

AeroStab

3 axis gyrostabilized mounts including GNSS-INS and Camerainterface

S - 122 mm

M - 244 mm

XL - 420 mm

Internal GNSS-INS System

Receiver Type: C/A code L1
Channels: 72 channel, parallel tracking
Update Rate: 5 Hz

Horizontal Accuracy: < 2 m RMS (autonomous, no SA)
Vertical Accuracy: < 5 m RMS (autonomous, no SA)
< 2.5 m RMS (with barometric pressure sensor)

Dual-GPS receiver using 2 interfaces with 2 antennas for the True-Heading determination in WGS84. This is done by analysing the L1-phase while predefining the antenna separation.

update Rate: 5 Hz

Heading Accuracy:
< 0.5° rms @ 0.8m antenna separation
< 0.3° rms @ 1.0m antenna separation

INS

MEMS based 3 axis gyro sensor. This self calibrating multi-sensor-system makes use of accelerometers, gravity sensors, gyros, airpressure and magnetometers

- accurate full 360° 3D orientation
- high dynamic response with longterm stability
- 3D acceleration, 3D rate of turn, 3D earth-magnetic field data
- all solid state miniature MEMS inertial sensors inside
- high update rate
- temperature, 3D misalignment, sensor cross-sensitivity compensation
- EKF extended Kalmanfilter

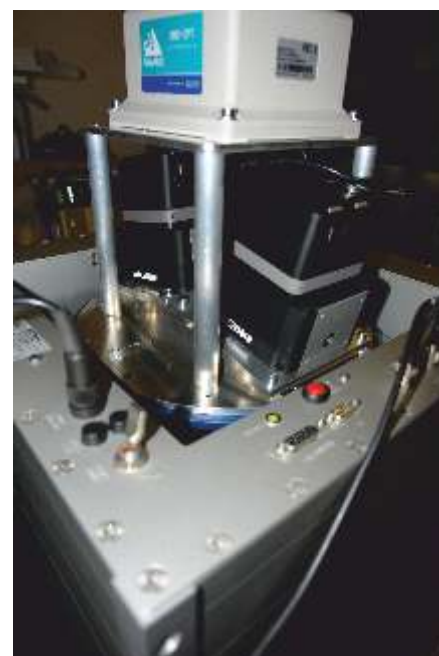
Output Rate: 800 Hz

Orientation Performance:
angular resolution* 0.05°
static accuracy (Roll/Pitch) < 0.5°
dynamic accuracy (Roll/Pitch) < 0.1°
static accuracy (Heading) < 0.5°
dynamic accuracy (Heading) < 0.3°

Camera Interface

- TTL Level 5V with negative logic for Camera triggering (Snap command to Pull down TTL level)
- 5 V TTL Eventsignal (negative logic)
- Ready Signal

Twin Camera Setup with precise GNSS-INS (AeroDiDOS) and the IMU CPDSetup



Option external GNSS-INS System AeroDiDOS

combining the AeroStab with our AeroDiDOS, you have the choice between several IMUs and Receiver options based on the NovAtel Span technology. Once both devices are synchronised, AeroDiDOS overtakes the complete control of the stabilizer and stores also the correction values to computer the floating lever arms.

Receiver Features:
- 240 channels, Scalable positioning options from metre to centimetre-level, Standard connectors for simple interfacing, 4 GB onboard memory for data logging, Standard Bluetooth® and Wi-Fi connectivity, Optional GPRS/HSPA cellular modem,

Optional heading

Constellation: GPS, GLONASS, Galileo, BeiDou

Tracking: Max Num of Frequency = Triple, L-Band, SBAS, QZSS

Number of Ports: 1* Bluetooth, 2* CAN Bus, 1* Cellular, 1* Ethernet, 3* RS-232, 3* RS-422, 1* USB Host, 1* USB Device

Performance Accuracy (RMS):
Single Point L1 1.5m
Single Point L1/L2 1.2m
SBAS 0.6m
DGPS 0.4m

NovAtel CORRECT™ TERRASTAR-C 4 cm, Veripos Apex 6 cm, RT-2@1 cm + 1 ppm

INS

Various IMUs from entry level to high grade IMUs are available to combine it with the NovAtel GNSS Receiver and to be mounted with the sensor on the AeroStab:

