



**ETL Systems**  
*Excelling in RF Engineering*

Model Number:  
VTR-71-xxxx

# Up to 16 x 16 IF / Extended Distributive L-band Victor series Switch Matrix / Router

## Typical applications:

- TVRO, smaller teleports and satellite ground stations.
- Oil and gas applications.
- RF distribution in cruise liners or luxury yachts.
- SNG and outside broadcast trucks.

 **Hot-swap** dual  
redundant fan modules

 **Software enabled expansion**  
start from 4x4 and software key  
expand in single steps to 16x16

 **Local control &  
monitoring** via front panel  
push buttons & display

 **Variable gain** to  
balance input signals



 **50 - 2500 MHz**  
operating frequency  
range. Ka-band ready

 **Compact** housed in  
a 1U high chassis

 **Dry contact alarm  
port & serial  
communications**  
for amplifier & power  
supply status

 **Remote control & monitoring**  
via RJ45 Ethernet port with SNMP &  
web browser interface.  
- Ability to lock outputs

 **Resilience** from  
dual redundant power  
supplies





### Technical specifications and operating parameters

| RF Parameters      |                           |                                    |          |                                                     |            |
|--------------------|---------------------------|------------------------------------|----------|-----------------------------------------------------|------------|
| Capacity           |                           | Up to 16 inputs x 16 outputs       |          |                                                     |            |
| Routing            |                           | Distributive, non-blocking         |          | Any input can be connected to any number of outputs |            |
| Frequency Range    |                           | 50-2500 MHz (IF / Extended L-band) |          |                                                     |            |
| RF Connectors      |                           | 50Ω SMA                            | 50Ω BNC  | 75Ω BNC                                             | 75Ω F-type |
| Flatness           | Full band                 | ±1.75 dB                           | ±1.75 dB | ±2.0 dB                                             | ±2.5 dB    |
|                    | 850-2150MHz               | ±1.5 dB                            | ±1.5 dB  | ±1.75 dB                                            | ±1.75 dB   |
|                    | 50-200MHz                 | ±0.5 dB                            | ±0.5 dB  | ±0.5 dB                                             | ±0.5 dB    |
|                    | Any 36MHz                 | ±0.3 dB                            | ±0.3 dB  | ±0.4 dB                                             | ±0.45 dB   |
| Input Return Loss  | Typical                   | 18 dB                              | 16 dB    | 12 dB                                               | 10 dB      |
|                    | Minimum 2150              | 10 dB                              | 12 dB    | 8 dB                                                | 8 dB       |
|                    | Minimum 2500              | 10 dB                              | 10 dB    | 6 dB                                                | 6 dB       |
| Output Return Loss | Typical                   | 18 dB                              | 16 dB    | 12 dB                                               | 10 dB      |
|                    | Minimum 2150              | 12 dB                              | 12 dB    | 8 dB                                                | 8 dB       |
|                    | Minimum 2500              | 10 dB                              | 10 dB    | 6 dB                                                | 6 dB       |
| Gain               | Gain                      | 0 ± 2 dB                           |          | Typical, mean across band                           |            |
|                    | Max Gain G <sub>max</sub> | + 3 dB                             |          | Typical, mean across band                           |            |
|                    | Min Gain G <sub>min</sub> | - 3 dB                             |          | Typical, mean across band                           |            |
|                    | Gain steps                | 0.25 dB                            |          | Fine monotonic gain control                         |            |
| 1dB GCP            | 50-2150 MHz               | 1 dBm ± 2                          |          | Output power                                        |            |
|                    | 2150-2500 MHz             | -3 dBm ± 2                         |          | Output power                                        |            |
| OIP3               |                           | +12 dBm                            |          | 3rd order intercept point, output power             |            |
| OIP2               |                           | +20 dBm                            |          | 2nd order intercept point, output power             |            |
| Isolation          | I/P - O/P                 | 60 dB (70 dB typical)              |          | Minimum between any 2 ports                         |            |
|                    | I/P - I/P                 | 75 dB (85 dB typical)              |          | Minimum between any 2 ports                         |            |
|                    | O/P - O/P                 | 75 dB (85 dB typical)              |          | Minimum between any 2 ports                         |            |
| Group Delay        | 50-2500MHz                | ≤ 3 ns                             |          |                                                     |            |
|                    | 200-2500MHz               | ≤ 1 ns                             |          |                                                     |            |
| Noise Figure       | Max gain                  | 17 dB                              |          | Typical, 1 input routed to 1 output                 |            |
|                    | Unity gain                | 21 dB                              |          | Typical, 1 input routed to 1 output                 |            |
|                    | Min gain                  | 25 dB                              |          | Typical, 1 input routed to 1 output                 |            |
| Input RF Power     |                           | + 24 dBm                           |          | Absolute maximum                                    |            |

| Environmental         |                                         |
|-----------------------|-----------------------------------------|
| Operating temperature | 0 to 45°C                               |
| Location              | Indoor use only                         |
| Storage temperature   | -20°C to +75°C                          |
| Humidity              | 20 to 90% non-condensing                |
| Altitude              | 10,000 feet AMSL (Above Mean Sea Level) |

| Power          |                   |                                  |
|----------------|-------------------|----------------------------------|
| PSU Power      | 85-264Vac 50-60Hz | Fused 2A                         |
| AC Consumption | 50W               | Max. consumption at steady state |
| PSU            | Dual redundant    | Diode OR. Not hot swap           |
| MTBF           | 114,000 hours     |                                  |

| System Control |                                                                                                       |
|----------------|-------------------------------------------------------------------------------------------------------|
| Local Control  | Via Front Panel LCD and push buttons                                                                  |
| Remote Control | Via RS232/485 serial port and RJ45 Ethernet port 10/100 Base T. TCP/IP, SNMP & Web browser interface. |
| Alarms         | Dry contact (D-type) & Ethernet (RJ45) for PSU & Amp. status                                          |

| Physical   |                                 |
|------------|---------------------------------|
| Dimensions | 1U high x 550mm deep x 19" wide |
| Weight     | 6 kg                            |
| Colour     | RAL 9003 semi-matte (white)     |

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.

Note 3: Typical parameters are guide figures and measured data may deviate from the quoted figures. ETL endeavours to exceed the quoted typical parameters where practically possible.