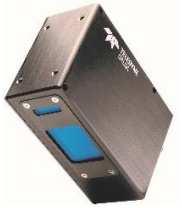
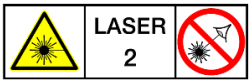
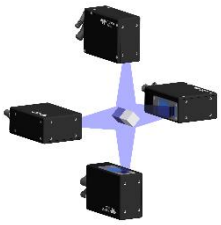
Z-TRAK2 3D LASER PROFILER — QUICK START



LASER SAFETY WARNING

Z-Trak™2 Profilers have laser type and emission location warning labels.





PROFILER SETUP

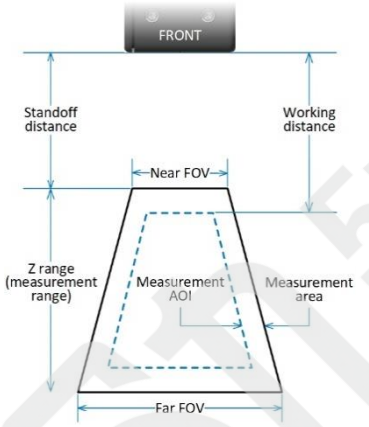
Mechanical Mounting Information

Z-Trak2 has threaded mounting holes (M4x0.7) on multiple body faces. Refer to section **Mechanical Specifications** of the user manual for details.

Measurement Setup

Shown below is the measurement FOV for a Z-Trak2 profiler. Refer to chapters **Installation** and **Theory of operation and definitions** of the user manual for details.

- Z-Trak2 must be parallel to the surface on which the object is placed. It must not tilt side-to-side or front-to-back.
- Make sure objects are inside the measurement AOI (area of interest).
- The standoff distance is the minimum vertical distance between the profiler exit window and an object. Refer to Z-Track2 manual for model-specific values.
- The working distance is the vertical distance to the measurement AOI.



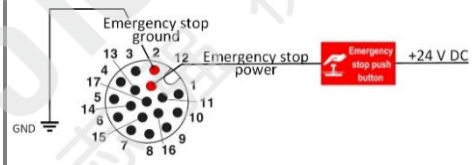
CONNECTION SETUP

Power Connection

Z-Trak2 is powered through **PoE+** (IEEE 802.3at, Type 2 devices) or through the power input pin on the I/O connector. See diagram below. Refer to sections **Connectors** of the user manual for power and I/O specifications.

I/O Connector Pinout and E-STOP Safety Switch

The laser will not operate unless the +24 VDC emergency stop power and ground signals are connected as shown below. An external emergency safety switch, which is normally closed, should be included in the image system.



NOTE — The E-STOP safety feature is enabled by default. However, if permitted by local regulations, it can be disabled in the Z-Trak2 configuration.

Pin	Signal	Direction
1	SHAFT ENCODER B–	IN
2	E-STOP GND	GND
3	GPI 2+	IN
4	GPO 2+	OUT
5	GPO 2–	OUT
6	AUX GND	GND
7	AUX PWR	PWR IN
8	GPO 1+	OUT
9	GPO 1–	OUT
10	SHAFT ENCODER A–	IN
11	SHAFT ENCODER B+	IN
12	E-STOP PWR	IN
13	GPI 2–	IN
14	GPI 1–	IN
15	GPI 1+	IN
16	SHAFT ENCODER A+	IN
17	ISO GND	GND

SOFTWARE SETUP

Download Sapera LT SDK and Latest Z-Trak 2 Firmware

1. Download Sapera LT SDK 8.7 or later from https://www.teledynedalsa.com/en/products/imaging/vision-software/sapera-lt/download/
2. Download Z-Trak2 firmware.

Install Sapera LT SDK

1. Double-click **SaperaSDKSetup.exe** to begin installation of Sapera LT SDK.
2. When prompted, choose to install the **Teledyne DALSA 3D profile sensors**, which will also install **Z-Expert**.
3. Follow instructions. You will be asked to reboot after installation.
4. Verify that the GigE Server tray icon appears in the notification area (show hidden icons). At this point, its status will be *No device found*.
5. Power up the Z-Trak2, then connect it to the host computer NIC using a CAT 6 Ethernet cable. Allow a few seconds for the GigE Server status to update.
6. Check the notification area to confirm that the Z-Trak2 device is available.

Device Status	Available	IP Error	No device found
GigE Server Tray Icon			

PROFILER LED INDICATORS

Status LED – The Status LED of the profiler is described in the table below.

Status LED	Explanation (Refer to the user manual for details)
LED is off	No power to the profiler.
Steady Red	Initial state on power up before flashing. Remains as steady Red only if there is a fatal error. Profiler is not initialized.
Flashing Red	Initialization sequence in progress.
Steady Red + Flashing Blue	Fatal Error. If the profiler does not reboot itself, verify all connections and host computer requirements.
Slow Flashing Blue	Ethernet cable disconnected. The profiler continuously attempts to assign itself an IP address.
Fast Flashing Blue	File Access Feature is transferring data such as a firmware update, etc.
Steady Blue	IP address assigned. No application connected to the profile sensor.
Steady Green	Application connected.
Flashing Green	Acquisition in progress.

