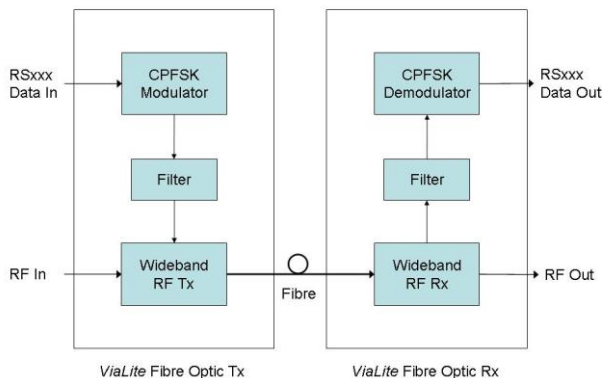


Combined RF and Digital Fiber Optic Link

- **Ultra-wideband RF operation from 10MHz to 4.2GHz**
- **Simultaneous transmission of digital data in RS422/485/232/TTL formats up to 20kb/s**
- **Ultra-wide dynamic range**
- **Single fiber operation for digital and analogue (RF) channels**
- **Independent of modulation format**
- **1550nm version for minimal loss in long haul applications**
- **Avoids cascaded amplifier chains improving system reliability**
- **Single transmitter can feed multiple receiver sites**
- **Custom and ruggedized equipment options for field deployment**
- **Immune to electrical noise / interference / EMC / LEMP / NEMP**

The **ViaLite** combined wideband RF signal and digital data fiber optic link supports simultaneous transmission of 10-4200MHz RF signals and up to 20kb/s simplex digital data in RS422/485/232 formats over a single optical fiber. It provides a high performance, high reliability, transparent cross-site connection between RF communication and digital control equipment.

The wideband RF channel is independent of signal format and together with its inherently low phase noise the link is suitable for almost any type of analogue or digital signal modulation, including FM and QPSK.



Digital data transmission (using available bandwidth below 10MHz) is independent of the RF signal. It provides a convenient way for the digital signal to be simultaneously transmitted with the RF signal over the same fiber.

Typical applications:-

- Secure antenna remoting/control for special forces/government
- Software upload and system control via digital channel
- Bi-directional configurations for TETRA/cellular/WiMAX repeaters

The **ViaLite** system comprises rack mounted modules that plug into 19" 3U chassis/power supply. Alternatively, up to 3 modules can be fitted into a 1U high 19" chassis, or standalone modules are available. A wide range of additional modules and accessories that might be required in any typical installation are also available in the **ViaLite** range.

The most recent addition is the small form factor OEM module that allows System Integrators and Original Equipment Manufacturers an easy route to build RF/optical interfaces into their own design.



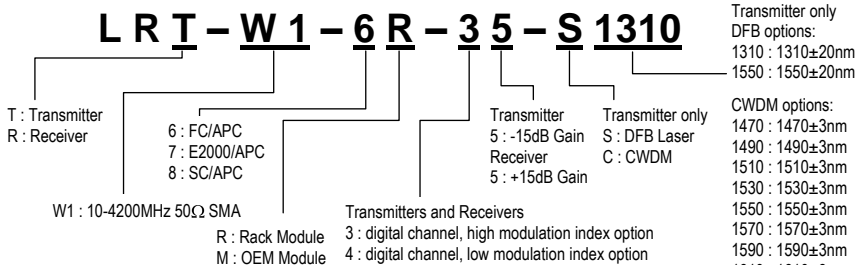
RF and Digital Data Performance Characteristics

