

# VICORE

Vision Core Element

## Installation Manual



## Notice

VICORE Installation Manual  
Document Number 405-00084-00

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# Certifications

Declaration of Conformity	
Manufacturer	Teledyne Digital Imaging US, Inc. 700 Technology Park Drive Billerica MA 01821 USA
CE	We declare that this product has been tested to comply with the EC Directive for a class A digital device in accordance with EN55022/CISPR22
FCC	We declare that this product has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.  This equipment generates, uses and can radiate radio frequency energy and may cause harmful interference to radio communication.
Other	
CFR 21 Part 11	This product provides tools needed for users to implement an auditing program that could be in compliance with CFR 21 Part 11. These tools include: <ul style="list-style-type: none"><li>• System or software backup and restore</li><li>• System software security (password login and access limits)</li><li>• Protection of system backup files from modification.</li><li>• Record of actions by users with time stamp information</li><li>• Time stamp information on data output.</li></ul>

## Handling Precautions

Care should always be exercised when handling and operating your VICORE System. Even though the system is encased within a rugged, industrial enclosure, incorrect use or handling can result in damage to your investment. To prevent this, we recommend the following precautions:

- Avoid “hot-plugging” cables and devices. Be sure to shut the system down and remove power before connecting or disconnecting anything to it.
- Do not use in a Free-standing operation. Mount the system properly to prevent it from falling accidentally. Mounting hardware is provided with the system.
- Always use the VICORE system within the recommended operating conditions. Refer to the complete specifications on page [13](#).
- Do not install the VICORE system in a location that will expose it to excessive heat, humidity, vibration, impact, corrosive substances, or flammable substances.
- Do not attempt to service or modify the VICORE system by opening the enclosure.

## Electrostatic Discharge

Avoid the damage that ESD can cause. Never expose the internal electronics to a potentially hazardous environment by opening the enclosure. Doing so may cause serious damage.

## User Service Warning

This product has no field-replaceable components. Tampering with the unit will void the product warranty.

## Warranty

Teledyne Imaging warrants the VICORE System against defects in materials and workmanship for a period of Twelve (12) months from the date of delivery. Teledyne Imaging and its representatives expressly disclaim any and all other warranties.

Your sole remedy shall be repair or replacement of the VICORE System product and associated optional components, provided that the defective product is returned within the warranty period.

If you need to return the VICORE System, you must contact the Teledyne Imaging representative who sold you the product. Do not return your product to Teledyne Digital Imaging US without prior authorization.

Teledyne Imaging assumes no liability for damages resulting from the use of this manual.

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## VICORE Vision System Overview

The VICORE (Vision Core Element) system is a compact dual-camera vision system that supports image acquisition, processing, display and communications. VICORE uses industrial grade components encased within a fan-less aluminum enclosure. It is offered with panel mountable hardware.

The VICORE system has a small footprint that requires minimal cabinet space. All camera, I/O and network connections are conveniently accessed from the front, serial port and encoder inputs on the top, and power on the bottom to simplify wiring.

The VICORE system is equipped with 2 Ethernet ports for interfacing GigE cameras, 1 Ethernet LAN port for general communication with network devices and 1 dedicated industrial networking port for interfacing with devices that support either Ethernet/IP or Profinet. This dedicated port cannot be used for other PLC protocols, cameras or other network connections.

The VICORE system has 8 General Purpose inputs and 8 General Purpose outputs plus dedicated shaft encoder inputs for synchronizing control outputs to the speed of the conveyor.

## Product Support

This manual will assist you with the installation and setup of your VICORE product and the embedded inspection software. It describes what the product supports and how to connect the external interfaces. If your questions are not answered in this reference, please contact your local Teledyne Imaging representative.

Additional manuals are available on the VICORE system disk at:

C:\IPD Install Files\PDF Manuals

Additional files for use in your PLC Programming environment are located on the VICORE system disk at: C:\IPD Install Files\PLC Support Files.

## VICORE Vision System Components

VICORE vision systems are shipped with the components listed below. Take a few moments to verify that everything has arrived in good condition. If your product has been visibly damaged during shipment or is missing parts, please contact your Teledyne Imaging representative immediately.

Standard components (ship with every VICORE Vision System):

Component	Description
<u>VICORE Vision System</u> xxxxxxx-03 or xxxxxxx-04	Fully integrated vision system with iNspec Express (-03) or Sherlock (-04) embedded software, power connector, and panel mounting hardware.

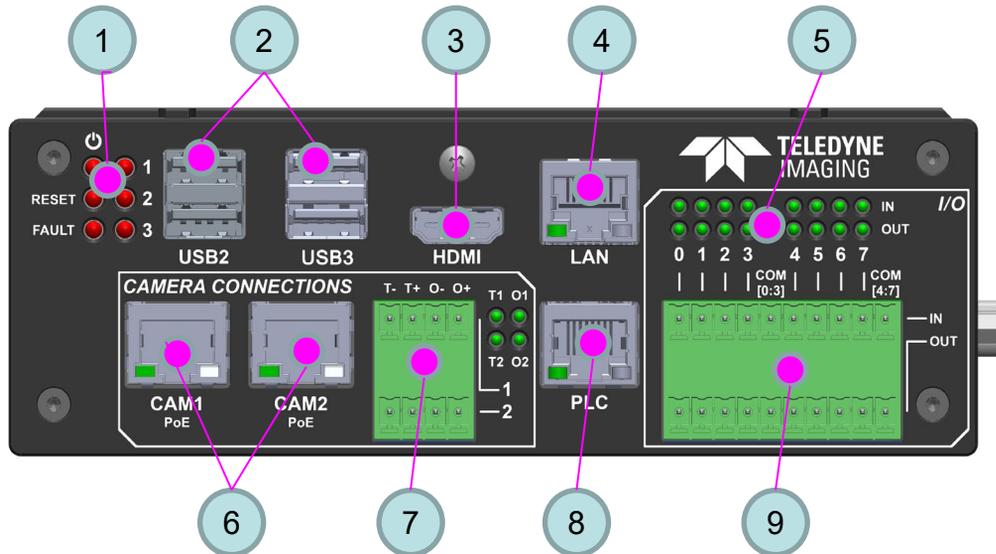
Optional components (sold separately):

Component	Description
A-CAM-GX-XXXX	Genie Nano Series GigE cameras.
A-CAB-GE-X	GigE CAT5e camera cables (video data, network communication).
A-CAB-G3-IO-X	Genie Nano IO/Trigger/Strobe
A-CAB-G2-TPS-X	Genie TS IO/Trigger/Strobe
A-CAB-GTP-X	Genie classic Trigger/Strobe

## Connecting the VICORE Vision System

This section details the physical connections on the VICORE vision system. The VICORE provides connectors on the front, left and right plates.

### Front Connections



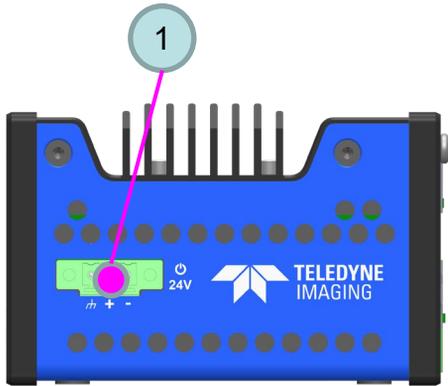
1. Status LEDs, power, reset, fault, and 3 application-programmable.
2. Two USB 2.0 ports, Two USB 3.0 ports.
3. HDMI video output up to 2560x1600 resolution @ 60 Hz, (larger at lower refresh rate).
4. GigE Port for LAN, TCP/IP, UDP/IP, or Modbus. Default static IP: 192.168.0.100. This port does not support Profinet or Ethernet-IP.
5. Status LEDs for inputs and outputs.
6. Two POE GigE Camera ports. Static IP: CAM1 192.168.11.1, CAM2 192.168.12.1.
7. Camera IO: 1 input and 1 output per camera, 4 Status LEDs
8. 100Mbps Port for Ethernet-IP or Profinet only. Default setting: Ethernet-IP, static IP address 192.168.10.100. This port is not available in Windows adapter settings. This port cannot be used for other network or camera connections.
9. General Purpose IO: 8 inputs, 8 outputs.

**Note:** Camera Ethernet cables must be type Cat5e. Use A-CAB-GE-X.

LAN left LED: Off = 10 Mbits/s; GREEN = 100 Mbits/s; ORANGE = 1000 Mbits/s.

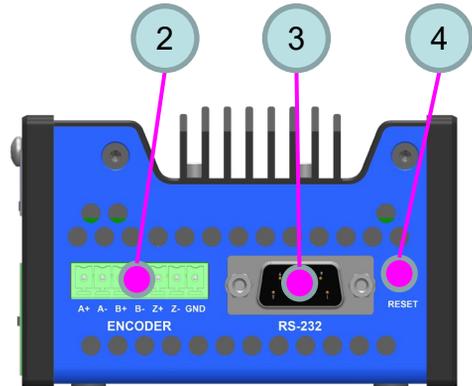
LAN right LED: ON = port active; BLINK = port traffic.

## Bottom Connections



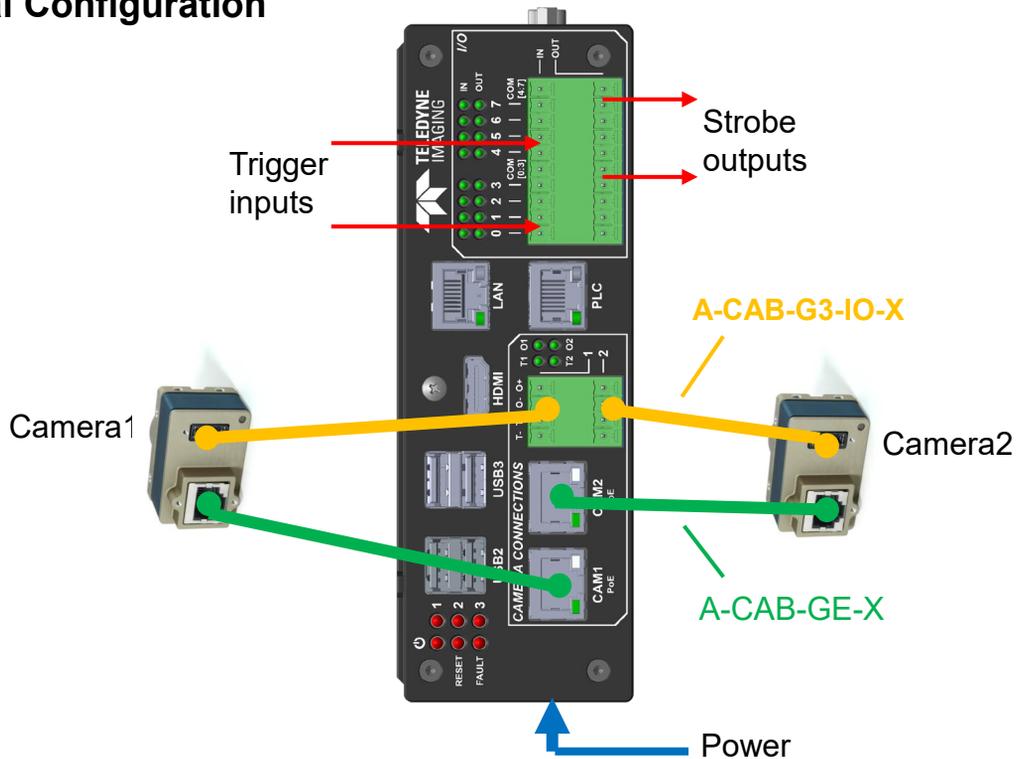
1. Power connector 24V

## Top Connections



2. Encoder inputs
3. Serial Port
4. Reset switch

## Typical Configuration



### NOTES:

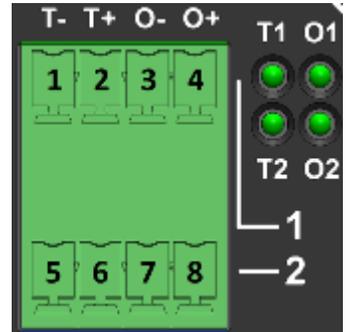
1. Cameras are powered by POE (Power Over Ethernet).
2. Use **A-CAB-GE-X** for camera Ethernet connections.
3. Use **A-CAB-G3-IO-X** for the Genie Nano I/O Connector to VICORE Camera IO Connector. Provides support for 1 input and 1 output each camera, usually camera Trigger and Strobe.

## Camera IO Connector

This connector provides trigger and strobe connections for two cameras using common ground for the camera's input and common 24V for the camera's output.

Two 4-pin connectors are supplied with the VICORE. One connector for each camera.

Pin #	Label	VICORE Function
1	T-	Camera 1 Trigger In- (GND)
2	T+	Camera 1 Trigger In+
3	O-	Camera 1 Strobe Out-
4	O+	Camera 1 Strobe Out+ (24V)
5	T-	Camera 2 Trigger In- (GND)
6	T+	Camera 2 Trigger In+
7	O-	Camera 2 Strobe Out-
8	O+	Camera 2 Strobe Out+ (24V)



## IO Cables

The Genie Nano and the Calibir use the same 10-pin connector for IO but with different pinout assignments. A 10-pin 10-wire IO cable is available in three lengths.

Part Number	Cable Length
A-CAB-G3-IO-0	3 meters
A-CAB-G3-IO-1	5 meters
A-CAB-G3-IO-2	10 meters

## Genie Nano

VICORE is compatible with the Genie Nano IO design using common ground for the camera's input and common 24V for the camera's output. **Note:** iNspEct Express defines Camera Input 2 as the Trigger and Camera Output 2 as the (optional) Strobe.

### Genie Nano Wiring

Label	VICORE Function	Wire Color	Genie Nano Pin #	Genie Nano Function
T-	Trigger – (GND)	Brown	3	Input Common
T+	Trigger +	Blue	7	GPI2 + Line 2
O-	Strobe –	Violet	8	GPO2 + Line 4
O+	Strobe + (24V)	Orange	4	Output Common

## Calibir GXM640 and DXM640

VICORE is compatible with the Calibir design using common ground for the camera's input and common 24V for the camera's output. GXM640 and DXM640 both support triggering.

