



LASER SENSING MODULE SPECIFICATION

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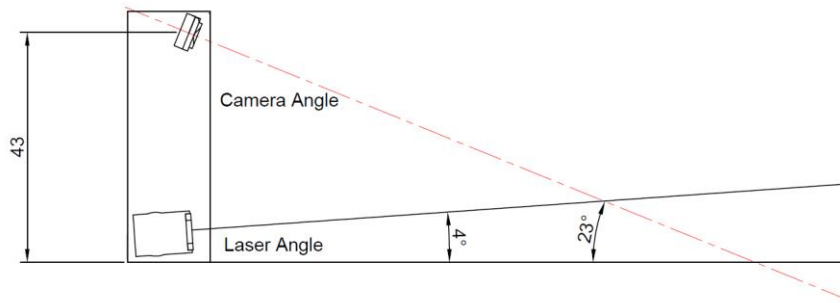
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1. PRODUCT NAME

Product name	Laser Sensing Module
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2. OPTICAL CHARACTERISTIC

2.1 Schematic diagram



2.2 Optical Parameter

Items	Parameters			
	Min	Typ	Max	Unit
Sensing distance	60	180	500 over	mm
Accuracy at 180mm(Y value)	-11	-	11	mm
Accuracy of X value at 330mm(Distance: 200mm)	-18	-	18	mm
Optical output power Note a.	0.22	-	0.65	mw
Wavelength	803	808	813	nm
Line Span Angle	100	110	120	degrees
Camera View Angle	110	-	-	degrees
Laser module Angle	3.5	4	4.7	degrees

*Width of line is uniform and without stray light.

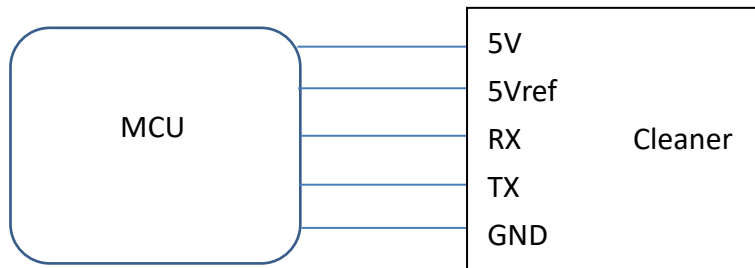
Note a.

Measuring power on three points(-55°,0°,+55°)

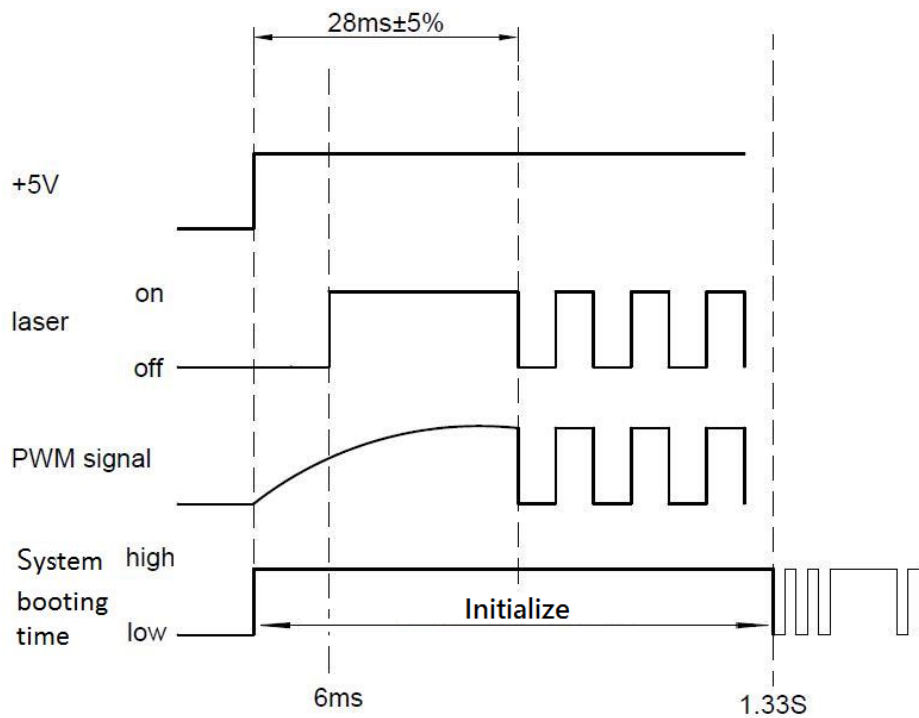
If power of one point between 0.15~0.22mW, check ±4 degrees, and the average power must be over 0.22mW

