CoSF-D-ER-B-LP Narrow Linewidth Single Frequency Fiber Laser

Description:

Connet CoSF-D is a low-noise Single Frequency Fiber Laser based on Distributed Feedback Bragg Grating (DFB) technology. It has independent intellectual property rights and achieves a stable single-frequency laser output with single longitudinal mode, linear polarization, and narrow linewidth. CoSF-D has very low phase and frequency noise and low relative intensity noise (RIN). Connet uses unique packaging technology to ensure low-noise DFB single frequency fiber lasers with excellent wavelength stability.

Connet uses extra-cavity technology to significantly suppress the relative intensity noise (RIN) of the DFB single frequency fiber laser, ensuring that the resonant cavity of the single frequency fiber laser is not disturbed. Please refer to CoSF-D-RS series products.

CoSF-D-ER-B-LP works in the 1.5um band, and the output power of the benchtop low noise narrow linewidth single frequency fiber laser is up to 200mW. Higher output power products can be provided on request. The standard wavelength is 1550.12nm, and the optional wavelength range is 1535-1605nm, such as the standard wavelength under the ITU framework.

Features:

- Ultra-narrow linewidth <1kHz
- Very low phase noise and frequency noise
- Low relative intensity noise (RIN)
- Stable single frequency, single polarization output
- No mode-hopping
- Benchtop all-in-one package
- High reliability

Applications:

- Distributed optical fiber sensing
- Coherent LiDAR
- Fiber optic hydrophone
- Laser spectroscopy
- Coherent communication
- Gas absorption measurement
- Cold atomic physics
- Other scientific research

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Specifications:

Parameter	Unit	Specification		
		Min	Typ.	Max
Part no.		CoSF-D-ER-B-LP		
Center wavelength	nm	1530-1572nm fixed, other specify		
Output power	mW	5	-	200
Laser output		CW, Single frequency & Single longitudinal mode		
Beam quality	M^2	-	1.05	1.1
Linewidth	kHz	-	-	1
RIN peak frequency	kHz	200	-	500
RIN peak	dBc/Hz	-	-105	-100
RIN @10MHz	dBc/Hz	-	-130	-125
Phase noise (1m OPD)	urad/√Hz	<100@100Hz		
	urad/√Hz	<10@10kHz		
	urad/√Hz	<1@100kHz		
SMSR (50pm resolution)	dB	60	70	-
Output polarization		Linear		
Polarization extinction ratio (PER)	dB	20	23	-
Output power stability	%	-	0.5	1
Output isolation	dB	50	-	-
Wavelength thermal tuning	nm		0.3	
PZT wavelength modulation		Optional		
Modulation frequency (linear)	kHz	DC	10	20
Modulation wavelength range	GHz	-	10	15
Operating temperature	℃	0	-	+50
Storage temperature	℃	-20	-	+60
Power supply	V_{AC}	100-240V 50/60Hz		
Communication interface		RS232		
Output fiber type		Panda PM1550		
Output fiber length	m	> 0.5		
Optical connector		FC/APC		
Dimension	mm	430x450x105		
Weight	kg	<5		

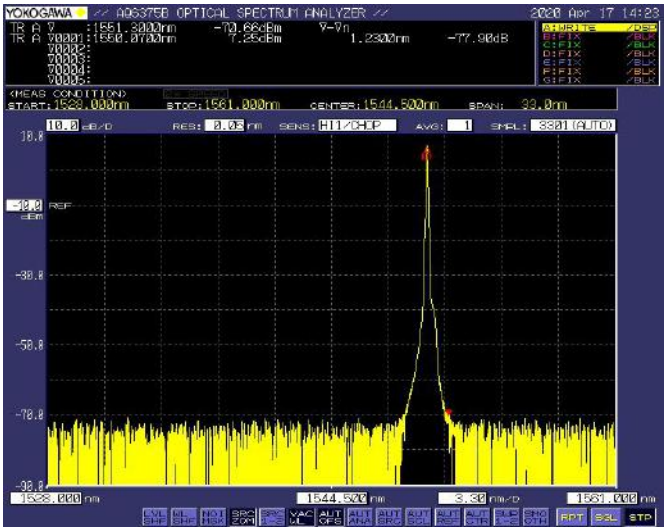
Ordering Information:

