Siman



SDDM laser ranging module

SDDM is a high-performance, long-range, compact Dtof (Direct Time-of-Flight) laser rangefinder module independently developed by Siman. Utilizing advanced DTOF technology, it delivers exceptional measurement accuracy with a maximum range exceeding 2000 meters. Its lightweight design and compact size (just 10 grams) make it ideal for integration into various portable devices.

The module features a UART interface, enabling high-speed data transmission and seamless system integration. It is ideal for applications such as UAV altitude control, industrial automation, robotic navigation, and intelligent transportation. With its high precision, reliability, and low power consumption, it serves as an optimal solution for distance measurement, particularly in scenarios requiring strict spatial and weight constraints. For more product details, visit: www.siman.asia

warn	Follow the equipment usage guidelines! This product is not a safety sensor and
waiii	cannot be used for personnel protection.
	Main measurement laser (905nm): Class 1 laser product. Safe under
	normal operating conditions.
	> This product has no explosion-proof structure, and it is forbidden to use in
	flammable and explosive environments.
	> Do not remove this product.
*	➤ Be sure to turn off the power before operating. Do not connect wires while
	powered on!
	1. Avoid use in dust/steam or corrosive gas environment;
	2. Use in places where corrosive gases are not generated;
	> Do not use this product in water.
	➤ When used outdoors, pay attention to adding a waterproof cover.
hookun	

0,00 13,40+0,10 0,00 5,70+0,10	1	
2-M1.4*3 11,95 24,60-0,10		0,00
8,2	+0,10 25,72-0,10	重量: 10+0.5g

order number	name	function	functional description
1	GND	Power supply	Input: power ground, communication ground

2	VCC	source	Input: 3~3.3V DC power supply, current> 300mA+
3	NC		
4	UART TX	Communication output	Serial communication: The module's sending pin is compatible with the controller's receiving pin (TTL3.3V/TTL5V).
5	UART RX	Communication	Serial communication. The module's serial port receiving pin is connected to the control. Terminal send pin (compatible with TTL3.3V/TTL5V)
6	POWER OF	N mains switch	Input: High-level enable; TTL3.3V
Specifica	tions		
measuring	range	3	2000m@70% reflectivity

measuring range	32000m@70% reflectivity	
resolution ratio	0.1m	
. 1,	Typical value DC+3.3V	
service voltage	Voltage range 2.53.5V	
absolute accuracy	±1m	
power dissipation	500mW@3.3V	
Maximum single	1s	
measurement time	18	
specification and	26*24.6*11.4mm	
dimension	20°24.0°11.4mm	
Ambient Light	1000kLux outdoor sunlight	
weight	10g	
illuminant	905nm laser	
working temperature	-20~70°C	
Laser safety level	1	
Laser life	Over 100,000h	
communication	UART	
interface	The baud rate is 115200bps	

SDDM-1200

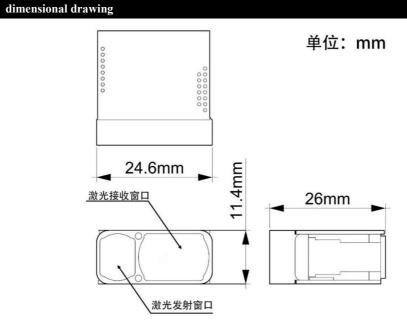
1200m

SDDM-1500

1500m

SDDM-2000

2000m



SDDM-800

800m

product model

range

contact us

Siman

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UART Communication										
Baud rate	115200bps									
Start position: 1	Data bit 8	Stop position 1	Check bit: None	Flow control:						
				None						

control command

1) All communication code streams in this system adopt little-endian mode;

2) After accumulating the entire message as an U8 array, the lower 8 bits are used as the CRC checksum value.

fun	
ctio	data

ent

Bytes	0	1	2	3	4-5	6-7	8
Name	MsgType	MsgCode	BrdId	PayLoadLen	МеаТуре	MeaTimes	CRC
Data	0xFA	0x01	0xXX	0x04	0xAAAA	0xBBBB	0xZZ

After starting the measurement, the module continuously measures and returns data until the specified number of measurements is reached or a stop command is received. For the

rt/S | format of measurement data, see Measurement Reporting.

top | BrdId = 0xXX specifies the module ID for message reception (default module ID is 0;

me 0xFF indicates broadcast messages)

asu MeaType = 0xAAAA indicates whether to start or stop measurement, where 1 means start rem and 0 means stop.

