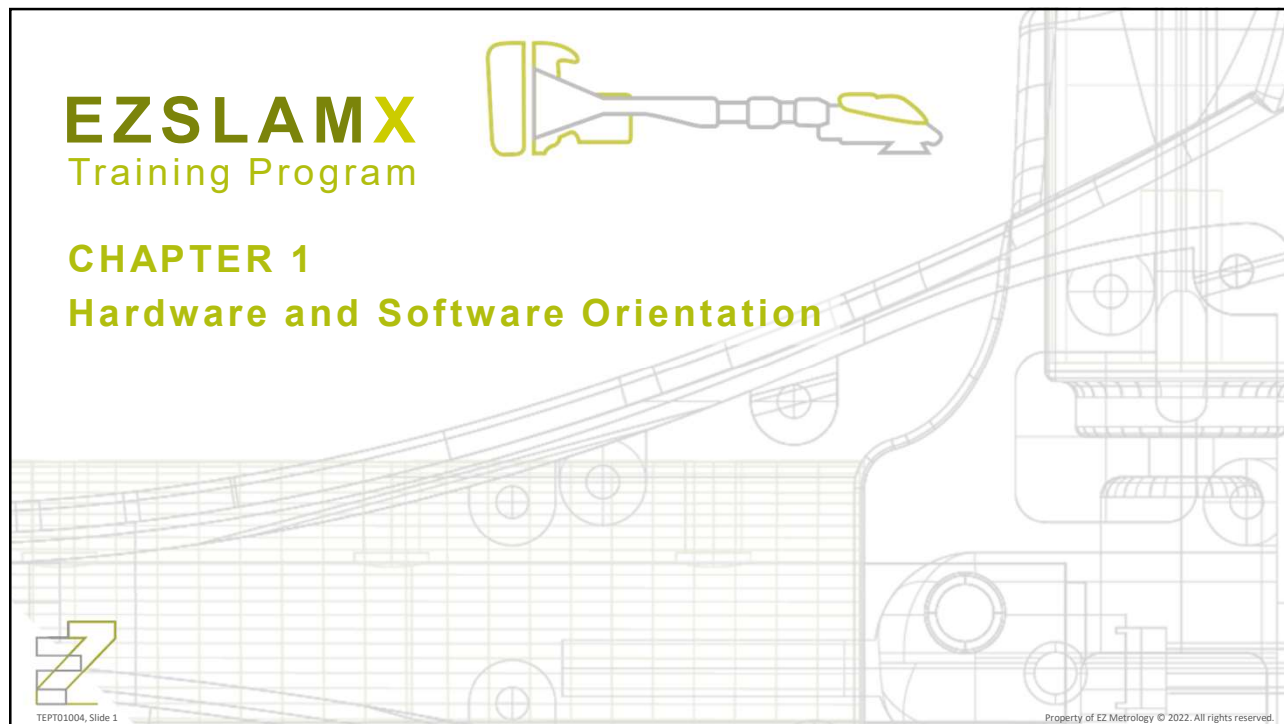
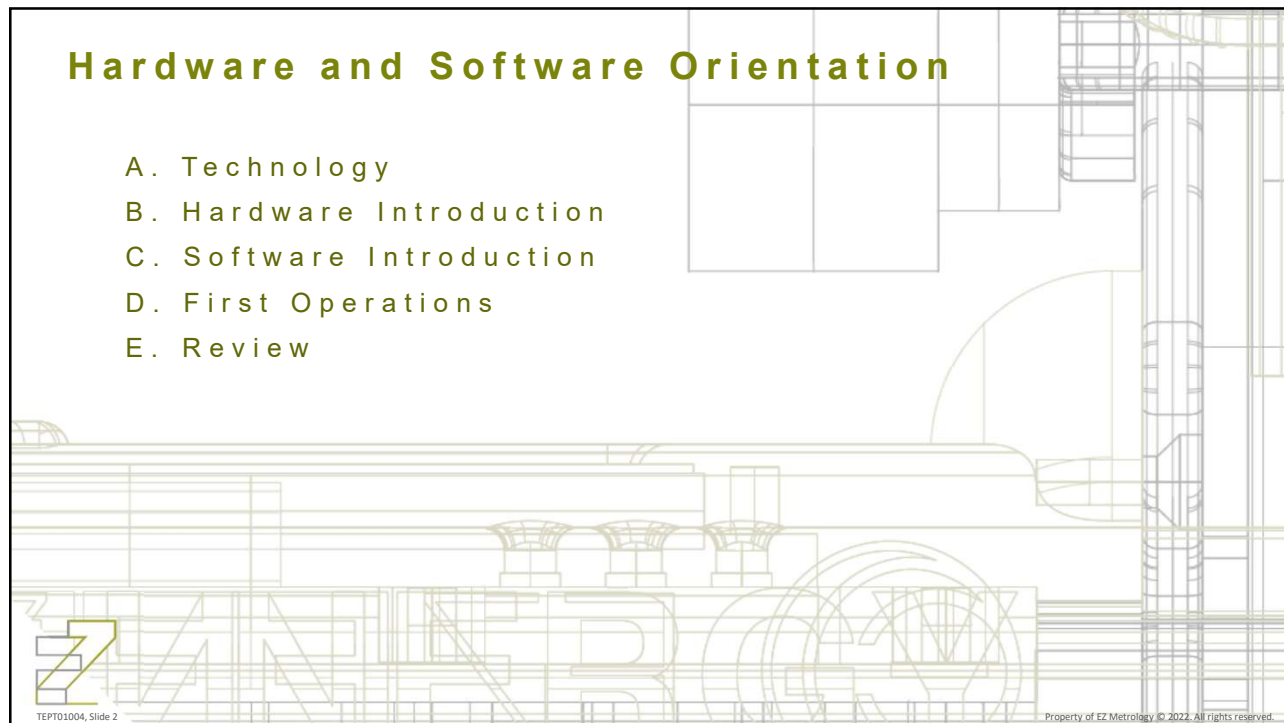
