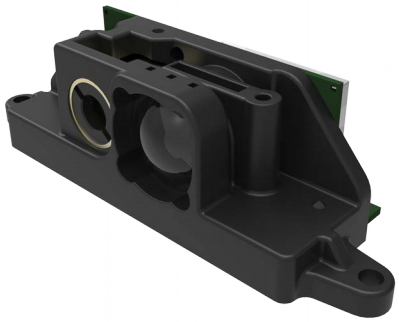
PRECASTER
LASER MEASURING TOOL

High Speed LDM Module Specification

RPS800



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1 Features and Applications

FEATURES

- **TOF Measuring LowConsumption Sensor. *1**
- **Measuring rage up to 9m *2**
- **Adjustable High Speed measuring up to 2000HZ.**
- **Digital output with UART.**
- **Highly Customizable module fit for most duties.**
- **MADE in Taiwan**

APPLICATIONS

- **Robot Eyes Distance Measuring**
- **Positioning and monitor of objects**
- **Security Applications Movement Detections**
- **Level and elevator Measuring**
- **Drone Dodge Actions Control**

*1 Deformations of structure won't affect the accuracy of our RPS800, because it's built with TOF, unlike Triangulation, a slight deformation could cause significant damage.

*2 The measuring range is from 0.1~9M when the device is still

2 Descriptions

RPS800 is a high speed LDM module. The light source of the sensor is infrared laser of wavelength 808nm. The measuring distance is from 0.1m to 9m. (When measuring under 300 RPM, the measuring range is from 0.1m to 7.5m.) Laser beam diameter is less than 22mm at 6000mm. And the scanning frequency is over 8,000 times per second.

It is also designed as a compact and reliable laser distance measuring sensor. The pulse technology gives the good accuracy and response time in distance measuring and a stable output under the strong ambient light.

3 General Specifications:

3.1 Absolute maximum rating(T_c=25°C)

Item	Rating	Unit
Power Sourse	DC 6V ±0.2V, 40mA	V
Power Consumption	240mW ± 10%	w
Operation Temperature	-10°C~40°C	°C
Storage Temperature	-20°C~70°C	°C
Weight	17.6g ± 3g	g

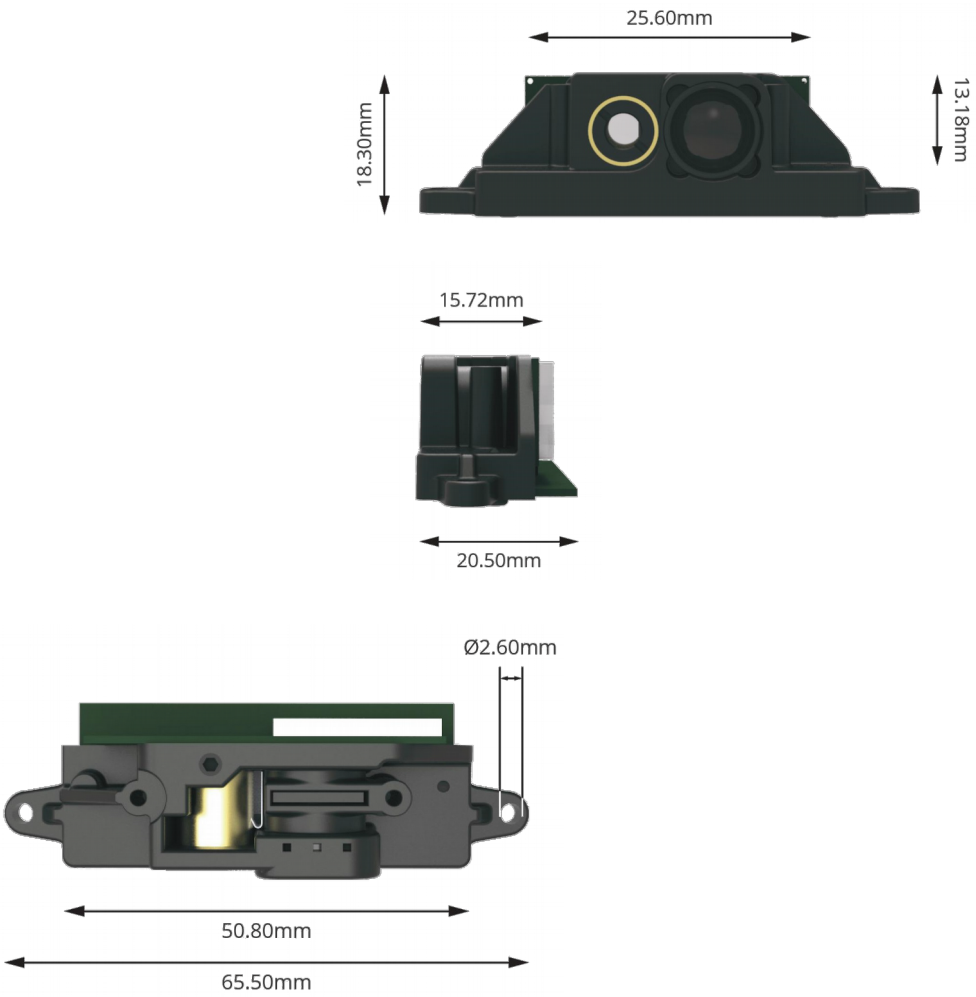
3.2 Electrical and optical characteristics (T_c=25°C)

