



ETL Systems

New technologies
in RF distribution

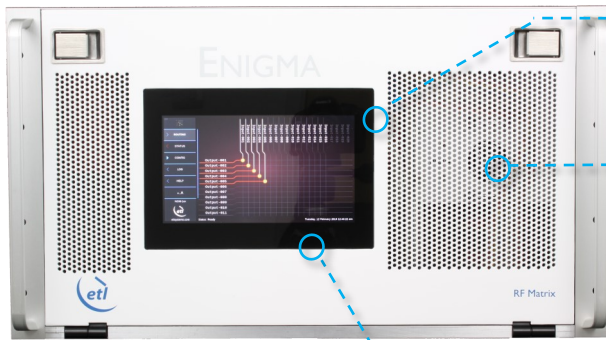
Model Number:
NGMC-105-xxxx

32 x 32 Enigma 50-2450 MHz Combining Switch Matrix / Router

4th generation Enigma Matrix with enhanced RF performance including variable gain 0 dB to +10 dB settable at each input.

Typical applications:

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



50 - 2450 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



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



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



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



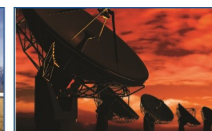
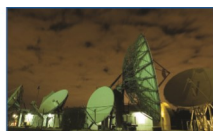
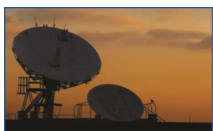
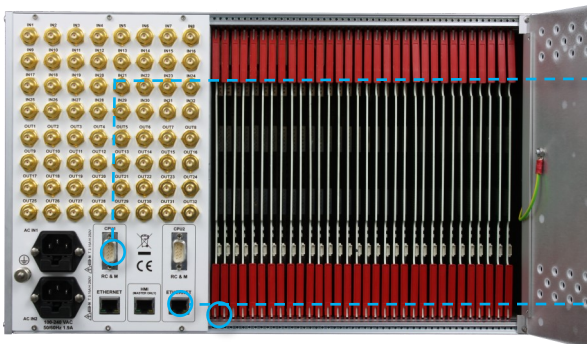
Dry contact alarm port & serial communications for amplifier & power supply status



Future proof secure protocols with SNMPv3 & HTTPS



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





Technical specifications and operating parameters

RF Parameters					
Capacity	32 inputs x 32 outputs, fully populated				
Routing	Combining (fan-in), non-blocking	Many inputs can be routed to each output			
Frequency Range	50-2450 MHz				
Gain	0±1 dB Typical, mean across band				
Gain Control	0 to +10 dB 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	50-2150MHz	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
	Any 36MHz	±0.25 dB	±0.25 dB	±0.5 dB	±0.5 dB
	50-2450MHz	±2.5 dB	±2.5 dB	±3 dB	±3 dB
	Any 36MHz	±0.5 dB	±0.5 dB	±0.75 dB	±0.75 dB
Input Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	12 dB	12 dB	10 dB	10 dB
Output Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	14 dB	14 dB	10 dB	10 dB
Isolation (Min between any 2 ports)	I/P - O/P	<2150 MHz		>2150 MHz	
		60 dB		50 dB	
	I/P - I/P	75 dB		75 dB	
O/P - O/P	75 dB		75 dB		
Group Delay	± 1.5 ns across operational bandwidth				
1dB GCP (dBm)	<2150 MHz	+5 dBm output power			
	>2150 MHz	+2 dBm output power			
Noise Figure	0dB	Typ. 24 dB		Typical, 1 input routed to 1 output	
	+10dB	Typ. 16 dB			
Switching Time	< 50ms from receipt of a command to implementation of path change				
OIP3	<2150 MHz	Typ. 18 dBm, min 14 dBm			
	>2150 MHz	Typ. 18dBm, min 12 dBm			
OIP2	Typical	50 dBm			
	Minimum	48 dBm			
Input RF Power	+ 20 dBm		Absolute maximum		
Tech Spec Version	1.0				

System Control	
Local Control	Via Front Panel capacitive touchscreen
Remote Control	Via RJ45 Ethernet port 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 50-60Hz	Fused 2A
AC Consumption	150W	Max. consumption at steady state
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
Gain Stability versus Temperature	0.05dB/°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.