ISA-100C (FOG, 200Hz, 5 kg)
RTK: 0.007° Roll/Pitch, 0.010° Heading
Postprocessed: 0.003° Roll/Pitch, 0.004° Heading

LN200 (FOG, 200Hz, 3.4 kg)
RTK: 0.010° Roll/Pitch, 0.020° Heading
Postprocessed: 0.005° Roll/Pitch, 0.007° Heading

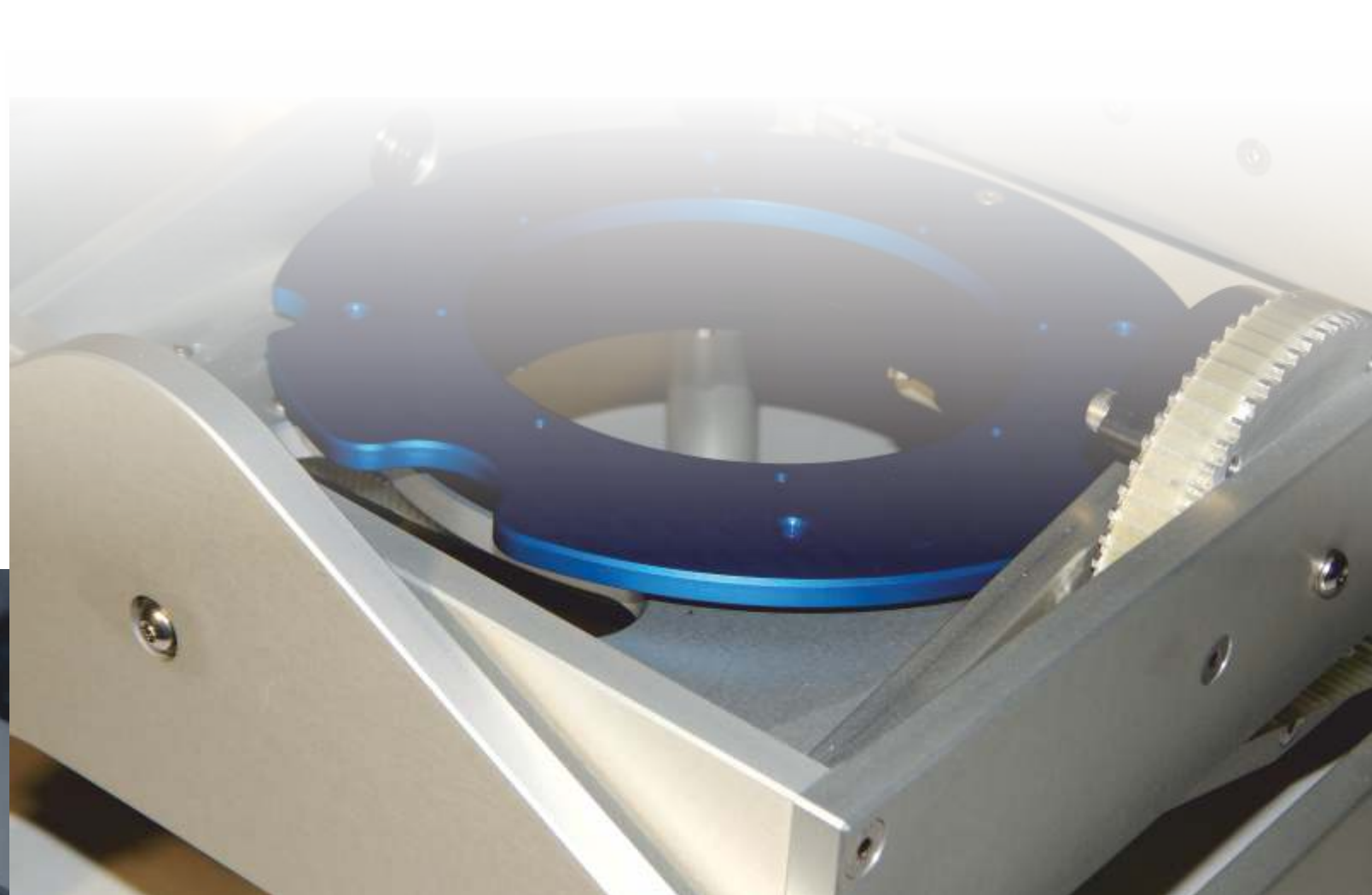
Hg1700 AG58 (RLG, 100Hz, 3.4 kg)
RTK: 0.010° Roll/Pitch, 0.021° Heading
Postprocessed: 0.005° Roll/Pitch, 0.008° Heading

