ETL Systems
Excelling in RF Engineering

Model Number: ALT-A-B2-009 module
ALT-C202-2U / ALT-C203-2U /
ALT-C206-2U / ALT-C207-1U / chassis

Alto series IF/ L-band Amplifier Module with automatic gain control (AGC) or manual gain control, local & remote control & monitoring

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

IF/L-band (50 - 2150MHz) operating frequency range

Variable gain or variable output level (AGC) modes to balance signals

Chassis Options

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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Amplifier Module - RF Parameters						
Frequency Range		50-2150 MHz (IF/L-band)				
RF Connectors & impedance		50Ω SMA	50Ω N-type	50Ω BNC	75Ω BNC	75Ω F-type
Flatness	Full Band	±1.5 dB	±1.5 dB	±1.75 dB	±1.75 dB	±2 dB
	850-2150MHz	±1 dB	±1 dB	±1.5 dB	±1.5 dB	±1.75 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	15 dB	14 dB	10 dB	8 dB
Output Return Loss	Typical	18 dB	18 dB	18 dB	14 dB	14 dB
	Minimum	15 dB	15 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 typical				
1dB GCP	Typical	17.5 dBm, Output power, over full gain range				
	Minimum	14.5 dBm, Output power, over full gain range				
OIP3		30 dBm 3rd order intercept point, output power				
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	At Max Gain	9 dB				
	At 30 dB Gain	17 dB				
	At min Gain	28 dB				
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 dB for no damage, not operational.				
MTBF		> 150,000 hours MTBF of each amp module. These are hot swap				

AGC Mode (Output Level Mode)			
Output Power Levels		-20 to 0 dBm	User selectable in 2 dB steps
Output Power Steps		2 dB	
Output power setting accuracy		±1 dB	
Input Power Range	-20 dBm output	-60 to –15 dBm	
	-15 dBm output	-60 to –15 dBm	
	-10 dBm output	-55 to + 5 dBm	
	-5 dBm output	-55 to + 5 dBm	
	0 dBm output	-55 to + 5 dBm	
Time Constant	Rise	10 ± 20	Rise and decay time is factory settable within the range of 1 msec to 250msec
	Decay	10 ± 20	
Time constant selection		Local or remote control on selectable time constant	

Variable Gain Mode (gain set directly set by user)		
Gain	0 to 55 dB ± 1.5	Gain range can extend up to 80dB. This may result in reduced performance in other parameters, e.g. linearity
Gain Control	2 dB steps over 0 to 55 dB	User selectable in 2 dB steps

Environmental		
Operating Temperature	0 to 55	
Storage Temperature	-20 to +75	
Location	Indoor use only	
Humidity	20 to 90% non-condensing	Can be factory reset to other values
Altitude	10,000ft / 300m AMSL	

PRELIMINARY

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 modules 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			

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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