Item	Min	Typ.	Max	Unit
Laser wavelength	803	808	813	nm
Laser Beam Size (3M)	Length: 11.8±1mm, width: 2.1±1mm			mm
Laser Beam Size (6M)	Length: 21.8±1mm, width: 3.4 ±1mm			mm
Current consumption	40 mA (When Voltage is 6V)			mA
Measuring range	0.1~ 9m (Stationary)			m
Accuracy from 0.1~1m	±20 mm			mm
Accuracy from 1~ 4m	±40 mm			mm
Accuracy over 4m	± 1% of the distance			mm
Measurement Time	> 2000 hz			HZ
Interface	Uart (Baud Rate 230400bps, 3.3V)			
Life	5000HR			HR

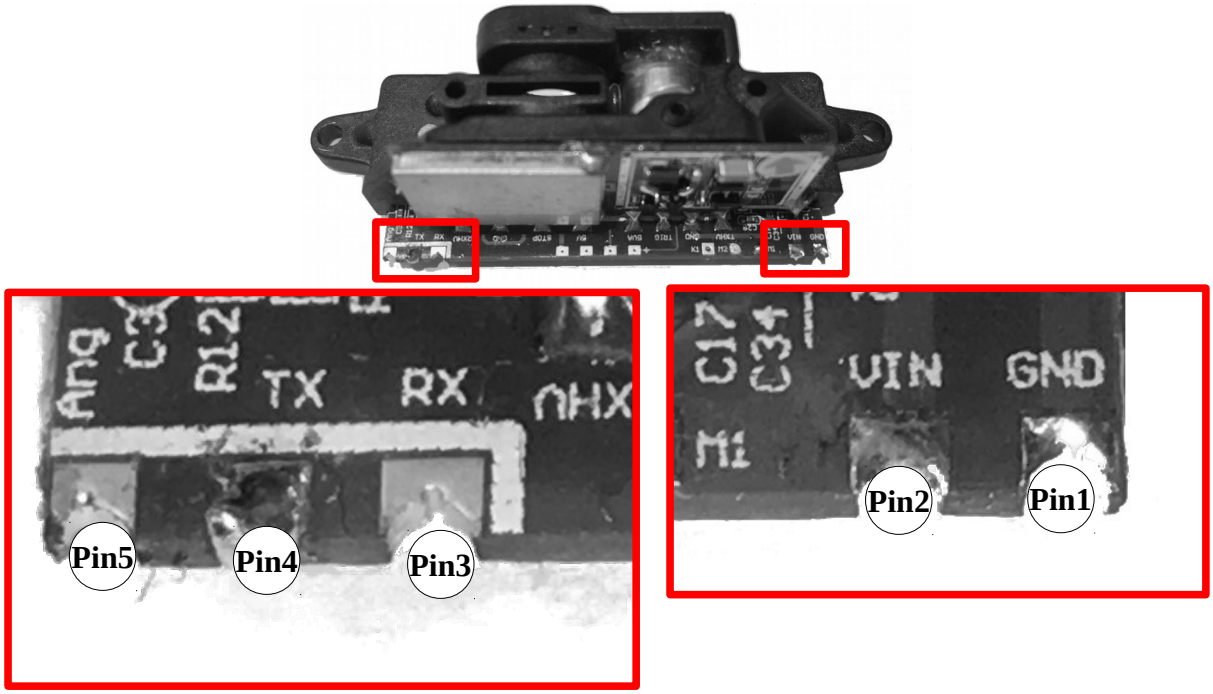
*Results above is under thr condition of Targeting Kodak white board, With Angle of 0°