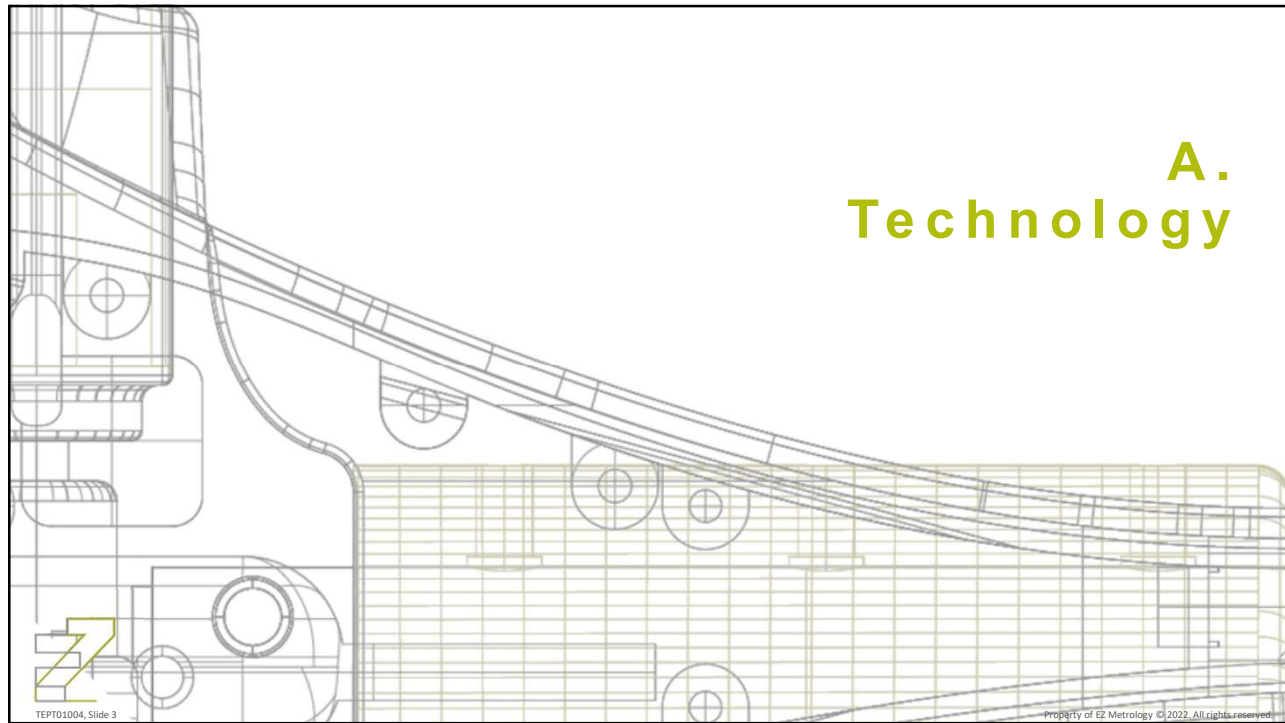




