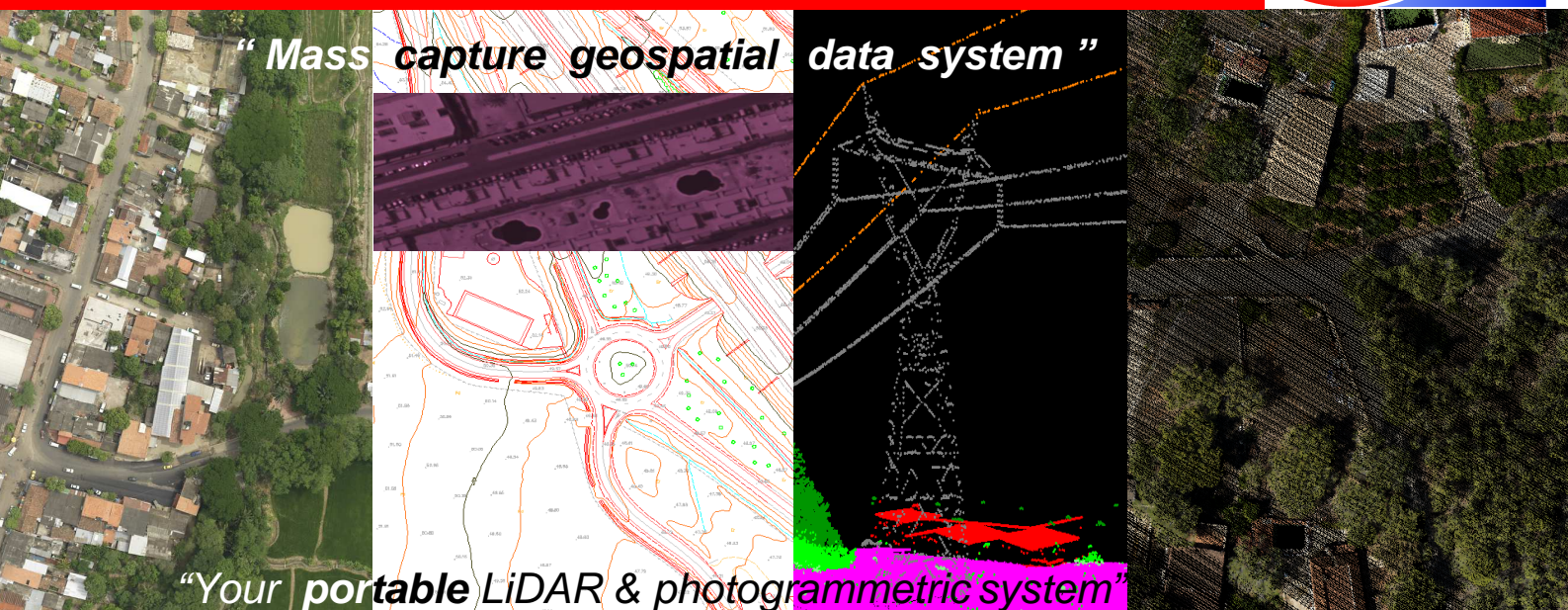


AeSystem VQ480i-PhO80Mp

AEROLASER
system



AePod - Sensor box for helicopters



AePod specially designed for helicopter air missions.

AePod able to integrate a laser, AeCU, GNSS, IMU and RGB/NIR cameras.

AePod built in carbon fiber and Kevlar, extremely lightweight and durable. Easy access for sensors installation.

AePod small dimensions 65x44x35 cm and 8.8 kg.

AePod ready to be installed with STC for Hughes, Eurocopter, R44 and Bell helicopters.

AeSystem VQ480i-PhO80Mp, can also be installed on aircraft with hole in the belly. The low power consumption (120 watt nominal maximum consumption) system allows us to connect to the auxiliary port of the aircraft, without making any modifications. All the complete system weights 35 kg, including AePC and all sensors. This allows to minimize possible risks of any aeronautical mission.

AeSystem VQ480i-PhO80Mp

AeSystem allows integration of multiple and various sensors, all managed from our control unit and using the inertial system developed by Aerolaser. We provide a product tailored to your needs. This system allows you to perform:



- Inertial photogrammetric flights.
- LiDAR flights.
- Simultaneous LiDAR&photogrammetric flights.
- High resolution RGB and NIR ortophotos.
- Oblique LiDAR&photogrammetric flights.
- Corridor Mapping.
- Power Line Inspection.
- Cultural Heritage Mapping.

"AeROLASER SYSTEM is official integrator, developer and dealer of Riegl and Phase One"

www.aerolaser.es

MAKE THINGS EASY ...





