



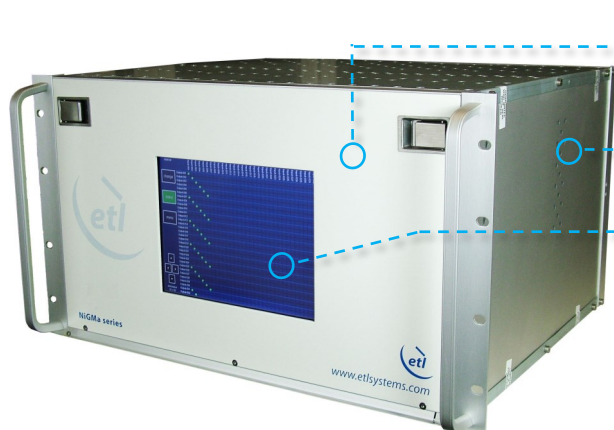
ETL Systems  
Excelling in RF Engineering

Model Number:  
NGMC-23-xxxx

# 32 x 32 L-band Bidirectional Passive Enigma Switch Matrix / Router for high power applications

## 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



**High Linearity** 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



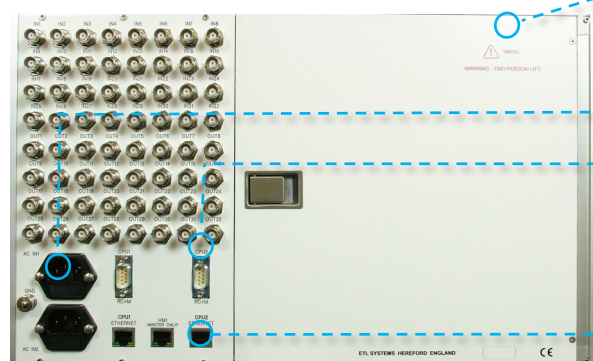
**Resilience** from dual redundant power supplies & CPU modules



**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, fully populated			
Routing		Bidirectional, passive		Many inputs can be routed to each output or any input can be connected to any number of outputs	
Frequency Range		850-2150 MHz (L-band)			
Impedances & RF connector		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
Loss		32 ± 2 dB typical, mean across band			
Flatness	Full band	±1.0 dB	±1.0 dB	±1.5 dB	±1.5 dB
	Any 36MHz	±0.4 dB	±0.4 dB	±0.5 dB	±0.5 dB
Input Return Loss	Typical	18 dB	18 dB	14 dB	12 dB
	Minimum	14 dB	14 dB	10 dB	8 dB
Output Return Loss	Typical	18 dB	18 dB	14 dB	12 dB
	Minimum	14 dB	14 dB	10 dB	8 dB
Isolation Minimum between any 2 ports	I/P - I/P	75 dB			
	O/P - O/P	75 dB			
	I/P - O/P	65 dB			
Noise Figure		34 dB equal to insertion loss			
1dB Gain Compression Point		+40 dBm output power			
OIP2		+75 dBm 2nd order intercept point			
OIP3		+55 dBm 3rd order intercept point, output power			
Group Delay		<1 ns across operational bandwidth			
Switching Time		<50 ms from receipt of command to implementation of path change			
Input RF Power		+ 20 dBm Absolute maximum			

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.

Power		
AC Power	85-264Vac 50/60Hz, Fused 2A	
PSU	Dual redundant and alarmed	Diode OR
CPU	Dual redundant	Hot Swap
Hot-swap PSU	Yes	
AC consumption	40W	
Alarms	Dry Contact (D-Type) & Ethernet (RJ45)	
Remote Control & Monitoring	Serial (RS232 or RS422/485) and Ethernet (RJ45) on Rear Panel	
MTBF (hours)	Chassis	271,444
	Switch Card	270,297
	Divider Card	317,227

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

Environmental	
Operating temperature	0 to 45°C
Location	Indoor use only
Storage temperature	-20°C to +75°C
Humidity	20 - 90% non-condensing
Altitude	10,000 feet AMSL

Physical	
Dimensions	6U high x 450mm deep x 19" wide
Weight	35 kg
Colour	RAL9003 White (semi-matte)