



CA111

Laser Distance Module

Manual



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1.INTRODUCTION

CA111 is designed as a small compacted and reliable laser distance sensor with wide operation temperature range. The phase shifting reflectorless technology gives good measurement accuracy and response time.

■ TARGET AND SCOPE

This specification defines requirements for a small laser distance meter module (LDM) can be used to mounted and be controlled by the master system. The module will be used for two purposes, here called modes. The modes are Mode 1 is Normal Measure Mode with normal accuracy. Mode 2 is Fast Measure Mode with high measure speed and low accuracy

■ FEATURE

- Special Class 2 laser, can measure from -20°C to 70°C.
- Digital output with I2C signal.
- Adjustable speed measuring up to 8HZ.
- Non-contact measuring low consumption module.

■ APPLICATION

- Robot eyes distance measuring.
- Position and monitor of objects.
- Security application movement detections.
- Level and elevator measurement.

2. Specification

	Normal Measure Mode	Fast Measure Mode
Measure Range	0.05m~40 meters	0.2m~40 meters
Accuracy from 0.05m~30m*	± 2 mm**	N/A
Accuracy from 0.5m~0.5m*	N/A	± 5 mm
Accuracy from 0.2m~0.5m*	N/A	1%
Response Time	1 Hz	4 Hz
Laser Wavelength	650±20nm,	
Laser Power	0.6mW to <1mW	
Laser Spot Size	25mm*30mm @25m	
Power Consumption When Measuring	Maximum 130ma	
Power Consumption When Laser Off	Maximum 70ma	
Time to first measurement after I2C measurement command	Typical 0.5 second	Typical 0.1 second
Time to first measurement after power-up @25°C	Typical 1 second	
Supply Voltage	3.0±0.2V	
Communication protocol	I2C slave, 400 kHz, interrupt register access. Address map, table see table in chapter 2.4.	
Spot Vertical Angle	+1 degree	
Spot horizontal Angle	±1.5 degree	
Operation Temperature	-5~70 degree c	
Storage Temperature	-15~50 degree c	
Compliant to	RoHS directive (Restriction of Hazardous Substances) and Reach directive (Registration, Evaluation, Authorization and restriction of Chemicals)	

* Applies for well reflectivity target (e.g: Kodak white board), in daylight conditions (2000 Lux), 25°C, with a low reflectivity target, could decrease measuring range and increased errors which may defer by target and environment situation, tolerances apply from 0.05m to 10m with a confidence level of 95%.

