

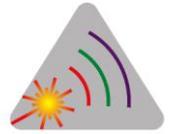
Datenblatt LaserMicrometer LM280S

Allgemeines:

- | | |
|---------------------------------|---|
| - Betriebsspannung: | 10V 26V |
| - Stromaufnahme @ 12V: | < 130 mA |
| - Ausgang OBJEKT_DETECT: | offener Collector, < 80 mA, aktiv LOW |
| - Schnittstelle: | RS232, TXD, RXD |
| - Laser: | 655nm Laserklasse 1M |
| - Gehäuse: | Aluminium, schwarz eloxiert, potentialfrei |
| - Gehäuseabmaße (L x B x H): | 178 mm x 86 mm x 21,6 mm (siehe Anhang `C´) |
| - Gewicht: | 310 |
| - Befestigung: | 5 Bohrungen, D = 3.2 mm |
| - Temperaturbereich in Betrieb: | 0°C 50°C |
| - Temperaturbereich lagernd: | -25° 75°C |

Messdaten: (Optik LYDIA)

- | | |
|-----------------------------------|--------------------|
| - Messbereich: | 0.2 mm 28 mm |
| - Auflösung: | 0.4375 µm |
| - Wiederholgenauigkeit Edge-Mode: | +/- 10 µm |
| - Wiederholgenauigkeit Dia-Mode: | +/- 10 µm |
| - Nichtlinearität Edge-Mode: | +/- 10 µm |
| - Nichtlinearität Dia-Mode: | +/- 10 µm |



- Reaktionszeit: < 1 ms
- Messrate: max. 1000 Messungen / s
- Mess - Modi: Edge-Mode, Dia-Mode (siehe Anhang `B´)

Serielle Schnittstelle:

- Anschlussstecker: 10-pol. Stiftleiste, RM 2.54, für IDC-Buchse
- Signale: RXD, TXD, GND
- Baudrate: 4800, 9600, 19200, 38400, 57600, 115200
wählbar über Codierschalter
- weitere Einstellungen: Datenbits: 8, Parity: ohne, Stopbits: 1,
Flusskontrolle: ohne

Codierschaltereinstellung:	Schalterstellung:	Baudrate:	0 4800 1 9600 2 19200 3 38400 4 57600 5 115200 6 E ungültig F Kalibration
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Nach Änderung der Schalterstellung muss das Gerät neu gestartet werden, damit die eingestellte Baudrate erkannt wird.

Steckerbelegung:

Pin	Signal	Bemerkungen
1	TXD-SENSOR	Ausgang RS232
2	RXD-SENSOR	Eingang RS232
3	OBJECT-DETECT	Ausgang, offener Kollektor, aktiv low
4	TRIGGER-IN	Eingang 0 / 5V, nicht aktiviert
5	n.c.	nicht angeschlossen
6	FRAME	ohne Funktion, Ausgang, offener Kollektor
7	+5V	Ausgang , 5V, nur für Service
8	n.c.	nicht angeschlossen
9	+UB	Betriebsspg. +10V ... 26V DC max. 200mA
10	GND	0V (GND)

!!! HINWEIS !!!

Die Filtergläser des Sensors dürfen nicht berührt werden. Kleinste Verunreinigungen, sowie Fingerabdrücke beeinträchtigen die Funktion.

Die Gläser evtl. mit Spiritus und einem weichen, fusselfreien Tuch rückstandsfrei reinigen.