4 Dimensions

Unit: mm

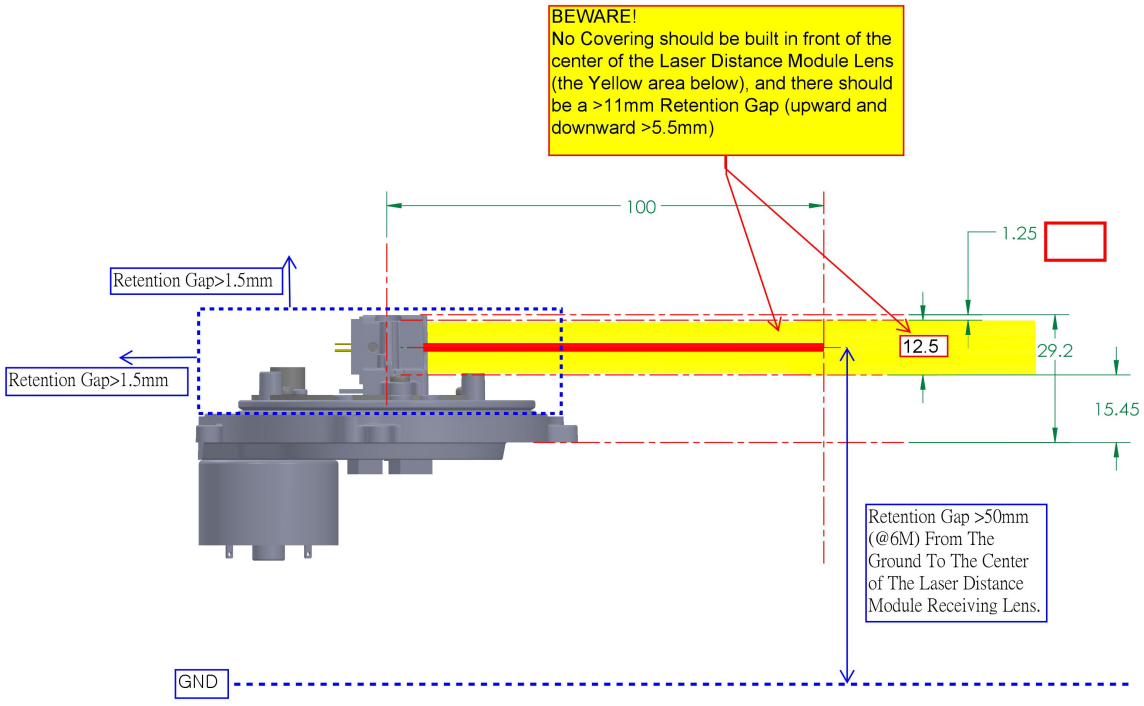


5 Pin Assignment



* Pin1: GND
* Pin2: VIN
* Pin3: RX
* Pin4: TX
* Pin5: Angle

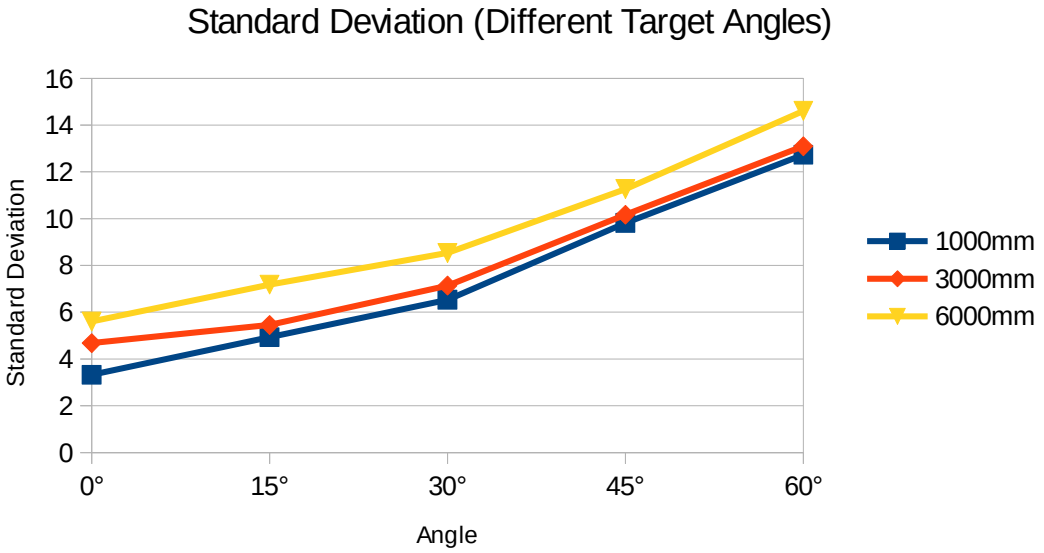
6 Laser Output (Application)