### Calibir GXM640 & DXM640 Wiring

Label	VICORE Function	Wire Color	Calibir Pin #	Calibir Function
T-	Trigger – (GND)	Brown	3	Input Common
T+	Trigger +	Yellow	5	GPI_P0 + Line 1
O-	Strobe –	Green	6	GPO_P0 + Line 2
O+	Strobe + (24V)	Orange	4	Output Common

## Calibir 640 GigE

VICORE is compatible with the Calibir design using common ground for the camera's input. Calibir 640 requires a firmware update (January 2020) to support triggering.

### Calibir 640 Wiring

Label	VICORE Function	Wire Color	Calibir Pin #	Calibir Function
T-	Trigger – (GND)	Blue	7	Input Common
T+	Trigger +	Orange	4	GPI_P0 + Line 1
O-	Strobe –	No connection		No output available
O+	Strobe + (24V)	No connection		No output available

## GigE Camera Support

VICORE supports the Z-Trak 3D laser profiler (Sherlock 8 only) the Calibir IR (thermal) camera and the Genie Nano series cameras for image acquisition.

The Genie Nano series offers a range of sensor resolutions from 640x480 up to 5120x5120 pixels in color and monochrome.

The following should be noted when matching your application camera needs to the VICORE:

1. Sherlock 8: Cameras can be a mix of different resolutions. Sherlock 8 supports the Genie Nano, Calibir and Z-Trak.
2. Sherlock 7: Cameras can be a mix of different resolutions. Sherlock 7 supports the Genie Nano and Calibir. The Z-Trak is not supported.
3. iNspec Express: All cameras must be the same resolution (size and color/mono) in iNspec Express. iNspec Express supports the Genie Nano and Calibir. The Z-Trak is not supported.

Two cables are needed in the setup of each camera. The data cable (A-CAB-GE-X) connects the camera's Ethernet port to one of the VICORE camera ports and provides camera power. The I/O cable provides access to the camera's I/O, supporting trigger input and strobe output.

iNspec Express and Sherlock use different software drivers to interface GigE cameras. iNspec Express uses a driver called IFC, whereas Sherlock uses a driver called Sopera LT. The setups associated with each will be described later in this manual. Generally, Sopera offers additional flexibility over IFC, but requires additional steps to set up.

**Note:** By default, iNspec Express and Sherlock assumes Genie Nano camera Input 2 (Line 2) is the trigger input and Genie Nano camera Output 2 (Line 4) is the strobe output.

# Specifications

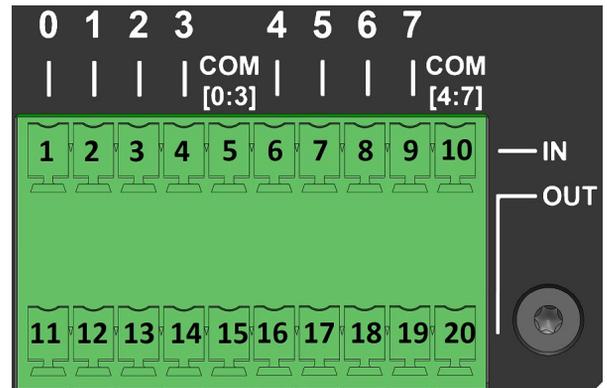
## General Specifications

The following table lists the specifications of the VICORE vision system.

Specification		Definition
Platform	Processor	Quad Core Atom x5-E3940 CPU @ 1.8 GHz
	OS	Windows 10 IoT 64-bit
Memory	Storage	32GB Solid State Flash Drive
	Program	4GB DDR3L 1333/1600 MHz non-expandable
Communication	Ethernet	2x Gigabit PCIe ports support POE for cameras 1x Gigabit PCIe direct lane for Network connection
	PLC	1x 100Mbps port for Industrial Ethernet-IP or Profinet devices. Cannot be used for cameras or other network support.
	Serial	1x RS-232/343/485 DS-9-pin; default parameters 11520 baud, 8 data stop bits, no parity, 1 stop bit, no flow control
	USB	2x USB 3.0 and 2 x USB 2.0
	I/O	8 isolated Inputs, 8 isolated Outputs with 16 status LEDs
	Encoder	6 inputs: +/-A, +/-B, +/-E and Ground
	LED status	3 indicators for Power, Reset and Fault; 3 application defined, 2x per camera: 1 input & 1 output each, 8 Input and 8 Output for general purpose IO
Display	HDMI	19-pin HDMI up to 3849x2160 @ 24 Hz or 2560x1600 @ 60 Hz; display supports clone, independent, extended modes
Power	20.7 – 31.0 V	25.1 W @ 24 V without cameras, 39 W @ 24 V with 2 cameras.
		Recessed Reset button. Use pointed object to push and hold for 5 seconds.
Cooling	Fanless	Passive heatsink
Mechanical	Material	Machined Aluminum with paint finish
	Mounting	DIN Rail mount
	Size	160 mm x 90 mm x 55 mm
	Weight	0.76 KG
Environment	Temp	0°C to 40°C Operating -20°C to 70°C Storage
	Humidity	5 to 95% non-condensing
Certification		CE, FCC Class A, RoHS

## Input and Output Connector

The VICORE Inputs and Outputs are opto-isolated and may be wired for sourcing or sinking current. The inputs and outputs are organized in four groups. Each group has a dedicated common (for power or ground) and each group can be wired independently. Example wiring diagrams are on page [17](#).

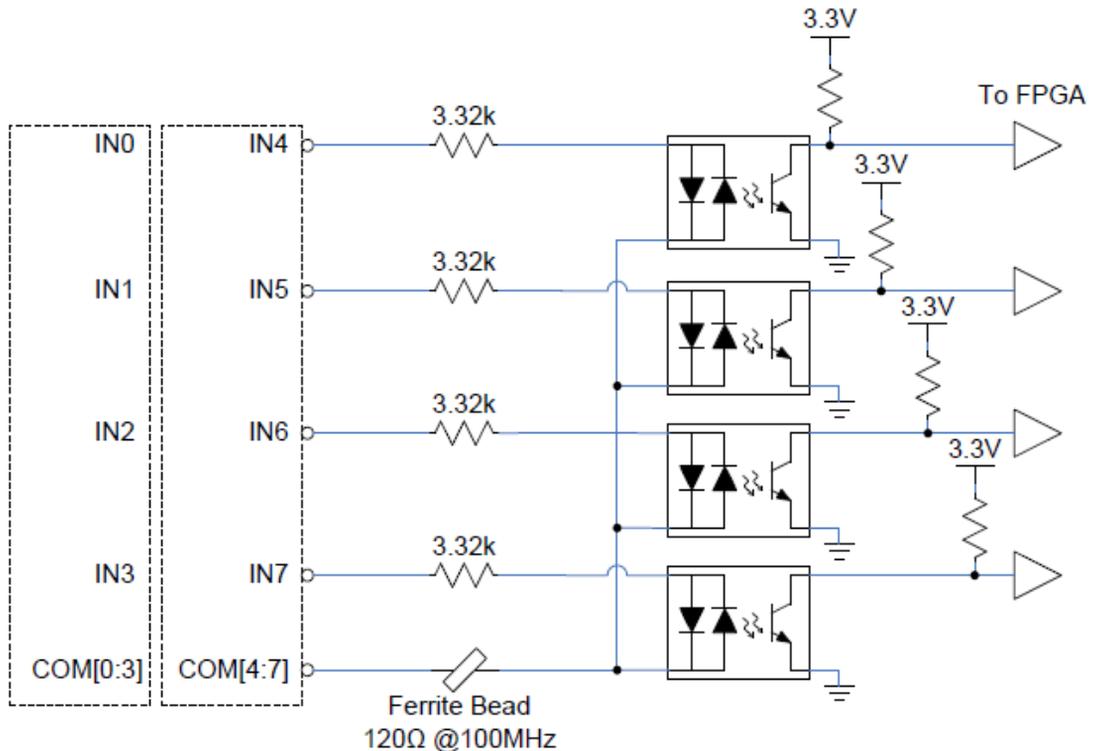


Pin #	Type	Function
1	Input	Input 0 (default trigger for both cameras)
2	Input	Input 1
3	Input	Input 2
4	Input	Input 3
5	Common	Common for inputs 0-3
6	Input	Input 4 (optional camera 2 separate trigger)
7	Input	Input 5
8	Input	Input 6
9	Input	Input 7 Job Change
10	Common	Common for inputs 4-7
11	Output	Output 0
12	Output	Output 1
13	Output	Output 2
14	Output	Output 3 or camera 1 strobe output
15	Common	Common for outputs 0-3
16	Output	Output 4
17	Output	Output 5
18	Output	Output 6
19	Output	Output 7 or camera 2 strobe output
20	Common	Common for output 4-7

## Inputs Specification

iNspec uses Input 0 as the trigger to both cameras in Sync mode. In Async mode Input 0 is the Camera1 trigger and Input 4 is the Camera2 trigger. Sherlock defaults to input 0 for both cameras but also allows you to select your own input assignments.

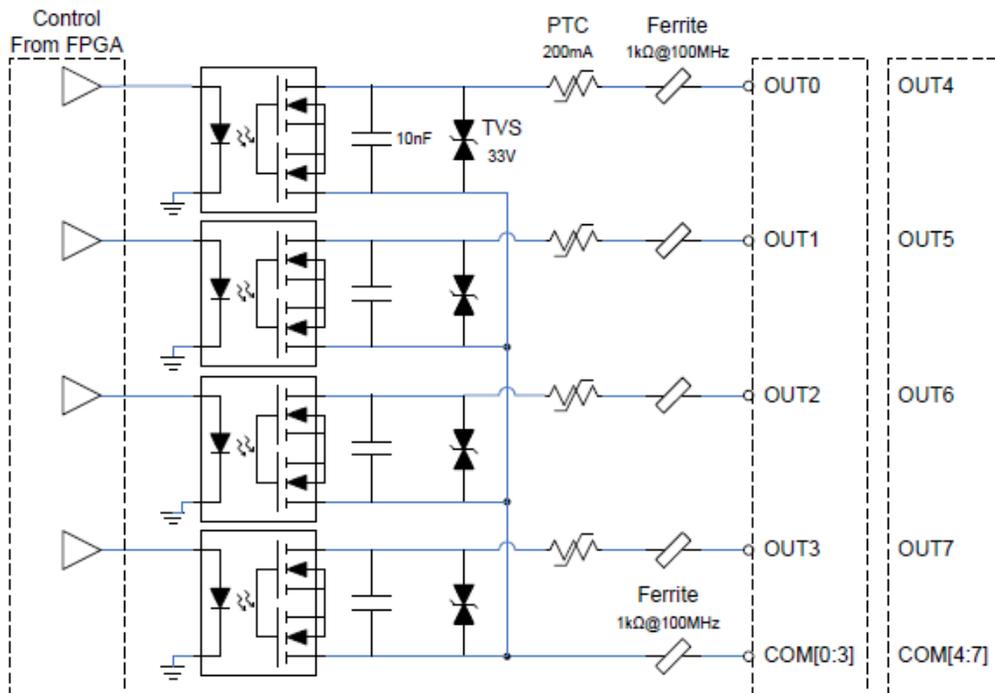
Parameter	Value
Isolation	Optical
Maximum Input Voltage	30 Volts
Maximum Input Current	30 mA
Minimum Voltage to Engage Trigger	11.0 V typical
Input Resistance	3.32 kOhm
Electrical Isolation	400 V RMS
Noise Reduction	Ferrite bead 120 ohms at 100 MHz
Polarity	Bidirectional: can be positive or negative
Typical current at 24V input	8 mA
Switching time ON	20 us typical, direct connection 5 meter cable
Switching time OFF	15 us typical, direct connection 5 meter cable



## Outputs Specification

iNspec and Sherlock both use Output 3 as the Camera1 strobe and Output 7 as the Camera2 strobe. This assignment is not reconfigurable.

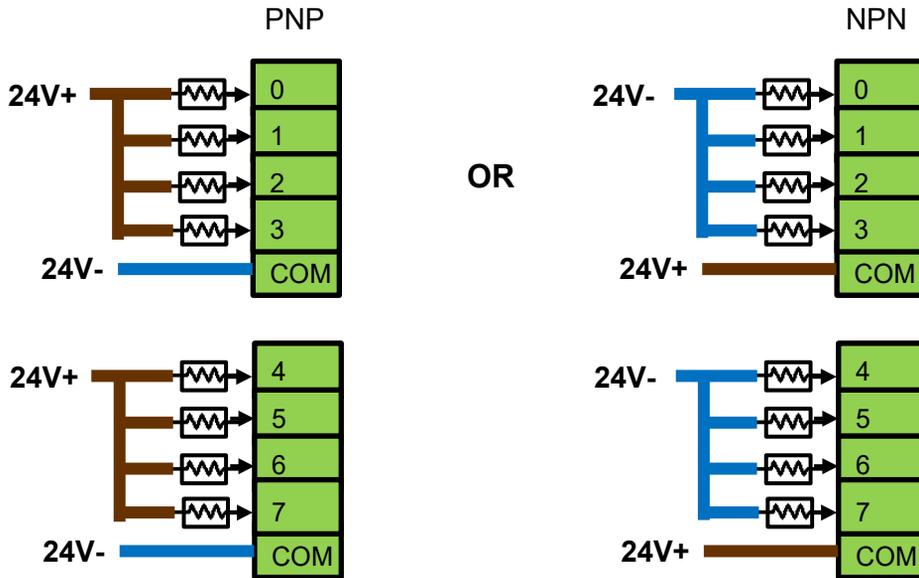
Parameter	Value
Isolation	Optical
Maximum Load Current continuous	170 mA
Maximum Load Current peak	Pulsed 300 mA for 100 seconds Pulsed 400 mA for seconds Pulsed 500 mA for 1.9 seconds – duty cycle must be 10% or less
Maximum Load Voltage	30 Volts
Output ON resistance	1 ohm minimum 5.5 ohm maximum
Isolation	1500 VAC
Noise reduction	Ferrite 2 kOhm at 100 MHz (1 k on signal, 1 k on common)
Output capacitance	10 nF
Switching time ON	600 us typical, 2000 us maximum
Switching time OFF	80 us typical, 500 us maximum



# Wiring Diagrams

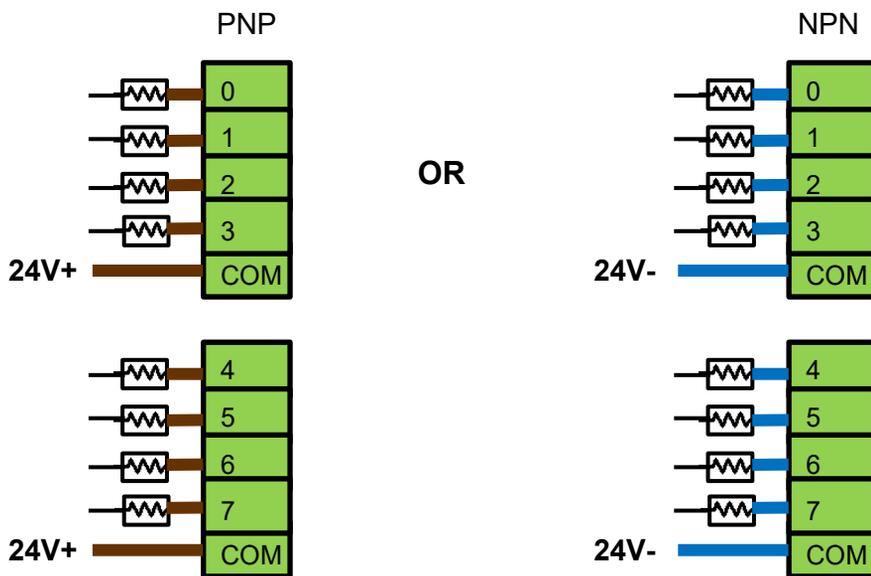
## Input Wiring

Each group of 4 inputs can be wired independently.



