Fiber Raman Amplifier

STFRA Series

2024 V1

For customized projects please Contact us:

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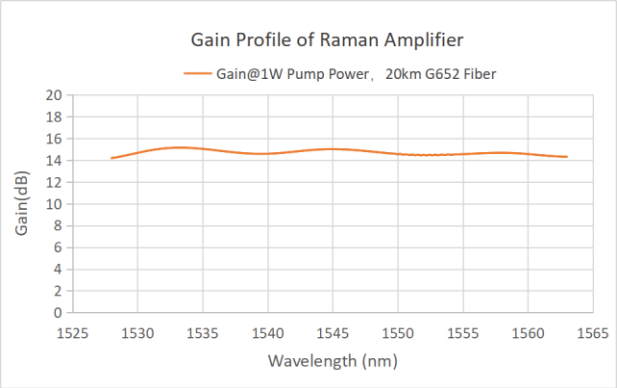
1st Order Distributed Fiber Raman Amplifier

SIMTRUM's Fiber Raman Amplifier utilizes the Raman scattering effect in quartz fiber to provide signal gain, offering flat gain spectrum and wide bandwidth. The first-order Raman amplifier uses 14xxnm laser as the Raman pump to amplify C-band signals, effectively compensating for signal attenuation in long-distance fiber transmission. Ideal for long-haul optical transmission systems and distributed fiber sensing systems. *Note 1



Features

- Wide wavelength range
- High gain factor
- Low noise figure

Application

- Long-distance fiber-optic communication
- Fiber-optic distributed sensing
- Fiber laser

Specifications

Optical Parameters	Unit	Typical Value	Remarks
Pump Wavelength	nm	1425~1465	Customizable
Signal Wavelength	nm	1528~1565	Customizable
Raman Gain	dB	10/20	*Note 2
Gain Flatness	dB	<2	*Note 2
Pump Power	mW	300/500/1000/1400	Customizable
Degree of Polarization DOP	-	5% (Typical), 10% (Max)	
Noise Figure	dB	0	
Fiber Type	-	SMF-28	
Connector Type	-	FC/APC	
Operating Mode	-	APPC (Automatic Pump Power Control)	

*Note 1: This amplifier serves as a Raman pump and requires the user's system fiber to generate Raman gain. It is not a discrete Raman amplifier; for transmission systems over 50km, a distributed Raman amplifier is recommended.

*Note 2: The gain of a distributed Raman amplifier refers to the signal power comparison at the system receiver with the Raman pump on and off (On-Off Gain), which differs from traditional amplifier gain. The actual effect depends on factors like fiber type, length, signal wavelength, and power. Typical values are for reference.

Specifications

General Parameters	Desktop Version	Modular Version
Control Mode	Button	RS232 Serial Communication
Communication Port	Optional	DB9 Female
Power Supply	AC100~240V, <45W	DC 12V3A
Dimensions	260(W)×280(D)×120(H)mm	125(W)×150(D)×31.5(H)mm
Operating Temperature	-5 ~ +35°C	
Operating Humidity	0~70%	

Ordering Information/ Product Code			
Series	**Signal Wavelength (nm)**	**Pump Power (mW)**	**Packaging**
STFRA	1550	300/500/1000/1400	M - Module
			B - Desktop

2nd Order Distributed Fiber Raman Amplifier

SIMTRUM's Second-Order Fiber Raman Amplifier builds on the first-order amplifier by adding pump lasers in the 1340~1360nm range to provide Raman gain for the 14xx nm first-order Raman laser. This effectively reduces system noise and is suitable for amplifying optical signals in longer distance relay-free transmission systems. The second-order amplifier must be used in conjunction with the first-order Raman amplifier for optimal performance.

Features

- Wide wavelength range
- High gain factor
- Low noise figure

Application

- Long-distance fiber-optic communication
- Fiber-optic distributed sensing
- Fiber laser

Specifications

Optical Parameters	Unit	Typical Value	Remarks
Pump Wavelength	nm	1340~1360	Customizable
Signal Wavelength	nm	1425~1465	Customizable
Raman Gain	dB	10/20	
Gain Flatness	dB	<2	
Pump Power	mW	300/500/1000/1400	Customizable
Degree of Polarization (DOP)	-	5% (Typical), 10% (Max)	
Polarization Dependent Gain (PDG)	dB	<0.2	
Polarization Mode Dispersion (PMD)	ps	<0.5	
Input/Output Return Loss	dB	>35	
Noise Figure	dB	0	
Fiber Type	-	SMF-28	
Connector Type	-	FC/APC	
Operating Mode	-	APPC (Automatic Pump Power Control)	

Specifications

General Parameters	Desktop Version	Modular Version
Control Mode	Button	RS232 Serial Communication
Communication Port	Optional	DB9 Female
Power Supply	AC100~240V, <45W	DC 12V3A
Dimensions	260(W)×280(D)×120(H)mm	125(W)×150(D)×31.5(H)mm
Operating Temperature	-5 ~ +35°C	
Operating Humidity	0~70%	

Ordering Information/ Product Code			
Series	**Signal Wavelength (nm)**	**Pump Power (mW)**	**Packaging**
STFRA	1450	300/500/1000/1400	M - Module
			B - Desktop

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