MeaTimes = 0xBBBB indicates the number of consecutive measurements, where 0 means

infinite and 1 means a single measurement.

Start a single measurement example: fa 01 ff 04 01 00 01 00 00

Start continuous measurement example: fa 01 ff 04 01 00 00 00 ff

Stop measurement example: fa 01 ff 04 00 00 00 00 fe

	Bytes	0	1	2	3	5	6	7	8	9
	Name	MsgType	MsgCode	BrdId	PayLoadLen	DataVa	alidInd	Dista	nce	CRC
Me	Data	0xFB	0x03	0xXX	0x04	0xAAA	AΑ	0xBE	BBB	0xZZ
asu	Unit							dm		
ı										

re After starting the measurement, the module returns the measurement value after each
Re measurement (the maximum duration for a single measurement is 1.5s) until the specified

number of measurements is reached or a measurement stop message is received.

BrdId = 0xXX indicates the module ID for transmission

DataValidInd = 0xAAAA indicates whether the data is valid: 1 means the measurement data is valid, and 0 means it is invalid.

Distance = 0xBBBB indicates the measured distance in decimeters (dm).

B	ytes	0		1		2		3		5	6	7		8	9
N	ame	Msg	Туре	Msg	;Code	BrdId	1 :	PayLoadLe	n	Data	/alidIn	i D	ista	nce	CRC
D	ata	0xF	В	0x03	3	0xXX		0x04		0xAA	AA	0:	xBE	BBB	0xZZ
C	ase	fl)	03		00		04		0100		4	e00		4f
										valid	data	70	6dn	n	
two		Bytes	0		1		2	3		4	5	6		7	8
tra		Name	MsgT	ype	MsgC	Code	BrdId	PayLoa	ıdLeı	n T	ype	V	alue	e	CRC
mi		Data	0xFA		0x06		0xXX	0x04		0:	xAAA	A 0:	хВЕ	BBB	0xZZ
t by ra di	T V		0xAAA 0xBBl which	BB. N	New se	ettings the nev	take ef w valu	ffect imm		-	except	for the	e m	nodul	e ID
		Bytes	0) 11 02	1	2		3		4	5	6		7	8
		Name	MsgTy	<i>т</i> ре	MsgCo		BrdId	PayLoa	ad	Err		Тур		,	CRC
]	Data	0xFB	1	0x07		xXX	0x04		0xAA	AAA	0xB		В	0xZZ
	Т	means f Type = 0 Example	ailure,)xBBE	BB pa	ramete	er type		ilure, whe	ere 0) mear	ns suc	cess an	nd 1	non-z	zero
r 1 ——er	T E	rype = 0 Example ty	ailure,)xBBE	BB pa 7 00 0	ramete	er type		ilure, whe) mear		cess an	nd 1	non-z	zero
r n —	T E	means f Type = 0 Example ty n pe n II	ailure, OxBBE e: fb 0' ame	BB pa 7 00 0	ramete)4 00 (span 0-254	00 06	4,192,96,2	1 nn n 2 nn 3 nr bb	meaning The r message module: The r which is the restaurance of t	module e identi ; ; module es indie r's mod sst the r 0xFF	ID in the fies the ID in r	he recessor more	reques onse c essage es the	t g or report e source;
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r m od ul e pa ra m et er ty pe	n T E	ty pe O III	ailure, DxBBE e: fb 0' ame odule ort aud tte 0 Ms	BB pa 7 00 0 Wir s de	ramete 04 00 (ndow efault	9216,1 4,12	2 Brdl	4,192,96,2	n 1 1 n n 2 n n 3 n r b is	neaning) The r message production of the receiver or	module e identii;; module es indice in the see on oxFF	ID in the ID in relates the ender igule ID on message	he recessor we may the recessor when the recessor we may the recessor when the recessor we have a recessor we have a recessor we have a recessor when the recessor we have a recessor with the recessor we have a recessor with the recessor we have a recessor with the recessor with the recessor was a recessor with the recessor with the recessor with the recessor was a recessor with the reces	onse coessage es the wants t	t g g g g g g g g g g g g g g g g g g g
r M od ul e pa ra m et er ty pe		o means for type = 0 Example ty pe S Bytes Name Data BrdId = 1 B	ailure, DxBBE e: fb 0' ame codule D erial ort aud ate 0 Ms 0xI 0xXX	BB pa 7 00 0 Wir s de	2 1 Ms	9216,1 4,12	2 Brdl 0xX	4,192,96,2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	meaning message of the receiver or oadca s set to	module e identii;; module ess indice on the second of the results	ID in the fies the ID in relates the ender igule ID onessage	he recessor we may be more whom we, the	onse cessage ees the wants t	t g or report e source; o lule ID 6 CRC 0xZZ
r m od ul e pa ra m et er ty pe		ty no pe S S S S S S S S S S S S S S S S S S	ailure, DxBBE e: fb 0' ame codule D erial ort aud tte 0 Ms 0xXX	BB pa 7 00 0 Wir s de	2 1 Ms Oxt	9216,1 4,12	00 06 1152,384 2 Brdl 0xX iving r	4,192,96,2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	meaning message of the receiver or oadca s set to	module e identii;; module ess indice on the second of the results	ID in the fies the ID in relates the ender igule ID onessage	he recessor we may be more whom we, the	onse cessage ees the wants t	t g or report e source; o lule ID 6 CRC 0xZZ

