ViaLiteHD® – L-Band HTS HWDR Links

Hyper-Wide Dynamic Range (S1)

- **Hyper-Wide Dynamic Range (HWDR)**
- **L-Band HTS (400-2500 MHz)**
- **Up to 114 dB/Hz$^{2/3}$ SFDR**
- **Supports 50+ km range**
- **S1 uses 5 mW laser**
- **DWDM channels available**
- **Standard 5-year warranty**

The *ViaLiteHD* L-Band HTS HWDR RF over fiber links have been designed for customers who need even greater dynamic range. The HWDR Series 1 (S1) links have a Spurious-Free Dynamic Range (SFDR) with an extra 4 dB/Hz over the standard *ViaLiteHD* product. This increase in SFDR allows an extra 4 dB of dynamic range for High Throughput Satellite (HTS) transponder bandwidths of 500, 800 or even 1500 MHz, allowing customers to improve intermodulation performance and/or reduce the minimum signal that can be detected. This is extremely important in HTS and Signals Intelligence (SIGINT) applications.

Options include
- 50 Ω RF: SMA
- Optical: SC/APC, FC/APC & E2000/APC
- Test ports on Tx and Rx modules
- Built-in Bias-T for LNB powering through RF connection
- LNB control circuit with 13/18 VDC & 22 kHz tone
- Blind mate connection (LC/APC only)

The HWDR cards are available with *ViaLiteHD* blind mate, which allows all cables to be connected at the rear of the chassis when installed. Blind mate also allows configuration changes to be completed without disturbing the connections and very fast changeover of cards; enabling five 9s reliability.

Applications
- Full Satcom transponder applications
- Defence Signals Intelligence (SIGINT)
- Fixed Satcom earth stations and teleports
- Telemetry
- Government installations
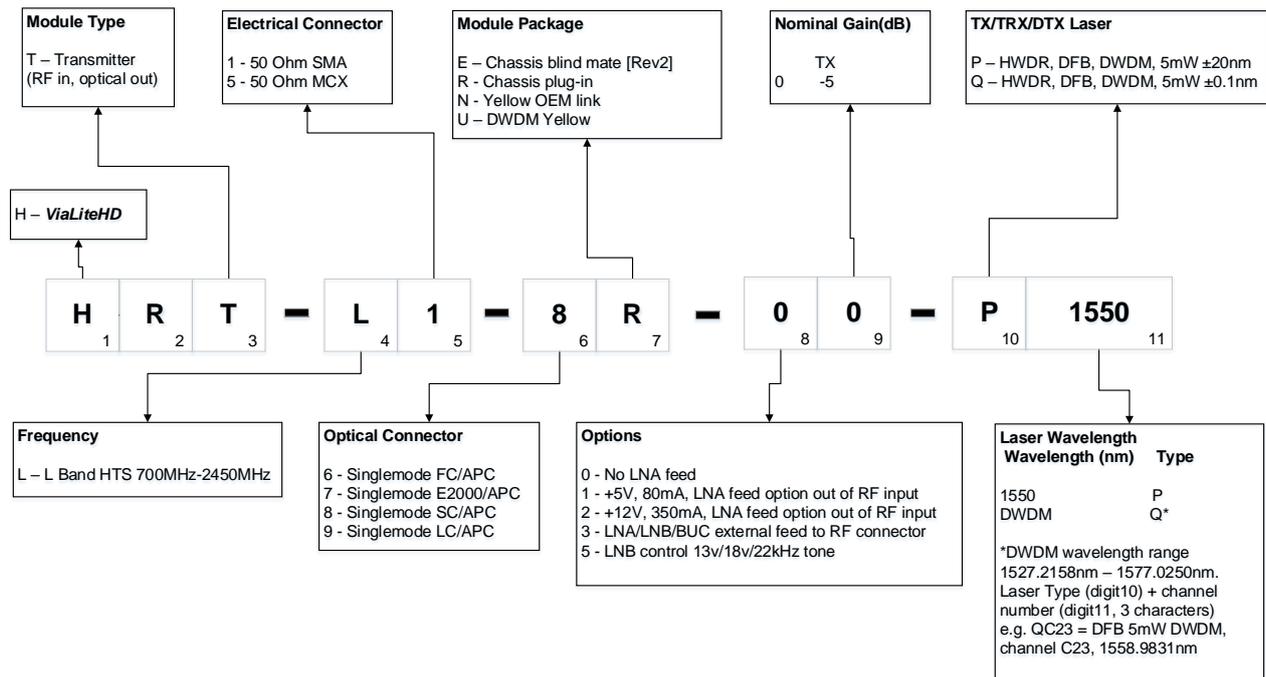- Remote monitoring stations

Enclosure formats
- 3U Chassis
- 1U Chassis
- Yellow OEM (S1 only)
- Outdoor enclosures