3. ELECTRICAL CHARACTERISTIC

3.1 Schematic diagram



3.2 Time diagram



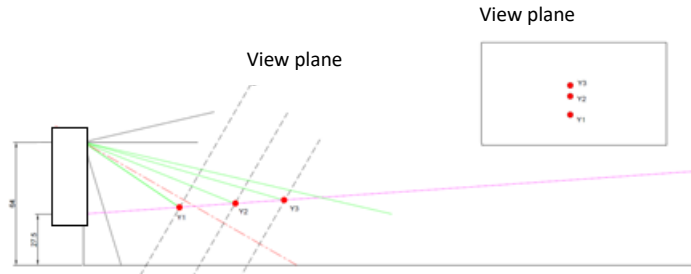
3.3 Electrical Parameter

Items	Parameters			
	Min	Typ	Max	Unit
Operating Voltage	4.8	5.0	5.3	V
Operating Current	124	140	160	mA
Baud Rate	2%	115200	2%	bps
PWM Frequency(60%duty)	-	3.35K	-	Hz
Laser Driver Thermal Protection	-	90	-	°C

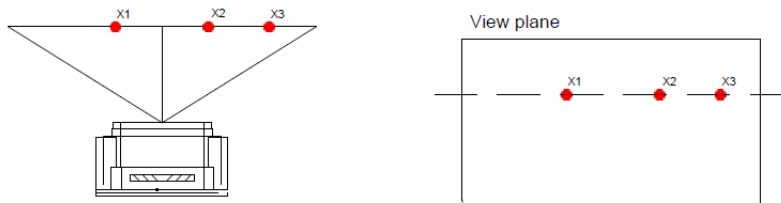
4. ALGORITHM

4.1 Diagram

Y direction: 480 pixels



X direction: 640 pixels



Data format:

in binary, short integer

frame separator begin and end: 0xCC 0xCC

horizontal line and down line separator: 0xDD 0xDD

4.2 Horizontal Line

X,Y data bytes length:2

X,Y data type: short integer

X,Y data fixed: 27 points

For instance:

0XCC	0XCC	0X00	0X64	0X01	0XF4	0X00	0X32	0X01	0XF4
Begin frame separator		X-high byte	X-low byte	Y-high byte	Y-low byte	X-high byte	X-low byte	Y-high byte	Y-low byte

PS: 0x00 0x64 = 100; 0x01 0xF4=500;0x00 0x32=50; (unit:mm)

Means (100,500),(50,500) have object reflect the Horizontal line.

X value in [-600 to 600]

Y value in [0 to 1000]

0x--	0x--	0x--	0x--	0x00	0x32	0x01	0xF4
X-high byte	X-low byte	Y-high byte	Y-low byte	X-high byte	X-low byte	Y-high byte	Y-low byte

5. RELIABILITY

Item	Method
Thermal Cycle Test	Temperature cycle: -20°C (2Hrs)-60°C (2Hrs) Cycle time:7 cycles Transfer time:1hr
Cooling Test	Temperature:-20°C ±1 Time:168hrs
Heat Test	Temperature:60±2°C Humidity: under 35% Time:168hrs
High Temperature& humid	Temperature:40±1°C Humidity: above 90% Time:168hrs
Thermal Shock(PCB)	Temperature cycle: -20°C (30min)-80°C (30min) Cycle time:750cycles Transfer time: under 10 seconds
Vibration Test(PCB)	frequency : 5~55~5 Hz range : 1.5mm Time : 1min Method : logarithmic frequency sweep Direction& Time· : X,Y,Z (each 2hrs)
THB(PCB)	Temperature:85°C Humidity: above 85% Cycle: 1hr on, 3hrs off Time:500 Hrs

