TFmini LiDAR Module (I²C)

1.   Product Overview

Coupled with unique optical and electrical design, the product is based upon ToF (Time of Flight) and adopts 850nm infrared light source so as to measure distance with stability, precision, high sensitivity, and high speed.

The product is built with algorithms adapted to various application environments so as to offer excellent distance measurement performances with low cost and small size. The product adopts multiple adjustable configurations for flexible use by the client, which is better to satisfy the end-users' demand.

2.   Technical Specifications and Parameters

Table 1 Key Characteristic Parameters of TFmini -I²C

Description		Parameter value
Product performance	Operating Range(Indoor)	0.3m~12m[①]
	Measurement accuracy	±4cm@ (0.3-6m)[②]
		±1%@ (6m-12m)
	Range resolution	1cm
	Frequency	100Hz
	Light sensitivity	70klux
	Operating temperature	0~60°C
Optical parameters	Light source	LED
	Wavelength	850nm
	Receiving half angle	1.15°
	Transmitting half angle	1.5°
Electrical parameters	Power supply voltage	5V
	Average current	≤140mA
	Average power	≤0.7W
	Peak current	800mA
	Communication level	3.3V
Others	Wiring length	10cm
	Material of enclosure	ABS+PC
	Weight	5±0.3g
	Storage temperature	-20°C ~75°C

① This data is based on the indoor test with the standard white board (90% reflectivity) as the detection object.

② Maybe some errors of ±6cm occurs due to the switchover of different distance modes within 0.3-2m.
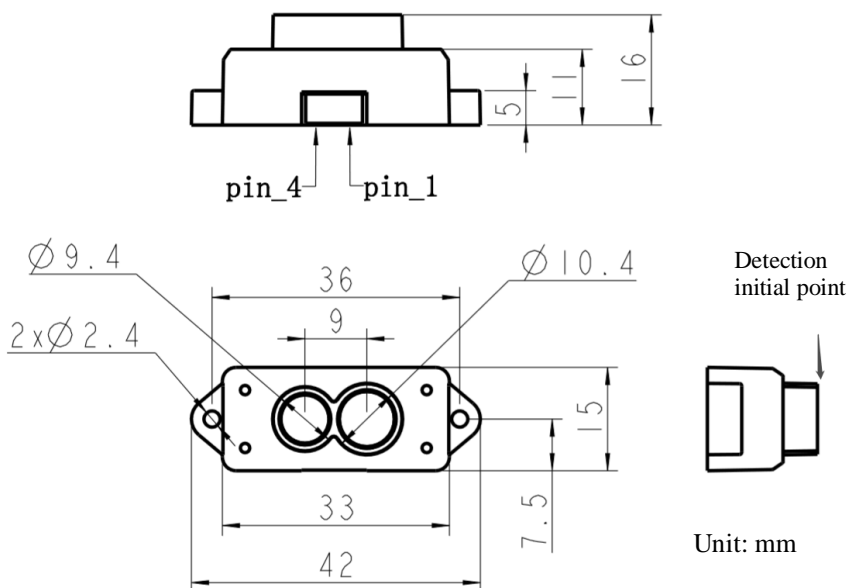
3. Product Appearance and Structure

Figure 1 Dimensional Drawing of TFmini-I²C

4. Communication Protocol

Table 2 Product Communication Protocol

Communication interface	I²C
Maximum transfer rate	400kbps
Master/slave mode	Slave mode
Address range	0X10~0X78
Default address	0x10

5. Configurable Parameters

Table 3 Examples of Configurable Parameters

Configurable items	Description	Default
Slave address	Slave address of TFmini at I²C bus	0x10
Detection Pattern	Support automatic shift gear mode and fixed ranging gear mode Fixed ranging gear mode supports 3-gear setting, which corresponds to short distance, middle distance and long distance respectively.	Automatic shift mode

Setting of range limit	When the measured value exceeds the setting value, the output value is forced to this limit.	1200cm
Unit of distance	2 distance units are available to TFmini: millimeter (mm) and centimeter (cm)	cm
Restore factory configuration	Restore factory configuration (excluding slave address and trigger mode for all configurable items)	/

Refer to the manual of the product for more configurable parameters and illustrations.

6. Product Certification

Photobiological Safety
IEC 62471

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