ETL Systems
New technologies
in RF distribution

Model Number:
ALT-G2R-L1-131

Alto L-Band Redundant Amplifier Module with low noise, high linearity, variable gain and slope control

Typical applications:
- Teleports & Earth Stations
- Satellite Operations
- Government & Defence applications
- Telemetry, Tracking & Command
- High Resilience applications

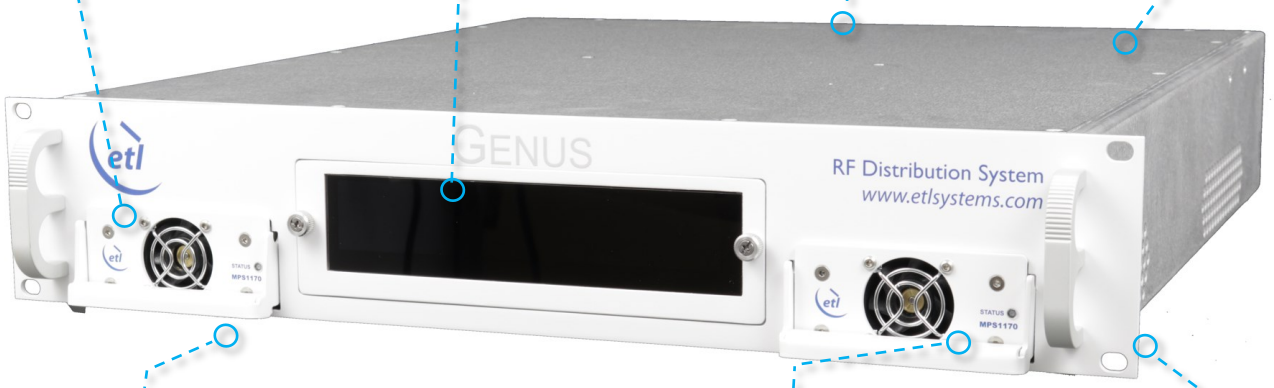
L-Band redundant amplifier module. Designed to be housed in Genus 2U 19" chassis. It operates over 850-2150 MHz. The module has low noise, high linearity, +45 to +15dB gain range with variable gain control. The chassis has the capacity 16 amplifier modules. Positive slope compensation between 0dB (flat response) and +8dB.

Resilience from dual redundant hot-swap power supplies & field replaceable CPU & HMI

Local control & monitoring via HMI high resolution touchscreen

Compact housed in a 2U high chassis

L-Band 850-2150 MHz operating frequency range



Hot Swap & replaceable RF Amplifier modules. Up to 16 RF modules

Variable gain & slope control to balance input signals

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

Chassis - Specification	
Dimensions / Weight / Colour	2U high x 550mm deep x 19" wide / <10 kg / RAL9003—White (Semi-matte)
Capacity	Total of 17 module slots. Note that 1 slot may be used for fan (if required) and 1 slot may be used for 10 MHz EXT inject module (if required). Note actual modules may require >1 slot. Refer to required module spec table.
Temperature	Operating: 0˚C to +45˚C / Storage: -20˚C to +75˚C
Location / Humidity / Altitude	Indoor use only / 20 to 90% non-condensing / 10,000 feet AMSL (Operational) 30,000 feet AMSL (Storage) *Above Mean Sea Level*
Control & Monitoring	Local: HMI touch screen Remote: Ethernet via RJ45, 10BaseT/100 BaseTx. TCP/IP, SNMP V3 & HTTPS & Web browser interface HMI and CPU field replaceable. Each module independently monitored and reported.
MTTR	20 minutes (15 minutes to retrieve spare part and 5 mins to replace) Applies to LRUs only and assumed in house stock
AC Input / Consumption	85-264Vac 50/60Hz / 150W
PSU Redundancy	Dual redundant and alarmed Diode OR. Hot swappable
Input & Output ports	Dependant upon module fitted

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Amplifier Module

Compact form factor allowing multiple modules to be housed in 2U chassis.
Each module uses 1 slot in the chassis.

Provisional Specifications

Standalone Amplifier Module - RF Parameters (note RF specifications will change dependant upon redundancy switch utilised).		
Model Numbers		ALT-G2R-L1-131
Frequency Range		850-2150 MHz
Gain (dB)	Max.	45±2.0
	Min.	15±2.0
Gain Flatness (dB)	850 to 2150 MHz	±1.5
	Any 36 MHz	±0.25
Gain Steps (dB)		0.25±0.15
Slope Control Range (dB)		0 to 8. Pivot point at 2150 MHz
Slope Control Steps (dB)		1±0.25
Input Return Loss (dB)		18 typ. 12 min
Output Return Loss (dB)		18 typ. 12 min
Isolation (dB)	Typ. Min.	60dB. 50dB With amplifiers set at the same gain level. Worst case isolation is between adjacent amps, isolation degrades dB-to-dB for different gain levels.
Reverse Gain (dB)		< -60 Typical
Noise Figure (dB)	Typ. Max	4.0 @ max gain setting 6.0 @ max gain setting
1dB GCP (dBm)	Typ.	33 Output power over full gain range
	Min.	31.5 Output power over full gain range
OIP3 (dBm)	Typ. Min.	43 (At max gain setting) 40 (At max gain setting)
OIP2 (dBm)	Typ. Min	60 (At max gain setting) 58 (At max gain setting)
RF Output Detector (dBm)	Min Max Accuracy	-20 30 ±3
In band, signal independent spurii		<-85 dBm Typ. Very low level spuria from CPU clock, switch mode PSU and other control electronics inside the chassis
MTBF		>150,000 hrs. MTBF of each amp module. These are hot-swap
Maximum Input Level		+20 dBm. For no damage. None operational.
Number of module slots		1

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.
Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.

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Provisional Specifications

Interface, Monitoring and Alarms	
Control Method	Via Chassis
LNB Power	None
Environmental Conditions	
Operating Temperature (°C)	0 to +50°C
Storage Temperature (°C)	-20 to +75°C
Location	Indoor use only
Humidity	20 to 90% non-condensing
Altitude	10,000ft/3000m AMSL
Module Weight	0.35 kg
Spec Version	0.1

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