



# 32 x 32 Enigma Extended L-band Combining Switch Matrix / Router with variable gain

**Typical applications:**

- RF content acquisition for TVRO & IPTV headends
- Signal monitoring of satellite traffic
- Remote controlled unmanned satcom sites



**850 - 2450 MHz**  
operating frequency range



**Variable gain** ensures overall RF gain signal performance is optimised



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



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



**Expansion** in single increments or with additional matrix modules for larger systems



**Minimal impact from failure** with hot-swap single input & output RF cards, dual power supplies, dual CPU's, fans



**Compact** up to 32 inputs x 32 outputs housed in a 6U high chassis



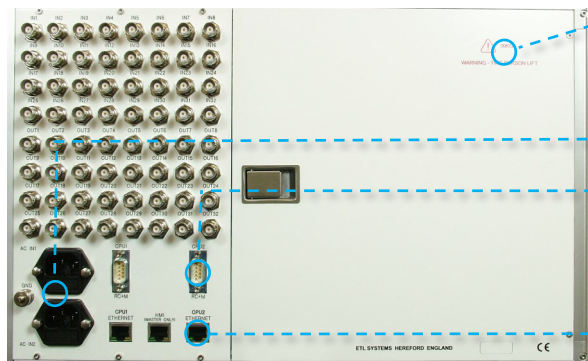
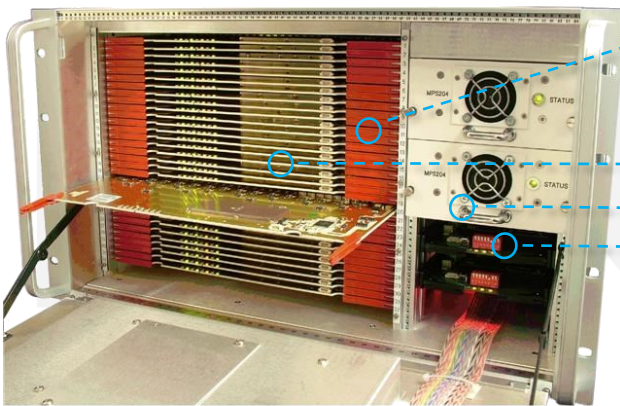
**Resilience** from dual redundant power supplies & CPU modules



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



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



64 x 64 Enigma system with splitters & combiners





**Technical specifications and operating parameters**

RF Parameters					
Capacity	32 inputs x 32 outputs				
Routing	Combining (fan out), non-blocking		Any input can be connected to any number of outputs		
Frequency	850 to 2450MHz				
Connector & Impedances	50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type	
Gain	Max	0±1 dB	0±1 dB	0±1 dB	0±1 dB
	Min	-10±1 dB	-10±1 dB	-10±1 dB	-10±1 dB
	Steps	1±0.15 dB			
Gain flatness (dB)	850-2150 MHz	± 1.0 dB	± 1.0 dB	± 1.5 dB	± 1.5 dB
	850-2450 MHz	± 2.25 dB	± 2.25 dB	± 2.5 dB	± 2.5 dB
	Any 36 MHz	± 0.5 dB	± 0.5 dB	± 0.75 dB	± .75 dB
Input Return Loss	Typical	18 dB	16 dB	14 dB	14 dB
	Min @ 2150 MHz	15 dB	14 dB	12 dB	10 dB
	Min @ 2450 MHz	10 dB	10 dB	8 dB	8 dB
Output Return Loss	Typical	18 dB	16 dB	14 dB	14 dB
	Min @ 2150 MHz	15 dB	14 dB	12 dB	10 dB
	Min @ 2450 MHz	10 dB	10 dB	8 dB	8 dB
Isolation	Input-output	55 dB			
	Input-input	60 dB			
	Output-output	60 dB			
Noise Figure	Max gain	20 dB		1dB gain compression point, output power	
	Min gain	30 dB			
1dB Gain Compression Point	Max gain	+5 dBm			
	Min gain	0 dBm			
OIP3	Max gain	+15 dBm			
	Min gain	+10 dBm			
Group delay	<2ns		Across operational bandwidth		

System Control	
Local Control	Touchscreen & VGA Display
Remote Connection	Via RS232/485 serial port and RJ45 Ethernet
Alarms	Dry contact (D-type) & Ethernet (RJ45) for PSU & Amp. status
SNMP Traps	For alarms & monitoring
Comms / Power Failure	Retains settings
Remote Control Software	Available

Power		
PSU Power	85-264Vac 50/60Hz Fused 2A	
PSU	Dual redundant and alarmed	Diode OR. Hot swappable
CPU	Dual redundant	Hot swappable
Hot-swap PSU	Yes	
Input RF Power	+20 dBm Absolute Maximum	
AC Consumption	100W (max. consumption at steady state)	
MTBF (hours)	Chassis	170,740
	Switch Card	270,297
	Combiner Card	317,227
		Chassis excludes HMI and RF cards

Environmental	
Operating temperature	0 to 45°C
Location	Indoor use only
Storage temperature	-20°C to +90°C
Humidity	20-90% non-condensing
Altitude	10,000 feet AMSL

Physical	
Dimensions	6U high x 450mm deep x 19" wide
Weight	35 kg Fully Populated as 32x32
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.