Laser LED – ON when the laser is ON and E-STOP bypassed.

Range LED – TBD.

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Z-TRAK2 3D LASER PROFILER — QUICK START

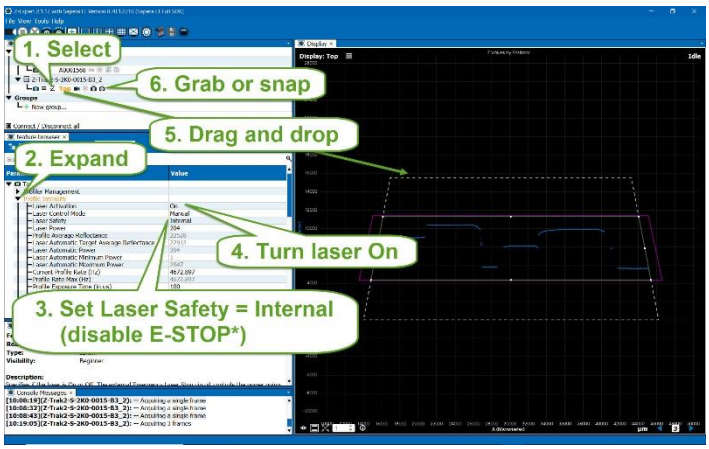
Z-EXPERT

Start Z-Expert

Start **Z-Expert** from the desktop shortcut.

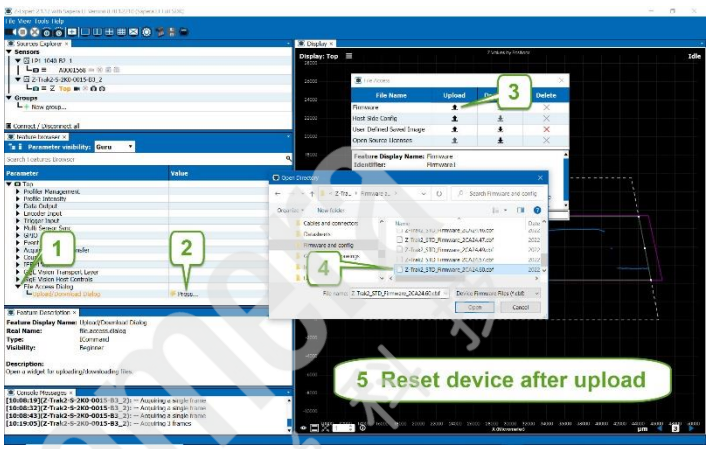
A Z-Expert link is also located in the **Teledyne DALSA Sapera LT** program group in the **Start** menu.

ACQUIRING PROFILES



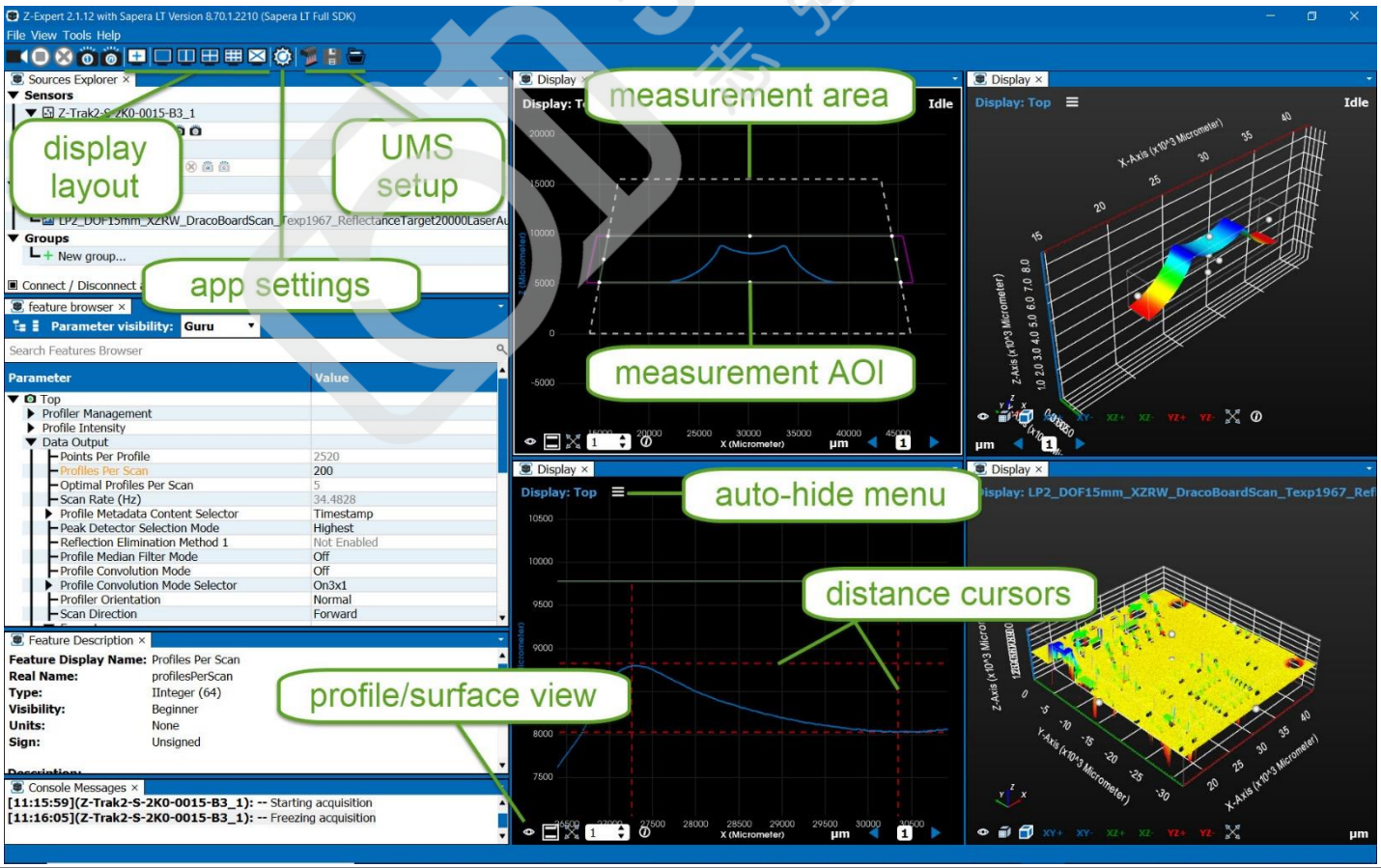
* If permitted by local regulations.