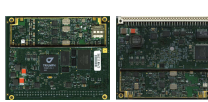
AeSystem VQ480i-PhO80Mp

COMPONENTS of AeSystem VQ480i-PhO80Mp



AeCu20 – Aerolaser Control Unit

AeCu20 generates direct georeferencing of different data obtained by several sensors.
AeCu20 Integrates JAVAD GNSS sensors, may have simple, double or quadruple GNSS sensor card.
AeCu20 has and internal clock with nanosecond precision allowing time stamped data acquisition for several sensors.
AeCu20 captures IMU data and can control up to five high resolution cameras.
AeCu20 is controlled from the AeMission application integrated in the AePC computer.
Simplicity. High precision timing. Data from the various sensors is transferred to the AePC and are stored on SSD solid state drives. Compact and lightweight LEMO connectors are used.
Flexible and scalable. JAVAD GNSS sensor, IMAR Inertial sensor, PHASE ONE RGB and NIR cameras up to 80 Megapixel, Laser RIEGL, LEICA, Z+F, FARO, VELODYNE, and SICK Laser scanner. GEOACOUSTICS Multibeam echosounder, odometer.
Functionality and versatility. Air, terrestrial and marine missions.

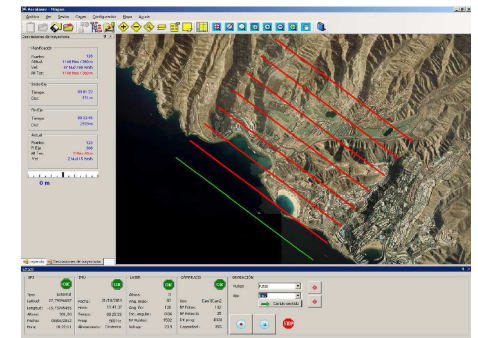


AePC – Aerolaser PC

AePC ruggedized aluminum, prepared to operate in hard conditions.
AePC is fed directly to the aircraft power supply, 12 or 24 volts.
AePC feeds to all the used sensors in the mission, thus eliminating converters and extra wiring.
AePC secure lemo type connections or similar.
AePC solid state discs, eliminating storage errors generated by vibration.
AePC with only 3 kg weight and 32.5 x 26.5 x 10.2 cm.

AeMission – Flight Application

AeMISSION Interacts with AeCu20.
AeMISSION Control all sensors, configuration, error detection, parameter display and collection. Panel with map and axes of flight information to the pilot and the operator



iIMU-FSAS [-E]

IMU with Odometer Interface and Integrated Power Regulation

The iIMU-FSAS is a very small size IMU consisting of 3 fiber optical gyros (FOG) in closed-loop technology of class 0.75 deg/hr and 3 servo-accelerometers of class 1 mg. It is available as triggered and free-running version.

- class 0.75 deg/hr / 1 mg / 400 Hz
- odometer interface and integrated stabilized power conditioning
- higher MTBF than tactica grade RLG systems
- stabilization tasks
- INS/GPS navigation
- surveying applications
- guidance and control
- 1'500+ units in the field

The IMU is designed for ruggedized applications and is internally equipped with shock absorbers. As an option the unit also can be delivered hard-mounted, i.e. without shock-absorbers. The iIMU-FSAS can be operated on a unregulated wide range input supply voltage and is protected



against wrong polarity and moderate over-voltage. The data output can be triggered and the data are sent via RS422 on an HDLC protocol. As an option the system can be delivered with an additional integrated AHRS or navigation processor and with odometer interface. All signals are fed via a robust connector of type MIL-C-38999-III. The iIMU-FSAS is manufactured in Germany and can be used in many industrial and defense applications as a replacement with even additional functionality for Litton's LN-200™ or Honeywell's HG1700/1900™ in surveying applications. Compared to HG1700 the iIMU-FSAS has more than 10 times higher lifetime.

Technical Data iIMU-FSAS-SI, iIMU-FSAS-EI, iIMU-FSAS-CCI/NCCI [-E: export version]:

