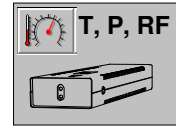


Specification / Operating Conditions

Technical Specification of ZLM

Mean wavelength of He-Ne laser in vacuum	632.8nm
Wavelength stability	$8 \cdot 10^{-9}$ for 2 hours, $2 \cdot 10^{-8}$ for lifetime
Beam diameter	6mm
Max. output power of emerging expanded beam	1mW
Carrier frequency	640MHz / Intermediate frequency 2.56GHz
Number of measuring axes per laser ZLM 700 ZLM 800	1 4 (further axes possible)
Resolution distance measurement Cube corner interferometer Plane mirror interferometer	2.5nm 1.25nm
Measuring distance	≤40m, optionally till 120m
Angle measurement with angle interferometer Resolution Angular range	$1.25 \cdot 10^{-7}$ rad ±8° till 20m distance
Angle meas. with straightness interferometer Resolution Angular range	$3.3 \cdot 10^{-7}$ rad ±15° till 10m distance
Resolution straightness measurement 2m - Option 10m - Option	29nm 145nm
Measuring range straightness measurement	±5mm
Measuring velocity	≤ 4m/s, optionally 12m/s translatory ≤ 320rad/s rotatory
Nonlinearly	±0.625nm (2.5nm resolution) ±0.312nm (1.25nm resolution)
Interfaces ZLM 700 / 800	32bit realtime counter signals (15ns) AQB counter input for e.g.. Heidenhain-scales (20 MHz) AQB counter output for Motion control (10 MHz) 16 x 12 bit ADC - input External Trigger in / Trigger out External to-zero fill
ZLM 800 Evaluation unit	19" – 3HE system for 1 till 4 axes cPCI – back plane for 8 slots CPCIC/PXI processor Pentium III 850 MHz
ZLM 800 Interfaces of Evaluation unit	for keyboard, mouse, monitor Ethernet, LAN, USB1/2, RS232, IEEE488 opt. External disk drive
Operating conditions	15° C till 30° C



Specification / Operating Conditions

Operating Conditions

The ZLM 700 / 800 is built for use both in rough industrial environments. The optical moduls are suitable for high vacuum. The measurement and reference signals are conducted via fibre-optic cables from the interferometer optics to the electronic signal processing unit, so that the signals cannot be disturbed by ambient electromagnetic influences.

For a safe operation of the device and the obtainment of fault-free measurement results have to be taken into account:

- The laser head needs a warm-up time of 10 - 15 minutes for wavelength stabilization
- LED of the laser measuring head

Red		Laser is still unstable
Green		Laser is operating stably

- the correct connection of the fibre optics cables

Mess	↔	Mess
Ref	↔	Ref

- Keep optical end surfaces of fibre-optic cables and the glass surfaces of the optical moduls clean!
- The beam path must be well aligned with the mechanical measuring axis.



Check position of optical axis via menu item

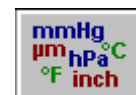
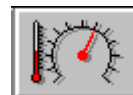


Important

Covering: The same position of measuring- and reference beam in the quadrant field
(importantly for perfect interference signal)

- LED of AE 700
AE 800 (1 LED per axis)

Red	evaluation of the light signals NOT possible
Green	Interference signal sufficing



- enter the correct environmental data via menu items
- no interruption of the beam path during the measuring operation