UPDATING Z-TRAK2 FIRMWARE



1. In the **Categories** list, expand the **File Access Dialog** node.
2. Next to *Upload/Download Dialog*, click **Press**.
3. In the *File Access* window, next to **Firmware**, click the **Upload** icon.
4. Select the .cbf firmware file and click **Open**.
5. After the upload completes, reset the device.

GETTING FAMILIAR WITH THE USER INTERFACE



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Z-TRAK2 3D LASER PROFILER — QUICK START

Z-EXPERT

ACHIEVING HIGHEST PROFILE RATE

You may notice that the connection between your 1, 2.5 or 5 GigE Z-Trak2 model and the host computer does not reach the expected profile rate. Use following guidelines to optimize the Z-Trak2 settings for highest profile rate.

First check the **Profile Intensity** > **Info-Profile Rate Optimization** subcategory to guide you on how to optimize the profile rate for the current configuration. Typical suggestions are:

- Increase the value of Profiles Per Scan to 5 profiles or more.
- Reduce the Measurement AOI Height.
- Reduce Exposure Time.
- Disable Reflection Elimination Method.
- Disable HDR.

Other aspects to take into account to increase profile rate are:

- In the **Format** subcategory, set the **3D Data Type** output format to *UniformX Z* or to *XZ*, which are smaller than the other format.
- In the **GigE Vision Transport Layer** category, verify that the **Device Link Speed** value is 1000, 2500, or 5000 Mbps or higher (according to model). This is the speed negotiated by the network interface. The value is read only.
- Verify that the **Packet Size** value is above 1500 bytes, ideally 4000 or 9000, which indicates that jumbo packets are used.

If the **Device Link Speed** value remains below 1000 Mbps, or if the **Packet Size** value is below 1500 bytes, check the network equipment between your device and the host computer, as well as the network settings. Refer to the Z-Trak2 3D Profile Sensors User Manual for more information on how to optimize your network adapter for high throughput.

SHERLOCK 8.0

Sherlock license

Sherlock can be used with various devices that support the GenICam standard. When bundled with Z-Trak2, Sherlock can be unlocked for use with the unit: The license is keyed to the serial number of the profiler and stored in a register on the profiler. The license is portable and moves with the device. Z-Trak2 requires the Sapera LT Runtime software to read the registers.

Sherlock can be downloaded from the Teledyne DALSA website.

To obtain a license

You should have your Z-Trak2 serial number at hand, which you can find through Z-Expert in the **Profiler Management** category.

1. Download Sherlock from the Teledyne DALSA website.
2. Register your copy of Sherlock on Teledyne's Software Registration page by selecting *Sherlock 3D for Z-Trak* and entering your Z-Trak serial number.
3. Click **Generate Software Key**. A software license key for your device will be shown on screen; it will also be sent to you by email.

To install and unlock Sherlock

You must have administrator rights for installation.

1. Double-click on the installer file to install Sherlock on your computer.
2. Power your Z-Trak2 device and connect it to the host computer NIC. Wait for it to be found by the Sapera GigE Server in the notification area, which can take a few seconds for the GigE Server to refresh its state after a device has obtained an IP address.
3. On the **Start** menu, select **Teledyne DALSA Sherlock 8** > **License Manager**. Verify that you can see the Z-Trak2 Profiler, which should be listed as **Sapera LT Board** followed by a 7-digit serial number (you may need to scroll down the window). You may need to open Z-Expert and connect to your Z-Trak2 device.
4. Enter (or paste) the software license key in the **Enter License** text box, then click **Update License**.
5. Verify that the license status for the **3D camera** option indicates *Licensed*.