

# Get a glimpse of the future

It's here. The future of sensor technology.

Large, cooled, and expensive setups are usually required to observe quantum effects. With the microwave-free quantum magnetometer, Quantum Technologies, in collaboration with duotec, has achieved a real coup: Our magnetic field camera is **small, requires no cooling, is inexpensive**, and is more precise by nanometers than anything previously known.

## Precise and high-resolution — the QT-MI1080 magnetic field camera

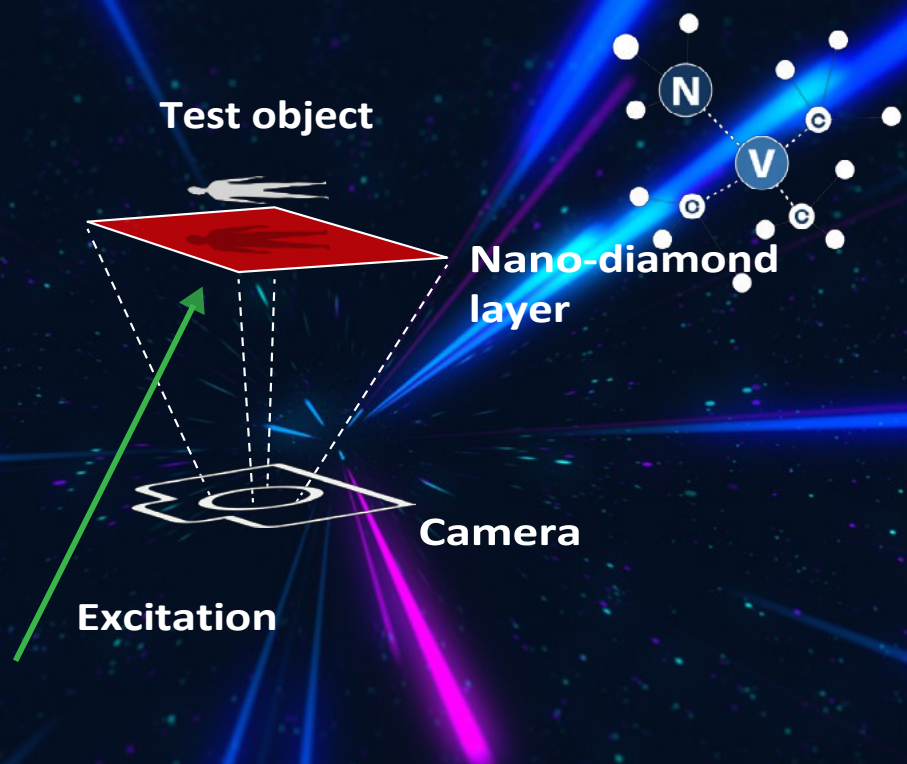
It is particularly well suited for:

- High-resolution measurements of magnetic field distributions [Full HD resolution]
- Non-destructive material testing by measuring component magnetization
- Magnetic field camera for measuring dynamic magnetization processes [140 fps]
- Inline testing of metallic and magnetic workpieces

### This is how the future works:

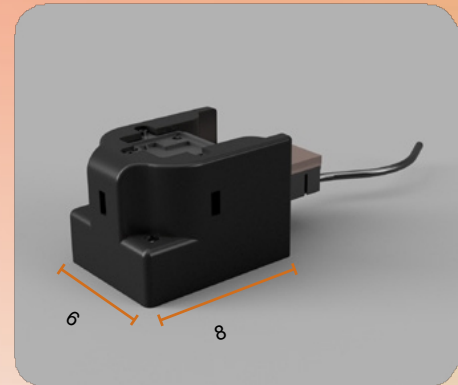
Our quantum sensor measures magnetic fields purely optically.

The quantum sensor uses the magnetic field dependence the spin states of NV centers in diamond and their fluorescence.



## QT-MI1080 — Megapixel Magnetic Imaging with Nanodiamonds

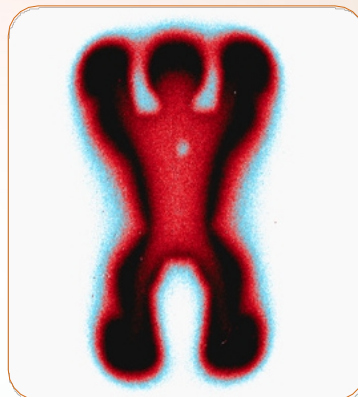
- The ultra-thin layer of nanodiamonds allows direct optical measurement of the magnetization strength
- Direct measurement of the magnetic field strength in the measurement plane with full HD resolution [1920× 1080 pixels]
- Filming of magnetization processes at up to 140 Hz
- Small design for integration into existing systems or for manual operation
- Galvanically isolated, non-magnetic, and non-conductive sensor layer



## Application — Non-destructive material testing



18 mm



- Direct measurement of the entire magnetic field distribution in a plane allows lightning-fast testing of magnetizable components
- Thanks to the extremely high pixel count, even the smallest defects can be detected
- Our metal man got a stab in the heart (ø 0.8 mm) – clearly visible in the magnetic field distribution.

## Technical

- Magnetic measuring range:  $|B| = 0\text{—}50\text{ mT}$
- Isotropic measurement of  $|B|$
- Sensor area:  $32 \times 22\text{ mm}^2$
- Number of pixels:  $1920 \times 1080$  [Full HD]
- Effective pixel size:  $20\text{ }\mu\text{m}$
- Update frequency: up to 140 Hz
- Minimum sensor distance:  $< 1\text{ mm}$

