



LXNAVIGATION

iris CAN2WiFi

User manual

CAN2WIFI



Device manual

- LX navigation -

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Document information

0.1 Abstract

This document represents the user manual for the CAN2WIFI configurator for iris series. The 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	Version	Build
CAN2WIFI	V1.3	/

0.4 Revision history

Document name	Document revision	SW version	Build	Date	Revised by	Approved by	Notes
LX_CWUM	R1	1.3		20.12.2022	A.S.	N.S.	L ^A T _E X edition
LX_CWUM	R2	1.3		11.05.2025	B.D.	N.S.	Minor changes

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Important notices

1.1 Using this manual

This manual has been created in L^AT_EX, giving us the possibility of linking up everything we find linkable. You will find references to other parts of the manual, to other manuals, webpages, etc. throughout the manual.

Linkable content will be **bold and underlined**, i.e. you can find additional info on how to take care of your LX CAN2WIFI in the **Taking care of your CAN2WIFI** section of this manual (click on the underlined text).

NOTE

The most recent version of this manual will always be available at
<https://lxnavigation.com/support/>

1.2 Device operating limits

This instrument may be used under VFR (Visual flight rules) only! Any navigational information is provided for reference only. The pilot takes all responsibility and risk associated with the use of this device.

Have a nice flight.

1.3 Limited warranty

This device is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LX navigation will, at its sole discretion, repair or replace any components that fail in normal use. Such repairs or replacements 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 unauthorized 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 COUNTRY TO COUNTRY. IN NO

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Some countries do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. LX navigation 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 LX navigation dealer or contact LX navigation directly.

The manufacturer does not take the responsibility for possible mistakes or misprints in this text and gives no guarantee for accuracy of this manual. This manual has been written with the greatest care and we have done our best to avoid any mistakes but with all respect please check any doubtful statement and let us know. We would be very grateful and we thank you in advance for any comment.

1.4 Sunburned display

Damages to the device, especially the display part, are not covered by the warranty and will be considered as misuse of the device. To learn how to take care of your display and device in whole, check the **Taking care of your CAN2WIFI** section of this manual.

1.5 Disclaimer/EULA

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Getting started

2.1 Device overview

CAN2WIFI device is a configuration device for your iris series devices. The device is essential for pilots and manufacturers with special needs for configuration. Airplane manufacturers can now stock the units and configure them along the way, by their needs and specification. You can **easily** connect via CAN2WIFI device to your iris device and set different airspeed values, colours, units etc. You can use any smart device or PC/MAC to establish connection with website interface.

2.2 What is in the box

The following items are contained in the box:

- CAN2WIFI device
- CAN BUS cable
- WiFi Antenna

2.3 Technical specification

Power consumption	40 mA @ 12 V DC via CAN BUS cable only
Input power	12 V DC via CAN BUS cable only
Housing	Black aluminum (HW v1.0) or Black PLA plastic (HW v1.1)
Dimensions (width x height x depth)	62 x 41 x 27 mm (2.44 in x 1.61 in x 1.06 in)
Weight	60 g (0.13 lbs.)
Operating temperature	-30°C to 85°C (-22°F to 185°F)
Humidity	30 % to 90 %, non-condensing

Basic operation

3.1 General

Installation requires iris series device and a CAN2WiFi device. **Use the provided CAN BUS cable to connect CAN port on iris series device to CAN port on CAN2WIFI device.**

Once the units are successfully connected with provided CAN BUS cable, power up the iris device (refer to iris series manual). CAN2WiFi device receives power from IRIS device through CAN cable.

NOTE

Use only manufacturer provided accessories and parts.

3.2 Connect to WiFi

Right after CAN2WIFI is connected to iris device, it starts to act as a wireless access point (AP). Connection can be made using any mobile device. AP is configured as follows:

SSID: LX CAN2WIFI XXXXXX, where XXXXXX is serial number of CAN2WIFI device,
Key: lxnavigation

A default system web browser opens and redirects us to website user interface. If this does not happen, we can manually navigate there with url: 192.168.4.1
Website user interface is described in details below.

3.3 Website user interface

First page shows main menu.

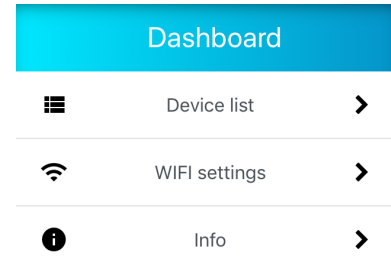


Figure 1. Main menu

Device list

This is a list of connected CAN devices. List is refreshed when page is loaded and on every press of refresh button in upper right corner. For each device we can check device type, CAN ID, serial number, software version and hardware version. With click we enter the device submenu.

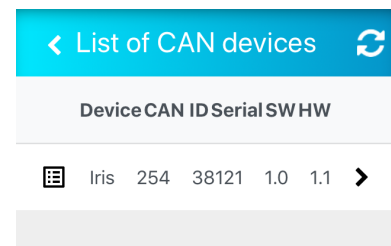


Figure 2. Device list

Set indicator role

Because iris series is designed to support wide specter of indicators using different hardware configurations, the principle of roles was introduced. With role we tell the software what hardware is present and how it should behave on different user inputs.

