Z+F IMAGER® 5010

The Z+F IMAGER® 5010 is a compact high-speed phase-based laser scanner with great precision, range and spherical field of view. The scanner has a unique stand-alone concept with integrated battery and color display with touch screen. A built-in dual-axis compensator and laser plummet are forming a compact unit for field survey.

Laser system			
Laser class	1		
Beam divergence	< 0.3 mrad (fullangle)		
Beam diameter	approx. 3.5 mm @ 1 m		
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]	0.5 mm rms	0.4 mm rms	0.3 mm rms
Range noise, 25 m [1 2]	1.0 mm rms	0.6 mm rms	0.5 mm rms
Range noise, 50 m [1 2]	2.7 mm rms	1.2 mm rms	0.8 mm rms
Range noise, 100 m [1 2 3]	10 mm rms	3.8 mm rms	2.0 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)

Resolution					
		Scan duration			
Angle resolution	pixel/360° horizontal & vertical	less quality [6]	normal quality [6]	high quality [6]	premium quality [6]
“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	---

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. All values extrapolated
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.

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Miscellaneous		
Dual-axis compensator	resolution: 0.001° measurement range: +/- 0.5° accuracy: < 0.007° selectable on/off	The Dynamic Compensator will correct angular tilt for each pixel during scan acquisition.
Laser plummet	laser class: 2 accuracy of plummet: 0.5 mm/1 m laser point diameter: < 1.5 mm at 1.5 m	
Levelling display	electronic level in onboard display and LRC	
Communication	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	5.7" touch screen, colour display for browsing scan data and colour pictures, with measuring and navigation functions	
Interfaces	2 x USB, LEMO 9-pin und LEMO 7-pin connections for M-Cam and external sensors e.g. GPS, odometer, etc.	

Power supply	
Input voltage	24 V DC (scanner) 100 – 240 V AC / 12-24 V DC (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 bright sunlight to pitch darkness
Humidity	non-condensing
Protection class	IP 53

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