**The maximum tolerance may deteriorate by 0.25 mm/m after 10 meters.

3. Electrical Interface

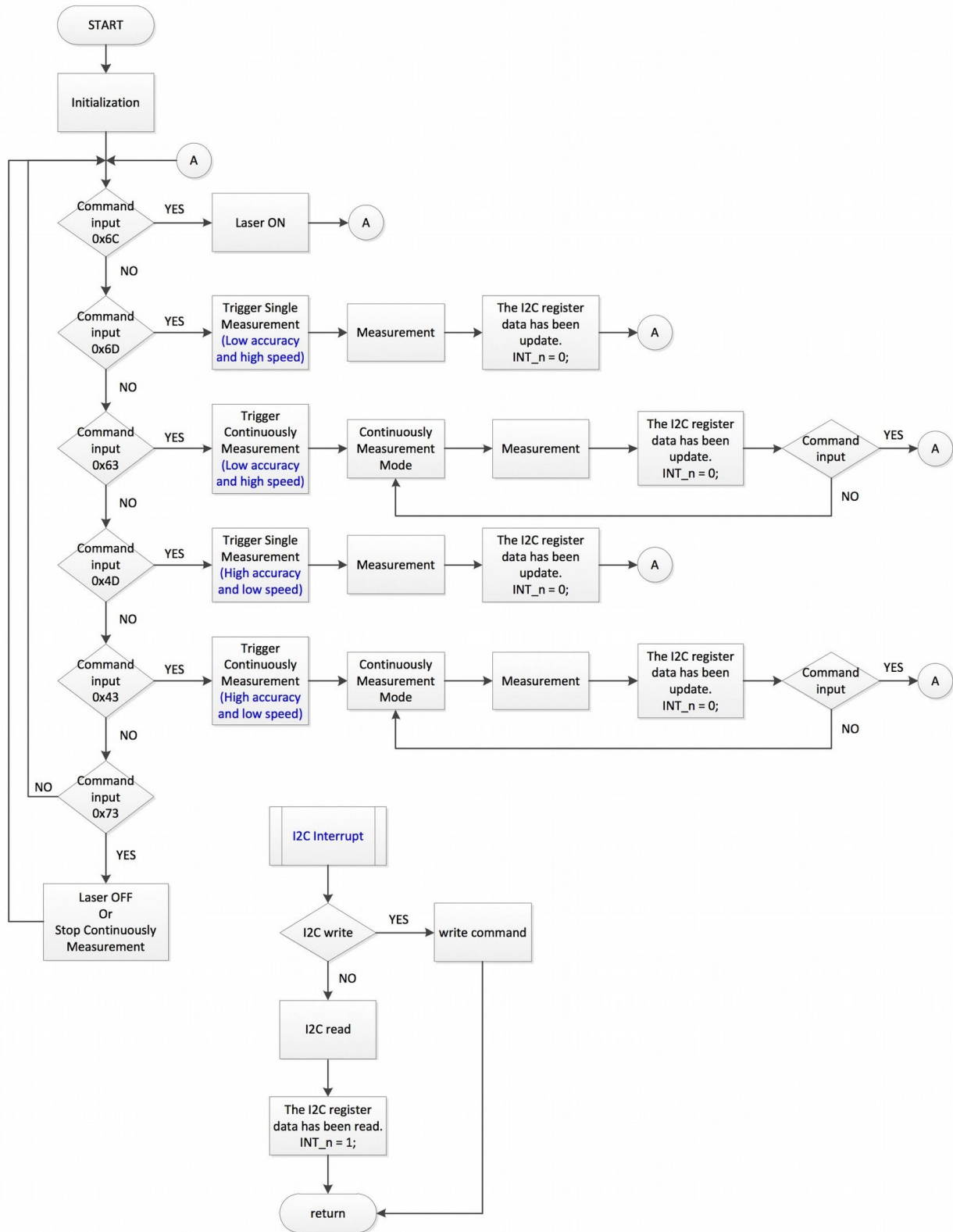
Connector type Hirose FH12-8S-0.5SH(55) or compatible.

Pin No.	Name	IO Type	Description
1	Vin	Power	Power supply 3.0V
2	Vin	Power	Power supply 3.0V
3			No Used
4	SCL	IO	I2C clock. Open collector, pulled up to 3.0V at master
5	SDA	IO	I2C clock. Open collector, pulled up to 3.0V at master
6	INT_n	O	Active low interrupt. Open collector, pulled up to 3.0V at master
7	GND	Power	Power Ground
8	GND	Power	Power Ground

