

# HySpex

## HySpex MJOLNIR S-620

The **HySpex Mjolnir S-620** hyperspectral imaging system for UAVs is the SWIR version of the Mjolnir camera series. Similar to the VNIR version, it provides a unique combination of small form factor and low mass, combined with high performance specifications and **scientific grade** data quality.

With a weight of **less than 4.5 kg** and less than **50 W** power consumption, **HySpex Mjolnir S-620** is very well suited for a wide range of UAVs.

**HySpex Mjolnir S-620**, covers the SWIR spectral range, **1000 - 2500 nm**, and is built with an optical architecture based on the high-end HySpex ODIN system.

The UAV bundle offered by NEO integrates a hyperspectral camera with a powerful **PicoITX i7** computer and an **Applanix APX-15 UAV** navigation system, all fitted into a self-contained module mounted on a passive damping platform. The system is also compatible with several off-the-shelf gimbals.

NEO offers a high-performance unmanned aerial vehicle which is fully integrated with the **HySpex Mjolnir S-620**. The UAV is fitted with a standard battery package allowing up to 30 minutes flight time. **All HySpex Mjolnir** systems can also be mounted on a **tripod and rotation stage for ground use**.



*HySpex Mjolnir S-620.*



*HySpex Mjolnir on Camflight FX8HL.*

### Main specifications

Spectral range	970 – 2500 nm
Spatial pixels	620
Spectral channels and sampling	300 bands @ 5.1 nm
F-number	F1.9
FOV	20°
Pixel FOV across/along	0.54/0.54 mrad
Bit resolution	16 bit
Noise floor	80 e <sup>-</sup>
Dynamic range	10000
Peak SNR (at full resolution)	> 900
Max speed (at full resolution)	100 fps
Power consumption*	50 W
Dimensions (l-w-h)*	254 – 175 – 170 mm
Weight*	< 4.5 kg

*\*Includes IMU/GPS and DAU – <5 kg including standard battery*



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## Gremsy gStabi H16

The advanced 3-axis digital stabilizer, **gStabi H16**, weighs only 2.2 kg (4.85 lbs). NEO delivers the gStabi H16 with a circular quick release, allowing it to be seamlessly fit on a wide range of multirotors. Capable of handling payloads up to 7 kg (15.43 lbs), the gimbal can support **all HySpex Mjolnir models**.

- Gimbal and Mjolnir payload powered by same battery
- Encoder with resolution up to 0.005°
- Ultra accurate IMU sensor with temperature compensation
- Simple 5 minutes setup & balance with Auto Tuning Feature
- gMotion Controller based on a 32 bit ARM high speed microprocessor providing super fast response and accurate calculation



*HySpex Mjolnir and Gremsy gStabi H16.*



*Camflight FX8HL.*

## Camflight FX8HL Robot

- 8S 44 000 mAh batteries providing ~30 min. flight endurance for coverage of large areas, with Mjolnir payload
- Lockheed Martin Autopilot for high precision flights
- Virtual cockpit ground control SW for advanced flight plans
- High stability in wind

## Applanix APX-15 UAV

- Advanced Applanix IN-Fusion™ GNSS-Inertial integration technology
- 100 Hz real-time position, roll, pitch and heading output for direct georeferencing of sensor data
- IMU data rate 200 Hz
- 336 Channels (GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS)
- Solid-state MEMS inertial sensors w/Applanix SmartCal™ compensation technology
- Unfiltered, unsmoothed pseudo range measurements data for low noise, low multipath error, low time domain correlation and high dynamic response



*Applanix APX-15 UAV.*



*HySpex Mjolnir field solution*

## Field applications

All Mjolnir systems can easily be deployed for field work by mounting it on a tripod with a rotation stage.

- Light weight, robust, compact and self contained design
- Working distances: 20 m – ∞
- Fully LiPo battery operated for long endurance
- Quick mounting and easy operation with scan speed fully synchronized with camera frame rate
- Easy wireless operation from tablet or laptop

