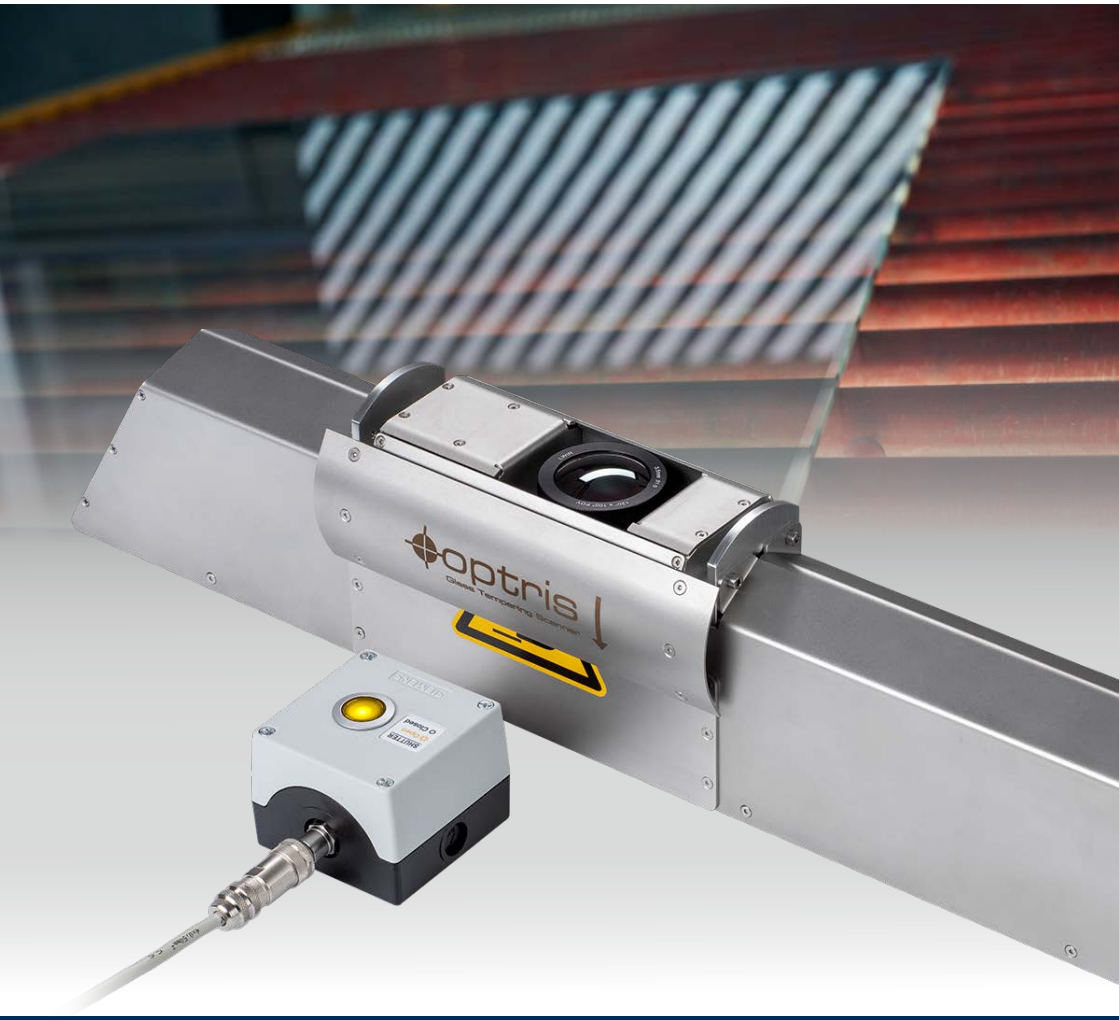
optris
infrared measurements



Optris Glass Tempering Scanner

Step-by-Step Setup Guide of the GTS - Bottom-Up Glass Inspection System

The first bottom-up infrared inspection system with 120° optics delivering coating-independent temperature distribution with just one camera.

This document provides a step-by-step guide for the initial setup and commissioning of the glass inspection system. All system components are delivered prewired, with sensors, infrared cameras, heaters, and control elements already electrically connected. This integrated design significantly reduces installation effort and minimizes the risk of wiring errors during setup.

