ILT960 User Guide

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InternationalLight
TECHNOLOGIES

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ISO 17025:2017 Accredited
ISO 9001:2015 Certified

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ILT960-Series User Guide

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Table of Content

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1. Included in the box*

1. ILT960-Series Spectrometer
2. Optical Fiber -600um core diameter, 0.22 NA, SMA905 connection
3. Input Optics ordered. Some of the popular input optics are:
   a) RAA4
   b) W2
   c) Integrating sphere
4. USB 2.0 cable
5. Mini Tripod
6. Zero Filter (Selective models Only)
7. CD with SpectrlLight Software and Calibration information

* Items included may vary for customized spectrometer configurations

2. Getting Started

Install the software-SpectrlLight from the CD following the instruction in the SpectrlLight manual.
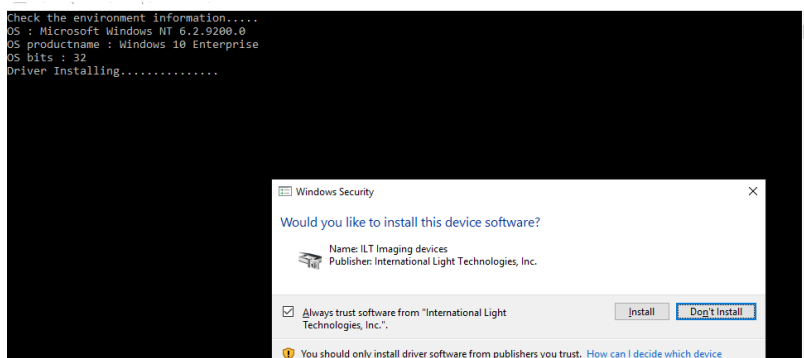
2.1. Driver Installation

Open "ILT960 driver" folder, **right click** the "DriverInstaller.exe" and choose "Run as administrator" option.
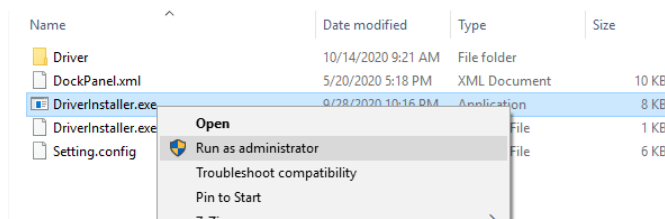
Note: Do not double click the "DriverInstaller.exe". It will end up as failed installation. Right click please.

Enter the password or authorization needed for the administrator authority. Click "Install" when the following window pop up:

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You will see the following window if driver is installed successfully.

```
Check the environment information.....
OS : Microsoft Windows NT 6.2.9200.0
OS productname : Windows 10 Enterprise
OS bits : 32
Driver Installing..............
Driver Installing:C:\Users\pdelauri\Desktop\ILT960 driver\Driver\USB2.0\TAURUS.inf....Success
.........
```

To confirm: Plug in ILT960 to the computer, open device manager, under "Imaging devices" section, you will see "ILT960" displayed as following:
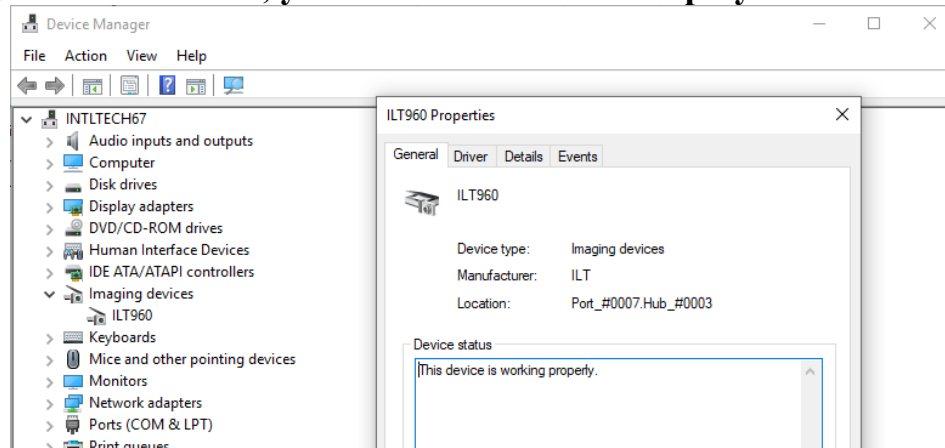
2.2. Set up

Connect ILT960 to the computer using a USB 2.0 cable. Plug-in the Optical Fiber to the Spectrometer. Plug-in the other end to the input optics.