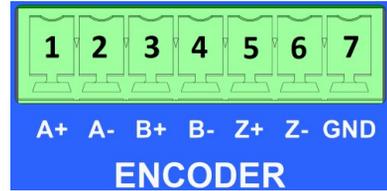
## Output Wiring

Each group of 4 outputs can be wired independently.



## Encoder Inputs Specification

Shaft Encoder Inputs are used for synchronizing to moving or rotating equipment.

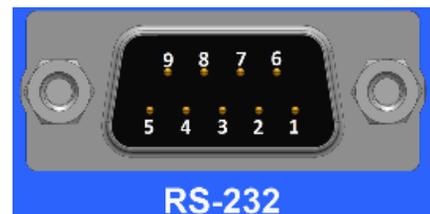


Parameter	Value
Isolation	Not isolated
Maximum data rate	20Mbps
Encoding modes	Single-Channel X1, Dual-Channel X1 Single-Channel X2, Dual-Channel X2 Dual-Channel X4 must be 10% or less
Signals	A+/A-, B+/B-, Z+/Z- RS-422 / RS-485
Common-Mode Range $V_{CM}$	-7 to +12 V
Differential Threshold $V_{TH}$	Min -200 mV Max +200 mV
Input Resistance	48 kOhm minimum
Input Current	+/- 0.2 mA maximum
ESD Protection	Contact Discharge +/-8 kV Air Gap Discharge +/-15 kV

## RS-232 Connector

VICORE has one standard serial port for communication with peripheral devices.

Pin #	Connection
1	No connection
2	RX – input
3	TX – output
4	No connection
5	Ground
6, 7, 8, 9	No Connection



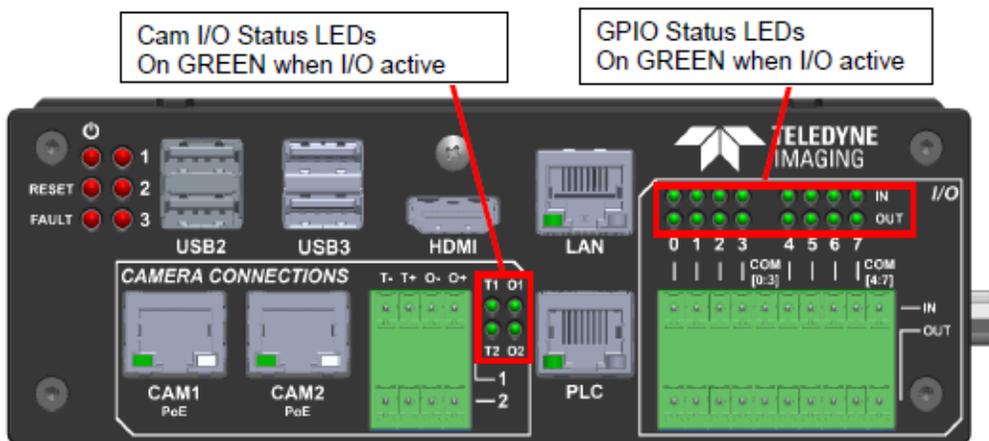
# LED Status Indicators

There are 6 LEDs at the top-left corner of the front panel which provide system status. Some are also available for program use.



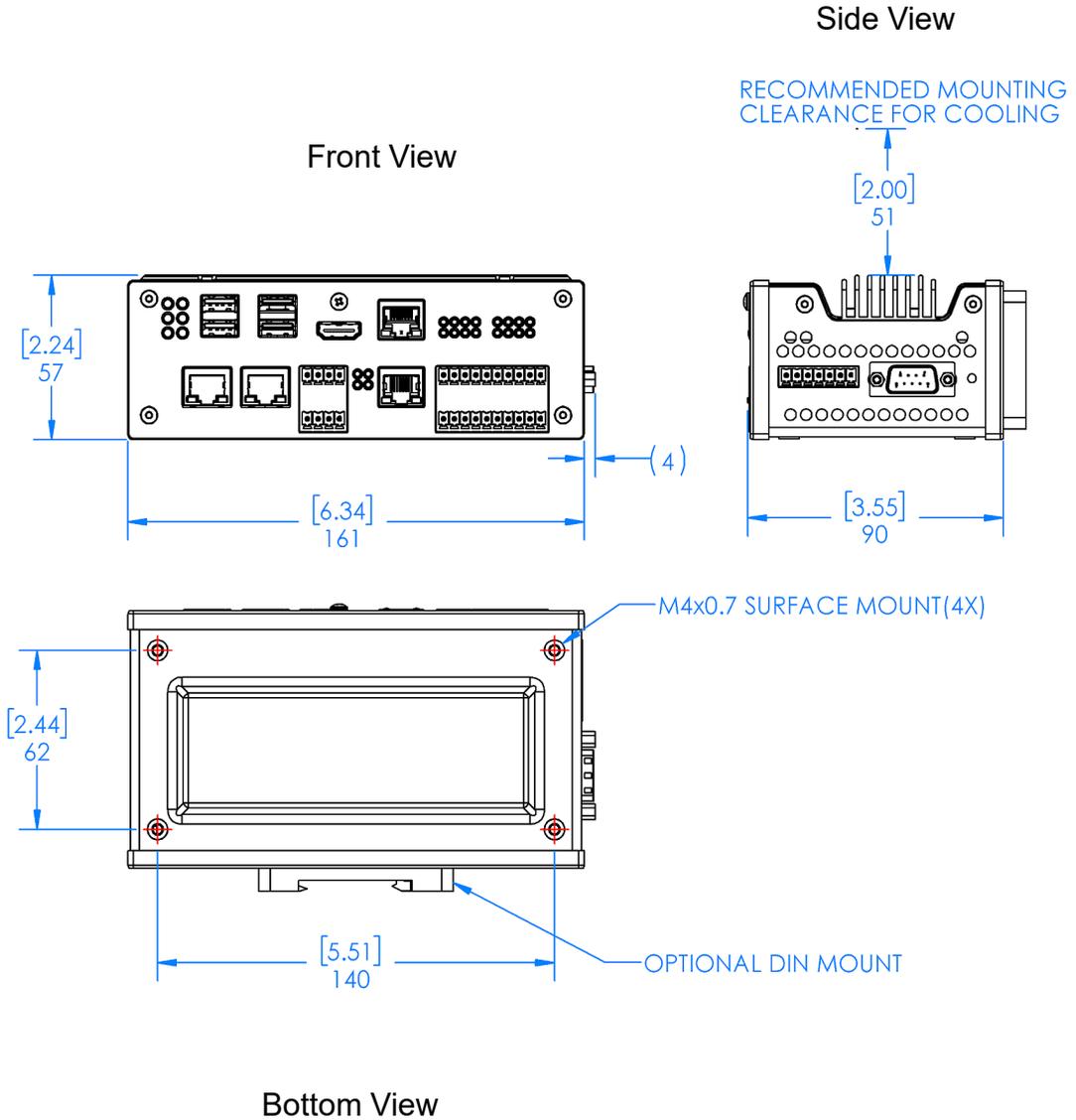
Label	Displayable Colors	Status
	Red/Green	Green – power good Red – Unit is shut down, or power fault
Reset	Red/Green	Red – Reset active Green – user defined
Fault	Red/Green	Red – Hardware fault: FPGA Not loaded, CPU error, Temperature alert, internal voltage fault Green – application defined
1	Red/Green/Amber	Amber blinking – VICORE powering up, continues blinking until stopped by starting a software application. Green blinking – iNspect Express heartbeat: 2s 50% Red/Green/Amber – application defined
2	Red/Green/Amber	Green blinking – iNspect Express acquisition: 2s 50% Red/Green/Amber – application defined
3	Red/Green/Amber	Red/Green/Amber – application defined

**Note:** All other LEDs on the VICORE are **green only** and turn **on** when a particular input or output is active.



# VICORE Mechanical Dimensions

All dimensions are in millimeters



# Accessing VICORE

## Direct Access

Connect a Monitor, Keyboard and Mouse directly to the VICORE to access it “directly” like a PC or laptop. Connectors are shown on page [8](#).

1. Connect a monitor to the HDMI connector.
2. Connect a keyboard and mouse to any of the 4 USB connectors.

VICORE is configured to boot to the desktop without requiring a password. This is the administrator account. You can change settings to require a password or add additional user accounts through Windows setup.

## Remote Access

You can connect a PC or laptop to VICORE using an ethernet cable, to access VICORE “remotely” using “Remote Desktop” on your PC or Laptop.

VICORE is already configured at our factory to allow Remote Desktop access. You need to configure your PC or laptop to access VICORE. There are a few things you need to know about VICORE:

- VICORE default computer name is “VIC-” plus the full 7 digits of the serial number, for example: VIC-1234567.
- VICORE default LAN address is 192.168.0.100 and Subnet mask 255.255.255.0.
- The default account name is “teledyne” and the default password is “teledyne”.

Use the steps below to connect to VICORE using Remote Desktop in Windows 10.

### Overview of Remote Access

1. Connect an Ethernet cable to the VICORE LAN connector (#4 on page [8](#)).
2. Connect the other end of the Ethernet cable to your PC or Laptop LAN connector.
3. Configure your PC or Laptop’s LAN Address to be compatible with VICORE (details on page [22](#)).
4. Open the Remote Desktop application on your PC or Laptop (details on page [23](#)).
5. Enter the Computer name of your VICORE and the account user name.
6. Click the Connect button. You will be asked for a password.

After several seconds a window will open showing part of the VICORE desktop.

## How To Configure Your LAN Address

The exact steps to open your system settings may depend on your Windows configuration, account permissions, and network security settings.

1. In the Windows 10 Start menu, click on the Settings button.



2. Click on Network & Internet.



Network & Internet

Wi-Fi, airplane mode, VPN

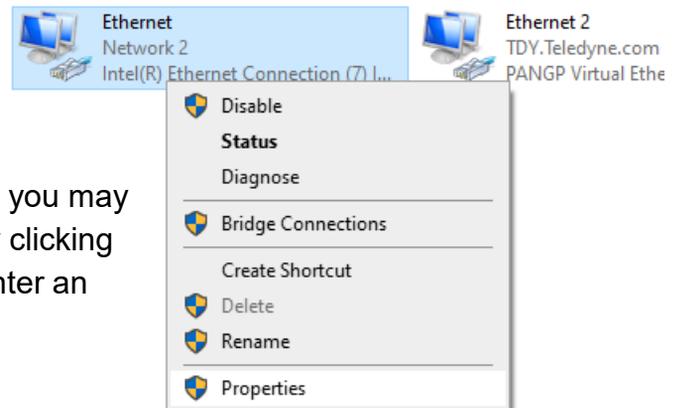
3. Click on Change adapter options.



Change adapter options

View network adapters and change connection settings.

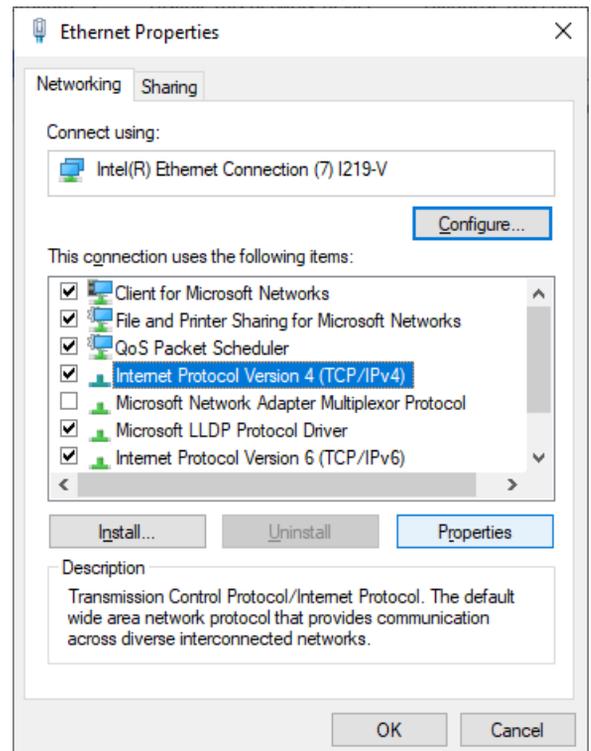
4. Right-click on the Ethernet connector you will use for connecting to VICORE and select "Properties".