6. OPERATING & STORAGE TEMPERATURE

Operating Temperature	-10~40 (degrees)
Storage Temperature	-10~60 (degrees)

7. PACKAGE

7.1 Weight: 18g

7.2 Tray material: PET antistatic

8. CERTIFICATION

8.1 CLASS 1 (IEC60825)

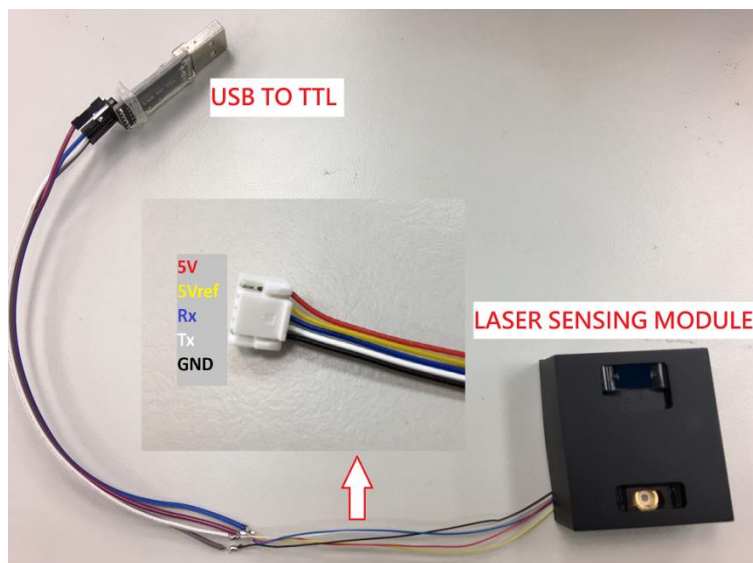
8.2 ROHS

9. APPEARANCE INSPECTION CRITERIA

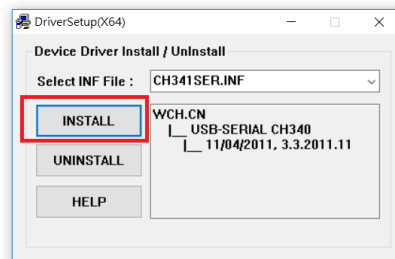
Without serious scratch, damage, distortion, follow limit sample.

