

Technical Data

The imaging 3D laser measurement systems are applicable in the fields of digital planning of factories, industrial plants, architecture, protection of historic monuments, landscape and virtual reality. They are based upon the Z+F spot Laser Measurement System LARA.



| Lasersystem | | | |
|---|--------------------------------------|------------|-------------|
| Laser safety class | 3R (ISO EN 60825-1) | | |
| Beam divergence | 0.22 mrad | | |
| Beam diameter | 3 mm circular (1 m distance) | | |
| Ambiguity interval | 79 m | | |
| Min. range | 0.4 m | | |
| Resolution range | 0.1 mm | | |
| Data acquisition rate | ≤ 1,016,027 pixel/sec | | |
| Linearity error up to 50 m ¹ | ≤ 1 mm | | |
| Range noise | black 10 % | grey 20 % | white 100 % |
| Range noise, 10 m ^{1,2} | 1.2 mm rms | 0.7 mm rms | 0.4 mm rms |
| Range noise, 25 m ^{1,2} | 2.6 mm rms | 1.5 mm rms | 0.7 mm rms |
| Range noise, 50 m ^{1,2} | 6.8 mm rms | 3.5 mm rms | 1.8 mm rms |
| Temperature drift (-10°C to -45°C) | negligible due to internal reference | | |



| Deflection Unit | |
|----------------------------------|-----------------------------|
| System vertical | rotating mirror |
| System horizontal | rotating device |
| Field of view vertical | 310° |
| Field of view horizontal | 360° |
| Resolution vertical | 0.0018° |
| Resolution horizontal | 0.0018° |
| Accuracy vertical ¹ | 0.007° rms |
| Accuracy horizontal ¹ | 0.007° rms |
| Scanning speed | ≤ 50 r/s (3,000 r/min) max. |

| Resolution | Pixel/360° horizontal & vertical | Scanning time | | |
|---------------------------|-------------------------------------|---------------|----------------|---------------------------|
| | | low quality | normal quality | high quality ⁵ |
| Resolutions | | 50 rps | 25 rps | 12,5 rps |
| „preview“ ³ | 1,250 | 13 sec. | 25 sec. | 50 sec. |
| „middle“ | 5,000 | 50 sec. | 1:40 min. | 3:20 min. |
| „high“ | 10,000 | 1:41 min. | 3:22 min. | 6:44 min. |
| „super high“ | 20,000 | 3:22 min. | 6:44 min. | 13:28 min. |
| „ultra high“ ⁴ | 40.000 | - | 13:38 min. | 26:36 min. |

Z+F IMAGER® 5006h

| General | |
|----------------------------|---|
| Tilt measurement | Resolution: 1/1,000° Accuracy (zero point): 1/500° |
| Communication | Ethernet/W-LAN |
| Data storage | internal HDD (60 GB) |
| Integrated operation panel | > Keypad: 6 Buttons ; > Display: 4 Lines |
| Data interface | Ethernet/USB 2.0 |

| Power supply | |
|-------------------|---|
| Input voltage | 24V DC (scanner) / 90-260V AC (power unit) |
| Power consumption | 65 W max. |
| Battery life time | 2.5 h typ. (changeable battery pack) 4 h (external battery (TRAPP - 15 - 24) |

| Ambient conditions | |
|-----------------------------|--|
| Calibrated temperature | -10 °C to +45 °C |
| Storage temperature | -20 °C to 50 °C |
| Illumination | all conditions from darkness to daylight |
| Humidity; Dust/air humidity | non-condensing |
| Target reflectivity | no retro-reflectors |

| Dimensions and weights | |
|--------------------------------------|------------------------|
| Scanner: (w x d x h) | 286 x 190 x 412 mm |
| Weight | 14 kg |
| Bottom of scanner to horizontal axis | 242 mm |
| Tripod: | |
| Height | approx. 800 - 1,400 mm |
| Diameter | approx. 1,200 mm |
| Weight | 9 kg |



1. detailed explanation on request – please contact info@zf-laser.com
2. data-rate of 127 000 pxl / sec., 1 sigma range noise, unfiltered raw data, in high power mode
3. not recommended for exact measurements, should only be used as an overview
4. only recommended for selection scans, as the data will be too large for further post processing.
Resolution of 100,000 pxl/360° for selections
5. Doubling ("less quality") and halving ("high quality") of the data rate (pixels / sec), increases the range noise on each pixel theoretically by 40% ("less quality") or decreased it by 40% ("high quality") in comparison the "normal quality". Related to the roughness of the measured surface, the difference in reality can be less, especially when scanning objects with bright surfaces in short distances, e.g. indoor.