> **Notes:**
> - **End of the Fiber with the Serial number plugs-in to the spectrometer.**
> - **Do not use any tools to tighten the fiber end. Hand tighten only.**
> - **Do not bend the optical fiber with diameter less than 24cm during operation.**
> - **Do not bend the optical fiber with diameter less than 18cm while storing.**
> - **Keep the optical fiber end protection cap on when not connected.**

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3. Product Specification

3.1.   Features

Parameter	ILT960UVLS	ILT960UV	ILT960UVVIS	ILT960UVIR	ILT960NIR
Wavelength	200-500nm	200-500nm	200-850nm	230-1050nm	900-1700nm
Detector	CMOS Linear Sensor				InGaAs Linear Array
Slit	50um		25um		50um
Resolution	<=0.9nm		<=1.2nm	<=2.3nm	<=7nm
SNR	330:1 @ 10ms integration time				6000:1 @100ms
Dynamic Range	3450				8700
Integration time	0.02ms – 1 min				0.1ms – 15 sec
Dark Noise	36 (Upper Limit)				10
Stray light	<.1%	<0.2%			
Wavelength Accuracy	+/- 0.21nm		+/-0.3nm	+/-0.6nm	±1.5nm
Wavelength Calibration	Yes				
Non-linearity calibration	Yes				
Dynamic Dark Correction	Yes				
ADC	16 Bits, 2.5MHz				16 Bits, 15MHz
Operating Temp.	0-50 Deg C				
Interface	USB 2.0 UART				
Calibration	NIST Traceable/ISO17025 Accredited				

3.2.   Mechanical Diagram
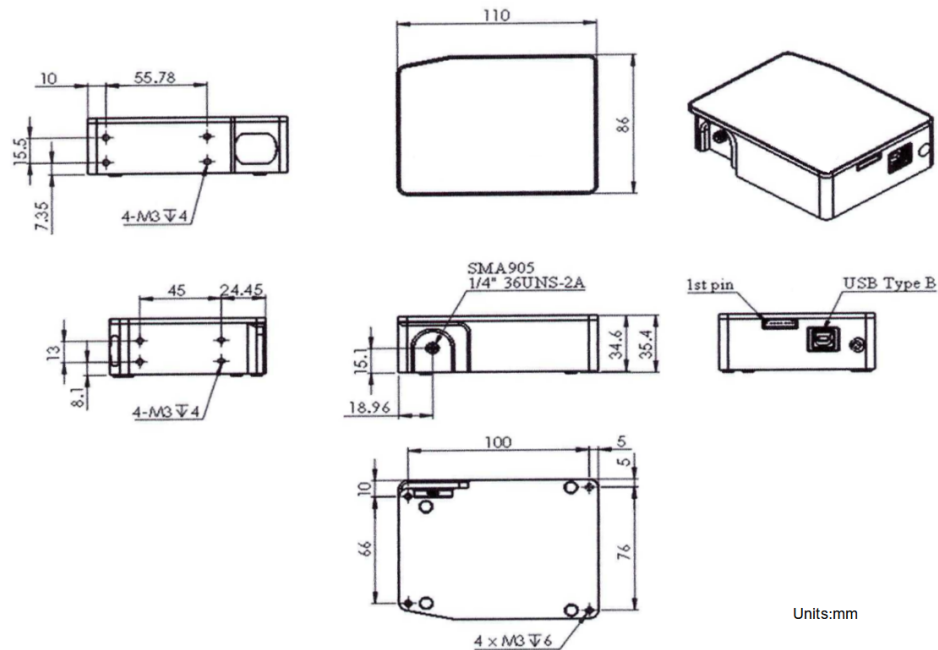
3.3.   Electrical Specifications
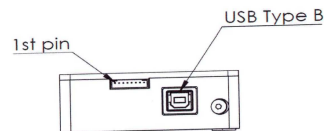
3.3.1. Power

Connection: USB Type B
Power requirement (VBUS): 300mA at +5 VDC
Supply voltage: 4.75-5.25V
Power-up time: <4s
Maximum USB input power Vcc: +5.25VDC
Maximum I/O signal voltage: +5.5VDC

3.3.2. Electrical Pinout

Pin No.	Direction	Pin Name	Function Description
1	Power	5V Output	When PC USB port is connected, this pin is also connected to VBUS. This pin can provide around 0.1A power for external device.
2	Output	Tx	UART TX
3	Input	Rx	UART RX
4	Output	GPIO0	General Purpose Output 0

5	Output	GPIO1	General Purpose Output 1
6	Output	LS_ON	Light Source Turn ON
7	Input	Trigger_IN	External Trigger Input signal
8 (Closest to USBGND connection)		GND	Ground

3.4.   Calibration Uncertainties:

Wavelength	Uncertainty
200-250nm	± 15%
250-450nm	± 10%
450-950nm	± 5%
950-1050nm	± 10%
1050-1250nm	± 14%
1250-1700nm	± 7%

3.5.   Environmental Conditions

Parameter	Value
Storage	-30 to +70ºC
Operation	0 to +50ºC
Humidity	0-90% non-condensing