Exp. On Altimeter rotary knob changes QNH, while sets local time offset on chrono.

Available roles: General, Altimeter, All-in-one, Horizon (not yet finished), Chrono, G-force, Angle-of-Attack.

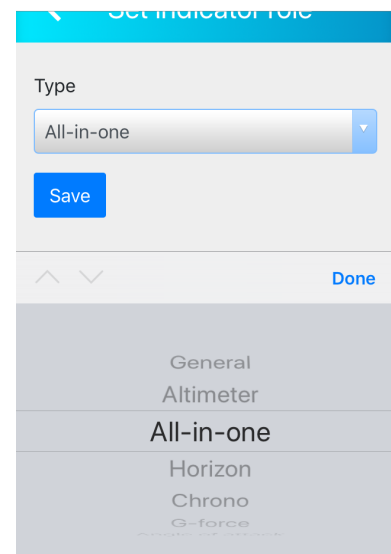


Figure 3. Indicator role

Edit layout

Each iris device can be configured to show different kinds of information on the screen. This is done using customizable graphic components called widgets. Each iris device can display maximum of 7 widgets. This is called layout.

Available widgets are: Background, Text, Navbox, Arc gauge, Rolling gauge, Bar, Double bar, Stripe. Each widget is described in details later.

New widget can be added with button “add new”. Widget can then be edited by clicking on pencil icon. Order of widgets can be changed with up/down arrow icons.

Widget order is of great significance. This is a sequence in which widgets will be put on screen. Widget that is shown on the top of the website will be put on screen first and the one being in the bottom, the last. If their positions coincide the one from the bottom will overlay the one from top.

Each widget can be deleted by going into edit mode (clicking on pencil icon) and then selecting “Delete”.

Editing individual widgets

After attributes are set to desired values, they are instantaneously sent to iris device by selecting “Save”.

Each widget has common positional attributes:

Attribute	Description
X	distance from left end of the display in pixels.
Y	distance from top end of the display in pixels.
Width	width in pixels.
Height	height in pixels.

Widgets that show value also have CAN attributes:

Attribute	Description
Can Id	value to be shown – (Altitude, IAS, TAS, G-force, etc.)
Unit	unit of the value (km/h, kts, mph, etc.)
Decimals	number of decimal places.
Round	step to which the value is rounded. This can be either less or greater than 1. Exp: 0.01 => possible values: 0.00, 0.01, 0.02... 5 => possible values: 0, 5, 10...

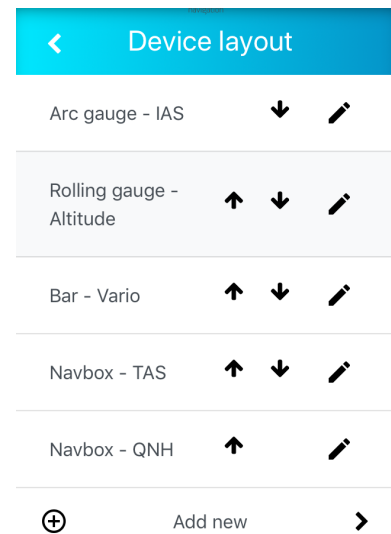


Figure 4. Edit layout

The following pages explain widget specific attributes.

Background

Has positional attributes (see above) + additional:

Attribute	Description
Color	background color

Text

Has positional attributes (see page 10) + additional:

Attribute	Description
Title	title text (maximum 19 characters).
Font size	10-50 px.
Alignment	left, right or center.
Text color	color of the text.

Navbox

Has positional and CAN attributes (see page 10) + additional:

Attribute	Description
Title size	title font size (10 - 50 px).
Value size	value font size (10 - 50 px).
Behavior	Normal - current value is shown, Min - minimum of the value since last reset is shown, Max - similar as Min, but show maximum. (The last two are used in G-force indicator.)
Display unit	defines how the unit is displayed: None - unit not shown, In line - in line with value, Below - under the value.
Title	title text (maximum 10 characters).
Alignment	left, right or center.
Color	default text color.
Filter	Display value filtering (0-255), 0 = filter disabled
Color intervals	the color of all navbox text is determined: If value below Red 1 or above Red 2 => red color, between Min yellow and Max yellow => yellow color, between Min green and Max green => green color, all other cases => color defined with Color attribute.

All attributes correlating to value are in the unit selected with Unit attribute. Each color interval can be enabled/disabled with checkbox in Show following features section.

