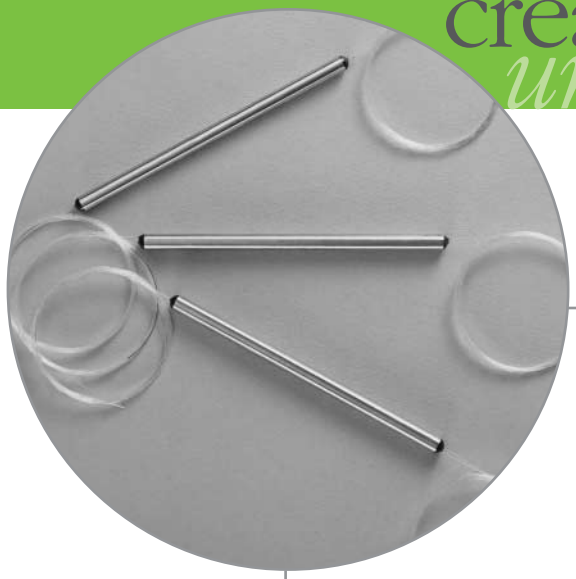
creating *unique advantages* together®



WavePump™ Raman Pump Laser Combiner

Features

- High optical power handling
- Very low insertion loss
- Multi-channel pumping
- Telcordia™ reliability
- Flexible wavelength and channel spacing

Benefits

- Increased amplifier power
- Enhanced amplifier reliability
- Higher amplifier efficiency
- Raman or EDFA design
- Economical

Product Capabilities and Value

Higher power amplifiers or new amplification methods are needed as system designers attempt to transmit more channels over longer distances. Raman amplification has emerged as a method to complement EDFA designs for ultra-long-haul signal transport. These new amplifiers require multiple high-power pump lasers, creating a need for a pump laser combiner that can handle 1 watt or more of pump power.

The WavePump is a reliable, low-loss, all-fiber pump laser combiner for use in Raman or EDFA amplifier designs. The Fused Cascaded Fiber (FCF) approach offers an intrinsically low loss design while allowing many pump lasers to be combined to achieve high amplification. High pump power levels are easily handled with the WavePump; the WavePump has been tested to several watts of input power. The available wavelengths cover the Raman pump wavelengths as well as the 980nm and 1480nm regions. The flexibility in wavelength and pump channel spacing are especially useful in Raman amplifier design and allow you to optimize the Raman gain.

WaveSplitter understands that excellent performance is just one of the many selection criteria for choosing a pump laser combiner, and the WavePump has been designed to meet high reliability standards.

Finally, WavePump offers a lower-cost alternative to other methods of combining pump lasers. When you combine the technical benefits of low-loss, multiple channels, and high power handling capability with the Telcordia™ reliability and value, the WavePump makes an excellent choice to meet your Raman amplifier design goals.

WAVESPLITTER™
Lighting the Internet on Fiber™

Performance Specifications for WavePump™ Raman[1-3]

Parameters	Specification
Available Channel Wavelength Range[4] (nm)	1420 to 1520
Available Number of Channels[5]	2, 3 and 4
Available Channel Spacing Range[6] (nm)	
2 Channels (nm)	7 to 60
3 & 4 Channels (nm)	7 to 25
0.5 dB Bandwidth	35% of channel spacing
Insertion Loss	
2 Channel (dB)	≤ 0.3
3 & 4 Channel (dB)	≤ 0.6
PDL (dB)	≤ 0.1
Isolation (dB)	≥ 15
Directivity (dB)	≤ -60
Return Loss (dB)	≥ 55
Typical Thermal Wavelength Drift (pm/°C)	5 to 7
Operating Temperature (°C)	-20 to 70
Storage Temperature (°C)	-40 to 85
Fiber Type	SMF 28
Optical Power (W)	≥ 5

US patent no. 5,809,190

Insertion loss, isolation, and PDL are typical values measured at the target wavelengths and room temperature.

1 - Options include packaging couplers as an assembly or an unspliced kit.

2 - Both internal and external termination of unused ports are available upon request.

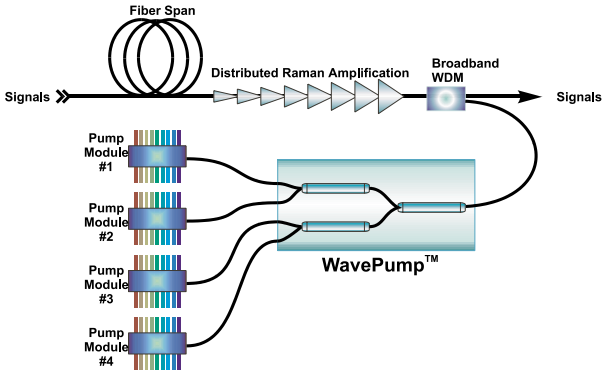
3 - Standard pigtail length = 100 (±10) cm.

4 - Measured wavelengths are referenced to vacuum unless otherwise requested.

5 - Higher channel counts up to 8 channels are available upon request.

6 - Custom channel spacing available.

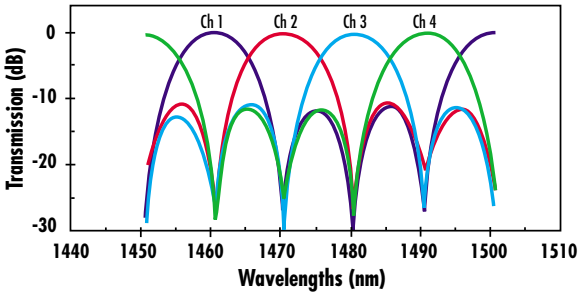
Note: All data taken prior to connectorization.



The WavePump™ Raman is used to combine multiple pump lasers in an optical amplifier.

WavePump Raman Ordering Information: Standard WavePump devices are specified with appropriate model number options. If you require devices with different specifications, please contact your sales representative for product availability.

	Channel Count	Channel Spacing	Channel Wavelength	Package Dimension
WP	__-	__ __ __ -	__ __ __ __ __ __-	__
	Ex. 2 = 2 Ch 3 = 3 Ch	Select a channel spacing from 5 to 25nm Ex. 5nm=050 15.5nm=155	Select a starting wavelength from 1420.00 to 1495.00nm Ex. 1450.00nm=145000 1472.50nm=147250	1 = D 1.2 2 = D 2.0



Spectral performance of a 4x1 1480nm WavePump.™ The WavePump has very low insertion loss at the pump laser wavelengths.

For more information on any WaveSplitter product contact your sales representative listed on our web site www.wavesplitter.com. Or contact WaveSplitter Technologies, Inc. directly at 510.580.8888.

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