TFmini VS TFmini-S

# Product Upgrade Overview

TFmini-S is a single-point ranging Lidar based on TFmini upgrade. The blind zone of it is reduced from 30cm to 10cm, the outdoor ranging performance is further improved, the distance range is not disturbed by ambient light, which can be consistent with the indoor range, and the accuracy is further optimized. The error performance at 10% reflectivity approaches the background of 90% reflectivity, and the interface supports UART and I2C switching at any time.

# Technical Specifications and Parameters

Table1 the Key Parameters of TFmini and TFmini-S

|  |  |  |  |
| --- | --- | --- | --- |
| 参数名称 | | TFmini | TFmini-S |
| Product  performance | Operating range | 0.3~12m@90% reflectivity | 0.1m~12m@90% reflectivity |
| Accuracy | ±6cm@（0.3-6m）①  ±1%@（6m-12m） | ±6cm@（0.1-6m）①  ±1%@（6m-12m） |
| Distance resolution | 1cm | 1cm |
| Frame rate | 100Hz | 100Hz |
| Ambient light immunity | 70Klux | 70Klux |
| Operation temperature | 0℃~60℃ | 0℃~60℃ |
| Enclosure rating | / | / |
| Optical  parameters | Light source | LED | VCSEL |
| Central wavelength | 850nm | 850nm |
| Photobiological safety | Exemption Level（EN62471） | Class1（IEC60825） |
| FOV | 2.3°② | 2°② |
| Electrical  parameters | Supply voltage | 5V±0.1V | 5V±0.1V |
| Average current | ≤140mA | ≤140mA |
| Power consumption | ≤0.7W | ≤0.7W |
| Peak current | 800mA | 800mA |
| Communication level | LVTTL（3.3V） | LVTTL（3.3V） |
| Communication interface | UART | UART / I2C |
| Others | Dimension | 42mm\*15mm\*16mm（L\*W\*H） | 42mm\*15mm\*16mm（L\*W\*H） |
| Housing | ABS+PC | ABS+PC |
| Storage temperature | -20℃~75℃ | -20℃~75℃ |
| Weight | 5g±0.3g | 5g±0.3g |
| Cable length | 10cm | 10cm |

1. Range based on the indoor test with the standard white board (90% reflectivity) at 25℃as the detection object；
2. The angle is the theoretical value, but the actual angle has some deviation.

# Product Appearance and Structure

图片包含 文字

描述已自动生成

Fig.1 TFmini Dimensions

图片包含 文字

描述已自动生成

Fig.2 TFmini-S Dimensions（Increase the center distance of the lens by 1 mm）

# Communication Interface

Table 2 Serial port communication protocol

|  |  |  |
| --- | --- | --- |
| Communication Interface | UART（TFmini） | UART（TFmini-S） |
| Default baud rate | 115200（adjustable） | 115200（adjustable） |
| Data bit | 8 | 8 |
| Stop bit | 1 | 1 |
| Parity check | None | None |

# Configurable parameters

Table3 the Configurable parameters of TFmini and TFmini-S

|  |  |  |  |
| --- | --- | --- | --- |
| Configurable items | Description | TFmini Default | TFmini-S Default |
| communication interface | support communication interface configuration | UART | UART、I2C |
| Frame rate | Support serial port baud rate configuration | Adjustable from 1Hz to 100Hz | Adjustable from 1Hz to 1000Hz |
| Protocol format | Support 3 kinds of output format：9Bytes（cm）、Pixhawk、9Bytes（mm） | 9Bytes(cm) | 9Bytes(cm) |
| Exclude threshold  of Strength | When the strength is lower than the minimum threshold, the output is specified value | Minimum strength setting：20  Value below minimum strength：-1 | Minimum strength setting：100  Value below minimum strength：0 |
| Range limit | Threshold of ranging limit (mm), | Maximum: 1200cm  Minimum: -1cm | Maximum: 1200cm  Minimum: -1cm |
| Low-power Consumption Mode | enable/disable low-power mode | Not support | Off |
| Baud rate | Support baud rate setting of 9600-921600 | 115200 | 115200 |
| Trigger sources | Setting internal trigger mode or external trigger mode | internal trigger | internal trigger |
| Restore factory  settings | Restore all configurations to factory configuration | / | / |