LABA7 Torque Measuring Device

User Manual

Lithuania 2026

Table of Contents

1. Introduction

Dear Customer,

Thank you for purchasing this product.

To ensure this condition and ensure safe operation, you must observe these operating instructions!

Read the entire operating instructions before using the machine for the first time. Observe all operating instructions and safety instructions!

UAB LABA7

Address: Giluzio st. 15 Vilnius LT-06253 Lithuania

Email: info@laba7.com

Mobile phone: +37065715336

2. Safety Information

- Make sure to read and understand the whole user manual before using the Torque Measuring Device (further – device).
- Connect the device to a grounded power socket.
- Only use the electric cord provided with the device.
- Do not use the power cord if it is pinched, sheared or cut.
- Do not use any power adapters if the plug doesn’t fit your wall socket.
- Do not use an extension cord.
- The power socket to which you are connecting the device needs to be easily accessible to be able to unplug it in an emergency easily.
- Do not operate near an open flame or heat source.
- Place on a flat, level surface and ensure the device is securely fixed or clamped to prevent movement during use.
- Do not place in a highly corrosive or humid environment.
- Do not use the device or any of its components if they have been damaged.
- Do not perform any maintenance while the device is plugged into the mains.

3. Highlights

Congratulations on your purchase of the LABA7 Torque Measuring Device!

- Our device comes equipped with built-in torque and velocity sensors, allowing you to measure both torque and rotational speed of impact torque gun or manual torque wrench. For additional insights, external sensors can be connected to monitor parameters such as battery level or air supply pressure.
- Torque testing – Verify that tools operate within the correct torque range to ensure safety, performance, and reliability. Compare torque values across different tools.
- RPM measurement – Monitor rotational speed in real time to analyze performance and operating conditions for impact wrenches.
- External measurements – Connect an air pressure sensor or monitor battery level to capture additional data alongside torque and RPM for a complete view of device operation.

4. Standard package for Torque Measuring Device includes

- Torque Measuring Tool available in measurement ranges of 0–500 Nm, 0–1000 Nm, and 0–5000 Nm.
- Power cable (EU or USA plug).
- Ethernet communication cable (5 m) and USB/LAN adapter.
- 1” adapter for torque cell.
- Pressure sensor (0–50 bar, 0–5 V, G1/4 thread).
- Software (downloadable from our webpage).
- Manual (incl. mounting hole placement drawing).
- Customer support via email / WhatsApp.

5. Technical Specifications

- Maximum allowed torque: **5,000 Nm.**
- Torque accuracy**: ±1%.**
- Torque sensor sampling frequency: **70000 Hz.**
- Torque resolution**: 0,5 Nm.**
- Maximum allowed velocity: **30,000 RPM.**
- Velocity sensor resolution: **32000 counts per revolution.**
- Velocity accuracy**: ±0.05+2 %.**
- Dimensions: **410×226×212 mm.**
- Weight: **26 kg.**
- Input voltage: **85-305 V, 50/60Hz.**
- Analog input 1: **Air pressure (maximum 50 BAR) (sensor included) .**
- Analog input 2: **Voltage (battery) (maximum 50 V).**
- Mechanical connection: **1” Adapter.**
- Data communication: **Ethernet (via standard RJ45 cable).**
- Software: Available for **Windows OS (Included).**

6. Know your Torque Measuring Device

6.1. Overview

The overview of the LABA7 Torque Measuring Device presented in the image (Figure 1) below:

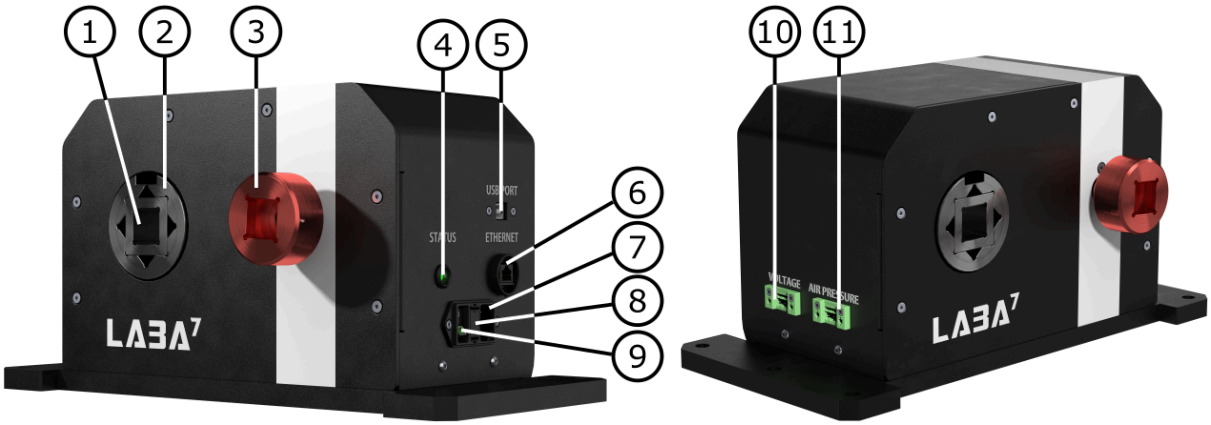

Figure 1

1. 1” Adapter
2. Torque Measurement Sensor
3. RPM Measurement Sensor
4. Status indicator
5. USB Port (for updates only)
6. ETH Communication Port
7. Power Connector
8. Fuse
9. Power Switch
10. Voltage sensor
11. Air pressure sensor