Example:

X coordinate	Y coordinate	Width	Height
50	100	90	80
Can Id	Unit	Decimals	Round
TAS	cts	0	1
Title size	Value size	Behaviour	Display unit
20	40	Normal	Below
Title	Alignment	Color	Filter
TAS	Right		10

Show following features:

<input checked="" type="checkbox"/> Green interval	<input checked="" type="checkbox"/> First yellow interval <input type="checkbox"/> Second yellow interval	<input checked="" type="checkbox"/> Upper red line <input type="checkbox"/> Lower red line
--	--	---

Min green	Max green	Min yellow 1	Max yellow 1
50	110	110	180
Min yellow 2	Max yellow 2	Red line 1 (red if below)	Red line 2 (red if above)
0	0	0	180

Figure 5. Navbox configuration



Figure 6. Navbox color according to value

Arc gauge

This is a deprecated widget, but is kept available for back-compatibility. Please use Arc gauge v2 instead.

All attributes that are present in Arc gauge are available in Arc gauge v2 as well.

Arc gauge v2

Has positional and CAN attributes (see page 10) + additional:

Attribute	Description
Template	Multiple templates were introduced to support as customizable arc gauge as possible.
Min angle, Max angle	scale start (Min) and end (Max) position in degrees, where 0 represents top center position (12 o'clock) and 90 represents right middle position (3 o'clock). Note: those angles correspond to Min and Max value positions. Actual limit of arc background extends a couple a bit further.
Min value, Max value	minimum and maximum value to be shown on scale. This values corresponds to the Min and Max angle position.
Small step	interval in which marks are shown on scale (thin lines without numbers).
Big step	interval in which marks with numbers are shown on scale. Those lines are also wider.
Divider	For correct display Big step should be a multiple of Small step. used for displaying numbers on arc besides Big step lines. Divider tells with what number the value is divided to be shown on scale. Exp.: we want to show altitude. Max value is 10 000 (ft). We set divider to 1000, so the arc reads maximum value of 10, not wasting space showing obvious zeros.
Arc width	width of the scale background in pixels.
Needle width	scale needle width in pixels.
Needle length	scale needle length in pixels.
Needle color	scale needle color.
Font size	10 - 50 px.
Background color	scale background color.
Foreground color	text and lines color.
Color intervals	Min, Max Green, white, yellow 1, yellow 2*, Red 1, Red 2*, Magenta* 4 color arcs and 3 color lines can be shown on main arc. Each arc is defined by it's maximum and minimum value. Each line is defined by a single value.
Triangles*, Blue line*	Value of significant markings on scale. Available only in Triangles template.
Min linear scale*	Value of the point where scale becomes linear.
Min linear angle*	Angle of the point where scale becomes linear.
Filter*	Display value filtering (0-255), 0 = filter disabled

NOTE
Attributes marked with asterisk (*) are not available in all templates.

Examples:

The configuration interface is organized into several sections:

- Positioning:** X coordinate (0), Y coordinate (0), Width (240), Height (320).
- Units and Rounding:** Can Id (Altitude), Unit (m), Decimals (0), Round (0).
- Template:** Default.
- Angles:** Min angle (-200), Max angle (20), Min value (0), Max value (180).
- Steps and Arc:** Small step (10), Big step (20), Divider (1), Arc width (70).
- Needle and Font:** Needle width (5), Needle length (50), Needle color (Orange), Font size (15).
- Colors:** Background color (Black), Foreground color (White).
- Show following features:**
 - Green interval
 - White interval
 - First yellow interval
 - Second yellow interval
 - Upper red line
 - Lower red line
 - Magenta line
- Value Ranges:**
 - Min green: 60, Max green: 113
 - Min white: 45, Max white: 85
 - Min yellow 1: 113, Max yellow 1: 165
 - Min yellow 2: Min yellow 2, Max yellow 2: Max yellow 2
 - Red line 1: Red 1, Red line 2: 165
 - Magenta line: 55

The preview on the right shows an arc gauge with a needle pointing to approximately 70. The arc is color-coded with green, yellow, and red segments, and has numerical markings from 0 to 180.

