

AeroStab

3-axis gyrostabilized mounts including GNSS-INS & camera interface

S - 122 mm
M - 244 mm
XL - 420 mm

Internal GNSS-INS System

Receiver type: C/A code L1
 Channels: 72 channels, 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 via 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, air pressure and magnetometers

- accurate full 360° 3D orientation
- highly 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 Kalman filter

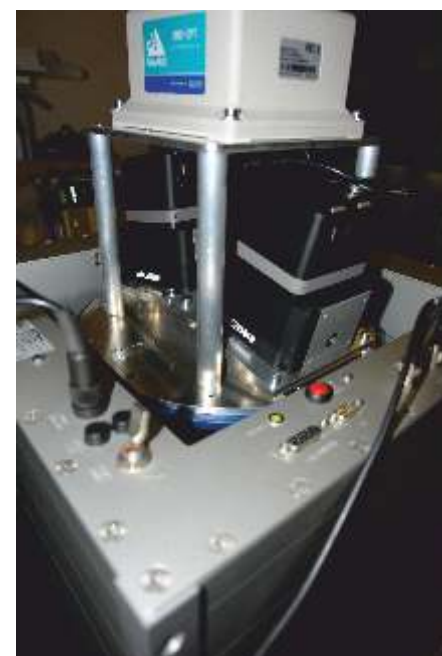
Output rate: 800 Hz

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 Event signal (negative logic)
- Ready signal

Twin camera setup with precise GNSS-INS (AeroDiDOS) and the IMU CPD setup



Optional 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 synchronized, AeroDiDOS takes over the complete control of the stabilizer and also stores 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

Line-up: 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

PerformanceAccuracy(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

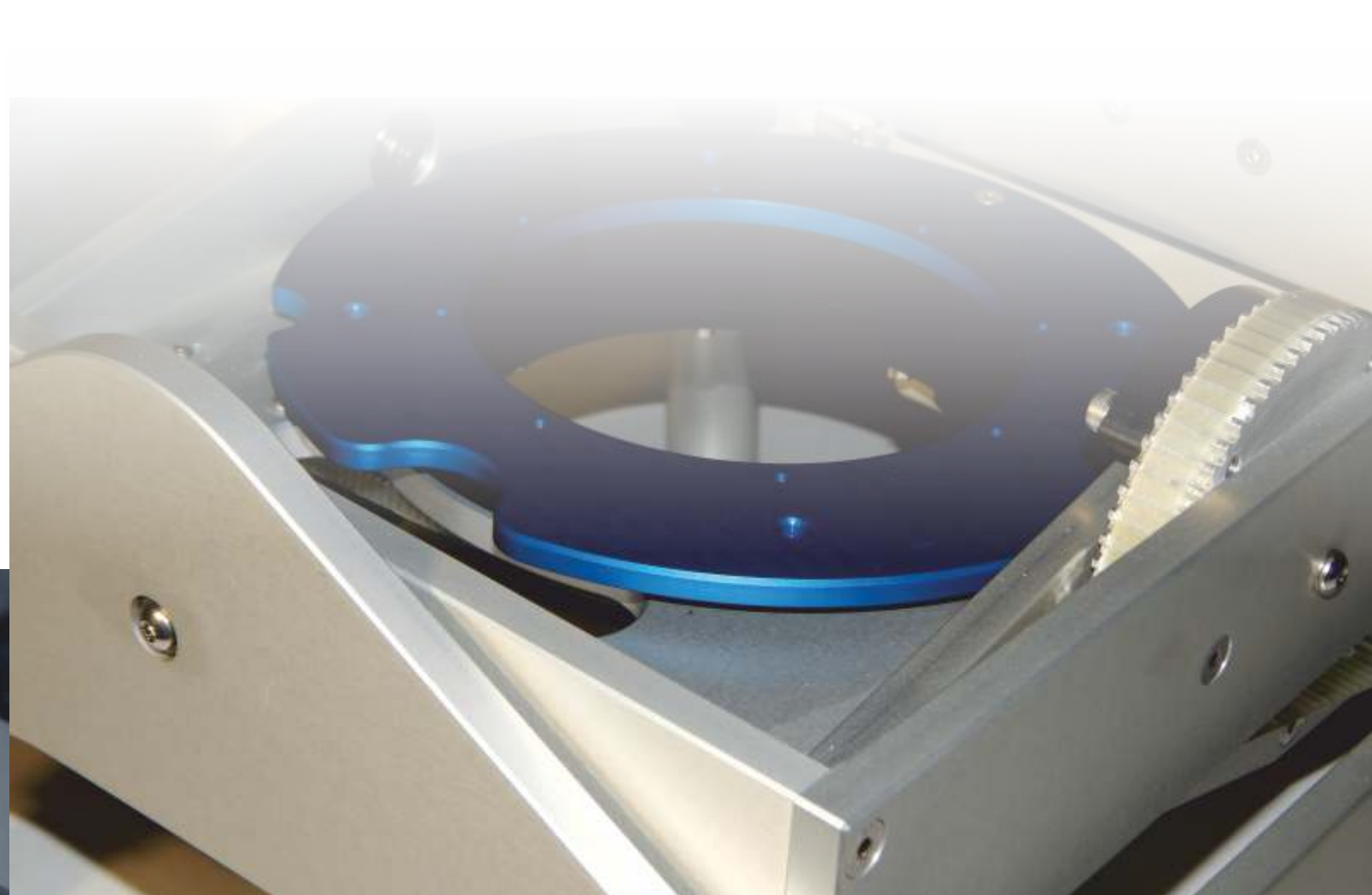
Hg1700 AG58 (RLG, 100Hz, 3.4 kg)
 RTK: 0.010° Roll/Pitch, 0.021° Heading
 Postprocessed: 0.005° Roll/Pitch, 0.008° Heading

