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LDM SERIES LASER SCAN MICROMETER OPERATION MANUAL

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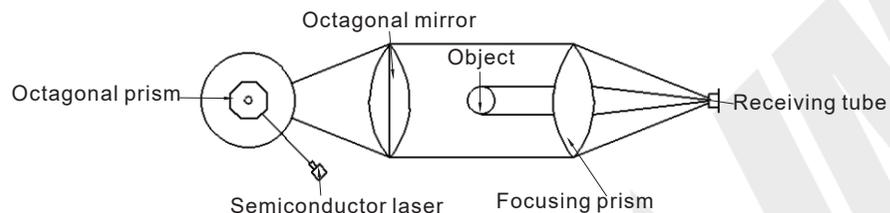
Attention



This product belongs to Class 2 laser products. Do not stare or observe the laser beam through optical instruments.

Principle

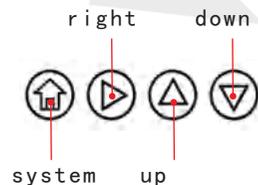
The laser beam is emitted by the semiconductor laser, and the octagonal prism is rotated at a high speed by the motor, and the laser beam is scanned and converted into parallel light through the octagonal mirror to pass through the test area. When the test area has the object to be tested, it blocks part of the parallel light to pass through. The focusing prism is converted to a low level on the receiving tube; and the parallel light that is not blocked by the object to be measured is converted into a high level. By calculating the scan time of the low level, the outer diameter value of the measured object in the scanning direction of the laser beam can be calculated.



Overview



measurement
high limit
standard
low limit
mode



System key:

1. In the normal display interface, press and hold for 3 seconds to enter the password interface of the system menu.
2. After entering the password, press to verify the password.
3. After setting the parameters, press and hold for 3 seconds to save and exit.

Right shift key:

1. Move the flashing bit when editing the parameters.
2. In the normal display interface, press and hold for 3 seconds to enter the tolerance setting interface.

up key:

- 1 Add the numbers.
- 2 In the normal display interface, long press to enter the single-point calibration interface (the shortcut key function needs to be turned on, and the option is set in F-KEY).

down key

- 1 Subtract the number.
- 2 In the normal display interface, long press to enter the quick calibration interface (the shortcut key function needs to be enabled, and the option is set in F-KEY).

Operation

1. Measurement mode selection

Press and hold the system button for 3 seconds, enter the password 0000220 by the right key and the up or down key, press the system key to switch to D-MODE, and then press the up key and down key to switch the measurement mode.

Select measurement mode:

- P0: dia (conventional diameter measurement)
- P1: flaw (fast bump alarm)
- P2: window (window diameter measurement)
- P3: pos (coordinates)
- P4: circle (true circle)
- P5: edge(run-out)
- P6: tool-d(maximum outer circle of tool rotation)
- P7: tool-r(blade edge jump)

2. Tolerance settings

Code table	Description
D-1	standard
H-1	high limit
L-1	low limit
D-2	bump standard
H-2	bump high limit
L-2	bump low limit
D-3	alternate
H-3	alternate
L-3	alternate
D-4	alternate
H-4	alternate
L-4	alternate

Example: A product with a diameter of 5 mm, the tolerance range is 0.01 mm.

Set D-1 to 5.000, H-1 to 0.0100, and L-1 to 0.0100.

Steps:

Press and hold the right button for 3 seconds, and the tolerance setting function is turned on. Use the system keys to switch between D----1, H----1, L--1, and so on. Use the right key, the up key and the down key to edit the value. Press and hold the system button for 3 seconds to save and exit.

4.3 correction settings

Press and hold the system button for 3 seconds, the SYSTEM:00000000 menu prompt will appear at the bottom of the screen, and the last digit will flash. Use the right shift key to move the flashing bit. Then press the up and down keys to enter the number. After editing the password 00000123, press the system key to confirm.

1. Observe the prompt shown below:

2. Press the system button continuously and the prompt will switch between

Off-1, Off-2, Off-3, Off-4.

3. When Off-1 is displayed below, the displayed value is the correction value.

4. Use the right key to move the flashing digit and select the number of digits to be modified.

5. Use the up and down keys to modify the flashing bits.

6. Press and hold the system button to save and exit.

Example: If the X axis shows a value of 5.0000

The correction value OFF-1 is set to -0.0100. Then the measured value of X is 4.9900 (5.0000-0.0100=4.9900).

The correction value OFF-1 is set to 0.0100. Then the measured value of X is 5.0100 (5.0000+0.0100=5.0100).

