

## ViaLiteHD® – 6 GHz Link

### 6 GHz RF over Fiber Link

- 10 MHz to 6 GHz Link
- Application specific gain pair options
- 18 CWDM wavelengths available
- High Spurious Free Dynamic Range (SFDR)
- High 1 dB compression point available
- Low Noise Figure
- Connectivity for M&C
- Supports long distance links applications
- 5-year warranty



Blue OEM Module  
Individual  
TX or RX

Outdoor IP55 rated  
Black OEM Module  
Individual TX or RX

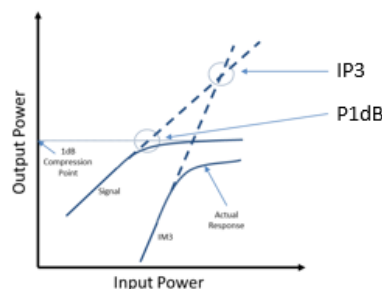
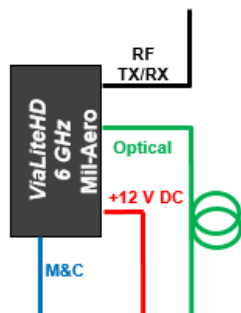
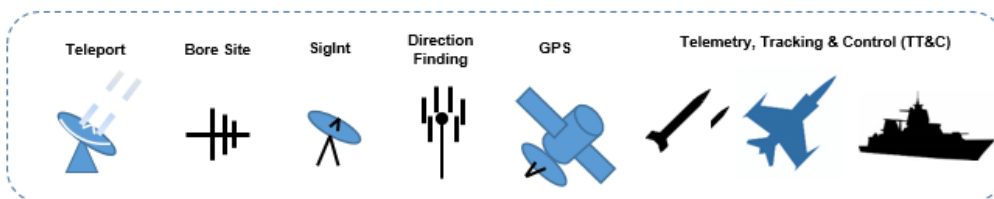


The **ViaLiteHD** 6 GHz Link RF over Fiber product has been designed for use in Mil-Aero applications such as Bore-sight communications (for both transmit and receive), Telemetry, Tracking and Control (TT&C), and Signal Intelligence gathering (SIGINT). Each different 6 GHz Link pair's electrical performance can be optimized in the field to create an excellent balance between desired gain level, high P1dB compression point (CP), high output power and low noise figure (NF).

All 6 GHz Link pairs come with the same industry leading spurious free dynamic range (SFDR).

When harsh environmental conditions are a design consideration, **ViaLite's** outdoor rated IP55 Black OEM modules can be used, or the **ViaLite** Blue OEM modules can be installed within a variety of outdoor enclosures. **ViaLite's** 6 GHz Links come in various form factors, such as stand-alone modules (Blue and Black) and chassis rack cards for use in a **ViaLiteHD** 1U or 3U chassis. Chassis rack cards can be managed and configured via a site controller which utilizes SNMP and web interface, whereas stand-alone modules are field configurable via USB-C serial cable.

