



SDP-20 Series Laser Rangefinder

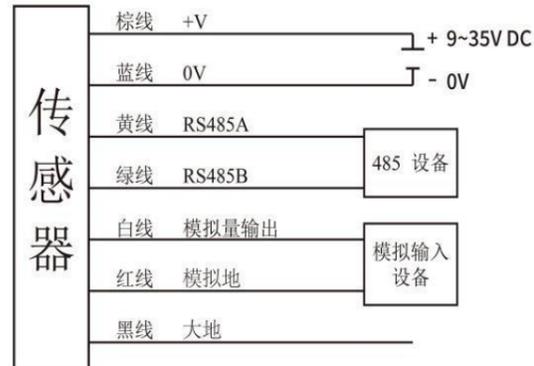
The SDP-20 Series is a direct Time of Flight (dToF) laser ranging sensor developed by Siman Sensing Technology Co., Ltd. Under harsh conditions such as strong ambient light interference or extremely low reflectivity of the target object, its excellent signal processing capability still ensures outstanding reliability.

The SDP-20 Series sensor supports RS485 communication, 4~20mA output, and dual-channel I/O outputs. Equipped with an OLED display, the device shows the measured distance in real time and allows parameter configuration via buttons. This product is widely used in fields such as positioning, collision prevention, and obstacle avoidance of industrial equipment..For more product details, visit: www.siman.asia

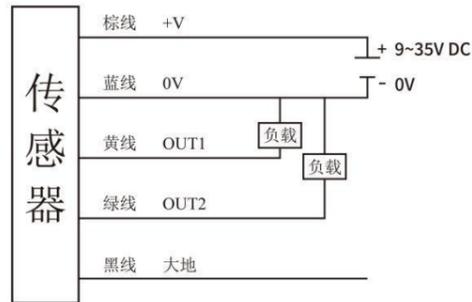
warn	Follow the equipment usage guidelines! This product is not a safety sensor and cannot be used for personnel protection.
	<ul style="list-style-type: none"> ➢ Main measurement laser (905nm): Class 1 laser product. Safe under normal operating conditions. ➢ Indicative laser (650nm): Class 2. Do not look directly at the beam or use optical instruments to observe. ➢ 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! <ol style="list-style-type: none"> Avoid use in dust/steam or corrosive gas environment; Where corrosive gases are generated; ➢ Do not use this product in water. ➢ When used outdoors, pay attention to adding a waterproof cover.

