



Z+F IMAGER® 5016

Scan Positioning System	
Task	The scan positioning system estimates the position and the orientation of the scanner for automatic in-field registration (Z+F LaserControl® Scout)
Integrated sensors	Barometer
	Acceleration sensor
	Gyroscope
	Compass
	GPS

GPS	
Receiver	L1 (1,575.42 MHz), 56 channels
Horizontal position accuracy	2.5 m (autonomous) / 2.0 m (SBAS) / < 1.0 m (PPP with WAAS)

The Z+F IMAGER® 5016 and Z+F LaserControl® Scout supports the Blue Workflow®:

- Automatic real-time registration
- Check data quality
- Check target quality
- Find & fill gaps with more scans

System Requirements of Z+F LaserControl® Scout

Minimum System Requirements	Recommended System Requirements
Windows 8.1 (64 Bit)	Windows 8.1 (64 Bit)
Intel i5 CPU	Intel i7 CPU
128 GB SSD	512 GB SSD
8 GB RAM	8 GB RAM
10" Full HD	12" Full HD
	Dualband-WLAN

1. Detailed explanation on request – please contact info@zf-laser.com
 2. Data rate 136,719 pixel/sec (equivalent to "High Resolution / high quality" setting), 1 Sigma range noise, unfiltered raw data
 3. Not fully production tested, only verified for a small number of specimens.
 4. Not intended for surveying purposes! To be used only for preview / selection scan definition.
 5. Huge amounts of data will be generated! Recommended for high resolution, small area selection scans only.
 6. Choosing the next higher quality setting will double scanning time and reduce range noise by a factor of 1.4.



How we build reality



Z+F IMAGER® 5016
Datasheet

Reaching new levels
www.zf-laser.com





The Z+F IMAGER® 5016 combines compact and lightweight design with state-of-the-art laser scanning technology - allowing the user to reach new levels. The scanner comes with an integrated HDR camera with LED spot light as well as a positioning system for automatic real-time registration in the field.

Laser system			
Laser class	1		
Beam diameter / divergence	~ 3.5 mm @ 1m / ~ 0.3 mrad (1/e ² , half angle)		
Measurement Range	0.3 m ... 365 m (ambiguity interval)		
Range resolution	0.1 mm		
Data acquisition rate	Max. 1.1 million pixel/sec. (adjustable)		
Linearity error ¹	≤ 1 mm + 10 ppm/m		
Range noise	black 14 %	grey 37 %	white 80 %
Range noise, 10 m ^{1,2}	0.30 mm rms	0.25 mm rms	0.20 mm rms
Range noise, 25 m ^{1,2}	0.39 mm rms	0.28 mm rms	0.25 mm rms
Range noise, 50 m ^{1,2}	0.8 mm rms	0.5 mm rms	0.3 mm rms
Range noise, 100 m ^{1,2,3}	2.6 mm rms	1.1 mm rms	0.7 mm rms
Range noise, 200 m ^{1,2,3}	9.6 mm rms	3.6 mm rms	1.7 mm rms
Temperature drift	negligible		

Deflection unit	
Deflection system	completely encapsulated rotating mirror with integrated HDR camera and LED spots
Vertical field of view	320°
Horizontal field of view	360°
Angular resolution, vertically	0.00026° (0.93 arcsec)
Angular resolution, horizontally	0.00018° (0.65 arcsec)
Vertical accuracy ¹	0.004° (14.4 arcsec) rms
Horizontal accuracy ¹	0.004° (14.4 arcsec) rms
Rotation speed	max. 55 rps (3,280 rpm), selectable

Resolution					
Angle resolution	pixel/360° horizontal & vertical	Scan duration			
		"less quality" ⁶	"normal quality" ⁶	"high quality" ⁶	"premium quality" ⁶
"preview" ⁴	1,250	---	0:22 min	---	---
"low"	2,500	0:22 min	0:45min	1:31 min	---
"middle"	5,000	0:45 min	1:31 min	3:03 min	6:06 min
"high"	10,000	1:31 min	3:03 min	6:06 min	12:13 min
"super high"	20,000	3:03 min	6:06 min	12:13 min	24:26 min
"ultra high" ⁵	40,000	---	12:13 min	24:26 min	48:57 min
"extremely high" ⁵	80,000	---	---	48:57 min	122:22 min

Miscellaneous		
Dynamic Compensator	resolution: 0.001° measurement range: +/- 0.5° accuracy: < 0.004° 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/1m laser spot diameter: < 1.5 mm at 1.5 m	
Levelling display	electronic level in onboard display and Z+F LaserControl® Scout	
WiFi link	802.11 a/n/g standard, dual band, up to 240 Mbits/s	
Ethernet link	1GB ethernet (scanner socket)	
Data storage	128 GB SATA (internal, additional 128 GB SD card)	
Integrated control panel	5.7" touch screen, multi-touch color display for device control, browsing scan data and color images, data measuring / navigation features implemented	
Interfaces	Micro D-Sub connector for additional accessories (PPS pulse, odometer, line sync, etc.).	

Power supply	
Input voltage	24 V DC (scanner); 100 – 240 V AC / 12 - 24 V DC (power unit)
Power consumption	≤ 45 W (scanning) / ≤ 75 W (scanning and battery charging)
Operating time	ca. 5 h (high / normal scans)

Ambient conditions	
Operating temperature	-10 °C ... +45 °C
Storage temperature	-20 °C ... +50 °C
Lighting conditions	independent of lighting conditions usable
Humidity	non-condensing
Protection class	IP 54

Dimensions and weights	
Scanner	
Dimensions (w x d x h)	150 x 258 x 328 mm
Weight	6.5 kg
Two Batteries, each	
Dimensions (w x d x h)	150 x 80 x 45 mm
Weight	0.5 kg
AC power unit	
Dimensions	35 x 67 x 167 mm
Weight	0.54 kg

HDR camera	
Focus area	1 m - ∞
Recording time	ca. 4:00 min (5 - 11 exposures) ca. 2:30 min (fast mode: min. 2 exposures)
Panorama resolution	ca. 80 MPixel / others optional
Illumination System	integrated LED spotlights, 700 lm