ETL Systems
Excelling in RF Engineering

Model Number:
H0104D1ULA-22544-XXXX

4-way L-band VSAT TX-RX Hybrid Splitter & Combiner

with LNB powering, BUC powering and 10MHz Source

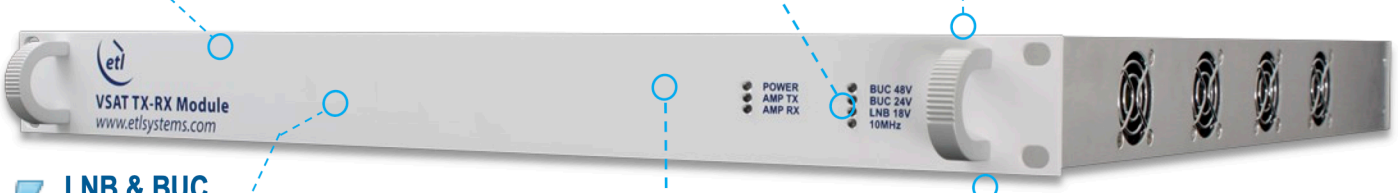
Typical applications:
- GSM Backhaul
- VSAT networks
- SNG and Outside Broadcast Trucks
- Teleports with limited rack space

ETL's VSAT TX-RX module is an L-band hybrid splitter and combiner shelf designed to power and reference VSAT terminals, as well as facilitate the use of multiple modems.

10 MHz reference source which can be injected from the internal or an external source

Local control & monitoring via front panel Tri colour LEDs to indicate PSU, LNB/BUC supplies, 10 MHz reference source and amplifier status.

850 - 2150 MHz operating frequency range.



LNB & BUC Powering 18V (LNB on Rx), 24 or 48V (BUC on Tx)

Compact housed in a 1U high chassis

Remote control & monitoring via RJ45 Ethernet port with SNMPv2 and ETL Proprietary TCP protocol

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Technical specifications and operating parameters

RF Parameters					
		RX Side		TX Side	
Capacity		1 in x 4 out Splitter		4 In x 1 out Combiner	
Frequency Range		850-2150 MHz (L-band)			
Connector & impedances		50Ω SMA, 50Ω BNC, 50Ω N-Type, 75Ω BNC & 75Ω F-type			
Insertion gain	Passive	-10 dB ±1 dB (Nominal mean across band)			
	Active	3 dB ±1 dB (Nominal mean across band)			
Flatness over 850-2150 MHz	Passive	±2 dB			
	Active	±1 dB			
Return loss	Input	50Ω SMA, 50Ω BNC, 50Ω N-Type: 15 dB Typical / 8 dB Minimum | 75Ω BNC & 75Ω F-type: 12 dB Typical / 7 dB Minimum			
	Output	50Ω SMA, 50Ω BNC, 50Ω N-Type: 15 dB Typical / 8 dB Minimum | 75Ω BNC & 75Ω F-type: 12 dB Typical / 7 dB Minimum			
1 dB Compression Point		+ 9 dBm Typical | + 7 dBm Worst Case		+ 14 dBm Typical | + 12 dBm Worst Case	
OIP3		+ 24 dBm Typical | + 20 dBm Worst Case @2150MHz		+ 28 dBm Typical | + 25 dBm Worst Case @2150MHz	
Noise Figure		11 dB Typical | 14 dB Worst Case		17 dB Typical | 20 dB Worst Case	
Input RF Power		+16 dBm (Absolute Maximum)			
LNB / BUC Power		18V DC, 0.5A DC via common (RF in) port (Always on)		24V 3.2A or 48V 4.15A DC via common (RF out) port (Always on, user selectable)	
10 MHz tone		Always supplied via common (RF in) port , Always on, selectable internal/external			
		10 MHz Source			
10MHz Reference Source		Internal / external (via BNC on rear panel) Selectable internally/externally, always supplied to both Rx & Tx sides			
Frequency		10MHz (Factory setting is to ± 1ppm, ± 10Hz)			
Output Level		-3.5 ±2 dBm (Tx & Rx ports terminated) , Web browser provides indicative measurements			
		-3.5 ±3 dBm (all conditions) , Web browser provides indicative measurements			
10MHz Insertion Loss		7.5dB ± 2dB (when 10MHz injected from external port)			
Output Type		Sine Wave			
Harmonic & Spurii Levels		2nd Harmonic Level: <- 60 dBc (typically 70 dBc)		3rd Harmonic Level: <- 55 dBc (typically 60 dBc)	All other spurii: <- 65 dBc
Internal Reference		10MHz Sine Wave Ovenised Crystal Oscillator			
Frequency Stability Over Temperature		±1 x 10^{-8} (0 to +55ºC)			
Reference Source Ageing		±5 x 10^{-8} / year			
Reference Source Phase Noise		<-85 dBc / Hz @ 1Hz	<-115 dBc / Hz @ 10Hz	<-140 dBc / Hz @ 100Hz	<-150 dBc / Hz @ 1000Hz	<-155 dBc / Hz @ 10000Hz
Warm up time		<2 minutes At 25ºC to within <±1 x 10^{-7}			

Environmental		
Operating temperature	0 to 50˚C	
Location	Indoor use only	
Storage temperature	-20˚C to +75˚C	
Humidity	85% non-condensing	Relative Humidity
Altitude	10,000 feet AMSL	Above Mean Sea Level

System Control	
Alarms	Full status and alarms are also available via the Ethernet interface.
Local control & monitoring	Front panel Tri colour LEDs to indicate PSU, LNB/BUC supplies,10MHz and amplifier status.
Remote control Monitoring	RJ45 port with 10baseT/100baseTX Ethernet offering web browser access, SNMPv2, and ETL Proprietary TCP Protocol

Power		
Power Supply	85-264Vac 50/60Hz	Single power supply and mains inlet (with on/off switch built into the inlet)
AC consumption	<35W	At steady state (Excludes BUC/LNB load)

Physical	
Dimensions	1U high x 350mm deep x 19" wide
Weight	6.7 kg
Colour	RAL9003 - White (Semi-Matte)

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.
Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.