

# ILT960 User Guide



**InternationalLight**  
TECHNOLOGIES

Part of Ocean Insight

ISO 17025:2017 Accredited  
ISO 9001:2015 Certified

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## ILT960-Series User Guide

# ILT960 User Guide

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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 SpectrLight Software and Calibration information

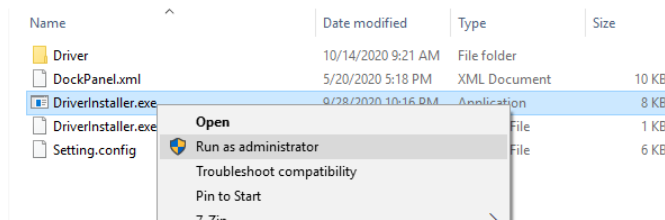
\* Items included may vary for customized spectrometer configurations

## 2. Getting Started

Install the software-SpectrLight from the CD following the instruction in the SpectrLight manual.

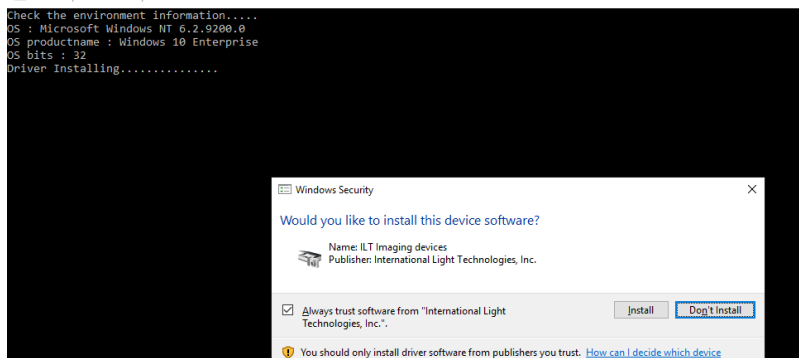
### 2.1. Driver Installation

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:

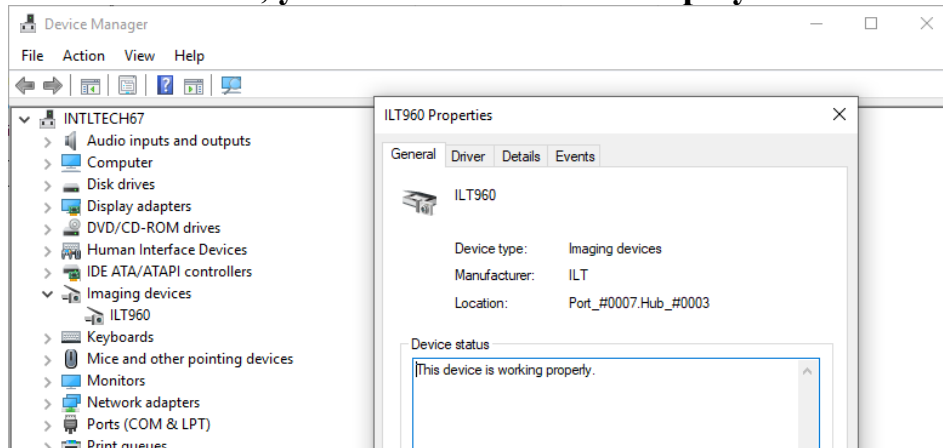


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You will see the following window if driver is installed successfully.

```
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\pdelauni\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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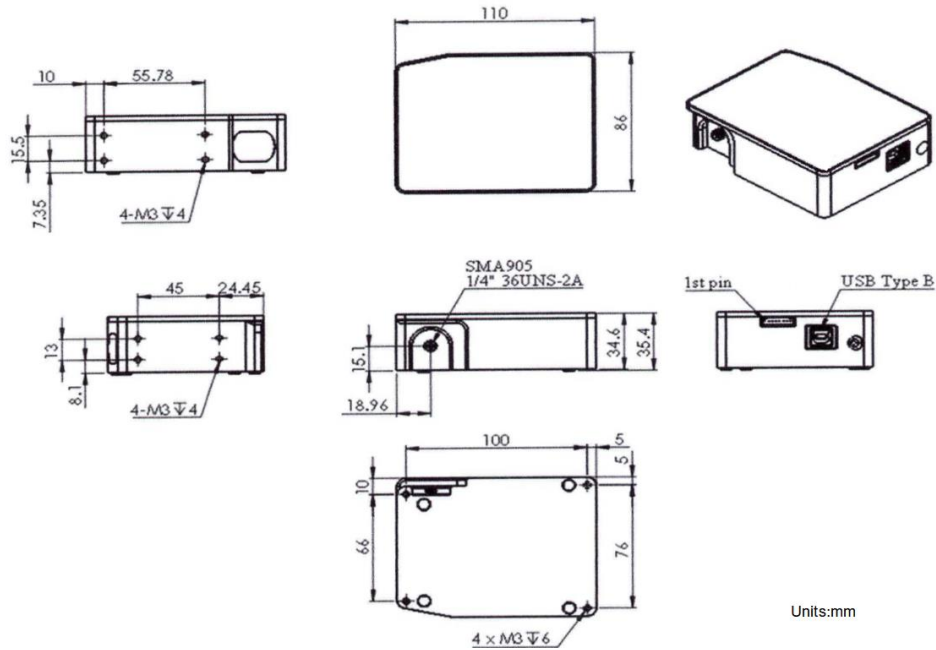
## 3. Product Specification

### 3.1. Features

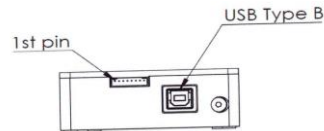
Parameter	ILT960UVLS	ILT960UV	ILT960UVVIS	ILT960UVIR	ILT960NIR
Wavelength	200-500nm	200-500nm	200-850nm	230-1050nm	900-1700nm
Detector	CMOS Linear Sensor				InGaAs Linear Array
Slit	50um		25um		50um
Resolution	$\leq 0.9\text{nm}$		$\leq 1.2\text{nm}$	$\leq 2.3\text{nm}$	$\leq 7\text{nm}$
SNR	330:1 @ 10ms integration time				6000:1 @ 100ms
Dynamic Range	3450				8700
Integration time	0.2ms – 1 min				0.1ms – 15 sec
Dark Noise	36 (Upper Limit)				10
Stray light	$< 0.1\%$	$< 0.2\%$			
Wavelength Accuracy	$\pm 0.21\text{nm}$		$\pm 0.3\text{nm}$	$\pm 0.6\text{nm}$	$\pm 1.5\text{nm}$
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				

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## 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

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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 USB connection)	GND	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 +70°C
Operation	0 to +50°C
Humidity	0-90% non-condensing