

# TFmini LiDAR Module (I<sup>2</sup>C)

## 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 -I<sup>2</sup>C

|                              | Description             | Parameter value             |
|------------------------------|-------------------------|-----------------------------|
| <b>Product performance</b>   | Operating Range(Indoor) | 0.3m~12m <sup>①</sup>       |
|                              | Measurement accuracy    | ±4cm@ (0.3-6m) <sup>②</sup> |
|                              |                         | ±1% @ (6m-12m)              |
|                              | Range resolution        | 1cm                         |
|                              | Frequency               | 100Hz                       |
|                              | Light sensitivity       | 70klux                      |
| Operating temperature        | 0~60°C                  |                             |
| <b>Optical parameters</b>    | Light source            | LED                         |
|                              | Wavelength              | 850nm                       |
|                              | Receiving half angle    | 1.15°                       |
|                              | Transmitting half angle | 1.5°                        |
| <b>Electrical parameters</b> | Power supply voltage    | 5V                          |
|                              | Average current         | ≤140mA                      |
|                              | Average power           | ≤0.7W                       |
|                              | Peak current            | 800mA                       |
|                              | Communication level     | 3.3V                        |
| <b>Others</b>                | 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  $\pm 6\text{cm}$  occurs due to the switchover of different distance modes within 0.3-2m.

### 3. Product Appearance and Structure

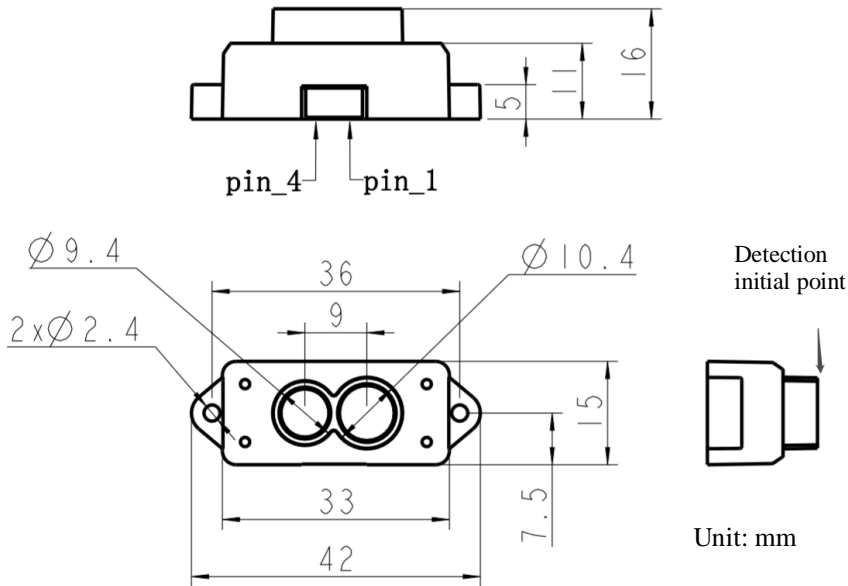


Figure 1 Dimensional Drawing of TFmini-I<sup>2</sup>C

### 4. Communication Protocol

Table 2 Product Communication Protocol

| Communication interface | I <sup>2</sup> C |
|-------------------------|------------------|
| 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 I <sup>2</sup> C bus  | 0x10                 |
| Detection Pattern  | Support automatic shift gear mode and fixed ranging gear mode<br>Fixed ranging gear mode supports 3-gear setting, which corresponds to short distance, middle distance and long distance respectively. | Automatic shift mode |

|                                      |   |        |
|--------------------------------------|---|--------|
| <b>Setting of range limit</b>        | When the measured value exceeds the setting value, the output value is forced to this limit.        | 1200cm |
| <b>Unit of distance</b>              | 2 distance units are available to TFmini: millimeter (mm) and centimeter (cm)                       | cm     |
| <b>Restore factory configuration</b> | 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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