Figure 7. Airspeed indicator arc gauge example

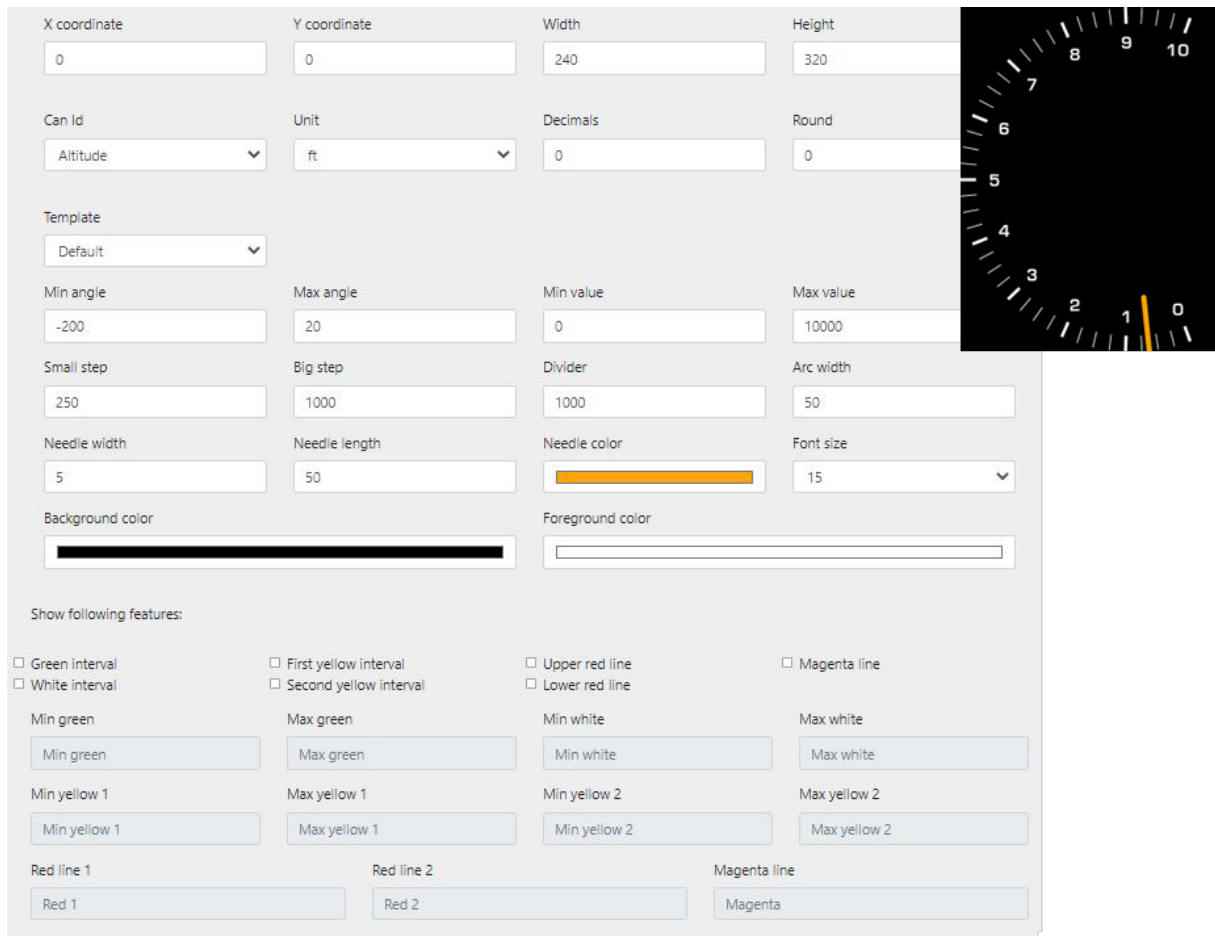


Figure 8. Altitude indicator arc gauge example

Rolling gauge

Has positional and CAN attributes (see page 10) + additional:

Attribute	Description
Static part font size	font size of the left part of value, that does not roll.
Rolling part font size	as the name suggests.
Rolling places	number places to roll at the right part of the value.
Rolling step	interval of values to be represented on the virtual rolling wheel.
Background color	polygon background color.
Foreground color	text and border color.
Title	title in the widget's top right corner. Unit is shown in the bottom right corner in italic.

NOTE

Widget height is being automatically adjusted according to given static and rolling part font sizes. Height attribute defines available space for widget to populate. If set lesser than font size, the lower part of widget will be cut away.

Examples:

