

METROLOGY RESOURCE CO

FREQUENTLY ASKED QUESTIONS

What kinds of target surfaces are suitable for distance measurements?

All opaque target surfaces can be measured. Reliable measurements on transparent targets are not possible.

Does dust influence the measuring process?

If dust overcasts the main part of the laser beam, then there is a negative influence on the measurement. The extent of the attenuation will depend on the dust concentration. In an extremely dusty environment like a cement hopper measurements could be difficult due to the reflection of the laser beam.

How is the measurement rate influenced?

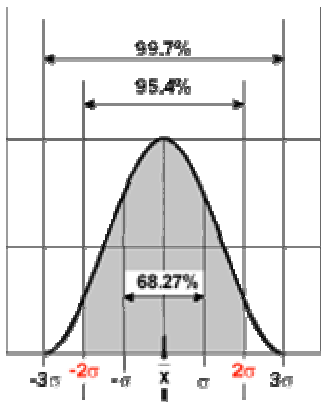
The measurement rate is influenced by the target. If the laser light is well reflected by the target, fast measurement rates can be achieved (up to 0.15s in tracking mode).

Is it possible to measure to a moving target?

Yes it is possible depending on the speed of the target. The measured distance is the mean value between the distance at start and end of the measuring process.

What is the Measuring Accuracy?

The measuring accuracy corresponds to the ISO-recommendation ISO/R 1938-1971 with a statistical confidence level of 95% (i.e. \pm twice the standard deviation- please see diagram below). The typical measuring accuracy relates to average conditions and is $\pm 1.5\text{mm}$ for the MRL2- 15 and $\pm 3.0\text{mm}$ for the MRL2 30. This is valid for the tracking mode.



The maximum measuring error relates to unfavorable conditions such as:

- highly-reflecting surfaces (e.g. reflector tapes)
- operating at the limits of the permitted temperature range, adaptation to ambient temperature interrupted
- very bright ambient conditions, strong heat shimmer

The maximum measuring error can be up to ± 2 mm for the MRL2 15 and ± 5 mm for the MRL2 30. The MRL-2 devices do not compensate for changes in the environment conditions. If the environment conditions are much different from 20°C, 60% relative humidity and 953mbar air pressure, the accuracy may be influenced if measuring distances are longer than 150m.

The effects caused by environmental conditions are described in:

B.Edlen: "The Refractive Index of Air, Metrologia 2", 71-80 (1966)

Is the Laser Light eye safe?

Class II lasers are low power ($< 1\text{mW}$), visible light lasers that could, in certain circumstances possibly cause damage to a person's eyes. Some examples of Class II laser uses are: classroom laser pointers, aiming devices and range finding equipment. If class II Laser beams are directly viewed for long periods of time (i.e. > 15 minutes) damage to the eyes could result. Avoid looking into a Class II Laser beam or pointing a Class II laser beam into another person's eyes. Avoid viewing Class II laser beams with telescopic devices. Usually the bright light of a Class II Laser beam into a person's eyes will cause the normal reaction of looking away or closing of the eyes. This response is normal and protects a person from Class II Laser damage to the eyes.