hookup

485+ analog

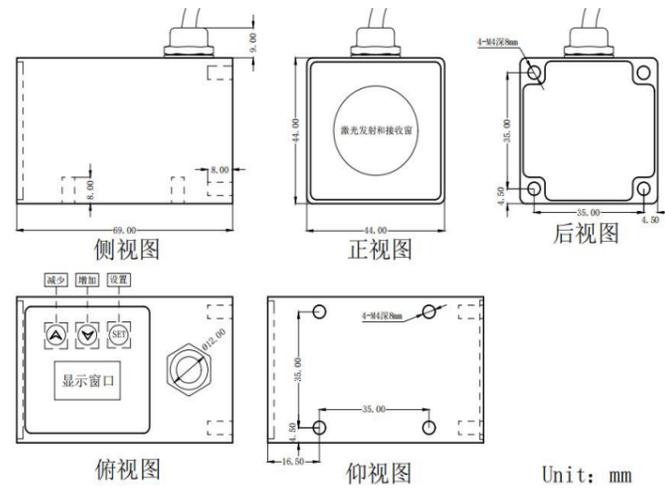


switching value

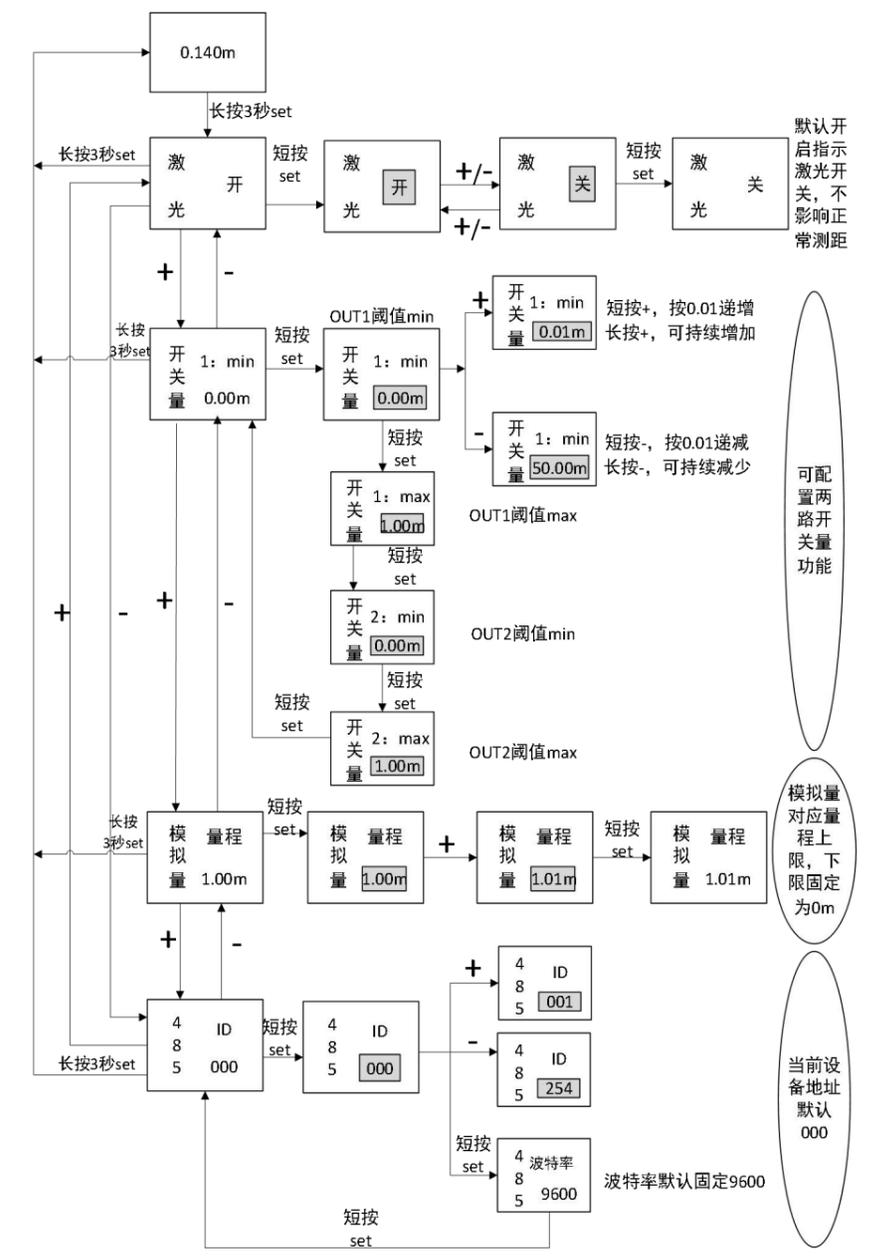


Specifications		
model	range	communication interface
SDP-20P	0.05...20m	PNP
SDP-20DA		RS485+4~20mA
CI	RS485 / 4~20mA / PNP	
range	0.05...20m@10% reflectivity	
repeatability precision	±2mm	
measuring frequency	100Hz	
Measure laser light source	905nm, Class 1	
Indicate laser light source	650nm, Class 2	
Outer shell material	aluminum	
working temperature	-20~50°C	
working voltage	9~35VDC	
working current	典型 mA@12V DC (指示激光关闭)	
accuracy	典型 mA@12V DC (指示激光开启)	
levels of protection	±20mm	
weight	IP65	
size	145g	
Storage temperature	44mm*44mm*69mm	
Reflectance correction	-40~85°C	

three views



Key settings



contact us

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Communication Note: RS485

Baud rate	9600bps (default), can be changed to 115200bps
Data bit 8	Stop position 1 Check bit: None

register declaration

address	content	number	state	explain
0000H	error status code	1	read only	100: No fault; 101: Out of range
0001H	running state	1	read-write	0: Stop measurement; 1: Measuring or starting measurement
0002H	Measure distance value	2	read only	4-byte unsigned integer data, with the high bit first and the low bit last, in 1mm units.
0003H	From device address	1	read-write	Valid range: 0-254 (0 is the default address, 255 is the broadcast address)
0004H	Communication baud rate	2	read-write	Valid range 9,600-115,200
0005H	Distance offset	2	read-write	Signed integer, unit 1mm
0006H	Version number	1	read only	Current program version number

Protocol format

Read register data (Function code 03H) — Communication frame format

Address code 1 byte	Function code 1 byte	Start address 2 bytes	Number of registers n bytes	CRC-2Byte
Response format				
Address code 1 byte	Function code 1 byte	Data range size: 1 byte	Data Range-n*2 bytes	CRC-2Byte

Write single register data (Function code 06H) — Communication frame format

Address code 1 byte	Function code-1 byte	Register address-2 bytes	Write data-2 bytes	CRC-2Byte
Response format				
Address code 1 byte	Function code-1 byte	Register address-2 bytes	Write data-2 bytes	CRC-2Byte

Write multiple register data (Function code 10H) — Communication frame format

Address code 1 byte	Function code-1 byte	Start address-2 bytes	Number of registers-2 bytes	Write bytes-1 byte	Write data-4 bytes	CRC-2Byte
Response format						
Address code 1 byte	Function code-1 byte	Register address-2 bytes	Write data-2 bytes	CRC-2Byte		

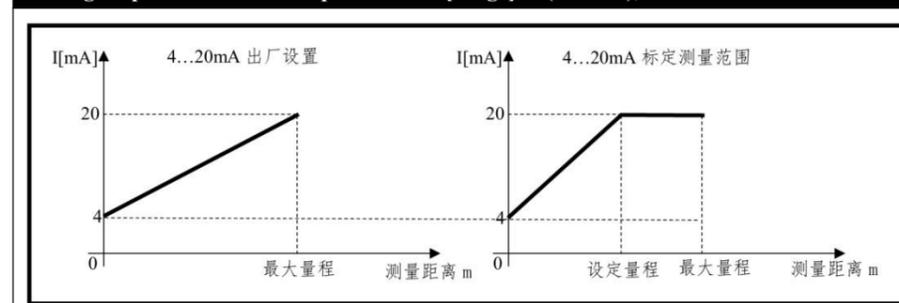
CRC checksum: 2 bytes, with the lower 8 bits first and the higher 8 bits last.