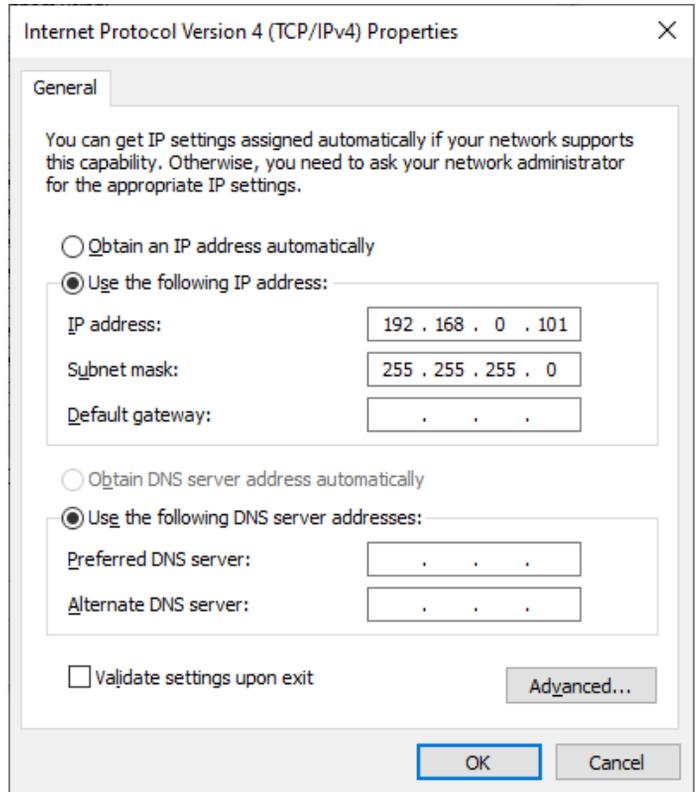
Depending on your account and security, you may be asked to confirm changing settings by clicking on Yes or No. Or you may be asked to enter an Administrator password.

5. Click on "Internet Protocol Version 4 (TCP/IPv4)". Scroll down to find it if necessary.

6. Click the Properties button.

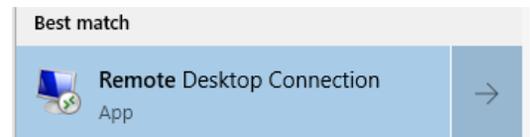


7. Click the bubble beside “Use the following IP address:”
8. Enter an address that is compatible with VICORE, for example 192.168.0.101.
9. Click in the field beside “Subnet mask.” It should populate automatically to show 255.255.255.0.
10. Click OK to close the IP4 menu.
11. Click OK to close the Port properties menu. You do not have to reboot the PC or Laptop for an address change.



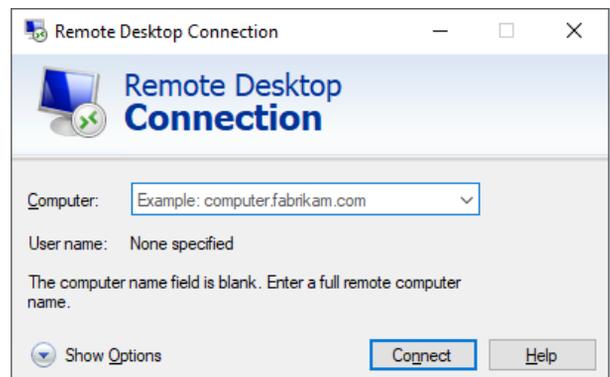
## How To Open Remote Desktop

1. Click the Search button in the taskbar and type “Remote Desktop”.
2. Click on “Remote Desktop Connection” (not on the arrow beside it).



The remembered Computer name and user name (if any) are displayed or as shown here no previous connection data.

3. Click the Show Options button.



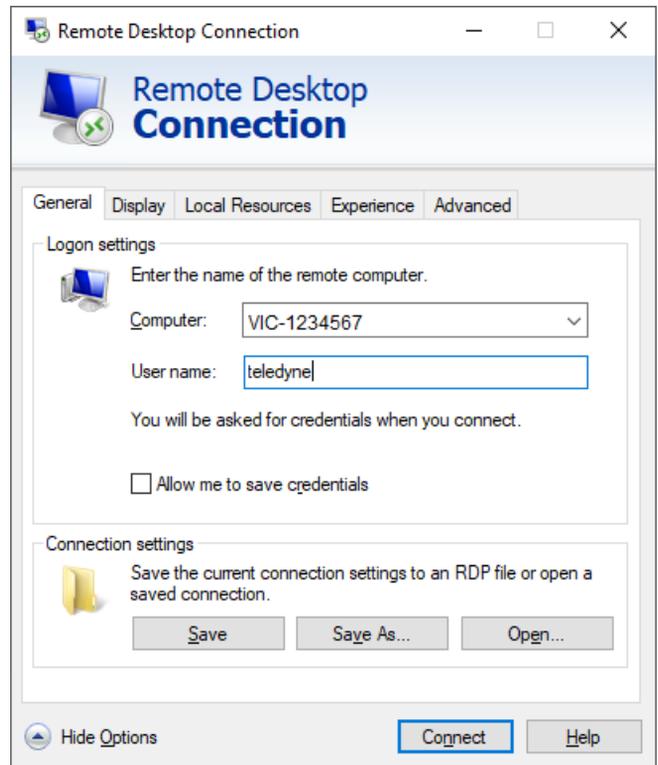
4. Enter the Computer name and account user name.

The default Computer name is “VIC-” followed by the 7 digits of the VICORE serial number. Such as: VIC-1234567. The default account name is “teledyne”.

**Note:** User names are not case sensitive.

5. Click the Connect button. You will be asked to supply a password. The default password is “teledyne”.

**Note:** The password is case sensitive.



6. After several seconds the remote desktop window will open showing part of the VICORE desktop with the Teledyne logo. You can maximize this window.

# Software Applications Interface

## Getting Started

VICORE has the 64-bit Windows 10 IoT operating system. VICORE-03 model has iNspect Express licensed (Sherlock is not licensed). VICORE-04 model has Sherlock 8, Sherlock 7 and iNspect Express licensed for Genie Nano and Calibir. VICORE-H model (for Z-Trak) has no software license installed. The Z-Trak includes a Sherlock 8 3D license. These applications offer a suite of vision capabilities that satisfy a diverse range of automated inspection needs. The following shows where VICORE software is installed. Refer to the respective software user manual for more information. Manuals provided on the VICORE system drive. C:\IPD Install Files\PDF Manuals

## Software Directory Structure

Software applications are installed in various directories on the VICORE. The following table lists the location and association of core programs and data directories referenced in this manual.

### Sherlock 8 Program Files and Directories

Sherlock	C:\Program Files\Teledyne Dalsa\Sherlock8x64\bin\lpeApp.exe
Sherlock Drivers	C:\ProgramData\Teledyne Dalsa\Sherlock8x64\drivers-data
Sherlock Programs	C:\ProgramData\Teledyne Dalsa\Sherlock8x64\programs
Emulator Images	C:\ProgramData\Teledyne Dalsa\Sherlock8x64\images
Sapera CamExpert	C:\Program Files\Teledyne Dalsa\Sapera LT\CamExpert.exe
iDiscoverGenie	C:\Program Files\Teledyne Dalsa\Sherlock8x64\bin\iDiscoverGenie.exe
License Manager	C:\Program Files\Teledyne Dalsa\Sherlock8x64\bin\lpdLicMgr.exe

### Sherlock 7 Program Files and Directories

Sherlock	C:\Program Files\Teledyne Dalsa\Sherlockx64\bin\lpeStudio.exe
Sherlock Drivers	C:\ProgramData\Teledyne Dalsa\Sherlockx64\Drivers
Sherlock Programs	C:\ProgramData\Teledyne Dalsa\Sherlockx64\Programs
Emulator Images	C:\ProgramData\Teledyne Dalsa\Sherlockx64\Images
Sapera Acquisition Wizard	C:\Program Files\Teledyne Dalsa\Sherlockx64\bin\lpeSaqAcqWiz.exe
Sapera CamExpert	C:\Program Files\Teledyne Dalsa\Sapera LT\CamExpert\CamExpert.exe
License Manager	C:\Program Files\Teledyne Dalsa\Sherlockx64\bin\lpdLicMgr.exe

### iNspect Express Program Files and Directories

Configurator	C:\Program Files\Teledyne Dalsa\iNspectExpress x64\iNspectExpressConfig.exe
iNspect Express	C:\Program Files\Teledyne Dalsa\iNspectExpress x64\Express.bat
Solution Files	C:\ProgramData\Teledyne Dalsa\iNspectExpressVA\Solutions
Emulator Images	C:\ProgramData\Teledyne Dalsa\iNspectExpressVA\Images
iDiscoverGenie	C:\Program Files\Teledyne Dalsa\iNspectExpress x64\iDiscoverGenie.exe
License Manager	C:\Program Files\Teledyne Dalsa\iNspectExpress x64\ldpLicMgr.exe

**Note:** The directory C:\ProgramData and everything below it is normally hidden as required by Microsoft Windows rules. iNspect Express and Sherlock have a Start Menu shortcut to the User Files Directory, which includes Programs Images and configuration.

# The License Manager

The software installed on the VICORE is license-protected. The license is applied to the unit system number before it ships from the factory. Make sure that the product license matches what you ordered before going any further. Open the license manager from the “start menu” as follows:

- Start → Teledyne DALSA Sherlock 8 x64 → License Manager
- Start → Teledyne DALSA Sherlock x64 → License Manager
- Start → Teledyne DALSA iInspect x64 → License Manager

This example shows the model -04 with Sherlock and iInspect Express both licensed. Your system may have only one of these licenses (model -03 has only iInspect Express licensed).

“System #11931690309” is the VICORE SSD.

A Genie Nano camera or Z-Trak Laser Profiler would be listed as “Sapera LT Board #####”.

If the license does not reflect what you purchased, consult your Teledyne Imaging sales representative. The license is field upgradable by entering a new string in the “Enter License” box then clicking “Update License”.

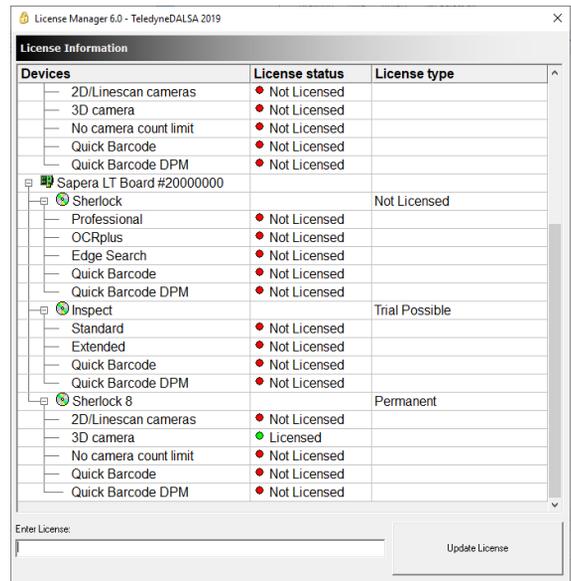
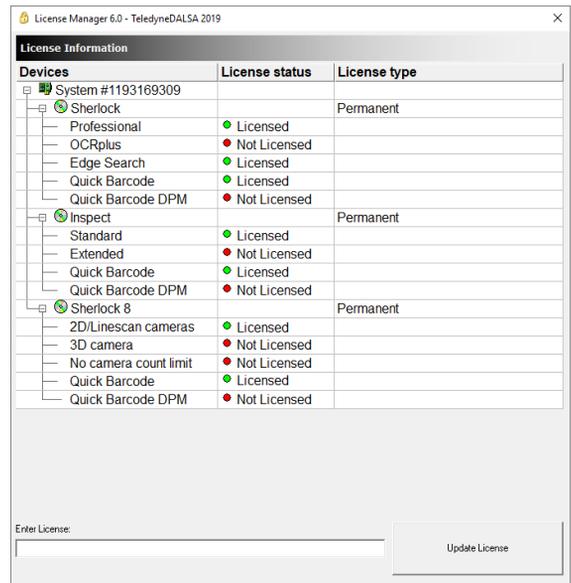
**Note:** QuickBarcode DPM is an optional license addition.

This example shows a Sherlock 8 license stored on a connected Z-Trak Laser Profiler. “Sapera LT Board” refers to the Z-Trak and in this example the serial number is 20000000.

If you purchase the -H model no licensees will be installed. Connecting a Z-Trak as indicated above will enable the Sherlock 8 software.

**Note:** iInspect Express does not support a license stored on a camera.

**Note:** The license manager requires Administrator privileges.



## Camera Address

The iDiscoverGenie utility is provided for discovering GigE cameras connected to the VICORE. Use the iDiscover interface to change the camera IP settings to match the IP setting of the camera port.

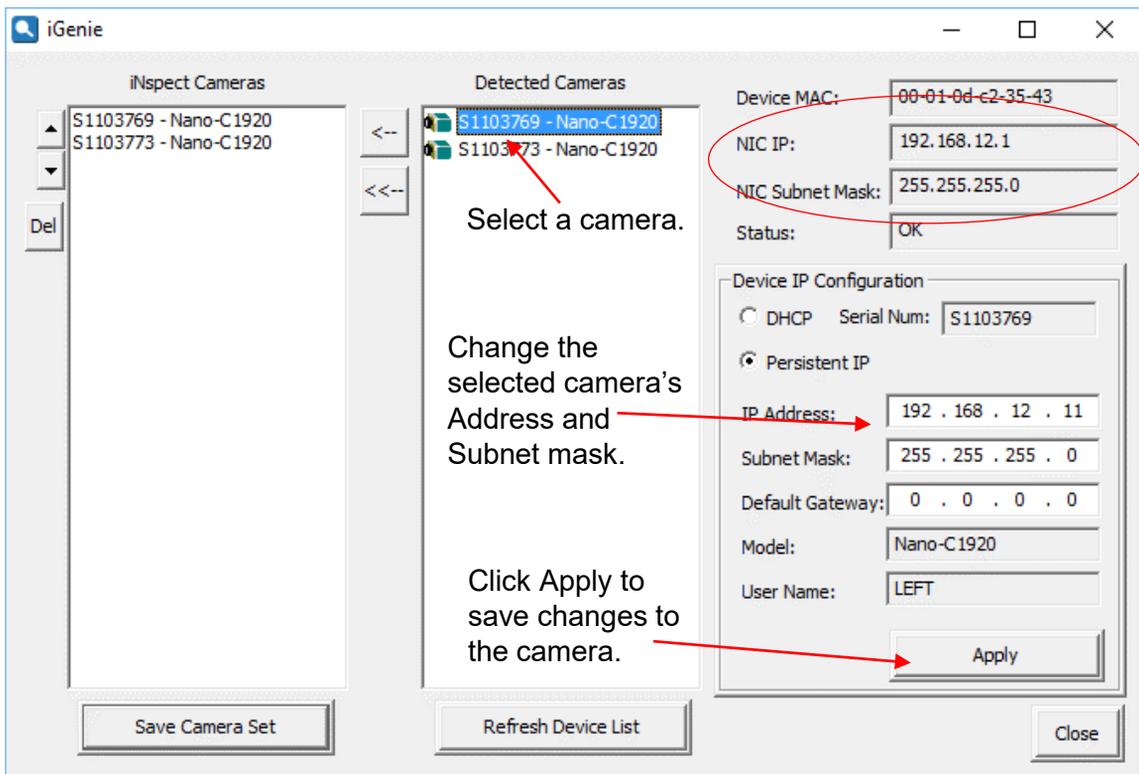
- A shortcut to iDiscoverGenie is available on the VICORE desktop.
- Sherlock 8 creates a shortcut to iDiscoverGenie in the Windows start menu:

Start → Teledyne DALSA Sherlock 8 x64 → GigE devices network utility

The cameras are listed in the center field. A red camera icon indicates the camera IP Address is not compatible with the NIC port and needs to be corrected. A blue camera icon indicates the camera IP Address is compatible with the NIC port.