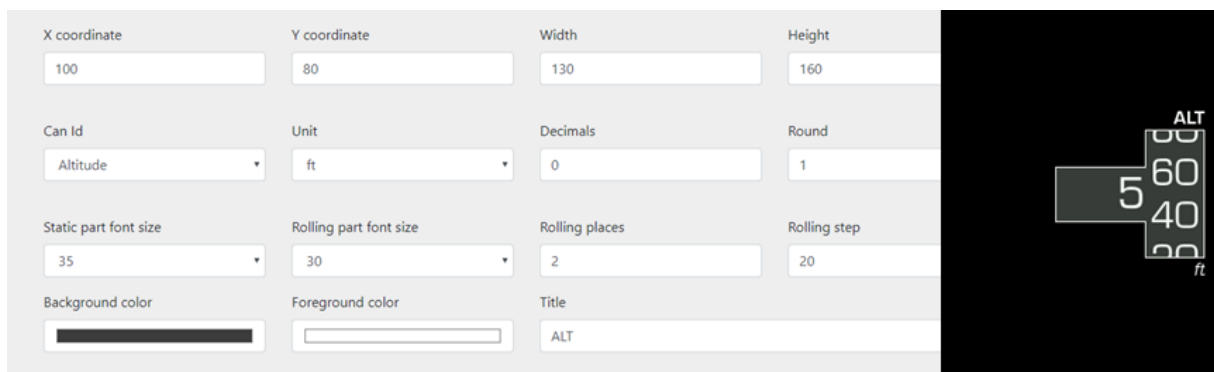


Figure 9. Rolling gauge example 1

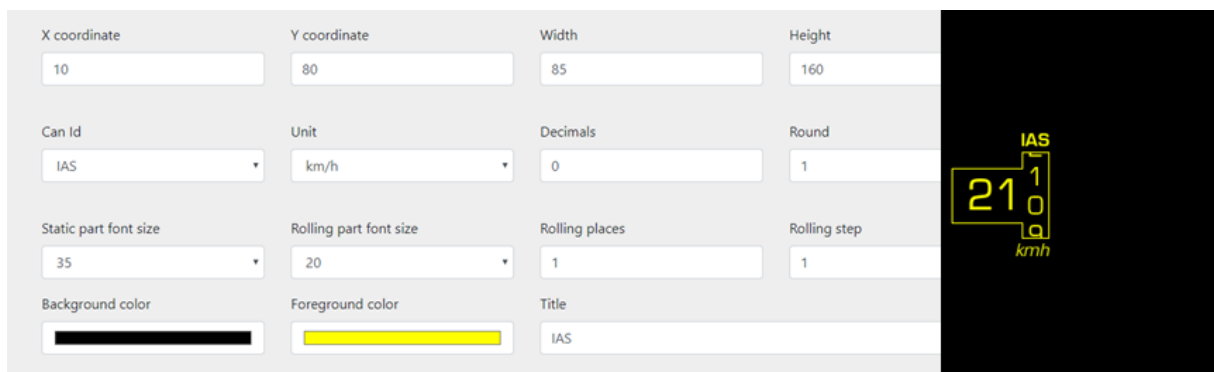


Figure 10. Rolling gauge example 2

Bar

Is used mainly for showing parameters with limiting values, like temperatures, pressures etc. Besides that, it can be also used to show vertical speed indicator. Has positional and CAN attributes (see page 10) + additional:

Attribute	Description
Min value	minimum value to be shown in widget.
Max value	maximum value to be shown.
Foreground line step	interval with which foreground lines are shown.
Numeric value	defines whether the numeric representation of current value is shown above the bar or not. Possible values are Shown or Hidden.
Yellow and red line	define the color of the bar according to its value: if value < Min red or value > Max red => red color, if Min red < value < Min yellow => yellow color, Max yellow < value < Max Red => yellow color, all other cases => color as defined with Bar color attribute.
Background color	as the name suggests.
Foreground color	text and foreground lines color.

Each color attribute can be disabled by entering value 999999 if it's not desired.

Examples:

