ETL Systems
Excelling in RF Engineering

Model Number:
NSN-102-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

850 - 2450 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
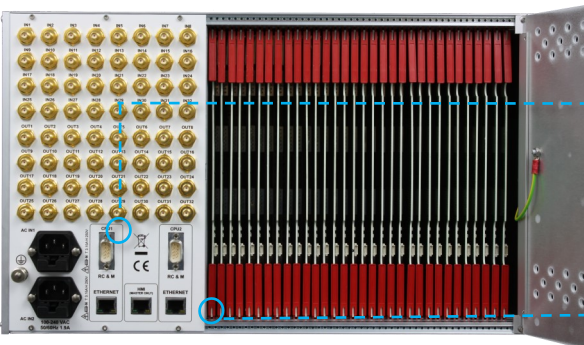
Remote control & monitoring via RJ45 Ethernet port with SNMP & web browser interface

Future proof secure protocols with SNMPv3 & HTTPS

V 1.2 E&OE

www.etlsystems.com

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	850-2450 MHz (Extended L-band)					
Gain	Maximum	10±1 dB		Typical, mean across band		
	Minimum	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	Full band	±1.25 dB	±1.25 dB	±1.5 dB	±1.5 dB	
	Any 36MHz	±0.5 dB	±0.5 dB	±0.5 dB	±0.5 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	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	0dB Gain	Typical: 18 dB Maximum: 20 dB		Typical, 1 input routed to 1 output		
	10dB Gain	Typical: 12 dB Maximum: 14 dB				
1dB GCP	0dB Gain	-3 dBm		Output power		
	10dB Gain	+3 dBm				
OIP3	0dB Gain	Typical: 10 dBm				
	10dB Gain	Typical: 15 dBm				
OIP2	Typical: 23 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	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)	3,000 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.