

50m / 150m / 200m Industrial High Frequency

Laser Rangefinder Module

Key Properties

- Measurement Range: 0.05m ~ 50/150/200m
- Measurement Frequency: 20~20KHz
- Measurement Accuracy: <100m: $\pm 0.05\text{m}$
 $\geq 100\text{m}$: $\pm 0.1\text{m}$
- Wavelength: 905 nm
- Laser Safety: Class1
- Communication Interface: TTL



Function

- Continuous Measurement
- Frequency Setting
- Baudrate Setting

Introduction

LRF0M20KHS is a high-frequency rangefinder module designed to deliver exceptional performance. Its maximum frequency can reach 20KHz, and users can configure the frequency from 20 to 20KHz through commands. With its compact size and lightweight design, it's perfect for seamless integration into various devices.

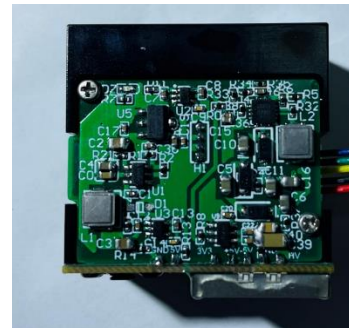
The LRF0M20KHS is suitable for both indoor and outdoor use, boasting measurement accuracy down to centimeter levels. We offer three measurement distance options: 50 meters, 150 meters, and 200 meters, catering to diverse needs. Experience precision, versatility, and convenience all in one advanced solution.

1. Technical specifications

Technical specifications	
Model Name	LRF50M20KHS / LRF150M20KHS / LRF200M20KHS
Measurement Range	0.05m ~ 50M / 150M / 200M (Condition: 85% reflectivity,)
Frequency	20~20KHz
Accuracy	<100m: ±0.05m ≥100m: ±0.1m
Optical Design	
Wavelength	905nm
Laser Safety	Class1
Divergence	4mrad
Anti-ambient Light	≥100K LUX
Communication	
Communication Interface	3.3V TTL (UART)
Baudrate	9600~921600 bps
Power Consumption	
Working voltage	24V (9~36V)
Power Consumption	<1W
Mechanical	
Dimensions	33 x 36 x 18 mm
Weight	<50g
Environmental	
Operating Temperature	-40°C~85°C
Storage Temperature	-45°C~100°C