6.2. Components overview

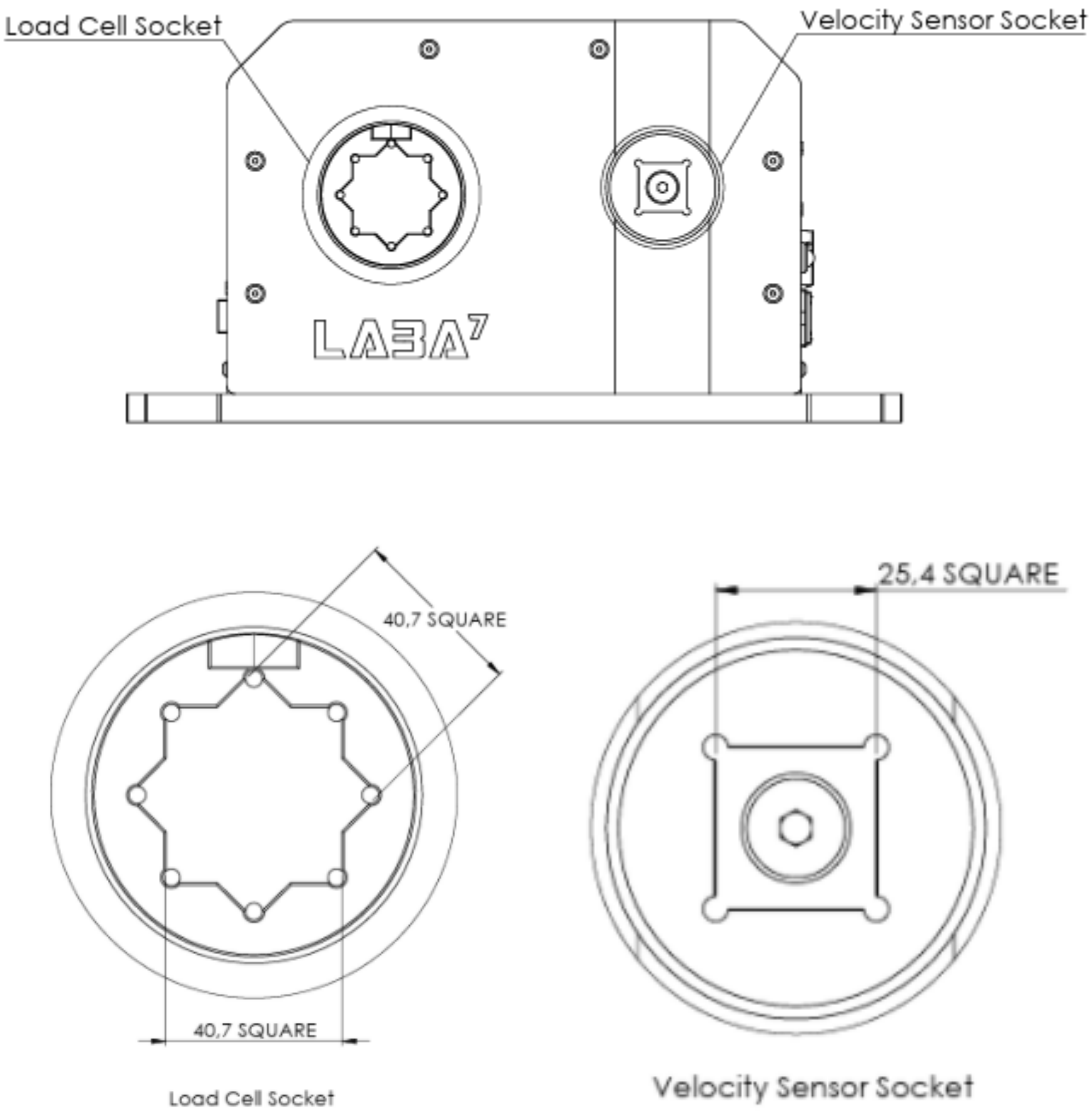

Figure 2

6.3. Mounting hole placement

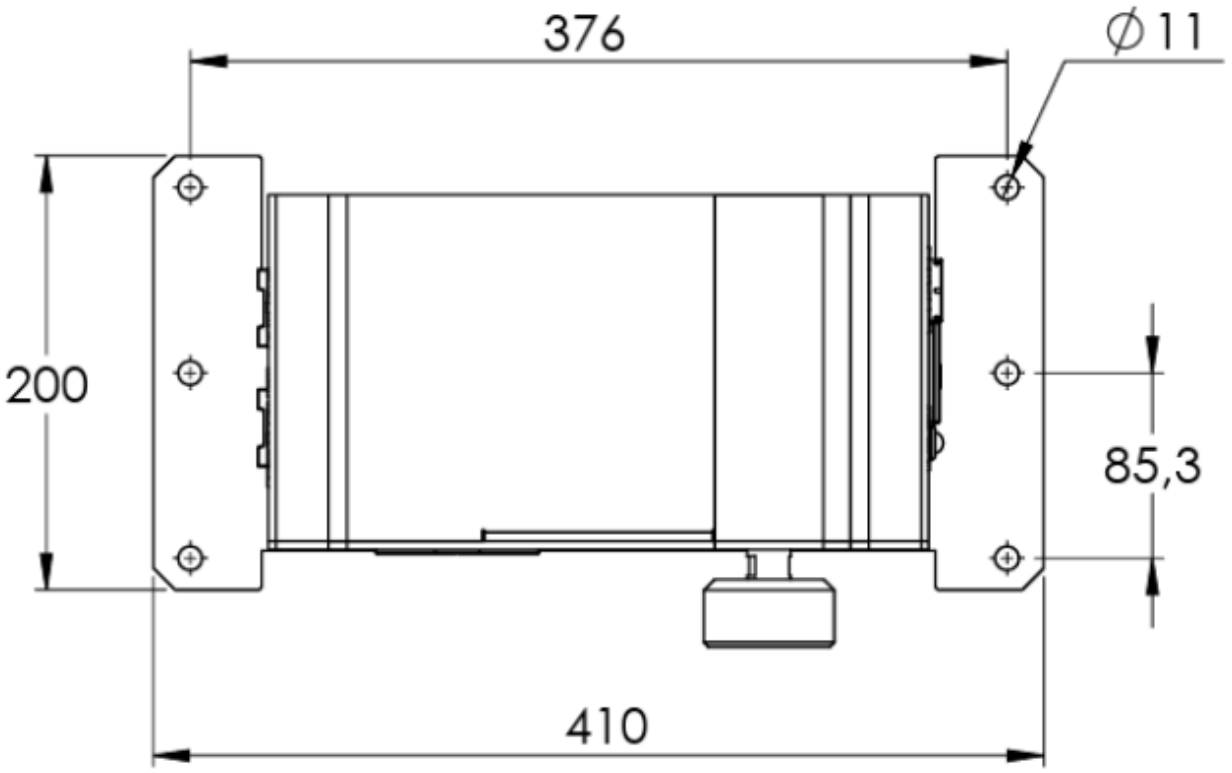

Figure 3

7. External Measurements

External measurements use **2 ADC channels:**

Pressure measurement – Monitors external pressure when a compatible pressure sensor is connected. The pressure graph displays changes during operation, allowing the user to verify normal operating ranges and ensure safe and efficient device performance.

Pressure connector:

- **“+”** – port provides constant **5 V output**.
- **“-”** – ground connector.
- **“S”** – signal connector (measures voltages from **0 V to +10 V**).

Battery measurement – Monitors the device’s battery charge level during operation. The battery graph displays changes over time, helping the user track remaining capacity and plan usage to avoid unexpected shutdowns.

Battery connector:

- **“+”** – port not used.
- **“-”** – ground connector.
- **“S”** – signal connector (measures voltages from **+3 V to +50 V**).

8. Accessories

8.1. 1” Adapter

The 1” adapter allows smaller equipment parts to be securely connected to the torque sensor. It provides proper alignment and stable attachment during testing, ensuring accurate torque measurement for tools and components that do not directly fit the sensor’s main interface.