1



2



3

A. Technology

1. Definition

EZSLAM

makes it possible for

ANYBODY

to capture accurately

ALL KEY METRICS

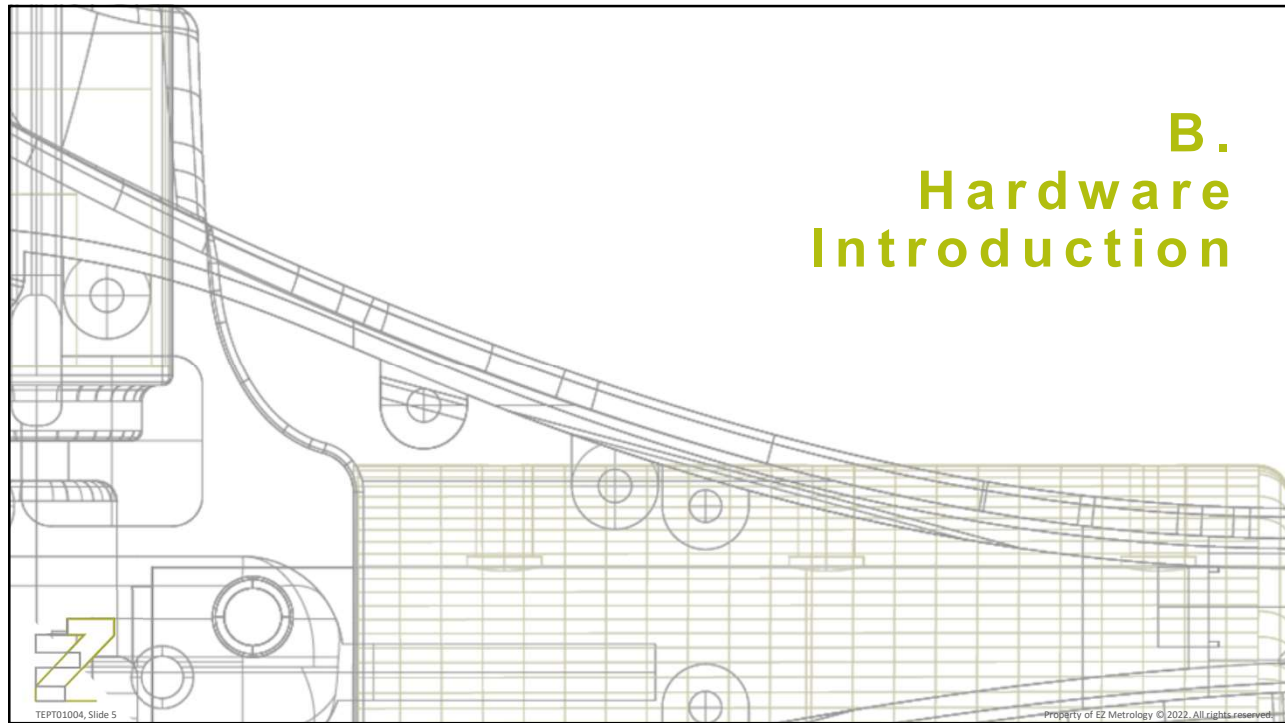
of a door in a

QUICK SIMPLE OPERATION

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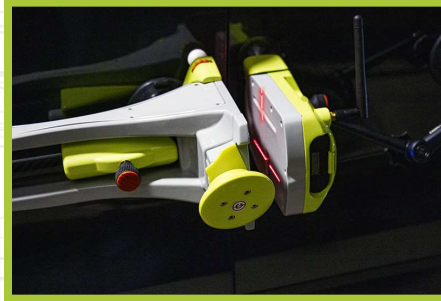
5



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B. Hardware

2. Technology



1. TRAJECTORY
2. ANGLE
3. SPEED
4. ACCELERATION
5. FORCE
6. CABIN PRESSURE



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B. Hardware

3. Operation

There are three steps in any standard operation with EZSlam. They are addressed during different sections of this training course.

Installing

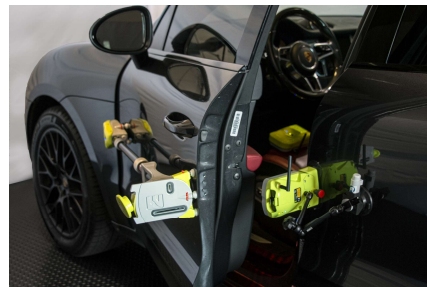
All 3 units are installed on a vehicle; on the door, adjacent on the body, and in the cabin.

Acquisition

A standard set of runs are recorded.
The performance and consistency is reviewed in real time.

Evaluation

Results can be studied and compared to target values.



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C. Software

1. Installation

Download & Install Matlab library

Using EZM Download Center: Navigate to EZSlam → EZSlamX. The Matlab Library installers are located at the bottom. Selecting either installer will show information as to which installer is appropriate for the computer.

Download & Install EZSlamX

From Download Center, the most current release or beta can be selected.

Included with the system, the most current version of EZSlamX and the appropriate Matlab Library are included on a flash key.

Ask for FAQ051 for detailed instructions.

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C. Software

2. Nomenclature

Session

A collection of measurements on a single door to create the DNA characteristics of that configuration at that moment. A session can be composed of several runs and involves Convention Settings and a Door Profile.

Run

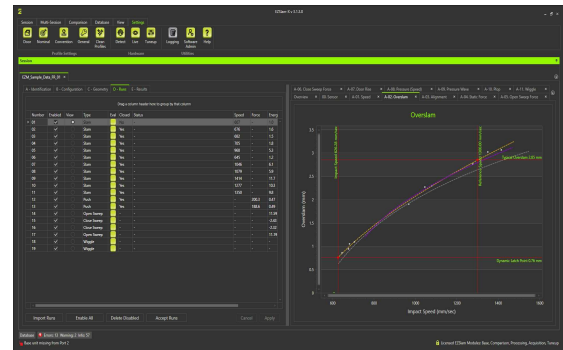
A run is an individual measurement within a Session. Typically, it is one of the standard tests that are shown immediately following the measurement.

Metrics

List of numerical values that represent the DNA of the door.

Profile

One or multiple preconfigured collections of settings that can be applied to a measurement at any time (pre- or post-measurement).



