# K05

## OVERVIEW

K05 is a 360 degrees 2D LiDAR. Based on the principle of ToF, it is equipped with related optics, electricity, and algorithm design to achieve high-frequency and high-precision distance measurement. The mechanical structure rotates 360 degrees to continuously obtain the angle information and output the point cloud data of the scanning environment while ranging.

## TECHNICAL SPECIFICATIONS

PERFORMANCE PARAMETER

| Item | Min | Typical | Max | Unit | Remarks |
|---|---|---|---|---|---|
| Ranging frequency | / | 20000 | / | Hz | / |
| Motor frequency | 5 | 7 | 12 | Hz | Software control, factory setting 7Hz |
| Ranging distance | 0.05 | / | 50 | m | 80% reflectivity |
| Fileld of view | / | 0-360 | / | Deg | / |
| Angle resolution | 0.09 (Frequency @5Hz) | 0.13 (Frequency @7Hz) | 0.22 (Frequency @12Hz) | Deg | Ranging frequency=20kHz |
| Titl angle | 0 | / | 1 | Deg | / |

RANGE ACCURACY

| Distance (mm) | Mean Error (mm) |
|---|---|
| 50-5000 | ≤±60 |
| 5000-20000 | ≤±40 |
| 20000-30000 | ≤±100 |
| 30000-50000 | ≤±150 |

ELECTRICAL PARAMETER

| Item | Min | Typical | Max | Unit | Remarks |
|---|---|---|---|---|---|
| Supply voltage | 4.8 | 5.0 | 5.2 | V | Excessive voltage might damage the lidar while low affect normal performance |
| Startup current | / | 840 | 1000 | mA | Instantaneous peak current at start-up |
| Working current | / | 340 | 480 | mA | System works, motor rotation |
| Sleeping current | / | / | 50 | mA | System sleeps, motor stops |

## INTERFACE DEFINITION

| Pin | Type | Description | Defaults | Range | Remarks |
|---|---|---|---|---|---|
| VCC | Power supply | Positive | 5V | 4.8V-5.2V | / |
| Tx | Output | System serial output | / | / | Data stream: LiDAR→Peripherals |
| Rx | Input | System serial port Input | / | / | Data stream: Peripherals→LiDAR |
| GND | Power supply | Negative | 0V | 0V | / |
| NC | Reserve | Reserved pin | / | / | / |

## SERIAL PORT SPECIFICATION

| Item | Min | Typical | Max | Unit | Remarks |
|---|---|---|---|---|---|
| Baud rate | / | 512000 | / | bps | 8-bit data bit,1 stop bit, no parity |
| High signal level | 2.4 | 3.3 | 3.5 | V | Signal voltage>2.0V |
| Low signal level | 0 | 0.3 | 0.6 | V | Signal voltage<0.8V |

## LASER OPTICAL PARAMETERS

| Item | Min | Typical | Max | Unit | Remarks |
|---|---|---|---|---|---|
| Laser wavelength | 895 | 905 | 915 | nm | Infrared band |
| Laser power | / | 1.5 | / | mW | / |
| FDA | ⚠ Class I IEC60825-1 | | | | |

## OTHERS

| Item | Min | Typical | Max | Unit | Remarks |
|---|---|---|---|---|---|
| Operating temperature | 0 | 25 | 50 | ℃ | / |
| Storage temperature | -10 | / | 60 | ℃ | / |
| Lighting environment | 0 | 70000 | 100000 | Lux | For reference only, the laser transceiver cannot be directly towards the strong light source such as the sun |
| weight | / | 140 | / | g | N.W. |