KVH-1750 (FOG, 200Hz, 0.7 kg)
RTK: 0.015° Roll/Pitch, 0.037° Heading
Postprocessed: 0.005° Roll/Pitch, 0.017° Heading

IMU-CPT (FOG, 100Hz, 2.3 kg)
RTK: 0.020° Roll/Pitch, 0.060° Heading
Postprocessed: 0.008° Roll/Pitch, 0.035° Heading

STIM300 (MEMS, 125Hz, 55g)
RTK: 0.015° Roll/Pitch, 0.080° Heading
Postprocessed: 0.006° Roll/Pitch, 0.019° Heading

ADIS-16488 (MEMS, 200Hz, 48g)
RTK: 0.035° Roll/Pitch, 0.150° Heading
Postprocessed: 0.012° Roll/Pitch, 0.074° Heading



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AeroStab

Our Philosophy

The AeroStab Family is the 5th generation of our full compensating 3 axis stabilizers designed for small and medium sized single, triple or multi-head aerial camera setups. You can choose between the single Version of AeroStab-S with a 122 mm hole, the more flexible AeroStab-M with its 244mm hole or the upcoming AeroStab XL with the world's biggest hole of 420 mm that is designed for the OIS Oblique Imaging System.

AeroStab includes a GNSS-Vector Sensor that enables precise positioning and true-heading determination. The GNSS Data are output frequently and can be made usable for navigation purposes. The GNSS It is closely coupled by Kalman filters to an 9 degree INS unit. This gives realtime information for the corrections and can be used as pre-orientation of your data. All AeroStab mounts are able to trigger the camera at the image centers designed in the AeroTopoL FMS, and use the event signal to read the orientation parameters at the mid-exposure pulse. This makes AeroStab unique on the market and makes it a turnkey solution in one housing.

AeroStab is optimized for working with AeroTopoL Flight Management System, but is operable also in stand-alone mode or with other FMS applications using the open serial interface.

Better is our innovative solution that achieves full heading compensation in combination with our AeroTopoL FMS. Stepper motors developed for robotic purposes with 1/10 Step control with attached 0.06 degree incremental sensors correct the camera orientation in real-time with using the improved model-based firmware that updates continuously and rapidly for fast and smooth compensation on predefined dynamic models for typical airborne dynamics. More precision for direct referencing purposes can be achieved using AeroDiDOS GNSS-INS high grade system. This pushes the AeroStab family to a real high end product, nicely and deeply integrated.



AeroStab-S

Correction-Limits
Roll/Pitch: $\pm 22^\circ$
Heading: $\pm 20^\circ$

Correction-Speed (rapid)
Roll/Pitch: $28^\circ/\text{sec}$
Heading: $22^\circ/\text{sec}$
3 dynamic scenarios available

Weight and Dimension
- Total Weight: 13,5 kg
- Width Platform: 465 * 330 mm
- Height Platform: 180 mm
- Hole: 122 mm
- Preload: 100 N ~ 5 kg

Power
- 22-28 V DC
- maximum: 3 A @ 24V
- typically: 1.5 A @ 24V
- minimum: 0.9 @ 24V



