HDR camera	
Type	HDR, automatic, up to 11 exposures
Recording time	approx. 2 min, parallax free
Focus area	1m - ∞
Panorama resolution	ca. 80 MPixel
Illumination system	integrated LED spotlights, 700 lm

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	Altimeter
	Inertial Measurment Unit (IMU)
	Compass
	GNSS (GPS, GLONASS, Galileo, Beidou)

Workflow	
Blue Workflow[7]	Real-time registration on-site Data and target verification Multi-scanner support
Office Link[7]	Data synchronisation between office and field Report and comment functions Annotation tools
Dual Scan	For automatic removal of dynamic objects
Additional modes	Traverse, 1-Target Orientation
Profiler Mode	For mobile mapping support

System Requirements of Z+F LaserControl® Scout

Minimum System Requirements	Recommended System Requirements
Windows 10 (64 Bit)	Windows 10 (64 Bit)
Intel i5 CPU	Intel i7 CPU
128 GB SSD	512 GB SSD
8 GB RAM	32 GB RAM
10“ Full HD	12“ Full HD
WLAN	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.
7. Using Z+F LaserControl® Scout

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Zoller+Fröhlich

Z+F IMAGER® 5016A
Datasheet

Reaching new levels

www.zf-laser.com

Z+F IMAGER® 5016A

The Z+F IMAGER® 5016A 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/e², half angle)		
Measurement range	0.3 m ... 365 m (ambiguity interval)		
Range resolution	0.1 mm		
Data acquisition rate	Max. 2.187 million pixel/sec.		
Linearity error [1]	≤ 1 mm + 10 ppm/m		
Range noise	black 14 %	grey 37 %	white 80 %
- at 10 m [1 2]	0.30 mm rms	0.25 mm rms	0.20 mm rms
- at 25 m [1 2]	0.39 mm rms	0.28 mm rms	0.25 mm rms
- at 50 m [1 2]	0.8 mm rms	0.5 mm rms	0.3 mm rms
- at 100 m [1 2 3]	2.6 mm rms	1.1 mm rms	0.7 mm rms
- at 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, vertical	0.00026° (0.93″)
Angular resolution, horizontal	0.00018° (0.65″)
Vertical accuracy [1]	0.004° (14.4″) rms
Horizontal accuracy [1]	0.004° (14.4″) rms
Rotation speed	max. 55 rps (3,280 rpm)

Resolution					
		Scan duration			
Angle resolution	pixel/360° horizontal & vertical	“speed+“ [6]	“balanced“ [6]	“quality+“ [6]	“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	6:57 min	12:13 min	24:26 min	48:57 min
“extremely high“ [5]	100,000	---	38:16 min	76:22 min	152:30 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.
Inertial measurement unit IMU	Measuring range: +/- 180° Accuracy: < 0.06°	Used for static tilt measurement, if the measuring range of the compensator is exceeded.
Levelling display	electronic level in onboard display and Z+F LaserControl® Scout	
Laser plummet	laser class: 2 accuracy of plummet: 0.5 mm/1m laser spot diameter: < 1.5 mm at 1.5 m	
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
Humidity	non-condensing
Protection class	IP 54

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