

Enigma IF Matrix Switch

IF signal routing taken to new levels



ETL's new high performance Enigma IF matrix sets new benchmarks for RF performance and introduces leading edge technologies.

The NiGMA matrix focuses on **resilience and performance** the impact of failure is minimised throughout the unit.

As ETL customers use matrices in mission-critical applications, we understand the importance of redundancy and hot swap. Input and output cards, power supplies, CPU controller cards, and the new VGA human interface can all be **hot swapped**.

New Matrix design means there is one card associated with each input and each output – so failure of a card only affects one channel. For broadcasters, satellite operators and the defence sector, this provides exceptional peace of mind.

RF performance of the Enigma is exceptional as well. Isolation, frequency response or flatness, and the 1 dB GCP all set exciting new limits – helping our customers ensure that their overall RF chain signal performance is optimised.

Self Diagnostics with continuous monitoring (and reporting) of amplifier status, PSU status, and internal communications is included as standard. Any problems are rapidly identified and hot swap means they can be addressed in seconds.



RESILIENCE

FLEXIBILITY

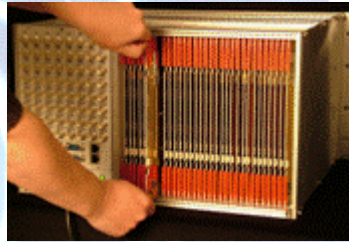
RF PERFORMANCE

New Features

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



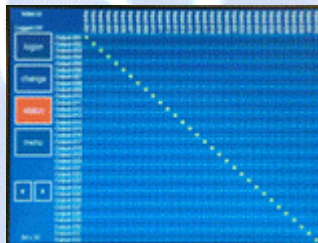
Fast Matrix Card Changeout from front and rear



On board log records all routing changes for each user



Touchscreen VGA control with security log on for upto 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. The example shown is a 32 x 96 system

Front View

Master Matrix offers routing control from touchscreen or remotely

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



Rear View

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

Active Splitter and combiners offer patch panel & gain options

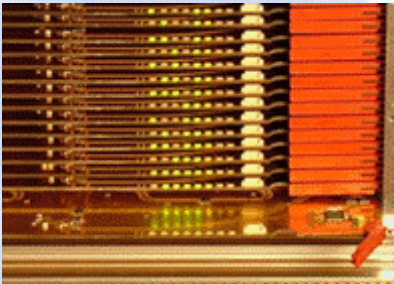


Resilience



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.

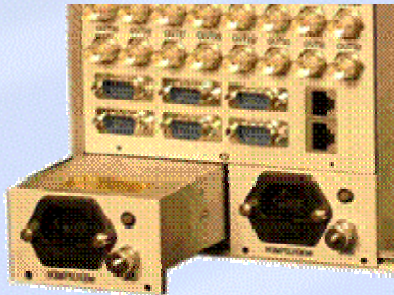


Minimal impact from card failure

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 PSUs 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.



Technical Specifications Model NGMIF-11-xx

• RF Parameters*

Max Capacity	32 x 32 full fan-out
Frequency Range	30-200 MHz
Insertion Gain	0 ±2dB nominal (optional*** variable gain 0-10 dB)
Isolation (I/P to O/P)	>70dB
Isolation (O/P to O/P)	>50 dB
Isolation (I/P to I/P)	>70dB
Flatness	±1dB over any 50 MHz band
Input Return Loss	14dB typical
Output Return Loss	14dB typical
Noise Figure	25dB
1dB Compression Point **	0dBm min (optional*** + 10 dBm)

• System Control & Software

Local Control	Touchscreen and VGA display
Remote Connection	Via RS232/RS485 and RJ45 Ethernet
SNMP Traps	For alarms & monitoring
Comms/Power Failure	Retains settings
Remote Control Software	Available

• Environmental

Operating Temperature	0 to 45°C
Location	Indoor Use Only
Storage Temperature	-20°C to +75°C
Humidity	20-90% Non Condensing

* Performance specifications based on Model NGMIF-11-B5

** Input power

*** Extra cost options

• Physical

Rack Size	6 RU
Connectors	BNC, SMA, F-type
Impedance	50Ω or 75Ω
Dimensions	6U x 450mm x 19"
Weight (fully populated)	30 Kgs
Colour	White
Scalability	64 x 64, 128 x 128 256 x 256, 512 x 512 Upto 1024 x 1024

• Power

Input RF Power	+13dBm max
Power requirement	90/264V AC, 100W, 50/60 Hz

• Key Features

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

ETL Systems develop, design and manufacture specialist equipment for satellite ground stations. For a fuller description of the ETL product range, please visit our website. This range can be used as the basis to meet your specific demands.



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