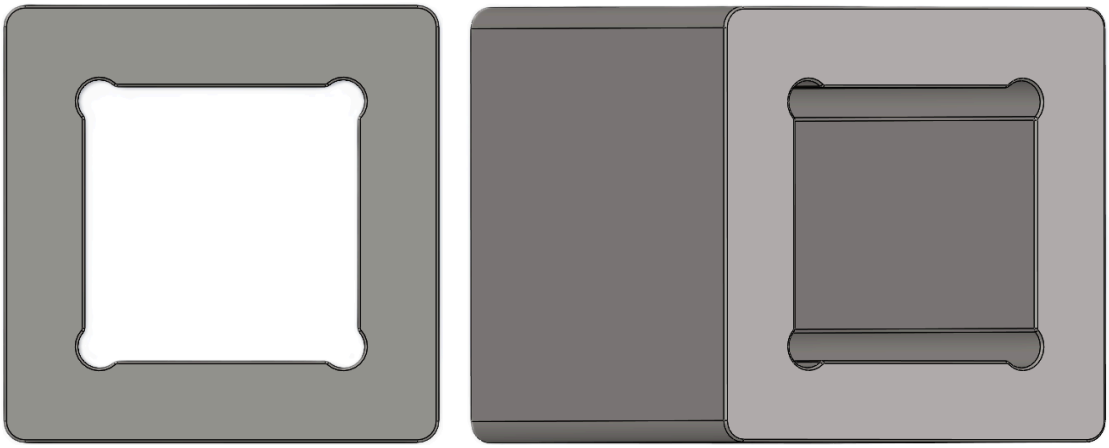

Figure 4

8.2. Pressure Sensor

With a pressure sensor connected device can measure and display pressure values during operation and record them in the pressure graph. This enables accurate monitoring of system pressure and helps the user evaluate performance and operating conditions. Ensure the pressure sensor is properly connected and compatible before use to obtain reliable measurement results.

Pressure sensors Technical parameters

Working voltage: 5 ± 0.5 VDC.
Output voltage: 0.5 – 4.5 VDC @5V.
Working current: ≤ 10 mA.
Working pressure range: 0 – 5.0 MPa.
Operating temperature range: -20 – 105 °C.
Storage temperature range: -20 – 105 °C.
Measurement accuracy: ± 1.5 %FS.
Protection level: IP65.
Response time: ≤ 2.0 ms.
Cycle life: 1,000,000 pcs.

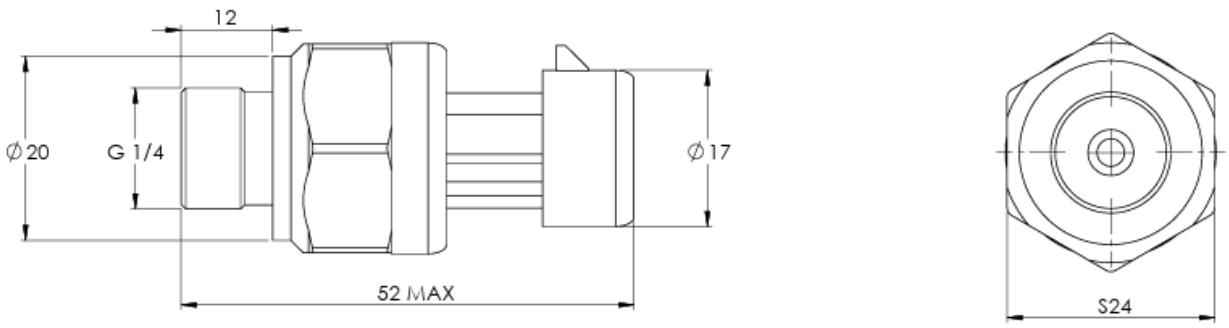

Figure 5

9. First launch

This section provides information associated with the first use of the LABA7 Torque Measuring Device.

Follow the steps below to launch the Torque Measuring Device for the first time:

1. Plug the power cable provided with the device into the power connector and plug into the mains. The device operates on 110–240 V AC, 50/60 Hz and is compatible with both 110–120 V and 220–240 V mains supplies.
2. Turn the Torque Measuring Device power switch on. The Status indicator will light up.
3. Connect the Ethernet cable for data communication.
4. Device is ready to be used.

10. Software Setup

10.1. System requirements

These are the minimum requirements for the app to function in conjunction with Torque Measuring Device:

- Windows 8, 10, 11
- .NET CORE 8.0
- 4 GB of RAM
- 3 GB of free disk space

10.2. Installation

Contact LABA7 support to receive the latest Torque Measuring Device software version.

1. Open the Torque Measuring Device software folder.
2. Locate the “LABA7_TorqueTool-win-Setup.exe” executable file and double-click to run the installation.
3. Setup will install the program and automatically launch the software once the installation is done (a shortcut will be created on your desktop).

Alternative installation method

1. Open the Torque Measuring Device software folder.
2. In the file path bar at the top of the window, type “cmd” (without quotation marks) and press Enter.
3. In the Command Prompt window that appears, paste the following command and press Enter: LABA7_TorqueTool-win-Setup.exe --installto "C:\Users\Public\Documents\Torque Measuring Device Software" Note: You can change the path inside the quotation marks to any desired installation directory
4. The installation will begin, software will be installed to the specified location, after installation the software will automatically launch the software (a shortcut will be created on your desktop).

10.3. Configuration

After launching the application for the very first time, follow the steps below to configure the initial settings:

Launch the application and go to the Settings page which is located in the top right corner.

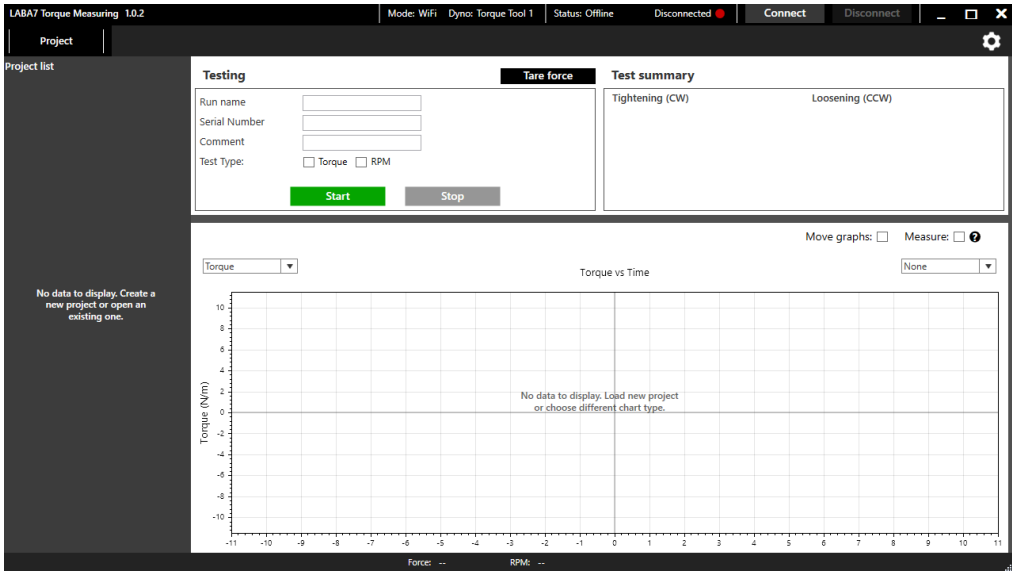

Figure 6

Select the default data catalog and default reports catalog. These catalogs define the initial locations that open when saving test project files and reports. If no catalogs are selected, the system uses the standard default folders defined by the operating system (Figure 7 – Step 1, Step 2).