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C. Software

3. Main Screen

Main Menu

Session

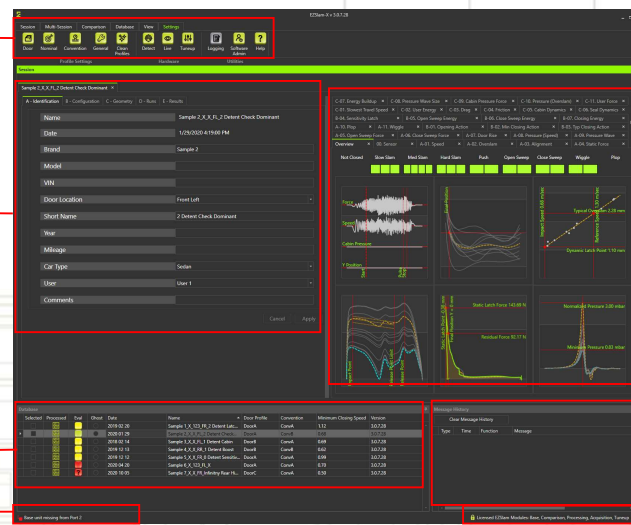
Database

Connectivity

Graphs

Messages

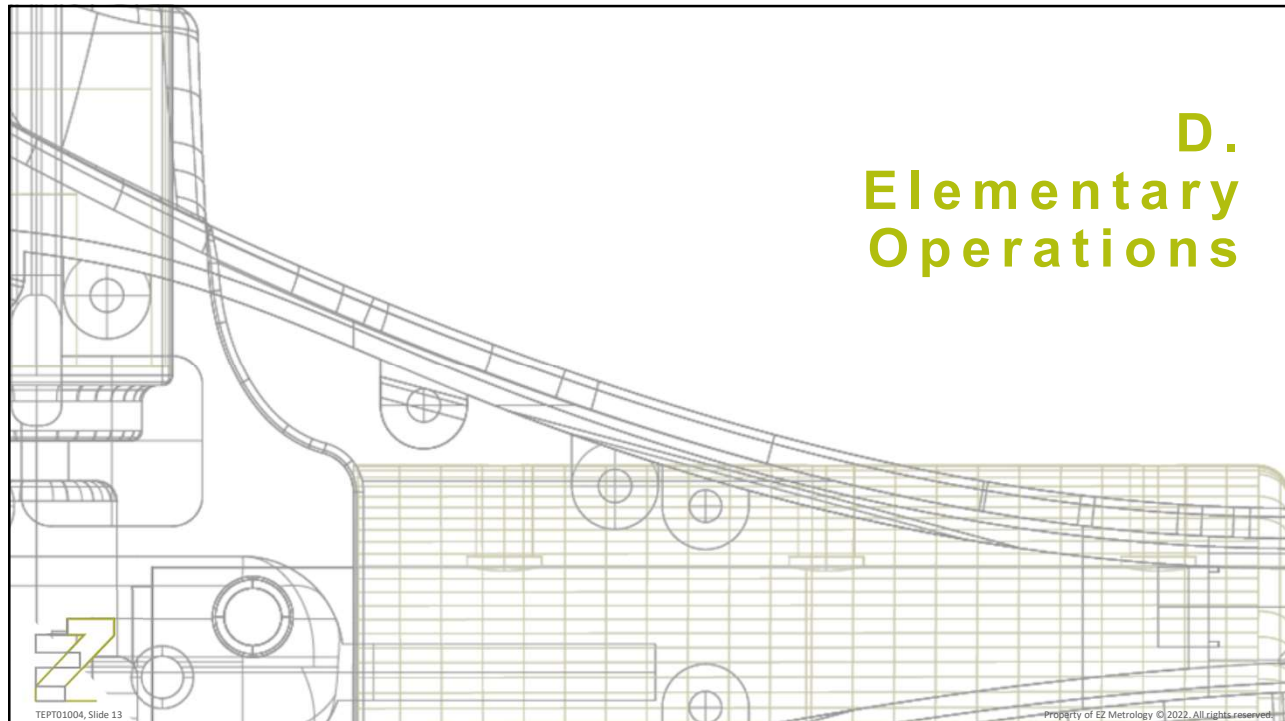
License



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D. Elementary Operations

1. Connect to the hardware

Connect Base Unit - USB

Connect the Base unit with the USB cable to an available port on the computer. Install the large antenna on the coax connection on the Base unit.

Power Measurement Units

For each of the 3 measurement devices, insert the battery and turn the device on by clicking the power button.

The green light should come on and a blue light will blink. This indicates the unit is waiting for instructions from the Base unit.

Install Antenna

Only the Body unit and the Cabin unit have external (smaller) antennas. Install both on their respective units.



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D. Elementary Operations

1. Connect to the hardware

Base Station

After 5 blinks, the LED will indicate the following state:

- Green Blinking** : Power via USB
- Green Solid** : Communication with the Software is established
- Blue Blinking** : Searching for Measurement Units
- Blue Solid** : Communication with Units is established
- Blue Blinking (fast)** : Receiving Data from measurement units

Measurement Units

After 5 blinks, the LED will indicate the following state:

- Green Solid** : Power via Battery
- Blue Blinking** : Waiting to pair with Base Station
- Blue Solid** : Connected to Base Station
- Blue Blinking (fast)** : Transmitting data to Base Station
- Red Solid** : Recording Data
- Red Blinking** : Finalizing Transmission



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D. Elementary Operations

2. Software Configuration

On the first usage certain user-specific configurations might be recommended.

