

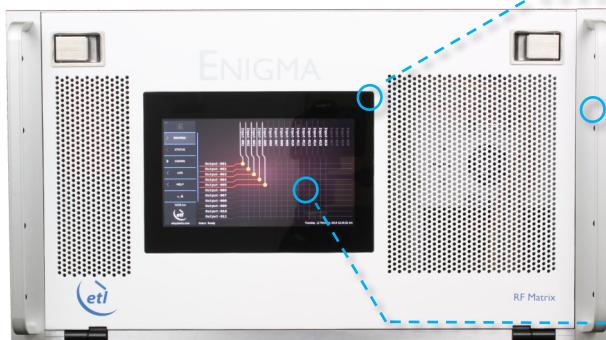


32 x 32 Enigma L-band Distributive Switch Matrix / Router


4th generation Enigma matrix with enhanced RF performance including variable gain
-5 dB to +5 dB settable per output.

Typical applications:

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




 **850 - 2150 MHz**
operating frequency
range


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

 **Upgraded local control
& monitoring** via front
panel capacitive touchscreen

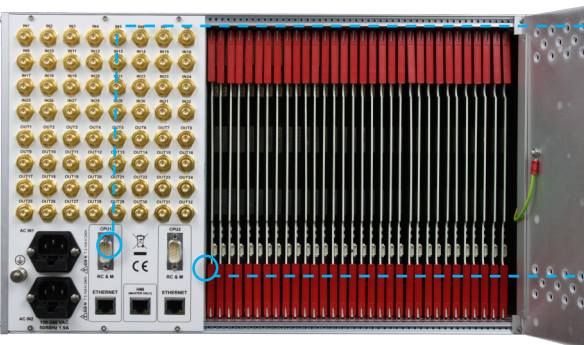


 **Expansion** in single
increments or with additional
matrix modules for larger
systems

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


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

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



 **Future proof secure
protocols** with SNMPv3 &
HTTPS

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

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





Technical specifications and operating parameters

RF Parameters					
Capacity	32 inputs x 32 outputs, fully populated				
Routing	Distributive, non-blocking	Any input can be connected to any number of outputs			
Frequency Range	850-2150 MHz (L-band)				
Gain	0±1 dB Typical, mean across band				
Gain Control	-5 to +5 dB in 0.25 dB steps	Settable at each output			
RF Connectors	50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type	
	All ports DC blocked				
Gain Flatness	Full band	±1.0 dB	±1.0 dB	±1.5 dB	±1.5 dB
	Any 36MHz	±0.25 dB	±0.25 dB	±0.50 dB	±0.50 dB
Input Return Loss	Typical	20 dB	20 dB	16 dB	16 dB
	Minimum	16 dB	16 dB	10 dB	10 dB
Output Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	14 dB	14 dB	10 dB	10 dB
Isolation (min between any 2 ports)	I/P - O/P	60 dB			
	I/P - I/P	75 dB			
	O/P - O/P	75 dB			
Group Delay	≤ 1 ns, across operational bandwidth				
Noise Figure	Minimum Gain	20 dB Max		With one input routed to one output.	
	Unity Gain	16 dB Max			
	Maximum Gain	16 dB Max			
1dB GCP (dBm)	Minimum Gain	+3 dBm Min		1dB Gain Compression point, output power	
	Unity Gain	+8 dBm Min			
	Maximum Gain	+12 dBm Min			
OIP3	Minimum Gain	16 dBm Min			
	Unity Gain	20 dBm Min			
	Maximum Gain	24 dBm Min			
OIP2	Typical	32 dBm Min			
	Minimum	30 dBm Min			
Switching Time	< 50ms from receipt of a command to implementation of path change				
Input RF Power	+ 20 dBm	Absolute maximum			

System Control		
Local Control	Via Front Panel capacitive touchscreen	
Remote Control	Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP Protocol SNMPv3, HTTPS & built in Web Server	
Alarms	Dry contact (D-type) & Ethernet (RJ45) for PSU & Amp. status	
Power		
PSU Power	85-264Vac 50-60Hz	Fused 2A
AC Consumption	150W	Max. consumption at steady state
LNB Power	None	
PSU	Dual redundant & alarmed	Diode OR. Hot swappable
Hot-swap PSU	Yes	
CPU	Dual Redundant	Hot swappable
Input cards	Hot swap	Failure effects only one input port
Output cards	Hot swap	Failure effects only one output port
MTTR	20 mins, 15 mins to retrieve spare part and 5 mins to replace	Applies to LRUs only and assumed in house stock
MTBF	Chassis	271,444
	Switch card	270,297
	Divider card	317,227
Chassis excludes HMI & RF cards		

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	6U high x 450mm deep x 19" wide
Weight	35 kg, fully populated
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.