												_
s		Bytes	0	1	2	3	4	5	6	7	8	
		Name	MsgType	MsgCode	BrdId	PayLoad	Туре	;	Value		CRC	
	re	Data	0xFB	0x09	0xXX	0x04	0xA	AAA	0xBB	BB	0xZZ	
	ce iv		0xXX indic			for transmis	ssion					

Note: CRC stream calculation and usage

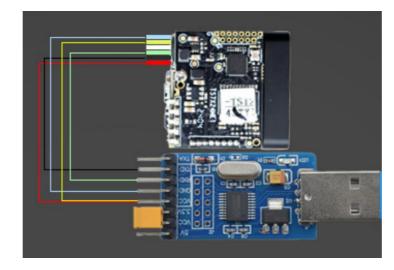
Value = 0xBBBB parameter value Example: fb 09 00 04 00 00 00 00 08

- 1. For a single measurement message, the message code stream is: fa 01 ff 04 01 00 01 00 00 Sum the entire message using the U8 array: 0xfa + 0x01 + 0xff + 0x04 + 0x01 + 0x00 + 0x01 + 0x00 = 0x200
- 2. Take the lower 8 bits of the accumulated value as the CRC value: i.e., 0x00

Operation Guide

The module connects to the USB-TTL converter as shown in the figure below.

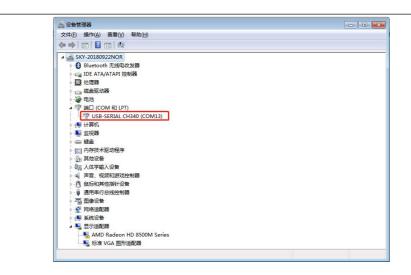
- > If you're using a USB-TTL adapter like ours, here's how to connect it:
- > If you're using a different USB-TTL model, connect a pull-up resistor (a resistor between the red VCC and yellow TXD lines).
- ➤ When connecting the TTL signal to a microcontroller, install a pull-up resistor (a resistor between VCC and TXD).



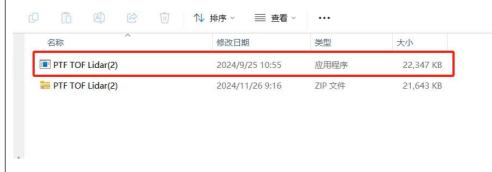
Test demo software

Before starting the test, we need to confirm:

1. Insert and install the CH341 USB-TTL converter driver on your computer. The following indicates successful installation.



- 2. Download the host computer software: www.siman.asia;
- 3. Open the host computer's folder, select the corresponding.exe folder, and double



-click "PTF TOF Lidar" to launch the software.

4. The following window will appear: The serial port number is correct. Click "Open Serial Port".



5. The Porter rate is selected as 115200;



6. Open the serial port, click "open" below the serial port operation, then click the icon button below the measurement to start the measurement.