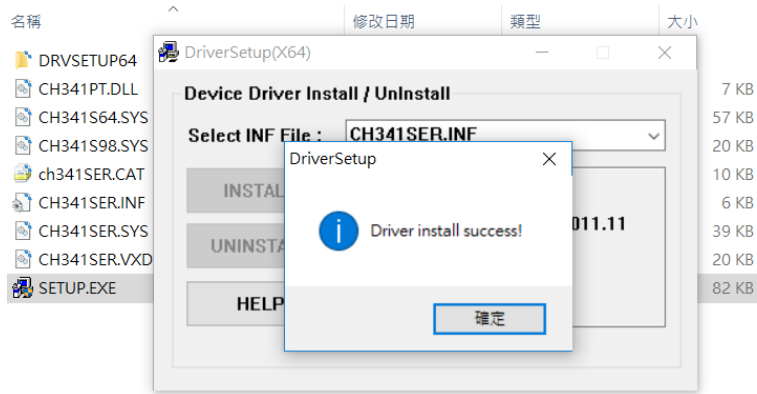
10. TEST PROGRAMME MANUAL

10.1 Over view



10.2 Install CH340 Driver

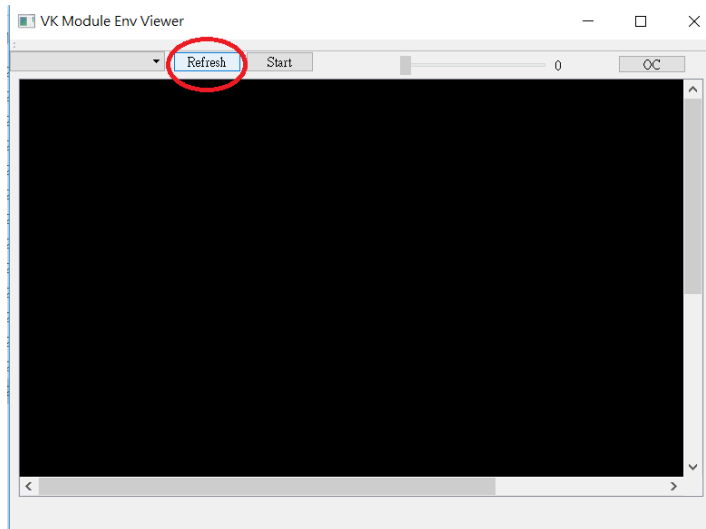




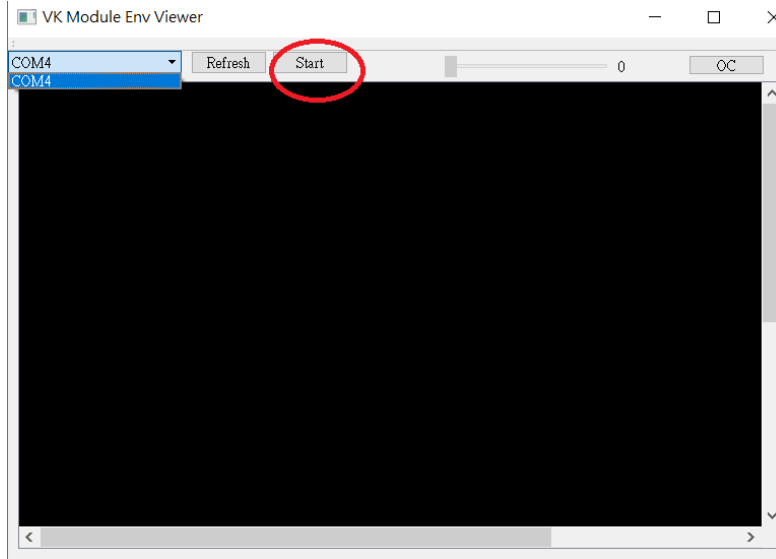
10.3 Open Test Program



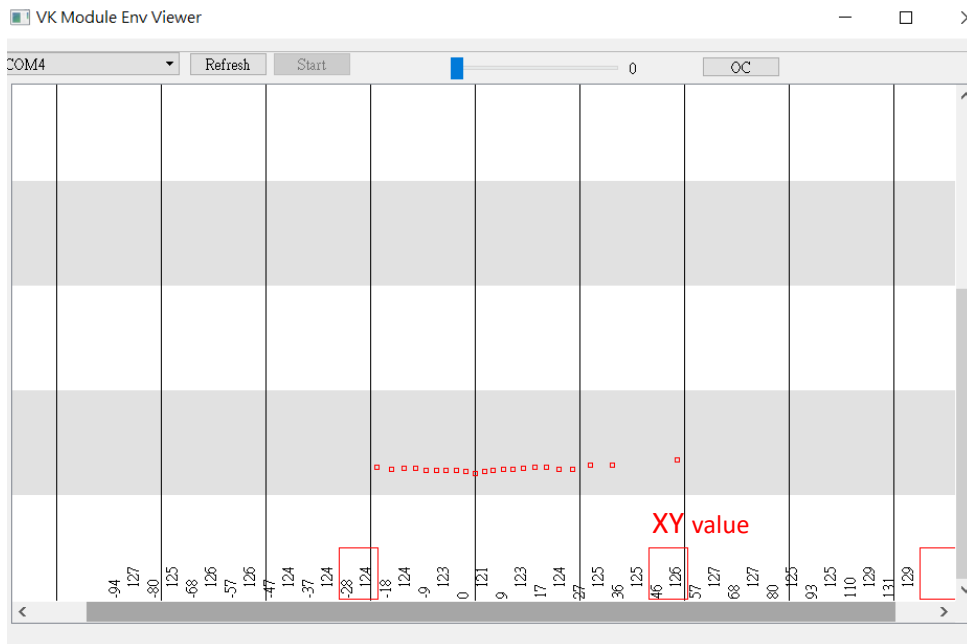
Enter "Refresh"