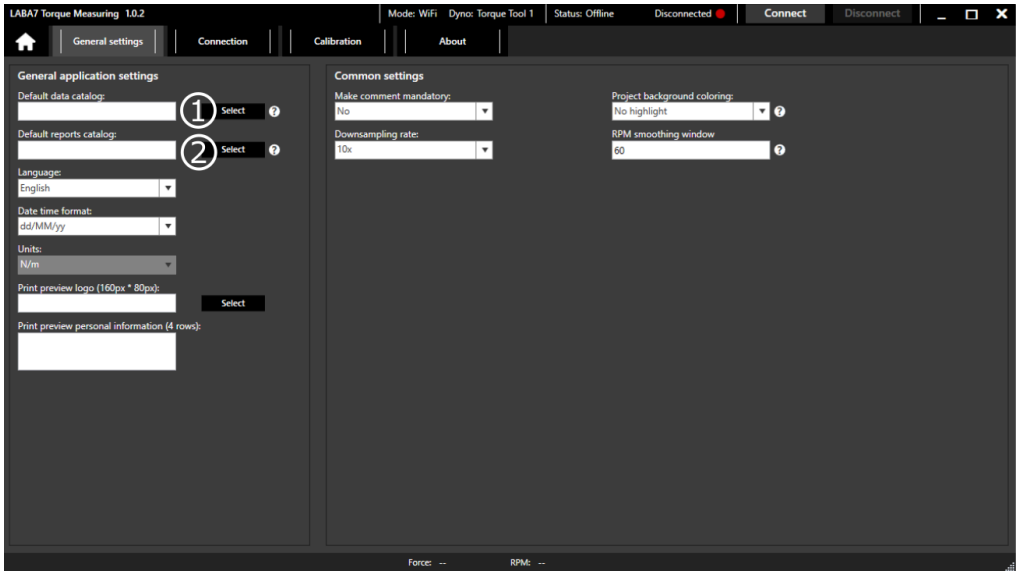

Figure 7

Go to “Connection” tab.

Add a new Torque Measuring Device by clicking “Add” button (Figure 8 – Step 1).

You can rename the tool by double-clicking on the tools name in the “Tool selection” list.

Multiple devices are used to switch between them during the operation quickly.

Figure 8

Turn on the Torque Measuring Device if it was previously turned off.

Connect the ethernet cable to the LABA7 Torque Measuring Device and the computer.

Wait 15-20 seconds for the Torque Measuring Device to initialize.

Press “auto-detect” to automatically detect IP address of the device (Figure 8 – step 2).

Press “Connect” (Figure 8 – step 3).

11. Software Operation

11.1. Main Menu

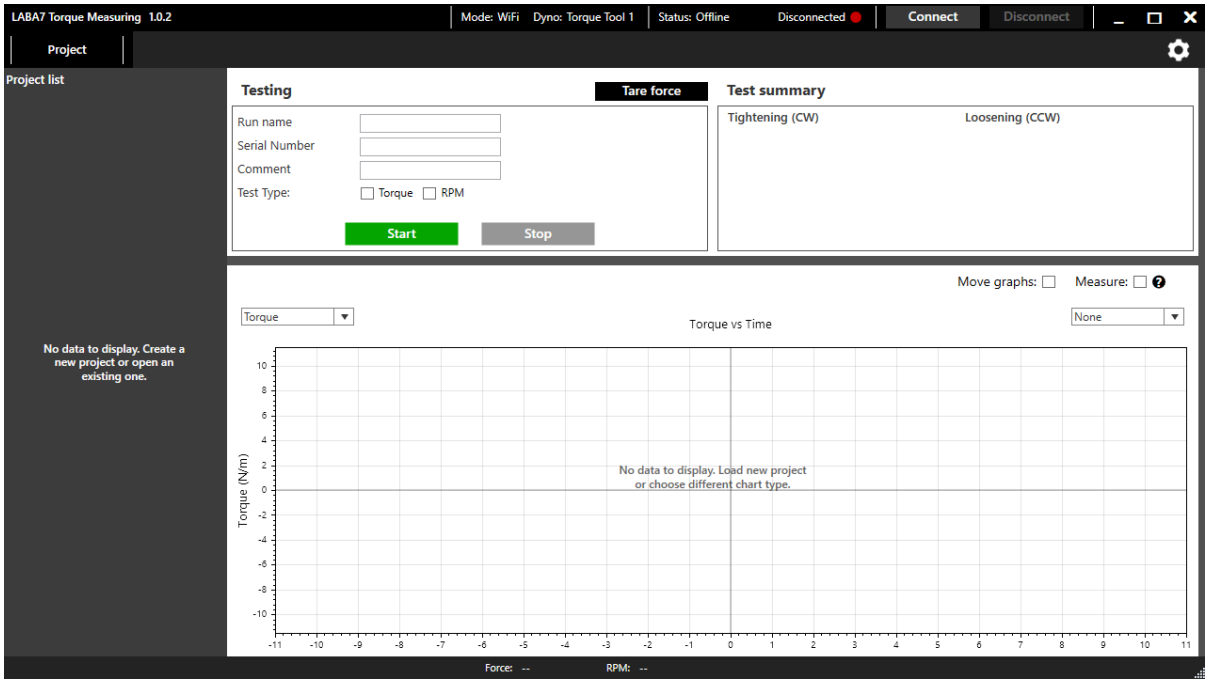

Figure 9

Once the application is launched, you will see the main screen:

- Project – create new or open old projects and tests.
- Settings – software and hardware configuration.
- Tare Force – resets the force measurement to zero before testing.
- Run name – specifies the title of the test run. This name is displayed in the results list and allows the operator to distinguish between different test sessions.
- Serial number – enter the unique identification number of the testing equipment being tested.
- Comment – enter a comment about the run.
- Test type – select whether the test will measure RPM or Torque.
- Start button – initiates the selected test and begins data collection.
- Stop button – stops the ongoing test and ends data collection.
- Test summary – presents the collected measurement data for the completed test. The parameters shown are determined by the selected test type:
    - Torque test: reports Maximum, Minimum, and Average torque values (N/mm) for both Tightening (CW) and Loosening (CCW) directions.