To change a camera's IP Address or Subnet Mask:

1. Click on one of the cameras to populate the network configuration on the right. You can then modify the camera IP address to match the camera port IP segment at the top. The first 3 fields must match the NIC, the last field must be different.
2. Click the "Apply" button to save changes. The camera will reappear configured with the new address. A Genie-TS camera will disappear and must be power cycled.



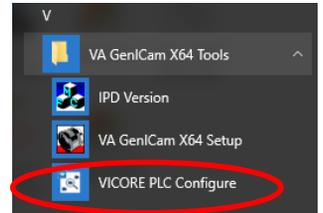
## PLC Port Configuration

The VICORE uses dedicated port for Ethernet-IP or Profinet communication only. This port is not configured or controlled under Windows or Sapera networking. The PLC port is factory-configured for Ethernet-IP with a static IP address 192.168.10.100.

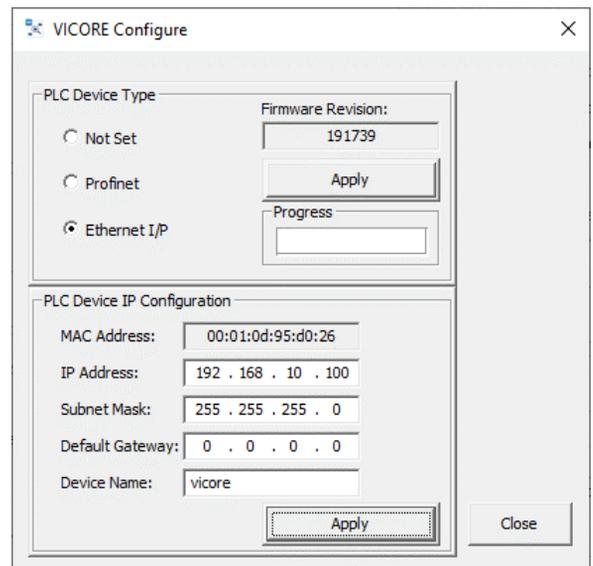
**Note:** The IFC driver must be enabled in Sherlock 8 or Sherlock 7 to use the PLC port.

Use the VICORE PLC Configure utility to set up this port for communication. You may choose either Profinet or Ethernet-IP as your configuration.

The VICORE PLC Configure utility can be launched from the iNspect Express Configurator (page 43) or the Windows Start menu: **Start**→**VA GenICam X64 Tools**→**VICORE PLC Configure**



1. Select Profinet or Ethernet IP and click Apply. The progress bar changes to show the firmware being loaded.
2. Enter an IP Address for the VICORE port which is compatible with your PLC or machine network. Enter a subnet mask that matches your network.
3. Enter the default gateway if your network requires it. Some networks are set to ignore the gateway.
4. Enter a device name for the PLC to use when addressing the VICORE.
5. Click Apply when finished, then click Close.



6. If you changed the Device Type (Profinet/Ethernet-IP) the progress bar will show the Port configuration being loaded. You will be asked to shut down the VICORE.
7. If you did not change the device type, but you did change other information, you should reboot (soft boot) your VICORE to complete the address configuration.
8. You may wish to reopen the Configurator to verify your changes were successful.

**Note:** iNspect Express and Sherlock 7 automatically select the PLC Port for Ethernet-IP or Profient communication. In Sherlock 8 you must create a PLC “hard” communication object for the PLC Port. **Note:** The VICORE LAN port will not support Ethernet-IP or Profinet communication.

**Note:** If you switch between the two setups the PLC may see the VICORE as a new device and refuse to connect, even if the name and address are the same.

# Sherlock 8 Setup

The first time you use Sherlock 8, you should save the list of attached cameras. Sherlock detects the cameras and configures one image workspace accordingly. From Sherlock 8 you can launch CamExpert configurator and change the camera settings. Sherlock 8 uses the settings stored in the camera, or in camera configuration files. You can also use Sherlock instructions to change Gain, Exposure (shutter time) or Strobe pulse width programmatically (IO:Camera:write\_number).

1. In Sherlock's main window, pull down the Options menu and select "Configure Drivers".



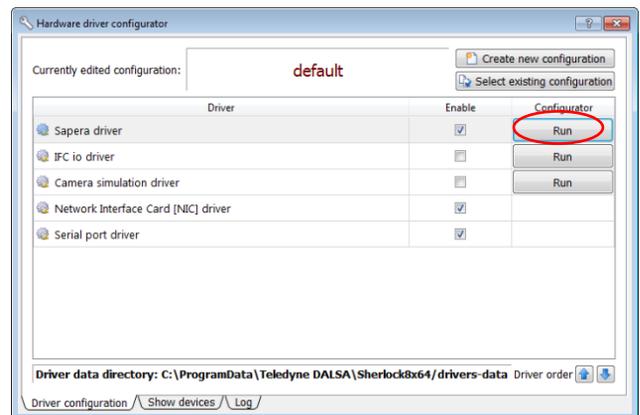
Sherlock always opens with the "default" configuration.

The configuration is interactive. Changes you make are used immediately and saved when you close Sherlock.

The Sopera, IFC io, Network and Serial drivers are enabled by default.

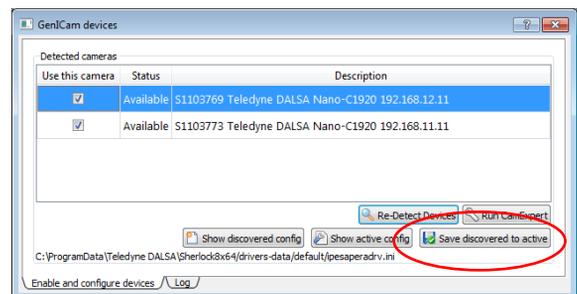
**Note:** The IFC io driver must be enabled for the VICORE IO and the PLC port.

2. Click the Run button beside Sopera. This opens the GenICam devices menu showing a list of all detected cameras.



3. All cameras are enabled by default. Clear the check boxes beside any cameras you do not wish to use. Sherlock 8 will reserve all attached cameras that it finds, unless they are listed here and unchecked.

4. Click the "Save discovered to active" button. This copies the new list of devices over the original empty list.



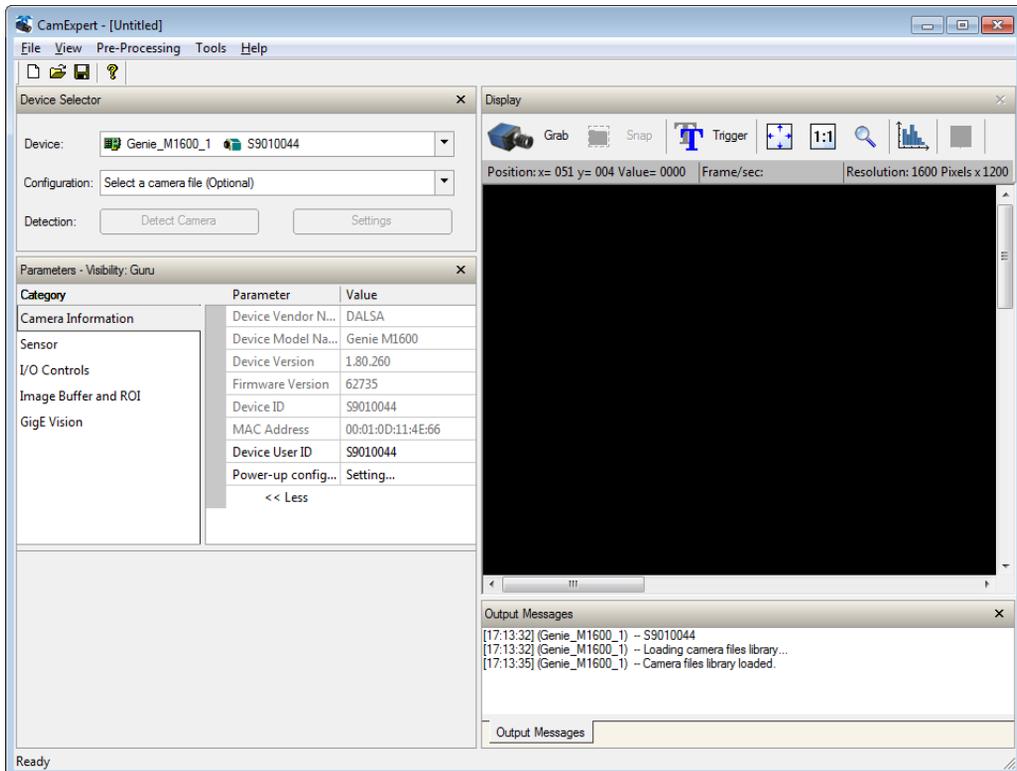
5. You can click the "Run CamExpert" button to configure camera settings and save a configuration file (page 30). Close CamExpert to return to this menu.
6. Click the "Show active config" button to edit the Sopera LT configuration file and point to your camera configuration file. (page 31)

## The Spera CamExpert Utility

GigE cameras store their configuration settings (I/O, shutter speed, white balance) in memory (EEPROM). Changes you make to the camera settings are temporary, unless saved to the camera memory or to a configuration file. The Sherlock 7 Install Guide and Sherlock 8 Tutorial 3 discuss configuring cameras in CamExpert. Tutorial 2 discusses using CamExpert X to configure the Z-Trak profiler.

- Sherlock will use the current camera state or load a saved configuration file during program initialization.
- iInspect Express overrides these settings and configures the camera according to the solution file.

You can change a camera's parameters and save them to the camera memory and/or to a configuration file using the Spera CamExpert utility. You can configure the camera to load either your saved settings or the factory settings from its memory at power up. The preferred method is to save your settings to both the camera and a configuration file. Sherlock can load a configuration file at startup. If the two cameras are the same, you can use one file for both cameras. If different configurations are needed, you can create different configuration files for each camera.



All the detected cameras are listed (below). The file begins with a list of the cameras and their status equal to True or False. All cameras you unchecked are false. Sherlock will not access or reserve the cameras set to “false”. The cameras appear in Sherlock in the order they are listed here. You can **change the camera order** by editing this file.

1. If you created camera configuration files, edit the “configfile=” to point to your files (a full path is required). **Note:** You can use the same file for multiple cameras if they are the same model and the same settings. Or you can create multiple files to load different camera settings at startup.
2. If you have color cameras, enter the values for Red, Green and Blue gain values form CamExpert. Enter as floating point; for example: 1.0524, 1.843113.
3. Save the Sapera configuration file when finished. (File-Save or Ctrl-S in Notepad).
4. Close the INI file.
5. Close the GigE Devices window.
6. Close the Sapera Driver configurator.

```

ipesaperadriv.ini - Notepad
File Edit Format View Help
#edit to change camera order
[enabled]
s1103769=true
s1103773=true
[cam-s1103769]
buffers=3
configfile=C:\Program Files\Teledyne DALSA\Sapera\CamFiles\User\T_Nano-C1920-TrigIn2_SwOuts.ccf
flatfieldfile=
debayeralgorithm=0
bayercfa=0
roffset=0
goffset=0
boffset=0
rgain=1
ggain=1.0524
bgain=1.843113
gamma=1
[cam-s1103773]
buffers=3
configfile=C:\Program Files\Teledyne DALSA\Sapera\CamFiles\User\T_Nano-C1920-TrigIn2_SwOuts.ccf
flatfieldfile=
debayeralgorithm=0
bayercfa=0
roffset=0
goffset=0
boffset=0
rgain=1.06954
ggain=1
bgain=1.71934
gamma=1

```

Camera order and enable.  
Sherlock 8 uses the Serial Number to identify each camera.

Path to camera 1 configuration file

Color gain values for camera 1

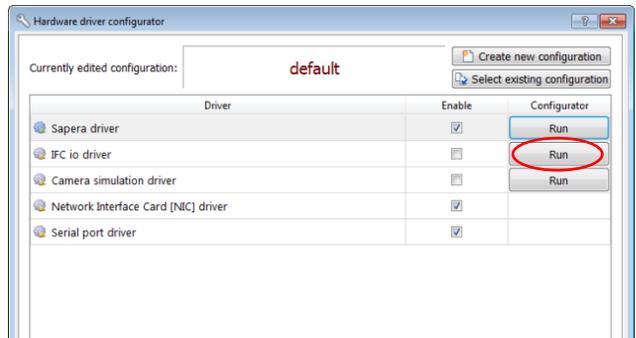
Path to camera 1 configuration file

Color gain values for camera 2

## Configure the VICORE I/O in Sherlock 8

A configuration file is not required but it is recommended. By default Input 0 triggers both cameras and strobe outputs are disabled. A Configuration file allows you to customize the IO settings.

1. In the Hardware Devices configuration menu, click the Run button beside IFC io driver. This opens a file in Notepad.
2. Edit the line “CONFIG=” to point to a valid VICORE IO Configuration file.
3. Save the Ipeifcdrv.ini file and exit notepad.
4. Close the Hardware Devices menu to return to Sherlock 8.



```
ipeifcdrv.ini - Notepad
File Edit Format View Help
;set config file name if any
[GENERAL]
CONFIG=C:\VAGenieX64\config\VICORENoStrobesTrig0&0.txt
```

### Using a Supplied File

There are four VICORE configuration files supplied. Edit the IFCDrv.ini file to point to one of the four files found in directory: C:\VAGenie\Config

- VICORENoStrobesTrig0&0.txt – Default setting. No Strobe signals enabled to the VICORE IO connector, both cameras use VICORE Input 0 for the trigger.
- VICORENoStrobesTrig0&4.txt – No Strobe signals enabled to the VICORE IO connector, Camera 1 uses Input 0 for trigger and Camera 2 uses Input 4 for trigger.
- VICOREStrobe1&2Trig0&0.txt – Camera 1 strobe goes to VICORE Output 3 and Camera 2 strobe goes to Output 7. Both cameras use VICORE Input 0 for trigger.
- VICOREStrobe1&2Trig0&4.txt – Camera 1 strobe goes to VICORE Output 3 and Camera 2 Strobe goes to Output 7. Camera 1 uses Input 0 for trigger and Camera 2 uses Input 4 for trigger.

