JENCO technologies
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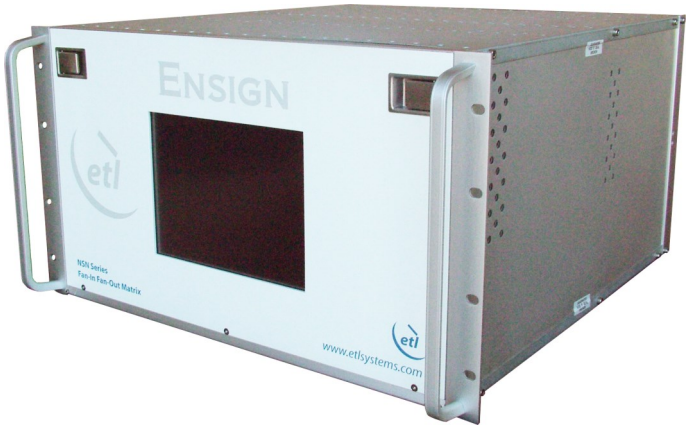
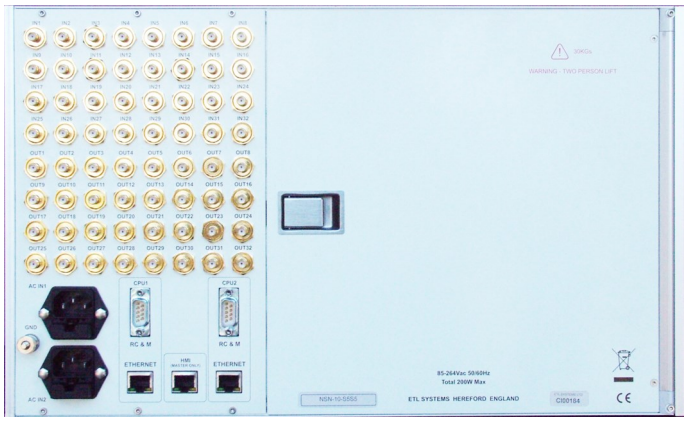
RF Engineering and Custom Build

Model Number: NSN-11-xxxx

Ensign Fan-in & Fan-out (FIFO) Extended L-band Matrix Router

32 x 32 routing for multiple uplinks - **with fixed unity gain**





ETL's Ensign matrix operates over the **850 -2450MHz** frequency range and is both **Fan-In and Fan-Out (FIFO),** which means that multiple inputs can be combined and the combined signal can then be routed (distributed) to multiple outputs.

This is typically to allow modems access to multiple uplink and downlink chains, but it can also be used as a Transmit and Receive matrix for smaller teleports or ground stations.

Benefits

- 32 x 32 fan-in and fan-out routing in a compact 6U high chassis.
- Input and output cards can be expanded in single steps.
- Further expansion of RF Matrix to 512 x 512.
- Continuous monitoring and reporting of all active components (e.g amplifiers).
- Reliability in service with hot-swappable active components.
- All settings are retained after a communications / power failure.

Connectors: A range of RF connectors and impedances are available, including BNC, F-type and SMA in 50 Ω or 75 Ω. Model numbers will vary.

Other options in the Ensign series: The Ensign switch matrix / router is also available with other options including 5dB fixed gain (Model NSN-10) and 0-5dB variable gain (Model NSN-15).

Typical Applications

- Downlink and uplink applications
- VSAT traffic distribution
- RF content acquisition for remote TVRO & IPTV headends
- RF distribution in cruise liners or luxury yachts
- Remote controlled unmanned sitcom sites

Model Number: NSN-11-xxxx

Ensign Fan-in & Fan-out (FIFO) L-band Matrix Router with fixed unity gain

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Technical specifications and operating parameters

RF Parameters					
Capacity		Up to 32 inputs x 32 outputs			
Routing		Fan-in & Fan-out (FIFO)	Inputs & outputs configurable to fewer than 32 in steps of 1 input or 1 output		
Frequency Range		850-2450MHz (Extended L-band)			
RF Connectors		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
Gain		0 ± 1 dB	0 ± 1 dB	0 ± 1 dB	0 ± 1 dB
		Mean Gain. Excluding variations due to time, temperature & frequency			
Gain Flatness	850-2150MHz	± 1.2 dB	± 1.5 dB	± 1.75 dB	± 2 dB
	950-2450MHz	± 1.5 dB	± 1.75 dB	± 2.0 dB	± 2.25 dB
	Any 60MHz	± 0.5 dB	± 0.6 dB	± 0.75 dB	± 0.9 dB
	Gain Tracking	± 2.0 dB	± 2.5 dB	± 2.7 dB	± 2.85 dB
		Gain tracking refers to max. gain difference between any 2 paths at a given gain setting & a spot frequency within the operational bandwidth			
Input Return Loss	Typical	17 dB	16 dB	15 dB	14 dB
	Minimum	14 dB	14 dB	12 dB	10 dB
Output Return Loss	Typical	18 dB	16 dB	15 dB	14 dB
	Minimum	14 dB	14 dB	12 dB	10 dB
Isolation		850-2150 MHz		850-2450 MHz	
	Input-output	≥ 60 dB		≥ 55 dB	
	Input-input	≥ 70 dB		≥ 65 dB	
	Output-output	≥ 70 dB		≥ 70 dB	
Noise Figure		25 dB max.		At 0dB gain setting	
1dB Compression		≥ 0 dBm			
OIP3		≥ +10 dBm		3rd order incept point, output power	
Input Levels		-70 dBm to –5 dBm			
Spurii	Signal independent	-85 dBc max			
	AC related	-50 dBc max			

Power		
AC Power	85-264Vac 50-60Hz, fused 2A	
PSU	Dual redundant	Diode OR
Hot-swap PSU	Yes	

System Control	
Local Control	Touchscreen & VGA Display
Remote Control	Via RS232/485 serial port or RJ45 Ethernet. 10/100Base T. TCP/IP and web browser interface
Alarms	Ethernet, serial and a dry contact alarm port on rear panel for PSU failure

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 x 19" wide
Weight	29 kgs
Colour	White 00-E-55 semi-gloss

Key Features
Fan-in and Fan-out (FIFO) Matrix
Single, hot-swap matrix cards - One card per input and one card per output
Fixed unity gain
Dual redundant, hot-swap CPU modules
Dual redundant, hot-swap power supplies
Self diagnostics - continuous monitoring

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THE QUEEN'S AWARDS FOR ENTERPRISE: 2009

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