General

Basic options can be set such as

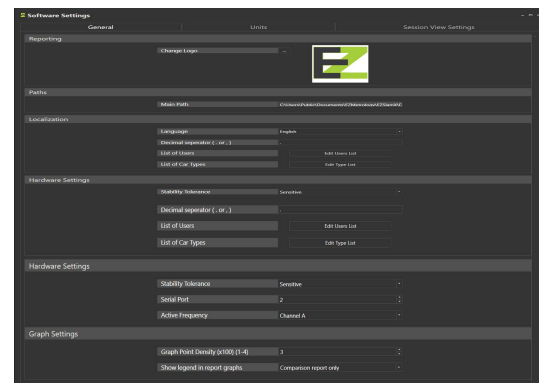
- Language (limited availability)
- Decimal separator (. OR ,)
- Users and types (edit list)
- Hardware (serial port, frequency)
- Graph preferences
- ...

Units

Select preferred unit for different metrics.

View

Possibility to customize views and associated report content.



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D. Elementary Operations

3. License information

Quick Info

The license info can be found in the lower right-hand side of the EZSlamX program window. It takes a few seconds to validate the license.

Registration

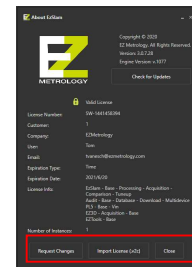
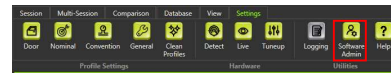
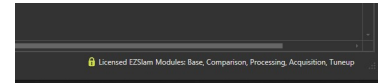
If the software is installed on a new computer, the license will need to be registered. Even a free viewer license will need to be registered.

Expired

If the license is expired, most features of EZSlamX will be disabled and shown in gray in the Main Menu.

Update or Renew

Full license information can be found in the Main Menu at Settings → Software Admin. In a new window, the license can be renewed (Request) or updated (Import). The mechanism is using a file exchange between the computer and EZ Support.



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D. Elementary Operations

4. Requesting a License

Request Changes

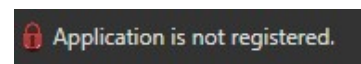
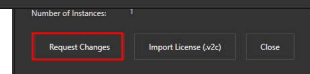
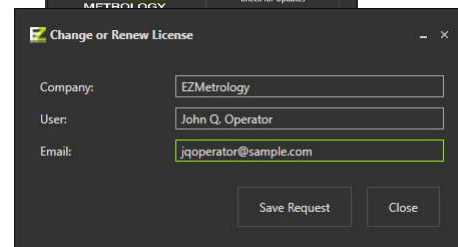
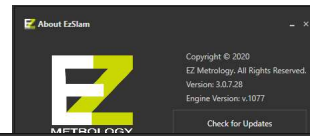
Click the "Request Changes" button at the bottom of the Software Admin window.

Fill out information

Complete the form with your information and click "Save Request". The request file (.c2v) can be saved to a convenient location on your PC.

Send Request to EZMetrology

Attach the .c2v file in an email and send to support@ezmetrology.com



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D. Elementary Operations

5. Importing a License

Save License

Once the license is received from EZM Support (.v2c), save the license in a convenient location. Default location is:

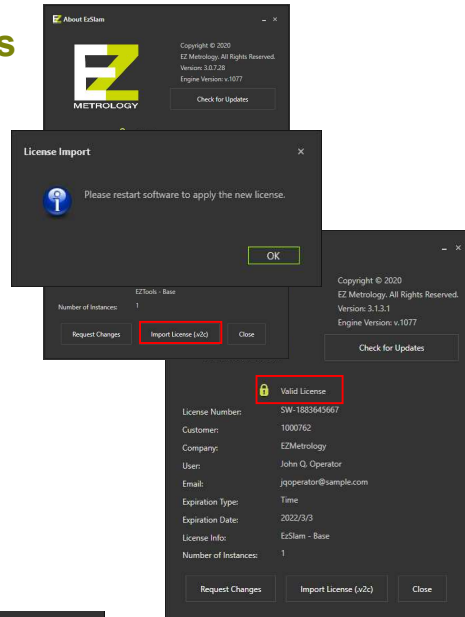
C:/Users/Public/Documents/EZMetrology/Licensing

Import License

Open EZSlamX and navigate to Software Admin. Select "Import License (.v2c)" and import the new license.

Restart Software

For the new license to take effect, the software must be restarted. Once restarted, The license information will be updated.



🔒 Licensed EZSlam Modules: Base

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D. Elementary Operations

6. Importing a Session

Database

Navigate to the Database of the main menu ribbon.

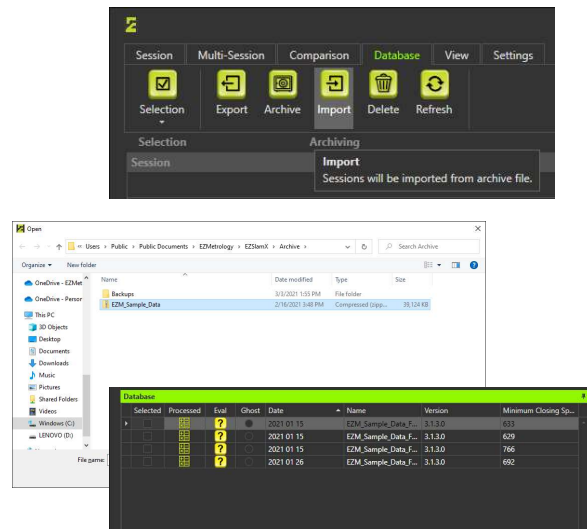
Import Session

Select the "Import" icon and select the .zip archive to be imported.

