160mJ Laser Target Designator

Technical specification

SUK:LDR1064-160

This technical specification specifies the main functions, main technical indexes and other elements of LDR1064-160 laser photometer.

1. OVERVIEW

LDR1064-160 laser imager is composed of laser emission unit, laser receiving and ranging unit, laser driving source and control and communication unit.

2. MAIN FUNCTION

Laser ranging function;
Laser irradiation function;
Has photoelectric isolation signal trigger;
Have external trigger function.

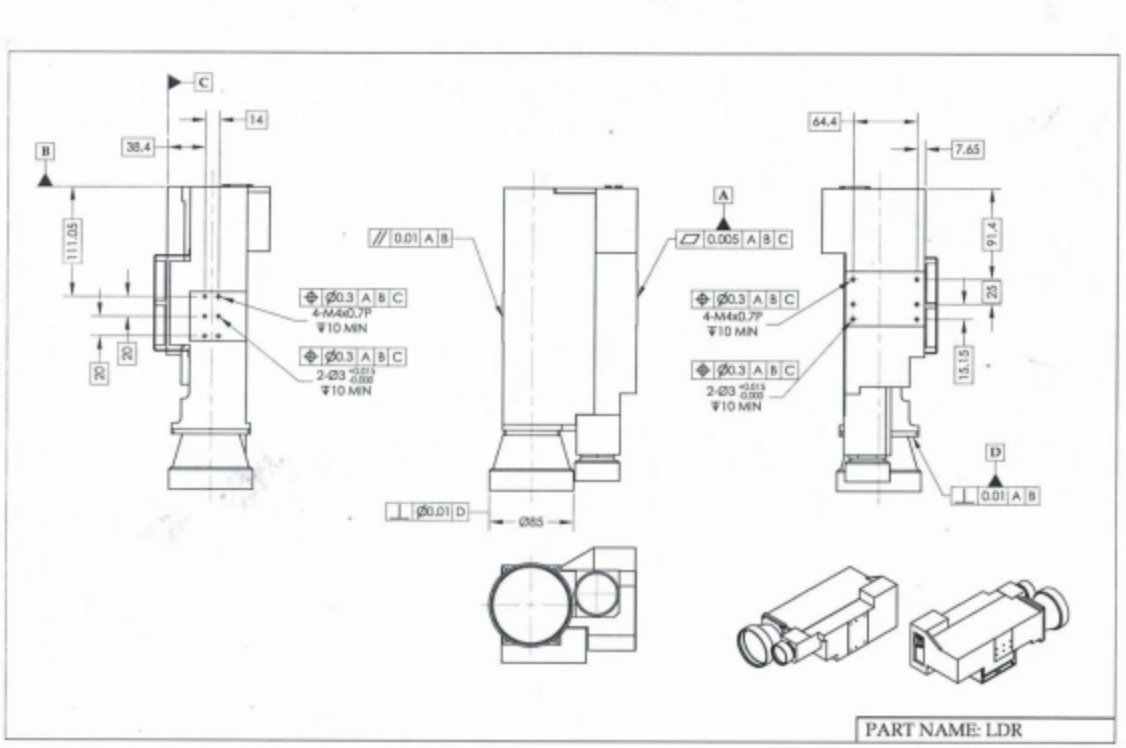
3. TECHNICAL SPECIFICATIONS

MAIN INDICATORS	
Working wavelength	1064nm
Laser irradiation energy	85mJ and 160mJ two gears can be switched
Light delay	304μs±1μs
Laser beam dispersion Angle	≤0.2mrad
Irradiation frequency	8 ~ 21Hz
Ranging frequency	10Hz
Laser pulse width	10ns ~15ns
Power stability	≤±8%
Ranging range	0.2m ~ 20km (target size 10 m x10 m x8 m, visibility 30km)

