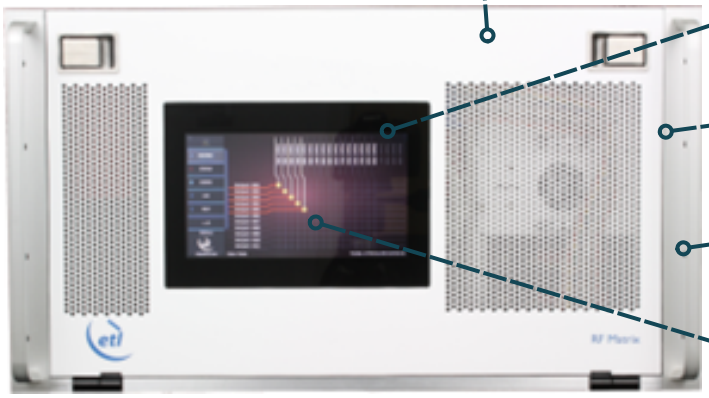
32 x 32 Enigma Ensign Extended L-band Fan-in Fan-out Matrix

With 0-10dB variable gain

500 - 3150 MHz
operating frequency range

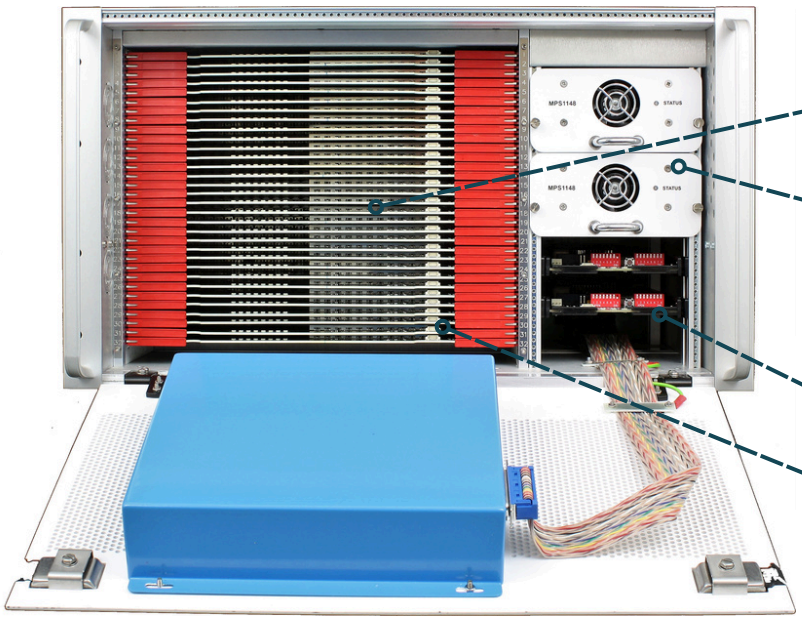


Switching flexibility
with the ability to split and combine feeds at the same time (FIFO)

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

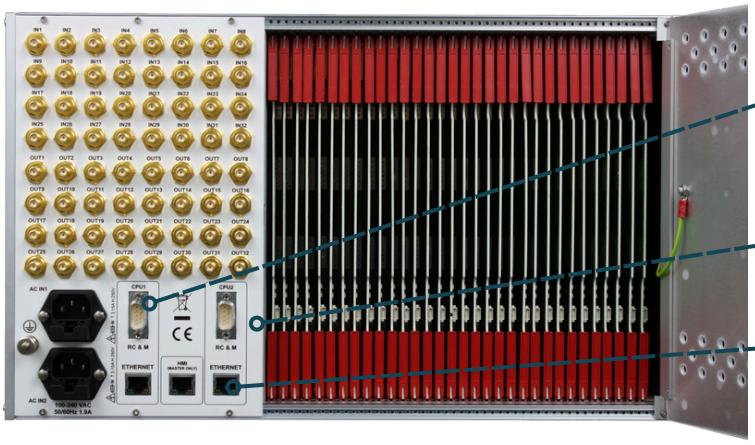


Expansion
in single increments or with additional matrix modules for larger systems

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		Fan-in Fan-out (FIFO - split and combine feeds at the same time)			
Frequency Range		500 - 3150 MHz (Extended L-band)			
Gain		0±1 dB Typical, mean across band			
Gain Control		0 to +10 dB in 0.25 dB steps. +5 dB independently settable at each input and output.			
RF Connectors		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
		All ports DC blocked			
Gain Flatness	850-2450MHz	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
	500-3150MHz	±3.0 dB	±3.0 dB	±3.5 dB	±3.5 dB
Any 36MHz	<2450MHz	±0.5 dB	±0.5 dB	±0.5 dB	±0.5 dB
	>2450MHz	±0.75 dB	±0.75 dB	±0.75 dB	±0.75 dB
Input Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum <2150MHz	14 dB	14 dB	10 dB	10 dB
	Minimum >2150MHz	12 dB	12 dB	8 dB	8 dB
Output Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum <2150MHz	14 dB	14 dB	10 dB	10 dB
	Minimum >2150MHz	12 dB	12 dB	8 dB	8 dB
Isolation (Min. between any 2 ports)	Input-Output	60 dB			
	Input-Input	75 dB			
	Output-Output	75 dB			
Group Delay		<1 ns, across operational bandwidth			
Noise Figure	0dB Gain	18 dB Typ.		With one input routed to one output.	
		22 dB Max.			
	10dB Gain	14 dB Typ.			
		18 dB Max.			
1dB GCP		<2450MHz	>2450MHz	Output power	
	0dB Gain	-3 dBm	-5 dBm		
	10dB Gain	+3 dBm	0 dBm		
OIP3	0dB Gain	10 dBm	10 dBm	Typical	
	10dB Gain	15 dBm	13 dBm		
OIP2	Typical	25 dBm		At 0dB gain	
	Minimum	20 dBm			
Switching Time		< 50ms from receipt of a command to implementation of path change			
Input RF Power		+ 20 dBm		Absolute maximum	

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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		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		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
	Combiner card	317,227	
	Divider card	317,227	
Environmental			
Operating temperature		0 to 45˚C	
Storage temperature		-20˚C to +75˚C	
Location		Indoor use only	
Humidity		20 to 90% non-condensing	
Altitude (operational)		2,000 feet AMSL (Above Mean Sea Level)	
Altitude (storage)		10,000 feet AMSL (Above Mean Sea Level)	
Physical			
Dimensions		6U high x 560mm 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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