	Angular Rate	Acceleration
Sensor Range:	± 450 °/s	± 5 g (option: ± 10 g or ± 20 g)
Bias:	0.75 deg/hr	1 mg/l
Bias Stability (Allan/Variance):	< 0.1 °/hr	(const. temperature)
Resolution:	0.1 arcsec / LSB	0.05 / 2 ¹⁵ m/s/LSB
Linearity / Scale factor error:	< 0.03 % / 0.03 %	< 0.1 % / 0.1 % ¹⁾
Angular random walk:	0.15 °/√h	< 50 µg/√Hz
Output:	3 x angular increment + 3 x velocity increment	
Axis Misalignment:	< 0.1 mrad between all sensor axes	
Digital Interface:	iIMU-FSAS-SI/-NCCI[-E]: data via HDLC (RS422), 2 Mbit/s; config. via RS232 (-NCCI) iIMU-FSAS-EI/-R[-E]: data and config. via RS422 UART	
Trigger Operation:	-SI / -EI: data output externally triggered; -CCI / -NCCI: free running output	
Odometer input:	available on iIMU-FSAS-EI / iIMU-FSAS-EI-E / iIMU-CCI: RS422 level, A/B	
Connector:	MIL-C-38999-III, 22 pin (male), type D38999/24WC35PA	
Data rate:	iIMU-FSAS-EI / -NCCI / -SI: up to 400 Hz; iIMU-FSAS-CCI (since 08/2014): up to 400 Hz	
Sensor bandwidth:	gyro bandwidth 250 Hz, accelerometer bandwidth > 75 Hz	
Temperature, Shock, Vibration:	-40...+71 °C (operating, case temperature), -40...+85 °C (storage) 60g/11ms (version -SM), 30g/11ms (version -HM); 20...2000 Hz, 6.3 g rms (endurance) < 0.1 deg/hr / Gauss (< 20 Gauss)	
Magnetic Insensitivity:	IP67 / 30.000 hrs (estimated) / 10 minutes	
Environment / MTBF/ MTTR:	iIMU-FSAS-SI [-E]: 116 x 128 x 98 mm (plus connector), approx. 1870 grams	
Size, Weight:	iIMU-FSAS-EI / -NCCI / -CCI [-E]: 128 x 128 x 104 mm (plus connector), approx. 2100 grams	
Power, Start-up-Time:	11...34 V DC; 20 W (max); < 1 sec; reverse-voltage protection Power-On/Off control line available (4...36 V, 8 mAmps)	

PHASE ONE INDUSTRIAL



Phase One iXA Camera System

Fully Integrated Aerial Photography Solutions

Technical Specifications

Camera type	Medium format camera for aerial photography
Lenses	- Schneider-Kreuznach fast sync lenses for multiple camera configuration - Phase One digital focal plane lenses
Lens mount	Phase One 645
Shutter speed	- Focal plane: up to 1/4000 second - Leaf shutter: up to 1/1600 second*
Shutter control	1/3 f-stop increments
Sensor module interfaces	- FireWire 800 - USB 3.0
Forward Motion Compensation**	TDI controlled
Camera body interfaces	- Two secured I/O communication connectors (LEMO) - Secured power input (LEMO) - Mini USB connector for updating camera firmware
Data storage	- On-board computer - CompactFlash card Type I/II including UDMA 6 and 7
Synchronization speed in multiple camera configuration	100 microseconds with factory calibrated lenses

	iXA 180	iXA 160	iXA 160 Achromatic
Resolution	10328 x 7760 (80 MP)	8984 x 6732 (60.5 MP)	8964 x 6716 (60 MP)
Dynamic range	>72 db		
Aspect ratio	4:3		
Pixel size	5.2 micron	6.0 micron	6.0 micron
CCD size effective	53.7 x 40.4 mm	53.9 x 40.4 mm	53.8 x 40.3 mm
Lens factor	1.0		
Light sensitivity (ISO)	35-800	50-800	200-3200
Capture rate			
Full resolution	0.7 frame/second	0.8 frame/second	0.8 frame/second
RAW File compression	IIQ large: 80 MB IIQ small: 54 MB	IIQ large: 60 MB IIQ small: 40 MB	IIQ large: 60 MB IIQ small: 40 MB



RIEGL VQ-480i

Typical applications include

- Corridor Mapping
- Power Line Inspection
- Cultural Heritage Mapping



Laser Pulse Repetition Rate PRR ¹⁾	50 kHz	100 kHz	200 kHz	300 kHz	400 kHz	550 kHz
Effective Measurement Rate [meas./sec.] ^{1,2)}	25 000	50 000	100 000	150 000	200 000	275 000
Max. Measuring Range ^{3,4)}						
natural targets ρ ≥ 20 %	1300 m	950 m	650 m	550 m	500 m	400 m
natural targets ρ ≥ 60 %	2100 m	1550 m	1100 m	950 m	800 m	700 m
Max. Operating Flight Altitude AGL ^{3,4)}	1050 m	750 m	550 m	450 m	400 m	300 m
	(3450 ft)	(2450 ft)	(1800 ft)	(1450 ft)	(1300 ft)	(1000 ft)
Max. Number of Targets per Pulse	practically unlimited (details on request)					
Minimum Range	10 m					
Accuracy ^{4,7)}	20 mm					
Precision ^{4,7)}	20 mm					
Laser Pulse Repetition Rate ^{1,8)}	up to 550 kHz					
Max. Effective Measurement Rate ¹⁾	up to 275 000 meas./sec. (@ 550 kHz PRR & 60° FOV)					
Echo Signal Intensity	for each echo signal, high-resolution 16 bit intensity information is provided					
Laser Wavelength	near infrared					
Laser Beam Divergence ⁹⁾	0.3 mrad					
Laser Beam Footprint (Gaussian Beam Definition)	31 mm @ 100 m, 75 mm @ 250 m, 150 mm @ 500 m					

visit our website
www.riegl.com



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