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 among the single version of AeroStab-S with a 122-mm hole, the more flexible AeroStab-M with its 244-mm hole or the upcoming AeroStab XL with a record breaking hole of 420 mm designed for the OIS Oblique Imaging System.

AeroStab includes a GNSS-Vector sensor that enables precise positioning and true-heading determination. The GNSS data outputs frequently and can be used for navigation purposes. The GNSS is closely coupled by Kalman filters to a 9-degree INS unit providing 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 using 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.

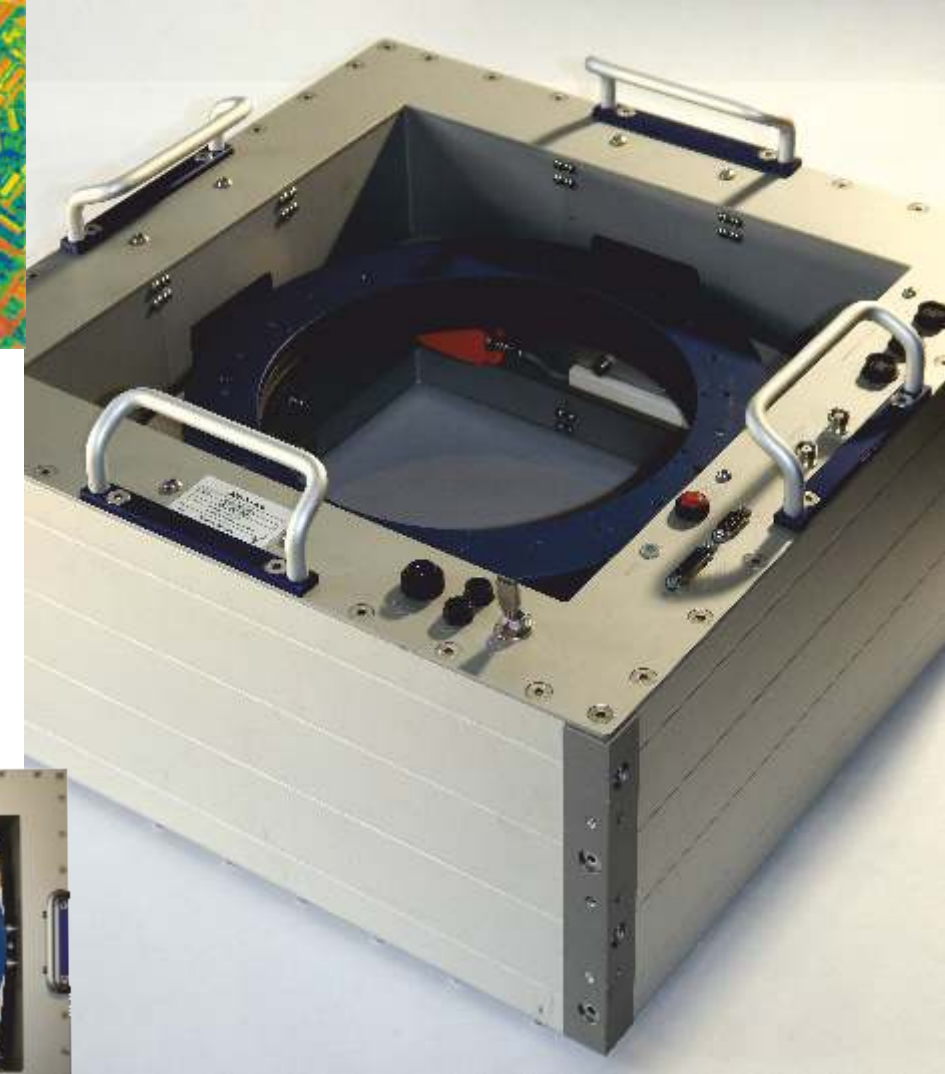
AeroStab is optimized for working with AeroTopoL Flight Management System, but is also operable in stand-alone mode or with other FMS applications using the open serial interface.