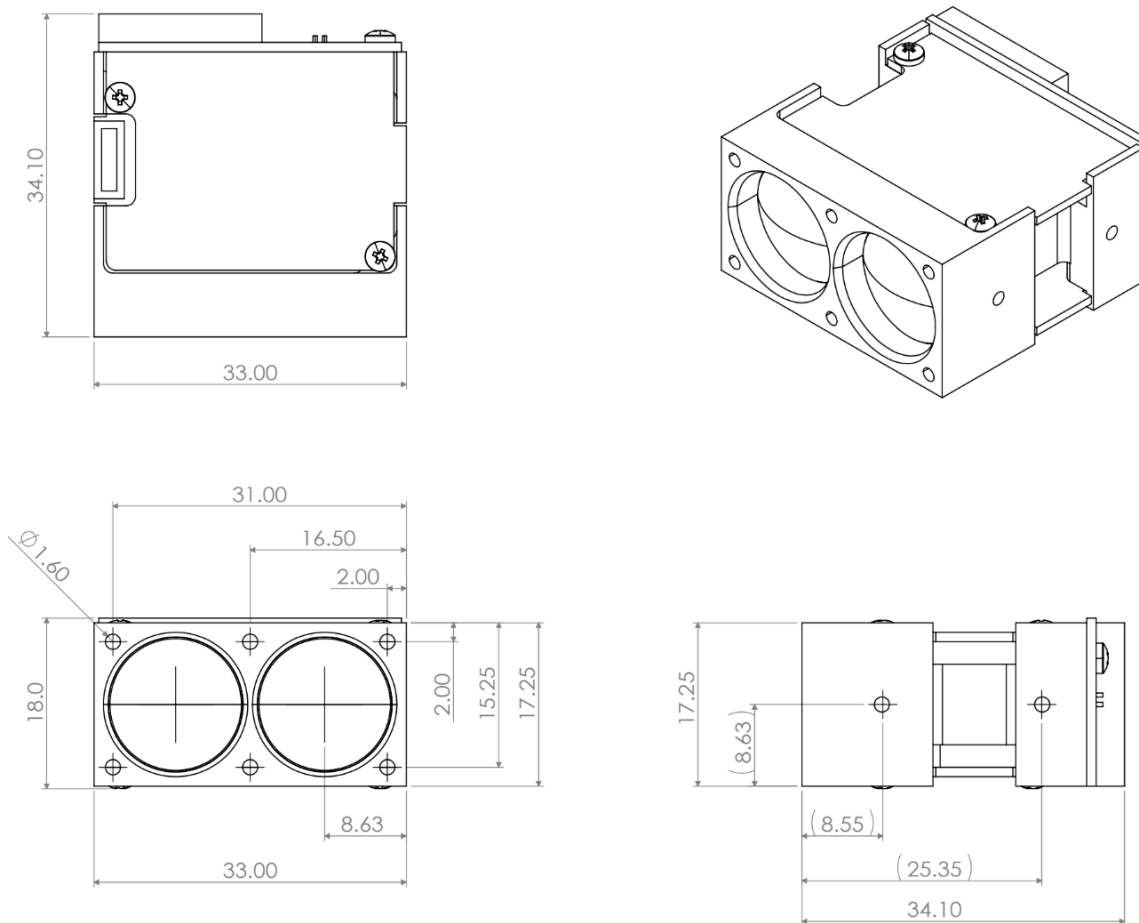
2. Pin Assignment

Blue	RX (TTL: Voltage is programmable: 3.3V)
Green	TX (TTL: Voltage is programmable: 3.3V)
Yellow	TTL GND
Black	Power GND
Red	DC 9~36V





3. Dimensions



4. Communication

4.1 UART configuration parameters:

Baudrate: 9600 / 19200 / 115200 / 256000 / 460800 / 921600.

Data bits: 8

Parity bits: None

Stop bits: 1

4.2 Communication frame format:

After powering on, the ranging module will actively output data (8 bytes per frame).

Head (1 byte)	Distance (2 byte)		Checksum (1 byte)
5C	*	*	*

*Head: Fixed as 0x5C.

*Distance: Measure result, range: 0~65536, unit: cm.

*Checksum: Function + Length + Distance + Signal Quality and take inverse

Example: 5C 02 11 EC

*5C: Head (Fixed).

*02 11: Distance is 4354cm. (The first byte is the low bit and the second byte is the high bit.)

$$0x02 + 0x11 * 256 = 4354.$$

*EC: Checksum, $0x02 + 0x11 = 2 + 17 = 19$

$$19 = 0x13$$

The two's complement of 0x13 is EC.

4.3 Communication command

4.3.1 Set Frequency

Send	5A 0B 02 XX XX CHK
Receive	5A 8B 02 XX XX CHK
Example	Set frequency as 1000Hz Send: 5A 0B 02 E7 03 08 Receive: 5A 8B 02 E7 03 88

* The E7 03 in the example represents the setting of the calculation parameter as 999 (in hexadecimal, where E7 is the low byte and 03 is the high byte)

The frequency is set to $1000000 / (999 + 1) = 1000\text{Hz}$.

* The parameter range is from 49999 to 49, corresponding to a frequency range of 20 to 20000Hz.

4.3.2 Get Frequency

Send	5A 1B 02 1B 1B AC
Receive	5A 9B 02 XX XX CHK
Example	Send: 5A 1B 02 1B 1B AC Receive: 5A 9B 02 E7 03 78

* The E7 03 in the example represents the setting of the calculation parameter as 999

4.3.3 Set Baudrate

Send	5A 06 02 XX XX CHK
Receive	5A 86 02 XX XX CHK
Example	Set baudrate as 115200 Send: 5A 06 02 80 04 73 Receive: 5A 86 02 80 04 F3



*The baudrate table corresponding to the configuration commands is as follows:

Command	Baudrate
60 00	9600
C0 00	19200
80 04	115200
00 0A	256000
00 12	460800
00 24	921600

- *When the frequency is <200Hz, any baud rate can be used.
- * When frequency >200Hz, the baudrate needs to be set to at least 19200.
- * When frequency >400Hz, the baudrate needs to be set to at least 115200.
- * When frequency >2500Hz, the baudrate needs to be set to at least 256000.
- * When frequency >6000Hz, the baudrate needs to be set to at least 460800.
- * When frequency >10500Hz, the baudrate needs to be set to at least 921600.