



Model Number: 22263-N5N5

RF Engineering  
and Custom Build

# Hybrid 16-way L-band Active Splitter & Combiner

With Redundant Amplifiers, LNB Powering, 10MHz Source and Ethernet Monitoring



Front View of Model 22263-N5N5

This high resilience hybrid unit comprises a 16-way L-band active splitter and a 16-way L-band active combiner in a 3U, 19" rack chassis.

The unit benefits from dual redundant amplifiers and dual redundant power supplies. LNB referencing is provided on the common port via an internal 10MHz source.

Amplifier current sensing triggers the automatic switchover to the (cold standby) redundant amplifier. Front panel LED's provide a visual status for the power supplies and amplifiers in the splitter and combiner modules. A dry contact alarm port and an Ethernet port on the rear panel offer monitoring of the power supplies and amplifier status.



Rear View of Model 22263 with 75 ohm F-type connectors

The unit also provides switchable LNB Powering. The 10MHz reference signal is available on the 10MHz OPS ports and if required, can be injected on to the output of the combiner or the input of the splitter using the supplied U-Link.

This unit is supplied with 50 ohm N-type connectors, but other impedances and connector types are available (model numbers will vary).





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## Technical specifications and operating parameters

RF Parameters		
<b>16-WAY SPLITTER</b>		
Capacity	16-way	
Frequency Range	850-2150 MHz (L-band)	
Gain	0 dB $\pm$ 2 dB nominal, mean	
Flatness	850-2150MHz	$\pm$ 1.5 dB
	Any 36MHz	$\pm$ 0.75 dB
Noise Figure	12 dB	
1 dB Compression	+ 3 dBm output power level	
Input Return Loss	10 dB typical	
Output Return Loss	10 dB typical	
LNB Power	18V nominal, 500mA max per channel, switchable on/off	
10MHz Injection	On to Common Port. Internal or External via U-Link	
Amp Redundancy	1-to-1 redundant, cold redundancy & current sensing	
<b>16-WAY COMBINER</b>		
Capacity	16-way	
Frequency Range	850-2150 MHz (L-band)	
Gain	0 dB $\pm$ 2 dB nominal, mean	
Flatness	850-2150MHz	$\pm$ 1.5 dB
	Any 36MHz	$\pm$ 0.75 dB
Noise Figure	24 dB	
1 dB Compression	+ 12 dBm output power level	
Input Return Loss	10 dB typical	
Output Return Loss	10 dB typical	
10MHz Injection	On to Common Port. Internal or External via U-Link	
Amp Redundancy	1-to-1 redundant, cold redundancy & current sensing	

Physical	
Input Connector	N-type
Input Impedance	50 $\Omega$
Output Connector	N-type
Output Impedance	50 $\Omega$
Dimensions	3U high x 350mm deep x 19" wide
Weight	12 kg
Colour	White 00-E-55 semi-gloss

Environmental	
Operating temperature	0 to 45°C
Location	Indoor use only
Storage temperature	-20°C to +75°C
Humidity	85% non-condensing

RF Parameters		
<b>10MHz Source</b>		
Internal Reference	10MHz Sine Wave	Ovenised Crystal Oscillator
10MHz Output Level	+1.5 $\pm$ 1.5 dBm typical, $\pm$ 2.5 dBm worst case	Fundamental frequency (10MHz) under all operational conditions
Frequency stability over temperature	$\pm$ 1 x 10 <sup>-8</sup>	0 to 55°C
Reference Source Ageing	$\pm$ 5 x 10 <sup>-8</sup> / year	
	$\pm$ 5 x 10 <sup>-10</sup> / day	
Reference Source Phase Noise	<-85 dBc / Hz @ 1Hz	
	<-115 dBc / Hz @ 10Hz	
	<-140 dBc / Hz @ 100Hz	
	<-150 dBc / Hz @ 1000Hz	
10MHz Ref Source	<b>U-links on rear panel to select internal/external.</b> The 10MHz reference is injected onto the common L-band port.	2 sets of 2 50 ohm BNC's on rear panel for 10MHz external IN and internal OUT, with a U-Link supplied. <b>There is no 10MHz injection if the U-link is removed and the port is terminated (i.e. no external source supplied).</b>
Warm up Time	< 2 minutes	At 25°C to $\pm$ 1 x 10 <sup>-7</sup>
Harmonic & Spuri Levels	-60 dBc typical, -50 dBc worst case	With respect to 10MHz harmonics (non related spuri levels <-80 dBm max)

System Control	
Display	Front panel LED's for PSU & Amplifier status
Alarms	Dry contact & RJ45 Ethernet alarm port on ear panel for PSU & amplifier failure

Power	
AC Power	85-264Vac 50/60Hz
LNB Power	Splitter only - 18V nominal, 500mA max per channel, switchable on/off
PSU	Dual redundant
Hot-swap PSU	No

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