Database Window

Once imported the data will be listed in the database window.

Ask for FAQ051 for detailed instructions.



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D. Elementary Operations

7. Hardware Detection

Quick Info

Connected devices will be shown in the bottom left of the EZSlamX application window. If the system has been configured, it will automatically attempt to connect.

Configuration

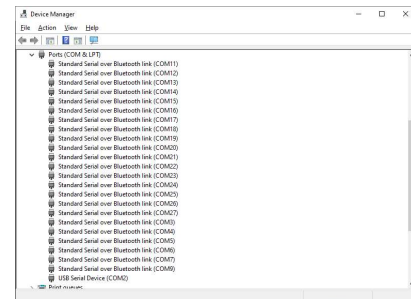
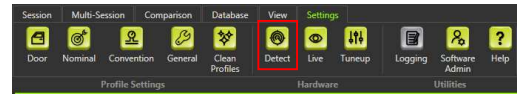
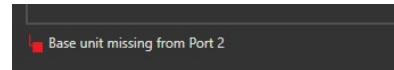
The COM port must be configured the first time that EZSlamX is opened. This is done in Main Menu → Settings → General.

Serial Port is selected in the Hardware Settings section. Change the value to match that of the Base unit connection in Device Manager.

Detecting Devices

In the Settings tab of the Main Menu ribbon, click Detect.

Depending on the windows version, the software might need to restart for the device to be found.



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D. Elementary Operations

8. Live Mode

Quick Info

Live Mode button is available in Settings tab in Hardware section.

Verifies serial number and calibration information.

Live mode displays:

- 9 sensor data channels
- 3 latency graphs for each unit: communication speed

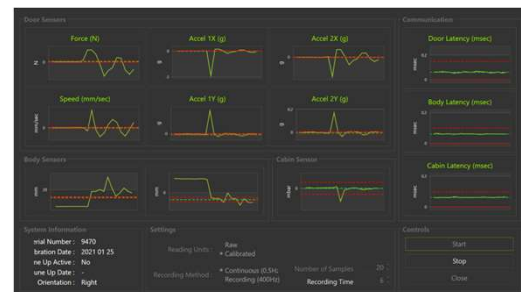
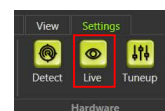
Raw / Calibrated

The readouts can be selected to be in raw units (mV) or calibrated units (e.g., N, g-force, mm/s, mm, & mbar).

Continuous / Recording

Selecting Live acquires a continuous stream of data at 0.5Hz, indefinitely.

Recording will generate a recording of a predetermined recording time at 400Hz.



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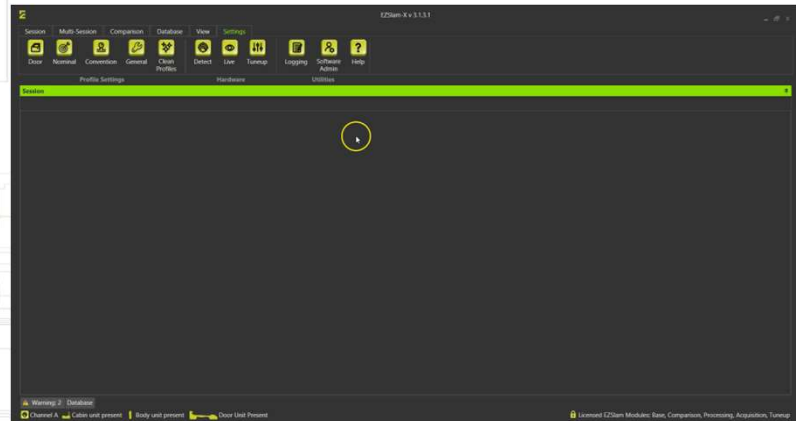
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Video

Live Mode

- Detect
- Raw / Calibrated
- Continuous (Samples) / Recording (Time)



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D. Elementary Operations

9. Database Window

The Database Window contains all sessions available in the current database to be viewed.

Selected

Session can be selected for multi-session operations.

Processed

Indicates if the session has been processed or not. Imported, old or invalid session could show a grey icon.

Eval

Indicates the status of the session, can be related to completeness (missing data), quality, or tolerances.

Ghost

If desired, one session may be chosen as a ghost or displayed as a watermark in the current sessions.