The ideal basis for the 4-band Phase One Solution

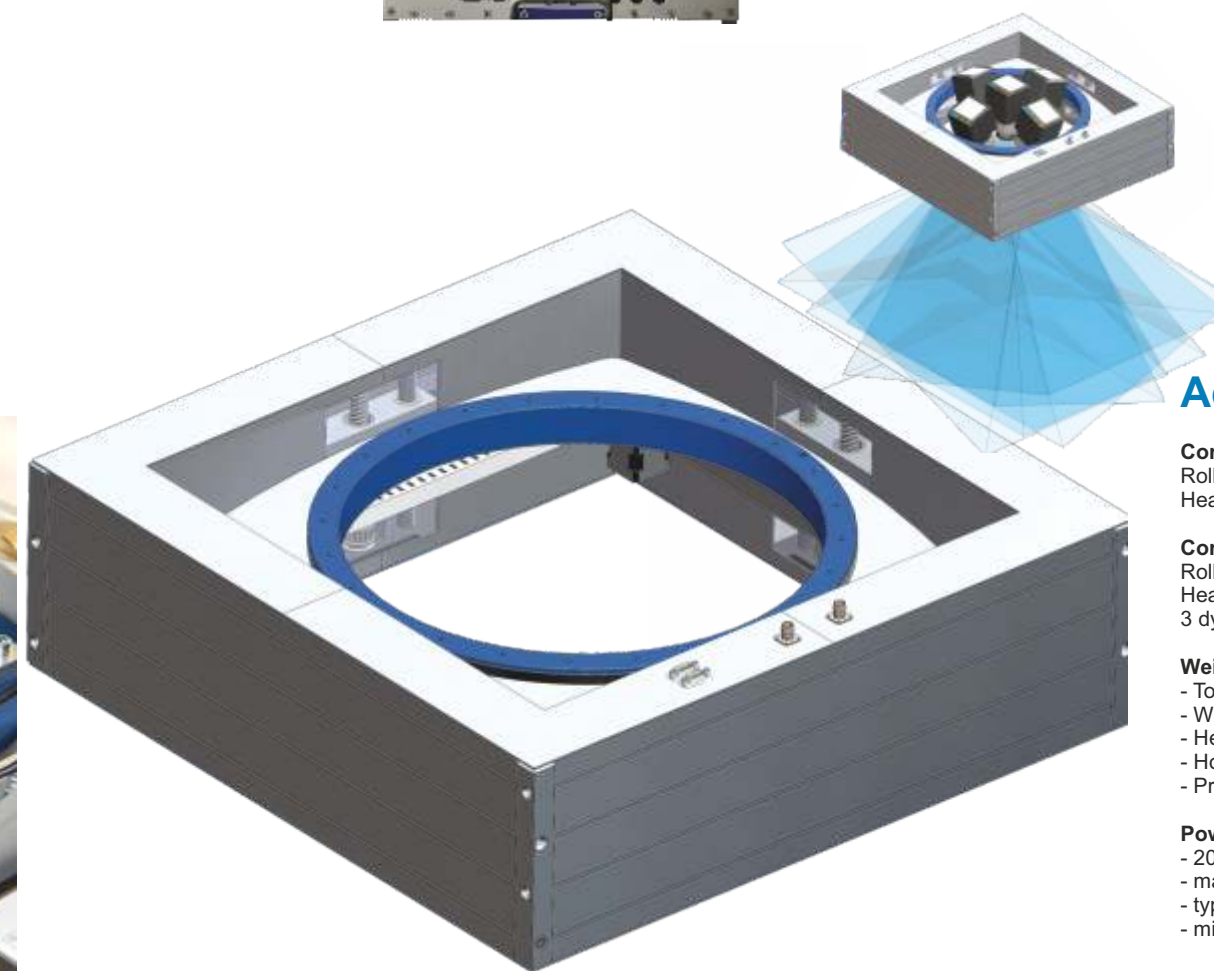
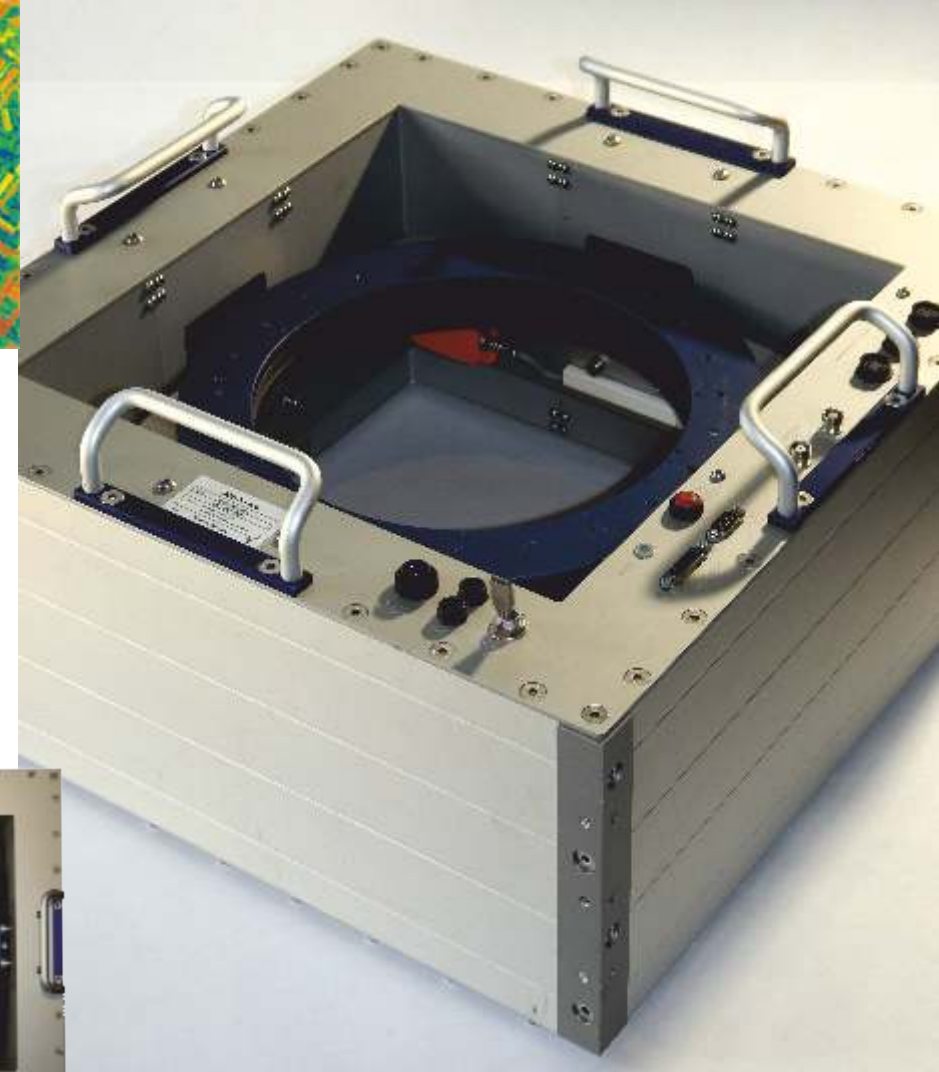
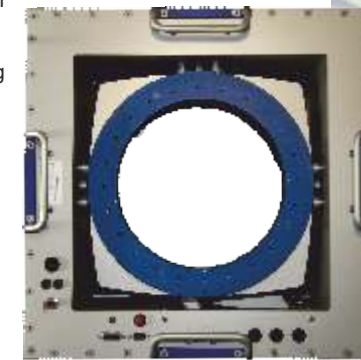
AeroStab-M

