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

4th generation Enigma matrix with enhanced RF performance
including variable gain 0 dB to +10 dB settable per output.

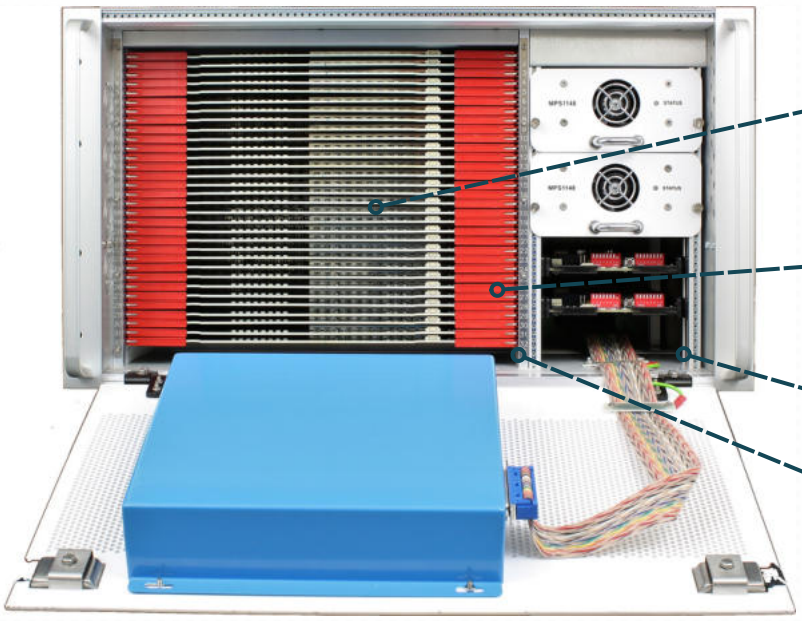


50 - 2450 MHz
operating frequency range

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

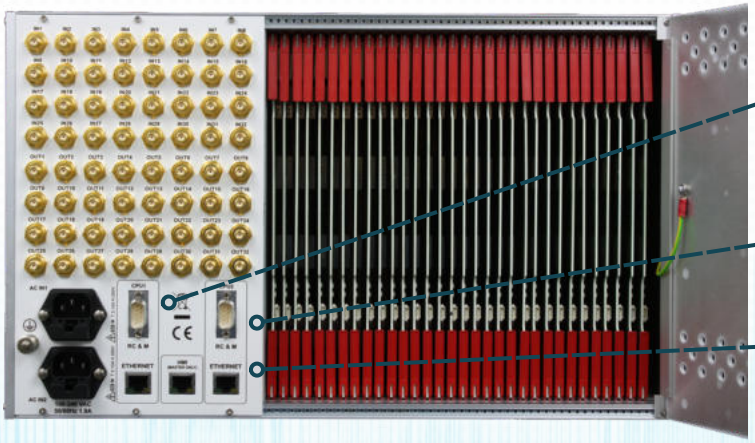


Expansion
in single increments or with additional matrix modules for larger systems

Self diagnostics
with continuous monitoring
of amplifiers, CPUs & PSUs

Resilience
from dual redundant power supplies & CPU modules

Minimal impact from failure
with hot-swap single input & output RF cards, dual power supplies & dual CPUs, 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

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		50-2450 MHz			
Gain		0±1 dB Typical, mean across band			
Gain Control		0 to +10 in 0.25 dB steps			
RF Connectors		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
		All ports DC blocked			
Gain Flatness	50-2150 MHz	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
	Any 36 MHz	±0.25 dB	±0.25 dB	±0.5 dB	±0.5 dB
	50-2450 MHz	±2.5 dB	±2.5 dB	±3.0 dB	±3.0 dB
	Any 36 MHz	±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)		<2150 MHz	>2150 MHz		
	Input-Output	60 dB	50 dB		
	Input-Input	70 dB	60 dB		
	Output-Output	75 dB	75 dB		
Noise Figure	0 dB	22 dB	24 dB	With one input routed to one output.	
	+10 dB	20 dB	22 dB		
1dB GCP (dBm)	0 dB	+3 dBm	+0 dBm	1dB Gain Compression point, output power	
	+10 dB	13 dBm	10 dBm		
OIP3	0 dB	Typical 18 dBm Minimum 12 dBm		Typical 18 dBm Minimum 10 dBm	
	+10 dB	Typical 25 dBm Minimum 20 dBm		Typical 25 dBm Minimum 20 dBm	
OIP2		Typical 32 dBm. Minimum 30 dBm (@ 0dB gain).			
Group Delay		≤ 1.5 ns, across operational bandwidth			
Switching Time		< 50ms from receipt of a command to implementation of path change			
Input RF Power		+ 20 dBm		Absolute maximum	
Tech Spec Version		1.4			

System Control			
Local Control		Via Front Panel capacitive touchscreen	
Remote Control & Monitoring		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
PSU		Dual redundant & alarmed	Diode OR. Hot swappable
Hot-swap PSU		Yes	
CPU		Dual redundant	Hot swappable
Input cards		Hot swap	Failure affects only one input port
Output cards		Hot swap	Failure affects 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.

ETL Systems Ltd, Coldwell Radio Station,
Madley, Hereford, England HR2 9NE
info@etlsystems.com
+44 (0)1981 259020