Best choice is our innovative solution that achieves full heading compensation combined with our AeroTopoL FMS. Stepper motors developed for robotic purposes with 1/10 step control and attached 0.06-degree incremental sensors adjust the camera orientation in real-time by 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 by AeroDiDOS GNSS-INS high-grade system. This pushes the AeroStab family to a real high-end product - perfectly and deeply integrated.



The ideal basis for the 4-band Phase One Solution



AeroStab-M

Correction limits

Roll/pitch: +/- 13°
Heading: +/- 30°

Correction speed (rapid)

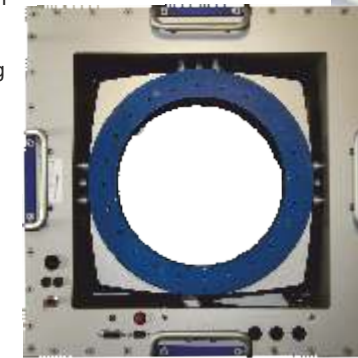
Roll/pitch: 13°/sec
Heading: 16°/sec
3 dynamic scenarios available

Weight & dimension

Total weight: 26 kg
Width platform: 488 x 488 mm
Height platform: 259 mm
Hole diameter: 244 mm
Preload: 100 N ~ 12 kg

Power

24-28 V DC
Max. 5 A @ 24V
Typically 2 A @ 24V
Min. 1.4 A @ 24V



AeroStab-S

Correction limits

Roll/Pitch: +/- 22°
Heading: +/- 20°

Correction speed (rapid)