4.4 Quick correction

The F-KEY option in the system parameter (00000990) is selected to all-on: quick fix. Press and hold the system button for 3 seconds, edit the password 00000990, and press the system button to confirm. Use the system key to switch to the F-KEY option, the up and down keys to select the function all-on. Press and hold the system button for 3 seconds to save and exit.

The calibration gage must be placed first. Press and hold the down button for 3 seconds to enter the function. D0-off is displayed below (DX indicates the X axis). Use the right shift key, the up and down keys to edit the value to the diameter of the standard rod. Short press the system key to save and exit.

(long press to exit only)

4.5 single point calibration

The calibration rod must be placed first, then press and hold the up button for 3 seconds before releasing to enter the calibration interface. A similar typeface for L-000N is displayed at the bottom of the screen. Use the right key to move the flashing digit, the up and down keys to add or subtract the flashing digits, and modify this value to the value of the calibration stick. Short press the system key to save and exit (long press to exit only).

4.6 Wiring Instructions

1	2	3	4	5	6	7	8	9	10	11	12
24V	GND	ALARM1	ALARM2	RUN	DO	RESET	HO1D	A1	B1	A2	B2
white	purple	gray	red white	black white	green	yellow	orange	brown	black	blue	red

1. 24V2. GND is the power input for the optocoupler isolation of the instrument.

Note: When using the 3 – 8 function, the 1 and 2 pins must be connected to 24V and GND. Only 9 - 12 communication functions are used, no power is required.

3. ALARM1 4. ALARM2 is the out-of-tolerance alarm output

5. RUN output status of the instrument working state, high level running

6. The DO external device sends an instruction to the instrument through the Rs485 communication port. Control the instrument to output high and low

levels

Protocol:

Communication address +0XA4+0X00+ accumulation and +0X0D high level

Communication address +0XA4+0X00+ accumulation and +0X0D low level

7. RESET I/O input signal

8. HOLD I/O input signal

9. RS485 A1 10. RS485 B1 communication 1 port

11. RS485 A2 12. RS485 B2 communication 2 port

SPECIFICATION

Code	LDM-030	LDM-065
Measuring range	0.1~30mm	0.5~65mm
Resolution	0.01/0.1/1/10/100μm selectable	
Accuracy (at 25°C)	± (0.5+10%D)μm, D is measuring diameter in mm	
Repeatability (at 25°C)	(0.3+5%D)μm, D is measuring diameter in mm	
Laser wave length	650nm	
Measuring speed	800times/s	
Operation temperature	0~50°C	
Operation humidity	35~85RH without condensation	
Output	dual channel RS485	
Alarm output	24V, 1A	
Power supply	DC24V, 2A	
Dimension (LxWxH)	351×52×120mm	469×52×146mm
Weight	5kg	8kg

password	code table	description
00000123	OFF-1	set correction (range: ±0.05mm)
	OFF-2	alternate
	OFF-3	alternate
	OFF-4	alternate
00000220	OBJECT	normal:non transparent 1:trans:transparent
	M-AVE	average number: 1 8 16 32 64 128 256 512 1024 2048
	D-MODE	P0: dia P1: flaw P2: window P3: pos P4: circle P5: edge P6: tool-d P7: tool-r
00000312	DIA-DT	delay time (0 – 9999, unit: ms)
	ADR-1	Set the address of communication port 1 (1 - 247)
	BAUD-1	Port 1 baud rate: 4800 9600 19200 38400 57600 115200 256000
	ADR-2	Set the address of communication port 1 (1 - 247)
00000330	BAUD-2	Port 2 baud rate: 4800 9600 19200 38400 57600 256000
	S-MODE	Sampling mode:0:t-hold 1:a-hold 2:hold
	S-AVE	average number1 8 16 32 64 128 256
	S-DT	delay time (0 – 9999, unit: ms)
	S-T	Sampling time (range 100 – 50000, unit: ms)
	LAT-T	show time (range 100 – 50000, unit: ms)
	SEGSEL	edge 0:bottom 1:top
	AVESEL	average mode0:average on time 1:simple average
	TR_SEL	0:1 1:1/2
	RES	0:none
00000880	R-T	alarm time (range 0 – 50000, unit: ms)
	R-DT	delay alarm time (range 0 – 50000, unit: ms)
	D-R-T	bump alarm time (range 0 – 50000, unit: ms)
	D-I-T	bump alarm interval time (range 0 – 50000, unit: ms)
	F-MODE	0:tol 1:dia
00000990	UINT	0:um 1:mm
	RES	resolution: 0.1 0.01 0.001 0.0001 0.00001
	FIT-T	filtering time: (range 0 – 9999, unit: ms)
	F-KEY	hot key: 0:off 1:a-on 2:l-on 3:all-on
	DISP-L	0:English 1:Chinese
	MODBUS	0:normal