

# MagArrow II

## UAV Deployable Magnetometer



### Survey large areas of inaccessible terrain 10x faster than a typical magnetic survey

The MagArrow II by Geometrics is the latest version of our bestselling UAV deployable magnetometer. Designed around our extremely sensitive, miniature cesium-vapor magnetometer, the MagArrow II is equipped with the features required to execute a wide variety of magnetic survey applications.

The instrument is aerodynamic and lightweight, allowing users to easily suspend it from a wide range of commercial UAVs. No electrical connection to the UAV is required since the system is fully self-contained. In addition to the miniature magnetometer sensor, the system is equipped with internal GPS and an external helical GPS antenna, IMU sensors, SD card for data storage, and connectors for lithium batteries. The MagArrow II is complete with its own internal wireless access point and full featured wireless data logging software.

The system is capable of 1000 Hz sampling, meaning pilots can fly surveys at 10 m/s still collecting samples every 1 cm. Sensor orientation is never a problem since the unique design allows for no data drop-outs. Utilize the internal GPS antenna for positioning with or without the external helical antenna. The removable helical antenna is capable of multi-path rejection, improving the accuracy of surveys flown closer to the ground.

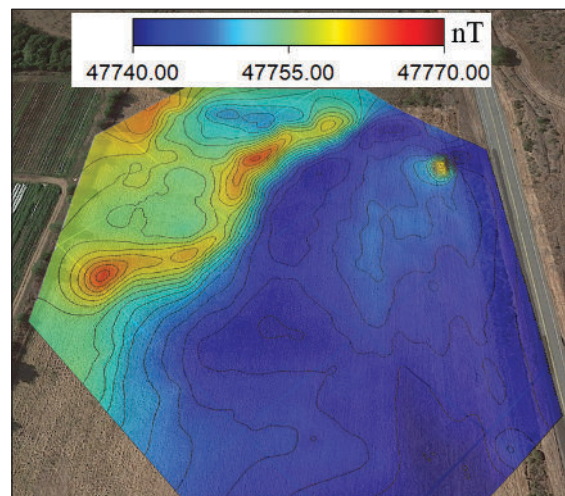
Field operations are simplified with the MagArrow II. Users program the survey flight parameters into the UAV mission control software in advance, so that once the magnetometer is turned on and airborne, the UAV guides the magnetometer in altitude-stable survey lines. After completing the sortie, users can wirelessly download the data to the field PC for viewing and processing. The MagArrow II was designed with reliability, efficiency, and ease of use in mind.

The MagArrow II is a robust, yet flexible system that adapts to changing field conditions and new user workflows. With its sleek design and simple operation, the MagArrow II benefits both small startups doing their first geophysical survey to large and experienced geophysical survey companies.

### How can the MagArrow II simplify your search?

### FEATURES & BENEFITS

- **UAV Agnostic** – Can be easily attached to your existing enterprise UAV.
- **No Drop-outs** – Reliable high quality data no matter the sensor orientation.
- **Lightweight** – Weighs only 1.2 kg for easy deployment
- **Self-Contained** – GPS, storage, and WiFi on board. No connection to UAV needed.
- **Super-Fast Sampling Rate** – Fly faster and filter out UAV motor noise.
- **Long Battery Life** – 2 hours of battery life will outlast multiple UAV flights. Hot swappable.
- **External Power Button – New!** No need to open the compartment to reset or cycle power.



# SPECIFICATIONS | MagArrow II UAV Deployable Magnetometer

## POWERFULLY BUILT, SIMPLY EXECUTED

For simplicity in the field, the MagArrow II has no external connections, instead containing the GPS, WiFi, and memory on board. Battery packs are hot swappable. All operations are accessed through the web-browser interface. Internal IMU sensors allow for a complete suite of data compensation algorithms to be applied, if desired, to remove platform-induced field variations.

**Operating Principle:** Laser pumped cesium vapor (Cs133 non-radioactive) total field scalar magnetometer

**Operating Range:** 20,000 to 100,000 nT

**Gradient Tolerance:** 10,000nT/m

**Operating Zones:** Operate anywhere in the world without dead zones

**Dead Zone:** None

**Noise/Sensitivity:** 0.005nT/ $\sqrt{\text{Hz}_{\text{rms}}}$  typical (0.01nT/ $\sqrt{\text{Hz}_{\text{rms}}}$  guaranteed); (SX (export) version 0.02 nT/ $\sqrt{\text{Hz}_{\text{rms}}}$ )

**Sample Rate:** 1000 Hz, synchronized to GPS 1PPS

**Bandwidth:** 400Hz.

**Heading Error:**  $\pm 5$  nT over entire 360° equatorial and polar spins typical

**Output:** WiFi data download over 2.4GHz WiFi access point

**GPS:** 50% CEP  $\leq 1.5$  m;  $\leq 1.0$  m with SBAS

**USB Port:** Port for USB flash drive. Used for field upgrades

**Data Logger:** Built in Data Logger

**Data Storage:** 32 Gbyte Micro SD card, U3 speed class. Not field-accessible. Contact sales for higher capacities

**Data Download:** Over WiFi 2.4GHz using user-supplied browser-capable Android\* device. 10 minutes of data requires 1 minute to download.

\*note: this system is not compatible with iOS operating systems

**IMU:** Bosch BMI160 Accel/Gyro - 200 Hz sample rate. Insentek Compass - 100 Hz Sample rate

**Total Weight:** 1.2 kg without batteries

**Length:** 1 m

## BATTERY

**Battery Connection:** 2x XT60 connectors

**Battery Recommendations\*:** Non-magnetic 1800 mAh or 2200 mAh lithium polymer, 3cell 11.1v. Hot swappable

**\*Battery NOT Included**

## ENVIRONMENTAL

**Operating Temperature:** -20°C to +40°C (-4°F to +104°F)

**Humidity:** Non-condensing

## ACCESSORIES

**Standard:** Carrying case, AC power adapter, USB drive containing operation manual and software, JIS1 screwdriver and drill bit, suspension cords.

**Warranty:** 1 year



Specifications subject to change without notice. MagArrow-II / (0723)



**GEOMETRICS INC.** 2190 Fortune Drive, San Jose, California 95131, USA  
Tel: 408-954-0522 • Website: [www.geometrics.com](http://www.geometrics.com) • Email: [sales@geometrics.com](mailto:sales@geometrics.com)

**GEOMETRICS EUROPE** Geomatrix Earth Sciences  
Tel: 44-1525-383438 • Website: [www.geomatrix.co.uk](http://www.geomatrix.co.uk) • Email: [sales@geomatrix.co.uk](mailto:sales@geomatrix.co.uk)

**GEOMETRICS CHINA** Greenview Geophysical Instruments Ltd  
Tel: +86-10-85850099 • Fax: +86-10-85850991 • Email: [greenviewgeo@greenviewgeo.com.cn](mailto:greenviewgeo@greenviewgeo.com.cn)