    - RPM test: reports Maximum and Average rotational speed (RPM) for both Tightening (CW) and Loosening (CCW) directions.
- Graph type – specifies the format of the visual data display. Depending on the selected measurement, the system can present an RPM (Velocity) graph, a Torque (Torque vs. Time) graph, a Pressure graph, or a Battery graph to illustrate the test results.
- Move Graph checkbox – activates the ability to manually reposition the graph on the X-axis.
- Measure checkbox – activates on-screen measurement tools. When selected, adjustable vertical and horizontal lines are displayed on the graph, allowing the operator to obtain precise data readings such as V(1), V(2), V(Δ), Maximum velocity, and Minimum velocity based on their position.

Additionally, you can check your software version, check Live Torque Measuring Device data such as current force and RPM and you can see which device is currently active.

11.2. New Project

Locate “Project” button in the top left corner. Press it and then – press “New project”.

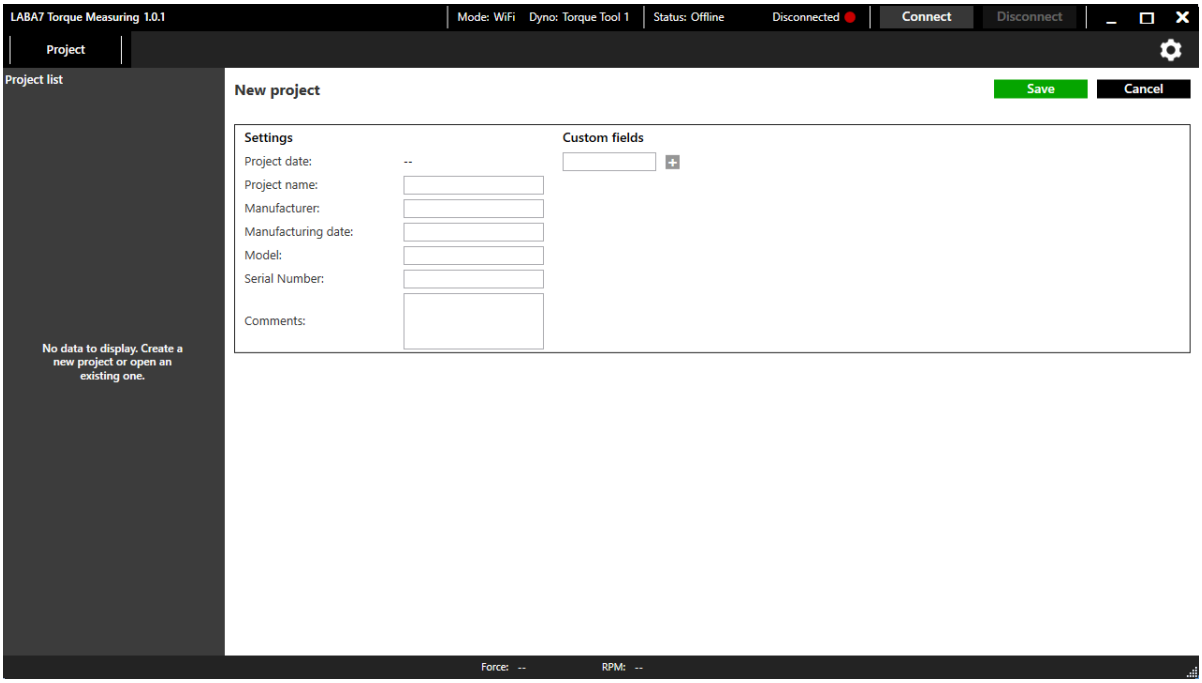

Figure 10

Enter the following information to proceed to the testing area:

- Project Name – the name of the project that will be tied to all the tests within this project.
- Manufacturer – manufacturer of the equipment being tested.
- Manufacturing date – the date when the equipment was manufactured.
- Model – model name of the equipment which is being tested.
- Serial number – Enter the unique identification number of the testing equipment being tested.
- Comment – comment about a project.

11.3. Graph Comparison

To compare graphs from previously completed tests, go to the Projects list on the left side of the screen. Click the dropdown arrow next to a completed test and select the runs you want to compare.

Figure 11

By right-clicking on the color of the checked test in the Recent Tests list, it is possible to change the color of the graph.

In order to add a visual data point in the graph view, use the left mouse button. There is no limit to the number of data points. Double-click left mouse button to clear the data points.

Use the mouse scroll wheel to zoom in or out of the displayed graphs.

Double-clicking the right mouse button on the graph area will restore the default zoom. It is possible to scroll only on one axis by using the scroll wheel directly over the horizontal or vertical axis label.

The graph view allows simultaneous display of two selected parameters from the same test run. Both curves are shown on a shared time axis, enabling direct comparison of system behavior and interaction between measured variables during operation.

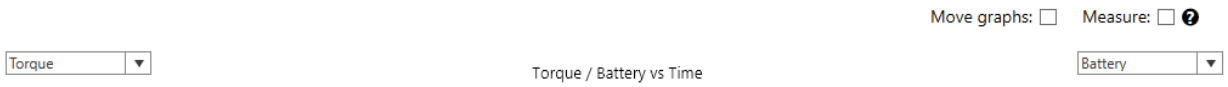

Figure 12

11.4. Graph Types

Torque graph

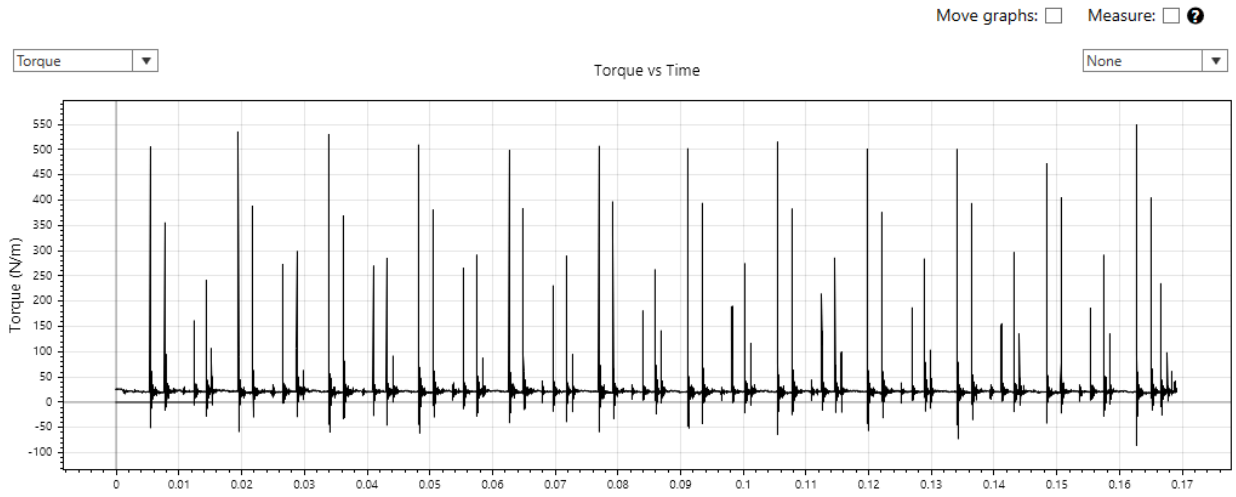

Figure 13

The torque graph shows the amount of torque produced by the device during operation under different conditions, such as speed or time. It helps the user understand how torque changes and identifies the optimal operating range. Using this graph ensures the device is operated efficiently and within safe load limits.