Ranging error	no more than 5 meters	
Target selection	first/second/end	
Accurate measurement rate	≥ 98%	
Startup time	1min (optional)	
Working time (suggested)	Ranging mode	Laser continuously working for 5min, rest for 4min, 10 consecutive cycles
	Irradiation mode	Irradiation time 120s, rest 60s, continuous 5 cycles
Full set weight	< 3.3kg	
TEMPERATURE		
Operating temperature	-40℃～+55℃	
Storage temperature	-40℃～+70℃	
HUMID HEAT		
Relative humidity	Relative humidity	
Temperature	+25℃±2℃	
Storage time	72h	
VIBRATION		
Vibration spectrum shape (grms=6.06)	20Hz to 80Hz	+3dB/oct
	80Hz to 350Hz	G2/0.04 Hz
	350Hz to 2000Hz	-3dB/oct
Vibration direction and time	Vibrate in one direction for at least 10min	
Control point	Should be selected in the fixture or shaking table surface near the maximum stiffness of the product, large equipment can use multi-point average control	
Monitoring point	The monitoring point should be selected in the key part of the product under test, so that the root mean square acceleration response does not exceed the maximum allowable design (grms=6.06)	
Installation requirements	The specimen is rigidly connected to the shaking table, and the product with shock absorber should remove the shock absorber for test	
Performance check	Power-on test during vibration, all performance indicators should meet the technical requirements specified in the design document.In case of failure, it is allowed to repair.When the acceptance test is carried out after repair, the spectrum value should be reduced to 0.01g2/Hz, grms=3.03, and the specimen should be vibrated in the direction most afraid of vibration for 10min	
TEMPERATURE RANGE		
Power-on test	-35±3℃～+52±2℃	
RATE OF TEMPERATURE CHANGE		
Temperature rise	10℃/min	
Cooling	10℃/min	
Cycle times	10 times, should ensure that the last 2 cycles without fault, if the fault occurs in the last 2 cycles, after repair, need to make up 2 trouble-free cycles	
Cycle time	One cycle time is 4h, one cycle includes temperature rise → temperature stay → cooling → temperature stay → temperature rise	
High and low temperature residence time	The residence time depends on the heat capacity of the specimen. Based on the principle of product thermal or cold permeability, the internal temperature of the specimen is maintained for 5min after reaching stability	
The requirements of the product under test	General temperature cycle test with the whole machine, should be as far as possible to open the cover	
Check and repair	Power test equipment, in each temperature cycle, after the test to confirm that the equipment is fault, can carry out the next temperature cycle	

Drenching requirements	Drenching is carried out with the whole equipment	
SPORTS CAR		
Sports car	Sports cars go with the whole device	
	If the product does not do road transport test, you can use the simulation transport table for indoor transport simulation test, that is, sinusoidal cyclic vibration test for product identification	
	The requirements of the simulated transport table test are as follows	
Test conditions	Frequency	5Hz ~ 200Hz
	Amplitude	5Hz ~ 7Hz
	Amplitude 12mm ~ 8mm	
	7Hz ~ 200Hz equal acceleration 1.5g	
	Vibration test condition allowable deviation is the same as broadband random vibration test	
	Direction	vertical axle direction and side
	Orientation	vertical and lateral to the axle
	Cycle time	log-scan 5Hz ~ 200Hz ~ 5Hz, 12min per cycle;When the resonant frequency of the specimen is measured below 5Hz, the test frequency can be extended to 2Hz, 2Hz ~ 200Hz ~ 2Hz scanning, scanning time should be 15min.The vibration time in each direction is 90min
	After transportation test, check whether there is damage and structural loosening phenomenon, carry out technical index inspection, should meet the design requirements.	
KEY PERFORMANCE INDICATORS		
Power supply and power consumption	Power supply range	20V ~ 33V, DC
	Power consumption	peak power is not more than 400W, standby power is not more than 60W (limit temperature). **1.5.2** Reliability
Reliability	MTBF is not less than 4000h	
Security	Set up a warning device for the laser to work	
	The exit of the laser transmitter is provided with obvious warning signs	
	The equipment is well grounded	
Maintainability	All major functional parts and equipment are set up fault indication and normal working indication	
	The average repair time MTTR is not more than 20min	
Electromagnetic compatibility requirements	In the system boot operation process, the equipment can be compatible with other equipment in the system, normal work	

4. MECHICAL INTERFACE



5. ELECTRICAL INTERFACE

5.1 Communication connector (socket model J30J-15ZKP, butt plug model J30J-15TJ) Pin definition

Pin number	Definition	Content	Type of signal	Remarks
1	TX+	RS422 Send positive (local)	Output	Object host computer
2	TX -	RS422 Send negative (local)	Output	Object host computer
3	RX+	RS422 Receive positive (local)	Input	Object upper computer
4	RX -	RS422 Receive negative (local)	Input	Object upper computer
5	GND	Ground RS422	Signal ground	Object upper computer
6				Manufacturer's debug special
7				Manufacturer's debug special
8				Manufacturer's debug special
9				Manufacturer's debug special
10				Manufacturer's debug special
11				Manufacturer's debug special
12				Manufacturer's debug special
13				Manufacturer's debug special
14		External time system +	Input	RS422 differential
15		Outer time Tong -	Input	RS422 differential

5.2 Power connector (plug type J30J02P020P000S0P120, plug type J30J02P020S000S0L000) Pin definition

Pin Number	Definition	Remarks
A	24V	The wire color is red
B	GND	The wire color is black