

Miniature Laser Ranging Target Designators 120mJ

Model:LDR120W

PRODUCT DESCRIPTION

The laser range finder target Designators are utilized in conjunction with the DYT field target strike test as target Designators. It facilitates rapid and precise targeting for DYT, providing accurate straight-line distance parameters of the targets. In comparison to similar products, this compact-sized and lightweight product offers enhanced portability. Its miniaturized OEM design allows it to be compatible with various sizes of photoelectric pods, offering a portable or land-based version equipped with human eye sight & OLED display. The unique light source design enables high pulse energy laser output within an extremely small structure size, resulting in an initial laser divergence angle that is 50% smaller than

conventional products. The laser range finder comprises a laser light source & driver, ranging module, optional sighting system, and control module.



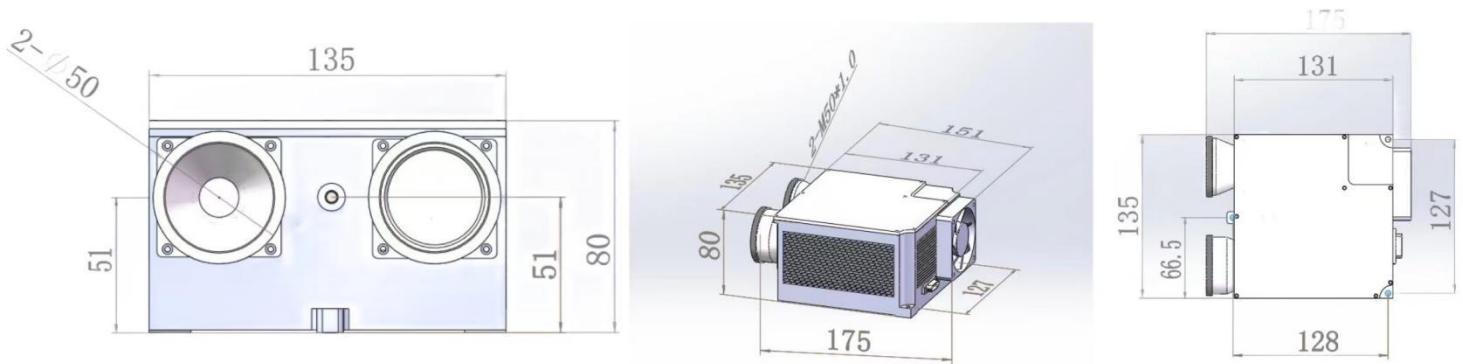
MAIN FUNCTIONS

- Target guidance
- Target distance measurement
- Control mode: panel key control and serial control

TECHNICAL PARAMETERS

Laser wavelength	1064nm±1nm
Single pulse energy	≥120mJ (OEM according to customer) 15ns±5ns
Single pulse width	0.2~0.9mrad (OEM for customer)
Divergence angle	≥95%
Stability of pulse energy	1~25Hz (adjustable) (OEM for customer)
Repetition frequency	≥20000m (OEM for customer)
Irradiation distance	1~10Hz (OEM for customer)
Ranging frequency	150~20000m (OEM for customer) ±2m
Ranging distance	≥98%
Ranging accuracy	Maximum single working time 60s, interval 60s;can work 8 cycles.
Accuracy	DC 24V(24V-30V)
Working cycle	Internal and external trigger can support
Power supply	Precise frequency code, time coding or pseudo-random coding
Trigger mode	≤1.5us
Laser coding	RS422 serial port, external trigger 485 level, TTL
Coding accuracy	≥120mJ (OEM according to customer) 15ns±5ns
Communication interface	0.2~0.9mrad (OEM for customer)
Dimensions	≤175×135×80mm
Weight	≤2000g
Cooling mode	Blow cooling
Standby power consumption	≤20W;
Average power consumption	≤100W;
Peak power consumption	≤250W。
Working temperature	-40°C~+60°C
Storage temperature	-50°C~+70°C

STRUCTURAL DIMENSIONS



TECHNICAL PARAMETERS

1. Connector requirements

Use J30JM-25ZK and J30JM-25ZJ as power supply and communication interfaces.

