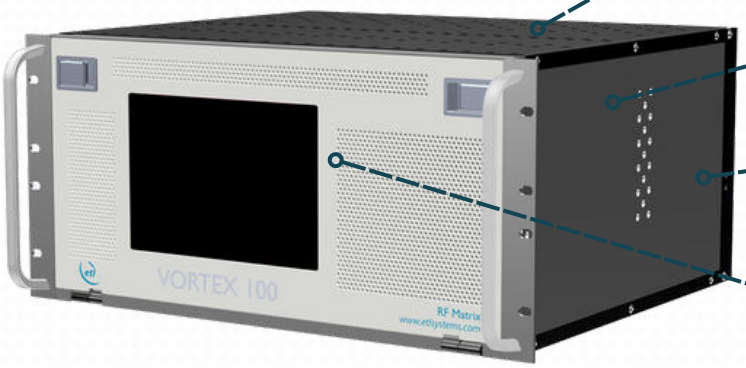
64 x 64 Vortex L-band Combining Switch Matrix / Router

New compact design & enhanced RF performance

ETL's Vortex Extended L-band matrix has been redesigned to now offer an extremely compact form factor, and enhanced RF performance. Vortex uses leading edge technology switching cards, giving excellent RF performance in a compact chassis.

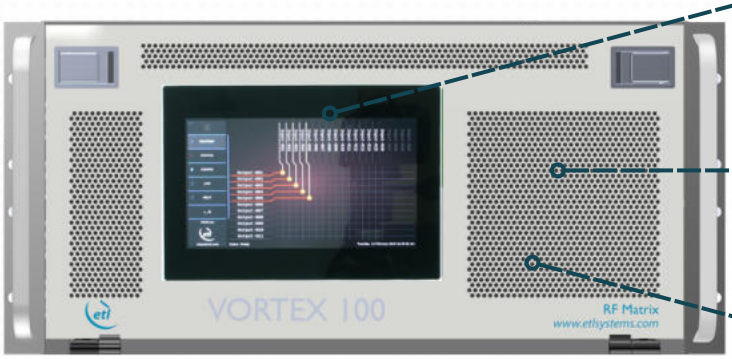


850 - 2450 MHz
operating frequency range

Improved RF Performance
including noise figure, return loss, OIP3 & isolation

Compact
up to 64 inputs & 64 outputs housed in a 5U high chassis

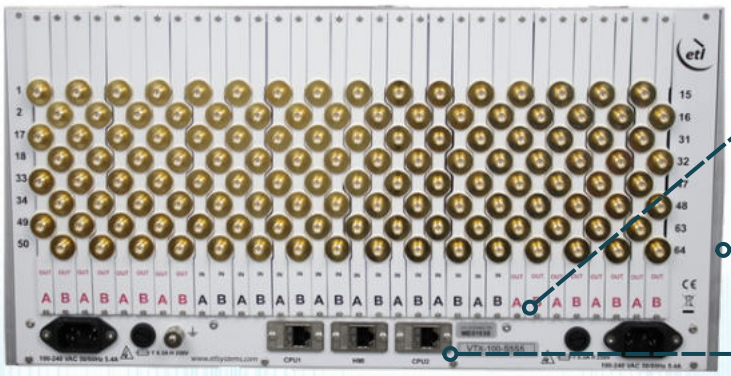
Local control & monitoring
via front panel capacitive touchscreen



Expansion
in blocks of 16 or with additional matrix modules for larger systems

Resilience
from dual redundant power supplies & CPU modules

Minimal impact from failure
with hot-swap RF cards, power supplies, CPU & fans



Self diagnostics
with continuous monitoring of amplifiers, CPU's & PSU's

Future proof secure protocols
with SNMPv3 & HTTPS

Remote control & monitoring
via RJ45 Ethernet port with SNMP & web browser interface

RF Parameters					
Capacity		64 inputs x 64 outputs			
Routing		Combining, non-blocking. Many inputs can be routed to each output.			
Frequency Range		850-2450 MHz (Extended L-band)			
Switching Time		< 150ms from receipt of a command to implementation of path change			
Input RF Power		+ 20 dBm		Absolute maximum	
RF Connectors & Impedances		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
		All ports DC blocked			
Gain (Typical, mean across band)		0±2 dB	0±2 dB	0±2 dB	0±2 dB
Gain Flatness	850-2450MHz	±2.5 dB	±2.5 dB	±2.75 dB	±2.75 dB
	Any 36MHz in 850-2450MHz	±0.45 dB	±0.45 dB	±0.5 dB	±0.5 dB
	850-2150MHz	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
	Any 36MHz in 850-2150MHz	±0.3 dB	±0.3 dB	±0.5 dB	±0.5 dB
Input Return Loss	Typical	20 dB	20 dB	14 dB	14 dB
	Minimum	12 dB	12 dB	8 dB	8 dB
Output Return Loss	Typical	20 dB	20 dB	14 dB	14 dB
	Minimum	14 dB	12 dB	8 dB	8 dB
Isolation (Min. between any 2 ports)	Input-Input	75 dB			
	Output-Output	75 dB			
	Input-Output	60 dB			
Noise Figure	Typical	23 dB		With one input routed to one output.	
	Maximum	26 dB			
1dB GCP (dBm)		Typ. 12 dBm		1dB Gain Compression point, output power	
OIP3 output power	Typical	25 dBm			
	Minimum	21 dBm			
OIP2 2nd order intercept point, output power	Typical	40 dBm			
	Minimum	38 dBm			
Group Delay		≤ 1 ns, variation across operational bandwidth			

System Control			
Local Control		Via Front Panel HMI capacitive touchscreen	
Remote Control & Monitoring		Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMPV3, HTTPS, Built-in Web Server	
Alarms		Ethernet (RJ45)	
Power			
PSU Power		85-264Vac 50-60Hz	Fused 2A
AC Consumption		350W	Max. consumption at steady state
LNB Power		None	
PSU		Dual redundant & alarmed	Diode OR. Hot swap
Hot-swap PSU		Yes	
CPU		Dual redundant	Hot swap
Input cards		Hot swap	
Output cards		Hot swap	
MTTR		20 mins, 15 mins to retrieve spare part and 5 mins to replace	
MTBF (Hours)	Chassis	>250,000	Chassis excludes HMI & RF cards
	Switch card	>250,000	
	Divider card	>300,000	
	Matrix card	>100,000	
Environmental			
Operating temperature		0 to 45˚C	
Gain Stability versus Temperature		0.05dB/°C	
Storage temperature		-20˚C to +75˚C	
Location		Indoor use only	
Humidity		20 to 90% non-condensing	
Altitude (operational)		10,000 feet AMSL (Above Mean Sea Level)	
Altitude (storage)		30,000 feet AMSL (Above Mean Sea Level)	
Physical			
Dimensions		5U high x 550 mm deep x 19” wide	
Weight		40 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.

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