

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.

Combiner Modules



850 - 3150 MHz
operating frequency range

RF detection
for monitoring output signal levels

Variable gain & slope
to balance input signals

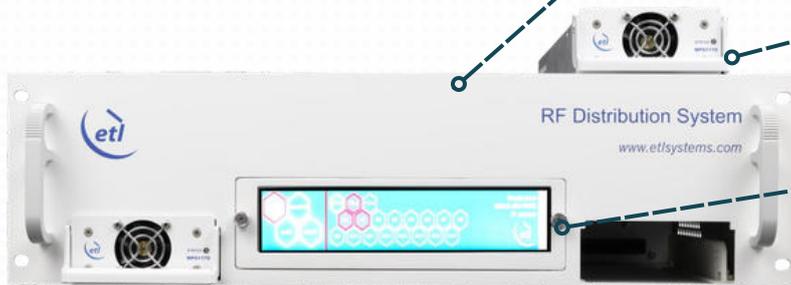
1:1 redundant amplifiers
for added resilience



Compact & Flexible

3U chassis holding up to 17 RF modules,
which can be mixed.

Chassis



Resilienc

om dual redundant hot-swap power
supplies & field serviceable RF
modules, HMI, CPU & Fans

Local control & monitoring

via front panel capacitive HMI
touchscreen.



Remote control & monitoring

via RJ45 Ethernet via RJ45,
10BaseT/100BaseTx, ETL TCP/IP protocol,
SNMPv3 & Web Browser Interface

Secure Communications
with SNMPv3, HTTPS



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	Minimum	0 ± 2 dB		
	Maximum	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	18 dB typ., 12 dB min.	18 dB typ., 12 dB min.	16 dB typ., 10 dB min.	16 dB typ., 10 dB min.
Output Return Loss	18 dB typ., 12 dB min.	18 dB typ., 12 dB min.	16 dB typ., 10 dB min.	16 dB typ., 10 dB min.
Reverse Gain	< -60 dB typical			
Noise Figure @ max gain & 0 dB slope setting	17 dB typ., 19 dB max.			
1dB GCP @ max gain & 0 dB slope setting	14 dB typ., 12 dB min.			
OIP3 @ max gain & 0 dB slope setting	30 dB typ., 28 dB min.			
OIP2 @ max gain & 0 dB slope setting	40 dB typ., 38 dB min.			
Isolation	In to In: 23 dB min Card to Card: 50 dB min (Between cards set to the same gain within the 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 Input 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)			

Please see separate datasheet for full 3U Genus chassis specifications (Model GNS-103-3U).

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.