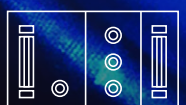
HighFinesse
Laser and Electronic Systems



Precision Current Sources

Developed for experiments and quantum technologies in the areas of cold-atom and solid state physics

Typical Applications

Magnetic traps, atom chips, Feshbach resonances, magnetic field control and compensation, magnetometers, NMR, SQUID.

Customization

With our current sources we are always open for customers requirements, so please don‘t hesitate to contact us for user defined functions or OEM applications.

HighFinesse Precision Current Sources have been developed for experiments and quantum technologies in the areas of cold-atom and solid state physics. The linearly regulated BCS (Bipolar Current Source) and UCS (Unipolar Current Source) series deliver highly stable, low noise source currents for high precision magnetic field control. The current output is floating or is on a used defined potential. Ultrafast response to control signals and trigger functions, clear grounding, connection and signal isolation schemes make the integration of the current sources into complex experimental systems easy.

- Current output: floating or on user defined potential
- Analog / digital / manual current control
- Trigger functions
- Response time: adjustable between 50 µs and 100 ms
- Current stability and reproducibility on the ppm level
- Mains suppression: below $10^{-5} \times I_{max}$
- Galvanic/quasi-galvanic isolation of control signals

Besides the standard BCS- and UCS-Series, HighFinesse offers the very compact and modular SMD-BCS series, based on SMD electronics. SMD based micro- and milliampere sources are available with integrated batteries and recharger unit.

According to power ratings the current sources are built as air cooled or water cooled units. The current sources are supplied form the mains (single or three phase mains connection) or optionally from batteries.

Power Line:
Purest current up to 200 A

The water chilled unipolar (UCS) and bipolar (BCS) current sources deliver up to hundreds of Amps with so far unprecedented precision and fast response. The constant low temperature of the water chilled power electronics results in extremely high stability and low noise figures.The Power-Series feature all comfortable control units. The operation of the Power-Series is just as easy as of any other of HighFinesse’s current source.

Compact Line:
Ultra low noise current up to 20 A

The BCS series (up to 20 A) comprises all functions of a precision current generator in a compact instrument. The linearly regulated bipolar current generators deliver highly stable, low noise source currents for high precision magnetic field control.

SMD Line:
Modular & mobile

The SMD-Series pushes the performance of the bipolar current source to the limits. With compact circuit boards and SMD components, the sources are reaching the lowest noise level and fastest response. The modular design allows the selection of operational units that are most important for the desired application, leaving out other modules. The sources can be supplied from the mains or from external batteries. Ideal for mobile systems. An optional manual control module and digital display make operation of the source easy also in standard lab applications.

Milliamp Line:
Compact and mobile up to 20 mA

The compact micro- and milliampere precision current sources generate currents proportional to an analog control voltage. The sources are supplied from batteries integrated in the housing of the source together with a recharger unit. Full functionality for controlling micro- and milliamps on ultra fast time scales and at ultra low noise level.

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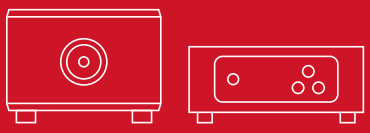
Wavelength Meter

HighFinesse/Ångstrom offers sensitive and compact wavelength meters with a large spectral range for high speed measurement of lasers. The optical unit consists of temperature-controlled Fizeau-based interferometers that are read out by photodiode arrays. The high absolute accuracy is achieved by use of solid state, non-moving optics. The optical unit and associated electronics are housed in a compact, thermal casing. The connection to a computer or notebook is realized via a highspeed USB 2.0 port, which allows a high data read-out rate. The analyzing software displays all the interferometer information.

Spectrometer OSA

HighFinesse/Ångstrom optical spectrometers LSA and HDSA are designed to analyze the multi-line or broadband spectrum of light sources like cw and pulsed lasers, gas discharge lamps, super luminescence diodes, semiconductor laser diodes and LEDs. They are suitable to analyze the spectrum of telecom signals, resolve Fabry-Perot modes of a gain chip, and produce a spectral measurement of gas absorption.



Linewidth Analyzer

HighFinesse Linewidth Analyzers (LWA) are specialized high-end instruments for measuring and analyzing the spectral shape of various laser sources. Through the use of two measurement modes, the LWA can analyze both very narrow laser lines down to 100kHz as well as broader spectra up to 1GHz. They feature an extremely high resolution and accuracy in determining the linewidth of the respective laser source and its spectral lineshape. The LWAs are ideal for optimizing the stability of laser setups.

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