ETL Systems

Excelling in RF Engineering

Model Number: ALT-C313-2U-x5x5 chassis
ALT-R-L1-006 / ALT-R-L1-008 / ALT-R-L1-012 /
ALT-R-F2-013 / ALT-R-L1-019 / ALT-R-L1-021 /
ALT-R-L1-023 / ALT-R-L1-032 / ALT-R-L1-043 /
ALT-R-L1-044 modules

Alto series 2+1 Redundant Amplifier

with variable gain & coaxial switching (50Ω system)

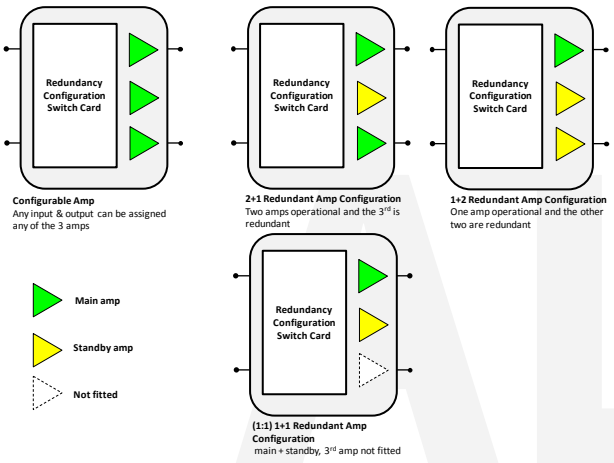
The Alto series of amplifiers provide excellent RF performance with a wide range of functionality, in a compact chassis. They are designed with hot swap amplifier modules to enhance resilience and flexibility.

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

Typical applications:

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

Chassis



Redundancy configuration 2+1 Redundancy

Resilience from dual redundant hot-swap power supplies & hot-swap amplifier modules

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

Local control & monitoring via front panel push buttons & display

Monitor ports for input & output signal levels

Amplifier Module Options

IF & L-band (850 - 2150MHz & 50 - 200MHz) operating frequency range options

Variable gain & slope compensation to balance input signals

High Linearity options ensures overall RF gain signal performance is optimised

Variable attenuation to balance output signals

Low Noise options for prime signal quality

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Chassis - Specification

Model Numbers	ALT-C313-2U-x5x5	
Dimensions	2U high x 350mm deep x 19" wide	
Capacity	3 modules: 2 +1 redundancy	
Impedance & RF Connectors	50 Ω BNC / SMA / N-type	
Weight	5 kg	
Colour	White 00-E-55 semi-gloss	
AC Power	85-264Vac 50/60 Hz, Fused 2A	
PSU	Hot-swap, dual redundant, Diode OR	
Power Consumption	< 50W steady state, all modules fitted. Total AC input.	
Local control & monitoring	Via front panel LCD and keypad	
Remote control & monitoring	Ethernet via RJ45, 10BaseT/100BaseTx, ETL TCP/IP protocol, SNMP & web browser interface	
Monitoring	Amplifier bias voltages, amplifier supply voltages, temperature monitoring & PSU status	
Operating Modes	Amplifier Tracking ON - Amplifier gain & slope control is common to all modules in the chassis Amplifier Tracking OFF: Each amplifier can be independently set by operator selected slope & gain setting Redundancy: Redundant amplifier can be set as hot or cold standby amplifier	
MTBF	119,714 hours	
Temperature	Operating: 0 to 45 °C	Storage: -20 to +75 °C Indoor use only
Humidity	20% to 90% non-condensing	Relative humidity