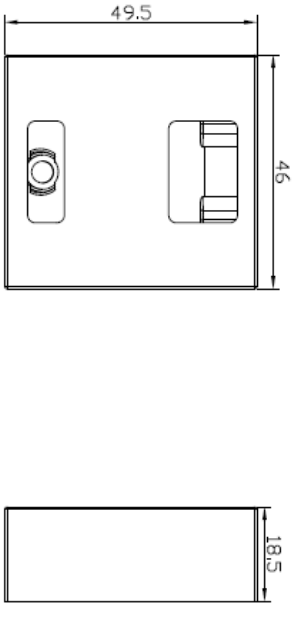
Select COM Port and Enter "Start"



Window will show X and Y Value



1	2	3	4	5	6	7	8
Parameter	Min	Typ	Max	Unit	The Restriction of Hazardous Substances		
Operating Voltage	4.8	5	5.3	V	Cadmium(Cd)	Plumbum(Pb)	Hydrogenyru(nkHg)
Operating Current	124	140	160	mA	<750ppm	<750ppm	Hered chromium(Cr ⁶⁺)
Wave Length At Peak Emission	803	808	813	nM	Polyrona tead Biphenyls(rPBB)	Polyrona tead Diphenylether's(rPBDE)	<750ppm
Operating Temp Range	-10	-	40	*C	<750ppm	<750ppm	
Storage Temp Range	-10	-	60	deg	Note: Exclusive Item, Concentration of Plumbum(Pb): Aluminum alloy<0.32WT%; Cuprum alloy<3.2WT%; Steel alloy<0.28WT%; Soldering thn<0.1WT%.		
Line Span Angle	100	110	120	deg			
Camera Veiw Angle	110	-	-	deg			
Power Dr Line At 10cm(Dia:7mm Aperture)	0.22	0.3	0.65	mW			
Accuracy At 180mm(Y Value)	-11	-	-11	mm			
Accuracy Dr X Value At 300mm(Distance: 180mm)	-18	-	-18	mm			
Laser Module Angle	3.5	4	4.7	deg			



Note:
1.Safety compliance: CE Certification with declaration.
2.RoHS Compliant.
3.Certification Class 1
4.The PCB should not be loose.
5.Put laser connector into spraycoated header.
6.Measuring power on three points(-55°,0°,+55°)
7.If power of one point between 0.15~0.22mW, check ±4 degrees, and average power need above 0.22mW

UNLESS OTHERWISE SPECIFIED		CONTRACT NO.	REV.	Zone	Description	By	Date
DIMENSIONS ARE IN mm		Drawn By: Dwerh Lo	2017.10.05				
TOLERANCES:		Checked By:					
XX: ±0.3	ANGLES: ±30°	QA By:					
XXX: ±0.05	FRACTIONS: 1/16	Approved By:					
DEBURRING: ALL SHARP EDGES	SURFACE FINISHES: AS SHOWN	Standardized By:					
Material:							
Module printed code/date code:	Surface Finish:	Projection Type:	Third Angle	Unit:	CODE IDENT. NO.	DWG NO.	REV.
1	-			mm	-	-	C
2	3	4	5	6	7	8	9
SCALE:	1:1	Quantity:	1	SHEET:	1	OF:	1

Egisimos CORPORATION
LASER SENSING MODULE