#### Deployment examples



**Standard Gain Link Pair:**  
Higher input level, P1dB = 0 dBm  
Typically used for unity gain

**High Gain, Low Noise Link Pair:**  
Typical input level, P1dB = -15 dBm  
High gain = 20 dB

**High Output Link Pair:**  
Higher input level, P1dB = 0 dBm  
Higher output level, +10 dBm

## Technical Specification

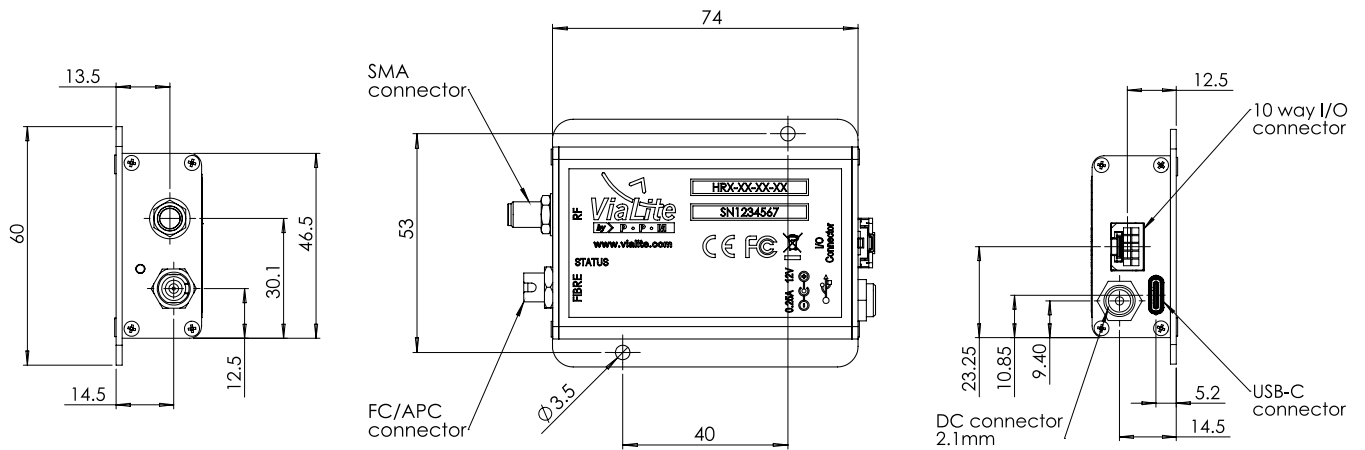
	<b>Standard Gain Link</b> HRT-Y1-xx-04-C1310 HRR-Y1-xx-05	<b>High Gain Link</b> HRT-Y1-xx-01-C1310 HRR-Y1-xx-05	<b>High Output Link</b> HRT-Y1-xx-04-C1310 HRR-Y1-xx-03
Frequency (typ.)	10 MHz to 6 GHz	10 MHz to 6 GHz	10 MHz to 6 GHz
Input P1dB (typ. @ 1500MHz)	0 dBm	-15 dBm	0 dBm
IP3 (typ. @ 1500MHz)	10 dBm	-5 dBm	10 dBm
Gain Slope	<-0.35 dB / GHz	<-0.35 dB / GHz	<-0.40 dB / GHz
Gain Ripple	< +/-1 dB	< +/-1 dB	< +/-1.2 dB
Gain Adjustment from Nominal	+5 dB to -9.5 dB 0.5 dB attenuation steps	+5 dB to -9.5 dB 0.5 dB attenuation steps	+5 dB to -9.5 dB 0.5 dB attenuation steps
Nominal Link Gain (typ.)	+5 dB Gain Tx -10 dB, Rx +15 dB P/N Tx = 04, P/N Rx = 05	+20 dB Gain Tx +5 dB, Rx +15 dB P/N Tx = 01, Rx = 05	+10 dB Gain Tx -10 dB, Rx +20 dB P/N Tx = 04, Rx = 03
Impedance	50 Ohm	50 Ohm	50 Ohm
Noise Figure (typ. @ 1500MHz)	20 dB	10 dB	20 dB
Noise Figure (typ. @ 3500MHz)	23 dB	12 dB	23 dB
Noise Figure (typ. @ 6000MHz)	29 dB	19 dB	29 dB
Isolation (typ.)	>60 dB	>60 dB	>60 dB
VSWR (typ.)	1.5:1	1.5:1	1.5:1
Gain Stability over Temperature (typ.) <sup>a</sup>	+/-3 dB	+/-3 dB	+/-3 dB
SFDR (typ. @ 1500 MHz)	109 dB / Hz (2/3)	109 dB / Hz (2/3)	109 dB / Hz (2/3)
SFDR (typ. @ 5 GHz)	104 dB / Hz (2/3)	104 dB / Hz (2/3)	104 dB / Hz (2/3)
Optical Wavelength	1310 nm (Default) CWDM 1270-1610 nm ± 3nm		
Laser type	DFB - Distributed feedback laser		
Optical Power Output (Typical)	4.5 dBm		
Additional control features	Software controllable parameters via USB-C cable (Black & Blue OEM), p/n 55058 Software controllable parameters via SNMP (Rack card) Antenna Fault Detection (AFD), senses LNA current feed		
Maximum RF input power without damage	+20 dBm		
Operating temperature	-20 °C to +60 °C (OEM Modules)		
Humidity	0-95 % non-condensing		
Cooling	Convection		
Power consumption	Transmitter: 1.8 W typical Receiver: 1.2 W typical		
DC Input voltage	OEM Modules Only 8-15 V, 12 V nominal (>18 V damage)		
Power supply compatibility	Blue OEM p/n HPS-CP-W, OEM power supply, DC plug connector, wall mounting Black OEM p/n 73955 OEM power connector, 2m cable, bare wire end or p/n HPS-CY, OEM power supply, wall mounting, requires AC mains connection		
RF module Types	Rack Chassis Card: 1xTX, 1xRX, 2xTX, 2xRX, 1xTRX Blue OEM Module: 1xTX, 1xRX Black OEM Module: IP55 Rated 1xTX or 1xRX		