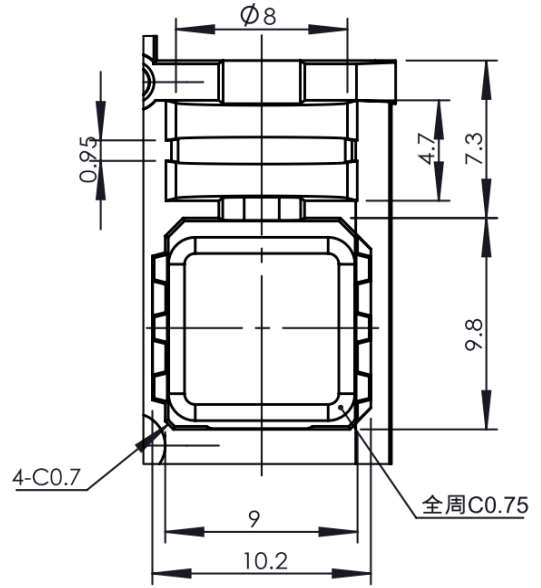
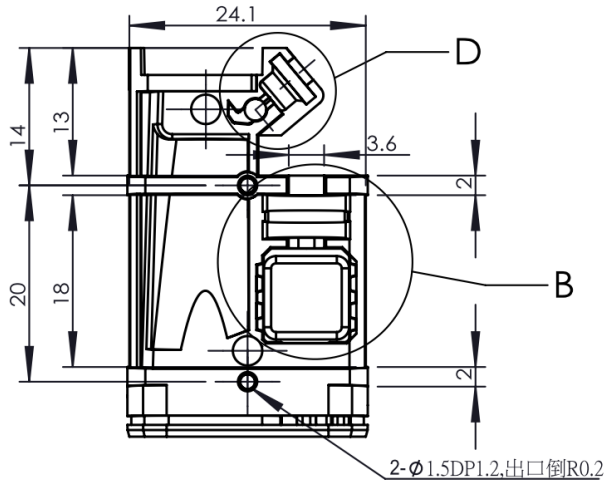
4. I2C Address Map

I2C Address	Register Address	Function
0x76	0x6C	Laser ON
0x76	0x6D	Fast measure mode
0x76	0x63	Fast continuously measurement
0x76	0x4D	Fast measure mode
0x76	0x43	Fast Continuously measurement
0x76	0x73	Laser OFF/Stop continuously measurement
0x77	Read 3 bytes	Result output