RPM graph

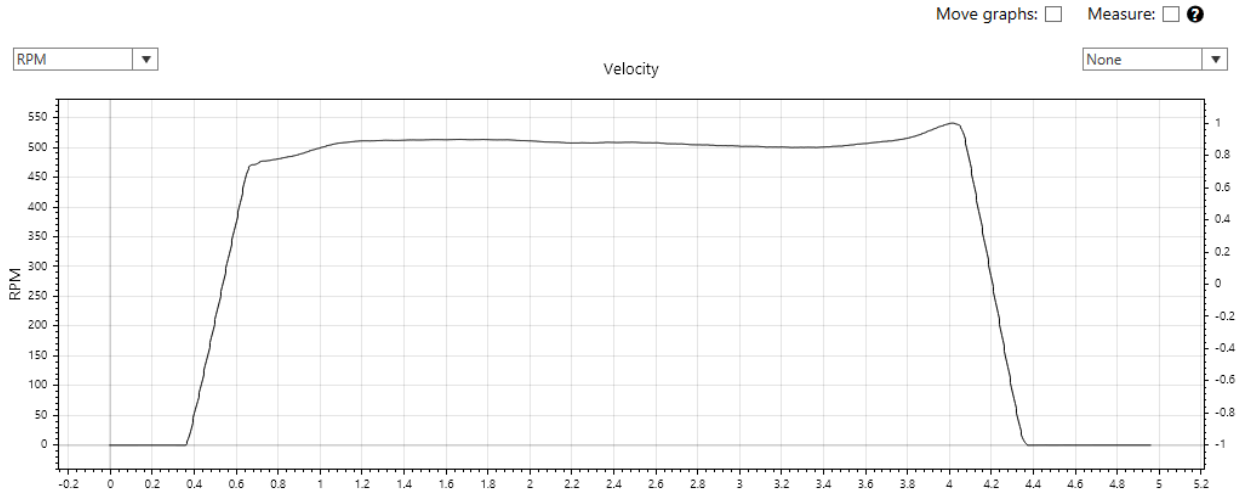

Figure 14

The RPM graph shows the rotational speed of the device, measured in revolutions per minute (RPM), during operation under different conditions, such as time or load. It helps the user understand how operating speed changes and identifies the normal and maximum speed ranges. Using this graph ensures correct speed selection for efficient operation and reduced mechanical wear.

Battery graph

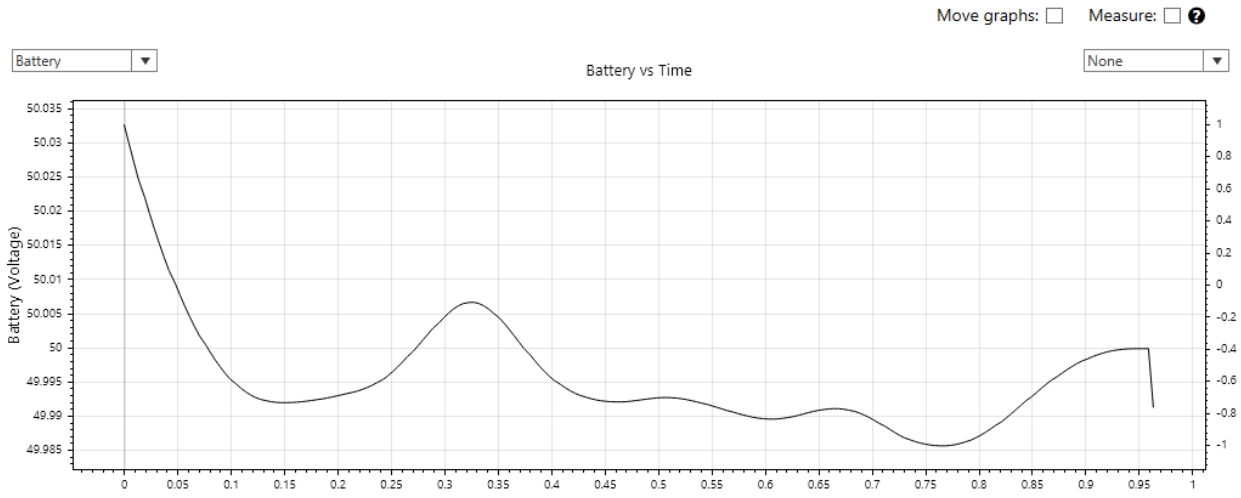

Figure 15

The battery graph shows the battery charge level of the device during operation over time. It helps the user monitor remaining battery capacity and understand how battery level changes under different operating conditions. Using this graph allows the user to plan operation time and avoid unexpected shutdowns.

Pressure graph

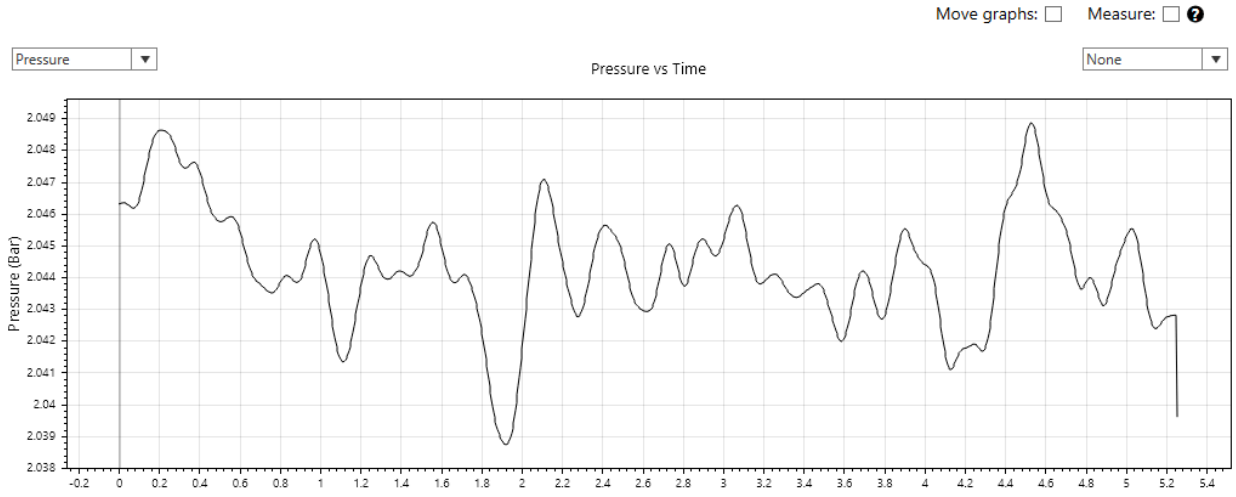

Figure 16

The pressure graph shows the pressure generated or measured by the device during operation under different conditions, such as time or load. It helps the user monitor pressure changes and identify normal operating ranges. Using this graph ensures the device is operated safely and prevents damage caused by excessive or insufficient pressure.