Commissioning is therefore limited to the mechanical installation of the components, the integration of the Optris system into the local network infrastructure, and the installation of the required software tools. In particular, the user must install both CompactPlus Connect and PIX Connect. In addition, basic configuration and layout adjustments within PIX Connect are required to ensure proper visualization and operation of the system. For mechanical installation, the supplied railing system should be used to securely mount all components and to ensure proper routing and protection of cables and electrical interfaces.

The system is designed for immediate operation. The glass breakage sensor (CTlaser 4ML) is active by default, with a predefined threshold of 80 °C. During setup, the user only needs to define the appropriate temperature thresholds for the CTlaser and CTi LT pyrometers. These values depend on the specific application, oven type, and process conditions, and should be adjusted accordingly.

Visualization, configuration, and operation of the infrared camera are carried out using PIX Connect, which provides all necessary tools for real-time monitoring, parameterization, and analysis during both initial setup and ongoing operation of the system.

Scope of Supply – mechanical components (not incl. cables):

- GTS main unit (pre-assembled) with shutter for Emergency closure, electronics and PI 640i G7 with 120° optics
- 10 m Ethernet cable
- 100-240 V AC power cable
- Glass Breakage Sensor (CTlaser 4ML) with 10 m cable
- Furnace Door Sensor (CTi LT) with 10 m cable
- Analog input cable, 10 m long
- Aiming Support with 10 m cable each (2 pcs.)
- Remote control button with 10 m cable
- Cable protection conduit (4 pcs.)

CTi sensor head

Heating element

Shutter Release Button

CTlaser sensor head

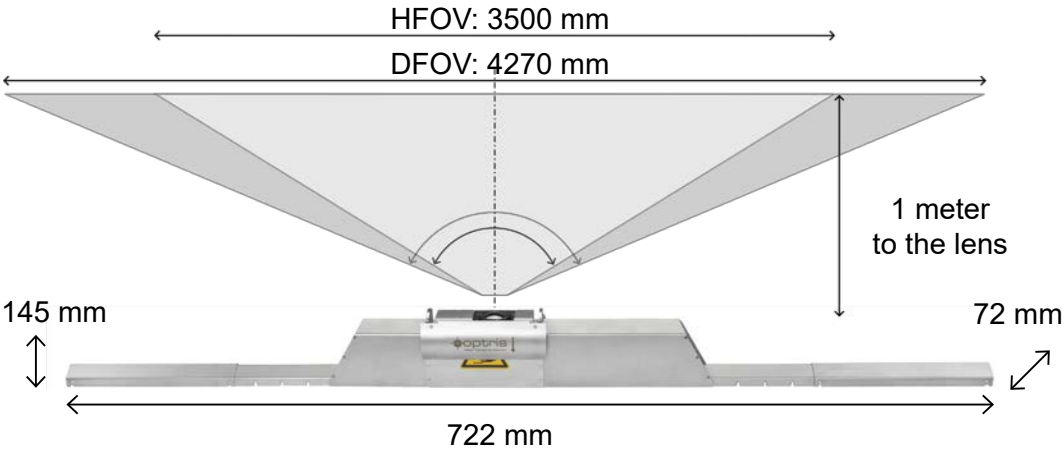
Optris Glass Tempering Scanner

CAPTURE THE WHOLE PICTURE, FROM BENEATH THE GLASS.

Features:

- Automatic emergency closure in case of glass breakage
- Standard configuration: installation approx. 1 m below the glass, distance between glass surface and Optris IR imager lens
- Field of view up to 4.3 m, smallest spot 0.5 mm, MFOV 1.5 mm
- All electrical components are pre-wired
- Layout for PIX Connect available for download
- Left- and right-handed version available