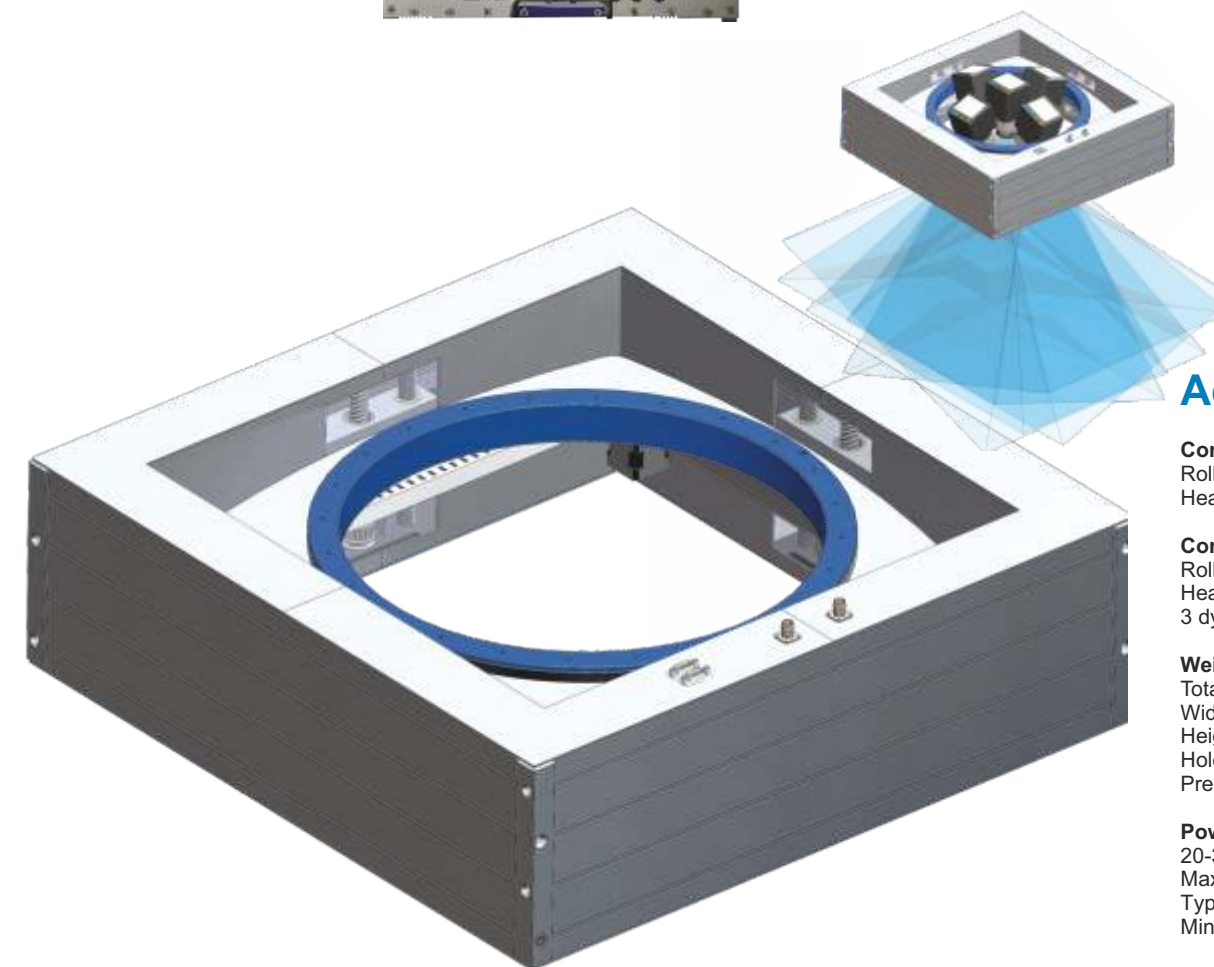
Roll/Pitch: 28°/sec
Heading: 22°/sec
3 dynamic scenarios available

Weight & Dimension

Total weight: 13.5 kg
Width platform: 465 * 330 mm
Height platform: 180 mm
Hole diameter: 122 mm
Preload: 100 N ~ 5 kg

Power

22-28 V DC
Max. 3 A @ 24V
Typically 1.5 A @ 24V
Min. 0.9 @ 24V



AeroStab-XL (12/2016)

Correction limits

Roll/pitch: +/- 10°
Heading: +/- 30°

Correction speed (rapid)

Roll/pitch: 15°/sec
Heading: 15°/sec
3 dynamic scenarios available

Weight & Dimension

Total weight: 30 kg
Width platform: 680 x 680 mm
Height platform: 220 mm
Hole diameter: 420 mm
Preload: ~ 40 kg

Power

20-32 V DC
Max. 10 A @ 24V
Typically 5 A @ 24V
Min. 3 A @ 24V

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