Correction-Limits
Roll/Pitch: $\pm 13^\circ$
Heading: $\pm 30^\circ$

Correction-Speed (rapid)
Roll/Pitch: $13^\circ/\text{sec}$
Heading: $16^\circ/\text{sec}$
3 dynamic scenarios available

Weight and Dimension
- Total Weight: 26 kg
- Width Platform: 488 * 488 mm
- Height Platform: 259 mm
- Hole: 244 mm
- Preload: 100 N ~ 12 kg

Power
- 24-28 V DC
- maximum: 5 A @ 24V
- typically: 2 A @ 24V
- minimum: 1.4 @ 24V



AeroStab-XL (12/2016)

Correction-Limits
Roll/Pitch $\pm 10^\circ$
Heading: $\pm 30^\circ$

Correction-Speed (rapid)
Roll/Pitch: $15^\circ/\text{sec}$
Heading: $15^\circ/\text{sec}$
3 dynamic scenarios available

Weight and Dimension
- Total Weight: 30 kg
- Width Platform: 680 * 680 mm
- Height Platform: 220 mm
- Hole: 420 mm
- Preload: ~ 40 kg

Power
- 20-32 V DC
- maximum: 10 A @ 24V
- typically: 5 A @ 24V
- minimum: 3 A @ 24V

Every effort has been taken to ensure that this information is correct at the time of printing.
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