CoSF-D-ER-B-LP-<15xx>-<PW>-PMF/SMF-PZT-FA

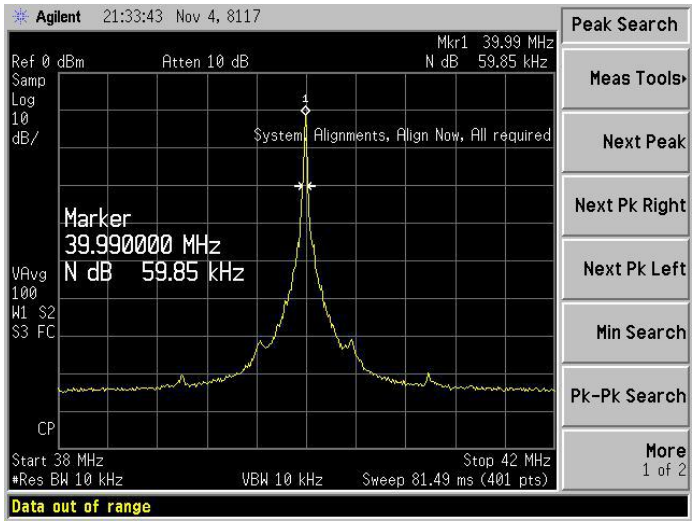
PW: Output power, 5- 20mW is fixed, 50mW, 100mW and 200mW output power are adjustable

Options: 1. SMF output 2. Monitoring output 3. PZT fast modulation

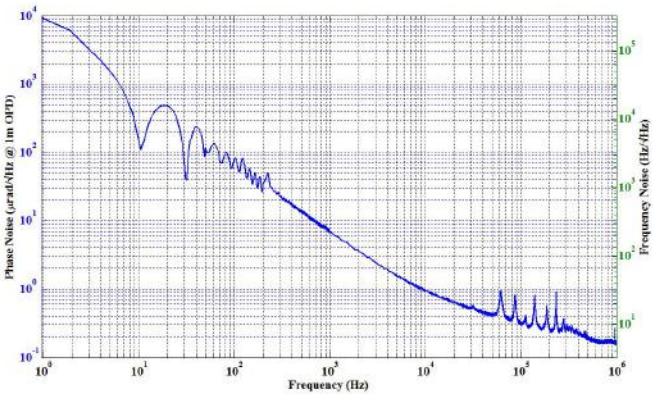
Typical Spectrum:



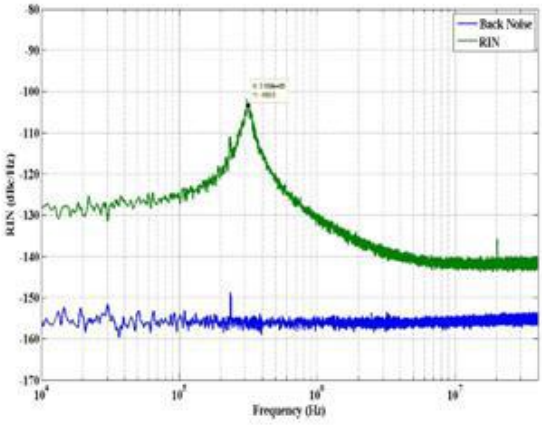
Linewidth:



Phase Noise & Frequency Noise:



Relative Intensity Noise (RIN):



Technical Notes:

1. Typical CoSF-D-ER-B-LP spectrum SMSR>75dB. OSNR is much higher.
2. The linewidth of CoSF-D-ER-B-LP can not be obtained directly from the beat spectrum of linewidth test based on unbalanced M-Z interferometer, which is limited by the resolution of the test platform. Its integral time is 240us.
3. The linewidth of CoSF-D-ER-B-LP is calculated based on the power spectral density of frequency fluctuation.
4. The phase noise and frequency noise tests are based on the normal conditions of the laboratory room temperature, and no sound insulation, vibration isolation and other measures are taken.