



# 32 x 32 Enigma IF Distributive Switch Matrix / Router

4th generation Enigma matrix with enhanced RF performance including variable gain 0 dB to +10dB settable per output.

**Typical applications:**

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



**50 - 200 MHz**  
operating frequency range



**Suitable for HTS applications** due to extended bandwidth



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



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



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



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



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



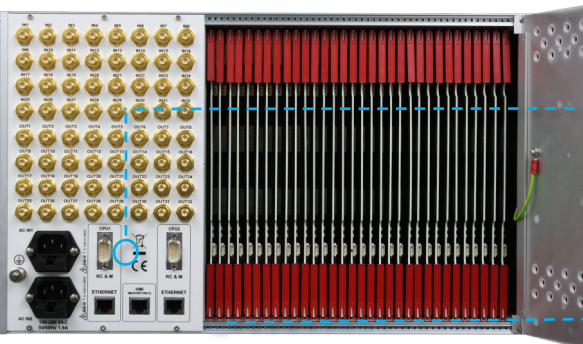
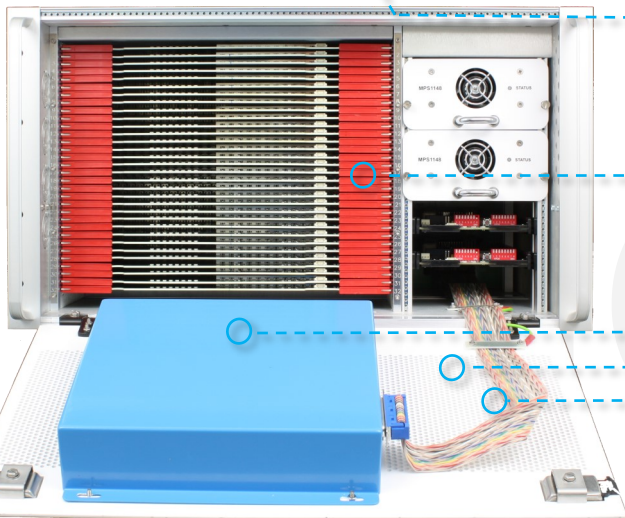
**Minimal impact from failure** with hot-swap single input & output RF cards, dual power supplies & dual CPU's, fans



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



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





Preliminary Specification

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	50-200 MHz				
Gain	0±1 dB Typical, mean across band				
Gain Control	0 to +10 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	±0.5 dB	±0.5 dB	±0.75 dB	±0.75 dB
	Any 36 MHz	±0.25 dB	±0.25 dB	±0.5 dB	±0.5 dB
Input Return Loss	Typical	20 dB	20 dB	18 dB	18 dB
	Minimum	17 dB	17 dB	15 dB	15 dB
Output Return Loss	Typical	20 dB	20 dB	18 dB	18 dB
	Minimum	17 dB	17 dB	15 dB	15 dB
Isolation (Min between any 2 ports)	I/P - O/P	80 dB			
	I/P - I/P	80 dB			
	O/P - O/P	80 dB			
Group Delay	± 1.5 ns across operational bandwidth				
1 dB GCP (output power)	0 dB	+2 dBm	+2 dBm	0 dBm	0 dBm
	+10 dB	+12 dBm	+12 dBm	+10 dBm	+10 dBm
Noise Figure (Typical, 1 input routed to 1 output)	0 dB	21 dB	21 dB	23 dB	23 dB
	+10 dB	18 dB	18 dB	20 dB	20 dB
Switching Time	< 50 ms from receipt of a command to implementation of path change				
OIP3	0 dB	18 dBm Typical	18 dBm Typical	18 dBm Typical	18 dBm Typical
		15 dBm Minimum	15 dBm Minimum	13 dBm Minimum	13 dBm Minimum
	10 dB	27 dBm Typical	27 dBm Typical	27 dBm Typical	27 dBm Typical
		24 dBm Minimum	24 dBm Minimum	22 dBm Minimum	22 dBm Minimum
OIP2	Typical	32 dBm			
	Minimum	30 dBm			
Input RF Power	+ 20 dBm Absolute maximum				
Tech Spec Version	0.2				

System Control	
Local Control	Via Front Panel capacitive touchscreen
Remote Control	Serial (RS232 or RS422/48) and Ethernet port via RJ45 10Base T/100 BaseTx. TCP/IP, SNMP & Web browser interface.
Alarms	Dry contact (D-type) & Ethernet (RJ45) for PSU & Amp. status

Power		
PSU Power	85-264Vac 50-60 Hz	Fused 2A
AC Consumption	150 W	Max. consumption at steady state
LNB Power	None	
PSU	Dual redundant & alarmed	Diode OR. Hot swappable
Hot-swap PSU	Yes	
CPU Redundancy	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
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.

