Alto S-band AGC Amplifier Module

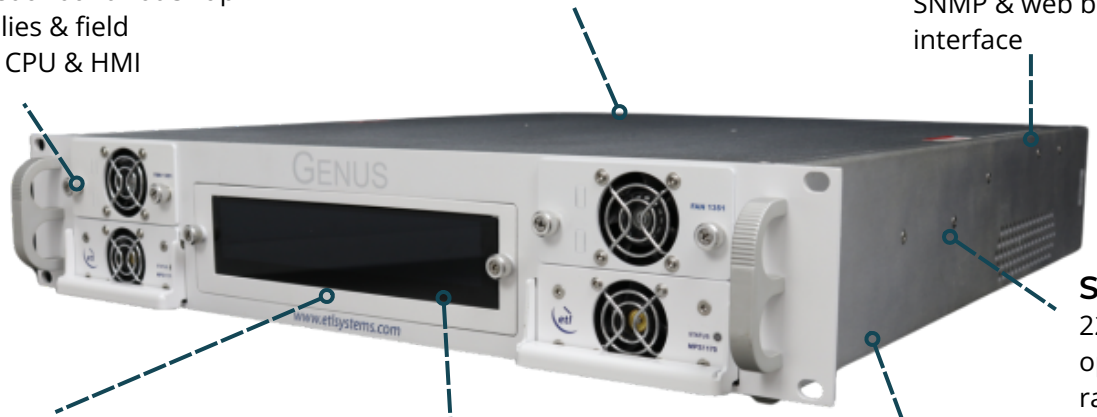
with low noise, variable gain and slope control

S-band Automatic Gain Control (AGC) amplifier module. Designed to be housed in Genus 2U 19" chassis. It operates over 2200-2300 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. The attack & decay times for the AGC function are factory settable.

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

Hot swap & replaceable
RF amplifier modules. Up to 16 RF modules.

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



S-band
2200-2300MHz operating frequency range

Local control & monitoring
via HMI high resolution touchscreen

Balance input signals
with variable gain or variable output level (AGC) modes & slope control

Compact
housed in a 2U chassis

Chassis Specification	
Dimensions/Weight/Colour	2U high x 550mm deep x 19" wide / <10kg / RAL9003 - white (semi-matte)
Capacity	17 module slots. **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 / 2,000m AMSL (Operational) 8,000m AMSL (Storage) Above Mean Sea Level
Control & Monitoring	**Local:** HMI, capacitive touch screen **Remote:** Ethernet via RJ45, 10BaseT/100 BaseTx. ETL TCP/IP, SNMPv2/3, HTTPS & built-in web server. HMI and CPU field replaceable.
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 / 275W max. consumption at steady state
PSU Redundancy	Dual redundant and alarmed. Diode OR. Hot swappable.
Input & Output Ports	Dependant upon module fitted

Smart Amplifier Module

Compact form factor allows multiple modules to be housed in the 2U GENUS chassis. Each module occupies 1 slot in the chassis.

RF Parameters			
Model Numbers		ALT-G2A-S3-253-xxxx	
Frequency Range		2200 - 2300 MHz	
Size		1 slot wide	
RF Ports		50Ω SMA / N-Type	
MTBF		>150,000 hours	
Gain		65 ± 1.5 dB max. 5 ± 1.5 dB min.	Gain range can extend up to 70dB. This may result in reduced performance, e.g. linearity
Gain Flatness		± 0.25 dB	When set to 0dB slope. In manual gain control mode, not AGC.
Gain Steps		1 ± 0.25 in manual gain mode	
Slope Control Range		0 to 0.75 dB	Pivot point at 2200MHz. Reduced range due to narrow bandwidth
Slope Control Steps		0.75 ± 0.3 dB	
Input Return Loss		18 dB typ. 12 dB min.	
Output Return Loss		18 dB typ. 12 dB min.	
Isolation		>60 dB	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		<-40 dB typ.	
Noise Figure	At 65dB gain	9 dB	
	At 60dB gain	13 dB	
	At 30dB gain	22 dB	
	At 5dB gain	38 dB	
1db GCP		17.5 dBm typ. 14.5 dBm min.	Output power, over full gain range
OIP3		30 dBm	At max. gain
AM/PM Conversion (°/dB)		0.1	At 0dBm output
Linear Phase vs Frequency Deviation		< 5°	Peak-peak deviation after removing linear component of phase vs frequency
In band, signal related spurii		-85 dBc typ. -70 dBc max.	
In band, signal independent spurii		<-85 dBm max.	Very low level spurii from CPU clock, switch mode PSU and other control electronics inside the chassis.
Maximum Input Level		+20 dBm	For no damage. Non-operational.
MTBF		>150,000 hrs	MTBF of each amp module. These are hot swap.

AGC Mode			
Output Power Levels		-25 to 0 dBm	
Output Power Steps		1 dB	
Output Power Setting Accuracy		± 1.0 dB	
Input Power Range	-25dBm output	-70 to -20 dBm	
	-20dBm output	-70 to -15 dBm	
	-15dBm output	-70 to -10 dBm	
	-10dBm output	-65 to -5 dBm	
	-5dBm output	-65 to -5 dBm	
	0dBm output	-60 to 0 dBm	
Time Constant	Rise time	<60mS for <30dB input level step change	Rise and decay time is factory settable.
	Decay time	<120mS for >30dB input level step change	
Interface, Monitoring & Alarms			
Control Method		Local and remote as provided by selected chassis	
Temperature Monitors		Each amplifier module	
Amplifier Status		DC bias monitored	In each AGC module.
Environmental			
Operating Temperature		-0˚C to +50˚C	Up to 16 modules in a chassis.
Storage Temperature		-20˚C to +75˚C	
Location		Indoor use only	
Humidity		20 to 90% non-condensing, relative humidity	
Altitude		10,000ft / 3,000m above mean sea level	
Physical Dimensions & Parameters			
Weight		<0.35kg typ.	

The performance quoted above is for a standalone amplifier. For in-chassis performance, see relevant spec. tables.

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.