Technical specification

	50 Ohm L-Band HTS – HWDR Series 1 (S1)
Frequency range	400-2500 MHz
Impedance, RF connector	50Ω SMA, blind mate
VSWR	1:1.5
Link gain (Tx gain / Rx gain), default	0 dB (-5 / +5)
Tx gain adjustment range	10 dB
Tx gain adjustment from default gain	-6.5 to +3.5 dB
Rx gain adjustment range	14 dB
Rx gain adjustment from default gain	-10 to +4 dB
Gain adjustment step size Rx and Tx	0.5 dB
Flatness, fullband, L-Band	±1.5 dB
Flatness, fullband, L-Band	±0.5 dB
Flatness, 36 MHz, L-Band	±0.2 dB
Gain stability over temperature range	±1 dB
Gain stability	0.25 @ 24 hrs
Nominal input signal / output signal	-20 / -20 dBm
IMD @ nominal output power	-63 dB
CNR @ nominal input power, 36MHz	60 dB
P1 dB$_{input}$	-1.5 dBm
P1 dB$_{input}$, at maximum Tx gain	-5 dBm
IP3$_{input}$, at default gain	+9 dBm
Noise figure, at default gain	14 dB
Noise figure, at maximum Tx gain	11.5 dB
Noise figure, 5 dB optical loss	21 dB
SFDR, at default gain	112.5 dB
Test port gain, transmitter	-20 dB
Test port gain, receiver	-20 dB
Test port flatness	±1 dB
Maximum input power without damage	15 dBm
LNB power	Internal 13/18/22 V @ 700 mA with switchable tone
Power Consumption Tx	3.5 W, excluding LNA power
Power Consumption Rx	2.8 W
Optical connector	SC/APC, blind mate
Optical wavelength	1550 nm ± 0.3 or DWDM
Laser power	5 mW
Laser type	DFB (Distributed feedback), thermo-electric cooled laser
Receiver	Standard
Optical power output	+7.0 dBm
Summary alarm output	Open drain alarm: OPEN: Alarm, CURRENT SINK: okay
Operating temperature range	-20 °C to +60 °C
Storage temperature range	-40 °C to +70 °C
Humidity	95% non-condensing humidity

Product specification

Module Type	Electrical Connector	Module Package	Nominal Gain(dB)	TX/TRX/DTX Laser
T – Transmitter (RF in, optical out)	1 - 50 Ohm SMA 5 - 50 Ohm MCX	E – Chassis blind mate [Rev2] R - Chassis plug-in N - Yellow OEM link U – DWDM Yellow	TX 0 -5	P – HWDR, DFB, DWDM, 5mW ±20nm Q – HWDR, DFB, DWDM, 5mW ±0.1nm

H – *ViaLiteHD*

H	R	T	-	L	1	-	8	R	-	0	0	-	P	1550
1	2	3		4	5		6	7		8	9		10	11

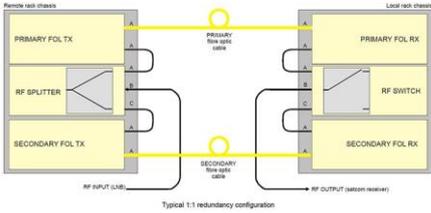| Frequency	Optical Connector	Options	Laser Wavelength
L – L Band HTS 700MHz-2450MHz	6 - Singlemode FC/APC 7 - Singlemode E2000/APC 8 - Singlemode SC/APC 9 - Singlemode LC/APC	0 - No LNA feed 1 - +5V, 80mA, LNA feed option out of RF input 2 - +12V, 350mA, LNA feed option out of RF input 3 - LNA/LNB/BUC external feed to RF connector 5 - LNB control 13v/18v/22kHz tone	Wavelength (nm) Type 1550 P DWDM Q* *DWDM wavelength range 1527.2158nm – 1577.0250nm. Laser Type (digit10) + channel number (digit11, 3 characters) e.g. QC23 = DFB 5mW DWDM, channel C23, 1558.9831nm

Popular products

HRT-L1-8R-30-P1550

ViaLiteHD RF Link, Transmitter (E/O), L-Band 700-2450 MHz, 50 Ohm SMA, Singlemode SC/APC, Rack plug-in module, LNA/LNB or BUC DC voltage feed to RF input or output conn' supplied from rear chassis SCSI conn' or OEM header conn', -5dB RF Gain, HWDR, DFB, 5mW DWDM, Wavelength 1550 +/- 20nm.

HRR-L1-8R-00

ViaLiteHD RF Link, Receiver (O/E), L-Band 700-2450 MHz, 50 Ohm SMA, Singlemode SC/APC, Rack plug-in module, No LNA Feed, 5dB RF Gain.

Accessories

Type	Key Features
SNMP/Web Browser Card 	• Easy to use graphical user interface (GUI) • Real time monitoring of card performance • Alarm monitoring and event logging • Control of gain adjustment • Compatible with all *ViaLiteHD* rack chassis and cards • Easy integration with network management systems (NMS) using management information base (MIB) tables • Actively manage redundancy switching • New RF cards can be automatically reprogramed with the previous card parameters • Remote SNMP to local SNMP connection via optical fiber • Provides remote LAN 10/100 Ethernet link
Dual Redundancy 	• 1:1 redundancy for L-Band • Maximizes link up-time • Can be used to backup copper coax • Manual and automatic control via SNMP • Flexible configuration options • Other redundancy options available
Rack Chassis 	• 3U accepts up to 13 RF or Support cards, plus an SNMP card and dual power supplies • A 1U chassis accepts up to 3 RF or Support cards or 2 cards and an SNMP card (with dual power supplies) • Up to 26 channels per 3U chassis (using dual RF cards) – reducing the amount of rack space required • Blind mate option • All modules hot-swappable and auto-reconfigure with SNMP option • On-card LNB and BUC power options • Power fed through rear chassis connector to card Bias Tees • System can be monitored and controlled remotely via SNMP using a web browser
Outdoor Enclosures 	• CE approved and EMC compatible • IP rated and NEMA approved • Plug and play format • Suitable for harsh environments • All modules hot swappable • Dual redundant power options • Interface for monitor and control (M&C) systems