WAVELENGTH OPTO-ELECTRONIC

Miniature Laser Rangefinder— Measuring Far in a Smaller Scale

Introduction

The Laser Rangefinder module has the capability to measure a target distance and send the distance information to a host computer. Its compact and light weight design coupled with its ease of operation makes it a useful device for measurement without any hassle. With the added bonus of the laser source wavelength being in the eye safe category, this makes for a worry free operation. Furthermore, the device is customisable to meet your needs.

Operation Principle

The Laser Rangefinder, as seen in Figure 1 and 2, employs a time of flight principle in which a laser pulse is sent towards the target and the distance is determined based on the total time taken for the pulse to leave the device and get reflected back off the target.

Figure 1. Image of Laser Rangefinder

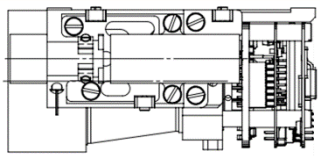

Figure 2. Outline of Laser Rangefinder

The key specifications of the laser Rangefinder are listed below. Compared with similar products in the market, we offer a smaller and compact unit.

Series Module	GTX2.0	GTX4.0	GTX8.0
Wavelength	1.54μm ± 0.02μm		
Maximum Working Distance	3km	6km	10km
Minimum Working Distance	50m	50m	50m
Ranging Accuracy	±1m		
Laser Beam Divergence Angle	≤ 0.5mrad		
Pointing Stability	≤ 0.3mrad		
Dimensions (mm)	72 X 50 X 35	105 X 60 X 40	120 X 85 X 65
Weight	~ 90g	~ 100g	~ 190g
Accuracy	≥ 98%		
Error Rate	≤ 3%		

The Laser Rangefinder has a operating temperature of negative 40 Degrees Celsius to positive 55 Degrees Celsius and a storage temperature of negative 50 Degrees Celsius to positive 70 Degrees Celsius. The major functions include single ranging and continuous ranging modes and a built in Self-check function.

The main composition of a Laser Rangefinder consist of a laser, a transmitting and receiving optical system, a laser driver, a receiving circuit, a low voltage power supply and an information. All working in tandem as seen in Figure 2.

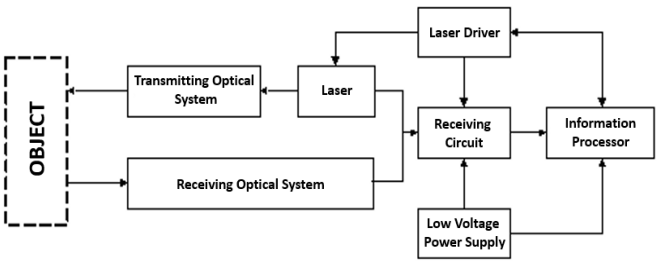

Figure 2. Laser Rangefinder Operational Layout

Applications

The Laser Rangefinder is suitable for use in conditions where the visibility is no lesser than 23km and the humidity is lesser than 50% in the absence of obstacles. It is designed to provide excellent reliability in measurement with a Mean time between failures (MTBF), the number of transmitted laser pulses ≥ 1 million.

The system could be used in but not limited to the following application scenarios:

- Military
- Laser Measuring Tools
- Industrial Processes
- Real Estate Development
- Sports
- Construction processes

Conclusion

As a global enterprise, leading photonics innovation since 2002, WOE has built up customization engineering capability for thermal imaging, inspection and measurement systems.

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