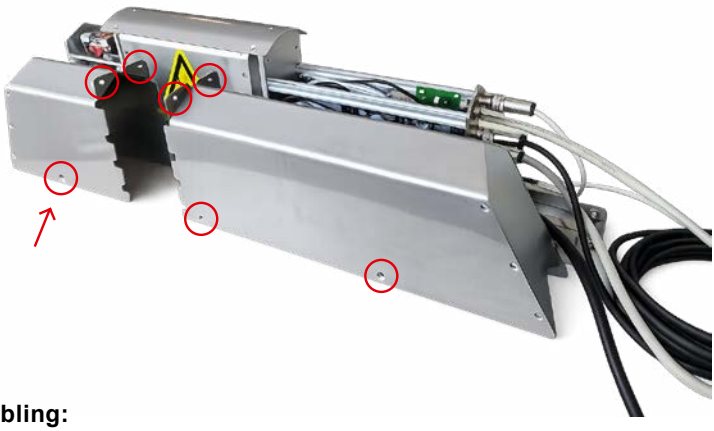
Field of view*1:



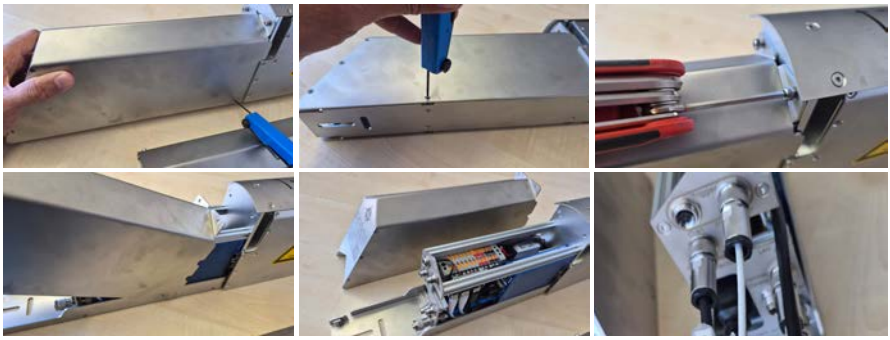
*1 *The focus can be variable for different distances!*

Features:

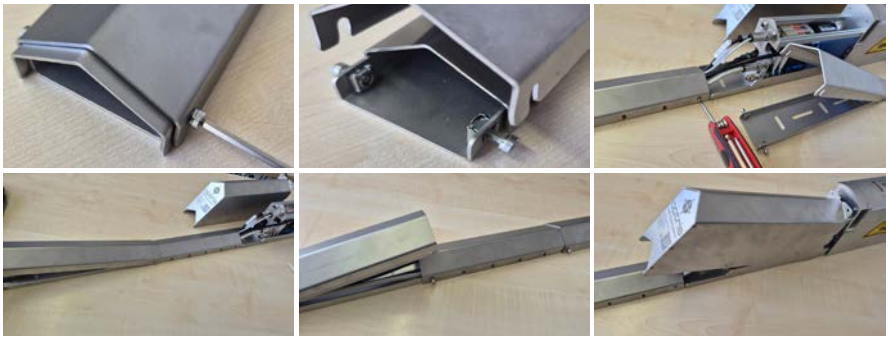
Open the housing using only the hex (Allen) screws; do not loosen the Phillips screws.



Open housing and cabling:

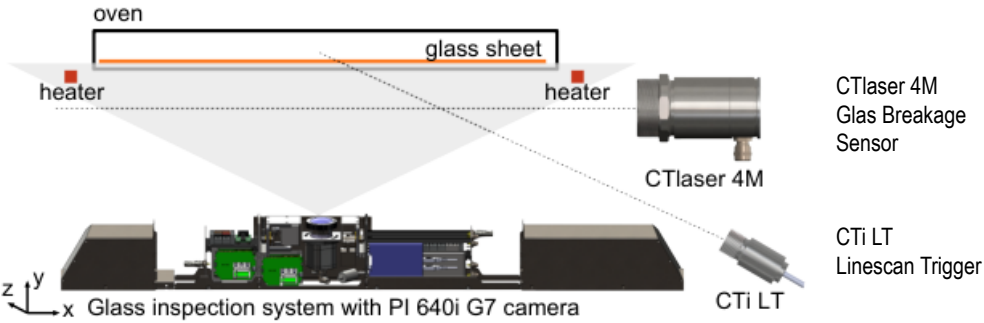


Cable protection assembly:



Mechanical Setup

Install mechanically all components as follows:



a. Install the PI Imager beneath the glass section using the railing system provided by Optris. Close the system and route all cables securely under the protective shield. The distance between the camera and the glass must not be less than 90 cm to ensure that the shutter can close quickly enough in the event of glass breakage.

b. Position the heaters at the boundaries of your sighting window. Heaters are off by default and must be turned on via PIX Connect. Check correct positioning with PI Imager via software.

