ETL Systems
New technologies
in RF distribution

Model Number:
NGMC-103-xxxx

32 x 32 Enigma 500-3150 MHz Combining Switch Matrix / Router

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

4th generation Enigma Matrix with enhanced RF performance including variable gain –5 dB to +5 dB settable at each input.

500 - 3150 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

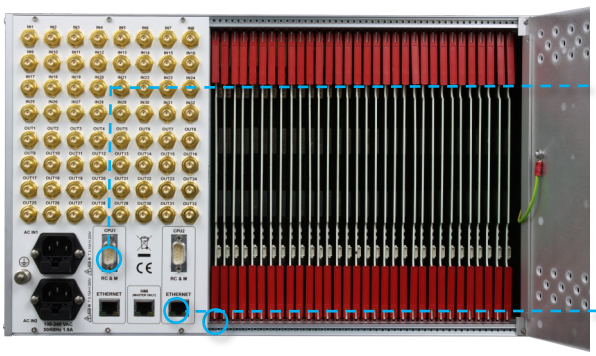
Upgraded local control & monitoring via front panel capacitive touchscreen

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

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

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



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

Future proof secure protocols with SNMPv3 & HTTPS

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

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Technical specifications and operating parameters

RF Parameters					
Capacity		32 inputs x 32 outputs, fully populated			
Routing		Combining (fan-out), non-blocking		Many inputs can be routed to each output	
Frequency Range		500-3150 MHz			
Gain		0±1 dB Typical, mean across band			
Gain Control		-5 to +5 in 0.25 dB steps		Settable at each input	
RF Connectors		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
		All ports DC blocked			
Gain Flatness	850-2450 MHz	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
	500-3150 MHz	±2.25 dB	±2.25 dB	±2.5 dB	±2.5 dB
Any 36MHz	<2450 MHz	±0.3 dB	±0.3 dB	±0.5 dB	±0.5 dB
	>2450 MHz	±0.6 dB	±0.6 dB	±0.75 dB	±0.75 dB
Input Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	14 dB	14 dB	10 dB	10 dB
Output Return Loss	Typical	20 dB	20 dB	16 dB	16 dB
	Minimum	16 dB	16 dB	10 dB	10 dB
Isolation Minimum between any 2 ports	I/P - O/P	60 dB <2450 MHz			
		55 dB >2450 MHz			
	I/P - I/P	75 dB			
	O/P - O/P	75 dB			
1dB Gain Compression Point	<2450 MHz	+8 dBm output power (@ unity gain)			
	>2450 MHz	+5 dBm output power (@ unity gain)			
Noise Figure	Typical	16 dB		Typical, 1 input routed to 1 output (@ unity gain)	
	Maximum	18 dB			
OIP3	<2450 MHz	Typical 22 dBm Minimum 20 dBm (@ unity gain)			
	>2450 MHz	Typical 18dBm Minimum 15 dBm (@ unity gain)			
OIP2	Typical	32 dBm (@ unity gain)			
	Minimum	30 dBm (@ unity gain)			
Group Delay		≤ 1.2 ns across operational bandwidth			
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 HMI capacitive touchscreen
Remote Control	Via RJ45 Ethernet port 10Base T/100 BaseTx. TCP/IP, SNMPv3, HTTPS & Web browser interface.
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 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	Chassis excludes HMI & RF cards
	Switch card	270,297	
	Divider card	317,227	

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.

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