

Technical Data

Compact high-speed phase-based laser scanner with great precision, range and spherical field of view. Unique stand-alone concept with integrated battery and color display with touch screen. Built-in dual-axis compensator and laser plummet.



Laser system			
Laser class	1		
Beam divergence	< 0.3 mrad		
Beam diameter	approx. 3.5 mm (at 0.1 m distance)		
Range	187.3 m (unambiguity interval)		
Minimum distance	0.3 m		
Resolution range	0.1 mm		
Data acquisition rate	Max. 1.016 million pixel/sec.		
Linearity error ¹	≤ 1 mm		
Range noise	black 14 %	grey 37 %	white 80 %
Range noise, 10 m ^{1 2}	0.4 mm rms	0.3 mm rms	0.2 mm rms
Range noise, 25 m ^{1 2}	0.6 mm rms	0.4 mm rms	0.3 mm rms
Range noise, 50 m ^{1 2}	2.2 mm rms	0.8 mm rms	0.5 mm rms
Range noise, 100 m ^{1 2 3}	10 mm rms	3.3 mm rms	1.6 mm rms
Temperature drift	negligible		



Deflection unit	
Vertical system	completely encapsulated rotating mirror
Horizontal system	device rotates about its vertical axis
Vertical field of view	320°
Horizontal field of view	360°
Vertical resolution	0.0004°
Horizontal resolution	0.0002°
Vertical accuracy ¹	0.007° rms
Horizontal accuracy ¹	0.007° rms
Rotation speed	max. 50 rps (3,000 rpm)



Deflection unit	pixel/360° horizontal & vertical	Scan duration			
		less quality ⁶	normal quality ⁶	high quality ⁶	premium quality ⁶
Angle resolution					
"preview" ⁴	1,250	---	0:26 min	---	---
"low"	2,500	0:26 min	0:52 min	1:44 min	---
"middle"	5,000	0:52 min	1:44 min	3:22 min	6:44 min
"high"	10,000	1:44 min	3:22 min	6:44 min	13:28 min
"super high"	20,000	3:28 min	6:44 min	13:28 min	26:56 min
"ultra high" ⁵	40,000	---	13:28 min	26:56 min	53:20 min
"extremely high" ⁵	100,000	---	81:00 min	162:00 min	---

Z+F IMAGER® 5010C

Miscellaneous	
Dual-axis compensator	resolution: 0.001° measurement range: +/- 0.5° accuracy: < 0.007° selectable on/off
Laser plummet	laser class: 2 accuracy of plummet: 0.5 mm/1m laser point diameter: < 1.5 mm at 1.5 m
Levelling display	electronic level in onboard display and LRC
Communication	1GB Ethernet/W-LAN
Data storage	internal 64 GB flash card, 2 x 32 GB USB external flash drive
Data transmission	Ethernet or USB 2.0
Integrated control panel	touch screen with colour display
Interfaces	2 x USB, LEMO 9-pin und LEMO 7-pin connections for and external sensors like GPS, odometer, etc.

Power supply	
Input voltage	24 V DC (scanner) ; 100 – 240 V AC (power unit)
Power consumption	< 65 W (on average)
Operating time	> 3 h (internal battery)

Ambient conditions	
Operating temperature	-10 °C ... +45 °C
Storage temperature	-20 °C ... +50 °C
Lighting conditions	operational in all conditions, from sunlight to darkness
Humidity	non-condensing
Protection class	IP 53

Dimensions and weights	
Scanner	
Dimensions (w x d x h)	170 x 286 x 395 mm
Weight	9.8 kg
Battery	
Dimensions (w x d x h)	170 x 88 x 61 mm
Weight	1.2 kg
AC power unit	
Dimensions	35 x 67 x 167 mm
Weight	0.54 kg

HDR camera	
focus area	1 m - ∞
panorama compilation	
image count for panorama	42
recording time (depend on the environment exposure)	ca. 3:30 min.
panorama resolution	ca. 80 MPixel



1. Detailed explanation on request – please contact info@zf-laser.com
2. Data rate 127,000 pixel/sec (equivalent to "high resolution / high quality" scan), 1 Sigma range noise, unfiltered raw data, in high power mode
3. Not tested durch production
4. Resolution not recommended for exact measurements, only for positioning higher resolution scan selections!
5. Only recommended for scan selections because of the enormous amount of data
6. Doubling ("less quality") or halving ("high quality") the data rate (pixel/sec) theoretically increases the range noise on each pixel by 40% ("less quality") or decreases it by 40% ("high quality"), compared to "normal quality". Depending on the roughness of the surveyed surface, in the field this difference might result less, especially when scanning objects with a bright surface at short distances, e.g. indoors.