### Create a New Configuration File

You can use the “VA GenICam X64 Setup” to create a new configuration file (page [34](#)). You can turn the strobe outputs on or off, and you can select which VICORE inputs supply triggers to the two cameras. **Note:** You should disconnect the cameras while creating an IO Configuration file.

When you open VA GenICam X64 Setup the default on both Camera ports is: strobe outputs disabled, Camera port 1 uses GPI[0] for trigger and Camera port 2 uses GPI[4] for trigger.

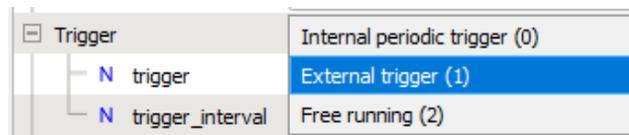
## Enabling Trigger and Strobe in Sherlock 8

Triggers and strobes are enabled in the camera, in the VICORE Configuration file, and in the Sherlock Application. Use this page to check that you have made all the necessary changes.

1. Launch **Sherlock 8** and then launch **CamExpert** (page [30](#)).
2. Select the IO Controls in the left most pane in CamExpert.
3. Change the Trigger Mode to On. Change the Trigger Source to Line 2 (Input 2).
4. Use the Line Selector to select Line 4 (Output 2).
5. Change the mode to one of the Pulse output options for a camera strobe output.
6. Click the Save button in the toolbar or use the File menu to select Save.
7. In the popup, change the two “default” fields to identify the new camera settings, such as “TrigIn2” and “StrobeOut2”.
8. Click Save. The default location is C:\Program Files\Sapera\CamFiles\User

If the cameras are the same model and use the same settings, you can use one file for both cameras. Or you can create different files with different settings.

9. Open the Sapera LT Configuration (last step on page [29](#)) and edit it to point to the configuration file you just saved (page [31](#)). Do this for both cameras.
10. Save and Close the Sapera LT Configuration file.
11. Open the IFC Configuration file (page [32](#)).
12. Change the “CONFIG=” to point to a VICORE configuration file (page [32](#)). The default file is Strobes disabled and Trigger 0 for both cameras.
13. Save this file and close.
14. In Sherlock 8 open the System Objects window and select Image Sources.
15. Select a Camera and open the camera object properties. Change the trigger to External. Repeat for the second camera.



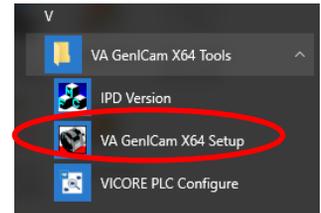
16. In the Program Window, open the Properties for the acquire instruction. Change the timeout if necessary (for a large image or a long trigger interval) .

# GenICam X64 Setup

1. **Disconnect the cameras** so you do not get information you will have to delete later.

2. Open the GenICamSetup X64 Tool from the start menu :

Start → VA GeniCam X64 Tools → VA GeniCam X64 Setup



Note: The IPD Version utility only works in 32-bit environments.

When you open VA GeniCam X64 Setup the default on both camera ports is: Strobe outputs disabled, Camera port 1 uses VICORE input IN0 for trigger and Camera port 2 uses VICORE IN4 for trigger. The 2 camera ports are configured separately.

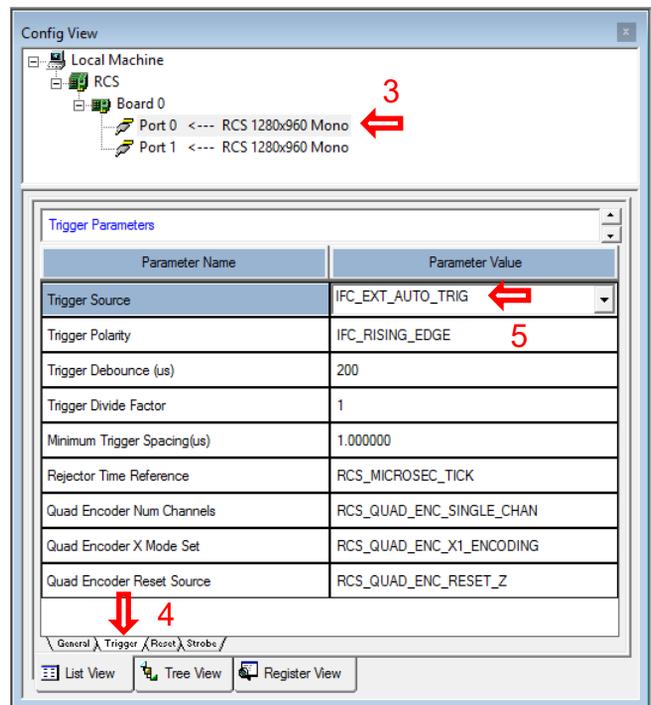
3. Click on Port 0 in the upper pane.

4. Click the Trigger tab at the bottom of the pane.

5. Click on the field beside “Trigger Source” to activate the pull-down.

6. Select your trigger source from one of the VICORE inputs.

IFC\_EXT\_AUTO\_TRIG setting allows iNspect Express to select the correct trigger input in Synchronous and Asynchronous modes. Sherlock does not have a defined Synchronous and Asynchronous mode.

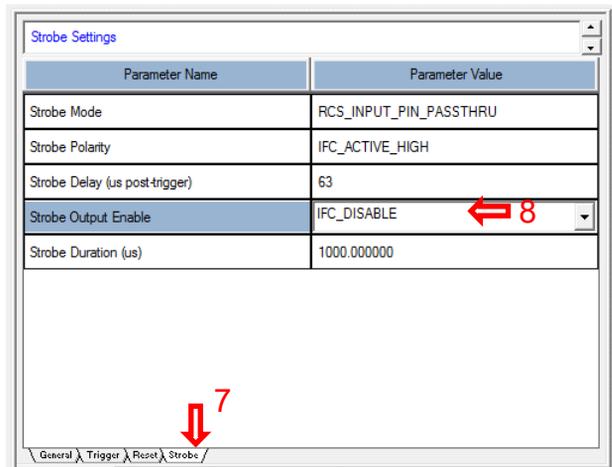


7. Click on the Strobe tab at the bottom of the pane.

8. Click in the right column beside Strobe Output Enable to activate the pull-down.

9. Select IFC\_ENABLE to allow the camera’s strobe signal to pass to the VICORE outputs.

Camera1 (Port0) strobe goes to VICORE output 0 and Camera2 (Port1) strobe goes to output 4. This cannot be altered.

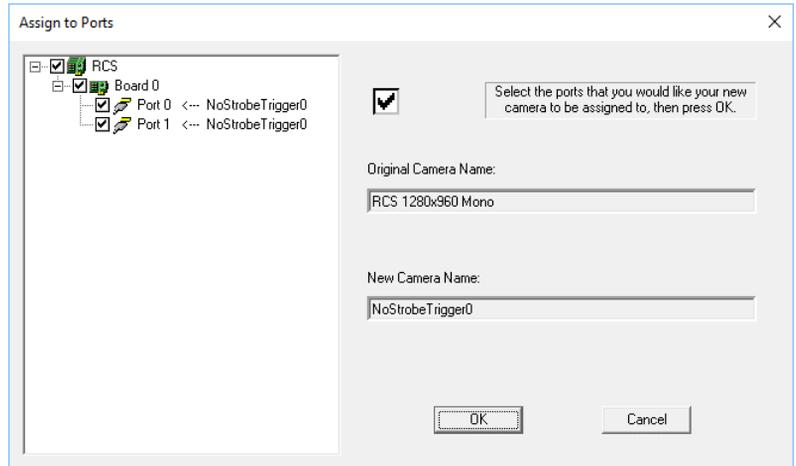


10. Now click on port 1 in the upper pane. You are asked to save the changes to port 0. Answer yes.

11. You will be asked to give a name to your port configuration.

12. You are then given the option to apply the changes to all ports. Check the boxes beside each port if you want both ports the same.

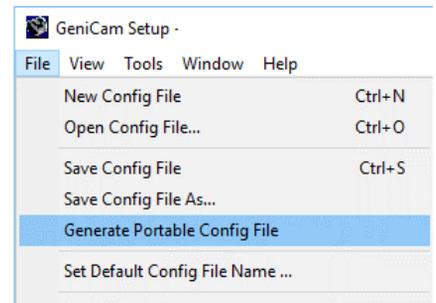
13. Click OK.



14. If you want different settings on Port 1, click on Port 1 and repeat steps 4 through 13.

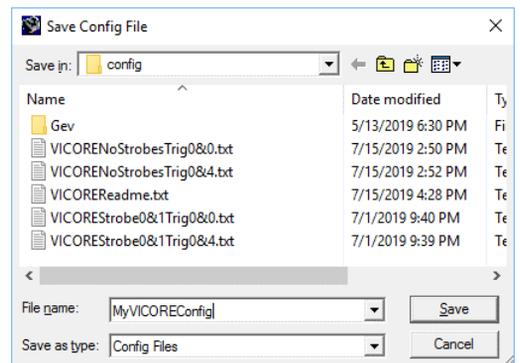
## Save Your Configuration

1. Use the File menu to select “Generate Portable Config File”. This creates a single detailed file for all ports and their settings.



2. Save the file using a name you will recognize.

3. You will point to this saved file using Sherlock. The default location is C:\VAGeniex64\Config



# Sherlock 7 Setup

Follow these steps to configure the VICORE system to run Sherlock 7:

1. Connect cameras as shown in the typical installation (page [9](#)).
2. Run the License Manager and verify a valid license is installed (page [26](#)).
3. Run the **iDiscover** utility (page [27](#)) or the **Sapera Network Configuration Tool** to detect and configure the addresses of all cameras connected to the system.
4. Run the **Sapera CamExpert** utility if you want to change settings in any of the cameras such as trigger, exposure, strobe or white balance (page [37](#)).
5. Run the **Sapera Acquisition Wizard** to verify all attached GigE cameras are shown as expected and click the “save” button (page [38](#)) to save the configuration file (SaperaLTDrv.ini).
6. Launch Sherlock 7 using the shortcut on the desktop (Sherlock GUI shown below).
7. Go to the Options menu and select “Acquisition”. In the “Configure Driver Loading” section enable “Sapera LT” for the GigE cameras and enable “lfc” for the VICORE IO and the PLC port. Close Sherlock 7.
8. Use the Start menu shortcut for Sherlock’s User Data Directory. Open the “Drivers” directory. Edit the “lfcDrv.ini” file to point to a valid configuration file (page [40](#)). A full path is required. **Note:** Sherlock 7 may fail to run if you enable “lfc” but do not point to a valid configuration file!
9. Open Sherlock 7 again. Driver changes only take effect when Sherlock opens.

## VICORE IO in Sherlock 7

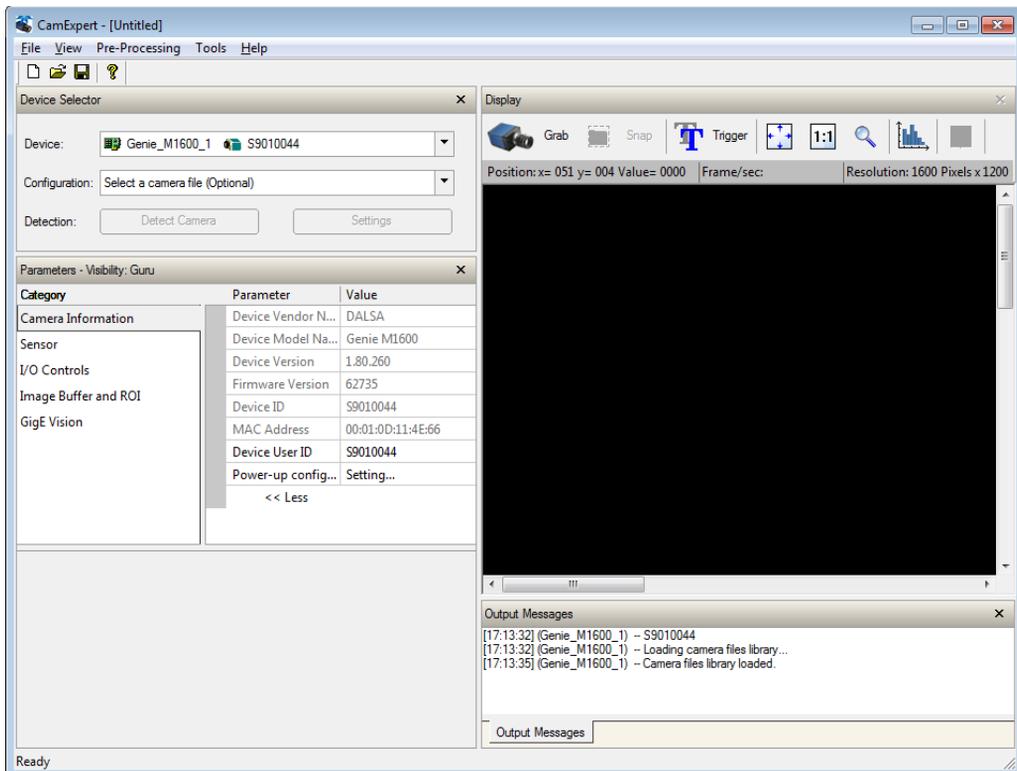
In the default configuration both cameras use Input 0 for Trigger and the strobe outputs are disabled. You can change this configuration (see page [40](#)).

## The Sapera CamExpert Utility

GigE cameras store their configuration settings (I/O, shutter speed, white balance) in memory (EEPROM). Changes you make to the camera settings are temporary, unless saved to the camera memory or to a configuration file. The Sherlock 7 Install Guide and Sherlock 8 Tutorial 3 discuss configuring cameras in CamExpert.

- Sherlock will use the current camera state or load a saved configuration file during program initialization.
- iInspect Express overrides these settings and configures the camera according to the solution file.

