SentiAcu SPL20K

Datasheet

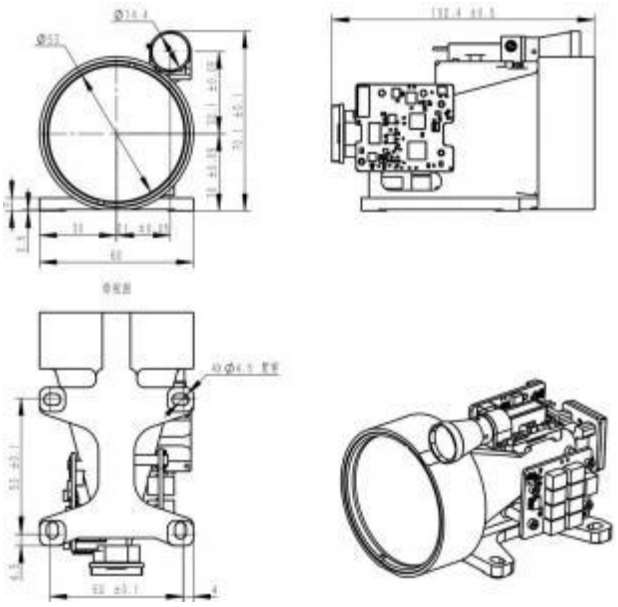
The SPL20K laser rangefinder is the eye safety laser rangefinder in the photoelectric system, which can detect the target distance and transmit the measured distance to the host computer through serial communication. Its main functions include single and continuous ranging, range strobe, front and rear target indication, and a self-test function.

The module consists of a laser, a transmitting optical system, a receiving optical system and a control circuit. The main performance is as follows:

Technical Specifications

Performance Parameter	
Detection range①	≥20km
Accuracy	≥98%
Ranging accuracy	≤±1.5m
Minimum measuring range	≤100m
Ranging resolution	≤30m
Default frame rate	1-10Hz customizable
Laser Parameters	
Laser divergence Angle	≤0.3mrad
Wavelength	1535nm±5nm
Mechanical/Electrical	
Power consumption	standby power consumption ≤120mW
Average power consumption	≤6W
Peak power consumption	≤14W
Power supply	DC5V～28V
Operating temperature	−40℃ - +60℃
Storage temperature	−55℃ - +70℃
Dimensions	≤104×65×71.5mm
Weight	< 270g

Communication Protocol	
Communication Interface	RS422, 115200bps
Electrical interface	The interface model is A1002WR—S—10P
Dimensions (Unit: mm)	



The interface definition is described in the following table.

Wire No.	Definition	Remarks
1	VIN+	Power input +
2	VIN—	Power input —
3	POWER_EN	Module power enable, TTL_3.3V level; Module on (>2.7V or suspended) Module off (<0.3V)
4	RS422 TX+	RS422 receive +
5	RS422 TX- (UART_TXD)	RS422 receive - (UART serial transmit, TTL 3.3V level)
6	RS422 RX- (UART_RXD)	RS422 transmit - (UART serial receive, TTL 3.3V level)
7	RS422 RX+	RS422 transmit +
8	reserve	
9	reserve	
10	GND	communications grounding port

Precautions for use:

The laser emitted by this rangefinder is 1535nm, which is safe for human eyes. Although it is an eye—safe wavelength, it is advised not to look directly into the laser.

When adjusting the parallelism of the optical axis, be sure to cover the receiving lens to avoid permanent damage to the detector due to excessively strong echoes.

This rangefinder module is not airtight. Ensure that the relative humidity of the environment is below 80% and maintain a clean and sanitary environment to prevent damage to the laser.

The range of the rangefinder is related to atmospheric visibility and the nature of the target. Range will be reduced in fog, rain, and sandstorms. Targets like green tree clusters, white walls, and exposed limestone have better reflectivity and can increase range. Additionally, increasing the angle of the laser beam to the target will reduce the range.

Do not emit lasers at highly reflective targets such as glass or white walls within 100 meters to avoid echo overstrength and damage to the APD detector.

Do not plug or unplug cables while the device is powered on.

Ensure the correct polarity of the power supply connection to avoid permanent damage to the equipment.

Notes to the specifications:

① Under clear visibility conditions, the visibility should be no less than 20km, with humidity ≤80%. The ranging distance for large targets (buildings) should be ≥20 km. For vehicles (2.3m×2.3m target, reflectivity ≥0.3), the ranging distance should be ≥15 km; for personnel (1.75m×0.5m target, reflectivity ≥0.3), the ranging distance should be ≥7 km.