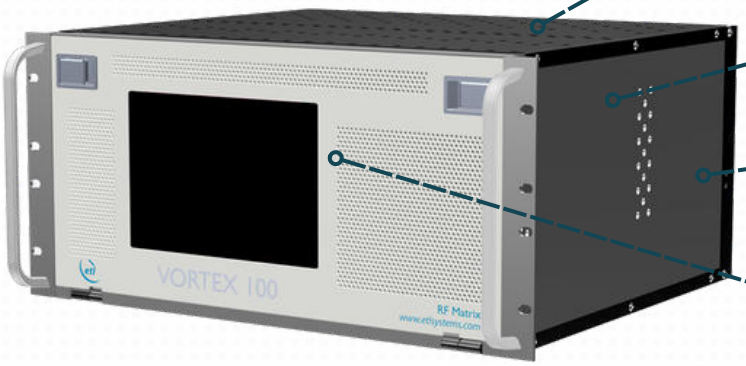
# 64 x 64 Vortex L-band Combining Switch Matrix / Router

## Low noise & 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.
The VTXC-101 benefits from a low noise figure.

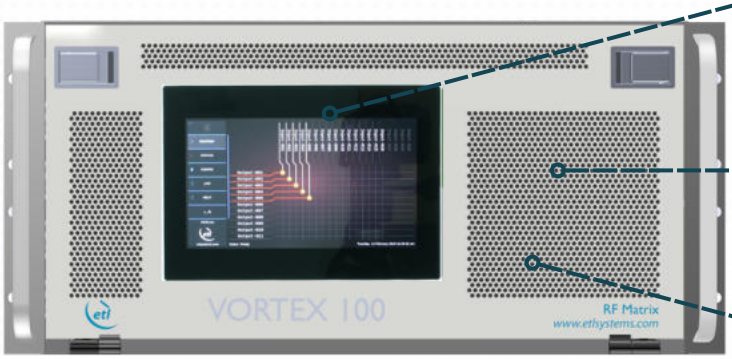



**850 - 2150 MHz**
operating frequency range

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

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

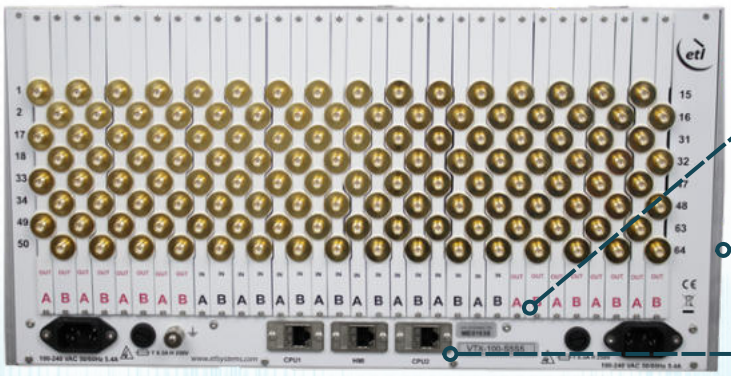
**Local control & monitoring**
via front panel capacitive touchscreen




**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. (Can be configured in steps of 16 from 16x16 to 64x64 in symmetric and asymmetric configurations). | | | |
| Routing | | Combining, non-blocking. Many inputs can be routed to each output. | | | |
| Frequency Range | | 850-2150 MHz | | | |
| 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±1 dB | 0±1 dB | 0±1 dB | 0±1 dB |
| Gain Flatness | Full band | ±1.5 dB | ±1.5 dB | ±2.0 dB | ±2.0 dB |
| | Any 36MHz | ±0.30 dB | ±0.30 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 | 12 dB | | With one input routed to one output. | |
| | Maximum | 16 dB | | | |
| 1dB GCP (dBm) | | Typ. –3 dBm | | 1dB Gain Compression point, output power | |
| OIP3 3rd order intercept point, output power | Typical | 12 dBm | | | |
| | Minimum | 10 dBm | | | |
| OIP2 2nd order intercept point, output power | Typical | 24 dBm | | | |
| | Minimum | 20 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 | | Via 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 | 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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