Appendix `A` Command – List LaserMicrometer LM280S

DATA COMMAND

Hex: <0x1X>, where X specifies amount of requested consecutive datas.
 Sensor response: 2^x x DATA, multiple of 3bytes packet, min. 3 bytes.
 3 BYTE FORMAT: <HIGH BYTE> >LOW BYTE> >INFO BYTE>
 INFO BYTE FORMAT (8 bits): /OBJECT_IN/0/#AVG_VALID/0/0/M2/01/M0/
 OBJECT_IN bit: indicates presence of an Object
 #AVG_VALID: for higher stability sensor averages several readings, when
 measuring mode is changed, old reading in the buffer would make
 false result
 M2/M1/M0/: measuring mode, see MODEs table on next page

Example 1:

PC request: <0x10> // request for 1 data
 Sensor response: <0xA4> <0xB7> <82> // high byte, low byte, info byte
 //Data = 0xA4B7=42167, this is diameter in pixels
 //1 pixel = 0.4375 µm. Data (mm) = 42167*0.4375=18.448
 //Status byte: Object present, averaging is valid and mode=diameter

Example 2:

PC request: <0x14> // request for 16 consecutive data's
 Sensor response: Sixteen 3 bytes packet (for conversion see MODE command below)

DATA STREAM START

Hex: <0x21>, continuous DATA stream start, Sensor response: data stream of 3 bytes packets,
 see DATA command

DATA STREAM STOP

Hex: <0x20>, continuous DATA stream stop, Sensor response: no response

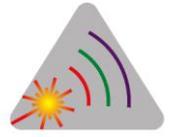
MODE command

Hex: <0x3X>, where X specifies the measurement mode.
 Sensor response (1 byte): <0x3X> //echo back
 This parameter is not stored in the sensor after power OFF. It needs to be set after power ON event.

X	0000b	0001b	0010b
Mode	Edge 1	Edge 2	Dia

Table 2: Mode Table

See also Appendix `B` for more information on the various measurement modes.



FIRMWARE command

Hex: <0xF0> reads firmware version, Sensor response: two bytes

LASER ON/OFF command

Hex: <0x91> for Laser ON, <0x90> for Laser OFF, Sensor response: command echo

UNLOCK command

Hex: <0xFE1F9E0>, this command unlocks service commands reserved for skilled user only.
Sensor response (1 byte): <E0>, signal, average, EEPROM access

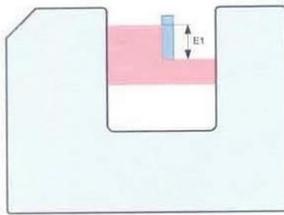
READ RAW DATA command (unlock required)

Hex: <0xD0>, this command reads light intensity profile of CMOS image sensor.
Sensor response: 2137 bytes (2048 bytes image data + other information)

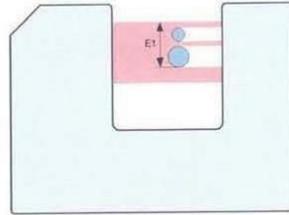
READ THRESHOLD command (unlock required)

Hex: <0xD1>, this command reads threshold data.
Sensor response: 2137 bytes

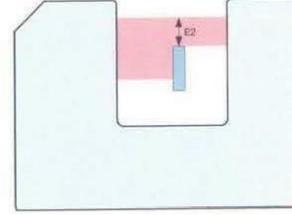
Anhang `B` Mess - Modi LaserMicrometer LM280S



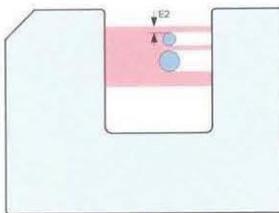
EDGE1 - MODE
LEADING EDGE



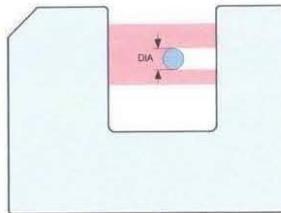
EDGE1 - MODE
MULTIPLE OBJECTS



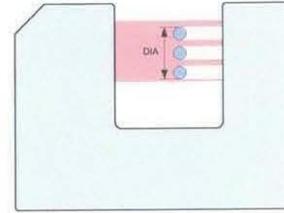
EDGE2 - MODE
TRAILING EDGE



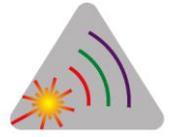
EDGE2 - MODE
MULTIPLE OBJECTS



DIA - MODE



DIA - MODE
MULTIPLE OBJECTS



Anhang `C` Befestigung / Abmaße LaserMicrometer LM280S