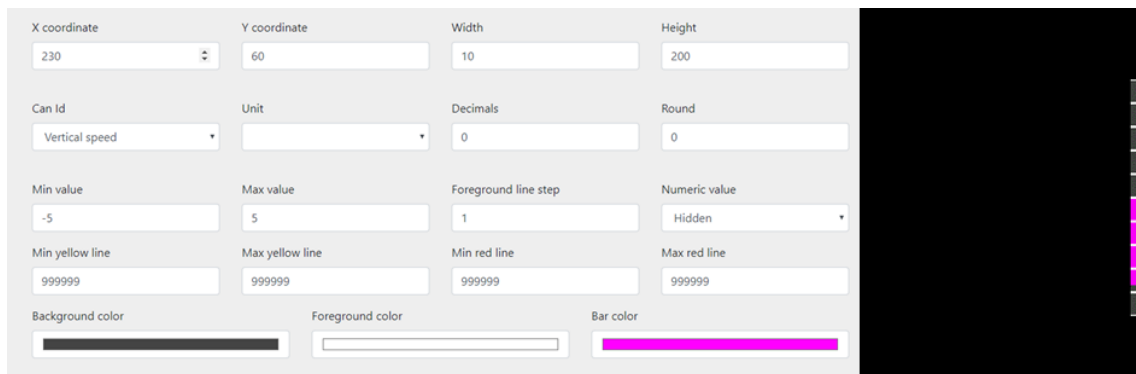


Figure 11. Bar gauge example 1

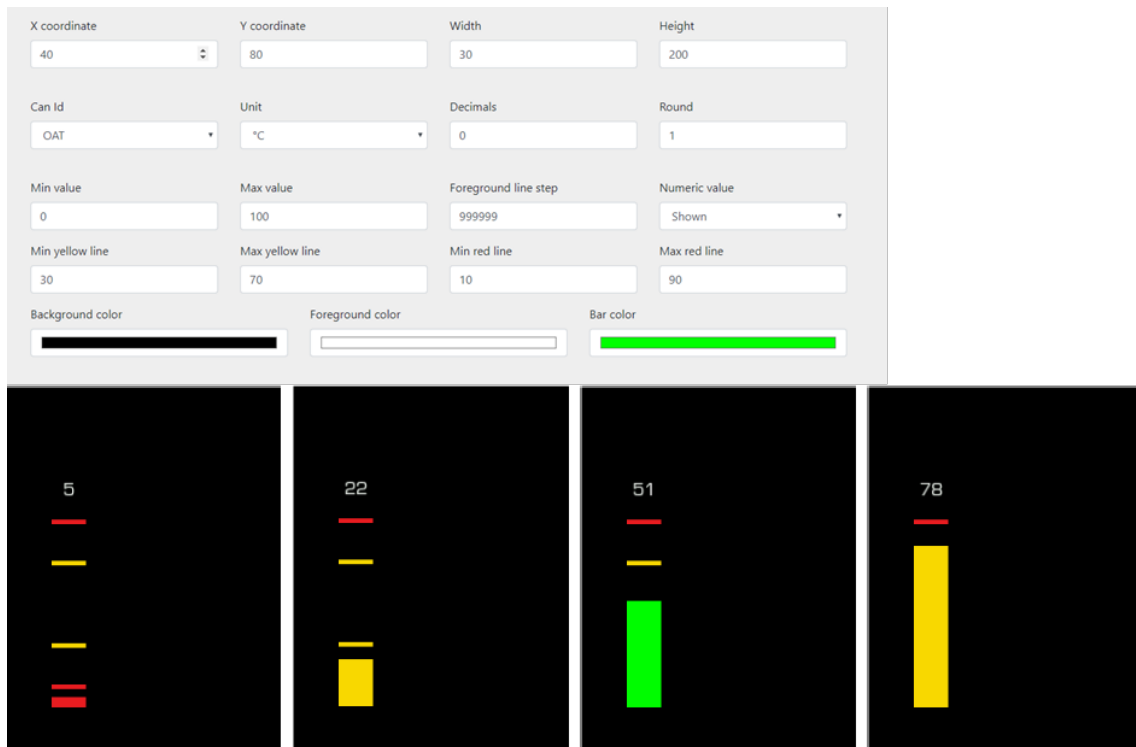


Figure 12. Bar gauge example 2

Double bar

Is used mainly for showing correlating values like CHT/EGT indicators.

Has positional and CAN attributes (see page 10) + additional:

Attribute	Description
Min value	minimum value to be shown in widget.
Max value	maximum value to be shown.
Right bar Can Id	value to be shown in right bar. Can Id attribute represent value shown in left bar.
Left red line	position of a red line for left bar.
Right red line	position of a red line for right bar.
Value font size	font size of the value shown above each bar.
Numeric value	defines whether the numeric representation of current value is shown above the bar or not. Possible values are Shown or Hidden.
Left bar color	color of the left bar. Important: when value reaches Red line value, bar color automatically changes to red.
Right bar color	similar as Left bar color, but for right bar.
Background color	as the name suggests.
Foreground color	text color.

Stripe

Is used mainly for showing engine parameters and can be vertically or horizontally oriented. Has positional and CAN attributes (see page 10) + additional:

Attribute	Description
Min value	minimum value to be shown in widget.
Max value	maximum value to be shown.
Orientation	Horizontal or Vertical.
Numeric value	defines whether the numeric representation of current value is shown above the bar or not. Possible values are Shown or Hidden.
Yellow line	line separate interval between Min and Max value into three intervals: Below Min yellow line -> low yellow interval Between Min yellow line and Max yellow line -> green interval Above Max yellow line -> high yellow interval If value is within any yellow interval, number representation of value is colored in yellow, otherwise is in color defined with Foreground color.
Min, Max red line	despite the names, they define at which value numeric representation of the value will be colored in red (below Min red and above Max red). The position of lines shown on display are always at values defined with Min value and Max value or not shown at all if 999999 is entered.
Background color	as the name suggests.
Foreground color	text color.
Value font size	as the name suggests.
Label font size	not used at the moment.

Each color attribute can be disabled by entering value 999999 if it's not desired.

Examples:

