

# The NV technology for Attitude control

 kwan-tek

Magnetic field sensors are key elements of many aeronautical, space, civil and military systems. To increase their performance, traditional sensors are improved or replaced by new sensors, such as those developed by **Kwan-tek**.

Our magnetometers exploit the optical and quantum properties of **diamonds with NV (Nitrogen – Vacancy) centres**, for their very high sensitivity to magnetic fields.

To maintain their orientation, land, air and space vehicles are equipped with Attitude and Heading Reference Systems (ARSH) , consisting of sensors to determine their orientation, software to determine the deviation from the desired orientation and actuators to correct the orientation if necessary.

A **high stability magnetometer** is essential for an AHRS since it allows to determine **reliably the heading with respect to magnetic North, which complements information from other sensors on roll, pitch and yaw.**



The **NV Magnetometer** can be integrated in an AHRS, to increase its performance and its reliability.

## Advantages of NV magnetometers

- ➔ **Sensitivity** < 10 nT/VHz on 3 axis
- ➔ **Stability** ~ 0,01 degree
- ➔ **Small size** < 500 cm<sup>3</sup> and **weight** < 500g
- ➔ **No need of recalibration** *gain of time and reliability in operation*