

OVERVIEW

DT51 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	/	15	m	80% reflectivity
Field of view	/	0-360	/	Deg	/
Angle resolution	0.09 (Frequency @5Hz)	0.13 (Frequency @7Hz)	0.22 (Frequency @12Hz)	Deg	Ranging frequency=20kHz
Tilt angle	0	/	1	Deg	/

RANGE ACCURACY

Distance (mm)	Mean Error (mm)
50-5000	$\leq \pm 60$
5000-15000	$\leq \pm 40$

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	/
High signal level	2.4	3.3	3.5	V	/
Low signal level	0	0.3	0.6	V	/

LASER OPTICAL PARAMETERS

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

OTHERS

Item	Min	Typical	Max	Unit	Remarks
Operating temperature	0	25	50	°C	/
Storage temperature	-10	/	60	°C	/
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.