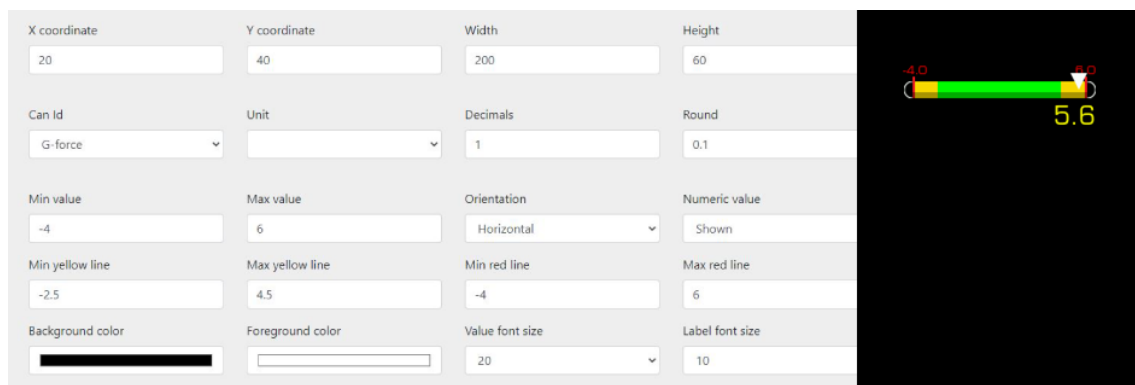


Figure 13. Stripe gauge example 1

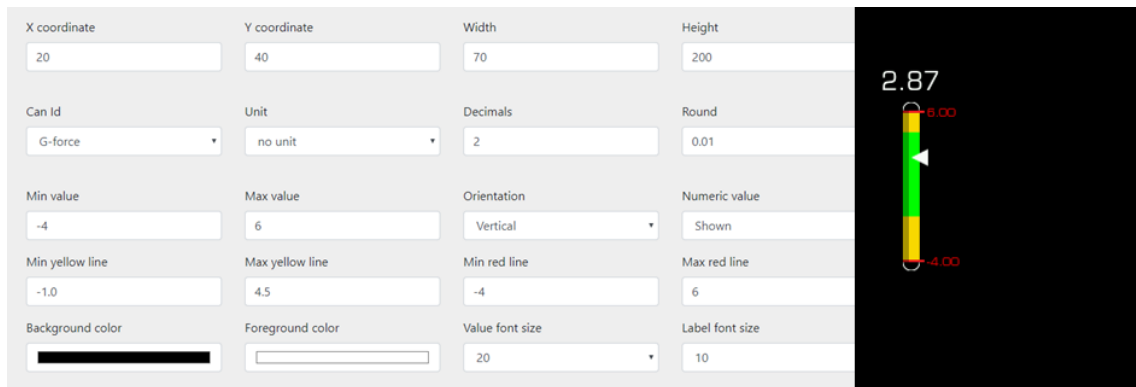


Figure 14. Stripe gauge example 2

Export/Import layout

Current layout can be exported into a file and saved to local data storage. This is done by clicking "Export current layout".

Then such exported file can be imported on another device. This is done by selecting file and clicking "Import existing layout".

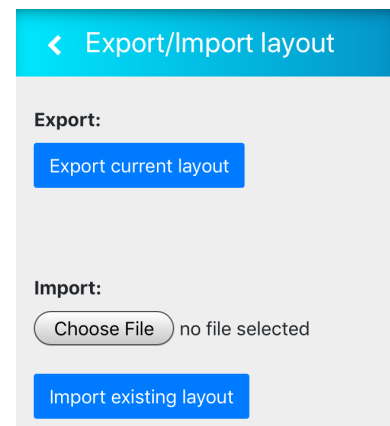


Figure 15. Export/Import layout

Calibrate

Besides factory calibration user can apply own calibration procedure and anytime revert back to factory calibration.

Calibration is supported on CAN2WIFI devices version 1.2 (Release date 01.07.2021) and later.

Calibration is supported on Iris devices version 1.1.539/7367 and later.

These features are protected by password. Check the paragraphs below for passwords for individual calibration.

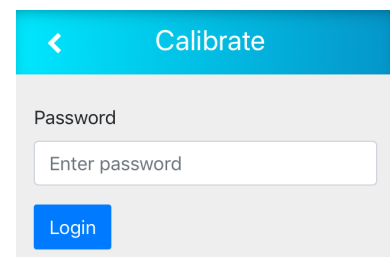


Figure 16. Password protected features

Altitude calibration

Iris devices can be Altitude calibrated on field using CAN2WiFi. The procedure is as follows:

- On device to be calibrated set baro setting to 1013 hPa with rotary knob,
- Connect to CAN2WiFi and go to "Device list" -> select device to be calibrated -> "Calibrate" -> Enter password "22542" (without quotes),
- Page saying "Set baro setting..." should show up. Enter current pressure altitude in meters and click "Save",
- The indicated altitude on the device should now approximately equal the one set. Minor differences are possible though. In such case adjust the pressure altitude in Calibrate menu so the altitude on the device shows desired value,
- To revert back to factory calibration, just press "Reset to factory" instead of "Save".

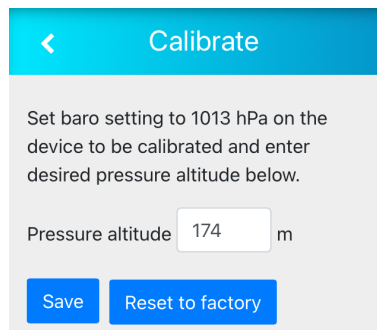


Figure 17. Altitude calibration interface

Airspeed calibration

For airspeed calibration a test environment with etalon device (indicator which you take as a reference) and pressure generating device is needed.

Calibration is performed by entering reference values as follows:

- Connect to CAN2WiFi and go to "Device list" -> select device to be calibrated -> "Calibrate" -> Enter password "77333" (without quotes).
- To begin you have to reset current calibration to make sure reference values are empty. With this you actually revert to factory calibration.
- Page saying "Set 0 km/h on etalon..." should show up. Set zero differential pressure in your calibration environment (so that etalon shows 0 km/h) and click "Set".
- Now similar page should show up but with different value in the field to be set on etalon. Set this value or if you prefer, enter any other value that is higher than previous one in the field. Important is that you set the same value on etalon as you enter in the field. Click "Set".
- You can enter up to 10 such references. Normally 5 should be enough. When you believe you entered enough references, click "Finish".
- "Airspeed calibration completed" message should appear.
- To revert back to factory calibration, just start calibration process again, press "Reset calibration" but don't continue with entering references. You can return to previous menu with left arrow in the top left corner.