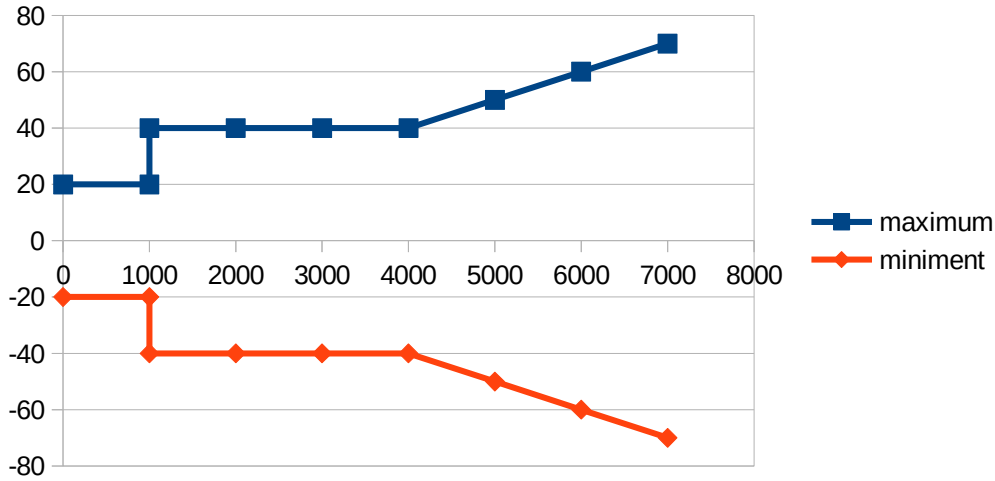
Unit: mm

7 Reliability

7.1 Inaccuracy (Standard Deviation for different object Angles)



7.2 Accuracy



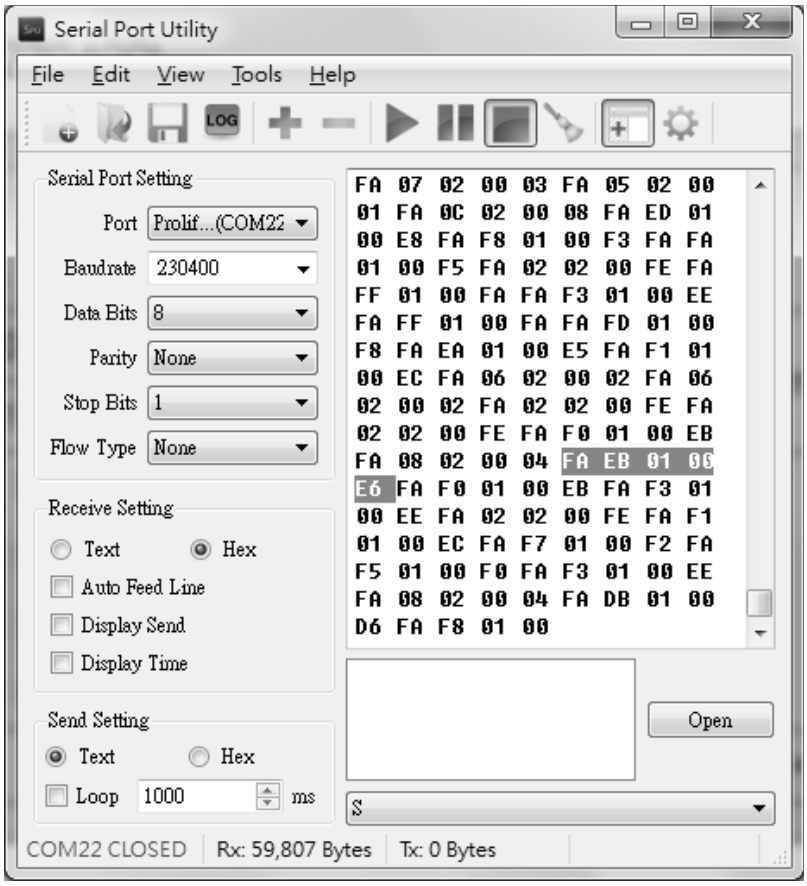
8 Guidance

8.1 Protocol Format

8.1.1 Protocol: Uart, 8-N-1, 230400bps

Byte	Description	Remark/Example	
0	Header	0xFA	Fixed
1	Data	byte 0 : DISTANCE_L	distance unit: mm
2		byte 1 : DISTANCE_H	
3	Error code	00h：Normal 01h：Out of range 02h：Signal is too weak 06h：Out of working temperature	
4	Checksum		= byte0+byte1+ byte2+ byte3

8.1.2 Example



FA EB 01 00 16

Byte0	0xFA : Header
Byte1	0xEB
Byte2	0x01 : 0x01EB = 491mm
Byte3	0x00 : Status = Normal
Byte4	0xE6

Check Sum :
FA+EB+01+00=01E6

Data :
RPM = 354
Distance = 491mm
Status = Normal
Check Sum = OK

9 recaution

9.1 Product contains semiconductor laser diodes with wavelengths of 808 nm

9.2 The total continuous output of the beams is under condition of class 1

9.3 Do not operate the device above the maximum rating condition, even momentarily. It may cause unexpected permanent damage to the device.

9.4 Do not look into the laser beam directly by bare eyes. The laser beam may cause severe damage to human eyes.

9.5 Optical Lens is made of glass. Do not contaminate lens by dirt, oil or chemical.

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