Selected	Processed	Eval	Ghost	Date	Name	Door Profile	Convention	Minimum Closing Speed	Version
				2019 02 20	Sample 1_X_123_FR_2 Detect Lat...	DoorA	ConvA	1.12	3.0.7.28
				2020 01 29	Sample 2_X_X_FL_2 Detect Check...	DoorA	ConvB	0.68	3.0.7.28
				2018 02 14	Sample 3_X_X_FL_1 Detect Cabin	DoorB	ConvA	0.69	3.0.7.28
				2019 12 11	Sample 4_X_X_FR_1 Detect Board	DoorB	ConvC	0.62	3.0.7.28
				2019 12 12	Sample 5_X_X_FR_0 Detect Sensiti...	DoorA	ConvA	0.99	3.0.7.28
				2020 04 20	Sample 6_X_X_123_FL_X	DoorA	ConvA	0.70	3.0.7.28
				2020 10 05	Sample 7_X_X_FR_Indooring Near H...	DoorC	ConvA	0.50	3.0.7.28

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D. Elementary Operations

10. Database Window

Field

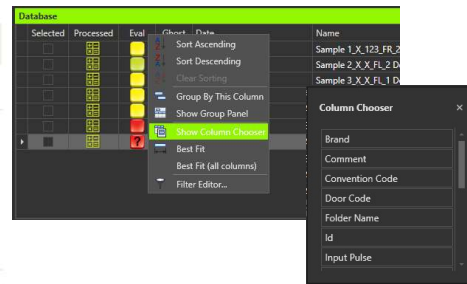
The information columns can be added or removed with the Column Chooser to fit the desired overview.

Popular fields include:

- Date
- Name
- Door Profile
- Convention
- Minimum Closing Speed
- ...

The fields can be chosen using a menu accessible with a right mouse click in the legend.

Selected	Processed	Eval	Ghost	Date	Name	Door Profile	Convention	Minimum Closing Speed	Version
				2019 02 20	Sample 1_X_123_FR_2 Defect Left...	DoorA	ConvA	1.12	10.7.28
				2020 01 29	Sample 2_X_X_FL_2 Defect Check...	DoorA	ConvB	0.68	10.7.28
				2018 02 14	Sample 3_X_X_FL_1 Defect Cabin...	DoorB	ConvA	0.89	10.7.28
				2019 12 13	Sample 4_X_X_FR_2 Defect Bent	DoorB	ConvB	0.62	10.7.28
				2019 12 12	Sample 5_X_X_FR_0 Defect Sensiti...	DoorA	ConvA	0.99	10.7.28
				2020 04 20	Sample 6_X_123_FL_A	DoorA	ConvA	0.70	10.7.28
				2020 02 02	Sample 7_X_X_FR_1 Defect Res H...	DoorA	ConvA	0.29	10.7.28



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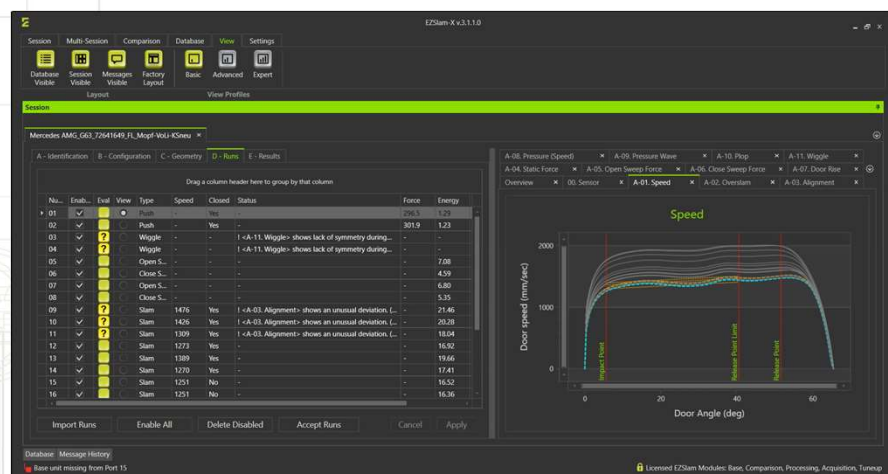
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Video

Table Control

- Customize content
- Customize layout
- Sort Table Content
- Group Table Content



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D. Elementary Operations

11. Message Window

Messages related to the standard operation of EZSlamX are denoted based on feedback from the software algorithms.



Info

Information worth sharing with the user.



Process

Confirmation from certain requested actions.



Warning

Information that might yield an unexpected result. Not compromising the operation of the software.



Errors

Event that potentially has negative consequences on the outcome of a manipulation.

In case the list grows too big, the list content can be cleared at any time, pressing the clear button. Note, this will permanently clear the history.

Message History			
Clear Message History			
Type	Time	Function	Message
Info	7:03 PM	EZSlam-X	Environment has been loaded.
Info	7:03 PM	EZSlam-X	Core Revision v.1077
Warning	7:04 PM	Hardware	USB unit could not be found on configured port.
Warning	7:04 PM	License	License has been updated.
Info	7:10 PM	Session	Questionable Runs have been accepted.
Info	7:11 PM	Door profile	New door profile has been applied.
Warning	7:12 PM	Calibration	Calibration has expired.
Info	7:13 PM	Nominal	New Nominal Profile has been applied.
Info	7:13 PM	Session	Questionable Runs have been accepted.

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D. Elementary Operations

12. Window Layout Control

Arrangement

Any of the four windows (Session, Graphs, Database, Message) can be resized and arranged as desired. Each window can be pinned/unpinned from the main window by using the pin icon in the top right of the window.