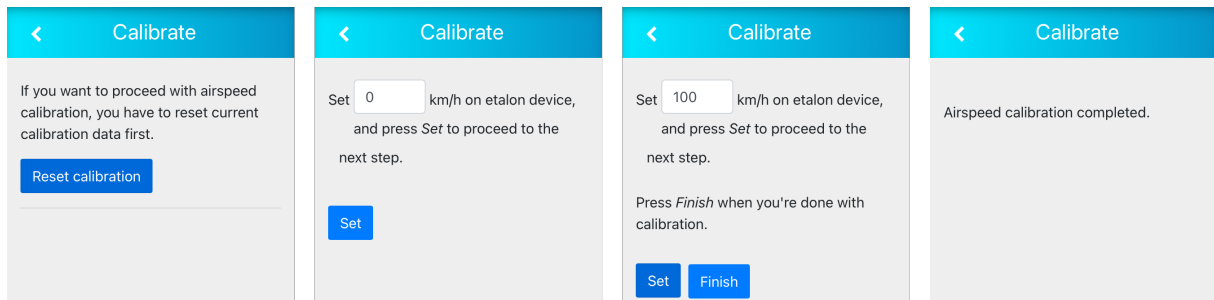


Figure 18. Airspeed calibration procedure

WiFi settings

Here we can check SSID (it's not editable).

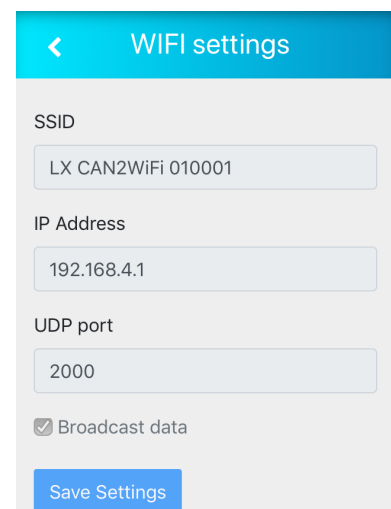


Figure 19. WiFi settings

Info

Here we can see versions and release date of software currently loaded to CAN2WIFI device.

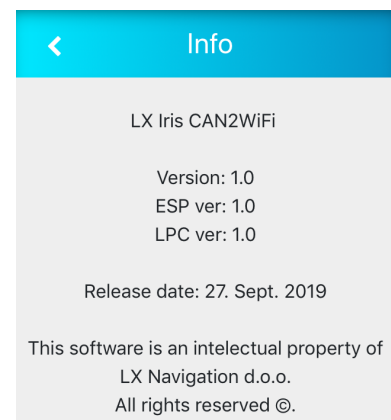


Figure 20. Device info

Taking care of your CAN2WIFI

No special maintenance is required. Keep it in dry and dark conditions when not used. We recommend you to periodically send the unit to the company or authorized representative for an inspection every 5 years.

NOTE

The unit has no serviceable parts inside. In the case of malfunction, it must be sent to LX navigation for a repair. Please contact LX navigation prior sending.

4.1 Device housing

Visible external damages to the housing of the CAN2WIFI can void your device from a warranty repair.

4.2 RJ connectors

RJ connectors are used for connecting to external devices. If the cable is pulled out, without pressing the plastic security pin, the internals of the CAN2WIFI's connector may break and get ripped out. One should always be careful when taking the cable out, to press the security pin completely.

4.3 Reverse polarity on power

Although the CAN2WIFI has diodes protecting it from reverse polarity on the main power lines, one should note the RJ connectors are not protected and internal electronics could still get damaged, if a power supply is connected to the wrong pins on the RJ connectors. Similarly, the CAN2WIFI can damage external devices, if a wrong cable is used for connection.

Q & A

Q: How to Turn on the device?

A: CAN2WIFI device will power up itself once you power up the iris series device which is connected via provided CAN BUS cable.

Q: CAN2WIFI WiFi signal is weak. What can I do?

A: Please check if the provided WiFi antenna is correctly installed and firmly fixed.

Q: I can not connect to the CAN2WIFI WiFi signal. What can I do?

A: Disconnect the devices from power supply for 10 seconds. After 10 seconds reconnect the devices and repeat the procedure for connecting.

Q: After connecting to CAN2WIFI WiFi I don't get redirected to website user interface.

A: Open your web browser and try to manually navigate to url: 192.168.4.1

Q: My device is damaged and in need of repair. What can I do?

A: Send the device to: LX navigation d.o.o., Tkalska ulica 10, SI-3000 Celje, Slovenia.

Contact

Headquarters

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