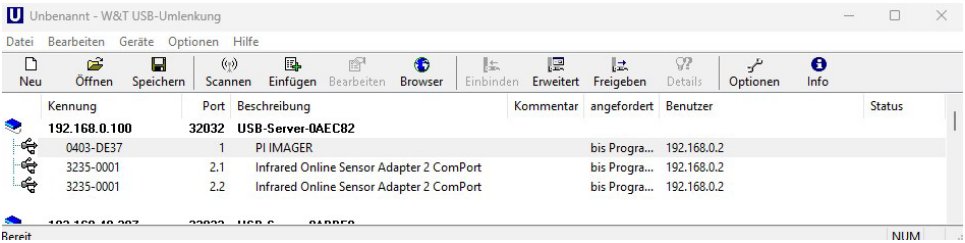
c. Install the CTi LT line scan trigger so that it reliably detects the presence of a glass section and triggers the opening of the camera shutter only when glass is present. If no glass is detected, the shutter remains closed to ensure safe operation. Additional configuration is carried out in PIX Connect. One can also use the analog oven signal to open the shutter. If doing so, please ensure that the threshold for the CTi LT is set to a very high value in CompactPlus Connect.

d. Install the CTlaser pyrometer horizontally beneath the glass. This sensor forces the shutter to close if hot particles are detected. Align the sensor with the field of view of the PI Imager. The device is hardwired to the PIF, ensuring that the safety-related shutter closing function is active at all times.

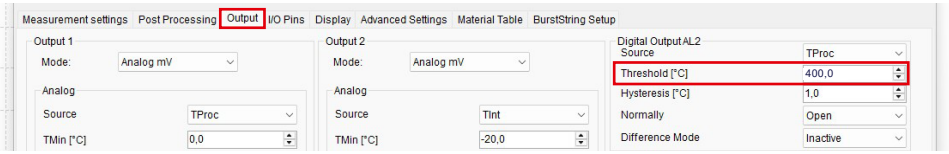
Software Setup

1. Ensure that PIX Connect, CompactPlus Connect and the USB Server Software “USB Redirector” and ”WuTility” are installed on your computer.

2. Connect to network. Ensure that all three IR measurement components are permanently connected via W&T USB Utility Software.



3. Open the latest version of CompactPlus Connect to set the threshold for CTlaser and CTi pyrometer. Select the threshold under *Configuration → Output → Digital Output AL2* and set the Threshold to the desired value.

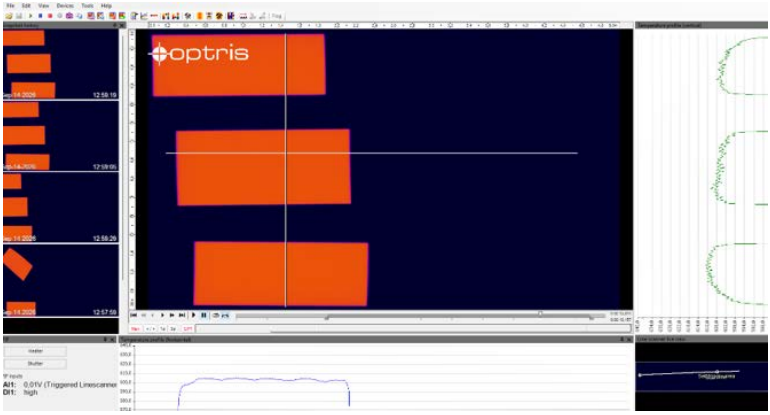


Pyrometer	Function	Approx. recommended threshold
CTlaser 4M	Glass breakage sensor	80 – 100 °C
CTi LT	Oven opening detection	400 °C (depending on application)