You can change a camera's parameters and save them to the camera memory and/or to a configuration file using the Sapera CamExpert utility. You can configure the camera to load either your saved settings or the factory settings from its memory at power up. The preferred method is to save your settings to both the camera and a configuration file. Sherlock can load a configuration file at startup. If the two cameras are the same, you can use one file for both cameras. If different configurations are needed, you can create different configuration files for each camera.

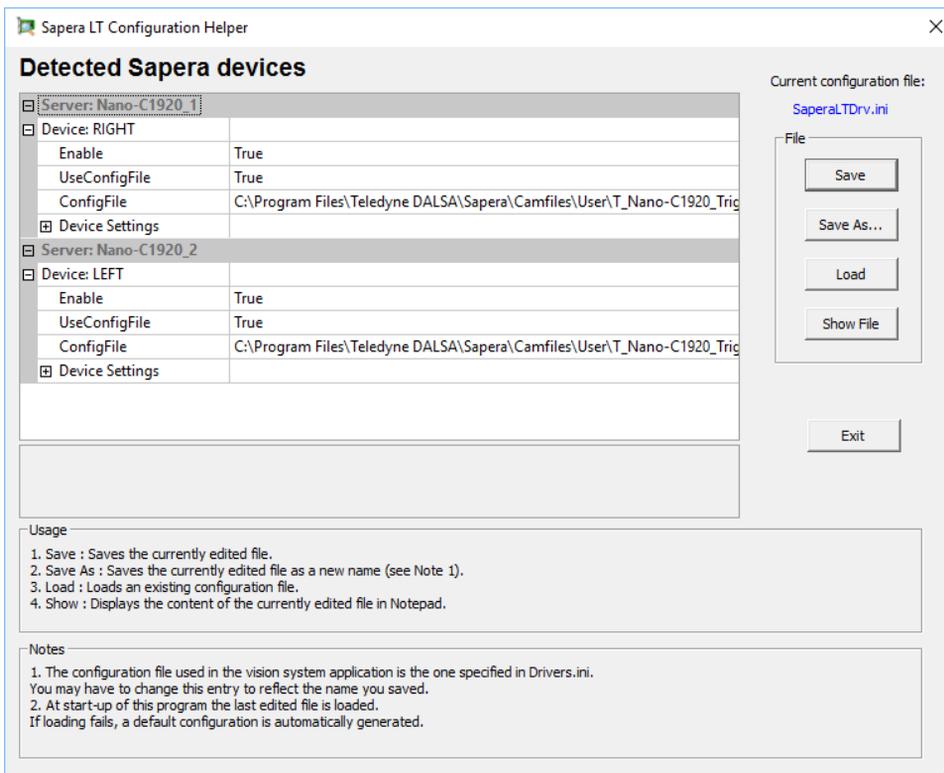


## The Sapera Acquisition Wizard

The Sapera Acquisition Wizard detects all available cameras and creates a file “SaperaLTDrv.ini” that identifies them in Sherlock 7. **Note:** If the saved configuration does not match the number of cameras, the Sapera LT driver will not load and Sherlock will not run saved programs. Instead, Sherlock will open a new investigation (job) file.

The Sherlock application uses the settings stored in the camera, or in camera configuration files. You can use Sherlock instructions to change Gain, Exposure (shutter time) or Strobe pulse width (IO:Camera:SetNumberFeature) programmatically.

1. When you launch the wizard you may see a warning that the current configuration cannot be loaded. This means the current cameras do not match the last saved list.
2. All cameras connected to the VICORE should be listed in the device window.
3. Only the first camera is enabled by default. If you have more than camera, you must enable it in this dialog.
4. Enable using configuration files and brows to the file location.
5. Expand the “Device Settings” and enter color gain values from CamExpert.
6. Click the “save” button to store the configuration in the SaperaLTDrv.ini file.



Sapera Acquisition Wizard creates a text file SaperaLtDrv.ini (below) Sherlock 7 will load this file on startup. The full path to configuration files appears beside "ConfigFile". You can enter the Color Gain values in Sapera Acquisition Wizard or in this file. You can also **change the camera order** by editing this file. "Server0" is the first camera and appears twice in the definition. "Server1" is the second camera. Do not open the Wizard and resave a configuration file after you have edited this file.

```

SaperaLtDrv.ini - Notepad
File Edit Format View Help
[Server0]
ServerName=Nano-C1920_1
ServerType=224
[Server0_Device0]
Enable=1
DeviceName=RIGHT
Buffers=2
UseConfigFile=1
ConfigFile=C:\Program Files\Teledyne DALSA\Sapera\Camfiles\User\T_Nano-C1920_TrigIn2_SW0uts.ccf
UseSwTrig=1
FlatFieldEnable=0
FlatFieldFile=< ** NOT SPECIFIED ** >
BayerEnable=1
BayerAlign=4
BayerMethod=16
BayerLutEnable=0
BayerLutGamma=1000
BayerWBGainRed=1000
BayerWBGainGreen=1013
BayerWBGainBlue=1830
BayerWBOffsetRed=0
BayerWBOffsetGreen=0
BayerWBOffsetBlue=0
[Server1]
ServerName=Nano-C1920_2
ServerType=224
[Server1_Device0]
Enable=1
DeviceName=LEFT
Buffers=2
UseConfigFile=1
ConfigFile=C:\Program Files\Teledyne DALSA\Sapera\Camfiles\User\T_Nano-C1920_TrigIn2_SW0uts.ccf
UseSwTrig=1
FlatFieldEnable=0
FlatFieldFile=< ** NOT SPECIFIED ** >
BayerEnable=1
BayerAlign=4
BayerMethod=16
BayerLutEnable=0
BayerLutGamma=1000
BayerWBGainRed=1000
BayerWBGainGreen=1025
BayerWBGainBlue=1075
BayerWBOffsetRed=0
BayerWBOffsetGreen=0
BayerWBOffsetBlue=0

```

Server0 is the first camera or "camera0" in Sherlock 7.

Sherlock 7 uses the DeviceName to identify each camera.

Path to camera 0 configuration file

Color gain values for camera 0

Server1 is the second camera or "camera1" in Sherlock 7.

Path to camera 1 configuration file

Color gain values for camera 1

## Configure the VICORE IO in Sherlock 7

The IFC Driver requires a configuration file to spell out the IO functions of the VICORE. **Note:** Enabling the driver without specifying a configuration file may cause Sherlock 7 to not run.

The default setup selects file VICORENoStrobesTrig0&0.txt. Both cameras use Input 0 for a trigger and strobe outputs are disabled.

To Change the default:

1. Use the Start menu to open the User Files directory. Open the Drivers folder.
2. Right-click on the file lfcDrv.ini and select Open. This launches notepad.
3. Edit the line "CONFIG=" to point to a valid VICORE IO Configuration file.

```
[GENERAL]
;config file name
CONFIG=C:\VAGenieX64\config\VICORENoStrobesTrig0&4.txt
```

### Use a Supplied Configuration File

There are four VICORE configuration files in directory: C:\VAGenieX64\Config

- VICORENoStrobesTrig0&0.txt – Default setting. No Strobe signals enabled to the VICORE IO connector. Both cameras use VICORE Input 0 for the trigger.
- VICORENoStrobesTrig0&4.txt – No Strobe signals enabled to the VICORE IO connector. Camera 1 uses input 0 for trigger and Camera 2 uses Input 4 for trigger.
- VICOREStrobe1&2Trig0&0.txt – Camera 1 strobe goes to VICORE Output 3 and Camera 2 strobe goes to Output 7. Both cameras use VICORE Input 0 for trigger.
- VICOREStrobe1&2Trig0&4.txt – Camera 1 strobe goes to VICORE Output 3 and Camera 2 Strobe goes to Output 7. Camera 1 uses Input 0 for trigger and Camera 2 uses Input 4 for trigger.

### Create a New Configuration File

You can use "GenlCam X64 Setup" to create a new configuration file (page [34](#)). You can turn the strobe outputs on or off, and you can select what VICORE inputs supply triggers to the two cameras. **Note:** You should disconnect the cameras while creating an IO Configuration file.

When you open VA GenlCam X64 Setup the default on both Camera ports is: strobe outputs disabled, Camera port 1 uses GPI[0] for trigger and Camera port 2 uses GPI[4] for trigger.

## Enabling Trigger and Strobe in Sherlock 7

Triggers and strobes are enabled in the camera, in the VICORE Configuration file, and in the Sherlock Application. Use this page to check that you have made all the necessary changes.

1. Launch **CamExpert** (page [37](#)). Select a camera.
  2. Select the IO Controls in the left most pane.
  3. Change the Trigger Mode to On. Change the Trigger Source to Input 2 or Line 2.
  4. Use the Line Selector to select Line 4 (Output 2).
  5. Change the mode to one of the Pulse output options.
  6. Click the Save button in the toolbar or use the File menu to select Save.
  7. In the popup, change the two “default” fields to identify the new camera settings, such as “TrigIn2” and “StrobeOut2”.
  8. Click Save. The default location is C:\Program Files\Sapera\CamFiles\User
- If the cameras are the same model and use the same settings, you can use one file for both cameras. Or you can create different files with different settings.
6. Launch **Sapera Acquisition Wizard** (page [38](#)).
  7. Enable both cameras. Configuration Files. Use the Browse button to find the configuration file you just saved.
  8. Click Save and then click Exit.
  9. Use the Start menu shortcut to open the User Data Directory.
  10. Open the “Drivers” directory and edit the file “ifcdrv.ini”.
  11. Change the “CONFIG=” to point to a VICORE configuration file (page [40](#)). The default file is Strobes disabled and Trigger 0 for both cameras.
  12. Save this file and close.
  13. Launch Sherlock 7. Double-click in the image to open the properties for the Image Window.
  14. Click the “External Camera Trigger” checkbox and change the Triggered Acquisition Timeout value. It is in milliseconds; 1000 is one second.

# iNspect Express Setup

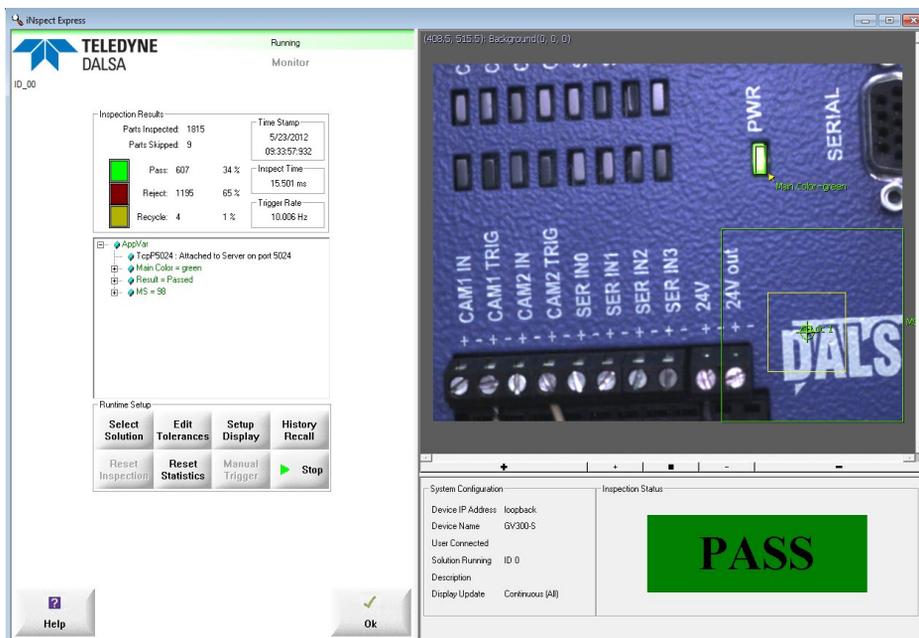
Follow these steps to configure the system to run iNspect Express:

1. Connect one or two cameras as shown in the typical installation (page 9).
2. Run the License Manager and verify a valid license is installed (page 26).
3. Open the **iNspect Express Configurator** utility and configure preferences; Select “GigE” in the camera menu (page 43).
4. Click on the **iDiscover Genie** button to detect and configure cameras connected to the system (page 44).
5. Save Camera set (select which connected cameras you want to use).
6. Close iDiscover and launch iNspect Express (run panel shown below).

## VICORE IO in iNspect Express

iNspect Express automatically recognizes the VICORE. You do not need to add a configuration file for the VICORE I/O. You cannot override the iNspect Express assignments.

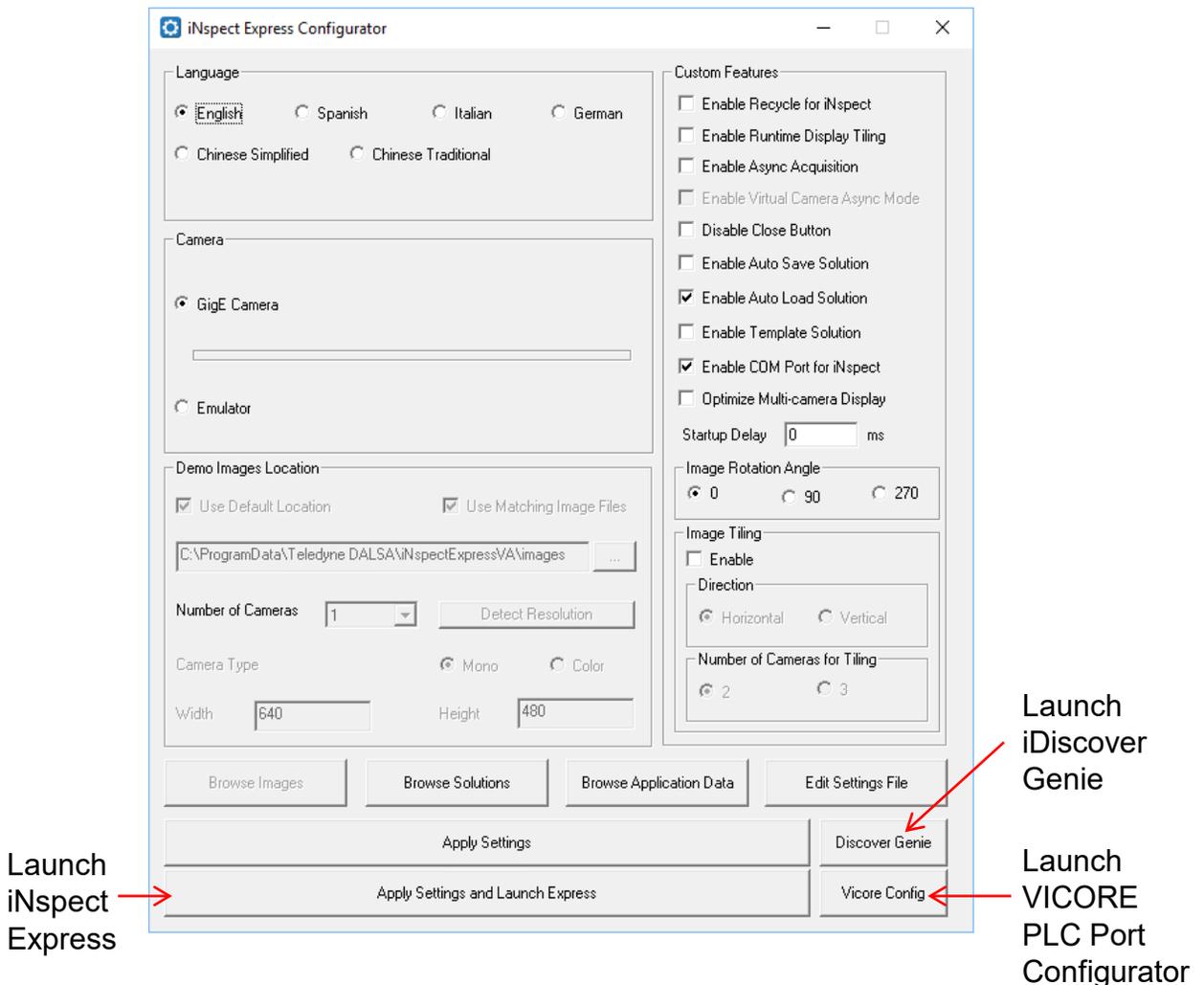
- In Synchronous mode VICORE Input 0 is the trigger to both cameras.
- In Asynchronous mode Input 0 is the trigger for Camera1 and Input 4 is the trigger for Camera2.
- Strobes are disabled by default in iNspect Express. If you enable the strobes, Camera1 strobe is VICORE Output 3 and Camera2 strobe is Output 7.