11.5. Settings

In the Settings menu, accessible through the main menu, a user can modify the settings related to the general use of the application.

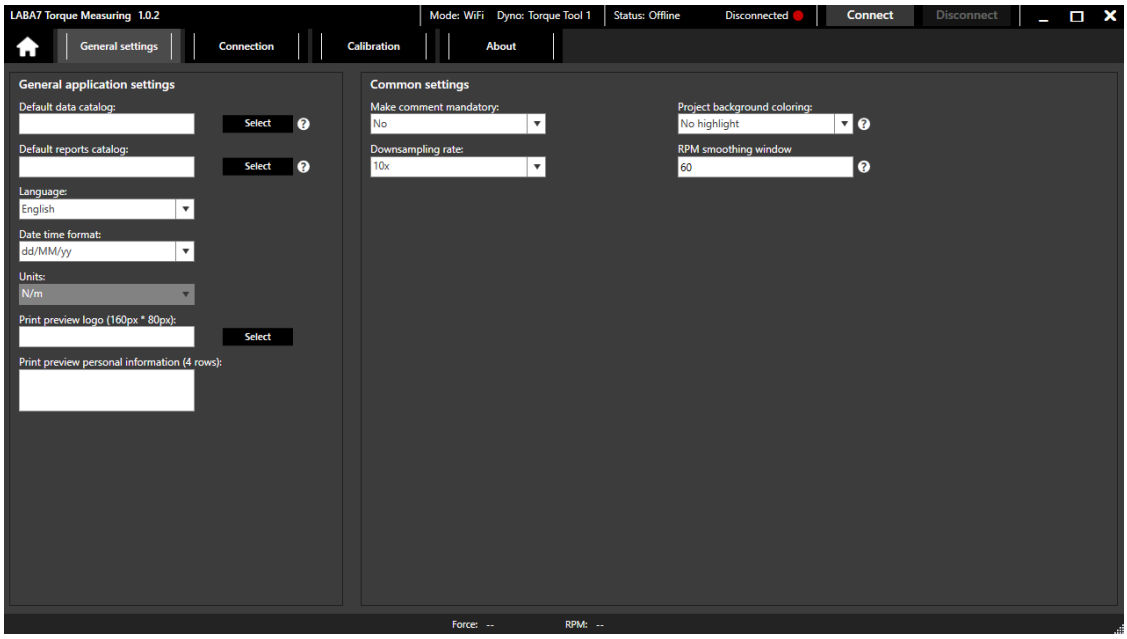

Figure 17

General Settings

- Default Data Catalog – select the default location where the application will store tests. If the location is not selected then the software will store new tests in the same folder that was used most recently.
- Default reports catalog – select the default location where the application will store reports. If the location is not selected then the software will store new tests in the same folder that was used most recently.
- Language – change to a different user interface language.
- Date time format – change date and time format.
- Units – allows user to change different units of measurement.
- Print Preview Logo – choose an image file that will be visible on a print preview in the upper left corner.
- Print Preview Personal Information – enter any information that will be visible on a print preview in the upper right corner.

Other Settings

- Make comment mandatory – makes the test comment mandatory.

- Project background coloring – determines how projects can be differentiated between themself.
    - No highlight – same background for all projects.
    - Altering – odd and even projects will have different background color.
    - Colored – each project will have its own background color.
- Downsampling rate – the data reduction factor used to record measurement points at a lower sampling rate.
- RPM smoothing window – the averaging window size used to smooth RPM data by reducing short-term fluctuations in the signal.

Calibration

The calibration window is used to configure and calibrate connected sensors. Calibration ensures that measured electrical signals from the sensors are correctly converted into meaningful physical values.

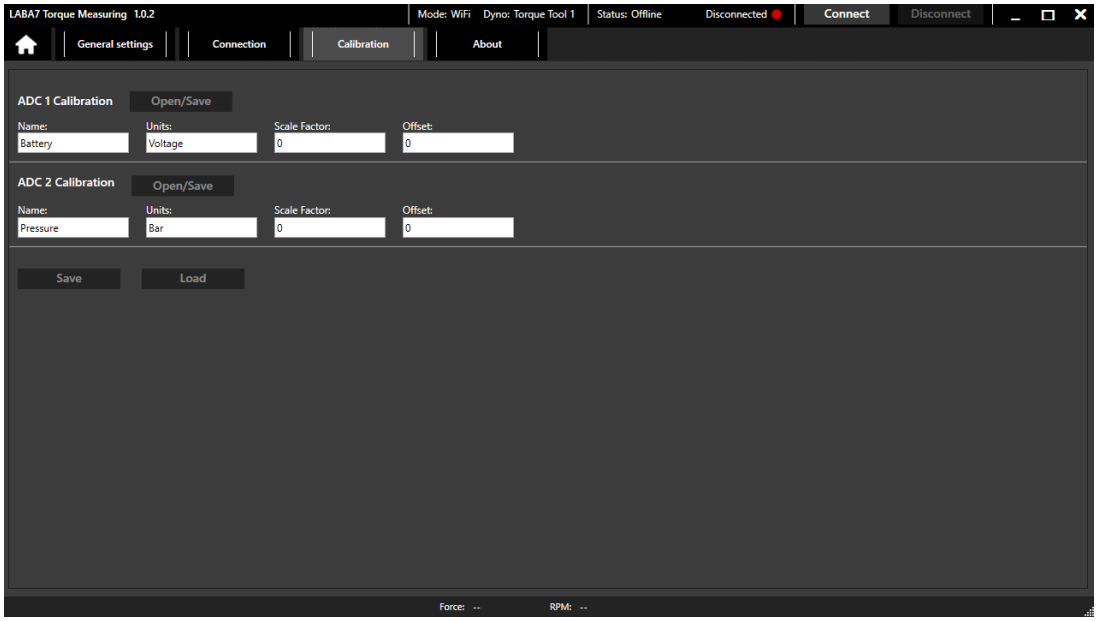

Figure 18

Name – defines the name of the connected sensor. The entered name is displayed in graphs.

Units – specifies the measurement unit associated with the sensor. The selected unit is shown together with the measured values.

Scale Factor – determines the multiplication factor applied to the raw ADC signal to convert it into the corresponding physical measurement value. This value must be set according to the sensor's output characteristics.

Offset – defines a correction value that is added or subtracted after scaling. This is used to compensate for sensor zero deviation or measurement offset.

Open/Save – allows loading previously saved calibration settings for the selected ADC channel or saving the current channel configuration for future use.

Save – saves all current calibration settings for every ADC channel.

Load – loads previously saved calibration settings and applies them to all ADC channels.

