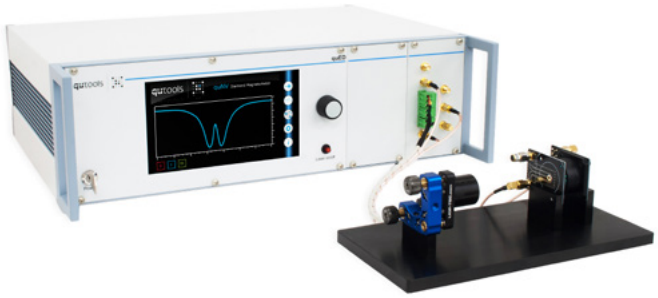
quNV

Quantum Sensing by Diamond Magnetometer



Key Features

- HPHT Diamond Sample
- 520 nm CW Diode Laser
- 4 GHz RF Microwave Sweep Generator
- Photodiode, Control & Read-Out Unit

Experiments

- NV Center Fluorescence
- Optically Detected Magnetic Resonance (ODMR)
- Spin Relaxation Time
- Magnetic Field Sensing

quNV Specifications

Experimental Board

Connections to control unit	quNV Controller
Laser safety	Orange tinted housing with laser interlock
Angular laser adjustment	Kinematic mount
Dimensions (in mm)	250 x 125 x 90 mm³

Diamond Sample

Type	Ib HPHT
Orientation	typ. {100} faces
Nitrogen concentration	< 200 ppm
Boron Concentration	< 0.1 ppm
Diameter	typ. < 2 mm x 0.5 mm

Excitation Laser

Laser Diode	Focused CW
Power	< 50 mW
Wavelength	520 ± 10 nm

Microwave Source

Frequency range	2.2 ... 4.4 GHz
Power	-43 ... +20 dBm
Antenna	Coplanar wave guide

Microwave Switch

Rise time	< 10 ns
Isolation	> 80 dB
Input	Control unit & external

Photodiode

Type	Silicon PIN Photodiode
Responsivity (@ 650 nm)	0.45 A/W
Wavelength Range	300 ... 1100 nm

Optical filter

Type	Bandpass
Transmission band (T > 90%)	662 ... 799 nm
Suppression (320 ... 1120 nm)	> OD 6,5

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