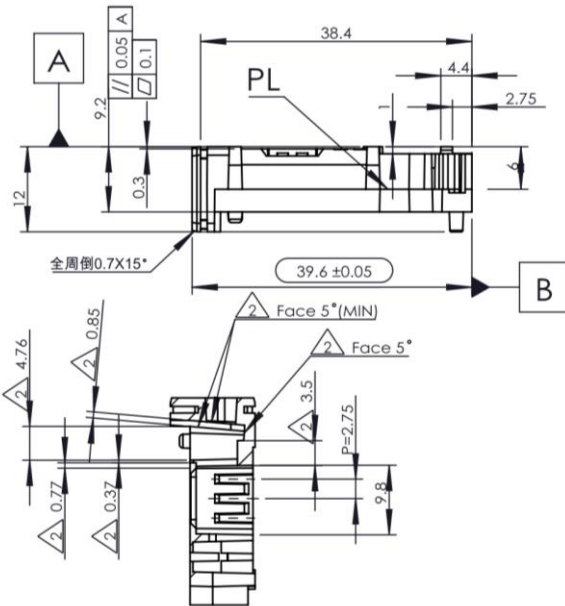
5. Program Flowchart



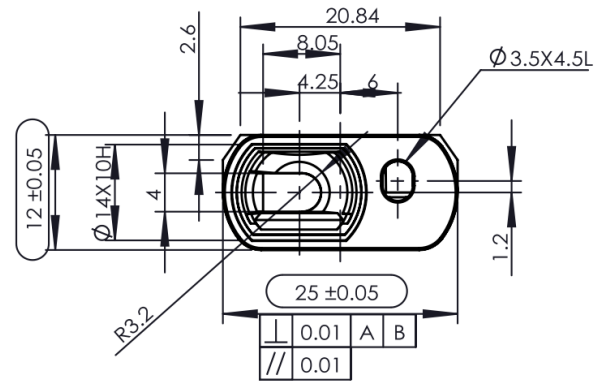
6.Dimension

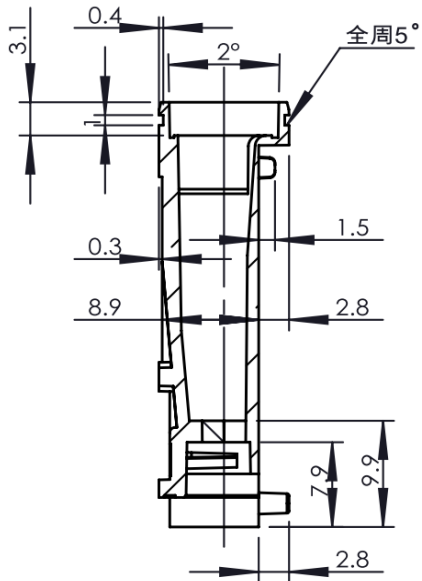


細部放大圖 B

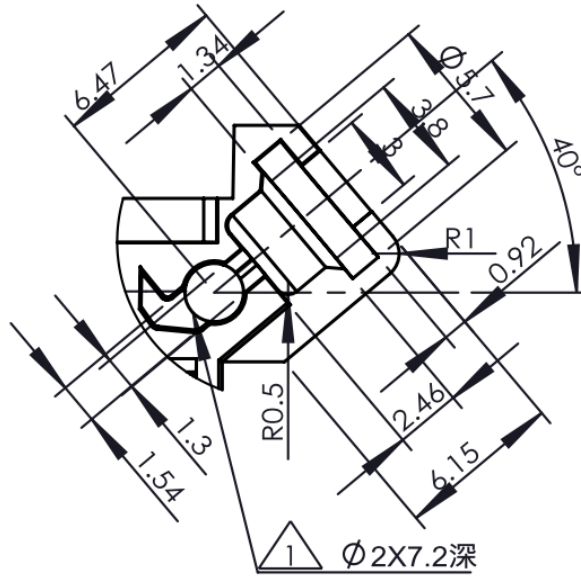


剖面圖 A-A
比例 1 : 1

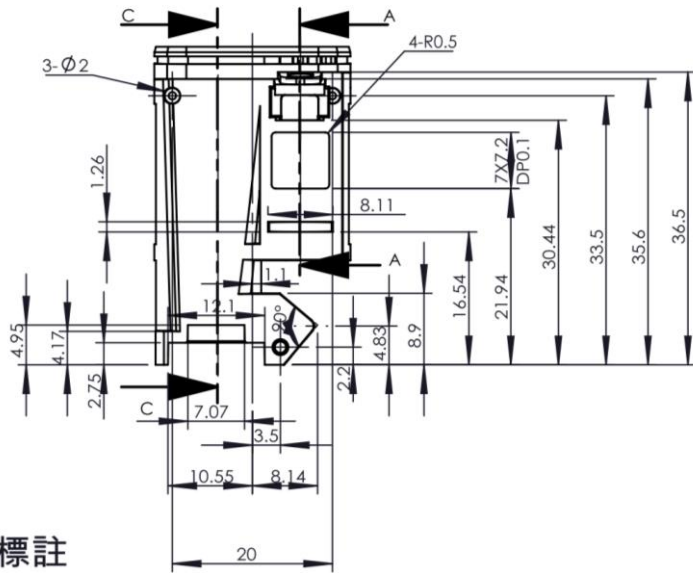




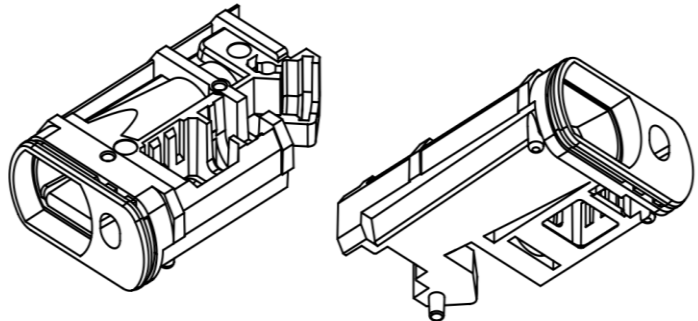
剖面圖 C-C
比例 1 : 1



細部放大圖 D



標註



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