View

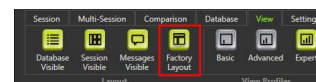
In the View tab, there are toggle buttons for the Database, Session, and Message windows. Click on these to show/hide each window.

Drag & Drop

Each window can be dragged to a new location. The central crosshair can be used to arrange windows around the center of the window, while the outlying icons can be used to arrange a window along the borders, or hidden as a tab.

Factory Layout

To return to the default layout, select the Factory Layout toggle.



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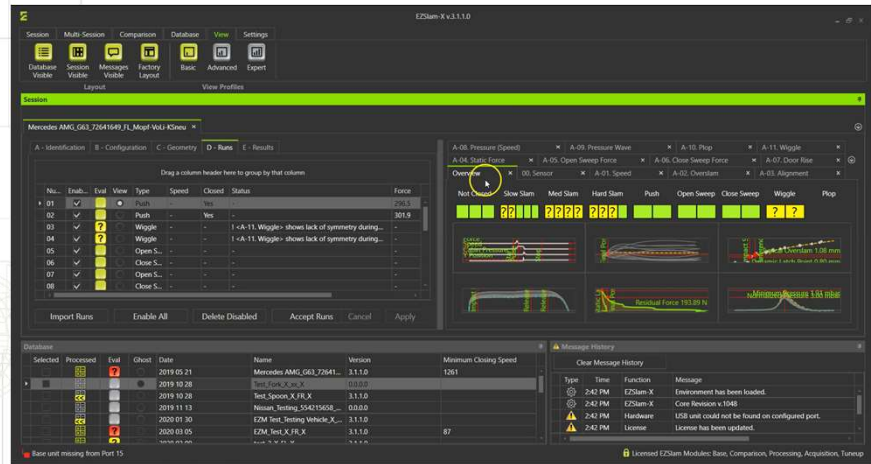
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Video

Layout

- Drag and Drop
- Dock
- Hide / Show
- Slider Bar (Session)
- Reset

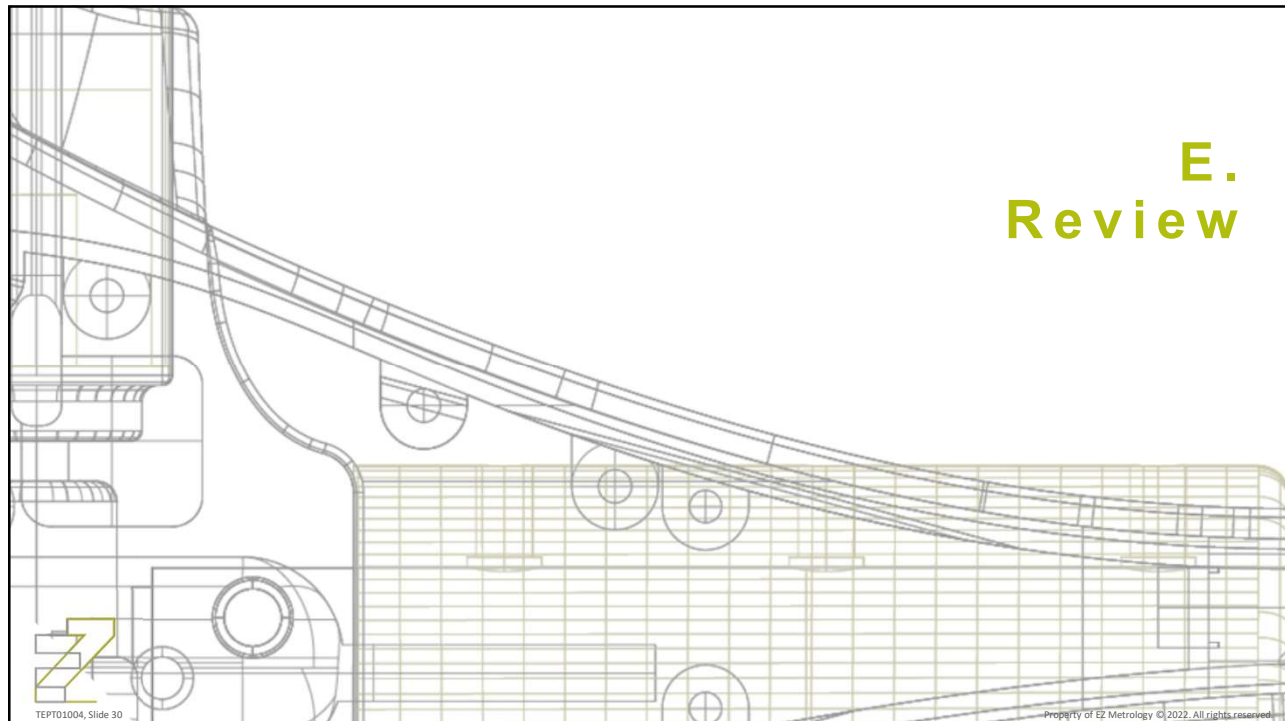


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E. Review



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E. Review

1. Chapter 1

Topics addressed during this chapter:

Software Control

- Connect the hardware
- Configure the software
- License information
- Live View
- Database Window
- Message Window
- Layout Manipulation

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