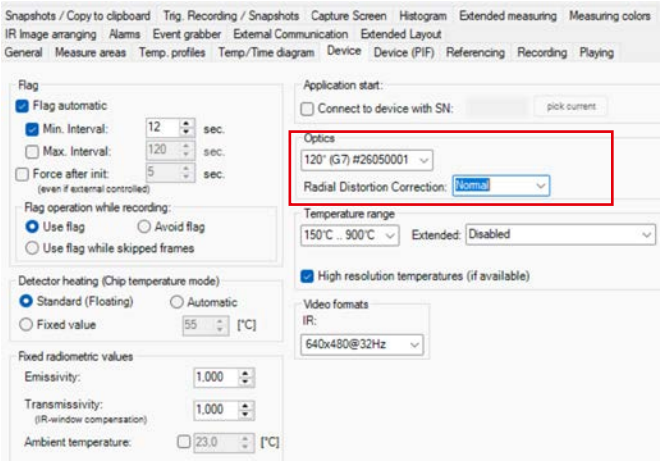
Recommended temperature values provided in this document are intended as general guidelines for operation. It is important to note that different temperature settings may be required during installation and commissioning phases. Furthermore, optimal temperature ranges can vary significantly depending on the specific oven type, process conditions, and application requirements. Therefore, all values should be validated and, if necessary, adjusted based on real operating conditions to ensure accurate measurement and reliable process control.

Software Setup

4. Open the PIX Connect Software (use Version 3.26.3134.0 or higher). The most important step is to configure the linescanner. The following layout can be loaded into PIX Connect software:
TemperPackage - Layout.xml
Please follow the instructions in the manual how to import layouts to the PIX Connect software.

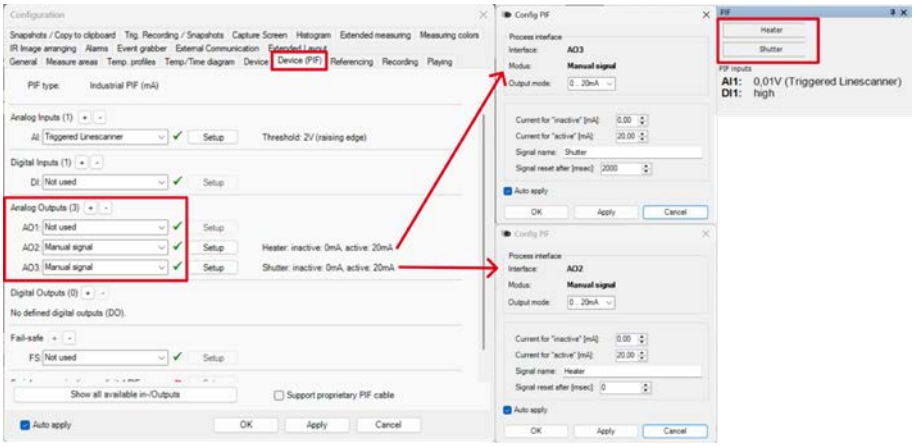


a. Ensure to choose the subframe rate of 125 Hz for smooth operation.
b. Select the low temperature range for installation. Be aware that the range between 0 and 250 °C is for sighting and installation only. Accurate temperature values only above the specified 200 °C after selecting the measurement temperature range.
c. Active radial distortion correction under *Settings -> Device -> Optics*

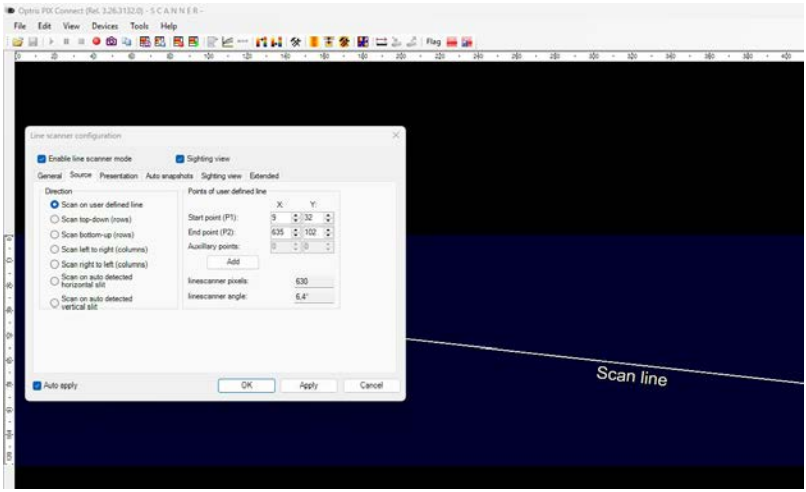


Software Setup

d. Install the heating elements at the boundaries of the image. The heaters are off by default and must be activated via analog output 2. Rename to “Heater” to display a button for switching the heating elements on and off. Add the “Shutter” to analog output 3 to be able to open and close the shutter remotely.

