ETL Systems
Excelling in RF Engineering

Model Number:
COM-G3-S6-402-XXXX

4-way L-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



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Combiner Module - Technical specifications and operating parameters					
Function		4-way Active Combiner			
Module Slots Used		1			
Frequency Range		850-3150 MHz (Extended L-band)			
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	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			
RF Output Trip Limit		(-30 to 0) ±0.5 dBm Software Configurable. Only specified over 850 – 2450 MHz			
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 spurii		<-85 dBm max Very low level spurii 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.			
MTBF		>150,000 hrs MTBF of each amp module. These are hot swap.			
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)			

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.

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

ETL SYSTEMS LIMITED
Coldwell Radio Station
Madley
Hereford
England HR2 9NE

TELEPHONE
+44 (0)1981 259020

EMAIL
info@etlsystems.com

FACSIMILE
+44 (0)1981 259021

WEB
www.etlsystems.com