



HyperFine HF Series Spectrometers

compact, sub picometer resolution

The HyperFine HF series of spectrometers are based on LightMachinery's patented fluid jet polishing technology. Designed for measuring hyperfine spectra and subtle spectral shifts, the HyperFine spectrometer from LightMachinery is a compact spectrometer capable of **1 picometer resolution**.

It is ideal for measuring fine features in plasmas, pulsed laser characterization and for measuring the small spectral shifts from Brillouin or Raman scattering. Simple PC based software allows the user to review spectra in real time and save or export for more analysis. LabView drivers enable the HF series to be integrated into automated experimental setups.

Features

- FAST, No moving parts (single shot spectrum analysis)
- Sub picometer resolution
- Fiber optic input
- Quick data acquisition and export
- Simple USB interface
- LabView Drivers

Benefits

- Fast acquisition (>10Hz)
- Compact
- Can resolve hyper fine spectra below 1 picometer
- Ultra-reliable
- Large range-over-resolution ratio (>10000)
- LightMachinery's legendary customer support

Light source characterization

- Lasers of all types
- Single shot pulsed laser spectrum
- Super luminescent diodes
- Gas discharge lamps, etc

Passive components characterization

- Notch filters
- Etalons
- Fiber Bragg gratings, etc

Spectroscopy

- Plasma spectroscopy
- High-precision gas spectroscopy
- Brillouin spectroscopy
- Femtosecond comb fingerprinting spectroscopy
- Spectral-domain optical coherence tomography
- Solar spectroscopy
- Astronomical spectroscopy
- Raman and ultra-low frequency Raman
- Undergraduate physics and chemistry laboratories
 - Zeeman splitting
 - Hyperfine magnetic structure of elements
 - Hydrogen structure
 - Doppler shift of Fraunhofer lines due to sun rotation

Form Factors:

- A: 10 x 24 x 6 inches
- B: 22 x 13 x 6 inches
- C: 8 x 8 x 5 inches
- D: 28 x 15 x 6 inches

Part Number	Form Factor	Total Range (nm) with manual grating rotation	Simultaneous Range (nm) without grating rotation	Resolution (pm)	Resolution (1/cm)
HF-8993-1	A	270 - 330	12	<2.5	0.3
HF-8993-2	A	270 - 330	25	<5	0.6
HF-11457	C	250 - 320	50	<15	1.7
HF-11458	C	280 - 360	80	<15	1.7
HF-9340	C	fixed grating	350 - 450	<25	1.5
HF-9332	C	fixed grating	450 - 650	<30	0.9
HF-8989-1	A	400 - 500	15	1.0	0.05
HF-8989-2	B	500 - 600	15	1.0	0.03
HF-8989-2e	B	525 - 640	15	1.0	0.03
HF-8988*	A	500 - 550	15	15	0.55
HF-8989-3	A	600 - 700	15	1.0	0.02
HF-9353	C	fixed grating	700 - 1050	<30	0.4
HF-8995-1	B	700 - 900	25	2.0	0.03
HF-8995-1-0.5	D	700 - 900	6	<1	0.01
HF-8991-3	A	800 - 1000	20	2.0	0.02
HF-8995-2	A	900 - 1100	20	2.0	0.02