## The iNspec Express Configurator

This program is a front-end configuration tool for iNspec Express and for the Emulator.

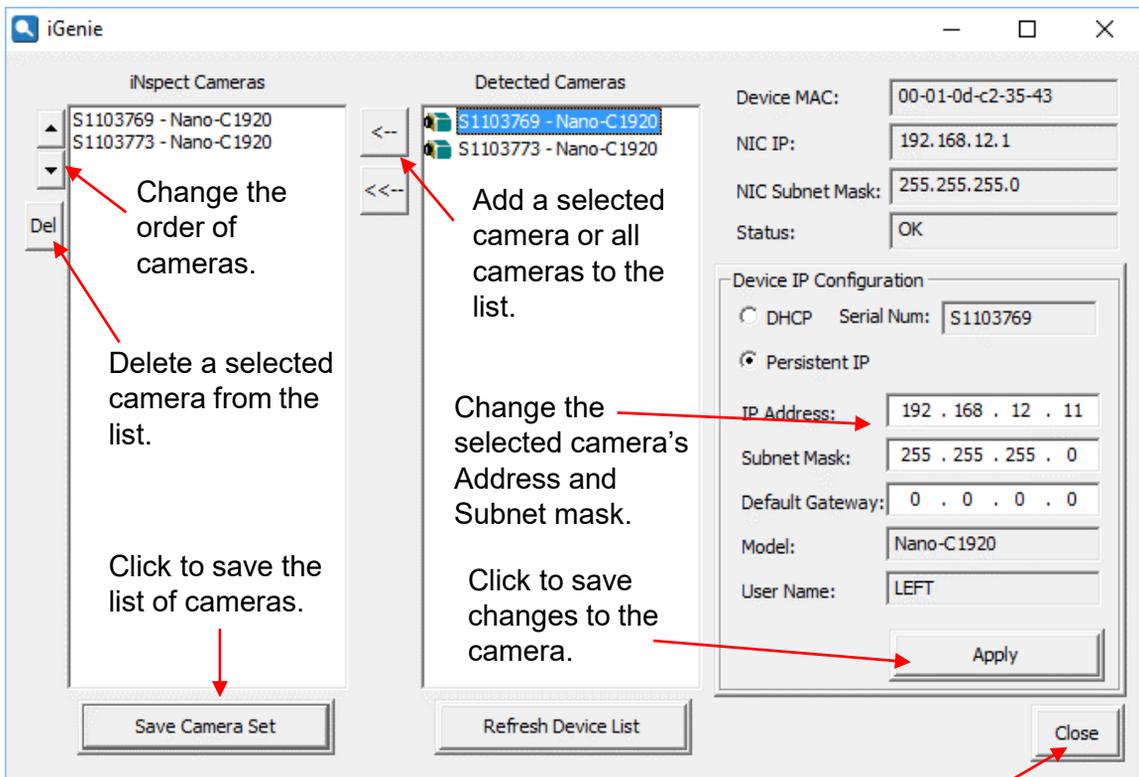
1. Launch the configurator from desktop icon, or from the Start menu.
2. Select the Language and custom features for your application. These features are peculiar to iNspec Express and are detailed in the software user's manual.
3. To use the Emulator select "Emulator" and launch iNspec Express.
4. To use cameras select GigE cameras.
5. Launch iDiscover (page [44](#)) to configure camera addresses.
6. Select "Enable Async Acquisition" if asynchronous mode is required.
7. Launch iNspec Express.



## The iDiscover Genie Utility

The iDiscoverGenie utility is provided for discovering GigE cameras connected to the VICORE. Use the iDiscover interface to change the camera IP settings to match the IP setting of the camera port. A shortcut to iDiscover is available on the VICORE desktop.

1. Click on one of the cameras to populate the network configuration on the right. You can then modify the camera IP address to match the camera port IP segment at the top. **Note:** Conflicting IP addresses will be designated by a **red** camera icon in the detected camera menu.
2. Click the “Apply” button to save changes. The camera will reappear configured at the new address. Note: A Genie-TS camera will disappear and must be rebooted to apply the new address.
3. Select which cameras to use in your iNspect Express configuration by clicking and moving them to the left panel using the arrow buttons. You can **change the camera order** in iNspect Express by using the up/down arrow buttons on the left control bar.
4. Save the corrected camera list. Then Close iDiscover Genie.



Click to close iDiscover Genie and return to the Configurator.

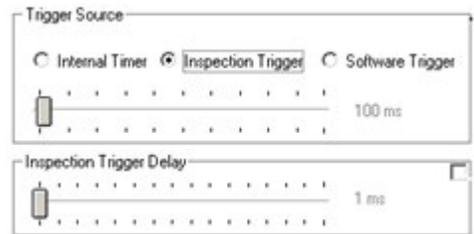
## Enabling Trigger and Strobe in iNspec Express

Triggers and strobes are controlled in the Sensor Setup panel in the iNspec Express application. The first time you start iNspec Express (after installation) the default is:

- Trigger inputs disabled, using internal timer to acquire cameras.
- Strobe outputs disabled.
- If you change the trigger and strobe settings, they are saved in your “Solution” or job file. And the new settings are used as the default when you create new job files

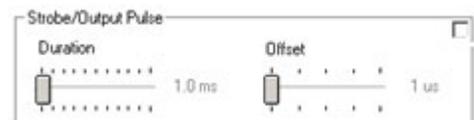
1. Launch iNspec Express Configurator.
2. If the two cameras operate independently enable Async mode (asynchronous). If the two cameras operate together (synchronized) do not enable Async mode.
3. Launch iNspec Express.
4. Click the Sensor button. Use the drop-list in the top right corner to select a camera.
5. Use the first row of bubbles (radio buttons) under Trigger Source to select a trigger:

- Internal Timer: the slider below the button controls camera images.
- External Trigger: a signal from the I/O connector controls camera images.
- Software Trigger: a command instruction controls camera images.



6. Use the checkbox under Inspection Trigger Delay to enable delay. Use the sliders to adjust the Offset (amount of delay) between the External Trigger signal and the camera image.

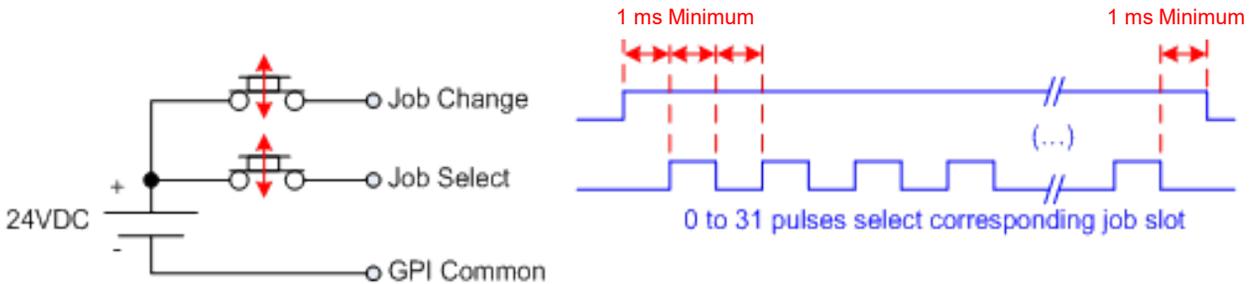
7. Use the checkbox under Strobe Output Pulse to enable strobe output. Use the two sliders to adjust the strobe delay and duration.



8. If you enabled Async mode, the triggers and strobes for both cameras are adjustable independently. If you are using synchronized cameras, only the strobe settings are adjustable independently. **Note:** You must enable Async Mode **before** you begin. A synchronous Solution setup cannot be converted to an asynchronous Solution setup once you have begun.

## Job Switching Using Inputs

Solutions (job files) can be loaded on demand using the GPI1 & GPI2 inputs. A PLC, or other hardware controlling device, sets a HIGH signal on the “job change” line (GPI1) and sends a series of pulses on the “job select” line (GPI2) equal to the solution #. For example, solution 12 = 12 pulses.



The pulse train requires a 1 millisecond (1 ms) setup and hold time between any edge transition. When a solution switch is detected, VICORE will abort the current inspection (if running) and switch immediately.

To use the inputs for job switching, select the “Job Change” and “Job Select” functions in the Input control setup panel as shown.

Input	Control	Debounce (us)	Triggers Per Image	Value
Trigger (GPI0)	Active High	200	1	0
GPI1	Job Change			0
GPI2	Job Select			0

**Note:** Job switching is also supported through the software user interface and scripting.

## Windows Unified Write Filter

The VICORE uses the Windows 10 IoT operating system, which supports a Unified Write Filter (UWF) that provides the ability to write-protect a run-time image. By redirecting all write requests to an overlay disk or RAM partition, UWF allows the run-time image to maintain the appearance of a writeable run-time image. The UWF prevents accidental file corruption when accessing the system or when the system suddenly loses power.

The default state of the UWF is **disabled** allowing full access to files on the unit. When you have completed development of your application, **we recommended enabling** the filter to prevent accidental data corruption. When the filter is enabled, only writes to the C:\ProgramData\Teledyne DALSA and C:\Program Files\Teledyne DALSA\Sherlock directories will be allowed, all other system and program directories will be blocked.

The UWF is located in the C:\IPD Install Files directory. The utility has a GUI (graphic user interface) for displaying status and setting the filter. Changes take effect on the next system reboot.

**Note:** If you have run the filter and not yet rebooted, it is still showing the current status from when you booted, not what you have set for the next reboot!

## Acronis® True Image Software

A “registration form” with an “activation code” was shipped with your unit. [Registration is free](#). You should register with Acronis to obtain a key to unlock this software. Once unlocked, you can create your own backup files on removable media (a USB thumb drive) or a network resource. [We suggest you make your own full backup](#) on a bootable thumb drive. You can use one thumb drive for booting to Acronis and a second thumb drive for storing the image.

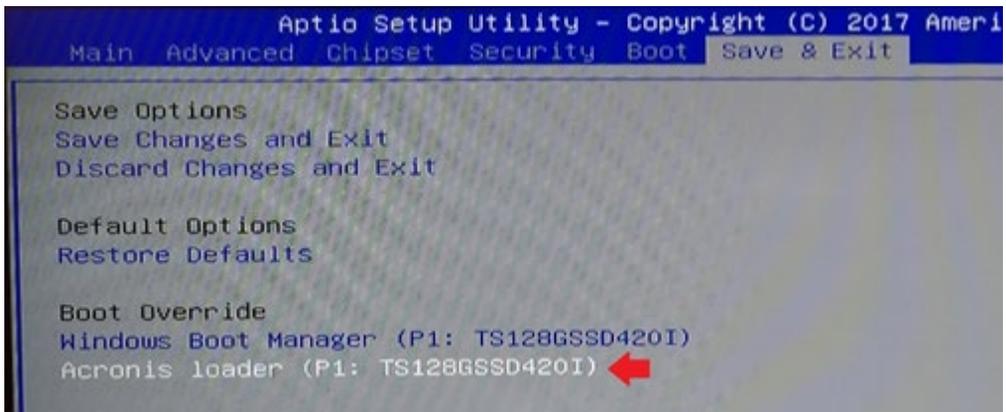
### Create a Backup

1. Use Windows to make a bootable thumb drive.
2. Use Acronis tools to create a “bootable backup” (you must register first) which deposits the Acronis restore executable onto the drive.
3. Run Acronis to create a full backup on the thumb drive.

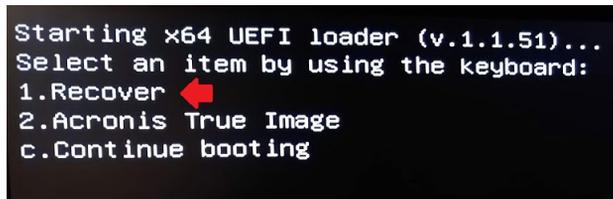
## Restore the Factory Image

A backup image was created using the Acronis® True Image Software before your unit was shipped. Restoring the factory image will all files and configuration changes. Back up your files before restoring the factory image.

1. Reboot the VICORE system.
2. When the Teledyne logo is displayed tap the Delete key continuously to enter BIOS.
3. Use the right arrow key to select the “Save and Exit” tab.
4. Use the down arrow key to select “Acronis loader” under the “Boot Override” options and press the Enter key.



5. A loader menu is displayed. Press 1 on your keyboard for the Recover option.



6. Press the Y key to confirm the restore.

