ETL Systems

Excelling in RF Engineering

Model Number:
ALT-A-L1-011 module
ALT-C202-2U / ALT-C203-2U /
ALT-C206-2U / ALT-C207-1U / chassis

Alto series L-band Amplifier Module

with automatic gain control (AGC) or manual gain control, 0-6 dB variable slope compensation and variable attack/ decay

The Alto series of amplifiers provide excellent RF performance with a wide range of functionality, in a compact chassis. The are designed with hot swap amplifier modules to enhance resilience and flexibility.

Other options in the Alto range: The Alto amplifier range is also available with additional features such as LNB powering, 10MHz and DC pass and Redundancy configurations up to 4+2.

Typical applications:

- Compensation for passive splitters/combiners and cable loss
- General satcoms – teleports, video head-ends, TVRO

Amplifier Module

L-band (850 - 2150MHz) operating frequency range

Variable gain or variable output level (AGC) modes variable slope compensation & attack/ decay

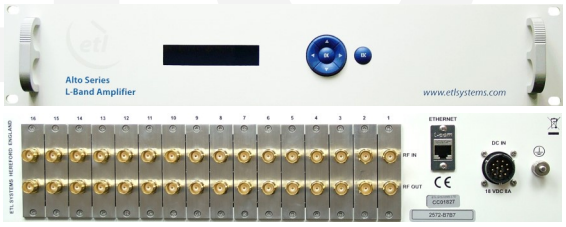
Chassis Options

Model ALT-C207-1U

Model ALT-C206-2U

Model ALT-C202-2U

Model ALT-C203-2U



Compact chassis options, which can house 4 to16 amplifier modules

Local control & monitoring via front panel push buttons & display

Resilience from options with dual redundant hot-swap power supplies, hot-swap amplifier modules

Remote control & monitoring via RJ45 Ethernet port with SNMP & web browser interface & option with RS232 serial port

External DC Power option

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RF Parameters

Frequency Range		850-2150 MHz (L-band)				
RF Connectors		50Ω SMA	50Ω N-type	50Ω BNC	75Ω BNC	75Ω F-type
Flatness Set to 0dB slope in MGC not AGC	Full band	± 1.5 dB	± 1.5 dB	± 1.75 dB	± 1.75 dB	± 2.0 dB
	Any 36MHz	±0.25 dB	±0.25 dB	±0.35 dB	±0.35 dB	±0.5 dB
Input Return Loss	Typical	18 dB	18 dB	18 dB	14 dB	14 dB
	Minimum	15 dB	12 dB	14 dB	10 dB	8 dB
Output Return Loss	Typical	18 dB	18 dB	18 dB	14 dB	14 dB
	Minimum	15 dB	12 dB	14 dB	10 dB	8 dB
Gain	Maximum	55 ± 1.5 dB	55 ± 1.5 dB	55 ± 1.5 dB	55 ± 1.5 dB	55 ± 1.5 dB
	Minimum	0 ± 1.5 dB	0 ± 1.5 dB	0 ± 1.5 dB	0 ± 1.5 dB	0 ± 1.5 dB
Gain Steps		2 dB				
1dB Gain Compression		17.5 dBm Typical , 14.5 dBm Minimum , Output power over full gain range				
Slope Range		0 to 6 dB Pivot point is at 2150MHz. This is the point of max. gain when positive slope is set to a value other than 0dB				
Slope settings		1 ± 0.5 dB				
OIP3		30 dBm at Max gain				
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 typical				
Noise Figure		9 dB at Max gain, 17 dB at 30 dB gain, 35 dB at Min gain				
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.				
In band, signal related spurii		-85 dBc Typical, -70 dBc Minimum				
MTBF		> 150,000 hours MTBF of each amp module.				
Maximum input level		0±1.5 dBm triggers input overload alarm. Factory default, other values can be set. +20 dBm for no damage.				

AGC Mode

Output Power Levels		-20 to 0 dBm. User selectable in 2dB steps	
Output Power Steps		2 dB , Finer output power steps available as an option	
Output Power Setting Accuracy		± 1 dB	
Input Power Range	-20 dBm Output	-60 to -15 dBm	
	-15 dBm Output	-60 to -10 dBm	
	-10 dBm Output	-60 to -5 dBm	
	-5 dBm Output	-55 to 0 dBm	
	0 dBm Output	-50 to 0 dBm	
Rise time constant		15 ± 10 msec	Factory settable 1msec to 250msec
Decay time constant		15 ± 10 msec	
Time Constant Selection (optional)		Local or Remote control on selectable time constant (2 Values). Optional	

Environmental

Operating temperature	0 to +50	Up to 8 modules in a chassis
	0 to +45	Up to 16 modules in a chassis
Location	Indoor use only	
Storage temperature	-20˚C to +75˚C	
Humidity	20 to 90% non-condensing	
Altitude	10,000ft AMSL	

Monitoring & Alarms

Temperature monitors	Each amp module
Amp status in each AGC	DC bias monitored
Upper limit alarm	0 dBm max input power. Factory reset to other values

Chassis Options - Specification

Amp Chassis Model Numbers	ALT-C202-2U	ALT-C203-2U	ALT-C206-2U	ALT-C207-1U
Capacity	Up to 16 modules (up to 8 modules with N-type connectors)			Up to 8 modules (up to 4 with N –Type connectors
Dimensions	2U high x 450mm deep x 19" wide			1U high x 450mm deep x 19" wide
Local control & monitoring	Via front panel push buttons & display			
Remote control & monitoring	RJ45 Ethernet, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMP & Web Browser Interface			
	RS232/485 serial	-	-	-
AC Power	85-264Vac 50/60 Hz, Fused 2A			
PSU	Dual redundant, Diode OR	External 18V DC	Dual redundant, Diode OR	
Hot-swap PSU	Yes	No	No	No
Power Consumption	< 100W all channels	< 50W all channels, LNB off < 200W all channels, LNB on	-	-
Weight	8 kg fully populated			6 kg fully populated
Colour	White 00-E-55 semi-gloss			

PRELIMINARY

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.

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