



ETL Systems

New technologies
in RF distribution

Model Number:
ALT-G2A-L1-250-xxxx

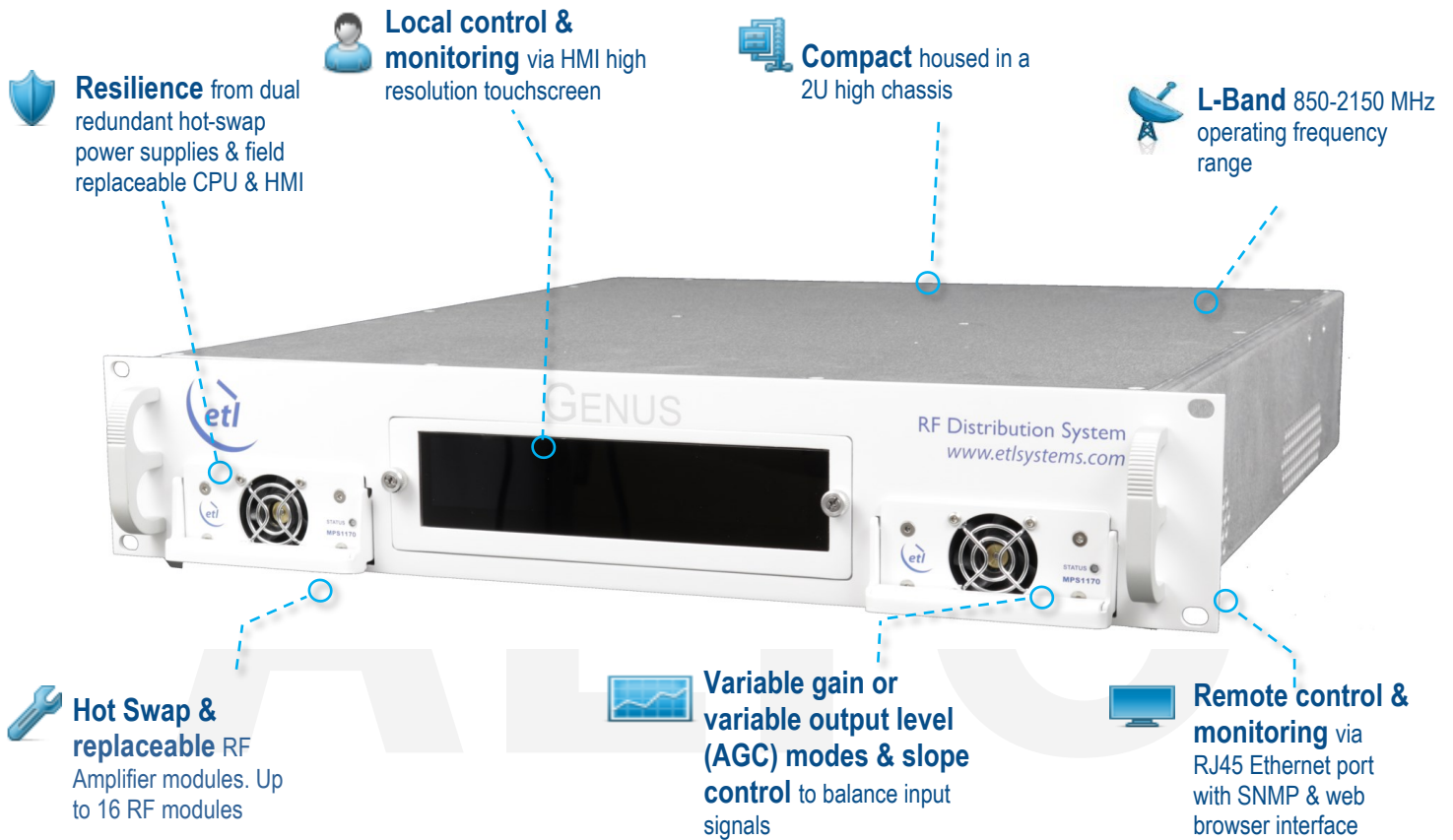
Alto L-band AGC Amplifier Module

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 Automatic Gain Control (AGC) amplifier module. Designed to be housed in Genus 2U 19" chassis. It operates over 850-2150 MHz in either AGC mode, where it automatically controls its own gain to maintain a user-set output level while the input level varies, or in manual mode where the user may set the gain directly. Positive slope compensation between 0dB (flat response) and +6dB, as well as the attack & decay times for the AGC function are factory settable.



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

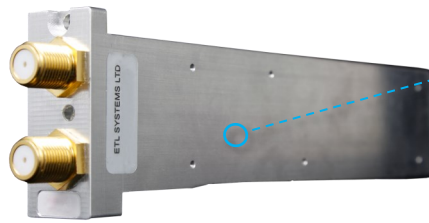




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Smart Amplifier Module

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

Provisional Specifications

Smart Amplifier Module - RF Parameters	
Model Numbers	ALT-G2A-L1-250-xxxx
Frequency Range	850-2150 MHz
RF Connectors	50Ω SMA 50Ω N-type
Gain (dB)	Max. 55±1.5
	Min. 0±1.5
Gain Flatness (dB)	850 to 2150 MHz ±1.5 (In MGC mode)
	Any 36 MHz ±0.25 (In MGC mode)
Gain Steps (dB)	2
Slope Control Range (dB)	0 to 6. Pivot point at 2150 MHz
Slope Control Steps (dB)	1±0.5
Input Return Loss (dB)	18 typ. 12 min
Output Return Loss (dB)	18 typ. 12 min
Isolation (dB)	Min. 60dB. <small>With amplifiers set at the same gain level. Worst case isolation is between adjacent amps. isolation degrades dB-to-dB for different gain levels.</small>
Reverse Gain (dB)	< -40 Typical
Noise Figure (dB)	Typ. 9.0 @ max gain setting 17.0 @ 30dB gain setting 35.0 @ min gain setting
1dB GCP (dBm)	Typ. 17.5 Output power over full gain range
	Min. 14.5 Output power over full gain range
OIP3 (dBm)	Typ. 30 (At max gain setting)
In band, signal independent spuri	<-85 dBm Typ. Very low level spuria from CPU clock, switch mode PSU and other control electronics inside the chassis
Signal Dependent spuri	<-85 dBm Typ. <-70 dBm Max.
MTBF	>150,000 hrs. MTBF of each amp module. These are hot-swap
Maximum Input Level	+20 dBm. For no damage. None operational.

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.





Provisional Specifications

Smart Amplifier Module - RF Parameters	
AGC Mode (Output Level Mode)	
Output Power Levels (dBm)	-20 to 0
Output Power Steps (dB)	2
Output Power Setting Accuracy (dB)	±1
Input Power Range for: -20dBm Output -15dBm Output -10dBm Output -5dBm Output 0dBm Output	-60 to -15dBm -60 to -10dBm -60 to -5dBm -55 to 0dBm -50 to 0dBm
Time Constant (msec) Rise Time Constant Decay Time Constant	15±10 (factory default) 15±10 (factory default)
Time Constant Selection	Factory set
Interface, Monitoring and Alarms	
Control Method	Via Chassis
Temperature Monitors	Each amp module
Amp status in each AGC module	DC bias monitored
Upper limit alarm (dBm)	0dBm max input power
LNB Power	None
Environmental Conditions	
Operating Temperature (°C)	0 to +50°C (Up to 8 modules) 0 to +45°C (Up to 16 modules)
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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