2. Connector socket number definition

Interface Definition

Pin	Signal definition	Remarks
1~7	24V+	
14~20	GND	
8	External trigger +	3.3V/TTL
21	External trigger -	
11	RS422 RX+	Serial communication interface
12	RS422 RX-	
9	RS422 TX+	
10	RS422 TX-	
13	GND	Signal ground
24		
25		

COMMUNICATION PROTOCOL

Notes:

Serial port setting: Baud rate: 115200 Checksum: None Data bits: 8 Stop bits: 1

1. General data bit explanation involved in this protocol

No.	Data bit	Meaning
1	<0x55、0xAA>	The header of the data frame.
2	<0x66、0xBB>	The end of the data frame.
3	<Length (1B)>	The total number of bytes in this packet.
4	<Data direction (1B)>	0x01: Data or instruction is written from the PC to the microcontroller; 0x02: data or instruction is returned from the microcontroller to the PC.
5	<Energy (2B)>	Controls the laser's light output energy, range: 0 to 254 (the specific setting range is subject to the laser manufacturer's specifications).
6	<Checksum (1B)>	Check digit, algorithm: none

2. Data return

When the setting is successful, the monitoring system returns the received data. When the setting fails, no data is returned.

I. Out laser instruction set

When setting commands, commands are sent in the laser stop state.

1. Energy setting instruction

0x55	0xAA	Length (1B)	Data orientation (1B)	Energy Setting Command (1B)
Energy (1B)	verify (1B)	0x66	0xBB	

Description: <Energy Setting Instruction> 0x06.

<Energy> Range: 0-254 corresponds to 0.4-2V.

Example: Energy 200: 55 AA 09 01 06 C8 00 66 BB

2. Single light out instruction

0x55	0xAA	Length (1B)	Data orientation (1B)	Single shot laser command (1B)
Energy (1B)	verify (1B)	0x66	0xBB	

Description: <single light out command> 0x08.

<Energy> This version is not user changeable, please send 0xFF.

Example: 55 AA 09 01 08 FF 00 66 BB

3. Re-frequency light out instruction

0x55	0xAA	Length (1B)	Data orientation (1B)	Repeated laser commands (1B)
Frequency (1B)	verify(1B)	0x66	0xBB	

Description: <Refrequency out light command> 0x05;

<Frequency> Unit: 0.1Hz.

1HZ: 55 AA 09 01 05 0A 00 66 BB

10HZ: 55 AA 09 01 05 64 00 66 BB

4. External Trigger Output Command

0x55	0xAA	Length (1B)	Data orientation (1B)
Trigger the laser command (1B)	verify (1B)	0x66	0xBB

Description: <External trigger out light command> 0x07.

After successful setting, the laser works under the drive of external trigger signal.

Example: 55 AA 08 01 07 00 66 BB

5. Stop Output Command

0x55	0xAA	Length (1B)	Data orientation (1B)
Stop the laser command. (1B)	verify (1B)	0x66	0xBB

Explanation: <Stop light out command> 0x09.

Example: 55 AA 08 01 09 00 66 BB

II. System Status Read Instruction Set

The PC sends a <read system status instruction> to the microcontroller, which then returns <system status data> to the PC.

1. Read system status instruction

0x55	0xAA	Length (1B)	Data orientation (1B)
Read System Status Command (1B)	verify (1B)	0x66	0xBB

Description: <Read system status instruction> 0x0F;

Example: 55 AA 08 01 0F 00 66 BB

Return:

0x55	0xAA	0x55	0xAA
Read System Status Command (1B)	0x00	0x00	Error code (1B)
0x00	0x00	Temperature (2B)	0x00
Energies (1B)	Frequency (1B)	0x00 Stop 02 internal trigger 03 External trigger	0x00
0x00	0x00	0x00	0x00
0x00	Cumulative frequency (4B)	Verify (1B)	0x66
0xBB			

Description: <Read System Status Instruction> 0x0F;
 <Temperature> Returned temperature = actual temperature * 10 + 1000
 <Accumulation count> Unit (100 times).

III. Distance Measurement Instruction Set

1. Setting the selective distance instruction

0x55	0xAA	Length (1B)	Data orientation (1B)	Set strobe distance instruction (1B)
Gating distance (3B)	verify (1B)	0x66	0xBB	

Description: <Set strobe distance instruction> 0x1A;
 <Gate distance> Unit: 0.1 m;

2. Distance return instruction

0x55	0xAA	Length (1B)	Data orientation (1B)	Range return instruction (1B)
Number of targets (1B)	1st target distance (3B)	Second target distance (3B)	3rd target distance (3B)	Verification (1B)
0x66	0xBB			

Description:
 <Distance Return Direction> 0x0B;
 <Data direction> 0x02
 <selective distance> Unit: 0.1 meter;
 <Number of targets> Number of targets, up to 3 target values are returned for a single distance measurement;
 At the end of each measurement, it is automatically returned to the calculation by the monitoring system.