	Rack Module Fixed Gain Link	OEM Module Fixed Gain Link
RF Performance		
Frequency Range	≤10MHz to ≥ 4200MHz	≤10MHz to ≥ 4200MHz
RF Link Gain (nominal)	0dB ±3dB ^a	0dB ±3dB ^a
Gain Flatness	±1.0dB 10MHz-3GHz ^a ±1.5dB 3GHz-4.2GHz ^a	±1.0dB 10MHz-3GHz ^a ±1.5dB 3GHz-4.2GHz ^a
CNR, 2.4kHz bandwidth, -40dBc IMD	>105dB ^a	>105dB ^a
Input Third Order Intercept	+13dBm ^{at}	+13dBm ^{at}
Input P1dB @ 1.2GHz	+1dBm ^{at}	+1dBm ^{at}
Noise Figure @ 1.2GHz	23dB ^{at1}	23dB ^{at1}
SFDR	109dB Hz 2/3 ^{at1}	109dB Hz 2/3 ^{at1}
Digital Performance		
Data format	RS422, RS485, RS232 and TTL is selectable on input of Tx and output of Rx. TTL input logic threshold high V _{INH} = 2.4V min.	RS422, RS485, RS232 and TTL is selectable on input of Tx and output of Rx. TTL input logic threshold high V _{INH} = 2.4V min.
Data Rate	0 to 20kb/s, asynchronous, NRZ, simplex	0 to 20kb/s, asynchronous, NRZ, simplex
Bit Error Rate	<10 ⁻⁸	<10 ⁻⁸
Delay	<5µs for Tx and Rx modules with 1m fiber Approximately 5ns/metre delay due to optical fiber	<5µs for Tx and Rx modules with 1m fiber Approximately 5ns/metre delay due to optical fiber
Output Rise/Fall Time (10/90%)	<2.5µs	<2.5µs
Optical loss budget	High modulation index option, 0-10dB optical loss budget Low modulation index option, 0-3dB optical loss budget	High modulation index option, 0-10dB optical loss budget Low modulation index option, 0-3dB optical loss budget
Digital carrier sidebands	High modulation index option, 55dBc relative to RF carrier Low modulation index option, 70dBc relative to RF carrier	High modulation index option, 55dBc relative to RF carrier Low modulation index option, 70dBc relative to RF carrier
^a nominal input power @0dB optical loss ^t typical		

Optical Performance Characteristics

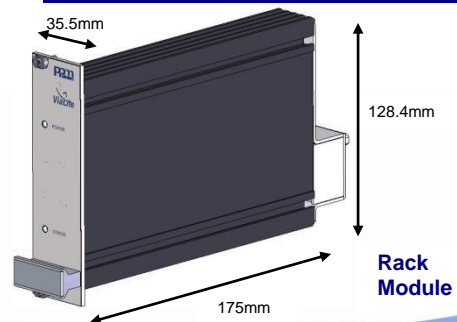
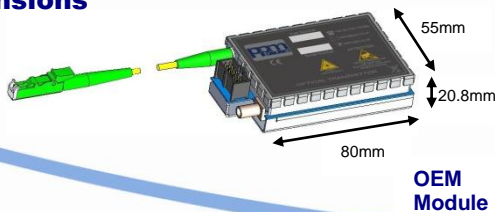
	Rack Module Fixed Gain Link	OEM Module Fixed Gain Link
Laser Type / Optical Wavelength	DFB / 1310 nm ± 20 nm (1550nm/CWDM options)	DFB (FP option) / 1310 nm ± 20 nm (1550nm/CWDM options)
Optical Power Output / Optical Connector	4.5 dBm (nominal) / FC/APC (E2000/APC and SC/APC options)	4.5 dBm (nominal) / FC/APC (E2000/APC and SC/APC options)

Part Numbers and Options



Note – this module has two options of digital channel signal level modulation relative to the RF signal level, refer to the specification to decide which optical loss and signal level combination is most appropriate.

Mechanical Dimensions



Accessories

L RK2S	3U 8 Module Chassis + 2 PSU's
L PS-M	Main Power Supply Module
L PS-R	Reserve Power Supply Module
75003	Single Module Sleeve
75004	1U 3 Slot Chassis
L RD-x	RF Splitter Module
L RS-xx	1:1 Redundancy Switch
L SX-xx-xx	Ethernet or Serial Digital Module
L RC-1	SNMP Network Control Module
75010-xxx	Outdoor Enclosures