Example: The device is this product, and the host is the control receiver. The device address is 00H (default address).

function	direction	data	definition
fetch Distance value	transmitted by radio	00 03 00 02 00 02 64 1A	Read measurement distance
	return	00 03 04 00 00 03 E8 EA 4D	Normal. 03 E8H=1000mm.
		00 03 04 00 00 00 62 32	Invalid interval. Data 0
fetch	transmit by	00 03 04 00 00 FF FF EB 43	Exceeds the maximum range. Maximum value
		00 03 00 03 00 01 75 DB	Read device address, 0~254

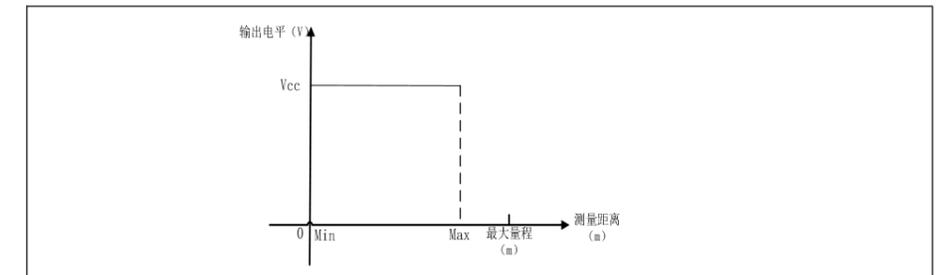
device address	radio	FF 03 00 03 00 01 61 D4	Read ID using broadcast address 255
	return	00 03 02 00 00 85 84	Default address is 00
Set device address	transmit by radio	00 06 00 03 00 01 B9 DB	Set device 00 address to 01 address
	return	00 06 00 03 00 01 B9 DB	Set successfully
fetch Baud rate	transmit by radio	00 03 00 04 00 02 84 1B	Return 2580H= baud rate 9600.
	return	00 03 04 00 00 25 80 F1 C3	Note: 01 C2 00=115200
set up Baud rate	transmit by radio	00 10 00 04 00 02 04 00 01 C2	Set the baud rate to 115200
	return	00 10 00 04 00 02 01 D8	Settings applied
fetch error condition	transmitted by radio	00 03 00 00 00 01 85 DB	
	return	00 03 02 00 64 84 6F	normal
fetch running state	transmit by radio	00 03 00 01 00 01 D4 1B	
	return	00 03 02 00 01 44 44	Measuring
set up running state	transmit by radio	00 06 00 01 00 00 D9 DB	Stop measuring
	return	00 06 00 01 00 01 18 1B	Enable measurement
Read distance offset	transmit by radio	00 03 00 05 00 02 D5 DB	
	return	00 03 04 00 00 27 10 F0 CF	Increase the offset by 1000mm
Set distance offset	transmit by radio	00 10 00 05 00 02 04 00 00 27 10 2D 50	Increase offset 2710H=1000.0mm
	transmit by radio	00 10 00 05 00 02 04 FF FF D8 F0 6D 0C	Reduce offset FF FF D8 F0= -1000mm
	return	00 10 00 05 00 02 50 18	Settings applied

Analog output: 4~20mA corresponds to 0m-[range] m (settable), maximum load 250Ω

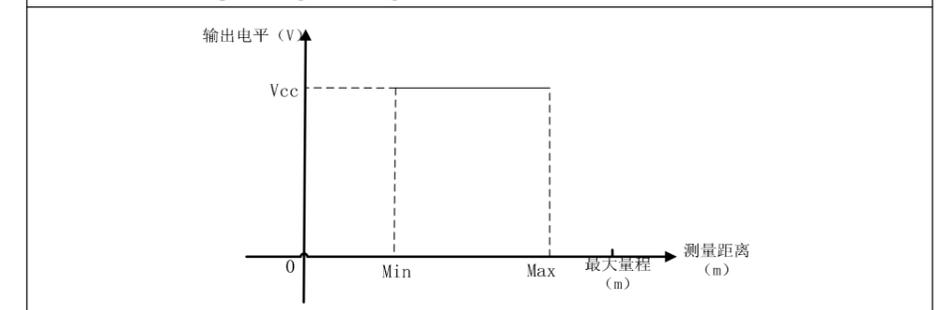


I/O Output (Optocoupler Output)

Upper Limit Alarm: Outputs a high-level signal when the distance is less than Max.



In-Zone Alarm: Outputs a high-level signal when the distance is between Min and Max.



Output type: collector open	PNP output
High voltage	Vcc-0.7V
Low voltage	< 0.5V
Maximum load current	100mA constant
response time	< 2ms