





# Model Number: NGM-21-xxxx

Enigma L-band Switch Matrix / Router

RF Engineering  
and Custom Build

## NEW FEATURES:

A number of new features have been introduced to the Enigma matrix, including those described below:

**Fast Matrix Card Changeout** from front and rear



**On board log** records all routing changes for each user



**Touchscreen VGA** control with security log on for up to 10 users



**Aliases** (10 character) on front screen to identify signal sources



## FLEXIBILITY

The Enigma Matrix can be adapted and grown to a number of different sizes

**Master Matrix** offers routing control from touchscreen or remotely

**All modules offer hot-swap CPUs and PSUs** for peace of mind



Front View

**Hot-Swap Input & Output Matrix Cards** on all modules offer easy expansion

**Active Splitter & combiners** offer patch panel & gain options



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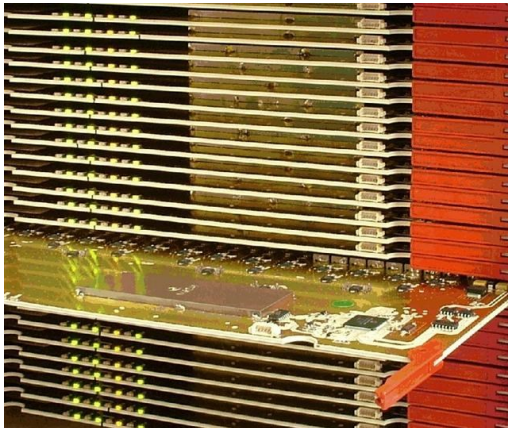
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## Resilience

### Resilience is designed-in

The Enigma matrix has been designed with resilience in mind. The impact of component failure is minimised and all active components can be hot swapped. Problems are rapidly identified and can be easily sorted out.

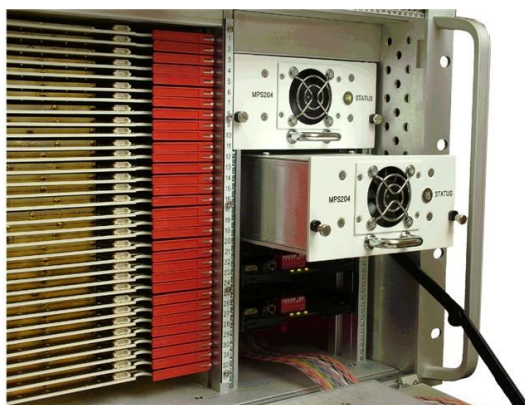
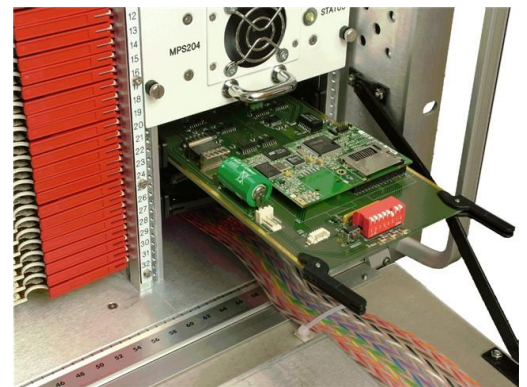


### Minimal impact from card failure

One card per input and one card per output mean that the impact of card failure is minimised. Cards can be hot-swapped, and hot expansion can take place in single increments.

### Minimal impact from CPU failure

The matrix contains dual redundant CPU's which both operate in parallel. If one CPU fails the other automatically becomes the master. CPU's can be hot-swapped.



### Minimal impact from PSU failure

Dual redundant PSU's can be hot-swapped.

### Rapid diagnosis of problems

The matrix continuously monitors the conditions of amplifiers, CPUs and PSUs. Any faults are immediately reported through the front panel and remotely. Alarms report the specific faults down to component level.





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## Technical specifications and operating parameters

RF Parameters					
Capacity	32 inputs x 32 outputs				
Routing	Distributive non-blocking	Any input can be connected to any number of outputs			
Frequency (MHz)	850-2150				
Gain	0±1 dB (nominal, mean across band)				
1 dB Compression	5 dBm at unity gain				
Noise Figure	20 dB				
OIP3	19 dBm typ, 16 dBm min				
Connector Type	SMA 50Ω	BNC 50Ω	BNC 75Ω	F-Type 75Ω	
Isolation	Input-output	65 dB			
	Input-Input	75 dB			
	Output-output	75 dB			
Flatness	Full Band	± 1.0 dB	± 1.0 dB	± 1.5 dB	± 1.5 dB
	Any 36MHz	± 0.25 dB	± 0.25 dB	± 0.5 dB	± 0.5 dB
Input Return Loss	Typical	20 dB	20 dB	14 dB	12dB
	Minimum	16 dB	16 dB	10 dB	8 dB
Output Return Loss	Typical	20 dB	20 dB	14 dB	12 dB
	Minimum	16 dB	16 dB	10 dB	8 dB
Switching Time	<50ms		From receipt of command to implementation of path change		
Group Delay	<1ns				

Physical	
Dimensions	6U high x 450mm deep x 19" wide
Weight	35 kg
Colour	White 00-E-55 semi-gloss

Environmental	
Operating temperature	0 to 45°C
Location	Indoor use only
Storage temperature	-20°C to +75°C
Humidity	20 to 90% non-condensing

System Control	
Local Control	Touchscreen & VGA Display
Remote Connection	Via RS232/RS485 and RJ45 Ethernet
SNMP Traps	For alarms & monitoring
Comms/Power Failure	Retains settings
Remote Control Software	Available
Web Browser Interface	Standard

Power		
AC Power	85-264Vac 50/60Hz, Fused 2A	
PSU	Dual redundant	Diode OR
Hot-swap PSU	Yes	
AC Consumption	100W	Max Consumption

Key Features	
Input Splitter Cards	One Card per input
Output Switch Cards	One Card per output
Matrix Cards	Single, Hot-swap
CPU	Dual redundant, Hot-swap
PSU	Dual redundant, Hot-swap
Self Diagnostics	Continuous Monitoring

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