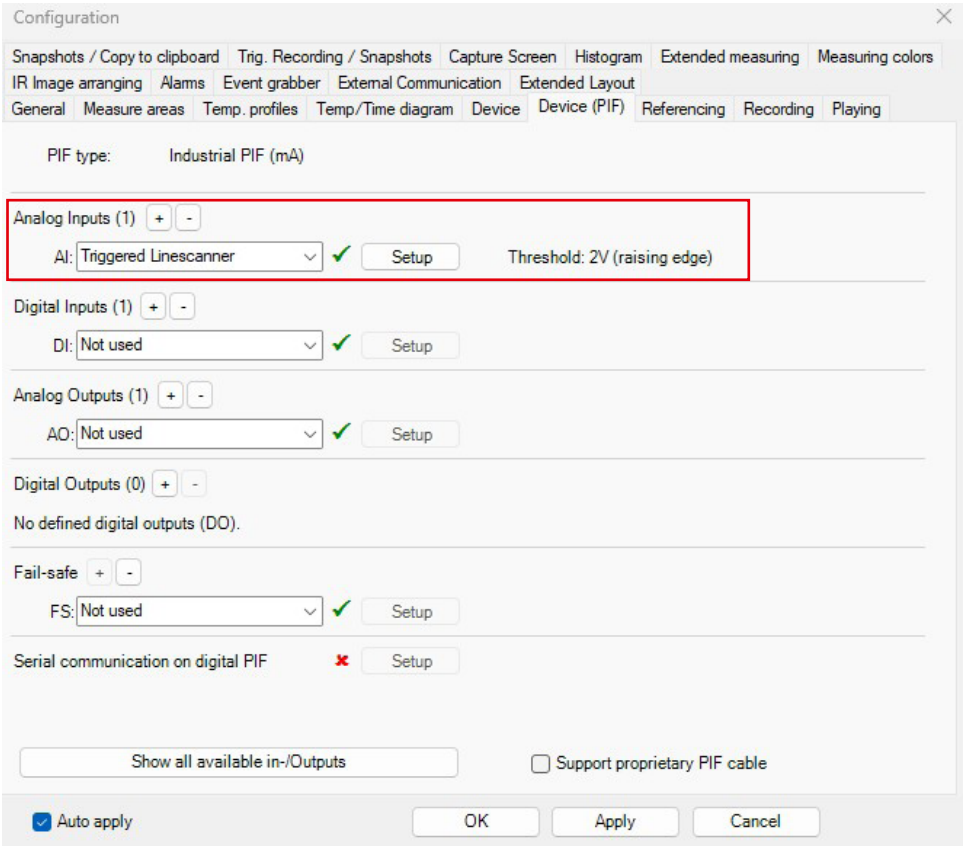


e. Open line scanner configuration. Set your line through the heater points.