About

An area for updating the software and checking release notes.

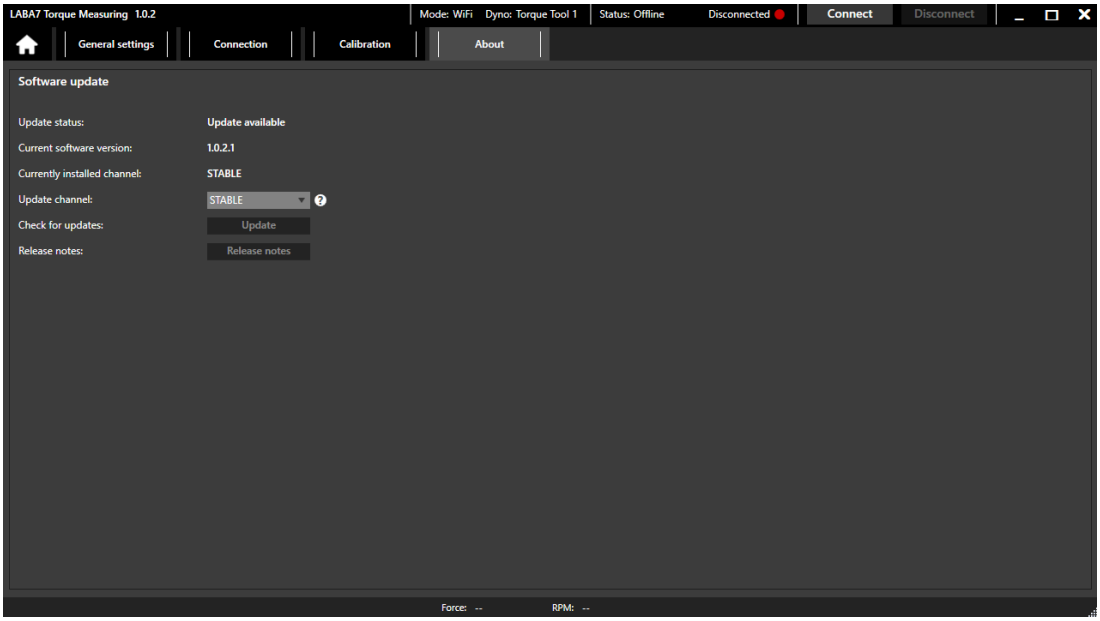

Figure 19

Update Channel function allows the user to choose which version stream of the software to receive updates from.

- STABLE – provides thoroughly tested releases that prioritize reliability and long-term stability. Updates are less frequent but have undergone extensive validation.

- BETA – provides access to the latest features, improvements, and fixes. However, these versions may be less stable or contain minor issues.

Changing the update channel takes effect only after performing a “Check for Updates” and installing the newly available version.

Release Notes provide a summary of the changes made in each new software version. They typically include information about newly added features, improvements, bug fixes, and any known issues.

12. Troubleshooting

This section defines the most common issues that can arise when using the LABA7 Torque Measuring Device and what steps to take in order to fix them.

12.1. Mechanical Failures

Issue	Solution
The device power switch does not light up, and the device does not start.	Unplug the power cable and change the fuse near the power switch. Fuse parameters: 5×20/10A.

12.2. LED Light Indicator

Light Color	Meaning
Red	Internal error, contact support.
Yellow	The torque measuring device is powered on.
Green	The torque measuring device is connected to the software.

13. Warranty Information

LABA7 Torque Measuring Device is covered for 1 year of manufacturer warranty starting from the date of purchase, and it covers any manufacturer-related failures during that period.

WHAT IS NOT COVERED

ALTERATION, MISUSE, OR ACCIDENT DAMAGE

Examples are:

- Failure to operate the device in accordance with the Owner's manual.
- Collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking your device.
- Alteration of your device, including software programming or other components.
- Damage caused by improper maintenance or failure to follow the recommended maintenance schedule.

The repair of damages that are caused because parts or services used were not those prescribed in this manual's recommended maintenance schedule is not covered under warranty. It is the owner's responsibility to maintain the device as more fully set forth in and in accordance with the maintenance schedules outlined in this manual.

MODIFICATIONS

Damage or performance problems resulting from modifications to your device are not covered under warranty.

Examples of modifications:

- Altering any mechanical parts or software programming.

The manufacturer is not responsible for any damages to the device during transportation. During accepting the shipment, please inspect the package for any visual damage. If the package is damaged, do not accept it.

14. Additional Information

This section provides additional information related to conformity with the relevant Union harmonisation legislation:

- The crossed-out wheeled bin symbol with a solid bar shown on this equipment indicates that it must not be disposed of as unsorted municipal waste at the end of its life. It must be collected separately and sent for recycling in accordance with applicable WEEE regulations. For information on the return, collection and recycling of this product, please contact the manufacturer or your local supplier.
- LABA7 complies with the applicable obligations of the REACH Regulation (EC) No 1907/2006. If any component of this equipment contains a substance of very high concern (SVHC) in a concentration above 0.1 % w/w, information in accordance with REACH Article 33 will be provided on request.

15. Contact

If you have further questions about the product or need help with the installation, our technical staff will be happy to help you. Contact information can be found on our website www.laba7.com.

UAB LABA7

Address: Giluzio st. 15 Vilnius LT-06253 Lithuania

Email: info@laba7.com

Mobile phone: +37065715336

EU Declaration of Conformity

Date of Issue 14th June 2025 Vilnius, Declaration Number 2025-06-14/01

Name of the manufacturer:	LTD “LABA7”
Address of the manufacturer:	Gilužio str. 15, LT-06239, Vilnius, Lithuania
Contacts of the manufacturer:	info@laba7.com
Object of the declaration:	Torque Measuring Device
Identification code of the object:	TRQ2-00001
Description of the object:	Torque measuring device accurately evaluates the output of impact wrenches and wheel guns by capturing the rapid, violent pulses that static testers miss. Main specifications: max torque 5,000 Nm; max velocity 30,000 RPM; sampling frequency 70,000 Hz; input monitoring: air pressure (pneumatic) & voltage (battery)
Object of the declaration described above is in conformity with the relevant Union harmonisation legislation:	– Machinery (MD) Directive 2006/42/EC – Electromagnetic Compatibility (EMC) Directive 2014/30/EU – Restricts hazardous substances in electrical and electronic components (RoHS) Directive 2011/65/EU
References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:	– EN IEC 61000-6-1:2019 – EN IEC 61000-6-2:2019 – EN IEC 61000-6-3:2021 – EN IEC 61000-6-4:2020 – IEC 60335-1:2020
Additional information:	This declaration certifies compliance with the above-mentioned directives. This declaration of conformity is issued under the sole responsibility of the manufacturer. The technical documentation for the object of declaration is available from the manufacturer at the address above.
Name and title of the manufacturers' representative:	Andrius Liškus CEO
Signature of the manufacturers' representative: