



# ETL Systems

Excelling in RF Engineering

Model Number:

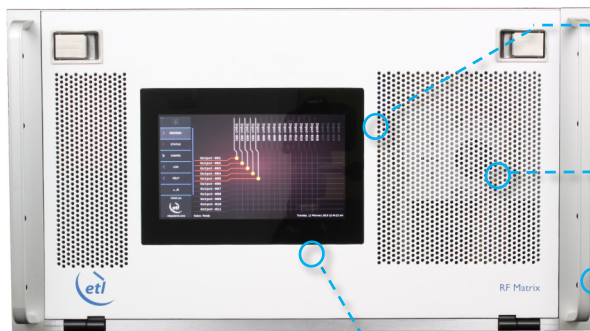
NSN-103-xxxx

# 32 x 32 Ensign Extended L-band Fan-In-Fan-Out Switch Matrix / Router with

## 0-10dB variable gain

### Typical applications:

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



### Switching flexibility

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



### 0-10 dB Variable gain

to balance input and output signals



**500 - 3150 MHz**  
operating frequency range



**Suitable for HTS applications** due to extended bandwidth



**Upgraded local control & monitoring** via front panel capacitive touchscreen



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



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



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



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



**Resilience** from dual redundant power supplies & CPU modules



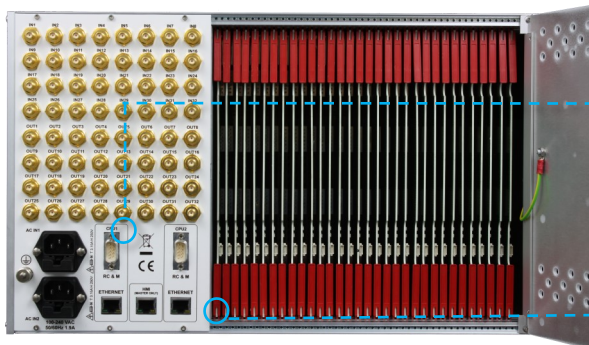
**Dry contact alarm port** for amplifier & power supply status



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



**Future proof secure protocols** with SNMPv3 & HTTPS





**Technical specifications and operating parameters**

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 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	850-2450 MHz	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB
	500-3150 MHz	±2.5 dB	±2.5 dB	±2.75 dB	±2.75 dB
Any 36 MHz	<2450 MHz	±0.5 dB	±0.5 dB	±0.5 dB	±0.5 dB
	>2450 MHz	±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	14 dB	14 dB	10 dB	10 dB
Output Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	10 dB	10 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	< 2 ns across operational bandwidth				
Noise Figure	0dB Gain	Typical: 18 dB Maximum: 22 dB		Typical, 1 input routed to 1 output	
	10dB Gain	Typical: 14 dB Maximum: 18 dB			
1dB GCP		< 2450 MHz	> 2450 MHz	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, minimum 20 dBm, at 0 dB gain				
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 via RJ45, 10BaseT/100BaseTx, ETL TCP/IP Protocol SNMPv3, HTTPS & built in Web Server
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, 5 mins to replace.	Applies to LRUs only and assumed in house stock
MTBF	Chassis	271,444
	Combiner card	317,227
	Divider card	317,227
		Chassis excludes HMI & RF cards

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 m AMSL (Above Mean Sea Level)
Altitude (storage)	10,000 m 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.

