°C]	-20 - +55	
Relative Humidity	[%]	0 - 98	
Max. Operational Altitude	[ft]	45,000	
Operational Shock		6 g	
Crash Safety Shock		20 g	
Vibration		DO-160D U F/F1	
Total pressure sensor range	[hPa]	0 - 50 (up to 325 km/h)	
		or optional 0 - 100 (up to 460 km/h)	
Static pressure sensor range	[hPa]	10 - 1200	

∗ Note that upper data is valid for all-in-one configuration. Some iris series devices does not have push-rotary knob and/or pressure sensors which reduce the unit overall depth and mass.

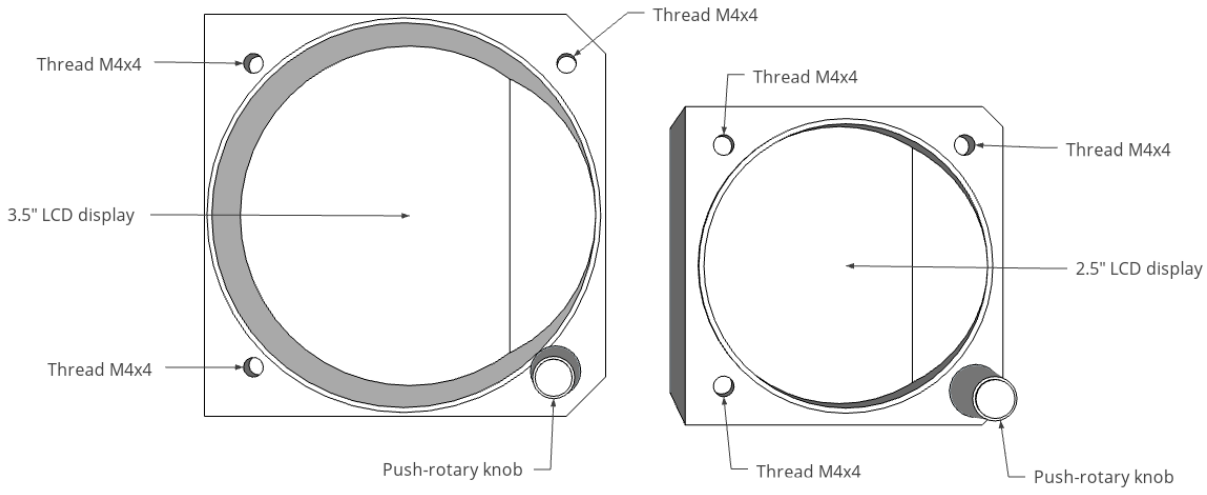

Figure 8. Instrument overview

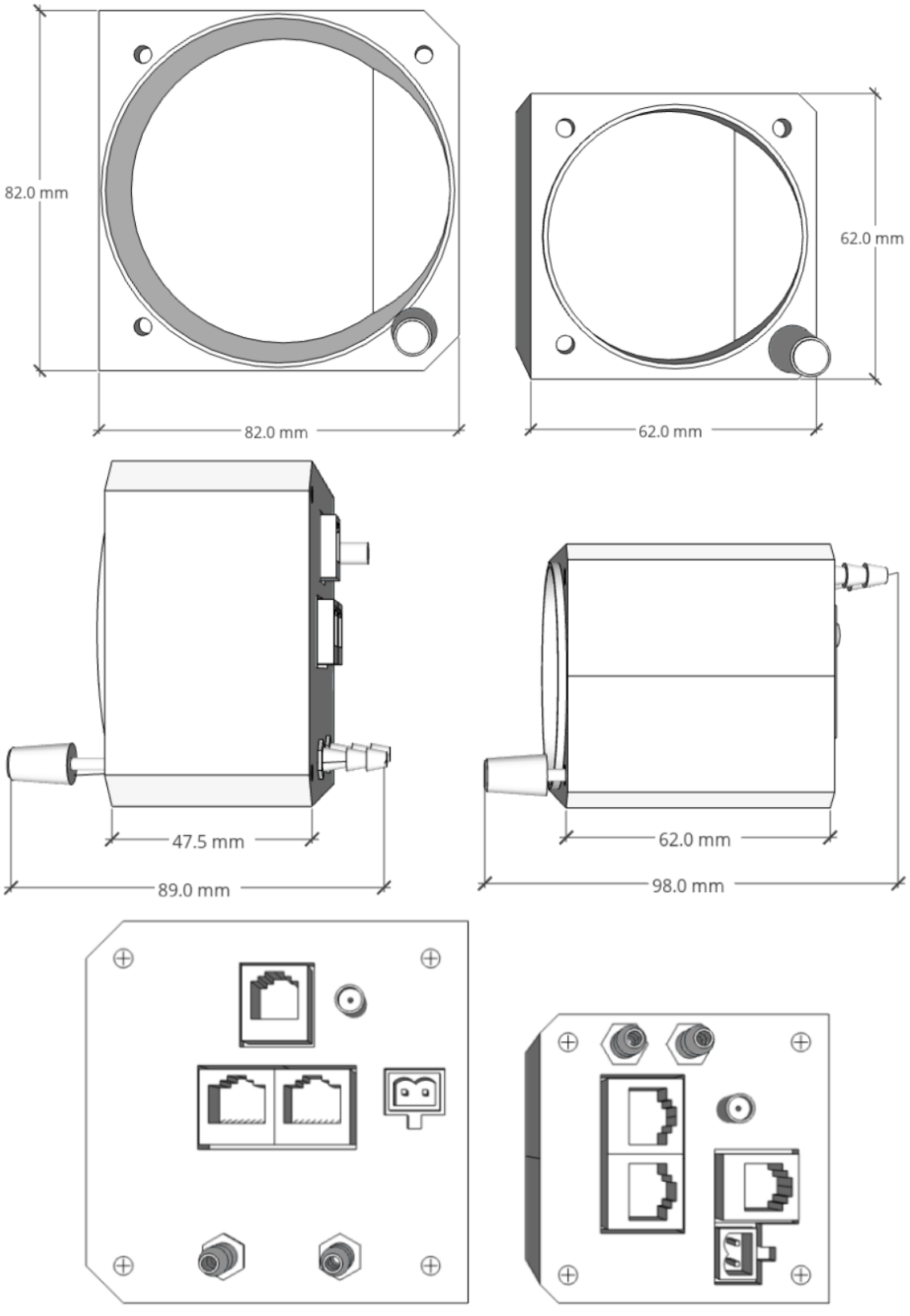

Figure 9. Instrument dimensions

Environmental data

Description	Section	Category	Conditions
Temperature / Altitude	4.0	D1	
Low Ground Survival Temperature	4.5.1	D1	-55°C
Low Operating Temperature	4.5.1	D1	-40°C
High Ground Survival Temperature	4.5.2	D1	+85°C
High Short Time Operating Temperature	4.5.2	D1	+70°C
High Operating Temperature	4.5.3	D1	+55°C
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	
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.

Conformity

Declaration of CE Conformity

Identification of product
LX iris series (all variants)

Manufacturer
LX navigation d.o.o.
Tkalska ulica 10
SI-3000 Celje
Slovenia

Related standards
EMC directive 2004/108/EC

This product is designed to comply with standards/regulations and technical specifications stated above. This certificate is granted subject to the LX navigation quality rules on product certification.

Remark
The product is designed to comply with LX navigation standards and standards harmonized with directive 2004/108/EC: EN 55022:1998+A1:2000+A2:2003, class A; EN 55024:1998+A1:2001+A2:2003; EN 61000-3-2:2000+A2:2005; EN61000-3-3:1995+A1:2001+A2:2005

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