<sup>a</sup> measured across a temperature window of 40 °C

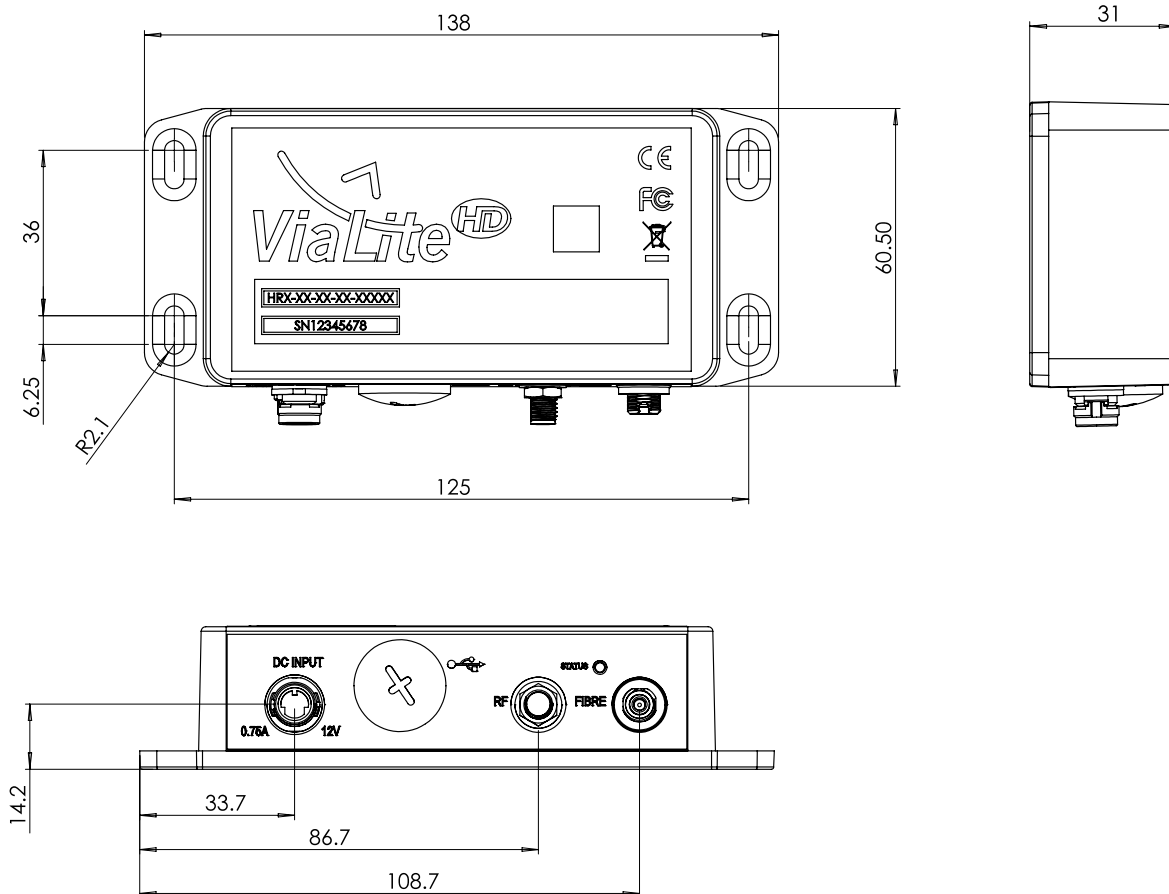


Single (Tx or Rx) or Dual (2xTx or 2xRx or TRX)  
Rack Card for 1U or 3U Chassis  
+ Dual PSU  
+ SNMP for M&C

## OEM Physical Dimensions (Blue OEM)



## OEM Physical Dimensions (Black OEM)



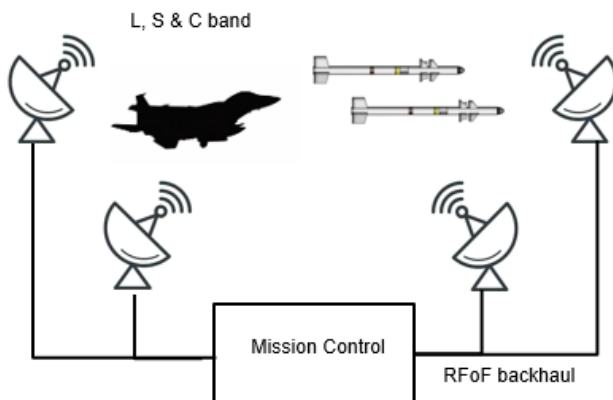
## Link Selection – Standard, High Gain or High Output?

Customer Application	Recommended Link Gain
<ul style="list-style-type: none"> <li>Versatile, general purpose</li> <li>Higher input RF power level range e.g. <math>\leq 0</math> dBm (typ.)</li> <li>Typical +5 dB to 0 dB gain in the link</li> <li>Typical use case; modem signal</li> </ul>	Standard gain link pair
<ul style="list-style-type: none"> <li>Low Noise Figure required</li> <li>Input RF power level range e.g. <math>\leq -20</math> dBm</li> <li>Significant gain in the link</li> <li>Typical use case; Low power level signal intelligence, downlink</li> </ul>	High gain link pair
<ul style="list-style-type: none"> <li>Highest output power, +10 dBm signal output with lowest harmonics <math>&lt; -3.5</math> dBc (typ.)</li> <li>Higher input RF power level range e.g. <math>\leq 0</math> dBm (typ.)</li> <li>Typical use case; Boresight transmit uplink without additional external amplification</li> </ul>	High output link

## Example application – Mil-Aero Boresight & Telemetry

Telemetry antenna\* used for tracking and collecting flight test instrumentation data from various types of test articles including manned aircraft, missile and drone. Frequencies used P, L, S & C-band through to 5150 MHz. The signals are received through these antenna systems and sent to mission control rooms through RF over Fiber (RFoF) backhaul network, where it is then analyzed and recorded.

\*Also referred to as Boresight Testing – narrow radio beam created by a parabolic antenna.



### RFoF Technical Requirements:

- Optimized uplink high output power with high input signal
- Optimized downlink for wide dynamic range due to multiple moving targets
- Low output harmonics
- Excellent linearity operational range
- Adjustment for neutral / positive gain

## OEM Power Supply Options

Blue OEM PSU	Black OEM PSU Options
<ul style="list-style-type: none"> <li>HPS-CP-W, Blue OEM power supply, Wall mounting DC plug connector</li> </ul>	<ul style="list-style-type: none"> <li>73955 Black OEM power connector, 2m cable, bare wire end, HR30-6PA-3S(71) power connector</li> <li>HPS-CY, Black OEM power supply, IP66 wall mounting for indoor/outdoor use</li> </ul>