ETL Systems
Excelling in RF Engineering

32 x 32 IF & L-band Distributive Enigma Switch Matrix / Router

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

50-2150 MHz operating frequency range options

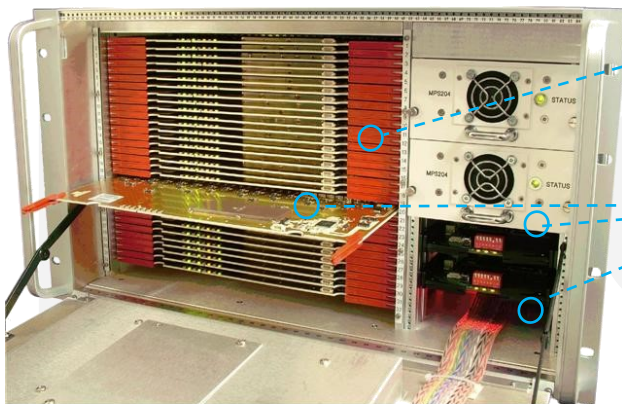**Compact** up to 32 inputs x 32 outputs housed in a 6U high chassis

Local control & monitoring via front panel VGA touchscreen

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

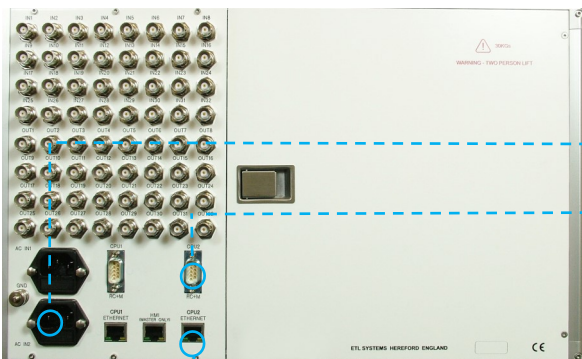**Expansion** in single increments or with additional matrix modules for larger systems

Minimal impact from failure with hot-swap single input & output RF cards, dual power supplies, dual CPU's, fans & VGA interface

Resilience from dual redundant power supplies & CPU modules

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

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

V2.2.1 E&OE

Technical specifications and operating parameters

RF Parameters

Capacity		32 inputs x 32 outputs, fully populated			
Routing		Distributive (fan-out), non-blocking	Any input can be connected to any number of outputs		
Impedance & RF connectors		50Ω SMA / 50Ω BNC / 75Ω BNC / 75Ω F-type			
Gain (dB)		0 ± 1 typical, mean across band			
Noise Figure (dB)		23 Typical, 1 input routed to 1 output			
1dB Gain Compression Point (dBm)		3.5 output power			
Frequency Range MHz (L-Band)		**50-200**	**950-1750**	**950-1950**	**850-2150**
Isolation (dB)	Input-output	65	65	60	60
	Input-input	75	75	70	70
	Output-output	75	75	70	70
50 ohm BNC Specifications		**NGM-25-B5B5 (all ports 50 ohm BNC)**			
Flatness: operational band width (dB)		± 1.0	± 1.0	± 1.25	± 1.5
Flatness: any 36MHz (dB)		± 0.35	± 0.25	± 0.25	± 0.25
Input Return Loss (dB)	Typical	21	18	18	17
	Minimum	18	16	16	14
Output Return Loss (dB)	Typical	22	18	17	16
	Minimum	18	15	15	14
50 ohm SMA Specifications		**NGM-25-S5S5 (all ports 50 ohm SMA)**			
Flatness: operational band width (dB)		± 1.0	± 1.0	± 1.25	± 1.25
Flatness: any 36MHz (dB)		± 0.25	± 0.20	± 0.20	± 0.25
Input Return Loss (dB)	Typical	22	18	17	16
	Minimum	18	16	16	14
Output Return Loss (dB)	Typical	22	18	18	17
	Minimum	18	16	16	15
75 ohm BNC Specifications		**NGM-25-B7B7 (all ports 75 ohm BNC)**			
Flatness: operational band width (dB)		± 1.2	± 1.02	± 1.5	± 2
Flatness: any 36MHz (dB)		± 0.25	± 0.25	± 0.25	± 0.30
Input Return Loss (dB)	Typical	12	12	10	10
	Minimum	9	9	8	8
Output Return Loss (dB)	Typical	18	18	16	15
	Minimum	14	14	12	12
75 ohm F-type Specifications		**NGM-25-F7F7 (all ports 75 ohm F-type)**			
Flatness: operational band width (dB)		± 1.2	± 1.02	± 1.5	± 2
Flatness: any 36MHz (dB)		± 0.25	± 0.35	± 0.35	± 0.40
Input Return Loss (dB)	Typical	10	9	9	9
	Minimum	9	8	8	8
Output Return Loss (dB)	Typical	15	15	14	12
	Minimum	12	12	9	9

System Control

Local Control	Touchscreen & VGA Display
Remote Connection	Via RS232/485 serial port and RJ45 Ethernet port 10/100 Base T. TCP/IP, SNMP & Web browser interface.
Alarms	Dry contact (D-type) & Ethernet (RJ45) for PSU & Amp. status
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 to 90% non-condensing

Physical

Dimensions	6U high x 450mm deep x 19" wide
Weight	29 kg, fully populated
Colour	RAL9003 - White (Semi-Matte)

Power

PSU Power	85-264Vac 50-60Hz	Fused 2A
LNB Power	None	
PSU	Dual redundant & alarmed	Diode OR
Hot-swap PSU	Yes	

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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