Amplifier Module Options - RF Parameters

Amp Module Model Numbers		ALT-R-L1-006	ALT-R-L1-008	ALT-R-L1-012	ALT-R-F2-013	ALT-R-L1-019	ALT-R-L1-021	ALT-R-L1-023	ALT-R-L1-032	ALT-R-L1-043	ALT-R-L1-044
Frequency Range		850-2150 MHz (L-band)	850-2150 MHz (L-band)	850-2150 MHz (L-band)	50-200 MHz (IF)	850-2150 MHz (L-band)	850-2150 MHz (L-band)	850-2150 MHz (L-band)	850-2150 MHz (L-band)	850-2150 MHz (L-band)	850-2150 MHz (L-band)
Gain	Maximum	34 ±1.5 dB	26 ±1.5 dB	44 ± 2 dB	38 ± 2 dB	44 ± 2 dB	35 ± 1.5 dB	46 ± 2 dB	44 ± 2 dB	39 ± 1.5 dB	43 ± 1.5 dB
	Minimum	4 ± 1.5 dB	3 ± 1.5 dB	14 ± 2 dB	8 ± 2 dB	14 ± 2 dB	8 ± 1.5 dB	16 ± 2 dB	14 ± 2 dB	9 ± 1.5 dB	13 ± 1.5 dB
Flatness	850-2150MHz	± 1 dB	± 1.25 dB	± 1.25 dB	± 1 dB	± 1.75 dB	± 1 dB	± 1.5 dB	± 1.25 dB	± 1.5 dB	± 1 dB
	Over 36MHz	± 0.25 dB	± 0.25 dB	± 0.25 dB	± 0.35 dB	± 0.35 dB	± 0.20 dB	± 0.25 dB	± 0.35 dB	± 0.35 dB	± 0.25 dB
Gain Steps		0.5 ± 0.1 dB	0.5 ± 0.1 dB	1 ± 0.15 dB	1 ± 0.15 dB	1 ± 0.15 dB	0.5 ± 1 dB	0.20 ± 0.1 dB	1 ± 0.15 dB	0.5 ± 0.15 dB	1 ± 0.15 dB
Input Return Loss	Typical	13 dB	16 dB	16 dB	16 dB	16 dB	18 dB	16 dB	16 dB	16 dB	18 dB
	Minimum	9 dB	11 dB	10 dB	10 dB	10 dB	15 dB	12 dB	12 dB	10dB	12 dB
Output Return Loss	Typical	13 dB	13 dB	16 dB	16 dB	13 dB	16 dB	16 dB	16 dB	16 dB	18 dB
	Minimum	9 dB	9 dB	10 dB	10 dB	10 dB	10 dB	12 dB	12 dB	10 dB	12 dB
Slope Control Range		Range: 0 to 7 dB Steps: 1 ± 0.25 dB			-	Range: 0 to 7 dB Steps: 1 ± 0.25 dB	-	Range: 0 to 7 dB Steps: 1 ± 0.25 dB		-	Range: 0 to 6 dB Steps: 1 ± 0.5 dB
Noise Figure	Typical	10 dB	11 dB	10 dB	5 dB	5.5 dB	9 dB	2.8 dB	5.5 dB	5.5 dB	9.5 dB
	Maximum	11.5 dB	12.5 dB	11.5 dB	6.5 dB	7 dB	10.5 dB	4.3 dB	7 dB	7 dB	11.5 dB
1dB GCP	Typical	15 dBm	22 dBm	18 dBm	30 dBm	29 dBm	29 dBm	23.5 dBm	26 dBm	24 dBm	18 dBm
	Minimum	13 dBm	20 dBm	16 dBm	29 dBm	27 dBm	28 dBm	21.5 dBm	24 dBm	22 dBm	16 dBm
OIP3	Typical	27 dBm	35 dBm	38 dBm	41 dBm	39 dBm	40 dBm	35 dBm	38 dBm	36 dBm	38 dBm
	Minimum	24 dBm	32 dBm	35 dBm	38 dBm	36 dBm	37 dBm	32 dBm	35 dBm	33 dBm	35 dBm
OIP2	Typical	43 dBm	45 dBm	49 dBm	N/A	51 dBm	59 dBm	46 dBm	47 dBm	43 dBm	49 dBm
	Minimum	39 dBm	41 dBm	45 dBm	N/A	47 dBm	55 dBm	42 dBm	43 dBm	39 dBm	45 dBm
Isolation		Typical 60 dB / Minimum 50 dB									
Max total RF i/p power		20 dBm	20 dBm	20 dBm	21 dBm	21 dBm	21 dBm	21 dBm	21 dBm	21 dBm	21 dBm

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