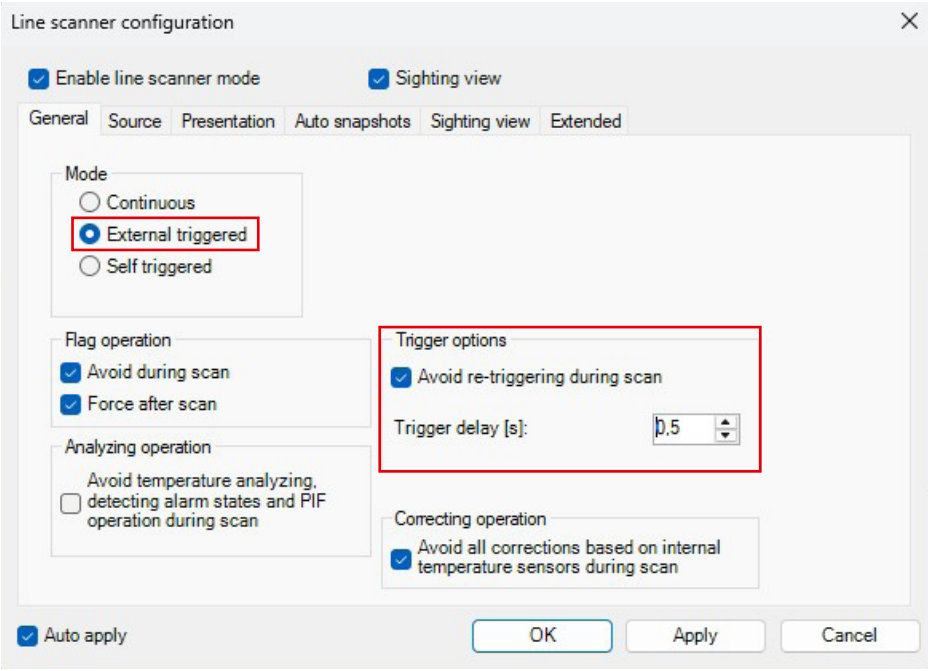
Software Setup

f. Configure the CTi LT trigger to detect the presence of glass and initiate the shutter to open. Set the analog input to *Triggered Linescanner.*



Software Setup

g. Set linescan to be triggered externally. Configure an opening delay to ensure that the shutter does not open prematurely.

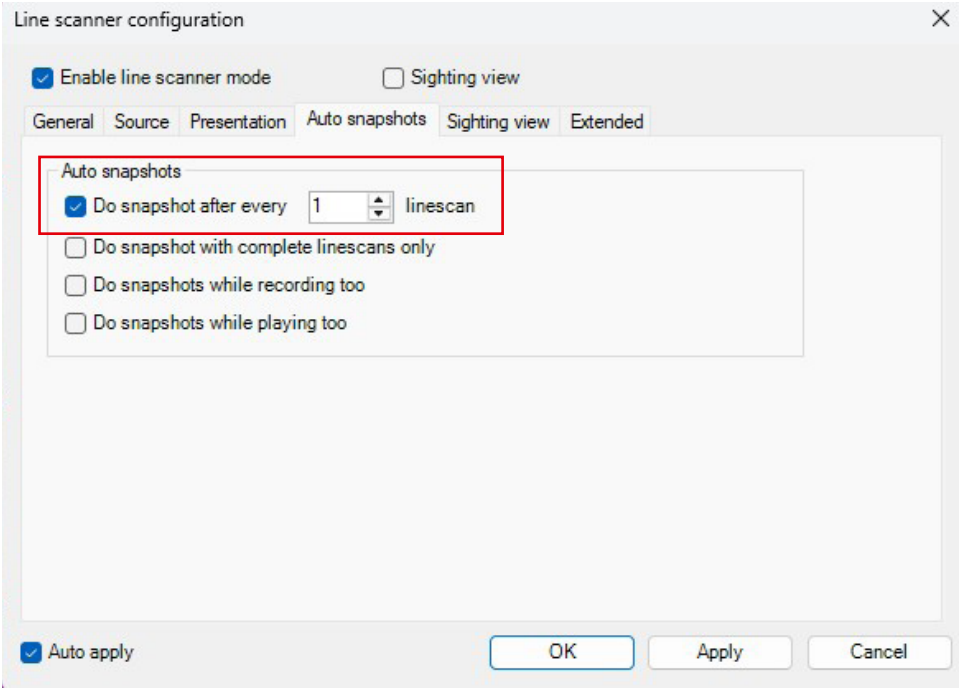


h. Start the Linescanner. Configure your display with all information needed.
i. Remember to store your layout.
j. Check the threshold settings of the CTlaser in CompactPlus Connect before initial start to ensure emergency closure.

If there has been an emergency closure, first remove all glass particles from the system. Release the shutter using the shutter release button.

Optional steps described in the main manual:

1. Enable snapshots after every linescan.



2. Enable *line scanner live view* to quickly check the camera picture. See bottom right of the overview PIX Connect Layout.
3. Calculate the glass area.
4. How to import a PIX Connect layout.
5. Access electric wiring scheme.

Support

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when temperature matters

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