UALBox™

The ***UALBox***™ is a compact, fully integrated sensor navigation-, control- and data acquisition unit for short- to mid-range laserscanners and digital cameras deployed on mobile and UAV platforms.

It is designed to

- accurately determine the trajectory and orientation of the sensors for direct georeferencing of the sensor data
- control the laserscanner and record the laserscanner raw data
- control exposure of a digital camera and register the exact exposure moments
- supply power to the sensors, including voltage conversion, over-voltage protection and low discharge protection for rechargeable batteries

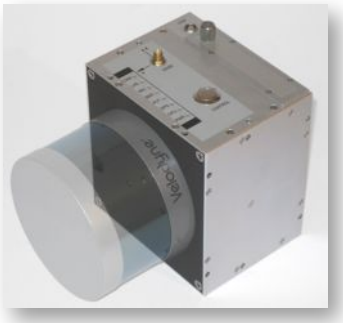
The laserscanner and/or digital camera are rigidly mounted to the ***UALBox***™ which includes an integrated ***tactical grade IMU*** for determining the sensor's orientation and *a multi-channel, multi-frequency* ***survey-grade GNSS receiver*** for position, and it provides all electrical interfaces to the sensors, a power source (Li-Ion battery or system power supply), and one (optionally two) GPS antenna(s).

Data are stored on a removable SSD storage device providing up to 2 TB of storage capacity.

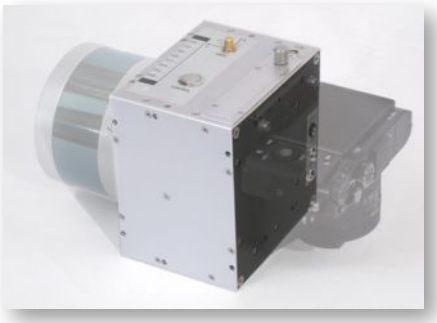
The ***UALBox***™ is available for several lightweight laserscanners and digital cameras, e.g. Velodyne *Puck*™*, Puck LITE*™, and *Ultra Puck*™*,* Riegl *VUX-1UAV*, *miniVUX-1UAV*, and *miniVUX-1DL, LeiShen CX16 and CX32,* Sony *RX1M2*, *A7RII*, and others.

Examples of ***UALBox*** with sensors:

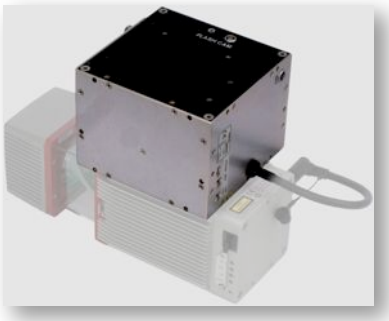
Velodyne Puck™ laserscanner



Velodyne Puck™ laserscanner and Sony RX1M2 digital camera



Riegl miniVUX® laserscanner



Specifications

Navigation Sensors	
IMU	tactical-grade MEMS
Gyro bias instability	0.3°/h
Angular random walk	0.15°/√h
Angular rate input range	±400°/s
Accelerometer bias instability	0.05 mg
Acceleration input range	±10 g
Sample rate	250 Hz

GNSS Receiver	survey-grade multi-channel multi-frequency
Hardware channels	448
Supported signals	GPS L1, L2, L5 GLONASS L1, L2, L3 SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM (L1, L5) QZSS: L1, L2, L5
RTK accuracy performance	0.6 cm + 0.5 ppm (horiz), 1 cm + 1 ppm (vert)
Update rate	20 Hz

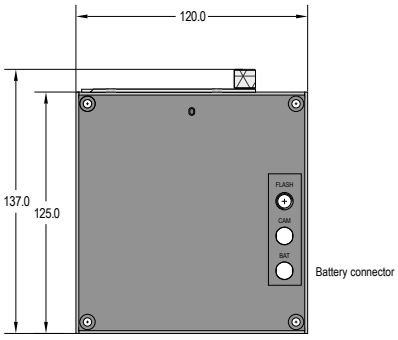
Mechanical		
Dimensions (LxWxH)	91 x 120 x 137 mm	
Weight	1470 g	without sensors
Electrical	12 - 30VDC / 6 W	without sensors

Interfaces		
Power supply	12 - 30 VDC / 6 W	without sensors
GPS antenna	SMA, 3.3-5V supply voltage	
Data storage	SATA SSD (removable)	GNSS, IMU LiDAR raw data, System log
Laserscanner	Power supply: 13-30VDC, max 2A Data+Control: LAN 100 MB/s Synchronization: PPS output, TTL, active high	
Camera	Power supply: 5VDC, max 1.5A Exposure trigger output: TTL, open collector, active low Exposure event input: TTL, active low	
Control	Single-button control for power on/off, data acquisition on/off Data acquisition remote control input: TTL Camera exposure remote control input: TTL	

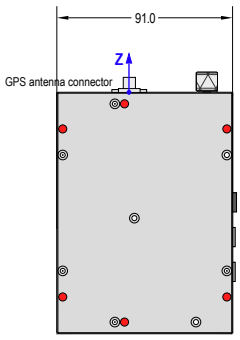
Included Software	
UALController	embedded software for system control and data acquisition
IMUConverter	Windows software for converting raw IMU data into Waypoint Inertial Explorer's native IMR format
GeocodeV™ or GeocodeVLP™	Windows software for geocoding raw LiDAR data with pre-processed trajectory data into point-cloud formats like TerraScan BIN, LAS, and ASCII, V-version for Riegl V- and VUX-series laserscanners, VLP version for Velodyne laserscanners
RxTools	Windows software suite for viewing raw GNSS receiver data and converting it to RINEX format

Specifications subject to change without notice

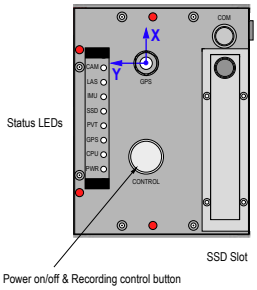
Rear view



Side view (left)



Top view



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