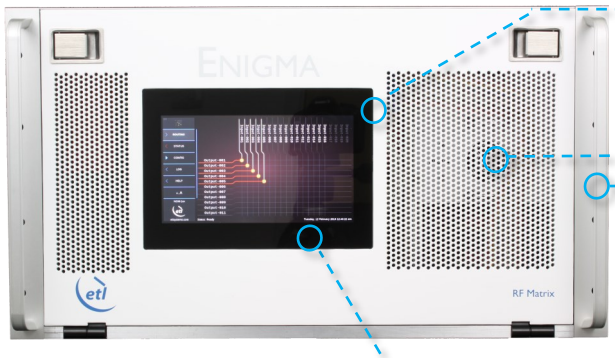
ETL Systems
New technologies
in RF distribution

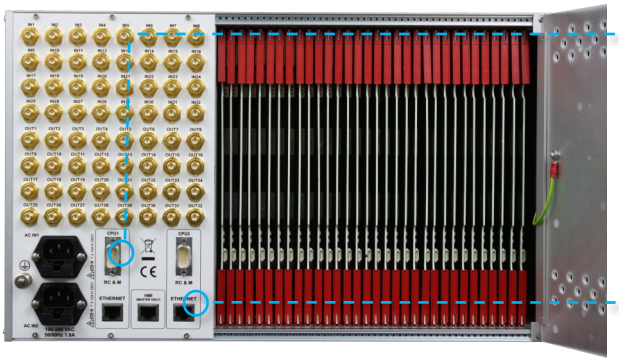
Model Number:
NGM-102-xxxx

32 x 32 Enigma Extended L-band Distributive 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 +5dB settable per output.





850 - 2450 MHz operating frequency

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

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 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		Distributive, non-blocking	Any input can be connected to any number of outputs		
Frequency Range		850-2450 MHz (Extended L-band)			
Gain		0±1 dB Typical, mean across band			
Gain Control		-5 to +5 dB in 0.25dB steps	Settable at each output		
RF Connectors		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
		All ports DC blocked			
Gain Flatness	Full band	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
Any 36MHz	< 2150 MHz	±0.25 dB	±0.25 dB	±0.5 dB	±0.5 dB
	> 2150 MHz	±0.5 dB	±0.5 dB	±0.75 dB	±0.75 dB
Input Return Loss	Typical	20 dB	20 dB	16 dB	16 dB
	Minimum	16 dB	16 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	60 dB			
	I/P - I/P	75 dB			
	O/P - O/P	75 dB			
Group Delay		≤ 1 ns across operational bandwidth			
Noise Figure	Minimum Gain	20 dB Typ	With one input routed to one output.		
	Unity Gain	16 dB Typ			
	Maximum Gain	16 dB Typ			
1dB GCP (dBm)	Minimum Gain	+3 dBm Min	1dB Gain Compression point, output power		
	Unity Gain	+8 dBm Min			
	Maximum Gain	+12 dBm Min			
OIP3	Minimum Gain	16 dBm Min			
	Unity Gain	20 dBm Min			
	Maximum Gain	24 dBm Min			
OIP2	Typical	32 dBm Min			
	Minimum	30 dBm Min			
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 capacitive touchscreen
Remote Control	Ethernet port via RJ45 10BaseT/100 BaseTx. TCP/IP, SNMPv3, HTTPS & Web browser interface.
Alarms	Ethernet (RJ45) & Dry contact (D-type) 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, 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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