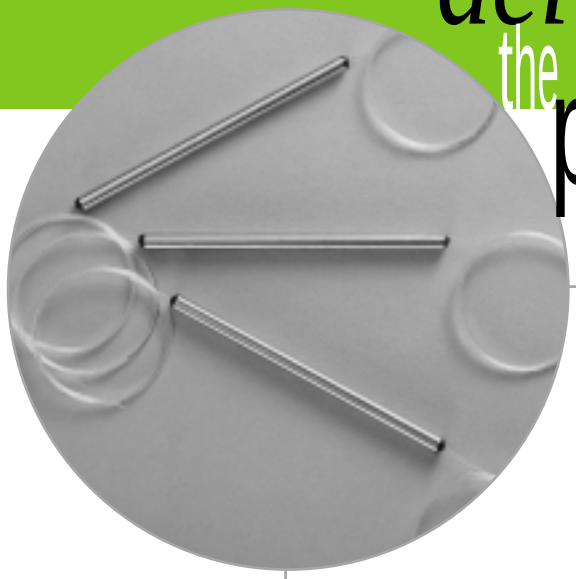
delivering the promise



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 a 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 the highest reliability standards. The WavePump meets or exceeds all of the Telcordia™ reliability requirements.

Finally, WavePump offers a lower-cost alternative to expensive polarization beam combiners and 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

Parameters	Specification
Available Channel Spacing Range[1] (nm)	5 to 25
Available Channel Wavelength Range[1] (nm)	1420 to 1490
Available Number of Channels	2, 3 and 4
0.5 dB Bandwidth	≥ 35% of channel spacing
Insertion Loss	
2 Channel (dB)	≤ 0.4
3 & 4 Channel (dB)	≤ 0.8
PDL (dB)	≤ 0.2
Isolation (dB)	≥ 15
Directivity (dB)	≤ -55
Return Loss (dB)	≥ 55
Thermal Wavelength Drift (pm/°C)	3 to 7 (typical)
Operating Temperature (°C)	0 to 70
Storage Temperature (°C)	-40 to 85
Fiber Type	SMF 28
Optical Power (mW)	Excess of 3,000
Dimensions[2, 3, 4] (LxD) (mm)	90 (±0.5) x 4.78 (±0.07)

Insertion loss, isolation, and PDL are measured at target wavelengths and room temperature. US patent no. 5,809,190

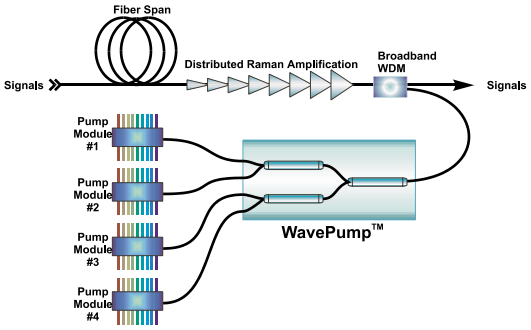
1 - Custom channel spacing and wavelengths available. Measured wavelengths are referenced to vacuum unless otherwise requested.

2 - Will also be available in a smaller package.

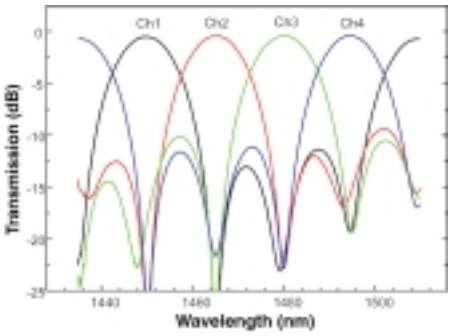
3 - Options include packaging couplers as an assembly or an unspliced kit.

4 - Termination of unused ports available upon request.

Note: All data taken prior to connectorization.



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



Typical spectra showing the multiple input channels of a WavePump.™ The WavePump has very low insertion loss at the pump laser wavelengths.

WavePump Raman Ordering Information: Standard WavePump devices are specified with appropriate part number options. If you require devices with different specifications, please see below for more information.**

	Channel Spacing	Channel Count	Channel Wavelength	Connector Type
WP4-	__ __ __	__ __-	__ __ __ __ __ __-	__ __
	Select a channel spacing from 5 to 20nm Ex. 5nm=050 15.5nm=155	04 = 4 ch 03 = 3 ch 02 = 2 ch 01 = not used	Select a starting wavelength from 1420.00 to 1490.00nm Ex. 1450.00nm=145000 1472.50nm=147250	08 = LC 07 = ST 06 = FC/UPC 05 = FC/APC 04 = SC/UPC 03 = SC/APC 02 = ST/PC 01 = None*

* Denotes standard product

** Custom orders are those that require a specification or configuration other than what is printed. Add "9's" to the appropriate section of the order number.

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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