



# 4-way S-Band active combiner with variable gain & slope, internal amplifier redundancy, RF detection & RF output power limiting - for 3U Genus chassis

The Genus is a new generation of equipment for the ground segment to meet today's and future ground segment V/HTS requirements. The Genus Habitat accommodates up to 17 RF modules. These can be inserted whilst the shelf is in service giving excellent levels of flexibility and resilience.

### Typical applications:

- Distribution of multiple polarities into a teleport
- Signal distribution into standby IRDs
- Expansion of ETL's RF matrix range
- Linking RF Matrices in expanding satellite teleports.
- Can be used for a high density RF distribution chassis where rack space is limited.
- As a replacement for non hot-swap passive systems to improve system design.

## Combiner Modules



**850 - 3150 MHz**  
operating frequency range



**RF detection & RF Output Power Limiting** for output signal levels



**Variable gain & slope** to balance input signals



**1:1 redundant amplifiers** for added resilience

## Chassis



**Compact** chassis which can house up to 17 RF modules



**Resilience** from dual redundant hot-swap power supplies & field serviceable & replaceable RF modules, HMI & CPU



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



**Secure Communications** with SNMPv3, HTTPS



**Local control & monitoring** via LEDs on modules





Combiner Module - Technical specifications and operating parameters					
Function		4-way Active Combiner			
Module Slots Used		1			
Frequency Range		850-3150 MHz (Extended L-Band / S-Band) Note: Output power limiter functionality only defined over 850 – 2450 MHz			
Gain		Min 0 ± 2 dB, Max 28 ± 2 dB			
Gain Flatness	850 to 2450 MHz	± 1.0 dB			
	850 to 3150 MHz	± 2.0 dB			
	Any 36 MHz	± 0.25 dB			
Gain Steps		0.25 ± 0.15 dB Monotonic Gain Control			
Slope Control Range		0 to 10 dB Pivot Point at 3150 MHz			
Slope Control Steps		1 ± 0.25 dB			
RF Connectors & Impedances		50Ω SMA	50Ω BNC	75Ω BNC	75Ω F-type
Input Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	12 dB	12 dB	10 dB	10 dB
Output Return Loss	Typical	18 dB	18 dB	16 dB	16 dB
	Minimum	12 dB	12 dB	10 dB	10 dB
Reverse Gain		< -60 dB typical			
Noise Figure	Typical	17 dB At maximum gain & 0 dB slope setting			
	Maximum	19 dB At maximum gain & 0 dB slope setting			
1dB GCP	Typical	14 dBm At maximum gain & 0 dB slope setting			
	Minimum	12 dBm At maximum gain & 0 dB slope setting			
OIP3	Typical	30 dBm At maximum gain & 0 dB slope setting			
	Minimum	28 dBm At maximum gain & 0 dB slope setting			
OIP2	Typical	40 dBm At maximum gain & 0 dB slope setting			
	Minimum	38 dBm At maximum gain & 0 dB slope setting			
Isolation	In to In	23 dB min			
	Card to Card	50 dB min (Between cards set to same gain within parent chassis)			
RF Output Trip Limit		(-30 to 0) ±0.5 dBm Software Configurable. Specified at 1500MHz			
RF Output Power Trip response time		≤ 1 ms Time within which 0 to 25 dB (software configurable) of Attenuation will be applied to the output.			
RF Output Limiting Settling time		≤ 75 ms Time within which output power will be regulated to -30 to 0 dBm (software configurable) ± 0.5dB during a trip condition. Only specified over 850 – 2450 MHz			
In band, signal dependent spuri		<-85 dBm max Very low level spuri from CPU clock, switch mode PSU and other control electronics inside the chassis.			
Output RF Detection		0 to -50 dBm			
Redundancy		1:1 Auto switch over from main to standby is based on current sensing. Standby amp chain is cold standby redundant.			
Maximum Input Level		+20 dBm For no damage. None operational.			
Control Method		Via Chassis Local and remote as provided by selected chassis			
DC Coupling		All RF Ports DC blocked			
Temperature		Operating: 0 to 50°C Storage: -20°C to +75°C (equipment not powered)			
Location / Humidity / Altitude		Location: Indoor only Humidity: 20 to 90% non-condensing (relative) Altitude: 10,000ft/3000m AMSL (Above Mean Sea Level)			
Tech Spec Version		1.2			

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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